

# Electric Actuators



\* For details, refer to page 307 and onward.

Rod Type

Guide Rod Type

**NEW**

- The LEY100 series (750 W specification, AC servo motor) has been added.
- The LECSN-T series (Network card type) has been added.
- The dust-tight/water-jet-proof LEY-X7 series has been added.

**RoHS**

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

## Rod Type LEY Series

Size: 16, 25, 32, 40 ▶ p. 35

Long stroke:

**Max. 500 mm** (LEY32, 40)

Mounting variations

- Direct mounting: 3 directions, Bracket mounting: 3 types
  - Either positioning or pushing control can be selected.
- It is possible to hold the actuator with the rod pushing a workpiece, etc.

Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent): **-X7** ▶ p. 155

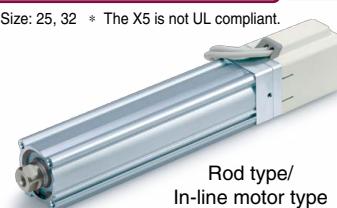
\* Size: 25, 32 \* The X7 is not UL compliant.

Dust-tight/Water-jet-proof (IP65 Equivalent): **-X5** ▶ p. 160

\* Size: 25, 32 \* The X5 is not UL compliant.



Rod type



Rod type/  
In-line motor type

## Guide Rod Type LEYG Series

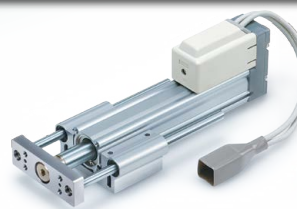
Size: 16, 25, 32, 40 ▶ p. 109

Lateral end load: **5 times more**\*1

\*1 Compared with the rod type, size 25, and 100 mm stroke

Compatible with sliding bearings and ball bushing bearings  
Compatible with moment loads and stoppers (sliding bearings)

- Either positioning or pushing control can be selected.
- It is possible to hold the actuator with the rod pushing a workpiece, etc.



Guide rod type



Guide rod type/  
In-line motor type

## AC Servo Motor

### Rod Type LEY Series

Size: 25, 32, 63, 100

Dust-tight/Water-jet-proof (IP65 Equivalent): **-X5**

▶ pp. 41, 49

- High-output motor (100/200/400/750 W)
- Improved high-speed transfer ability
- High acceleration/deceleration compatible (5000 mm/s<sup>2</sup>)
- Pulse input/CC-Link/SSCNET III types
- EtherCAT®/EtherNet/IP™/PROFINET (Network card type)
- With internal absolute encoder (For the LECSB/C/S)



Rod type

Rod type/  
In-line motor type

**New** Size 100 has been added.

### Guide Rod Type LEYG Series

Size: 25, 32

▶ pp. 115, 120

Guide rod type



Guide rod type/  
In-line motor type

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Controllers/Drivers

▶ p. 210



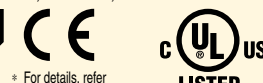
\* For details, refer to page 307 and onward.

- ▶ Step data input type  
**JXC51/61, LECA6 Series** (64 positioning points)
- ▶ EtherCAT®/EtherNet/IP™/PROFINET/DeviceNet™/IO-Link/CC-Link direct input type  
**JXCE1/91/P1/D1/L1/M1 Series**
- ▶ Programless type  
**LECP1 Series** (14 positioning points)
- ▶ Pulse input type  
**LECPA Series**



The LECSB-S, LECS-C-S, and LECS-S-S electric actuator drivers are to be discontinued. Please select one of the substitute drivers ending with a "-T" instead: the LECSB-T, LECS-C-T, and LECS-S-T.

AC Servo Motor Drivers ▶ p. 264



\* For details, refer to page 307 and onward.

\* Only the LECSA and LECS-T are compliant. The LECSN-T is only compliant if the "Without network card" option is selected.

▶ For Absolute Encoders

- Pulse input type  
**LECSB(-T) Series**
- CC-Link direct input type  
**LECS-C(-T) Series**
- Network card type  
**LECSN-T Series**
- SSCNET III type  
**LECSS Series**
- SSCNET III/H type  
**LECSS-T Series**
- MECHATROLINK type  
**LECY□ Series**



▶ For Incremental Encoders

- Pulse input type/  
Positioning type  
**LECSA Series**



# LEY Series



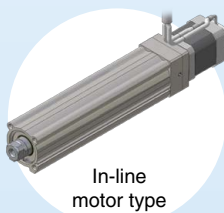
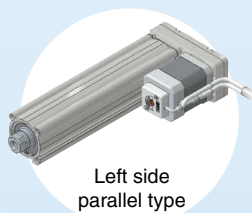
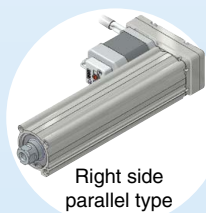
CAT.ES100-83F

## Control of intermediate positioning and pushing is possible.

## High precision with ball screws

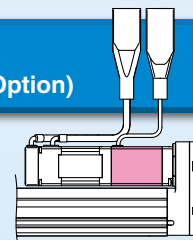
(Positioning repeatability:  $\pm 0.02$  mm)

### Selectable motor mounting position



### Non-magnetizing lock mechanism (Option)

Prevents workpieces from dropping (Holding)



### Motor cover available (Option)



\* The cover has an opening.

### Select from 2 types of actuator cables.

- Standard cable
- Robotic cable (Flexible cable)

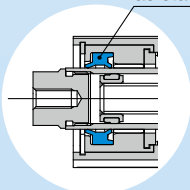
### Manual override screw

For manual piston rod operation  
Adjustment operation is possible when the power is OFF.

### Scraper

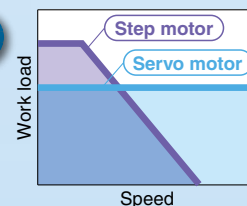
Prevents foreign matter from entering the device

Equipped with scrapers as standard



### Select from 2 types of motors.

- **Step motor (Servo/24 VDC)**  
Ideal for the low-speed transfer of heavy loads and pushing operations
- **Servo motor (24 VDC)**  
Stable at high speeds  
Silent operation



### Mounting groove for auto switches

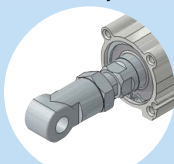
For checking the limit and the intermediate signal  
Applicable to the D-M9□, D-M9□E, and D-M9□W (2-color indicator)

\* The auto switches should be ordered separately. Refer to pages 105 to 107 for details.

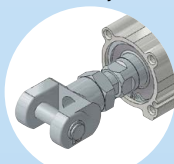
pp. 101, 102

### Rod end brackets

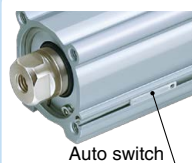
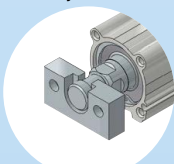
Single knuckle joint



Double knuckle joint



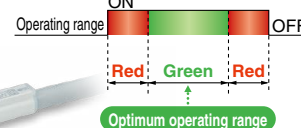
Simple joint



### 2-color indicator solid state auto switch

Accurate setting of the mounting position can be performed without mistakes.

A green light lights up when within the optimum operating range.

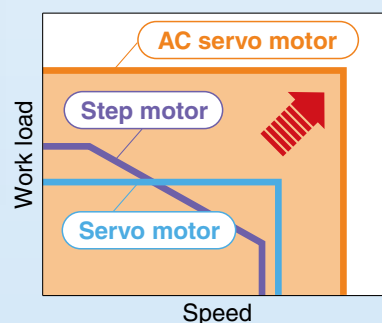
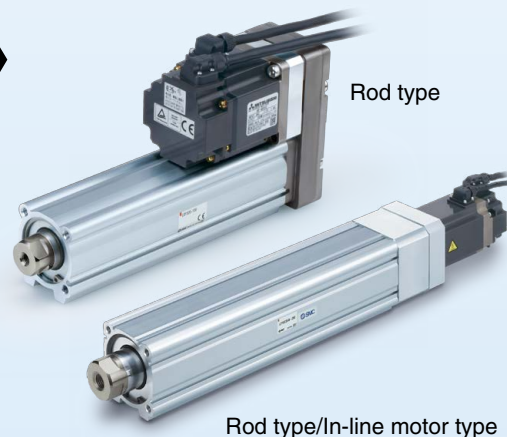




## AC Servo Motor

### Rod Type *LEY* Series/Size: 25, 32, 63, 100 pp. 41, 49

- High-output motor (100/200/400/750 W)
- Improved high-speed transfer ability
- High acceleration/deceleration compatible (5000 mm/s<sup>2</sup>)
- Pulse input/CC-Link direct input/SSCNET III types/  
Network card type
- With internal absolute encoder
  - \* An incremental encoder can also be selected.
- Positioning repeatability:  $\pm 0.01$  mm  
(High-precision type)



## Large bore size: 63, 100

- High-output motor: **400 w** (Size 63)/**750 w** (Size 100)
- Max. work load [kg]

| Mounting position | Size 63  |         | Size 100 |
|-------------------|----------|---------|----------|
|                   | Parallel | In-line | In-line  |
| <b>Horizontal</b> | 200      | 80      | 1200     |
| <b>Vertical</b>   | 115      | 72      | 200      |

- Max. force [N]

| Motor mounting position | Size 63  |         | Size 100 |
|-------------------------|----------|---------|----------|
|                         | Parallel | In-line | In-line  |
| Parallel                | 3343     | —       | —        |
| In-line                 | 1910     | 12000   | —        |

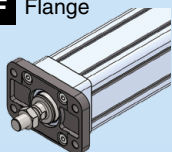
- Max. speed\*<sup>1</sup>

| Size | Speed [mm/s]       |
|------|--------------------|
| 63   | 1000* <sup>1</sup> |
| 100  | 500* <sup>1</sup>  |

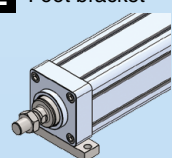
\*<sup>1</sup> 500 mm stroke or less

- The flange mounting pitch is based on ISO 15552. (Size 100)
- The ISO cylinder (C96  $\phi 80$ ) and flange mounting bracket are now standardized. (Size 100)

#### F Flange

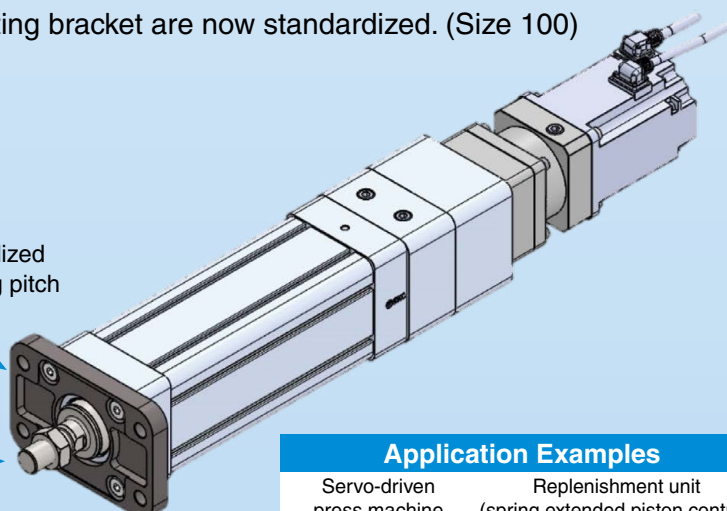


#### L Foot bracket



Standardized mounting pitch

Same standardized rod end as the ISO cylinder



Rod clevis



Ball joint



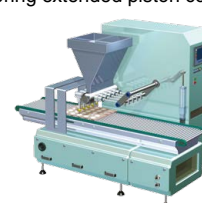
Floating joint

#### Application Examples

Servo-driven press machine



Replenishment unit (spring extended piston control)



# Rod Type *LEY* Series/Guide Rod Type *LEYG* Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Guide Rod Type *LEYG* Series/Size: 16, 25, 32, 40 p. 109

## Compact, integrated guide rods Lateral load resistance and high non-rotating accuracy

Compatible with sliding bearings and ball bushing bearings

### •Sliding bearings

Suitable for lateral load applications such as when using a stopper where impact is applied

### •Ball bushing bearings

Smooth operation suitable for pushers and lifters

## Improved rigidity

Lateral end load: **5 times more**\*1

\*1 Compared with the rod type, size 25, and 100 mm stroke

Top side parallel motor type

In-line motor type

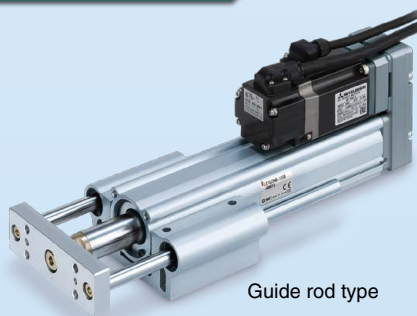
Non-rotating accuracy improved by using two guide rods

| Bore size [mm]        | 16               | 25 | 32               | 40 |
|-----------------------|------------------|----|------------------|----|
| Sliding bearings      | $\pm 0.06^\circ$ |    | $\pm 0.05^\circ$ |    |
| Ball bushing bearings | $\pm 0.05^\circ$ |    | $\pm 0.04^\circ$ |    |

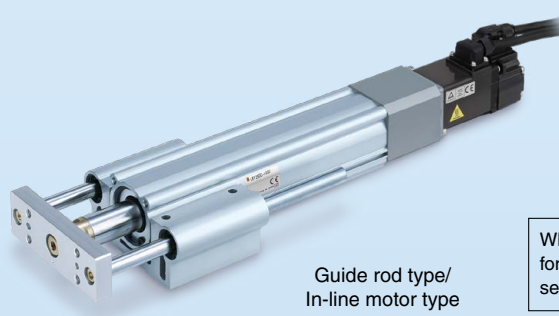
When the cylinder is retracted (initial value), the non-rotating accuracy without a load and without deflection of the guide rods will be below the values shown in the table above.

AC Servo Motor

Guide Rod Type *LEYG* Series/Size: 25, 32 pp.115, 120



Guide rod type

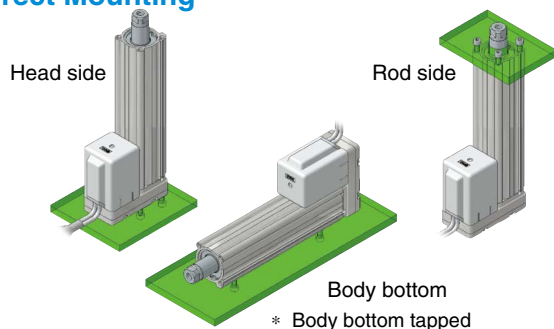


Guide rod type/  
In-line motor type

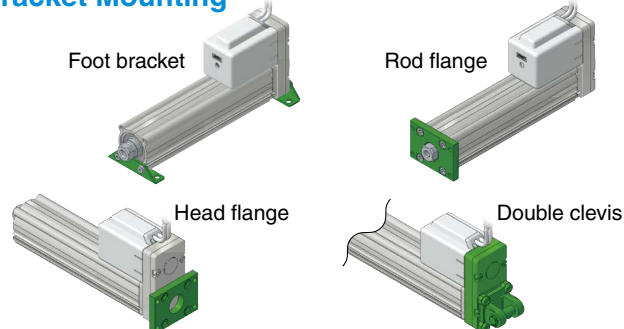
When using auto switches for the guide rod type *LEYG* series, refer to page 206.

## Mounting Variations

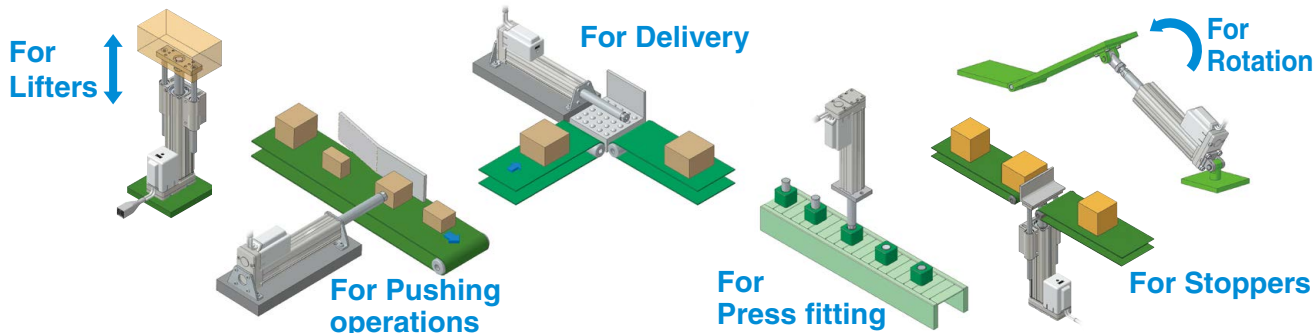
### Direct Mounting



### Bracket Mounting



## Application Examples



## Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

## LEY-X7 Series

\* Testing of IP65 equivalent has also been carried out.

### Scraper

### Lube-retainer

Retains grease oil film

### Seal connector

Prevents dust and water droplets from entering between the cable and motor cover

### Aluminum cover

Protects the motor

### Grease supply holes

### Vent hole

Reduces internal pressure fluctuations in order to prevent dust and water droplets from entering the device

\* Be sure to attach tubing.

### Mounting groove for auto switches

Water-resistant type

For checking the limit and the intermediate signal

\* Order the water-resistant 2-color indicator solid state auto switch separately.

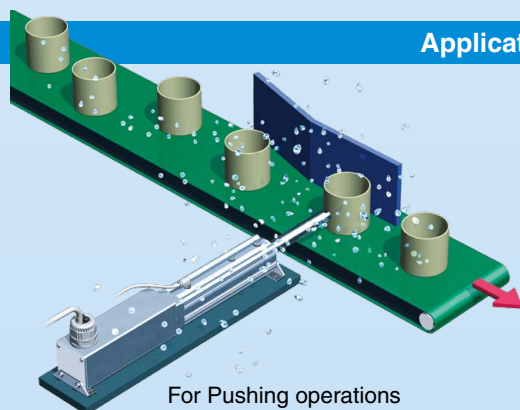
### Tubing

\* Order the tubing separately.

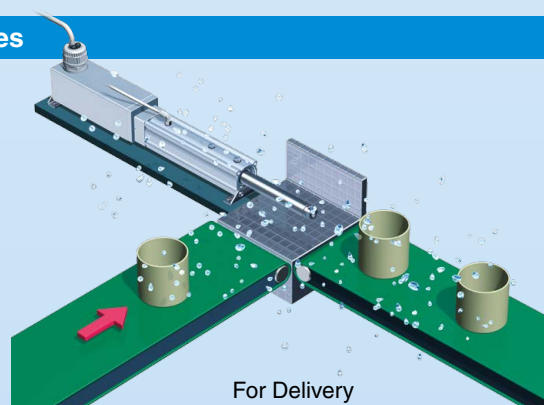
## ● Max. stroke: 500 mm\*1

\*1 For sizes 32 and 40

## Application Examples



For Pushing operations



For Delivery

## Variations

| Series                                        | Enclosure                           | Size                                              |                | Motor mounting position                                                          |
|-----------------------------------------------|-------------------------------------|---------------------------------------------------|----------------|----------------------------------------------------------------------------------|
|                                               |                                     | Step motor (Servo/24 VDC)<br>Servo motor (24 VDC) | AC servo motor |                                                                                  |
| LEY-X7 <b>p. 155</b>                          | IP65 equivalent/<br>IP67 equivalent | 25<br>32<br>40                                    | —              | In-line                                                                          |
| LEY-X5 <b>p. 160</b><br>LEY63-□P <b>p. 79</b> | IP65 equivalent                     | 25<br>32                                          | 25<br>32<br>63 | Top side parallel,<br>Right side parallel*1,<br>Left side parallel*1,<br>In-line |

\*1 Size 63 only



# Step Data Input Type **JXC51/61, LECA6 Series** pp. 211, 218

**Simple setting allows for immediate use!**

◎ **“Easy Mode”** for simple setting

For immediate use, select “Easy Mode.”

**New**

Step Motor  
(Servo/24 VDC)  
**JXC51/61**

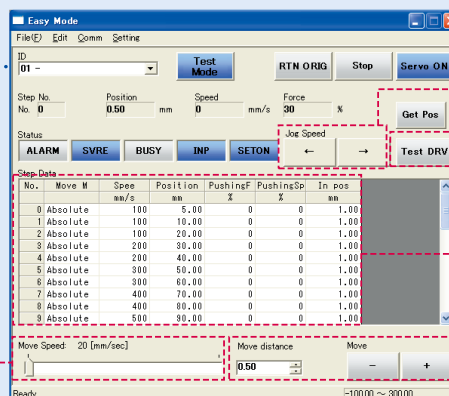
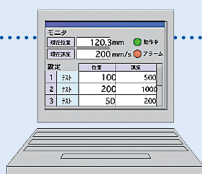


Servo motor  
(24 VDC)  
**LECA6**



## <When a PC is used> Controller setting software

- Step data setting, test drive, jogging, and move for the constant rate can be set and operated on one screen.



Setting of jog and speed of the constant rate

Jogging

Start testing

Step data setting

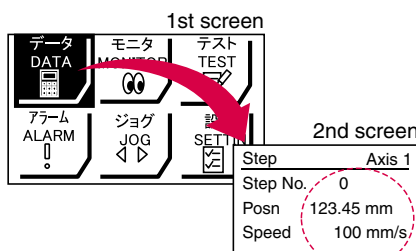
Move for the constant rate

## <When a TB (teaching box) is used>

- The simple screen without scrolling promotes ease of setting and operation.
- Choose an icon from the first screen to select a function.
- Set the step data and check the monitor on the second screen.

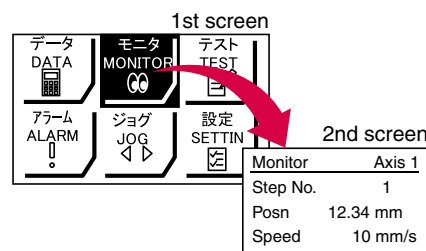


### Example of setting the step data



After entering the values, they can be registered by pressing “SET.”

### Example of checking the operation status



The operation status can be checked.

## Teaching box screen

- Data can be set by inputting only the position and speed. (Other conditions are preset.)

| Step     | Axis 1   |
|----------|----------|
| Step No. | 0        |
| Posn     | 50.00 mm |
| Speed    | 200 mm/s |



| Step     | Axis 1   |
|----------|----------|
| Step No. | 1        |
| Posn     | 80.00 mm |
| Speed    | 100 mm/s |

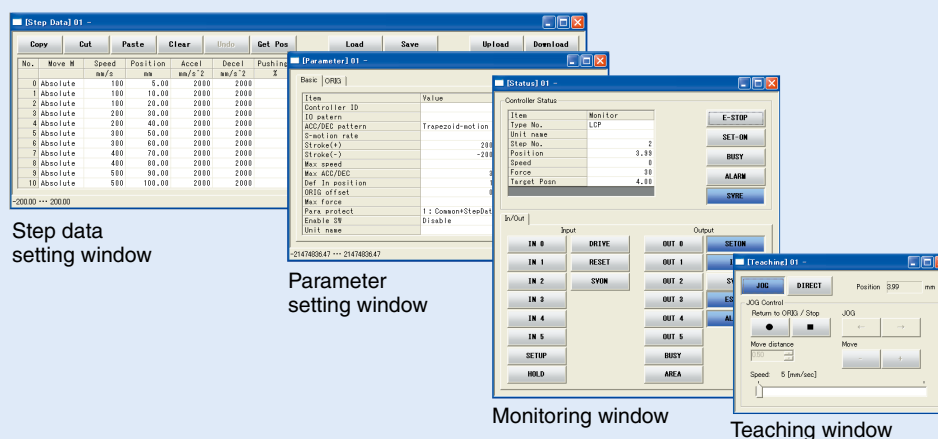
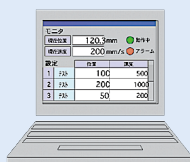
## ◎ “Normal Mode” for detailed setting

Select “Normal Mode” when detailed setting is required.

- Step data can be set in detail.
- Parameters can be set.
- Signals and terminal status can be monitored.
- JOG and constant rate movement, return to origin, test drive, and testing of forced output can be performed.

### <When a PC is used> Controller setting software

- Step data setting, parameter setting, monitoring, teaching, etc., are displayed in different windows.

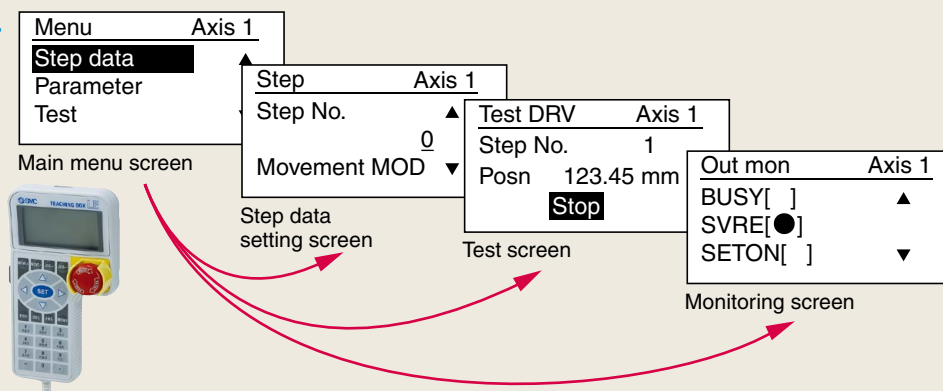


### <When a TB (teaching box) is used>

- Multiple step data can be stored in the teaching box and transferred to the controller.
- Continuous test drive by up to 5 step data

### Teaching box screen

- Each function (step data setting, test drive, monitoring, etc.) can be selected from the main menu.

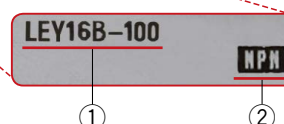
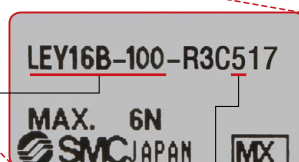
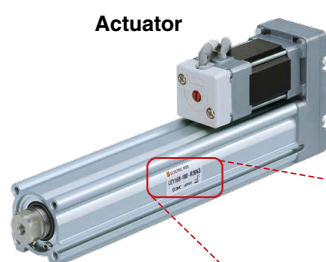


## The actuator and controller are provided as a set. (They can be ordered separately as well.)

Confirm that the combination of the controller and actuator is correct.

<Check the following before use.>

- ① Check the actuator label for the model number. This number should match that of the controller.
- ② Check that the Parallel I/O configuration matches (NPN or PNP).



## Fieldbus Network

### Fieldbus-compatible Gateway (GW) Unit

#### **LEC-G Series** p.225

- Conversion unit for Fieldbus network and LEC serial communication

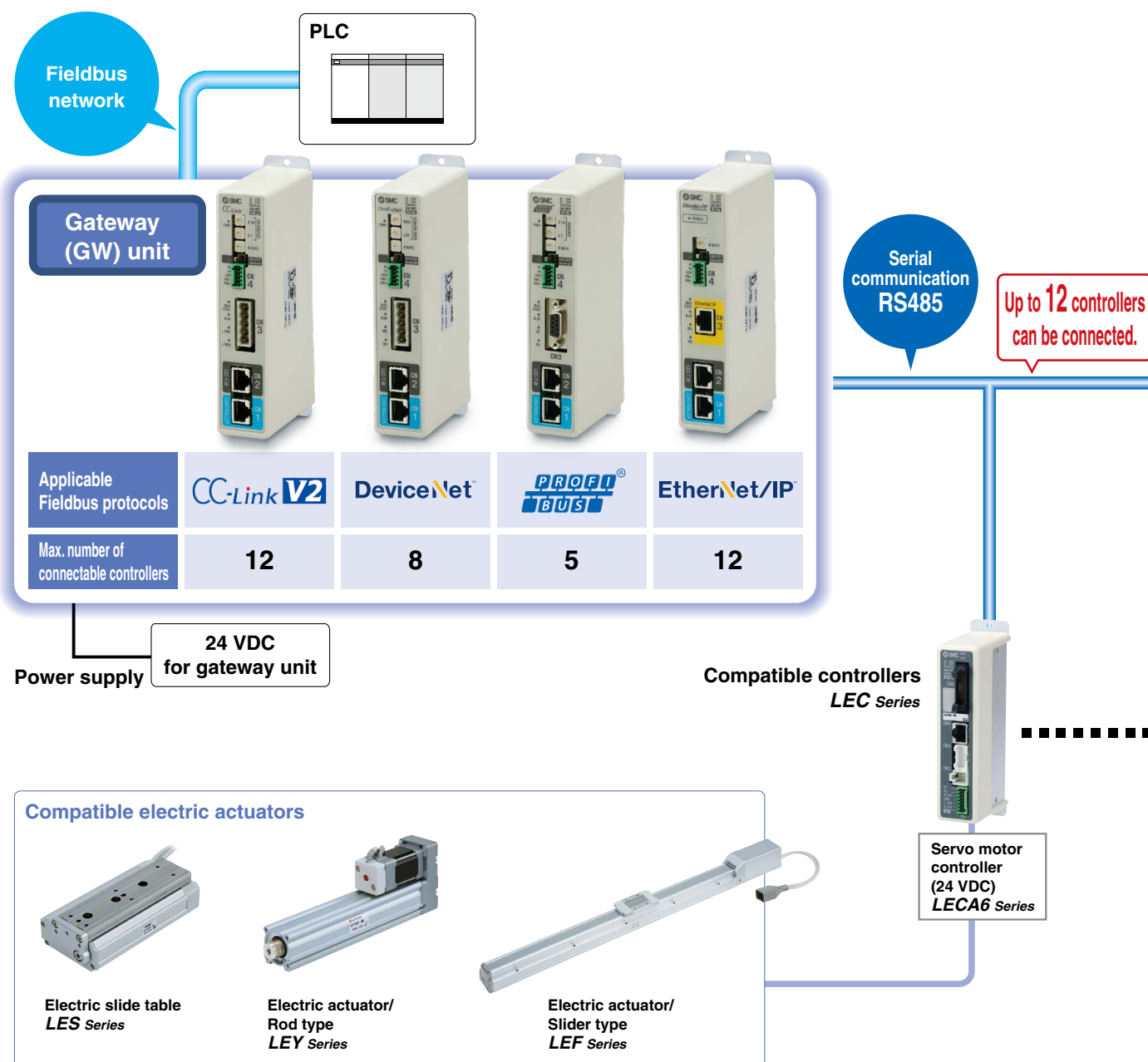
Applicable Fieldbus protocols: **CC-Link V2** **DeviceNet** **PROFIBUS** **EtherNet/IP**

- Two methods of operation

Step data input: Operate using preset step data in the controller.

Numerical data input: The actuator operates using values such as position and speed from the PLC.

- Values such as position and speed can be checked on the PLC.





## Programless Type **LECP1 Series** p. 229

### No programming required!

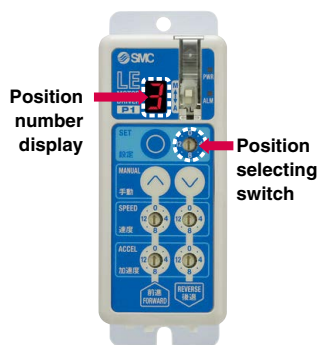
Allows for the setting up of electric actuator operation without using a PC or teaching box



Step motor  
(Servo/24 VDC)  
**LECP1**

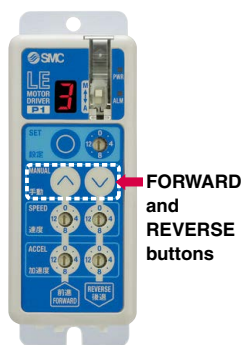
#### ① Setting the position number

Set a registered number  
for the stop position.  
Max. 14 points



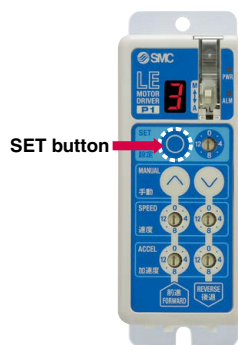
#### ② Setting the stop position

Move the actuator to the desired  
stop position using the FORWARD  
and REVERSE buttons.

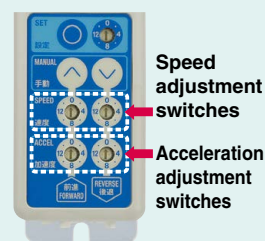


#### ③ Registration

Register the stop  
position using the  
SET button.

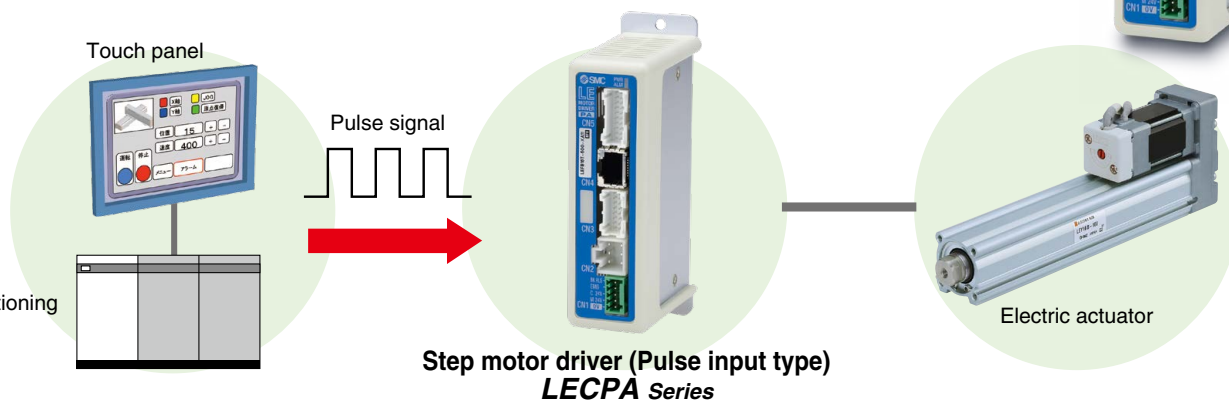


#### Speed/Acceleration 16-level adjustment



## Pulse Input Type **LECPA Series** p. 235

- This driver uses pulse signals to allow positioning at any position.  
The actuator can be controlled from the customers' positioning unit.



- **Return-to-origin command signal**  
Enables automatic return-to-origin action
- **With force limit function (Pushing force/Gripping force operation available)**  
Pushing force/Positioning operation is possible by switching signals.

## Function

| Item                            | Step data input type<br>JXC51/61/LECA6                                                                                                                                                                      | Programless type<br>LECP1                                                                     | Pulse input type<br>LECPA                                                                                                        |
|---------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Step data and parameter setting | <ul style="list-style-type: none"> <li>Input from controller setting software (PC)</li> <li>Input from teaching box</li> </ul>                                                                              | <ul style="list-style-type: none"> <li>Selected using controller operation buttons</li> </ul> | <ul style="list-style-type: none"> <li>Input from controller setting software (PC)</li> <li>Input from teaching box</li> </ul>   |
| Step data "position" setting    | <ul style="list-style-type: none"> <li>Numerical value input from controller setting software (PC) or teaching box</li> <li>Input numerical value</li> <li>Direct teaching</li> <li>JOG teaching</li> </ul> | <ul style="list-style-type: none"> <li>Direct teaching</li> <li>JOG teaching</li> </ul>       | <ul style="list-style-type: none"> <li>No "Position" setting required</li> <li>Position and speed set by pulse signal</li> </ul> |
| Number of step data             | 64 points                                                                                                                                                                                                   | 14 points                                                                                     | —                                                                                                                                |
| Operation command (I/O signal)  | Step No. [IN <sup>+</sup> ] input ⇒ [DRIVE] input                                                                                                                                                           | Step No. [IN <sup>+</sup> ] input only                                                        | Pulse signal                                                                                                                     |
| Completion signal               | [INP] output                                                                                                                                                                                                | [OUT <sup>+</sup> ] output                                                                    | [INP] output                                                                                                                     |

## Setting Items

TB: Teaching box PC: Controller setting software

| Item                           | Contents                  | Easy Mode                                                                               |    | Normal Mode | Step data input type<br>JXC51/61/LECA6 | Pulse input type<br>LECPA                                                              | Programless type<br>LECP1 <sup>*1</sup>                                                |
|--------------------------------|---------------------------|-----------------------------------------------------------------------------------------|----|-------------|----------------------------------------|----------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------|
|                                |                           | TB                                                                                      | PC | TB/PC       |                                        |                                                                                        |                                                                                        |
| Step data setting<br>(Excerpt) | Movement MOD              | Selection of "absolute position" and "relative position"                                | △  | ●           | ●                                      | Set at ABS/INC                                                                         | Fixed value (ABS)                                                                      |
|                                | Speed                     | Transfer speed                                                                          | ●  | ●           | ●                                      | Set in units of 1 mm/s                                                                 | Select from 16 levels                                                                  |
|                                | Position                  | [Position]: Target position<br>[Pushing]: Pushing start position                        | ●  | ●           | ●                                      | Set in units of 0.01 mm                                                                | No setting required<br>Direct teaching<br>JOG teaching                                 |
|                                | Acceleration/Deceleration | Acceleration/deceleration during movement                                               | ●  | ●           | ●                                      | Set in units of 1 mm/s <sup>2</sup>                                                    | Select from 16 levels                                                                  |
|                                | Pushing force             | Rate of force during pushing operation                                                  | ●  | ●           | ●                                      | Set in units of 1%                                                                     | Set in units of 1%                                                                     |
|                                | Trigger LV                | Target force during pushing operation                                                   | △  | ●           | ●                                      | Set in units of 1%                                                                     | Set in units of 1%                                                                     |
|                                | Pushing speed             | Speed during pushing operation                                                          | △  | ●           | ●                                      | Set in units of 1 mm/s                                                                 | Set in units of 1 mm/s                                                                 |
|                                | Moving force              | Force during positioning operation                                                      | △  | ●           | ●                                      | Set to 100%                                                                            | Set to (Different values for each actuator) %                                          |
|                                | Area output               | Conditions for area output signal to turn ON                                            | △  | ●           | ●                                      | Set in units of 0.01 mm                                                                | Set in units of 0.01 mm                                                                |
| Parameter setting<br>(Excerpt) | In position               | [Position]: Width to the target position<br>[Pushing]: How much it moves during pushing | △  | ●           | ●                                      | Set to 0.5 mm or more<br>(Units: 0.01 mm)                                              | Set to (Different values for each actuator) or more<br>(Units: 0.01 mm)                |
|                                | Stroke (+)                | + side position limit                                                                   | ×  | ×           | ●                                      | Set in units of 0.01 mm                                                                | Set in units of 0.01 mm                                                                |
|                                | Stroke (-)                | - side position limit                                                                   | ×  | ×           | ●                                      | Set in units of 0.01 mm                                                                | Set in units of 0.01 mm                                                                |
|                                | ORIG direction            | Direction of the return to origin can be set.                                           | ×  | ×           | ●                                      | Compatible                                                                             | Compatible                                                                             |
|                                | ORIG speed                | Speed during return to origin                                                           | ×  | ×           | ●                                      | Set in units of 1 mm/s                                                                 | Set in units of 1 mm/s                                                                 |
| Test                           | ORIG ACC                  | Acceleration during return to origin                                                    | ×  | ×           | ●                                      | Set in units of 1 mm/s <sup>2</sup>                                                    | Set in units of 1 mm/s <sup>2</sup>                                                    |
|                                | JOG                       |                                                                                         | ●  | ●           | ●                                      | Continuous operation at the set speed can be tested while the switch is being pressed. | Continuous operation at the set speed can be tested while the switch is being pressed. |
|                                | MOVE                      |                                                                                         | ×  | ●           | ●                                      | Operation at the set distance and speed from the current position can be tested.       | Operation at the set distance and speed from the current position can be tested.       |
|                                | Return to ORIG            |                                                                                         | ●  | ●           | ●                                      | Compatible                                                                             | Compatible                                                                             |
|                                | Test drive                | Operation of the specified step data                                                    | ●  | ●           | (Continuous operation)                 | Compatible                                                                             | Not compatible                                                                         |
| Monitor                        | Forced output             | ON/OFF of the output terminal can be tested.                                            | ×  | ×           | ●                                      | Compatible                                                                             | Compatible                                                                             |
|                                | DRV mon                   | Current position, speed, force, and the specified step data can be monitored.           | ●  | ●           | ●                                      | Compatible                                                                             | Compatible                                                                             |
| ALM                            | In/Out mon                | Current ON/OFF status of the input and output terminal can be monitored.                | ×  | ×           | ●                                      | Compatible                                                                             | Compatible                                                                             |
|                                | Status                    | Alarm currently being generated can be confirmed.                                       | ●  | ●           | ●                                      | Compatible                                                                             | Compatible                                                                             |
| File                           | ALM Log record            | Alarms generated in the past can be confirmed.                                          | ×  | ×           | ●                                      | Compatible                                                                             | Compatible                                                                             |
|                                | Save/Load                 | Step data and parameters can be saved, forwarded, and deleted.                          | ×  | ×           | ●                                      | Compatible                                                                             | Compatible                                                                             |
| Other                          | Language                  | Can be changed to Japanese or English                                                   | ●  | ●           | ●                                      | Compatible                                                                             | Compatible                                                                             |

△: Can be set from TB Ver. 2.\*\* (The version information is displayed on the initial screen.)

\*1 The LECP1 programless type cannot be used with the teaching box and controller setting kit.

## Fieldbus Network

# EtherCAT®/EtherNet/IP™/PROFINET/ DeviceNet™/IO-Link/CC-Link Direct Input Type Step Motor Controller/JXC□ Series p. 241

EtherCAT®

EtherNet/IP™

PROFINET®

DeviceNet™

IO-Link

CC-Link



### Two types of operation command

**Step no. defined operation:** Operate using the preset step data in the controller.

**Numerical data defined operation:** The actuator operates using values such as position and speed from the PLC.

### Numerical monitoring available

Numerical information, such as the current speed, current position, and alarm codes, can be monitored on the PLC.

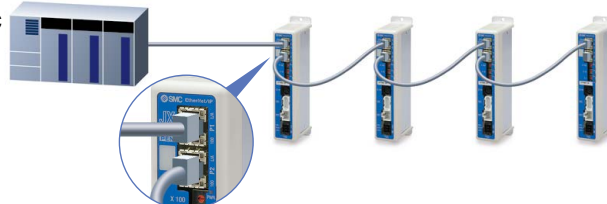
### Transition wiring of communication cables

Two communication ports are provided.

\* For the DeviceNet™ type, transition wiring is possible using a branch connector.

\* 1 to 1 in the case of IO-Link

PLC



## Application

Communication protocols

EtherCAT®

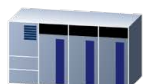
EtherNet/IP™

PROFINET®

DeviceNet™

IO-Link

CC-Link

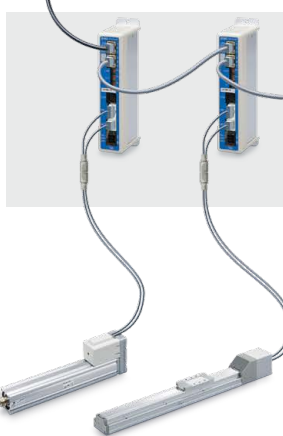


PLC

Both air and electric systems can be established under the same protocol.

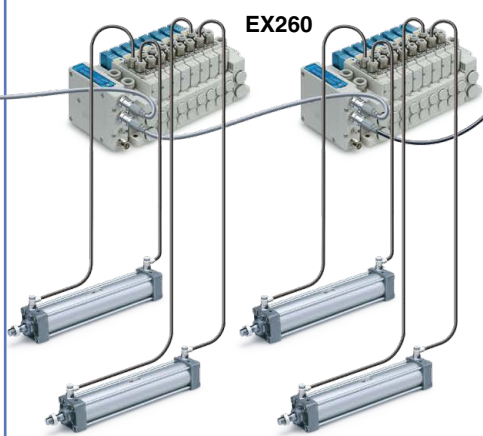
Can be additionally installed in an existing network

### Electric Actuators



### Air Cylinders

EX260



### IO-Link Communication

IO-Link master



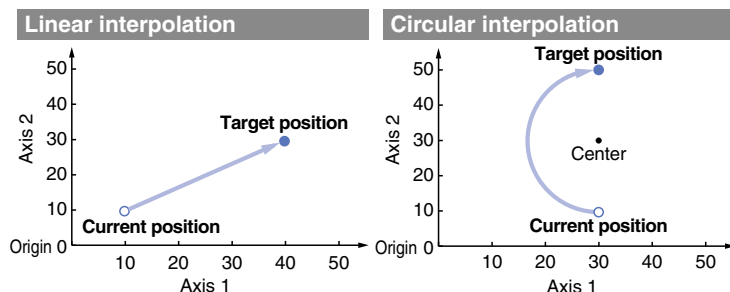
### <Applicable Electric Actuators>

Slider Type  
LEF SeriesLow Profile Slider Type  
LEM SeriesGuide Rod Slider  
LEL SeriesRod Type  
LEY/LEYG SeriesSlide Table  
LES/LESH SeriesMiniature Type  
LEPY/LEPS SeriesGripper  
LEH SeriesRotary Table  
LER Series



## Multi-Axis Step Motor Controller

- Speed tuning control<sup>\*1</sup>  
(3 Axes: JXC92 4 Axes: JXC73/83/93)
- Linear/circular interpolation

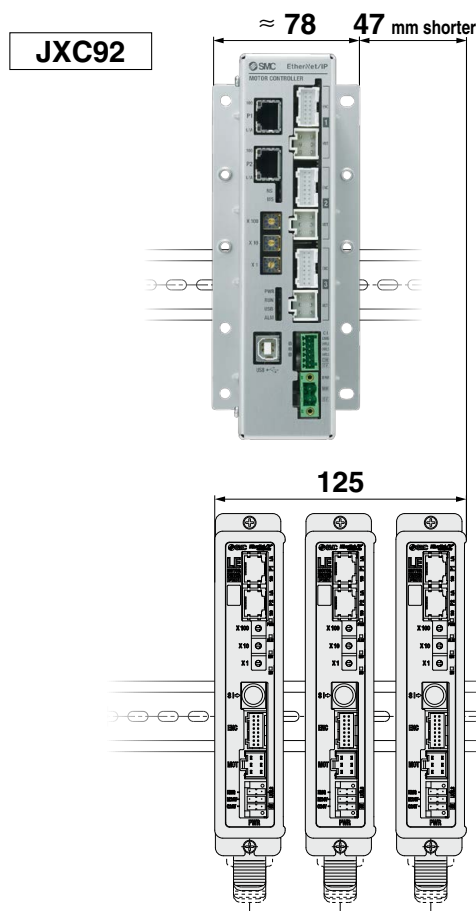


- Positioning/pushing operation
- Step data input  
(Max. 2048 points)
- Space saving, reduced wiring
- Absolute/relative position coordinate instructions

<sup>\*1</sup> This controls the speed of the following axis when the speed of the primary axis drops due to the effects of an external force and when a speed difference with the following axis occurs. This control is not for synchronizing the position of the primary axis and following axis.

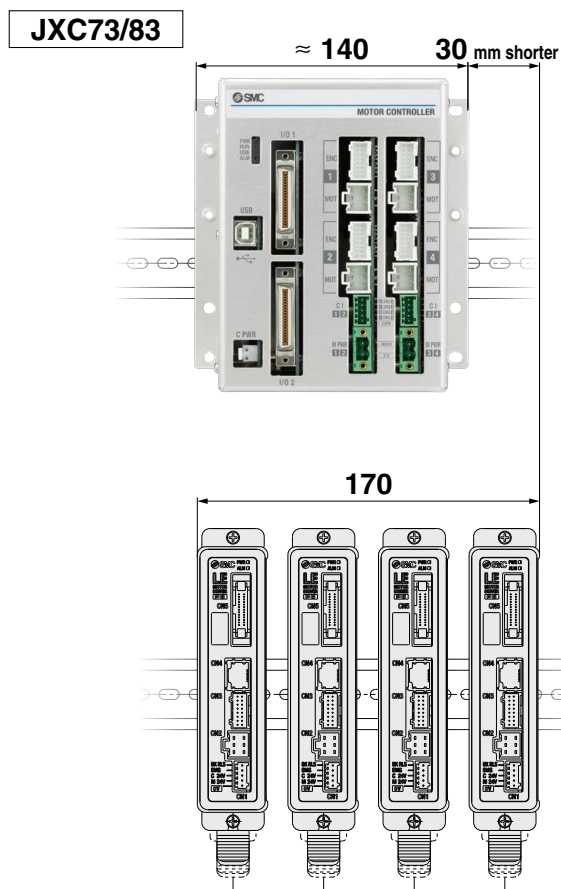
### For 3 Axes **JXC92 Series** p. 247

- EtherNet/IP<sup>™</sup> Type
- Width: Approx. **38%** reduction



### For 4 Axes **JXC73/83/93 Series** p. 249

- Parallel I/O/  
EtherNet/IP<sup>™</sup> Type
- Width: Approx. **18%** reduction



\* For LEC□, size 25 or larger

## JXC92 Series

## Step Data Input: Max. 2048 points



## For 3 Axes 3-axis operation can be set collectively in one step.

| Step | Axis     | Movement mode | Speed<br>mm/s | Position<br>mm | Acceleration<br>mm/s <sup>2</sup> | Deceleration<br>mm/s <sup>2</sup> | Pushing force | Trigger LV | Pushing speed | Moving force | Area 1<br>mm | Area 2<br>mm | In position<br>mm | Comments |
|------|----------|---------------|---------------|----------------|-----------------------------------|-----------------------------------|---------------|------------|---------------|--------------|--------------|--------------|-------------------|----------|
| 0    | Axis 1   | ABS           | 500           | 100.00         | 3000                              | 3000                              | 0             | 85.0       | 50            | 100.0        | 10.0         | 30.0         | 0.5               |          |
|      | Axis 2   | ABS           | 500           | 100.00         | 3000                              | 3000                              | 0             | 85.0       | 50            | 100.0        | 10.0         | 30.0         | 0.5               |          |
|      | Axis 3   | ABS           | 500           | 100.00         | 3000                              | 3000                              | 0             | 85.0       | 50            | 100.0        | 10.0         | 30.0         | 0.5               |          |
| 1    | Axis 1   | INC           | 500           | 200.00         | 3000                              | 3000                              | 0             | 85.0       | 50            | 100.0        | 0            | 0            | 0.5               |          |
|      | Axis 2   | INC           | 500           | 200.00         | 3000                              | 3000                              | 0             | 85.0       | 50            | 100.0        | 0            | 0            | 0.5               |          |
|      | Axis 3   | INC           | 500           | 200.00         | 3000                              | 3000                              | 0             | 85.0       | 50            | 100.0        | 0            | 0            | 0.5               |          |
| 2046 | Axis 1   | SYN-I         | 500           | 100.00         | 3000                              | 3000                              | 0             | 0          | 0             | 100.0        | 0            | 0            | 0.5               |          |
|      | Axis 2   | SYN-I         | 0             | 0.00           | 0                                 | 0                                 | 0             | 0          | 0             | 100.0        | 0            | 0            | 0.5               |          |
|      | Axis 3   | SYN-I         | 0             | 0.00           | 0                                 | 0                                 | 0             | 0          | 0             | 100.0        | 0            | 0            | 0.5               |          |
| 2047 | Axis 1   | CIR-R         | 500           | 0.00           | 3000                              | 3000                              | 0             | 0          | 0             | 100.0        | 0            | 0            | 0.5               |          |
|      | Axis 2   | CIR-R         | 0             | 50.00          | 0                                 | 0                                 | 0             | 0          | 0             | 100.0        | 0            | 0            | 0.5               |          |
|      | Axis 3*1 |               | 0             | 0.00           | 0                                 | 0                                 | 0             | 0          | 0             | 100.0        | 0            | 0            | 0.5               |          |
|      | Axis 4*1 |               | 0             | 25.00          | 0                                 | 0                                 | 0             | 0          | 0             | 100.0        | 0            | 0            | 0.5               |          |

\*1 When circular interpolation (CIR-R, CIR-L, CIR-3) is selected in the movement mode, input the X and Y coordinates in the rotation center position or input the X and Y coordinates in the passing position.

| Movement mode | Pushing operation | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|---------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blank         | ×                 | Invalid data (Invalid process)                                                                                                                                                                                                                                                                                                                                                                                                                          |
| ABS           | ○                 | Moves to the absolute coordinate position based on the origin of the actuator                                                                                                                                                                                                                                                                                                                                                                           |
| INC           | ○                 | Moves to the relative coordinate position based on the current position                                                                                                                                                                                                                                                                                                                                                                                 |
| LIN-A         | ×                 | Moves to the absolute coordinate position based on the origin of the actuator by linear interpolation                                                                                                                                                                                                                                                                                                                                                   |
| LIN-I         | ×                 | Moves to the relative coordinate position based on the current position by linear interpolation                                                                                                                                                                                                                                                                                                                                                         |
| CIR-R*2       | ×                 | With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the clockwise direction by circular interpolation. The target position and rotation center position are specified according to the relative coordinates from the current position. The position data is assigned as follows.<br>Axis 1: Target position X<br>Axis 2: Target position Y<br>Axis 3*1: Rotation center position X<br>Axis 4*1: Rotation center position Y         |
| CIR-L*2       | ×                 | With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the counter-clockwise direction by circular interpolation. The target position and rotation center position are specified according to the relative coordinates from the current position. The position data is assigned as follows.<br>Axis 1: Target position X<br>Axis 2: Target position Y<br>Axis 3*1: Rotation center position X<br>Axis 4*1: Rotation center position Y |
| SYN-I         | ×                 | Moves to the relative coordinate position based on the current position by speed tuning control*3                                                                                                                                                                                                                                                                                                                                                       |
| CIR-3*2       | ×                 | With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves based on the three specified points by circular interpolation. The target position and passing position are specified according to the relative coordinates from the current position. The position data is assigned as follows.<br>Axis 1: Target position X<br>Axis 2: Target position Y<br>Axis 3*1: Passing position X<br>Axis 4*1: Passing position Y                        |

\*2 Performs a circular operation on a plane using Axis 1 and Axis 2

\*3 This controls the speed of the following axis when the speed of the primary axis drops due to the effects of an external force and when a speed difference with the following axis occurs. This control is not for synchronizing the position of the primary axis and following axis.

## JXC73/83/93 Series

Step Data Input: Max. 2048 points



**For 4 Axes** 4-axis operation can be set collectively in one step.

| Step | Axis   | Movement mode | Speed | Position | Acceleration      | Deceleration      | Positioning/ Pushing | Area 1 | Area 2 | In position | Comments |
|------|--------|---------------|-------|----------|-------------------|-------------------|----------------------|--------|--------|-------------|----------|
|      |        |               | mm/s  | mm       | mm/s <sup>2</sup> | mm/s <sup>2</sup> |                      | mm     | mm     | mm          |          |
| 0    | Axis 1 | ABS           | 100   | 200.00   | 1000              | 1000              | 0                    | 6.0    | 12.0   | 0.5         |          |
|      | Axis 2 | ABS           | 50    | 100.00   | 1000              | 1000              | 0                    | 6.0    | 12.0   | 0.5         |          |
|      | Axis 3 | ABS           | 50    | 100.00   | 1000              | 1000              | 0                    | 6.0    | 12.0   | 0.5         |          |
|      | Axis 4 | ABS           | 50    | 100.00   | 1000              | 1000              | 0                    | 6.0    | 12.0   | 0.5         |          |
| 1    | Axis 1 | INC           | 500   | 250.00   | 1000              | 1000              | 1                    | 0      | 0      | 20.0        |          |
|      | Axis 2 | INC           | 500   | 250.00   | 1000              | 1000              | 1                    | 0      | 0      | 20.0        |          |
|      | Axis 3 | INC           | 500   | 250.00   | 1000              | 1000              | 1                    | 0      | 0      | 20.0        |          |
|      | Axis 4 | INC           | 500   | 250.00   | 1000              | 1000              | 1                    | 0      | 0      | 20.0        |          |
| ...  | ...    | ...           | ...   | ...      | ...               | ...               | ...                  | ...    | ...    | ...         |          |
| 2046 | Axis 4 | ABS           | 200   | 700      | 500               | 500               | 0                    | 0      | 0      | 0.5         |          |
| 2047 | Axis 1 | ABS           | 500   | 0.00     | 3000              | 3000              | 0                    | 0      | 0      | 0.5         |          |
|      | Axis 2 | ABS           | 500   | 0.00     | 3000              | 3000              | 0                    | 0      | 0      | 0.5         |          |
|      | Axis 3 | ABS           | 500   | 0.00     | 3000              | 3000              | 0                    | 0      | 0      | 0.5         |          |
|      | Axis 4 | ABS           | 500   | 0.00     | 3000              | 3000              | 0                    | 0      | 0      | 0.5         |          |

| Movement mode | Pushing operation | Details                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Blank         | ×                 | Invalid data (Invalid process)                                                                                                                                                                                                                                                                                                                                                                                                                      |
| ABS           | ○                 | Moves to the absolute coordinate position based on the origin of the actuator                                                                                                                                                                                                                                                                                                                                                                       |
| INC           | ○                 | Moves to the relative coordinate position based on the current position                                                                                                                                                                                                                                                                                                                                                                             |
| LIN-A         | ×                 | Moves to the absolute coordinate position based on the origin of the actuator by linear interpolation                                                                                                                                                                                                                                                                                                                                               |
| LIN-I         | ×                 | Moves to the relative coordinate position based on the current position by linear interpolation                                                                                                                                                                                                                                                                                                                                                     |
| CIR-R*1       | ×                 | With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the clockwise direction by circular interpolation. The target position and rotation center position are specified according to the relative coordinates from the current position. The position data is assigned as follows.<br>Axis 1: Target position X<br>Axis 2: Target position Y<br>Axis 3: Rotation center position X<br>Axis 4: Rotation center position Y         |
| CIR-L*1       | ×                 | With Axis 1 assigned to the X-axis and Axis 2 to the Y-axis, it moves in the counter-clockwise direction by circular interpolation. The target position and rotation center position are specified according to the relative coordinates from the current position. The position data is assigned as follows.<br>Axis 1: Target position X<br>Axis 2: Target position Y<br>Axis 3: Rotation center position X<br>Axis 4: Rotation center position Y |
| SYN-I         | ×                 | Moves to the relative coordinate position based on the current position by speed tuning control*2                                                                                                                                                                                                                                                                                                                                                   |

\*1 Performs a circular operation on a plane using Axis 1 and Axis 2

\*2 This controls the speed of the following axis when the speed of the primary axis drops due to the effects of an external force and when a speed difference with the following axis occurs. This control is not for synchronizing the position of the primary axis and following axis.

## Controller Setting Software (Connection with a PC)

For 3 Axes JXC92 For 4 Axes JXC73/83/93

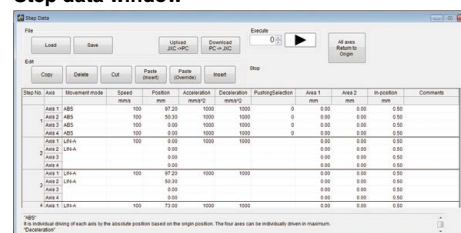
### Easy file management

|          |                                              |
|----------|----------------------------------------------|
| Load     | The step data is loaded from the file.       |
| Save     | The step data is saved in a file.            |
| Upload   | The step data is loaded from the controller. |
| Download | The step data is written in the controller.  |

### Abundant edit functions

|                   |                                                                                   |
|-------------------|-----------------------------------------------------------------------------------|
| Copy              | The selected step data is copied to the clipboard.                                |
| Delete            | The selected step data is deleted.                                                |
| Cut               | The selected step data is cut.                                                    |
| Paste (Insert)    | The step data copied to the clipboard is inserted into the cursor's position.     |
| Paste (Overwrite) | The step data copied to the clipboard overwrites the data at the cursor position. |
| Insert            | A blank line is inserted in the selected step data line.                          |

### Step data window

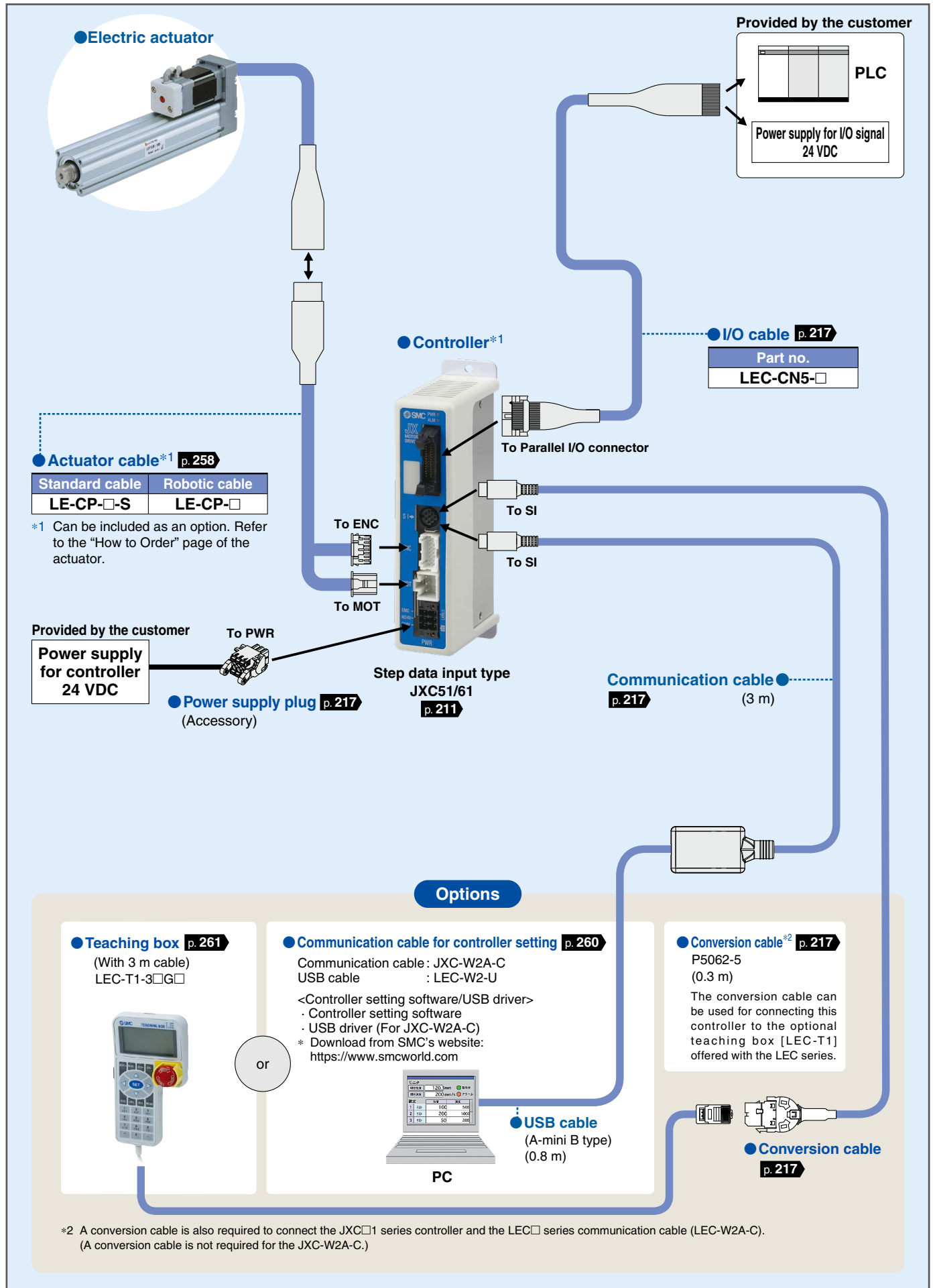


### Operation confirmation of entered step data

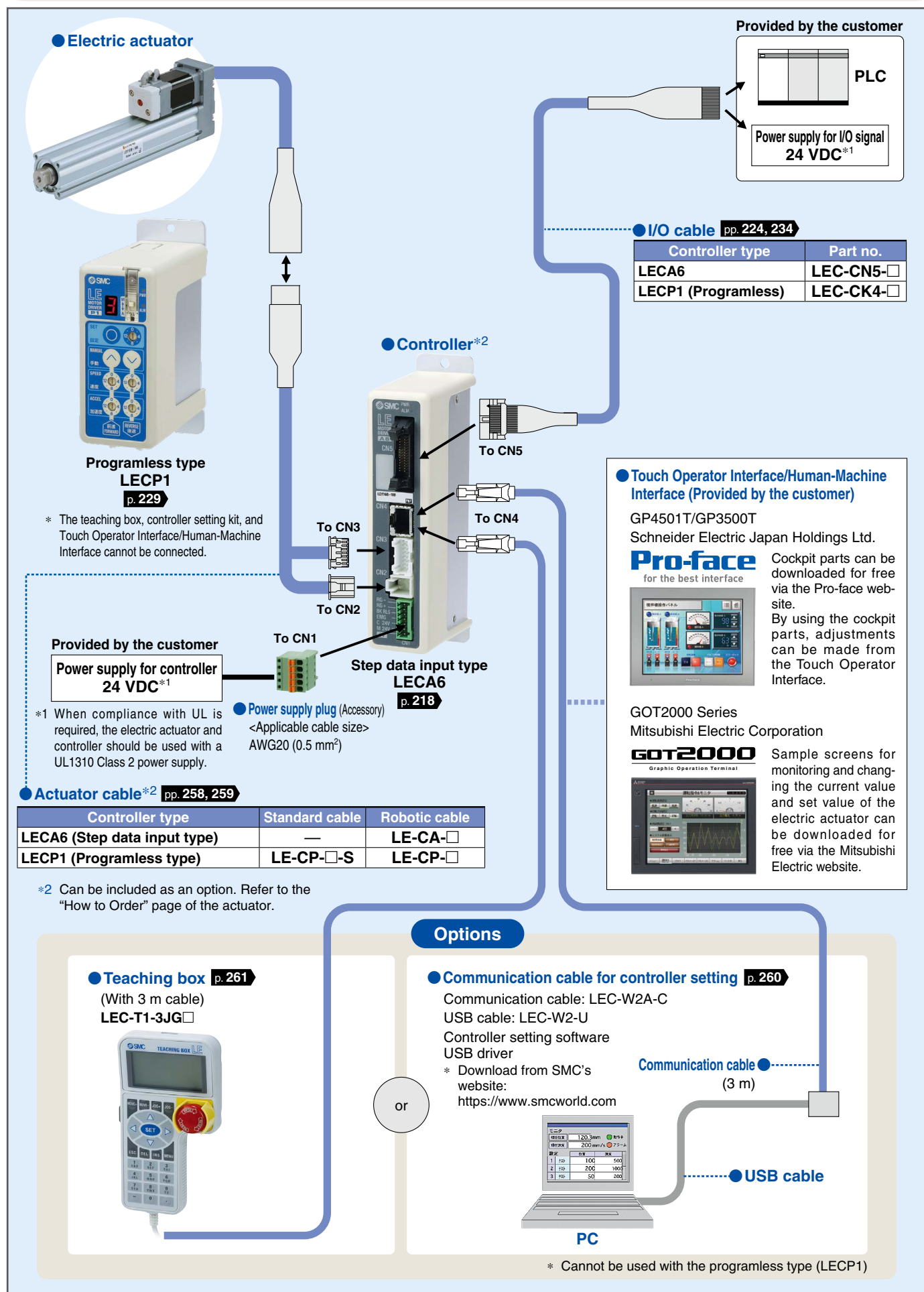
|                                                                |  |
|----------------------------------------------------------------|--|
| Enter the step number to be executed.                          |  |
| Executes the specified step number.                            |  |
| Displays whether the step number is being executed or stopped. |  |
| Performs a return to origin of all the valid axes.             |  |



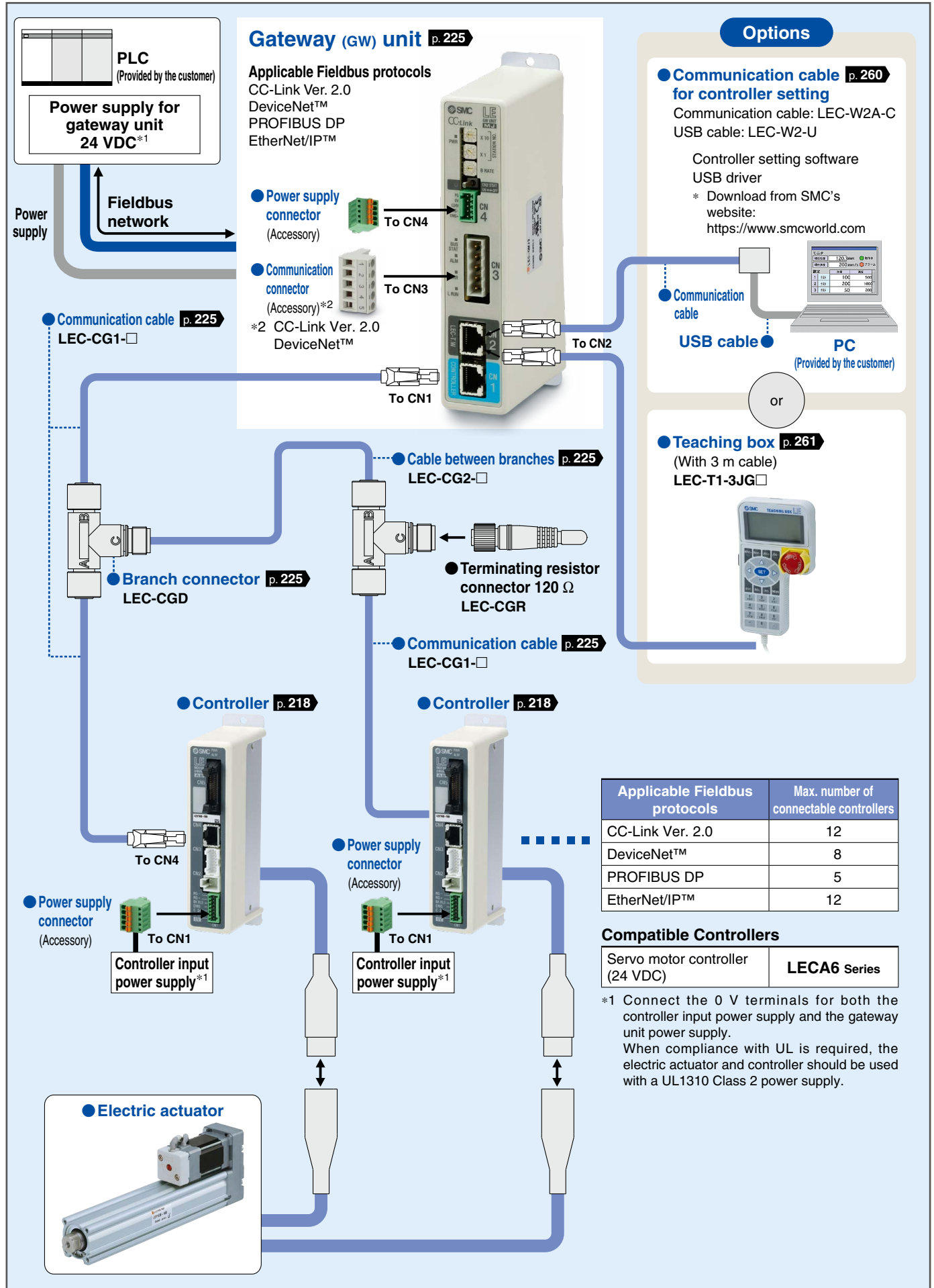
## System Construction/General Purpose I/O



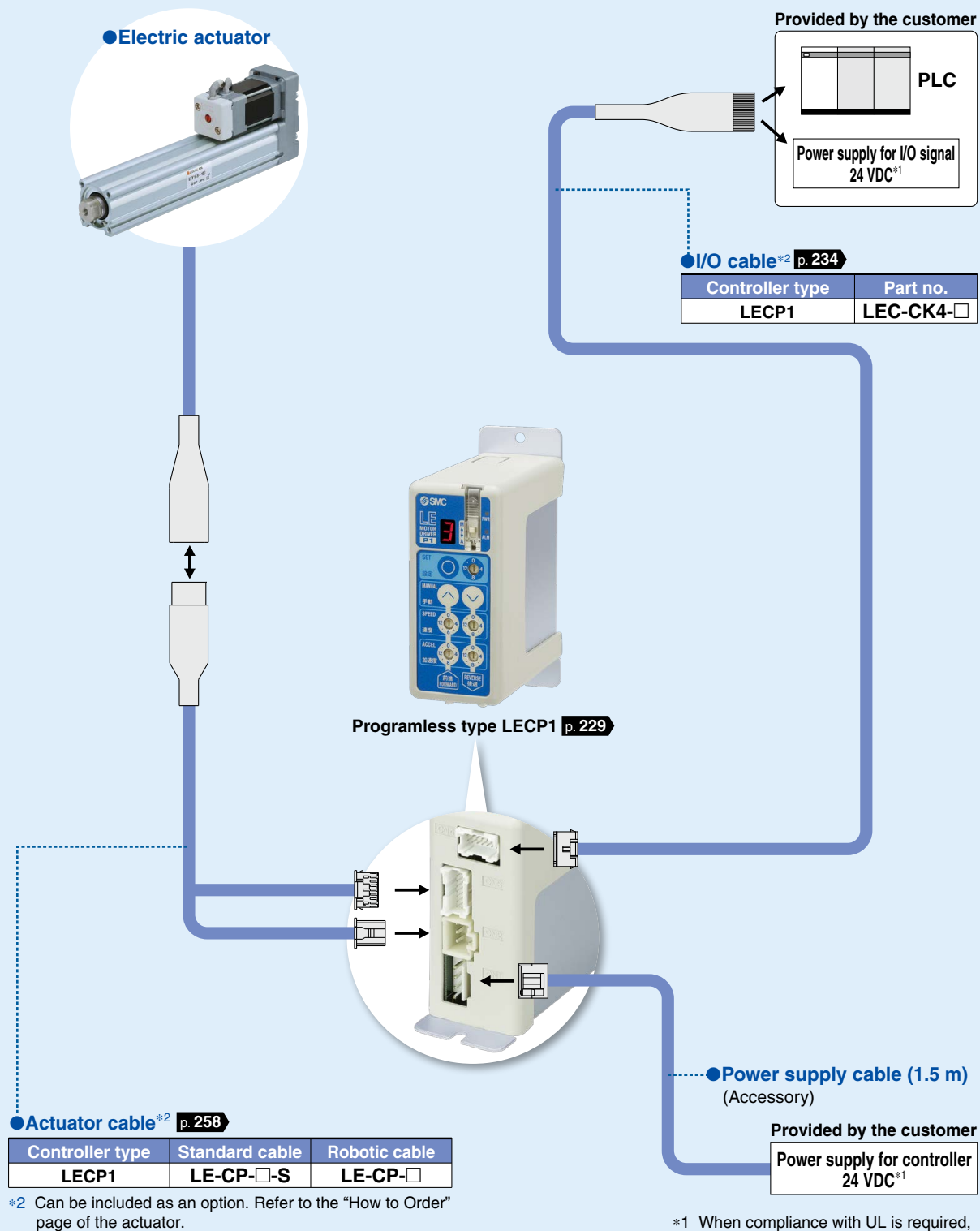
## System Construction/General Purpose I/O



## System Construction/Fieldbus Network

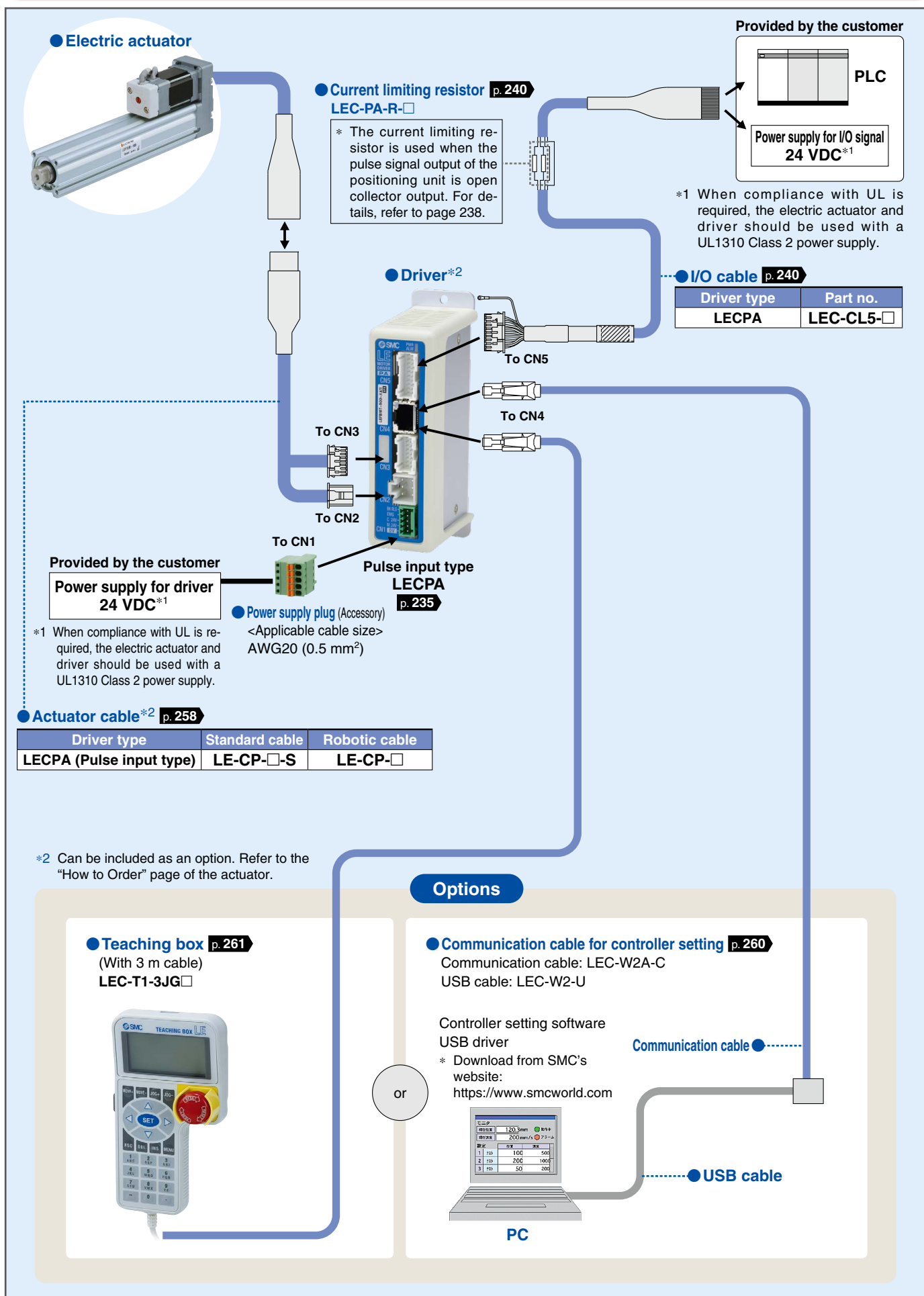


## System Construction/Programless Type



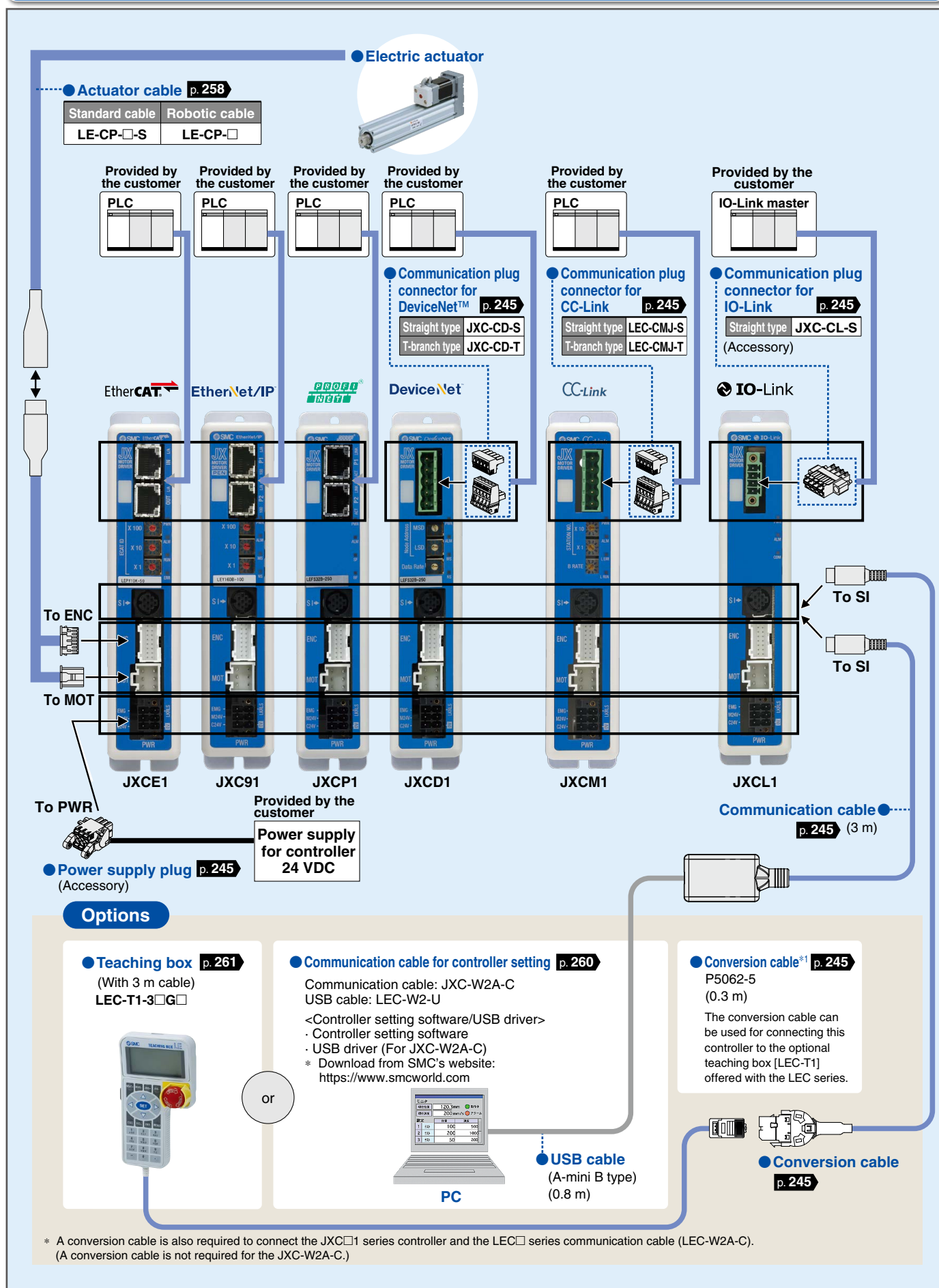


## System Construction/Pulse Signal

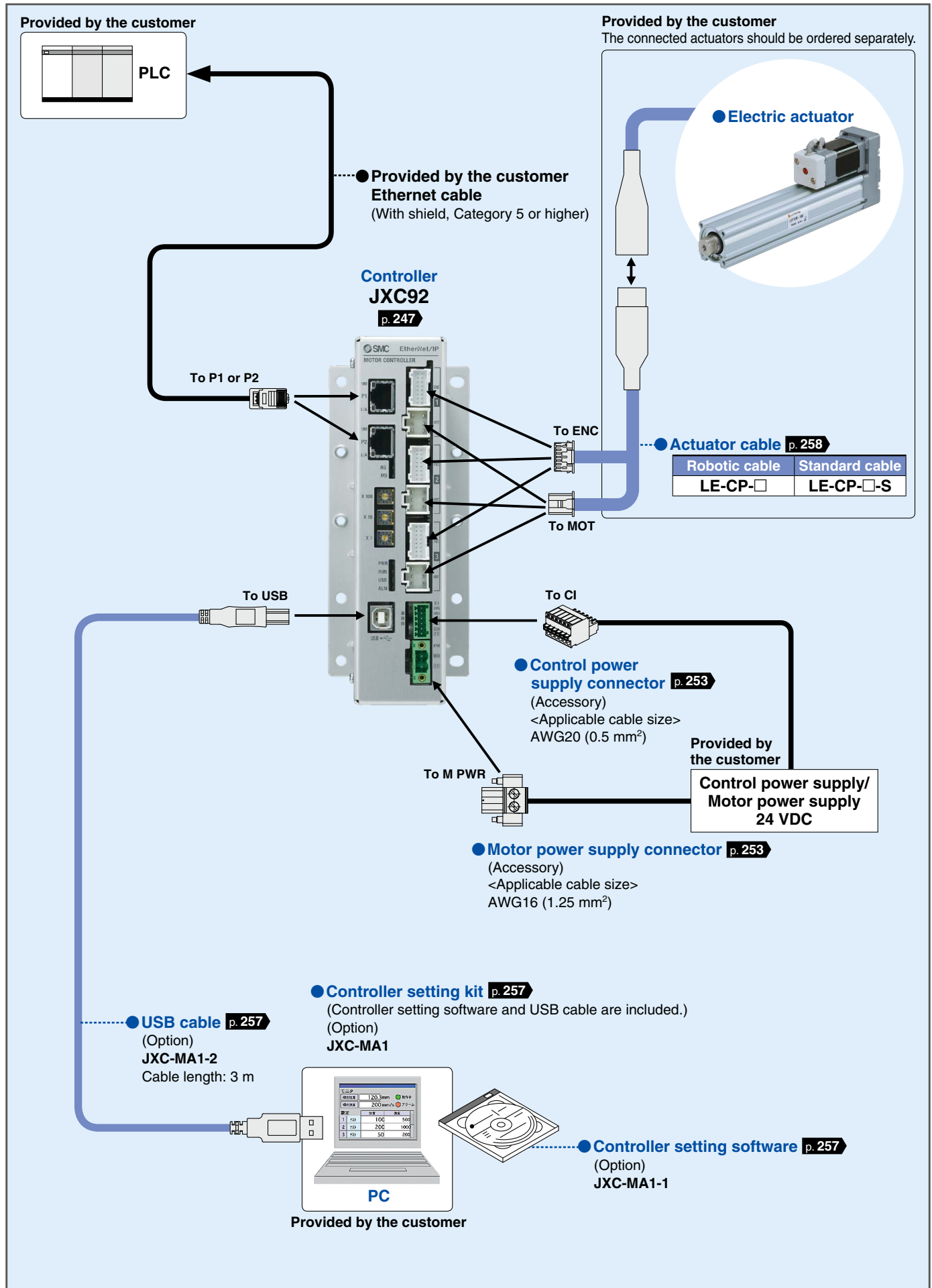


## System Construction/Fieldbus Network

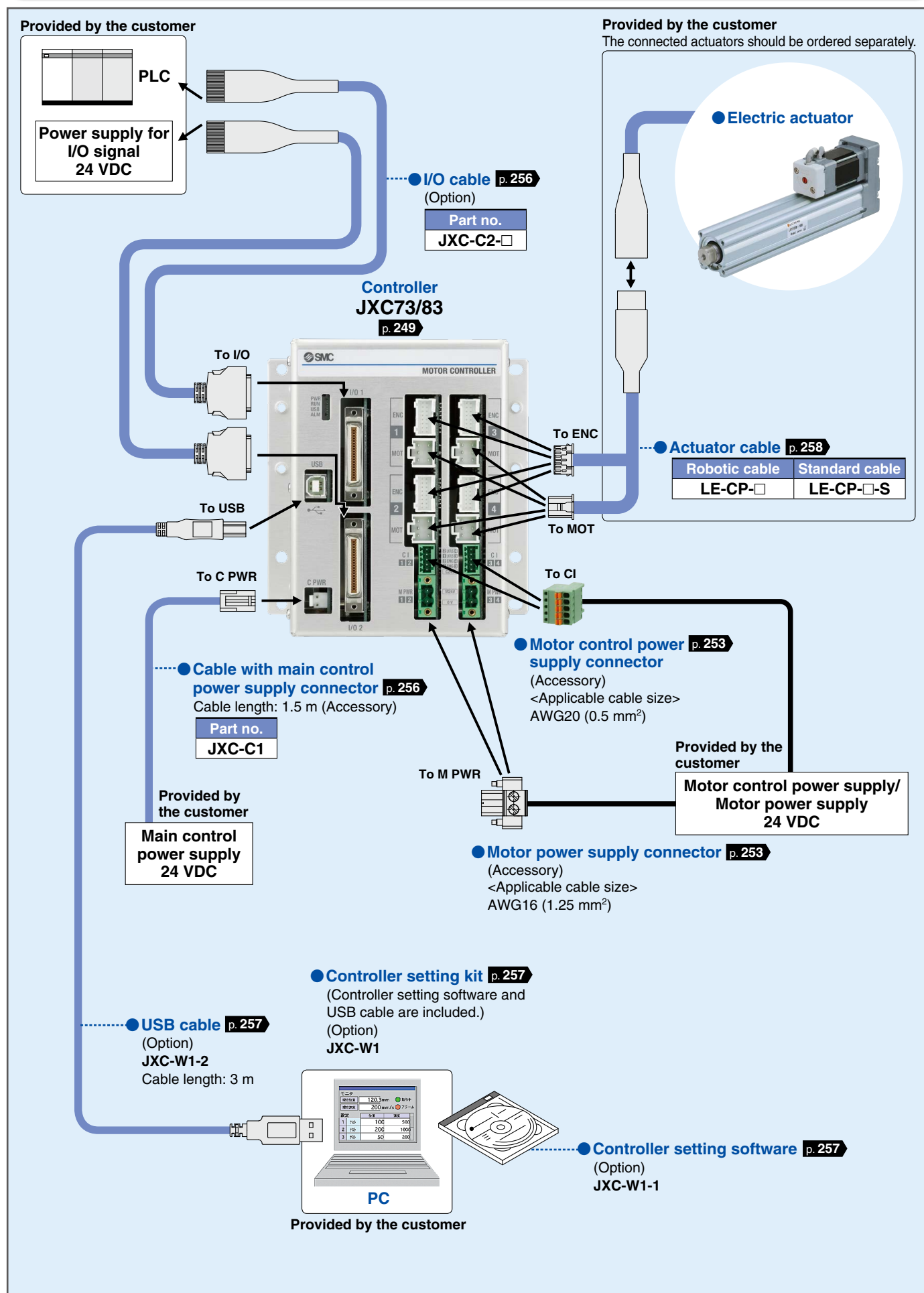
(EtherCAT®/EtherNet/IP™/PROFINET/DeviceNet™/IO-Link/CC-Link Direct Input Type)



## System Construction/EtherNet/IP™ Type (JXC92)

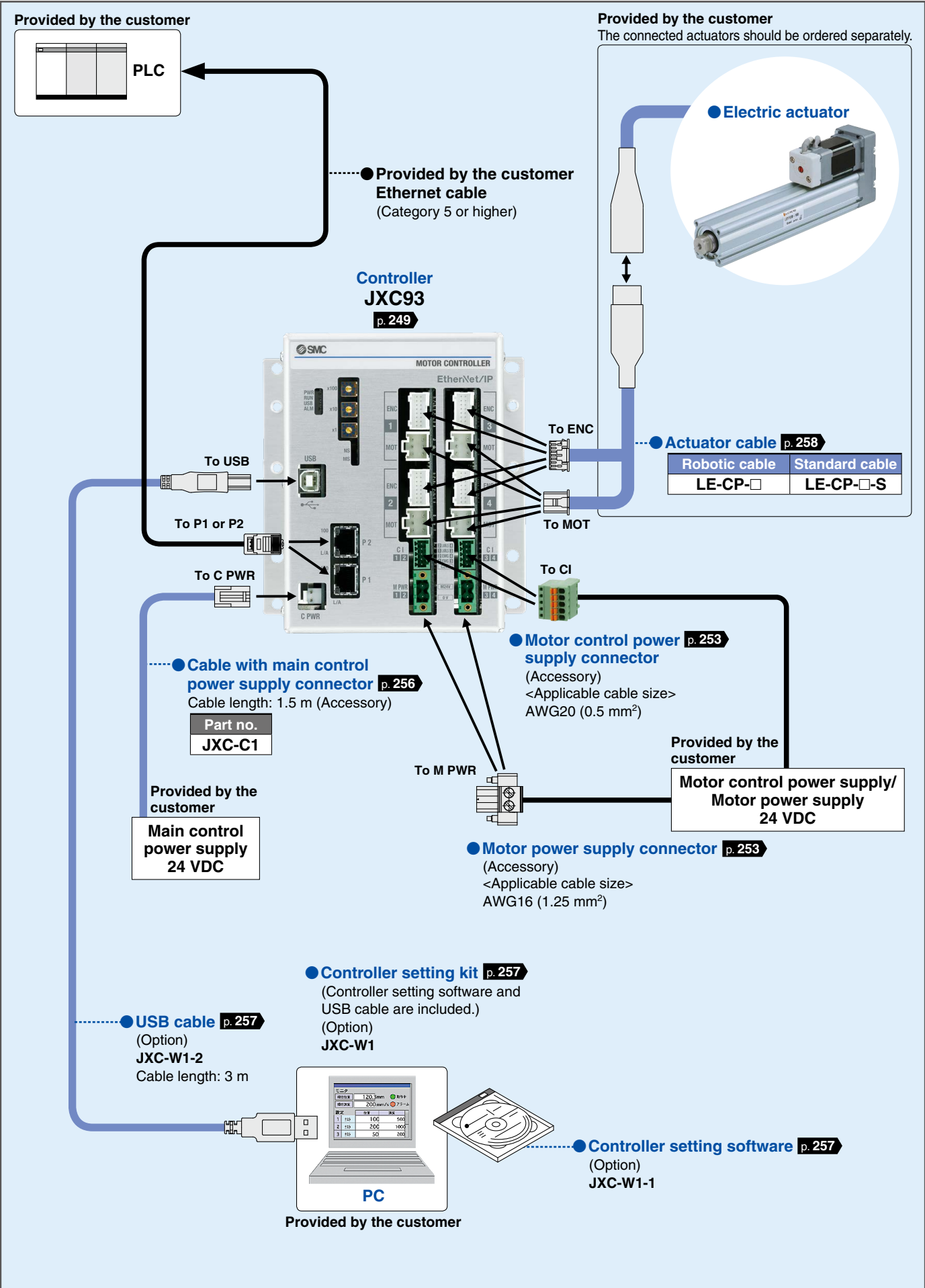


## System Construction/Parallel I/O (JXC73/83)





## System Construction/EtherNet/IP™ Type (JXC93)





## LECS□/LECS□-T/LECY□ Series List

| Series              |                                                                                                                                         | Compatible motor |       |       |       | Control method                 |       |                                            | Application/Function |                        |                        | Compatible option |
|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------|-------|-------|-------|--------------------------------|-------|--------------------------------------------|----------------------|------------------------|------------------------|-------------------|
|                     |                                                                                                                                         | 100 W            | 200 W | 400 W | 750 W | *1<br>Positioning              | Pulse | Network<br>direct input                    | *2<br>Synchronous    | Pushing<br>operation*4 | Safety function<br>STO | Setup<br>software |
| Incremental<br>Type | <b>LECSA</b><br>(Pulse input type/<br>Positioning type)                                                                                 | ●                | ●     | ●     |       | Up to<br>7 points<br>●         | ●     |                                            |                      |                        |                        | LEC-MRC2          |
|                     | <b>LECSB</b><br>(Pulse input type)                                                                                                      | ●                | ●     | ●     |       |                                | ●     |                                            |                      |                        |                        | LEC-MRC2          |
| Absolute Type       | <b>CC-Link</b><br><b>LECS</b><br>(CC-Link direct input type)                                                                            | ●                | ●     | ●     |       | Up to<br>255 points<br>●       |       | CC-Link<br>Ver. 1.10<br>●                  |                      |                        |                        | LEC-MRC2          |
|                     | <b>SSCNET III</b><br><b>LECS</b><br>(SSCNET III type)<br>Compatible with Mitsubishi Electric's<br>servo system controller network       | ●                | ●     | ●     |       |                                |       | SSCNET III<br>●                            | *2<br>●              | *4<br>●                |                        | LEC-MRC2          |
|                     | <b>LECSB-T</b><br>(Pulse input type/<br>Positioning type)                                                                               | ●                | ●     | ●     | ●     | Up to<br>255 points<br>●       | ●     |                                            |                      | *4<br>●                | ●                      | LEC-MRC2          |
|                     | <b>CC-Link</b><br><b>LECS-T</b><br>(CC-Link direct input type)                                                                          | ●                | ●     | ●     | ●     | Up to<br>255 points<br>●       |       | CC-Link<br>Ver. 1.10<br>●                  |                      |                        |                        | LEC-MRC2          |
|                     | <b>PROFINET</b> ® <b>EtherCAT</b> ™<br><b>EtherNet/IP</b><br><b>LECSN-T</b><br>(Network card type)                                      | ●                | ●     | ●     | ●     | Up to<br>255 points<br>*5<br>● |       | PROFINET<br>EtherCAT®<br>EtherNet/IP™<br>● |                      |                        | ●                      | LEC-MRC2          |
|                     | <b>SSCNET III/H</b><br><b>LECS-T</b><br>(SSCNET III/H type)<br>Compatible with Mitsubishi Electric's<br>servo system controller network | ●                | ●     | ●     | ●     |                                |       | SSCNET III/H<br>●                          | *2<br>●              | *4<br>●                | ●                      | LEC-MRC2          |
|                     | <b>MECHATROLINK-II</b><br><b>LECYM</b>                                                                                                  | ●                | ●     | ●     |       |                                |       | MECHATRO<br>LINK-II<br>●                   | *3<br>●              |                        | ●                      | SigmaWin+™        |
|                     | <b>MECHATROLINK-III</b><br><b>LECYU</b>                                                                                                 | ●                | ●     | ●     |       |                                |       | MECHATRO<br>LINK-II<br>●                   | *3<br>●              |                        | ●                      | SigmaWin+™        |

\*1 For positioning types, the settings need to be changed in order to use the max. set values. Setup software (MR Configurator2™) LEC-MRC2 is required.

\*2 Available when a Mitsubishi motion controller is used as upper level equipment

\*3 Available when a motion controller is used as upper level equipment

\*4 The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings.

To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website: <https://www.smcworld.com>  
When selecting the LECS or LECS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

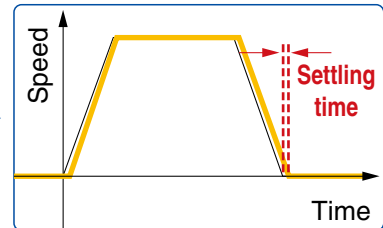
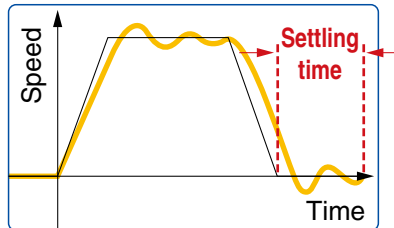
\*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

\*5 Only supports PROFINET and EtherCAT®

## Gain adjustment using auto tuning

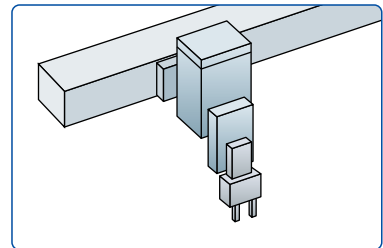
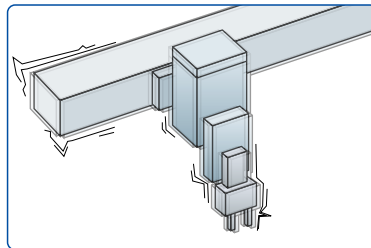
### Auto-tuning function

- Controls the difference between the command value and the actual action



### Vibration suppression control function

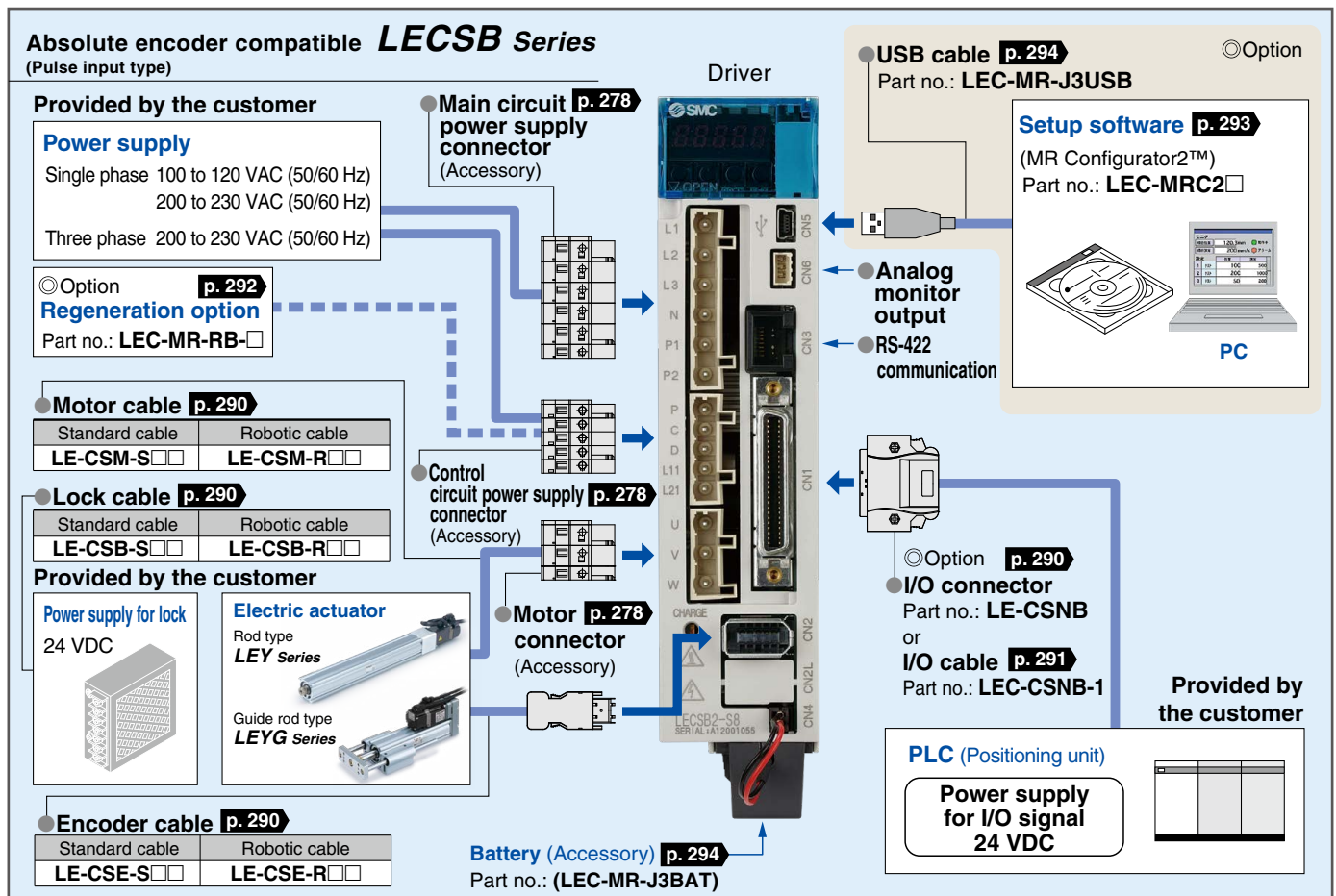
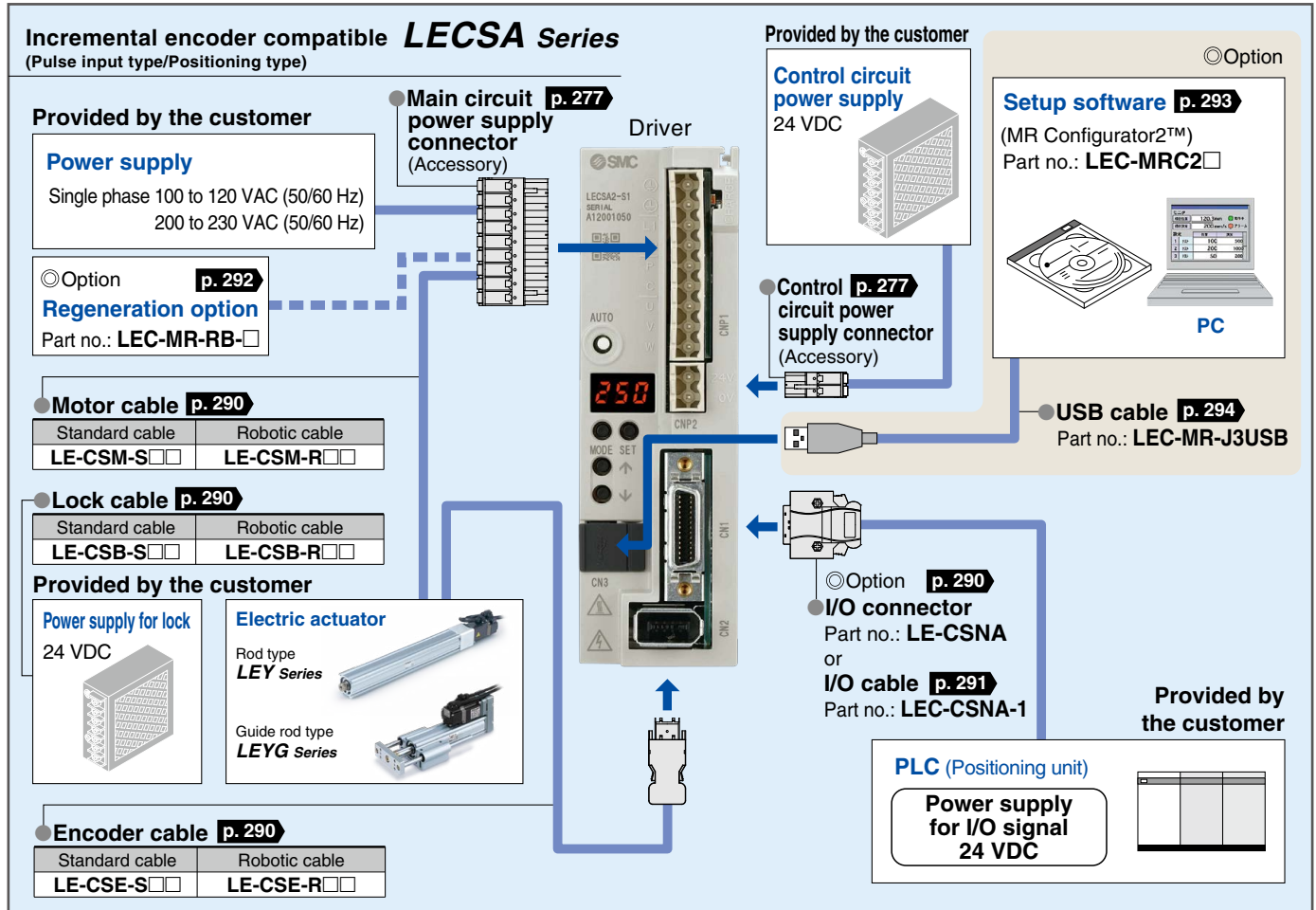
- Automatically suppresses low-frequency machine vibrations (1 to 100 Hz)







## System Construction



## System Construction

### Absolute encoder compatible *LECS* Series

(CC-Link direct input type)

#### Provided by the customer

##### Power supply

Single phase 100 to 120 VAC (50/60 Hz)  
200 to 230 VAC (50/60 Hz)  
Three phase 200 to 230 VAC (50/60 Hz)

◎Option

p. 292

##### Regeneration option

Part no.: *LEC-MR-RB*-□

##### Motor cable p. 290

|                    |                    |
|--------------------|--------------------|
| Standard cable     | Robotic cable      |
| <i>LE-CSM-S</i> □□ | <i>LE-CSM-R</i> □□ |

##### Lock cable p. 290

|                    |                    |
|--------------------|--------------------|
| Standard cable     | Robotic cable      |
| <i>LE-CSB-S</i> □□ | <i>LE-CSB-R</i> □□ |

#### Provided by the customer

##### Power supply for lock

24 VDC

##### Electric actuator

Rod type

*LEY* Series

Guide rod type

*LEYG* Series

##### Encoder cable p. 290

|                    |                    |
|--------------------|--------------------|
| Standard cable     | Robotic cable      |
| <i>LE-CSE-S</i> □□ | <i>LE-CSE-R</i> □□ |

#### Main circuit power supply connector

(Accessory)

p. 278

Control circuit power supply connector

(Accessory)

p. 278

Motor connector

(Accessory)

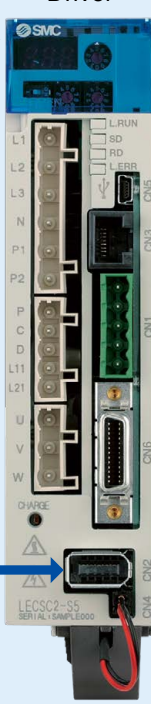
p. 278

Battery (Accessory)

p. 294

Part no.: (*LEC-MR-J3BAT*)

#### Driver



#### USB cable p. 294

Part no.: *LEC-MR-J3USB*

◎Option

#### Setup software p. 293

(MR Configurator2™)

Part no.: *LEC-MRC2*□



PC

#### RS-422 communication

CC-Link connector \*1 (Accessory)

◎Option p. 290

#### I/O connector

Part no.: *LE-CSNA*

or

#### I/O cable p. 291

Part no.: *LEC-CSNA-1*

Provided by the customer

#### PLC (CC-Link master unit)

Power supply for I/O signal  
24 VDC



\*1 Product number: K05A50230600 manufactured by Mitsubishi Electric System & Service Co., Ltd.

### Absolute encoder compatible *LEC*SS Series

(SSCNET III type)

#### Provided by the customer

##### Power supply

Single phase 100 to 120 VAC (50/60 Hz)  
200 to 230 VAC (50/60 Hz)  
Three phase 200 to 230 VAC (50/60 Hz)

◎Option

p. 292

##### Regeneration option

Part no.: *LEC-MR-RB*-□

##### Motor cable p. 290

|                    |                    |
|--------------------|--------------------|
| Standard cable     | Robotic cable      |
| <i>LE-CSM-S</i> □□ | <i>LE-CSM-R</i> □□ |

##### Lock cable p. 290

|                    |                    |
|--------------------|--------------------|
| Standard cable     | Robotic cable      |
| <i>LE-CSB-S</i> □□ | <i>LE-CSB-R</i> □□ |

#### Provided by the customer

##### Power supply for lock

24 VDC

##### Electric actuator

Rod type

*LEY* Series

Guide rod type

*LEYG* Series

##### Encoder cable p. 290

|                    |                    |
|--------------------|--------------------|
| Standard cable     | Robotic cable      |
| <i>LE-CSE-S</i> □□ | <i>LE-CSE-R</i> □□ |

#### Main circuit power supply connector

(Accessory)

p. 278

Control circuit power supply connector

(Accessory)

p. 278

Motor connector

(Accessory)

p. 278

Battery (Accessory)

p. 294

Part no.: (*LEC-MR-J3BAT*)

#### Driver



#### USB cable p. 294

Part no.: *LEC-MR-J3USB*

◎Option

#### Setup software p. 293

(MR Configurator2™)

Part no.: *LEC-MRC2*□



PC

◎Option

#### I/O connector p. 290

Part no.: *LE-CSNS*

or

#### I/O cable p. 291

Part no.: *LEC-CSNS-1*

◎Option p. 291

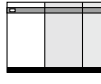
#### SSCNET III optical cable

Part no.: *LE-CSS*-□

Provided by the customer

PLC (Positioning unit/  
Motion controller)

Power supply for I/O signal  
24 VDC



# System Construction

## Absolute encoder compatible **LECSB-T Series**

(Pulse input type/Positioning type)

### Provided by the customer

#### Power supply

Single phase 200 to 240 VAC (50/60 Hz)  
Three phase 200 to 240 VAC (50/60 Hz)

◎ Option

#### Regeneration option p. 292

Part no.: **LEC-MR-RB**-□

#### Motor cable p. 290

| Standard cable     | Robotic cable      |
|--------------------|--------------------|
| <b>LE-CSM-S</b> □□ | <b>LE-CSM-R</b> □□ |

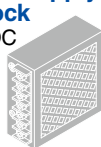
#### Lock cable p. 290

| Standard cable     | Robotic cable      |
|--------------------|--------------------|
| <b>LE-CSB-S</b> □□ | <b>LE-CSB-R</b> □□ |

### Provided by the customer

#### Power supply for lock

24 VDC



#### Electric actuator

Rod type  
**LEY Series**

Guide rod type  
**LEYG Series**


#### Encoder cable p. 290

| Standard cable     | Robotic cable      |
|--------------------|--------------------|
| <b>LE-CSE-S</b> □□ | <b>LE-CSE-R</b> □□ |

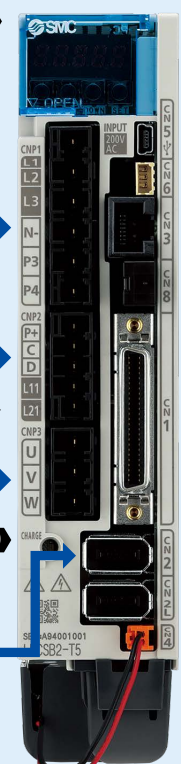
Main circuit power supply connector (Accessory)

Control circuit power supply connector (Accessory)

Motor p. 279 connector (Accessory)

Battery (Accessory) p. 294  
Part no.: **(LEC-MR-BAT6V1SET)**

Driver



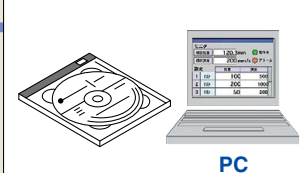
USB cable p. 294

Part no.: **LEC-MR-J3USB**

◎ Option

#### Setup software p. 293

(MR Configurator2™)

Part no.: **LEC-MRC2**□

Analog monitor output  
RS-422 communication

◎ Option

STO cable (3 m) p. 294  
Part no.: **LEC-MR-D05UDL3M**

◎ Option

I/O connector p. 290

Part no.: **LE-CSNB**

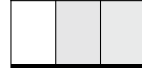
or

I/O cable p. 291

Part no.: **LEC-CSNB-1**

Provided by the customer

#### PLC (Positioning unit)

Power supply for I/O signal  
24 VDC


## Absolute encoder compatible **LECSC-T Series**

(CC-Link direct input type)

### Provided by the customer

#### Power supply

Single phase 200 to 230 VAC (50/60 Hz)  
Three phase 200 to 230 VAC (50/60 Hz)

◎ Option

#### Regeneration option p. 292

Part no.: **LEC-MR-RB**-□

#### Motor cable p. 290

| Standard cable     | Robotic cable      |
|--------------------|--------------------|
| <b>LE-CSM-S</b> □□ | <b>LE-CSM-R</b> □□ |

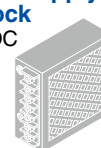
#### Lock cable p. 290

| Standard cable     | Robotic cable      |
|--------------------|--------------------|
| <b>LE-CSB-S</b> □□ | <b>LE-CSB-R</b> □□ |

### Provided by the customer

#### Power supply for lock

24 VDC



#### Electric actuator

Rod type  
**LEY Series**

Guide rod type  
**LEYG Series**


#### Encoder cable p. 290

| Standard cable     | Robotic cable      |
|--------------------|--------------------|
| <b>LE-CSE-S</b> □□ | <b>LE-CSE-R</b> □□ |

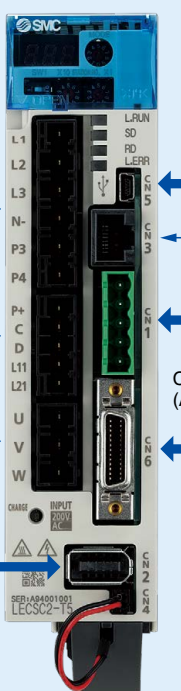
Main circuit power supply connector (Accessory)

Control circuit power supply connector (Accessory)

Motor p. 280 connector (Accessory)

Battery (Accessory) p. 294  
Part no.: **(LEC-MR-J3BAT)**

Driver



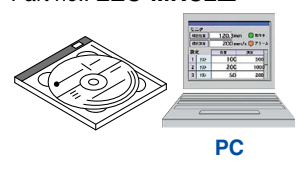
USB cable p. 294

Part no.: **LEC-MR-J3USB**

◎ Option

#### Setup software p. 293

(MR Configurator2™)

Part no.: **LEC-MRC2**□


RS-422 communication

CC-Link connector\*1 (Accessory)

◎ Option

I/O connector p. 290

Part no.: **LE-CSNA**

or

I/O cable p. 291

Part no.: **LEC-CSNA-1**

Provided by the customer

#### PLC (CC-Link master unit)

Power supply for I/O signal  
24 VDC


\* The LECSC2-T□ cannot be used with the LEC-MR-SETUP221□.

\*1 Product number: K05A50230600 manufactured by Mitsubishi Electric System &amp; Service Co., Ltd.







# System Construction

## Absolute encoder compatible **LECYM** Series

MECHATROLINK-II type

### Provided by the customer

#### Power supply

Single phase 200 to 230 VAC (50/60 Hz)  
Three phase 200 to 230 VAC (50/60 Hz)

### Provided by the customer

#### External regenerative resistor p. 298

\* If an external regenerative resistor is required, it should be provided by the customer. For external regenerative resistor selection, refer to the compatible actuator catalog.

#### Motor cable p. 301

| Standard cable | Robotic cable |
|----------------|---------------|
| LE-CYM-S□A-□   | LE-CYM-R□A-□  |

#### Motor cable for lock option p. 301

| Standard cable | Robotic cable |
|----------------|---------------|
| LE-CYB-S□A-□   | LE-CYB-R□A-□  |

### Provided by the customer

#### Power supply for lock 24 VDC



#### Electric actuator

Rod type

**LEY Series**

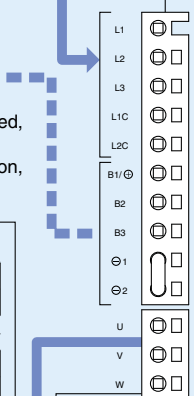


Guide rod type

**LEYG Series**



### Main circuit power supply connector (Accessory) p. 298

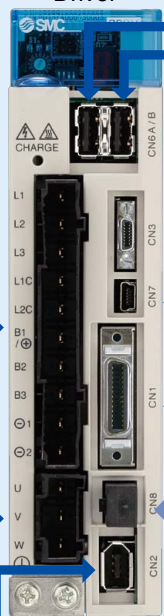


### Motor p. 298 connector (Accessory)

#### Encoder cable p. 301

| Standard cable | Robotic cable |
|----------------|---------------|
| LE-CYE-S□A     | LE-CYE-R□A    |

### Driver



Option

MECHATROLINK-II cable p. 303

Part no.: LEC-CYM-□

### 2nd driver

### Provided by the customer

#### PLC (Positioning unit/Motion controller)

Power supply for I/O signal 24 VDC



Option

#### USB cable p. 304

Part no.: LEC-JZ-CVUSB

#### Setup software p. 304

(SigmaWin+™) Please download it via our website.



PC

\* Order the USB cable (Part no.: LEC-JZ-CVUSB) separately to use this software.

Option  
I/O connector p. 302  
Part no.: LE-CYNA  
or  
I/O cable p. 302  
Part no.: LEC-CSNA-1

Cable for safety function device (3 m) p. 304  
Part no.: LEC-JZ-CVSAF

## Absolute encoder compatible **LECYU** Series

MECHATROLINK-III type

### Provided by the customer

#### Power supply

Single phase 200 to 230 VAC (50/60 Hz)  
Three phase 200 to 230 VAC (50/60 Hz)

### Provided by the customer

#### External regenerative resistor p. 298

\* If an external regenerative resistor is required, it should be provided by the customer. For external regenerative resistor selection, refer to the compatible actuator catalog.

#### Motor cable p. 301

| Standard cable | Robotic cable |
|----------------|---------------|
| LE-CYM-S□A-□   | LE-CYM-R□A-□  |

#### Motor cable for lock option p. 301

| Standard cable | Robotic cable |
|----------------|---------------|
| LE-CYB-S□A-□   | LE-CYB-R□A-□  |

### Provided by the customer

#### Power supply for lock 24 VDC



#### Electric actuator

Rod type

**LEY Series**

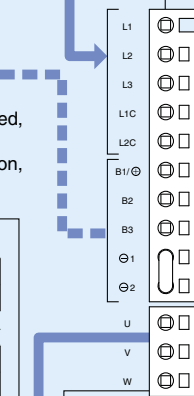


Guide rod type

**LEYG Series**



### Main circuit power supply connector (Accessory) p. 298

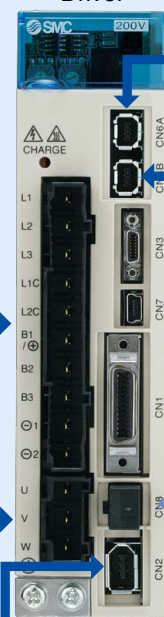


### Motor p. 298 connector (Accessory)

#### Encoder cable p. 301

| Standard cable | Robotic cable |
|----------------|---------------|
| LE-CYE-S□A     | LE-CYE-R□A    |

### Driver



Option

MECHATROLINK-III cable p. 303

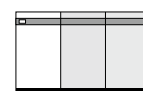
Part no.: LEC-CYU-□

### 2nd driver

### Provided by the customer

#### PLC (Positioning unit/Motion controller)

Power supply for I/O signal 24 VDC



Option

#### USB cable p. 304

Part no.: LEC-JZ-CVUSB

#### Setup software p. 304

(SigmaWin+™) Please download it via our website.



PC

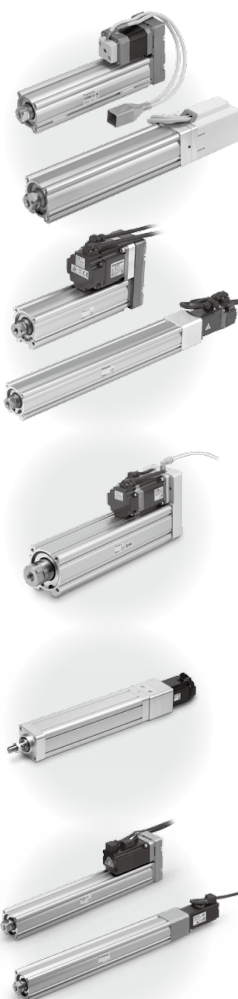
\* Order the USB cable (Part no.: LEC-JZ-CVUSB) separately to use this software.

Option  
I/O connector p. 302  
Part no.: LE-CYNA  
or  
I/O cable p. 302  
Part no.: LEC-CSNA-1

Cable for safety function device (3 m) p. 304  
Part no.: LEC-JZ-CVSAF

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Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

### ◎ Rod Type *LEY* Series

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AC Servo Motor

### *LECS*□ Series

#### ◎ Rod Type *LEY* Series

Size 25, 32

|                 |       |
|-----------------|-------|
| Model Selection | p. 41 |
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| Specifications  | p. 71 |
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#### ◎ Rod Type *LEY* Series

Size 63

Dust-tight/Water-jet-proof (IP65 Equivalent) \* Option

|                 |       |
|-----------------|-------|
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#### ◎ Rod Type *LEY* Series

Size 100

|                 |       |
|-----------------|-------|
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| Dimensions      | p. 89 |

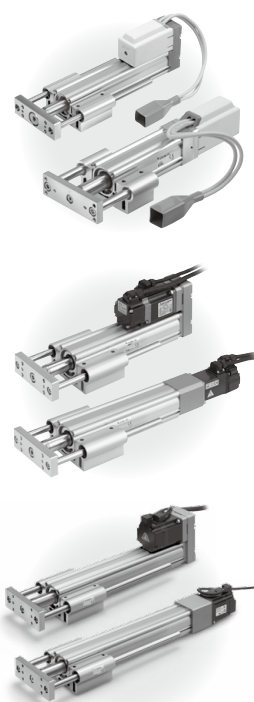
### *LECY*□ Series

#### ◎ Rod Type *LEY* Series

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| Accessory Mounting Brackets | p. 101 |
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## Electric Actuators / Guide Rod Type *LEYG* Series



Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

### ◎ Guide Rod Type *LEYG* Series

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AC Servo Motor

### *LECS*□ Series

#### ◎ Guide Rod Type *LEYG* Series

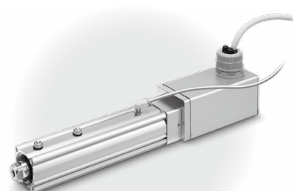
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|-----------------|--------|
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### *LECY*□ Series

#### ◎ Guide Rod Type *LEYG* Series

|                 |        |
|-----------------|--------|
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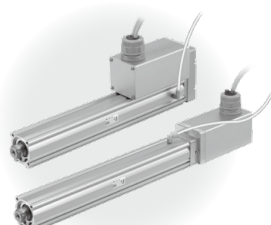
## Environment



### Step Motor (Servo/24 VDC)

#### ◎ Rod Type **LEY-X7 (Made to Order)** Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

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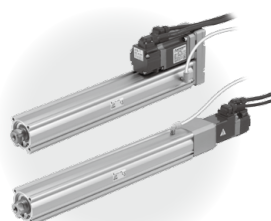


#### ◎ Rod Type **LEY-X5 (Made to Order)** Dust-tight/Water-jet-proof (IP65 Equivalent)

|                       |        |
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| Dimensions .....      | p. 179 |

### AC Servo Motor

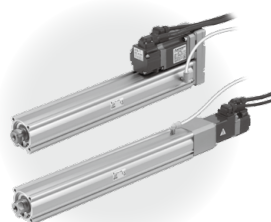
#### **LECS**□ Series



#### ◎ Rod Type **LEY-X5 (Made to Order)** Dust-tight/Water-jet-proof (IP65 Equivalent)

|                       |        |
|-----------------------|--------|
| Model Selection ..... | p. 41  |
| How to Order .....    | p. 181 |
| Specifications .....  | p. 183 |
| Construction .....    | p. 184 |
| Dimensions .....      | p. 185 |

#### **LECY**□ Series



#### ◎ Rod Type **LEY-X5 (Made to Order)** Dust-tight/Water-jet-proof (IP65 Equivalent)

|                       |        |
|-----------------------|--------|
| Model Selection ..... | p. 49  |
| How to Order .....    | p. 187 |
| Specifications .....  | p. 189 |
| Dimensions .....      | p. 190 |
| Auto Switch .....     | p. 192 |

### Step Motor (Servo/24 VDC)

### Servo Motor (24 VDC)

### AC Servo Motor

#### ◎ Rod Type **25A-LEY** Secondary Battery Compatible

|                       |                   |
|-----------------------|-------------------|
| Model Selection ..... | pp. 35, 41, 49    |
| How to Order .....    | pp. 195, 199, 201 |
| Auto Switch .....     | p. 203            |

|                                    |        |
|------------------------------------|--------|
| Specific Product Precautions ..... | p. 204 |
|------------------------------------|--------|

#### ◎ Step Motor (Servo/24 VDC)/ Servo Motor (24 VDC) Controller/Driver

|                                                                                                                            |        |
|----------------------------------------------------------------------------------------------------------------------------|--------|
| Step Data Input Type/ <b>JXC51/61 Series</b> .....                                                                         | p. 211 |
| Step Data Input Type/ <b>LECA6 Series</b> .....                                                                            | p. 218 |
| Gateway Unit/ <b>LEC-G Series</b> .....                                                                                    | p. 225 |
| Programless Controller/ <b>LECP1 Series</b> .....                                                                          | p. 229 |
| Pulse Input Type/ <b>LECPA Series</b> .....                                                                                | p. 235 |
| EtherCAT®/EtherNet/IP™/PROFINET/DeviceNet™/IO-Link/<br>CC-Link Direct Input Type/ <b>JXCE1/91/P1/D1/L1/M1 Series</b> ..... | p. 241 |



#### ◎ 3-Axis Step Motor Controller

|                                              |        |
|----------------------------------------------|--------|
| EtherNet/IP™ Type/ <b>JXC92 Series</b> ..... | p. 247 |
|----------------------------------------------|--------|



#### ◎ 4-Axis Step Motor (Servo/24 VDC) Controller

|                                                 |        |
|-------------------------------------------------|--------|
| Parallel I/O Type/ <b>JXC73/83 Series</b> ..... | p. 249 |
| EtherNet/IP™ Type/ <b>JXC93 Series</b> .....    | p. 249 |



|                                                                    |        |
|--------------------------------------------------------------------|--------|
| Actuator Cable .....                                               | p. 258 |
| Communication Cable for Controller Setting/ <b>LEC-W2A-□</b> ..... | p. 260 |
| Teaching Box/ <b>LEC-T1</b> .....                                  | p. 261 |

#### ◎ AC Servo Motor Driver

|                                                    |        |
|----------------------------------------------------|--------|
| <b>LECSA/LECSB/LECS/LECSS Series</b> .....         | p. 269 |
| <b>LECSB-T/LECS-T/LECSN-T/LECSS-T Series</b> ..... | p. 269 |
| <b>LECYM/LECYU Series</b> .....                    | p. 295 |



|                             |        |
|-----------------------------|--------|
| CE/UL-compliance List ..... | p. 307 |
|-----------------------------|--------|







# Model Selection

LEY Series ▶ p. 55

LEY-X7 Series ▶ p. 155

LEY-X5 Series ▶ p. 160

25A-LEY Series ▶ p. 195



## Selection Procedure

### Positioning Control Selection Procedure

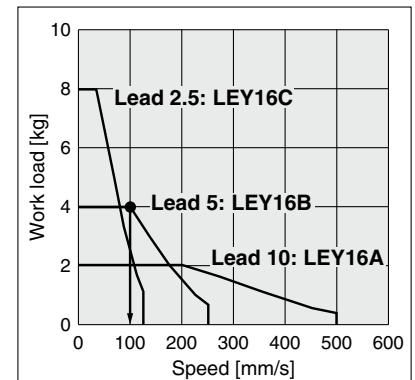
**Step 1** Check the work load–speed.  
(Vertical transfer)

**Step 2** Check the cycle time.

### Selection Example

#### Operating conditions

- Workpiece mass: 4 [kg]
- Speed: 100 [mm/s]
- Acceleration/Deceleration: 3000 [mm/s<sup>2</sup>]
- Stroke: 200 [mm]
- Workpiece mounting condition: Vertical upward downward transfer



<Speed-Vertical work load graph>  
(LEY16/Step motor)

**Step 1** Check the work load–speed. <Speed-Vertical work load graph>

Select a model based on the workpiece mass and speed while referencing the speed-vertical work load graph.

Selection example) The **LEY16B** can be temporarily selected as a possible candidate based on the graph shown on the right side.

\* It is necessary to mount a guide outside the actuator when used for horizontal transfer. When selecting the target model, refer to the horizontal work load in the specifications on pages 59 and 60 and the precautions.

**Step 2** Check the cycle time.

Calculate the cycle time using the following calculation method.

**Cycle time:**

T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1: Acceleration time and T3: Deceleration time can be found by the following equation.

$$T1 = V/a1 \text{ [s]}$$

$$T3 = V/a2 \text{ [s]}$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4: Settling time varies depending on the conditions such as motor types, load and in position of the step data. Therefore, calculate the settling time while referencing the following value.

$$T4 = 0.2 \text{ [s]}$$

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 100/3000 = 0.033 \text{ [s]}, T3 = V/a2 = 100/3000 = 0.033 \text{ [s]}$$

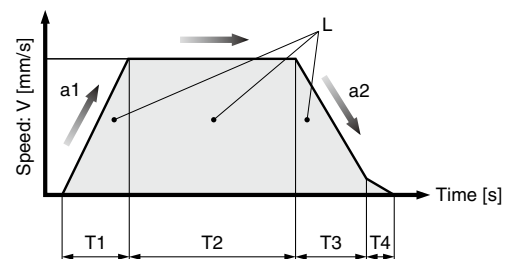
$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{200 - 0.5 \cdot 100 \cdot (0.033 + 0.033)}{100} = 1.97 \text{ [s]}$$

$$T4 = 0.2 \text{ [s]}$$

The cycle time can be found as follows.

$$T = T1 + T2 + T3 + T4 = 0.033 + 1.967 + 0.033 + 0.2 = 2.233 \text{ [s]}$$

Based on the above calculation result, the **LEY16B-200** should be selected.



- L : Stroke [mm] ... (Operating condition)
- V : Speed [mm/s] ... (Operating condition)
- a1: Acceleration [mm/s<sup>2</sup>] ... (Operating condition)
- a2: Deceleration [mm/s<sup>2</sup>] ... (Operating condition)

T1: Acceleration time [s] ... Time until reaching the set speed

T2: Constant speed time [s] ... Time while the actuator is operating at a constant speed

T3: Deceleration time [s] ... Time from the beginning of the constant speed operation to stop

T4: Settling time [s] ... Time until positioning is completed

## Selection Procedure

### Pushing Control Selection Procedure

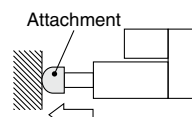


\* The duty ratio is a ratio of the operation time in one cycle.

### Selection Example

#### Operating conditions

- Mounting condition: Horizontal (pushing)
- Attachment weight: 0.2 [kg]
- Pushing force: 60 [N]
- Duty ratio: 20 [%]
- Speed: 100 [mm/s]
- Stroke: 200 [mm]



#### Step 1 Check the duty ratio.

##### <Conversion table of pushing force–duty ratio>

Select the [Pushing force] from the duty ratio while referencing the conversion table of pushing force–duty ratio.

Selection example)

Based on the table below,

- Duty ratio: 20 [%]

The pushing force set value will be 70 [%].

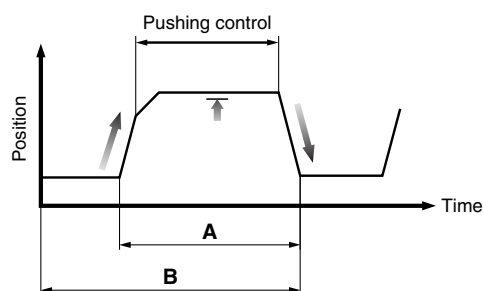
##### <Conversion table of pushing force–duty ratio>

(LEY16/Step motor)

| Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|-----------------------------|----------------|-------------------------------|
| 40 or less                  | 100            | —                             |
| 50                          | 70             | 12 or less                    |
| 70                          | 20             | 1.3 or less                   |
| 85                          | 15             | 0.8 or less                   |

\* [Pushing force set value] is one of the step data input to the controller.

\* [Continuous pushing time] is the time that the actuator can continuously keep pushing.



$$\text{Duty ratio} = A/B \times 100 [\%]$$

#### Step 2 Check the pushing force.

##### <Force conversion graph>

Select a model based on the pushing force set value and force while referencing the force conversion graph.

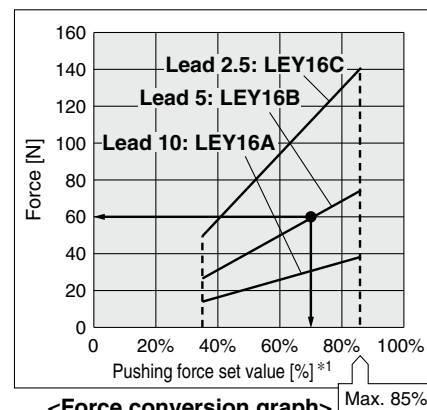
Selection example)

Based on the graph shown on the right side,

- Pushing force set value: 70 [%]

- Pushing force: 60 [N]

The LEY16B can be temporarily selected as a possible candidate.



<Force conversion graph>  
(LEY16/Step motor)

\*1 Set values for the controller

#### Step 3 Check the lateral load on the rod end.

##### <Graph of allowable lateral load on the rod end>

Confirm the allowable lateral load on the rod end of the actuator: LEY16□, which has been selected temporarily while referencing the graph of allowable lateral load on the rod end.

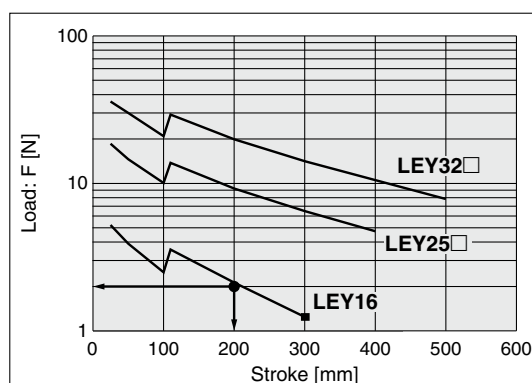
Selection example)

Based on the graph shown on the right side,

- Attachment weight: 0.2 [kg] ≈ 2 [N]

- Product stroke: 200 [mm]

The lateral load on the rod end is in the allowable range.



<Graph of allowable lateral load on the rod end>

Based on the above calculation result, the LEY16B-200 should be selected.

# LEY/25A-LEY Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Secondary Battery Compatible

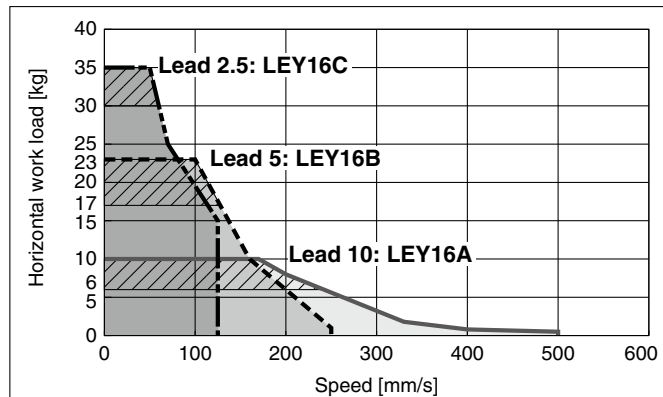
Refer to page 38 for the LECPA, JXC<sup>2</sup><sub>3</sub> and page 39 for the LECA6.

## Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) JXC<sup>1</sup>, LECP1

### Horizontal

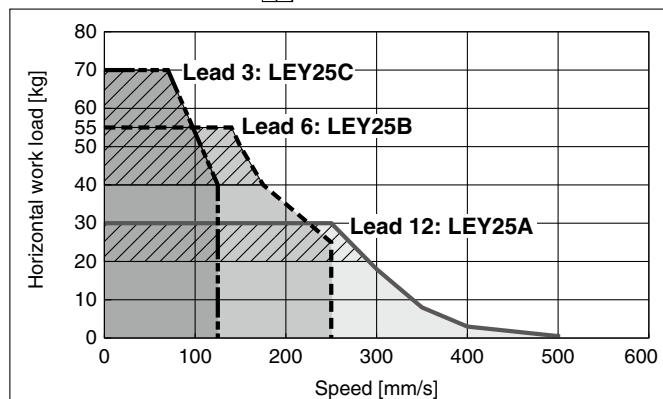
#### LEY16□

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



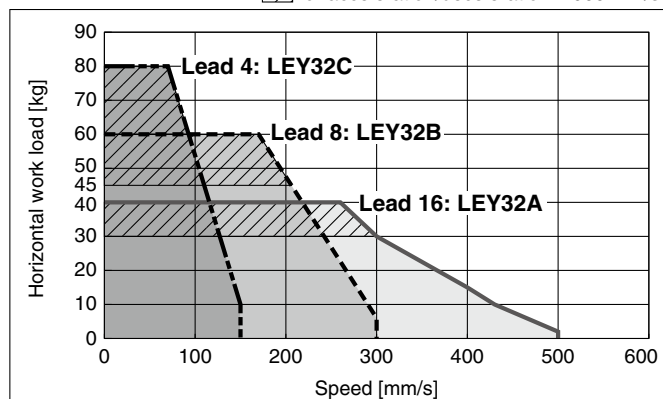
#### LEY25□

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



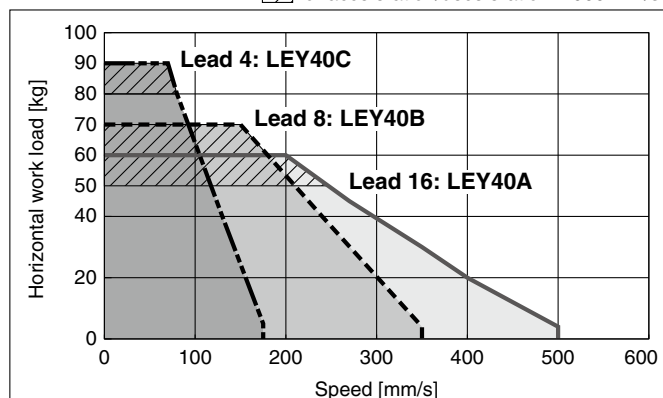
#### LEY32□

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



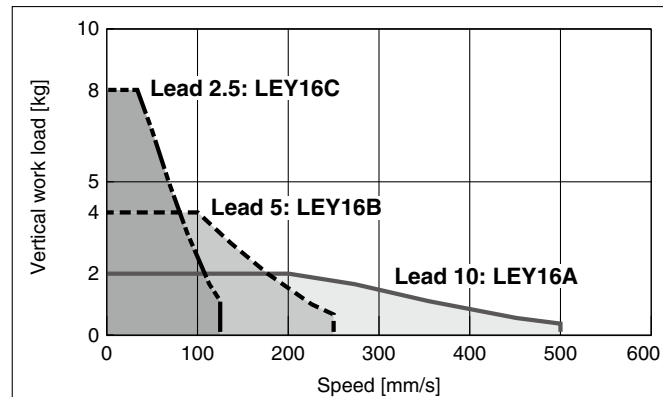
#### LEY40□

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

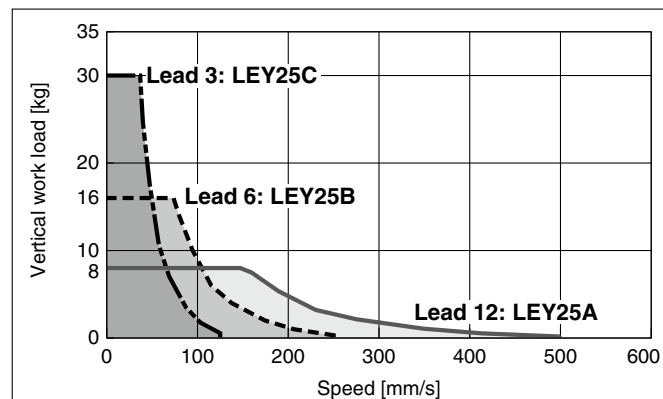


### Vertical

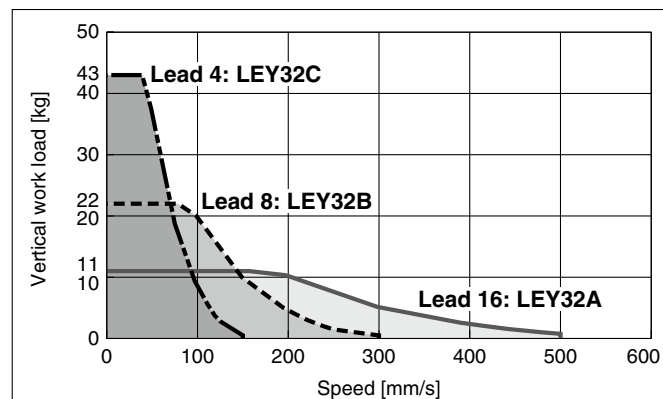
#### LEY16□



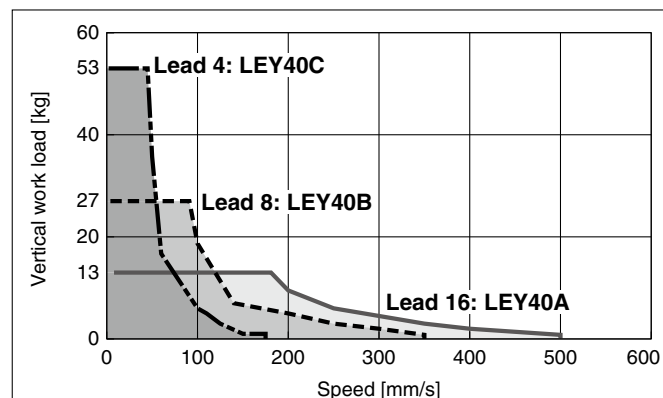
#### LEY25□



#### LEY32□



#### LEY40□





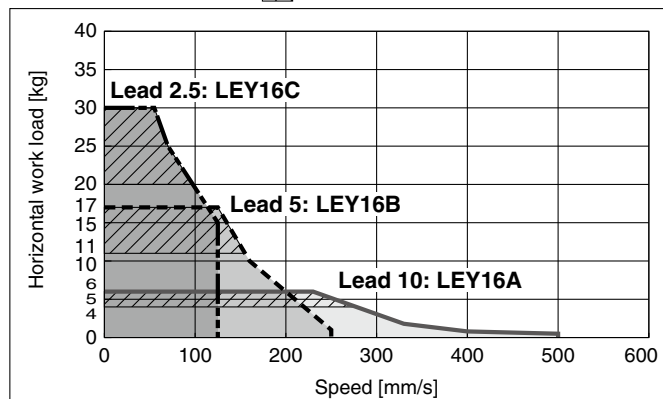
Refer to page 37 for the JXC□1, LEC□1 and page 39 for the LECA6.

**Speed-Work Load Graph (Guide)**

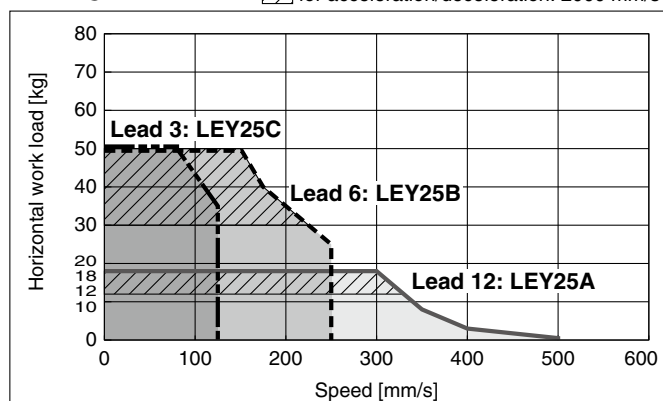
For Step Motor (Servo/24 VDC) LEC□A, JXC□<sup>2</sup><sub>3</sub>

**Horizontal****LEY16□**

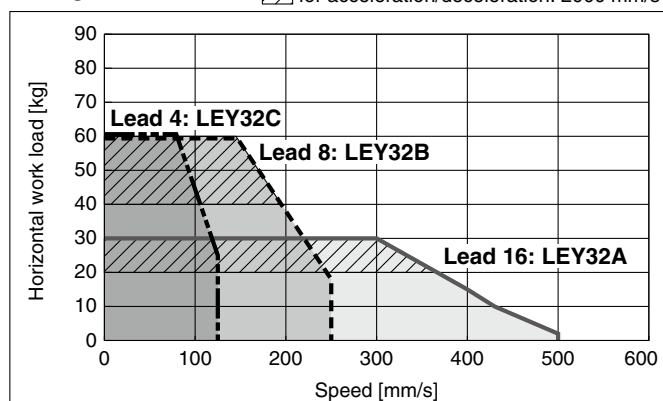
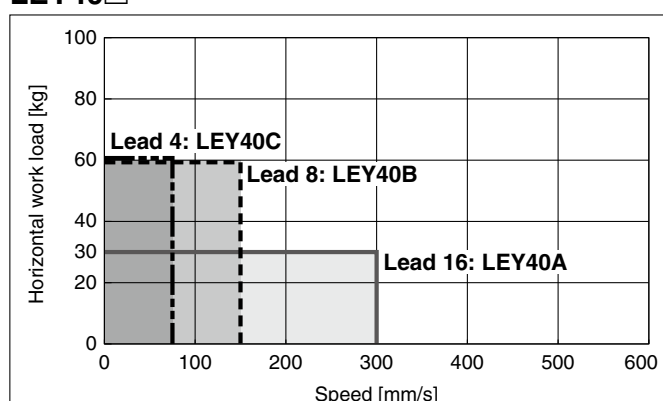
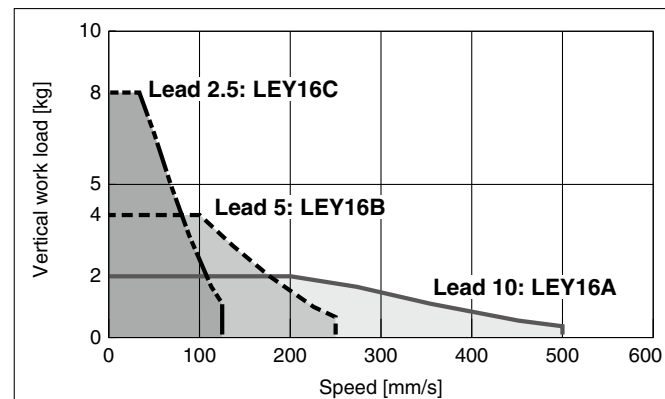
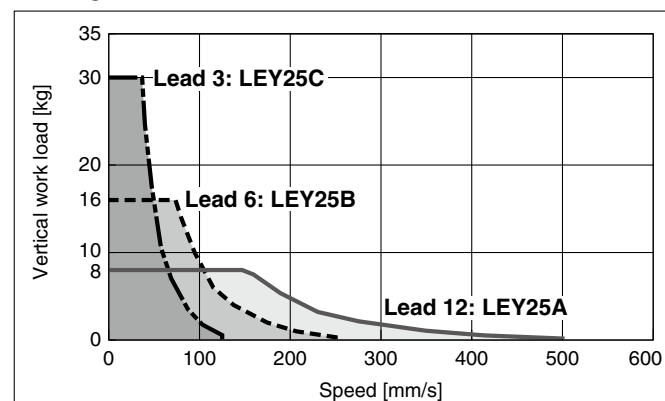
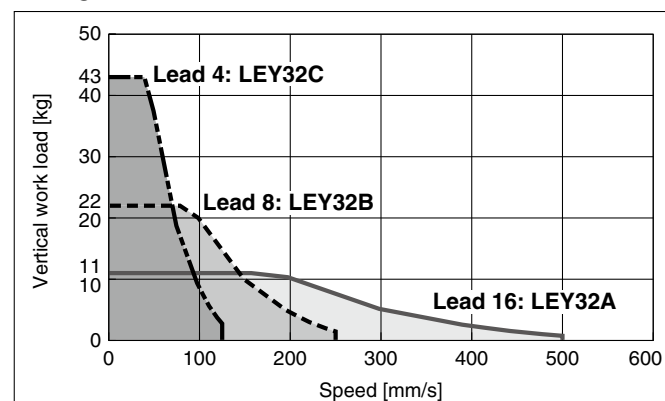
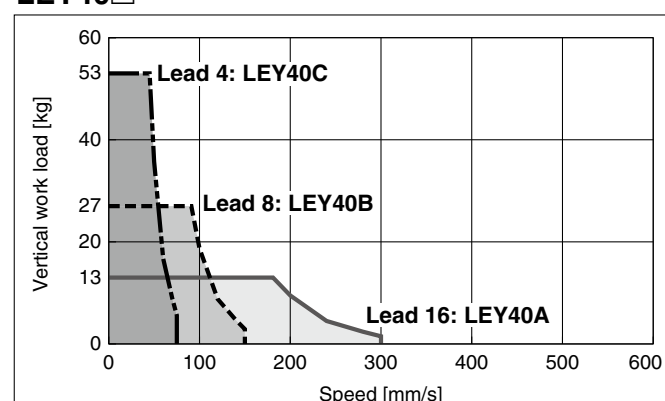
▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

**LEY25□**

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

**LEY32□**

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

**LEY40□****Vertical****LEY16□****LEY25□****LEY32□****LEY40□**

# LEY/25A-LEY Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

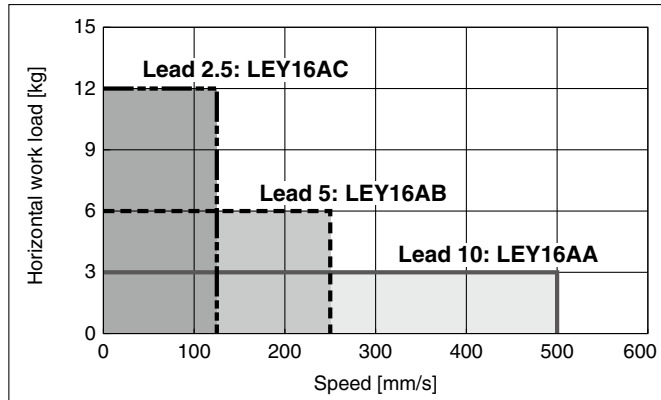
Secondary Battery Compatible

Refer to page 37 for the JXC□1, LEC□1 and page 38 for the LEC□A, JXC□2.

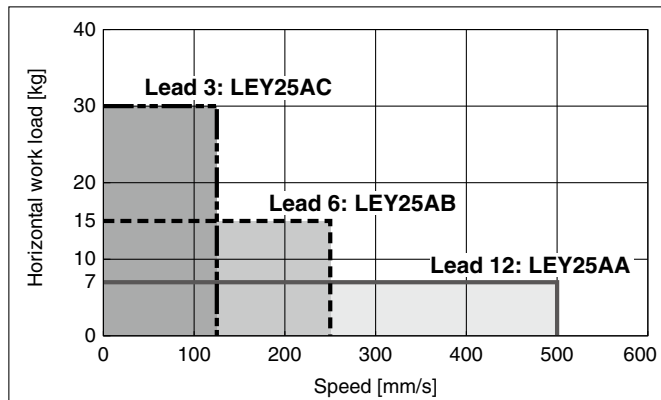
## Speed-Work Load Graph (Guide) For Servo Motor (24 VDC) LECA6

### Horizontal

#### LEY16□A

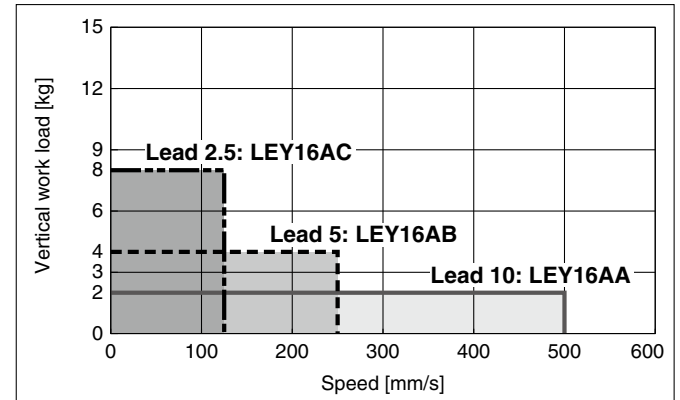


#### LEY25□A

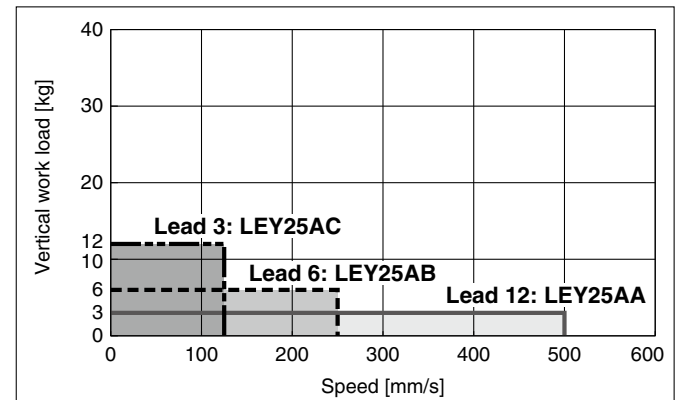


### Vertical

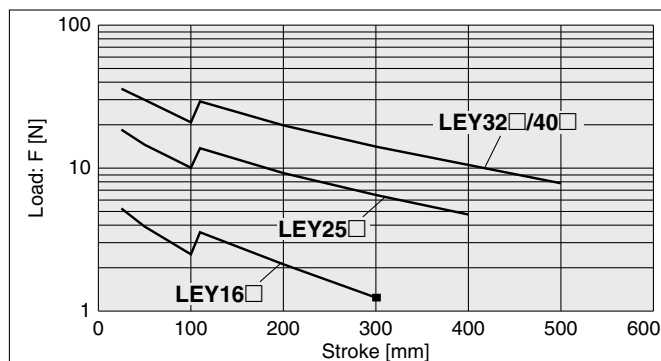
#### LEY16□A



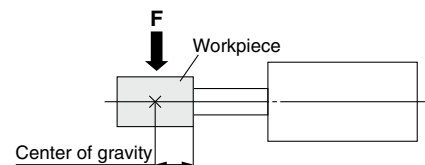
#### LEY25□A



## Graph of Allowable Lateral Load on the Rod End (Guide)

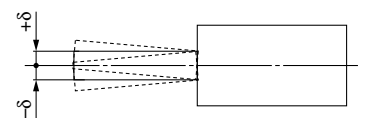


[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]

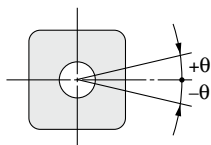


## Rod Displacement: $\delta$ [mm]

| Stroke<br>Size | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
|----------------|------|------|------|------|------|------|------|------|------|------|------|
| 16             | ±0.4 | ±0.5 | ±0.9 | ±0.8 | ±1.1 | ±1.3 | ±1.5 | —    | —    | —    | —    |
| 25             | ±0.3 | ±0.4 | ±0.7 | ±0.7 | ±0.9 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | —    | —    |
| 32, 40         | ±0.3 | ±0.4 | ±0.7 | ±0.6 | ±0.8 | ±1.0 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.8 |



## Non-rotating Accuracy of Rod

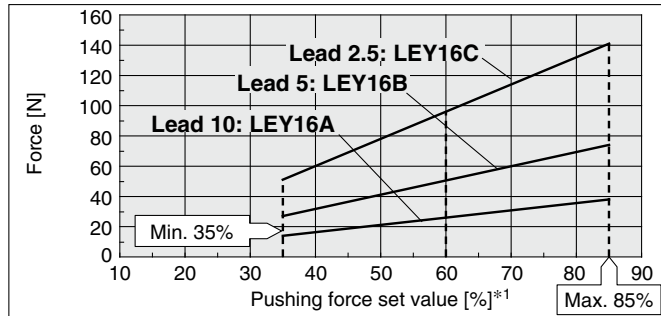


| Size | Non-rotating accuracy $\theta$ |
|------|--------------------------------|
| 16   | ±1.1°                          |
| 25   | ±0.8°                          |
| 32   | ±0.7°                          |
| 40   | ±0.7°                          |

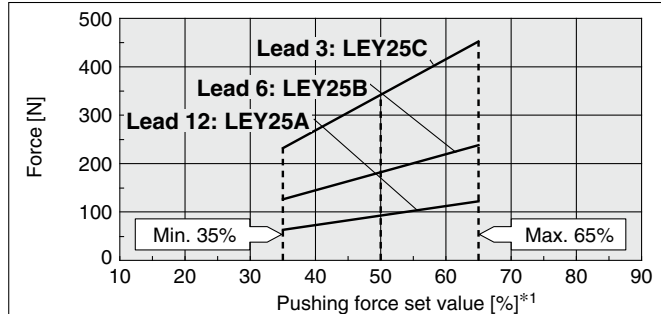
\* The values without a load are shown.

\* Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

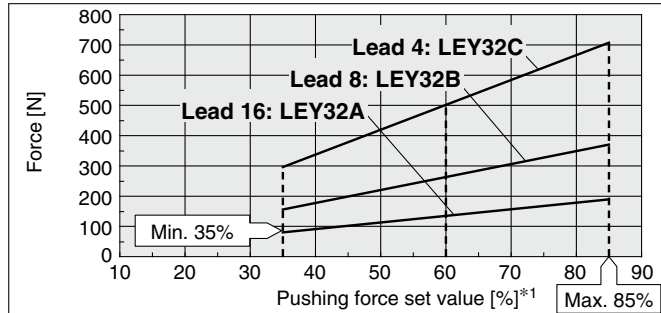
Failure to do so may result in the deformation of the non-rotating guide, abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.

**Force Conversion Graph (Guide)****Step Motor (Servo/24 VDC)****LEY16**

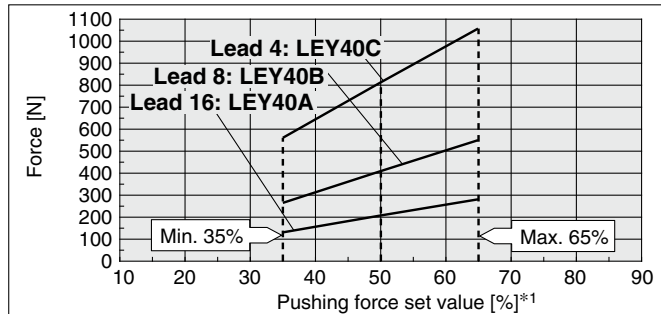
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 25°C or less        | 85 or less                  | 100            | —                             |
| 40°C                | 40 or less                  | 100            | —                             |
|                     | 50                          | 70             | 12 or less                    |
|                     | 70                          | 20             | 1.3 or less                   |
|                     | 85                          | 15             | 0.8 or less                   |

**LEY25**

| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 65 or less                  | 100            | —                             |

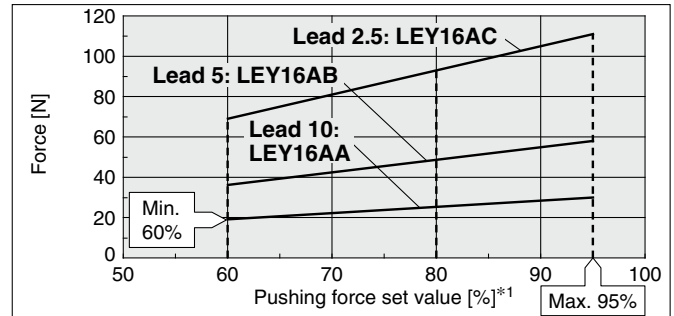
**LEY32**

| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 25°C or less        | 85 or less                  | 100            | —                             |
| 40°C                | 65 or less                  | 100            | —                             |
|                     | 85                          | 50             | 15 or less                    |

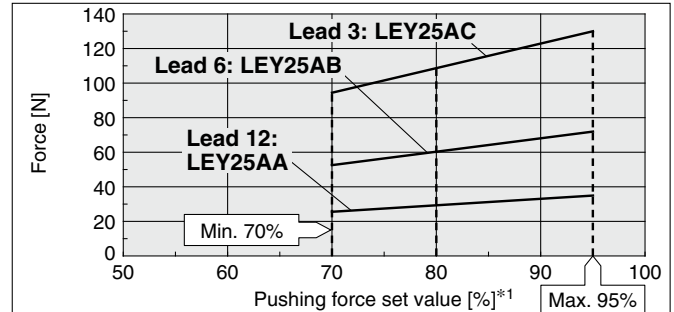
**LEY40**

| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 65 or less                  | 100            | —                             |

\*1 Set values for the controller

**Servo Motor (24 VDC)****LEY16□A**

| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 95 or less                  | 100            | —                             |

**LEY25□A**

| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 95 or less                  | 100            | —                             |

**<Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed>  
Without Load**

| Model | Lead  | Pushing speed [mm/s] | Pushing force (Setting input value) | Model   | Lead  | Pushing speed [mm/s] | Pushing force (Setting input value) |
|-------|-------|----------------------|-------------------------------------|---------|-------|----------------------|-------------------------------------|
| LEY16 | A/B/C | 21 to 50             | 60 to 85%                           | LEY16□A | A/B/C | 21 to 50             | 80 to 95%                           |
| LEY25 | A/B/C | 21 to 35             | 50 to 65%                           | LEY25□A | A/B/C | 21 to 35             | 80 to 95%                           |
| LEY32 | A     | 24 to 30             | 60 to 85%                           | LEY40   | A     | 24 to 30             | 50 to 65%                           |
|       | B/C   | 21 to 30             |                                     |         | B/C   | 21 to 30             |                                     |

There is a limit to the pushing force in relation to the pushing speed. If the product is operated outside of the range (low pushing force), the completion signal [INP] may be output before the pushing operation has been completed (during the moving operation). If operating with the pushing speed below the min. speed, please check for operating problems before using the product.

**<Set Values for Vertical Upward Transfer Pushing Operations>**

For vertical loads (upward), set the pushing force to the max. value shown below and operate at the work load or less.

| Model          | LEY16□  | LEY25□   | LEY32□   | LEY40□  | LEY16□A | LEY25□A   |
|----------------|---------|----------|----------|---------|---------|-----------|
| Lead           | A B C   | A B C    | A B C    | A B C   | A B C   | A B C     |
| Work load [kg] | 1 1.5 3 | 2.5 5 10 | 4.5 9 18 | 7 14 28 | 1 1.5 3 | 1.2 2.5 5 |
| Pushing force  | 85%     | 65%      | 85%      | 65%     | 95%     | 95%       |

# Model Selection

Size **25, 32, 63, 100****LEY Series**▶pp. 69, 79, 86 **LECY**□ Series▶p. 91**LEY-X5 Series**▶p. 181 **25A-LEY Series**▶p. 199

## Selection Procedure

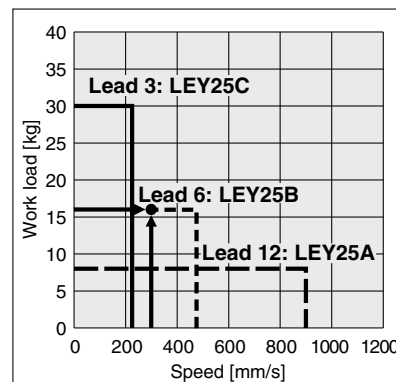
### Positioning Control Selection Procedure

**Step 1** Check the work load–speed. (Vertical transfer) → **Step 2** Check the cycle time.

### Selection Example

#### Operating conditions

- Workpiece mass: 16 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 5000 [mm/s<sup>2</sup>]
- Stroke: 300 [mm]
- Workpiece mounting condition: Vertical upward downward transfer

**<Speed-Vertical work load graph> (LEY25)****Step 1** Check the work load–speed. <Speed-Vertical work load graph>

Select a model based on the workpiece mass and speed while referencing the speed-vertical work load graph.

Selection example) The **LEY25B** can be temporarily selected as a possible candidate based on the graph shown on the right side.

\* It is necessary to mount a guide outside the actuator when used for horizontal transfer. When selecting the target model, refer to the horizontal work load in the specifications on pages 71, 72, 80, 87, and 183 and the precautions.

The regeneration option may be necessary. Refer to pages 43 and 44 for the "Required Conditions for the Regeneration Option."

**Step 2** Check the cycle time.

Calculate the cycle time using the following calculation method.

**Cycle time:**

T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1: Acceleration time and T3: Deceleration time can be found by the following equation.

$$T1 = V/a1 \text{ [s]} \quad T3 = V/a2 \text{ [s]}$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4: Settling time varies depending on the motor type and load. The value below is recommended.

$$T4 = 0.05 \text{ [s]}$$

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 300/5000 = 0.06 \text{ [s]}, \quad T3 = V/a2 = 300/5000 = 0.06 \text{ [s]}$$

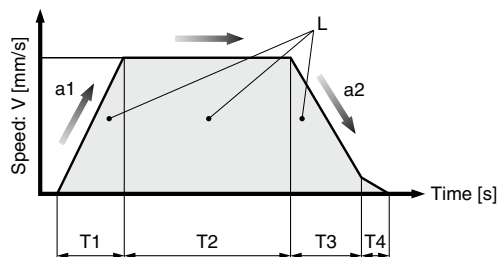
$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.06 + 0.06)}{300} = 0.94 \text{ [s]}$$

$$T4 = 0.05 \text{ [s]}$$

The cycle time can be found as follows.

$$T = T1 + T2 + T3 + T4 = 0.06 + 0.94 + 0.06 + 0.05 = 1.11 \text{ [s]}$$

Based on the above calculation result, the **LEY25S2B-300** should be selected.



- L : Stroke [mm] ... (Operating condition)
- V : Speed [mm/s] ... (Operating condition)
- a1: Acceleration [mm/s<sup>2</sup>] ... (Operating condition)
- a2: Deceleration [mm/s<sup>2</sup>] ... (Operating condition)

- T1: Acceleration time [s] ... Time until reaching the set speed
- T2: Constant speed time [s] ... Time while the actuator is operating at a constant speed
- T3: Deceleration time [s] ... Time from the beginning of the constant speed operation to stop
- T4: Settling time [s] ... Time until positioning is completed

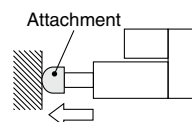


**Selection Procedure****Force Control Selection Procedure****Step 1 Check the duty ratio.****Step 2 Check the force.****Step 3 Check the lateral load on the rod end.**

\* The duty ratio is a ratio of the operation time in one cycle.

**Selection Example****Operating conditions**

- Mounting condition: Horizontal (pushing)
- Attachment weight: 0.5 [kg]
- Force: 255 [N]
- Duty ratio: 60 [%]
- Speed: 100 [mm/s]
- Stroke: 300 [mm]

**Step 1 Check the duty ratio.****<Conversion table of force–duty ratio>**

Select the [Force] from the duty ratio while referencing the conversion table of force–duty ratio.

Selection example)

Based on the table below,

- Duty ratio: 60 [%]

Torque limit/Command value will be 30 [%].

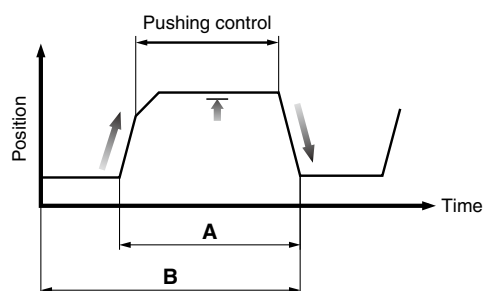
**<Conversion table of force–duty ratio>**

(LEY25/AC Servo motor)

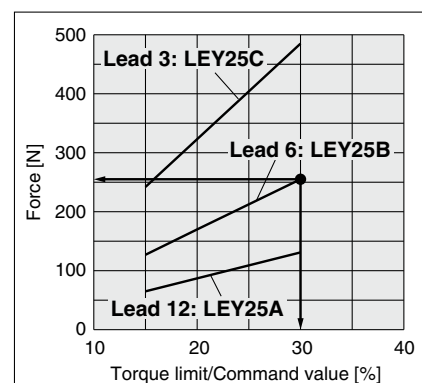
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |

\* [Torque limit/Command value [%]] is the set value for the driver.

\* [Continuous pushing time] is the time that the actuator can continuously keep pushing.



$$\text{Duty ratio} = A/B \times 100 [\%]$$



**<Force conversion graph>  
(LEY25)**

**Step 2 Check the force.****<Force conversion graph>**

Select a model based on the torque limit/command value and pushing force while referencing the force conversion graph.

Selection example)

Based on the graph shown on the right side,

- Torque limit/Command value: 30 [%]
- Force: 255 [N]

The **LEY25B** can be temporarily selected as a possible candidate.

**Step 3 Check the lateral load on the rod end.****<Graph of allowable lateral load on the rod end>**

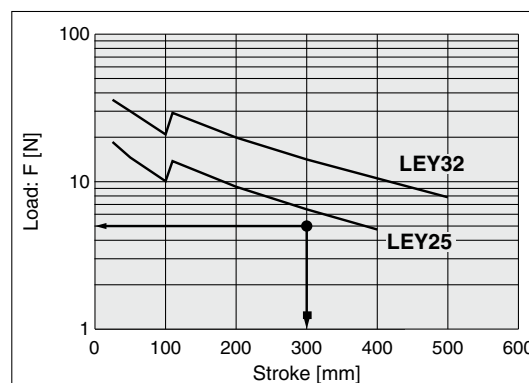
Confirm the allowable lateral load on the rod end of the actuator: LEY25B, which has been selected temporarily while referencing the graph of allowable lateral load on the rod end.

Selection example)

Based on the graph shown on the right side,

- Attachment weight: 0.5 [kg] ≈ 5 [N]
- Product stroke: 300 [mm]

The lateral load on the rod end is in the allowable range.



**<Graph of allowable lateral load on the rod end>**

**Based on the above calculation result, the LEY25S2B-300 should be selected.**

\* For pushing operations, check the list of applicable drivers. (Refer to page 23.)

# LEY/LEY-X5/25A-LEY Series

AC Servo Motor

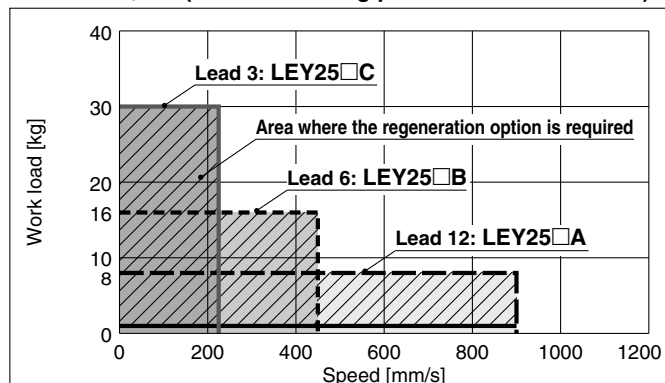
Size 25, 32, 63, 100

Dust-tight/Water-jet-proof (IP65 Equivalent)

Secondary Battery Compatible

## Speed-Vertical Work Load Graph/Required Conditions for the Regeneration Option

### LEY25□S<sub>6</sub>/T6 (Motor mounting position: Parallel/In-line)



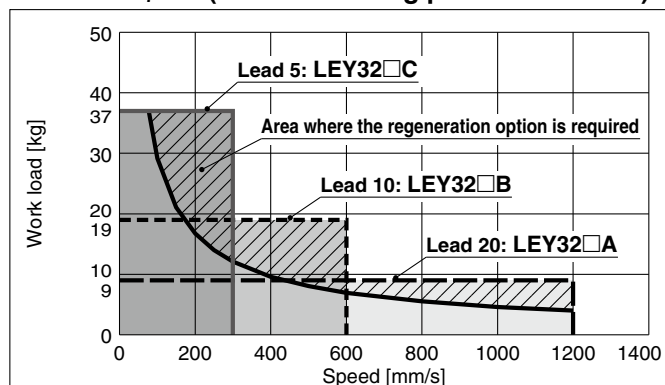
### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

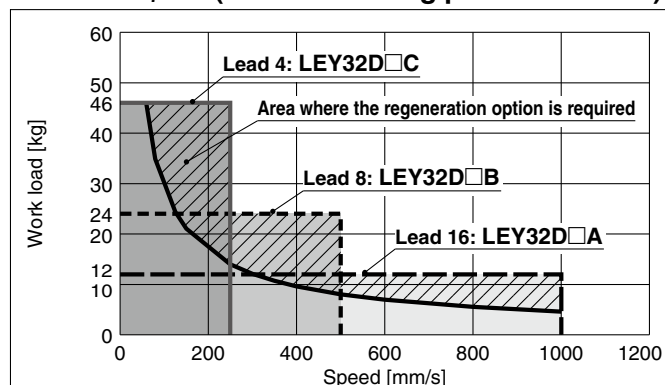
### Regeneration Option Models

| Size    | Model         | Note   |
|---------|---------------|--------|
| LEY25□  | LEC-MR-RB-032 | —      |
| LEY32□  | LEC-MR-RB-032 | —      |
| LEY63□  | LEC-MR-RB-12  | —      |
| LEY100□ | LEC-MR-RB-032 | A area |
|         | LEC-MR-RB-12  | B area |
|         |               | C area |

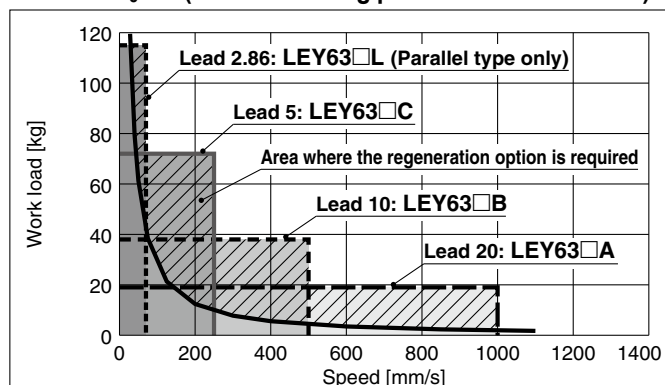
### LEY32□S<sub>3</sub>/T7 (Motor mounting position: Parallel)



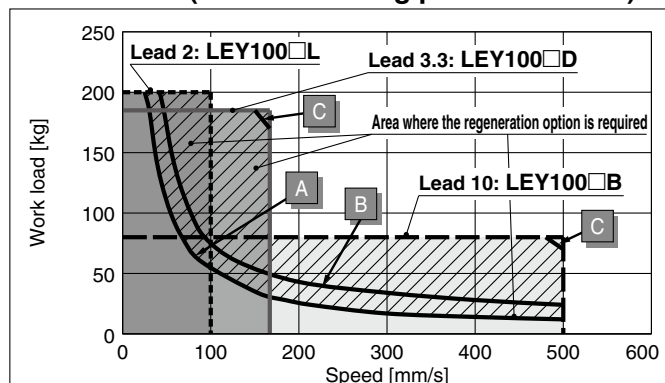
### LEY32DS<sub>3</sub>/T7 (Motor mounting position: In-line)



### LEY63□S<sub>8</sub>/T8 (Motor mounting position: Parallel/In-line)



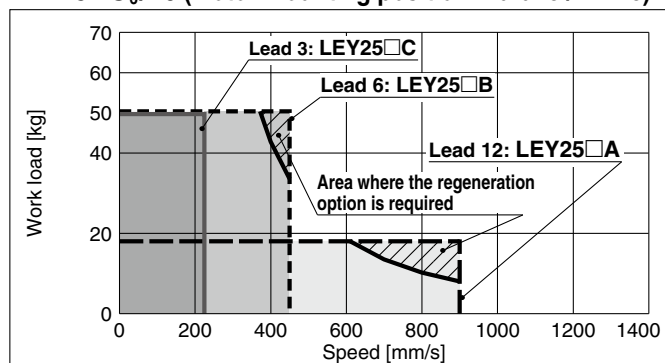
### LEY100□T9 (Motor mounting position: In-line)



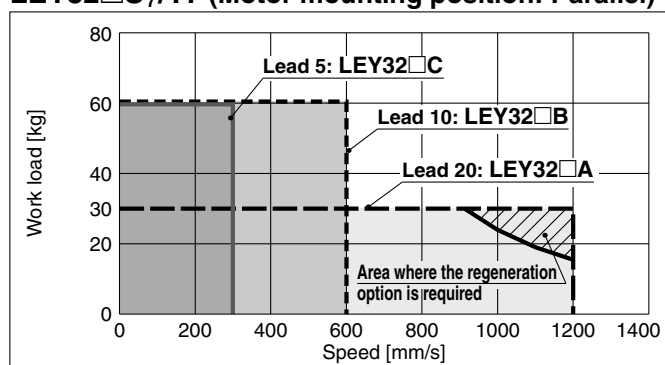
| Operating condition | Regenerative condition<br>Duty ratio |
|---------------------|--------------------------------------|
| A area              | 100%                                 |
| B area              |                                      |
| C area              | 90%                                  |

### Speed–Horizontal Work Load Graph/Required Conditions for the Regeneration Option

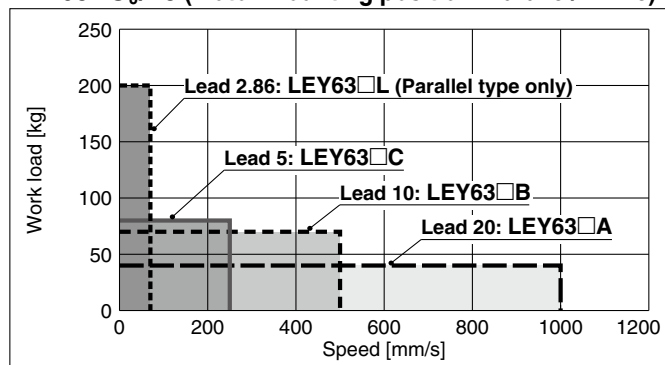
**LEY25□S<sub>6</sub><sup>2</sup>/T6 (Motor mounting position: Parallel/In-line)**



**LEY32□S<sub>7</sub><sup>3</sup>/T7 (Motor mounting position: Parallel)**



### LEY63□S<sub>8</sub><sup>4</sup>/T8 (Motor mounting position: Parallel/In-line)



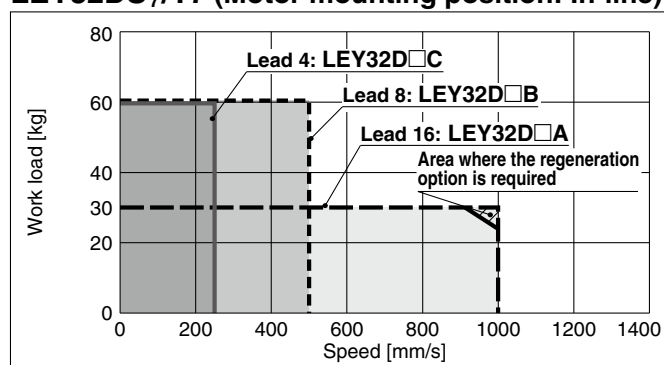
### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

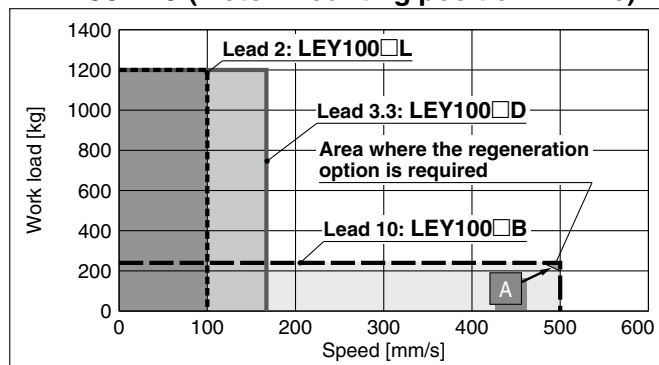
## Regeneration Option Models

| Size                                                                                            | Model         | Note                                                                                   |
|-------------------------------------------------------------------------------------------------|---------------|----------------------------------------------------------------------------------------|
| <b>LEY25</b>   | LEC-MR-RB-032 | —                                                                                      |
| <b>LEY32</b>   | LEC-MR-RB-032 | —                                                                                      |
| <b>LEY63</b>   | —             | —                                                                                      |
| <b>LEY100</b>  | LEC-MR-RB-032 |  area |

### LEY32DS<sup>3</sup><sub>7</sub>/T7 (Motor mounting position: In-line)



### LEY100□T9 (Motor mounting position: In-line)



### Allowable Stroke Speed

| Model                                                                                   | AC servo motor | Lead                   |      | Stroke [mm] |            |            |     |     |     |            |     |     |     |     |            |            |            |            |            |            |   |            |  |           |  |
|-----------------------------------------------------------------------------------------|----------------|------------------------|------|-------------|------------|------------|-----|-----|-----|------------|-----|-----|-----|-----|------------|------------|------------|------------|------------|------------|---|------------|--|-----------|--|
|                                                                                         |                | Symbol                 | [mm] | 30          | 50         | 100        | 150 | 200 | 250 | 300        | 350 | 400 | 450 | 500 | 600        | 700        | 800        | 900        | 1000       |            |   |            |  |           |  |
| LEY25□S <sub>6</sub> <sup>2</sup> /T6<br>(Motor mounting position:<br>Parallel/In-line) | 100 W<br>/□40  | A                      | 12   | 900         |            |            |     |     |     | 600        |     | —   |     | —   |            | —          |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | B                      | 6    | 450         |            |            |     |     |     | 300        |     | —   |     | —   |            | —          |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | C                      | 3    | 225         |            |            |     |     |     | 150        |     | —   |     | —   |            | —          |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | (Motor rotation speed) |      | (4500 rpm)  |            |            |     |     |     | (3000 rpm) |     | —   |     | —   |            | —          |            |            |            |            |   |            |  |           |  |
| LEY32□S <sub>7</sub> <sup>3</sup> /T7<br>(Motor mounting position:<br>Parallel)         | 200 W<br>/□60  | A                      | 20   | 1200        |            |            |     |     |     | 800        |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | B                      | 10   | 600         |            |            |     |     |     | 400        |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | C                      | 5    | 300         |            |            |     |     |     | 200        |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | (Motor rotation speed) |      | (3600 rpm)  |            |            |     |     |     | (2400 rpm) |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
| LEY32DS <sub>7</sub> <sup>3</sup> /T7<br>(Motor mounting position:<br>In-line)          | 200 W<br>/□60  | A                      | 16   | 1000        |            |            |     |     |     | 640        |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | B                      | 8    | 500         |            |            |     |     |     | 320        |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | C                      | 4    | 250         |            |            |     |     |     | 160        |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
|                                                                                         |                | (Motor rotation speed) |      | (3750 rpm)  |            |            |     |     |     | (2400 rpm) |     |     |     | —   |            |            |            |            |            |            |   |            |  |           |  |
| LEY63□S <sub>8</sub> <sup>4</sup> /T8<br>(Motor mounting position:<br>Parallel/In-line) | 400 W<br>/□60  | A                      | 20   | —           | 1000       |            |     |     |     |            |     |     |     |     | 800        |            | 600        |            | 500        |            | — |            |  |           |  |
|                                                                                         |                | B                      | 10   | —           | 500        |            |     |     |     |            |     |     |     |     | 400        |            | 300        |            | 250        |            | — |            |  |           |  |
|                                                                                         |                | C                      | 5    | —           | 250        |            |     |     |     |            |     |     |     |     | 200        |            | 150        |            | 125        |            | — |            |  |           |  |
|                                                                                         |                | (Motor rotation speed) |      | —           | (3000 rpm) |            |     |     |     |            |     |     |     |     | (2400 rpm) |            | (1800 rpm) |            | (1500 rpm) |            | — |            |  |           |  |
|                                                                                         |                | L*1                    | 2.86 | —           | 70         |            |     |     |     |            |     |     |     |     | —          |            | —          |            | —          |            | — |            |  |           |  |
|                                                                                         |                | (Motor rotation speed) |      | —           | (1470 rpm) |            |     |     |     |            |     |     |     |     | —          |            | —          |            | —          |            | — |            |  |           |  |
| LEY100D□T9<br>(Motor mounting position:<br>In-line)                                     | 750 W<br>/□80  | B                      | 10   | —           |            | 500        |     |     |     |            |     |     |     |     |            | 371        |            | 285        |            | 225        |   | 183        |  | 151       |  |
|                                                                                         |                | D                      | 3.3  | —           |            | 167        |     |     |     |            |     |     |     |     |            | 124        |            | 95         |            | 75         |   | 61         |  | 50        |  |
|                                                                                         |                | L                      | 2    | —           |            | 100        |     |     |     |            |     |     |     |     |            | 74         |            | 57         |            | 45         |   | 37         |  | 30        |  |
|                                                                                         |                | (Motor rotation speed) |      | —           |            | (3000 rpm) |     |     |     |            |     |     |     |     |            | (2225 rpm) |            | (1708 rpm) |            | (1353 rpm) |   | (1098 rpm) |  | (908 rpm) |  |

\*1 Parallel type only

# LEY/LEY-X5/25A-LEY Series

AC Servo Motor

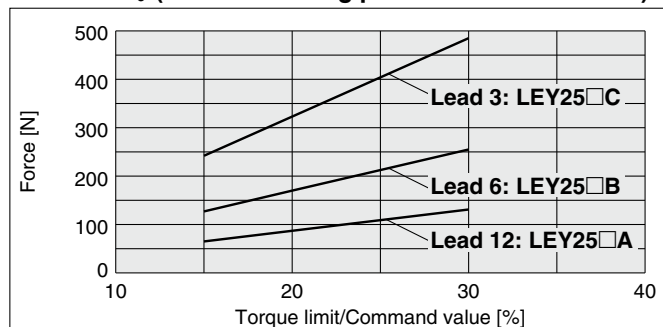
Size 25, 32, 63, 100

Dust-tight/Water-jet-proof (IP65 Equivalent)

Secondary Battery Compatible

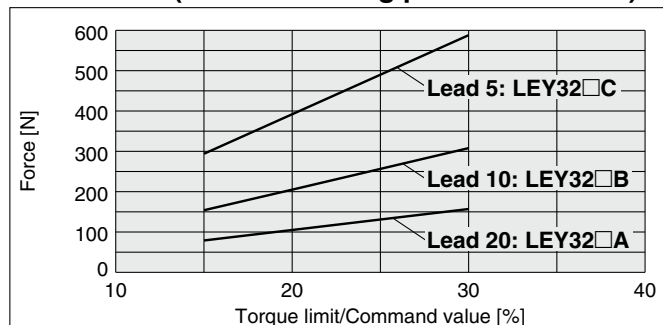
## Force Conversion Graph (Guide) For the LECSA, LECSB, LECSA, LECSA

### LEY25□S<sub>2</sub><sup>2</sup> (Motor mounting position: Parallel/In-line)



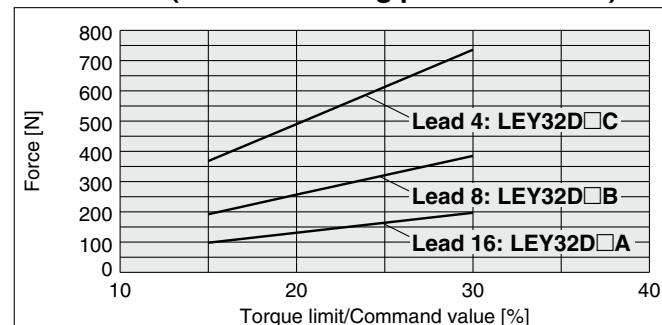
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |

### LEY32□S<sub>7</sub><sup>3</sup> (Motor mounting position: Parallel)



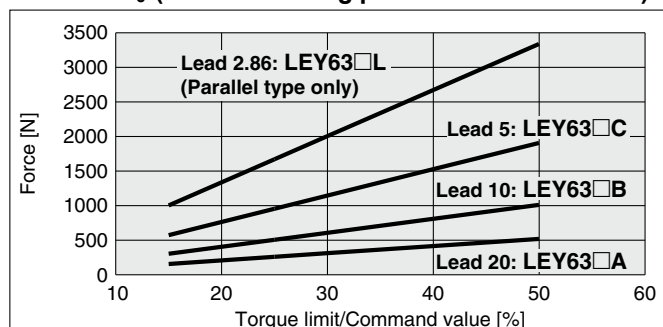
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |

### LEY32DS<sub>7</sub><sup>3</sup> (Motor mounting position: In-line)



| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |

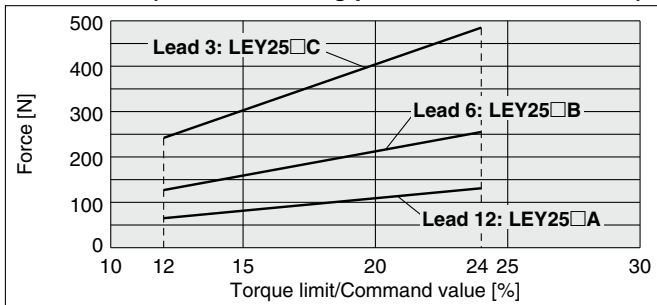
### LEY63□S<sub>8</sub><sup>4</sup> (Motor mounting position: Parallel/In-line)



| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |
| 40                             | 30             | 0.5 or less                   |
| 50                             | 20             | 0.16 or less                  |

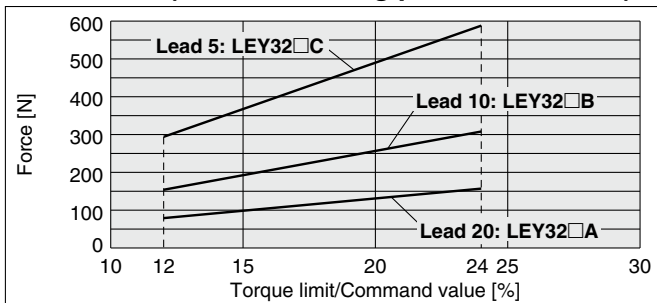
## Force Conversion Graph (Guide) For the LECS□-T

### LEY25□T6 (Motor mounting position: Parallel/In-line)



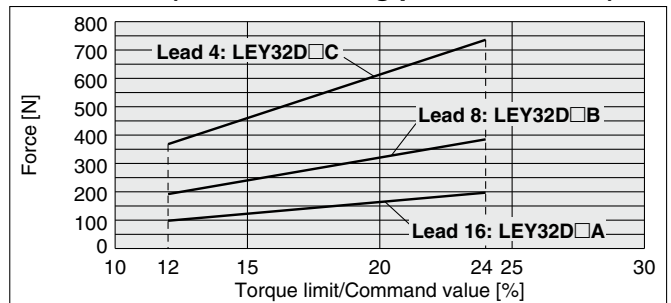
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 20 or less                     | 100            | —                             |
| 24                             | 60             | 1.5 or less                   |

### LEY32□T7 (Motor mounting position: Parallel)



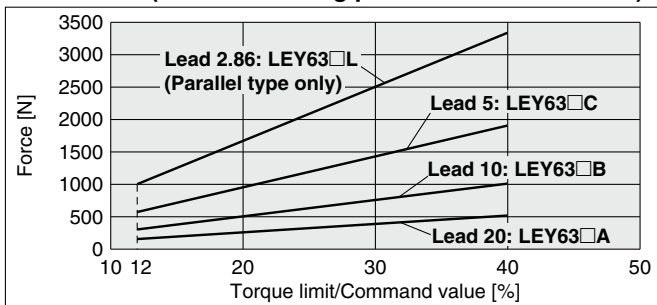
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 20 or less                     | 100            | —                             |
| 24                             | 60             | 1.5 or less                   |

### LEY32DT7 (Motor mounting position: In-line)



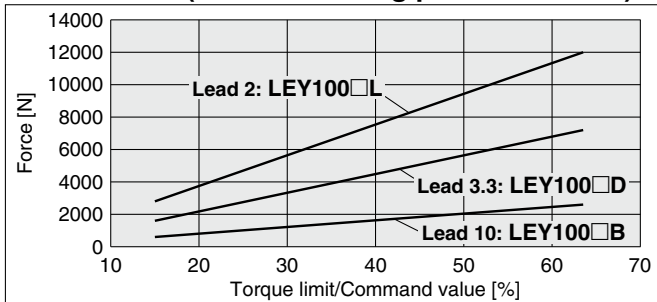
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 20 or less                     | 100            | —                             |
| 24                             | 60             | 1.5 or less                   |

### LEY63□T8 (Motor mounting position: Parallel/In-line)



| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 20 or less                     | 100            | —                             |
| 24                             | 60             | 1.5 or less                   |
| 32                             | 30             | 0.5 or less                   |
| 40                             | 20             | 0.16 or less                  |

### LEY100□T9 (Motor mounting position: In-line)



| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 90             | 6.00 or less                  |
| 40                             | 50             | 1.23 or less                  |
| 50                             | 30             | 0.57 or less                  |
| 55                             | 20             | 0.25 or less                  |



# LEY/LEY-X5/25A-LEY Series

AC Servo Motor

Size 25, 32, 63, 100

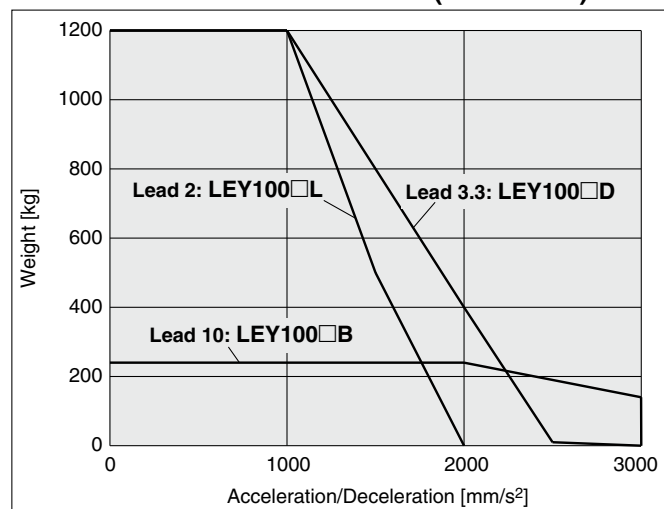
Dust-tight/Water-jet-proof (IP65 Equivalent)

Secondary Battery Compatible

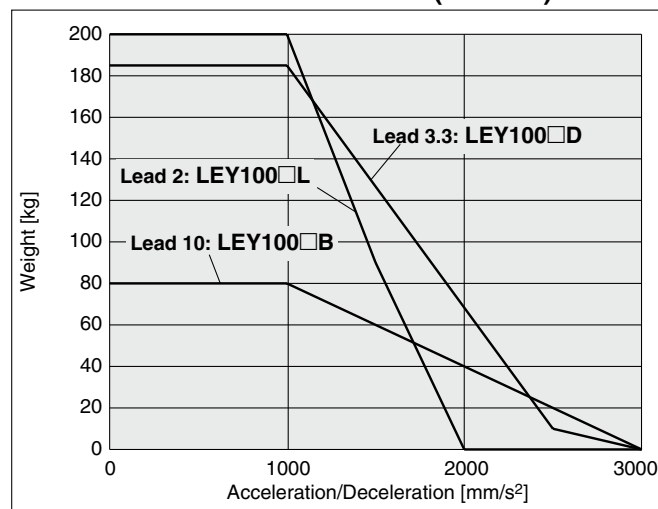
## Load–Acceleration/Deceleration Graph

\* The values shown below are allowable values of the actuator body.  
Do not use the actuator so that it exceeds these specification ranges.

### Max. Acceleration/Deceleration (Horizontal)



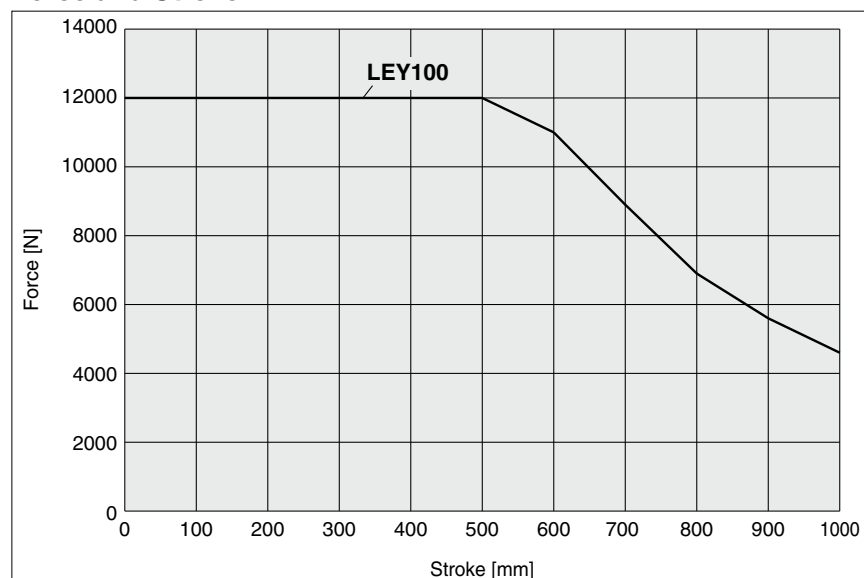
### Max. Acceleration/Deceleration (Vertical)

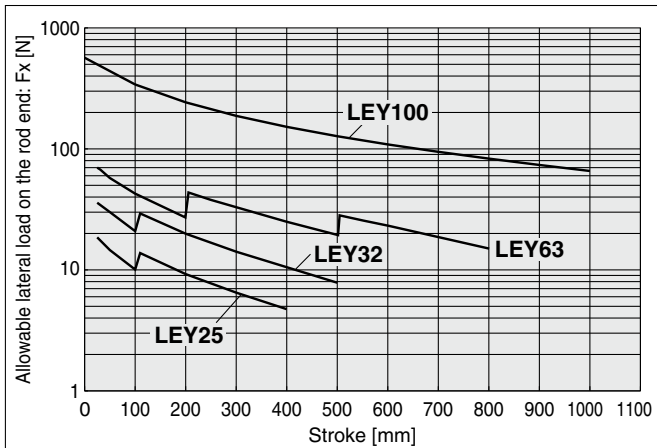


## Force–Stroke Graph

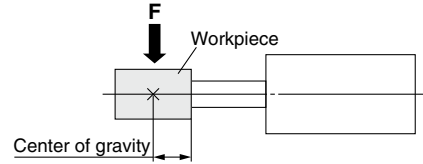
\* The values shown below are allowable values of the actuator body.  
Do not use the actuator so that it exceeds these specification ranges.

### Force and Stroke



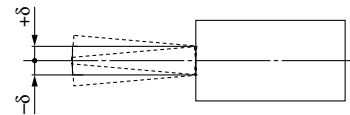
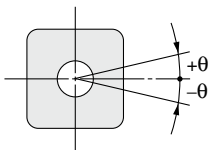
**Graph of Allowable Lateral Load on the Rod End (Guide)**

[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]

**Rod Displacement:  $\delta$  [mm]**

| Stroke<br>Size | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  | 600  | 700  | 800  | 900  | 1000 |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>25</b>      | ±0.3 | ±0.4 | ±0.7 | ±0.7 | ±0.9 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | —    | —    | —    | —    | —    | —    | —    |
| <b>32</b>      | ±0.3 | ±0.4 | ±0.7 | ±0.6 | ±0.8 | ±1.0 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.8 | —    | —    | —    | —    | —    |
| <b>63</b>      | —    | ±0.5 | ±0.7 | ±0.9 | ±1.2 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.9 | ±2.1 | ±1.7 | ±2.0 | ±2.2 | —    | —    |
| <b>100</b>     | —    | —    | ±0.8 | —    | ±1.3 | —    | ±1.9 | —    | ±2.4 | —    | ±2.9 | ±3.5 | ±4.0 | ±4.5 | ±5.1 | ±5.6 |

\* The values without a load are shown.

**Non-rotating Accuracy of Rod**

| Size       | Non-rotating accuracy $\theta$ |
|------------|--------------------------------|
| <b>25</b>  | ±0.8°                          |
| <b>32</b>  | ±0.7°                          |
| <b>63</b>  | ±0.6°                          |
| <b>100</b> | ±0.6°                          |

\* Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.  
Failure to do so may result in the deformation of the non-rotating guide, abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.

# Model Selection

Size **25, 32, 63****LEY Series**▶p. 91 **LECS**□ Series▶pp. 69, 79, 86**LEY-X5 Series**▶p. 187 **25A-LEY Series**▶p. 201

## Selection Procedure

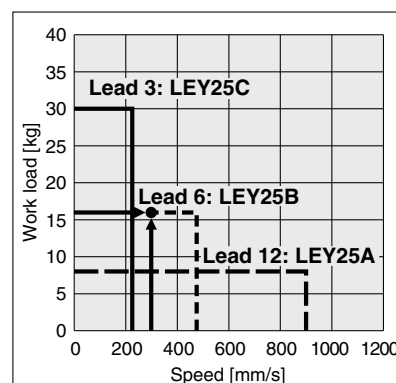
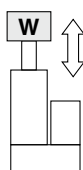
### Positioning Control Selection Procedure

**Step 1** Check the work load–speed.  
(Vertical transfer)**Step 2** Check the cycle time.

### Selection Example

#### Operating conditions

- Workpiece mass: 16 [kg]
- Speed: 300 [mm/s]
- Acceleration/Deceleration: 5000 [mm/s<sup>2</sup>]
- Stroke: 300 [mm]
- Workpiece mounting condition: Vertical upward downward transfer

**<Speed-Vertical work load graph> (LEY25)****Step 1** Check the work load–speed. **<Speed-Vertical work load graph>**

Select a model based on the workpiece mass and speed while referencing the speed–vertical work load graph.

Selection example) The **LEY25B** can be temporarily selected as a possible candidate based on the graph shown on the right side.

\* It is necessary to mount a guide outside the actuator when used for horizontal transfer. When selecting the target model, refer to the horizontal work load in the specifications on pages 93 and 94 and the precautions.

The regenerative resistor may be necessary. Refer to pages 51 and 52 for the “Required Conditions for the Regenerative Resistor (Guide).”

**Step 2** Check the cycle time.

Calculate the cycle time using the following calculation method.

**Cycle time:**

T can be found from the following equation.

$$T = T1 + T2 + T3 + T4 \text{ [s]}$$

- T1: Acceleration time and T3: Deceleration time can be found by the following equation.

$$T1 = V/a1 \text{ [s]}$$

$$T3 = V/a2 \text{ [s]}$$

- T2: Constant speed time can be found from the following equation.

$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} \text{ [s]}$$

- T4: Settling time varies depending on the motor type and load. The value below is recommended.

$$T4 = 0.05 \text{ [s]}$$

Calculation example)

T1 to T4 can be calculated as follows.

$$T1 = V/a1 = 300/5000 = 0.06 \text{ [s]}, T3 = V/a2 = 300/5000 = 0.06 \text{ [s]}$$

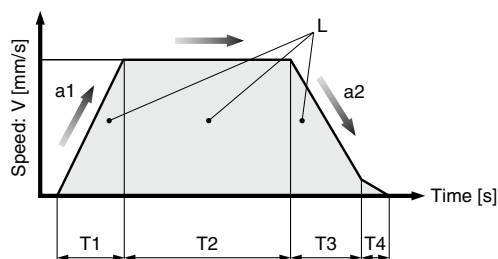
$$T2 = \frac{L - 0.5 \cdot V \cdot (T1 + T3)}{V} = \frac{300 - 0.5 \cdot 300 \cdot (0.06 + 0.06)}{300} = 0.94 \text{ [s]}$$

$$T4 = 0.05 \text{ [s]}$$

The cycle time can be found as follows.

$$T = T1 + T2 + T3 + T4 = 0.06 + 0.94 + 0.06 + 0.05 = 1.11 \text{ [s]}$$

Based on the above calculation result, the **LEY25V6B-300** should be selected.



- L : Stroke [mm] ... (Operating condition)
- V : Speed [mm/s] ... (Operating condition)
- a1: Acceleration [mm/s<sup>2</sup>] ... (Operating condition)
- a2: Deceleration [mm/s<sup>2</sup>] ... (Operating condition)

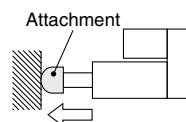
- T1: Acceleration time [s] ... Time until reaching the set speed
- T2: Constant speed time [s] ... Time while the actuator is operating at a constant speed
- T3: Deceleration time [s] ... Time from the beginning of the constant speed operation to stop
- T4: Settling time [s] ... Time until positioning is completed

**Selection Procedure****Control Selection Procedure****Step 1 Check the duty ratio.****Step 2 Check the force.****Step 3 Check the lateral load on the rod end.**

\* The duty ratio is a ratio of the operation time in one cycle.

**Selection Example****Operating conditions**

- Mounting condition: Horizontal (pushing)
- Attachment weight: 0.5 [kg]
- Force: 255 [N]
- Duty ratio: 60 [%]
- Pushing speed: 35 [mm/s]
- Stroke: 300 [mm]

**Step 1 Check the duty ratio.****<Conversion table of force–duty ratio>**

Select the [force] from the duty ratio while referencing the conversion table of force–duty ratio.

Selection example)

Based on the table below,

- Duty ratio: 60 [%]

Torque limit/command value will be 90 [%].

**<Conversion table of force–duty ratio>**

(LEY25/AC Servo motor)

| Torque limit/<br>Command value [%] | Duty ratio<br>[%] | Continuous<br>pushing time [min] |
|------------------------------------|-------------------|----------------------------------|
| 75 or less                         | 100               | —                                |
| 90                                 | 60                | 1.5 or less                      |

\* [Force set value] is one of the data input to the driver.

\* [Continuous pushing time] is the time that the actuator can continuously keep pushing.

**Step 2 Check the pushing force.****<Force conversion graph>**

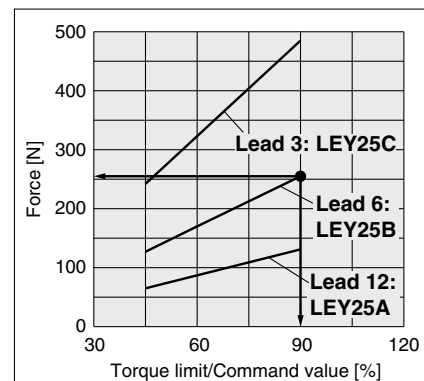
Select a model based on the torque limit/command value and pushing force while referencing the force conversion graph.

Selection example)

Based on the graph shown on the right side,

- Torque limit/Command value: 90 [%]
- Force: 255 [N]

The **LEY25B** can be temporarily selected as a possible candidate.



**<Force conversion graph>  
(LEY25)**

**Step 3 Check the lateral load on the rod end.****<Graph of allowable lateral load on the rod end>**

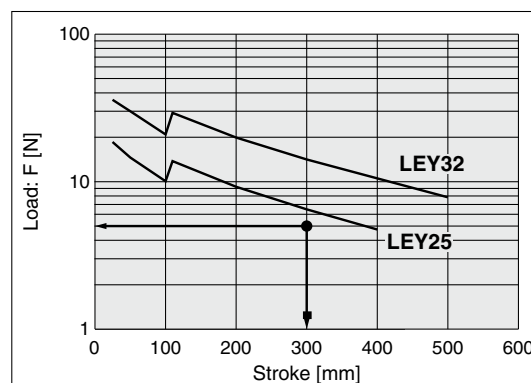
Confirm the allowable lateral load on the rod end of the actuator: LEY25B, which has been selected temporarily while referencing the graph of allowable lateral load on the rod end.

Selection example)

Based on the graph shown on the right side,

- Attachment weight: 0.5 [kg] ≈ 5 [N]
- Product stroke: 300 [mm]

The lateral load on the rod end is in the allowable range.



**<Graph of allowable lateral load on the rod end>**

**Based on the above calculation result, the LEY25V6B-300 should be selected.**

# LEY/LEY-X5/25A-LEY Series

AC Servo Motor

Size 25, 32, 63

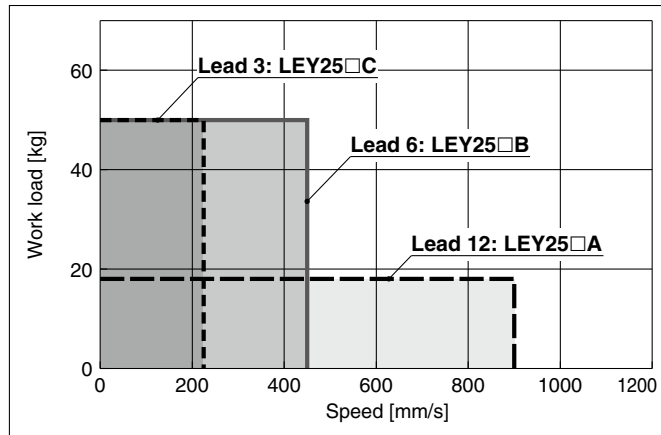
Dust-tight/Water-jet-proof (IP65 Equivalent)

Secondary Battery Compatible

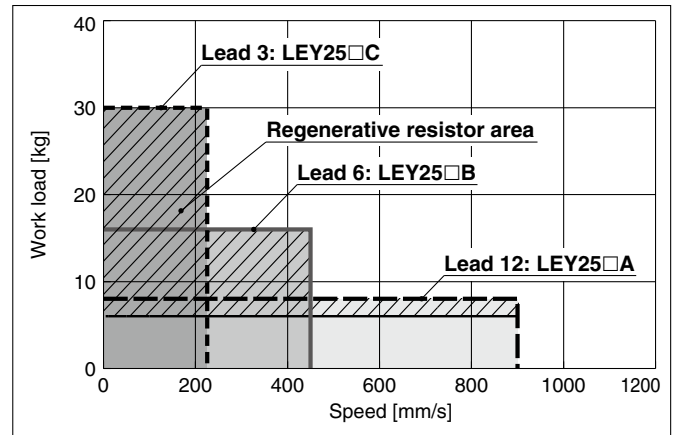
## Speed-Work Load Graph/Required Conditions for the Regenerative Resistor (Guide)

### LEY25□V6 (Motor mounting position: Parallel/In-line)

#### Horizontal

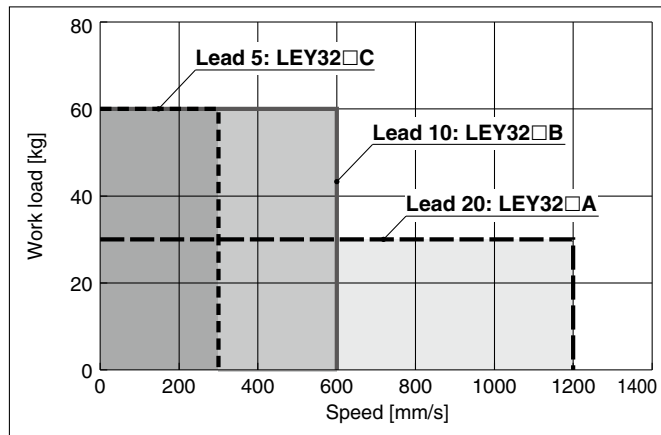


#### Vertical

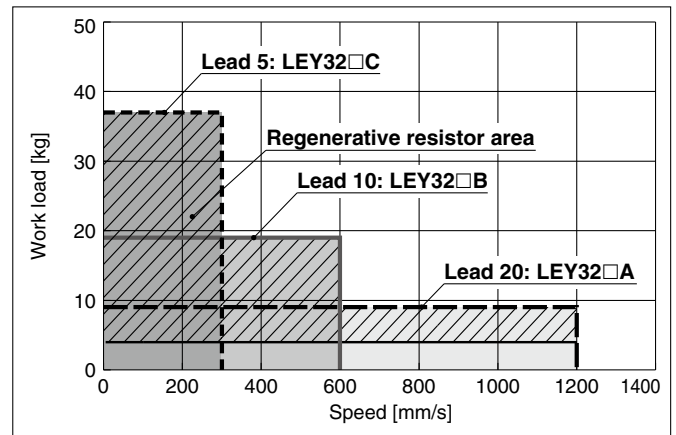


### LEY32□V7 (Motor mounting position: Parallel)

#### Horizontal

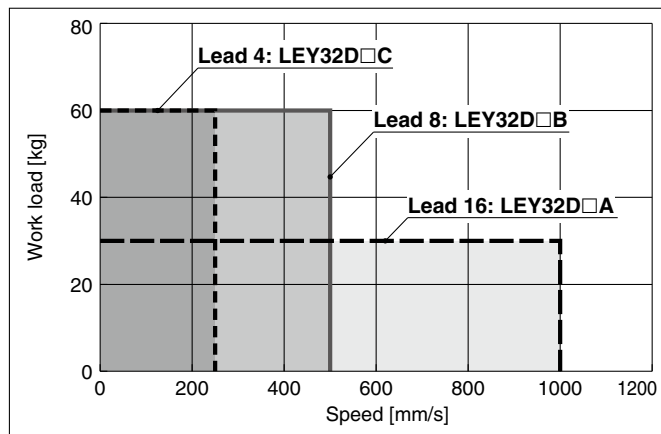


#### Vertical

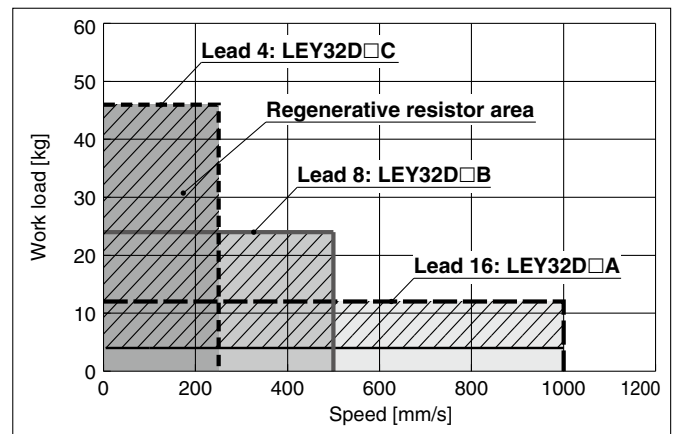


### LEY32DV7 (Motor mounting position: In-line)

#### Horizontal



#### Vertical



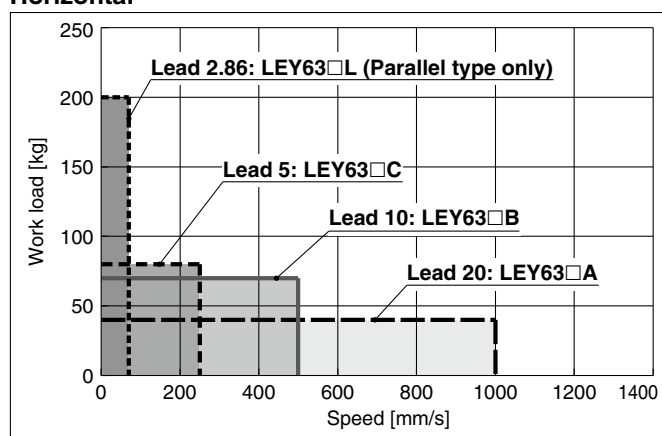
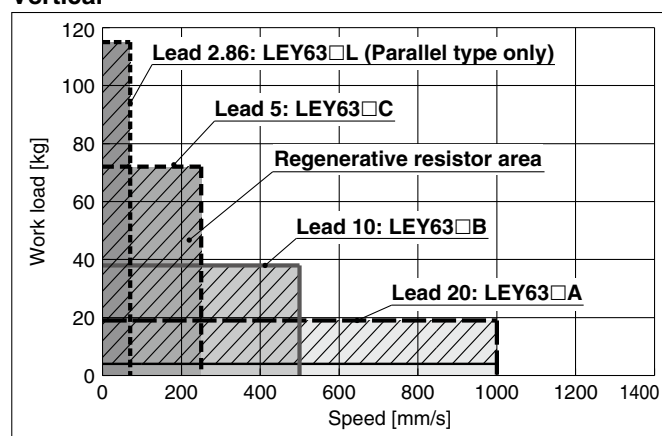
#### Regenerative resistor area

- \* When using the actuator in the regenerative resistor area, download the "AC servo drive capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
- \* The regenerative resistor should be provided by the customer.

#### Applicable Motors/Drivers

| Model  | Applicable model |                          |
|--------|------------------|--------------------------|
|        | Motor            | Servopack (SMC driver)   |
| LEY25□ | SGMJV-01A3A      | SGDV-R90A11□ (LECYM2-V5) |
|        |                  | SGDV-R90A21□ (LECYU2-V5) |
| LEY32□ | SGMJV-02A3A      | SGDV-1R6A11□ (LECYM2-V7) |
|        |                  | SGDV-1R6A21□ (LECYU2-V7) |



**Speed–Work Load Graph/Required Conditions for the Regenerative Resistor (Guide)****LEY63□V8 (Motor mounting position: Parallel/In-line)****Horizontal****Vertical****Regenerative resistor area**

\* When using the actuator in the regenerative resistor area, download the “AC servo drive capacity selection program/SigmaJunmaSize+” from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.

\* The regenerative resistor should be provided by the customer.

**Applicable Motors/Drivers**

| Product no.   | Applicable model |                                                      |
|---------------|------------------|------------------------------------------------------|
|               | Motor            | Servopack (SMC driver)                               |
| <b>LEY63□</b> | SGMJV-04A3A      | SGDV-2R8A11□ (LECYM2-V8)<br>SGDV-2R8A21□ (LECYU2-V8) |

**Allowable Stroke Speed**

[mm/s]

| Model                                                            | AC servo motor | Lead                   |            | Stroke [mm] |            |           |           |           |           |           |            |            |           |            |            |           |           |
|------------------------------------------------------------------|----------------|------------------------|------------|-------------|------------|-----------|-----------|-----------|-----------|-----------|------------|------------|-----------|------------|------------|-----------|-----------|
|                                                                  |                | Symbol                 | [mm]       | Up to 30    | Up to 50   | Up to 100 | Up to 150 | Up to 200 | Up to 250 | Up to 300 | Up to 350  | Up to 400  | Up to 450 | Up to 500  | Up to 600  | Up to 700 | Up to 800 |
| <b>LEY25□V6</b><br>〔 Motor mounting position: Parallel/In-line 〕 | 100 W /□40     | <b>A</b>               | 12         | 900         |            |           |           |           |           |           | 600        |            | —         | —          | —          | —         | —         |
|                                                                  |                | <b>B</b>               | 6          | 450         |            |           |           |           |           |           | 300        |            | —         | —          | —          | —         | —         |
|                                                                  |                | <b>C</b>               | 3          | 225         |            |           |           |           |           |           | 150        |            | —         | —          | —          | —         | —         |
|                                                                  |                | (Motor rotation speed) |            | (4500 rpm)  |            |           |           |           |           |           | (3000 rpm) |            | —         | —          | —          | —         | —         |
| <b>LEY32□V7</b><br>〔 Motor mounting position: Parallel 〕         | 200 W /□60     | <b>A</b>               | 20         | 1200        |            |           |           |           |           |           | 800        |            | —         | —          | —          | —         |           |
|                                                                  |                | <b>B</b>               | 10         | 600         |            |           |           |           |           |           | 400        |            | —         | —          | —          | —         |           |
|                                                                  |                | <b>C</b>               | 5          | 300         |            |           |           |           |           |           | 200        |            | —         | —          | —          | —         |           |
|                                                                  |                | (Motor rotation speed) |            | (3600 rpm)  |            |           |           |           |           |           | (2400 rpm) |            | —         | —          | —          | —         |           |
| <b>LEY32DV7</b><br>〔 Motor mounting position: In-line 〕          | 200 W /□60     | <b>A</b>               | 16         | 1000        |            |           |           |           |           |           | 640        |            | —         | —          | —          | —         |           |
|                                                                  |                | <b>B</b>               | 8          | 500         |            |           |           |           |           |           | 320        |            | —         | —          | —          | —         |           |
|                                                                  |                | <b>C</b>               | 4          | 250         |            |           |           |           |           |           | 160        |            | —         | —          | —          | —         |           |
|                                                                  |                | (Motor rotation speed) |            | (3750 rpm)  |            |           |           |           |           |           | (2400 rpm) |            | —         | —          | —          | —         |           |
| <b>LEY63□V8</b><br>〔 Motor mounting position: Parallel/In-line 〕 | 400 W /□60     | <b>A</b>               | 20         | —           | 1000       |           |           |           |           |           |            | 800        |           | 600        | 500        |           |           |
|                                                                  |                | <b>B</b>               | 10         | —           | 500        |           |           |           |           |           |            | 400        |           | 300        | 250        |           |           |
|                                                                  |                | <b>C</b>               | 5          | —           | 250        |           |           |           |           |           |            | 200        |           | 150        | 125        |           |           |
|                                                                  |                | (Motor rotation speed) |            | —           | (3000 rpm) |           |           |           |           |           |            | (2400 rpm) |           | (1800 rpm) | (1500 rpm) |           |           |
|                                                                  |                | <b>L</b>               | 2.86       | —           | 70         |           |           |           |           |           |            |            |           |            |            |           |           |
| (Motor rotation speed)                                           |                | —                      | (1470 rpm) |             |            |           |           |           |           |           |            |            |           |            |            |           |           |

# LEY/LEY-X5/25A-LEY Series

AC Servo Motor

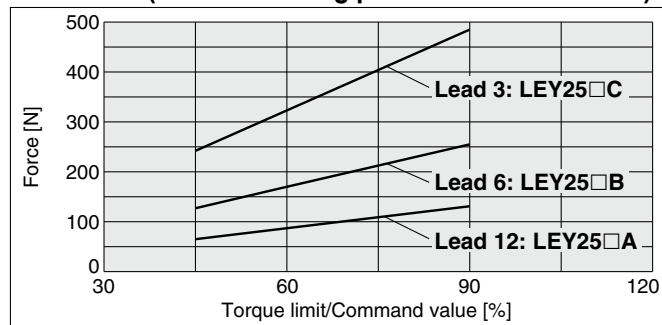
Size **25, 32, 63**

Dust-tight/Water-jet-proof (IP65 Equivalent)

Secondary Battery Compatible

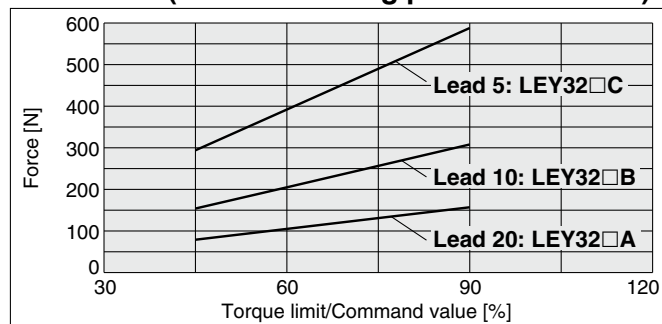
## Force Conversion Graph (Guide)

### LEY25□V6 (Motor mounting position: Parallel/In-line)



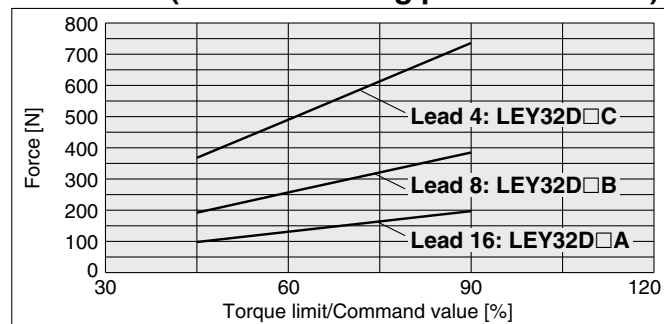
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 75 or less                     | 100            | —                             |
| 90                             | 60             | 1.5 or less                   |

### LEY32□V7 (Motor mounting position: Parallel)



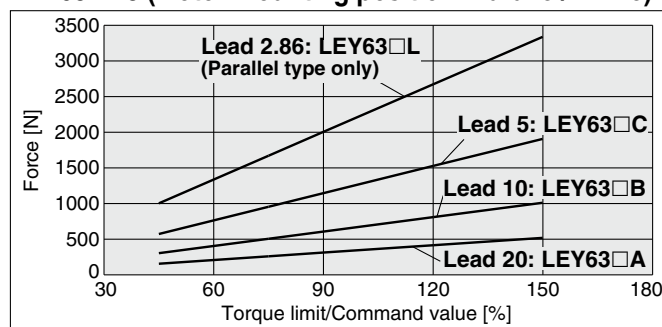
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 75 or less                     | 100            | —                             |
| 90                             | 60             | 1.5 or less                   |

### LEY32DV7 (Motor mounting position: In-line)



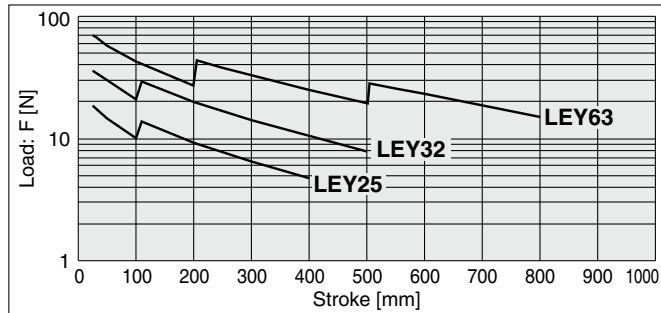
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 75 or less                     | 100            | —                             |
| 90                             | 60             | 1.5 or less                   |

### LEY63□V8 (Motor mounting position: Parallel/In-line)

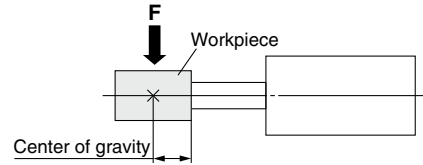


| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 75 or less                     | 100            | —                             |
| 90                             | 60             | 1.5 or less                   |
| 120                            | 30             | 0.5 or less                   |
| 150                            | 20             | 0.16 or less                  |

## Graph of Allowable Lateral Load on the Rod End (Guide)



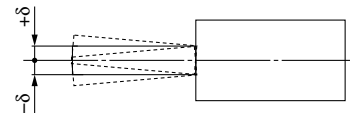
[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



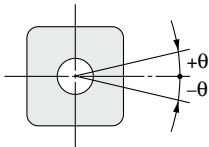
## Rod Displacement: $\delta$ [mm]

| Stroke<br>Size | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  | 600  | 700  | 800  |
|----------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| <b>25</b>      | ±0.3 | ±0.4 | ±0.7 | ±0.7 | ±0.9 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | —    | —    | —    | —    | —    |
| <b>32</b>      | ±0.3 | ±0.4 | ±0.7 | ±0.6 | ±0.8 | ±1.0 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.8 | —    | —    | —    |
| <b>63</b>      | —    | ±0.5 | ±0.7 | ±0.9 | ±1.2 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.9 | ±2.1 | ±1.7 | ±2.0 | ±2.2 |

\* The values without a load are shown.



## Non-rotating Accuracy of Rod



| Size      | Non-rotating accuracy $\theta$ |
|-----------|--------------------------------|
| <b>25</b> | ±0.8°                          |
| <b>32</b> | ±0.7°                          |
| <b>63</b> | ±0.6°                          |

\* Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

Failure to do so may result in the deformation of the non-rotating guide, abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.

# Electric Actuator Rod Type

**LEY Series** LEY16, 25, 32, 40

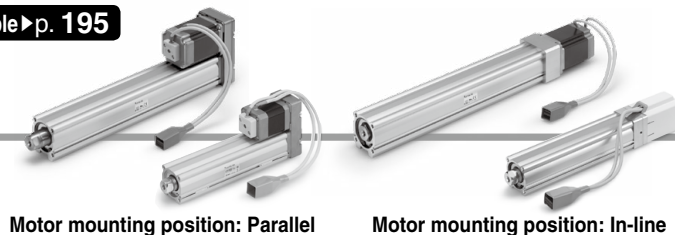


\* For details, refer to page 307 and onward.

RoHS

Dust-tight/Water-jet-proof ▶ pp. 163, 173 Secondary Battery Compatible ▶ p. 195

## How to Order

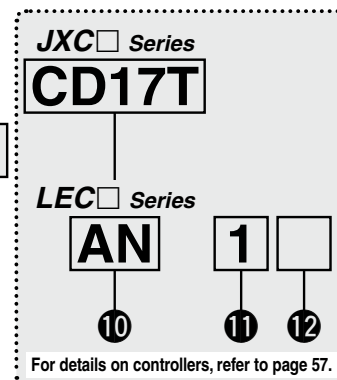


Motor mounting position: Parallel

Motor mounting position: In-line

LEY 16 [ ] [ ] B - 30 [ ] [ ] [ ] - S1

1 2 3 4 5 6 7 8 9



### 1 Size

|    |
|----|
| 16 |
| 25 |
| 32 |
| 40 |

### 2 Motor mounting position

|     |                     |
|-----|---------------------|
| Nil | Top side parallel   |
| R   | Right side parallel |
| L   | Left side parallel  |
| D   | In-line             |

### 3 Motor type

| Symbol | Type                      | Applicable size |       |          | Compatible controllers/drivers                                                         |
|--------|---------------------------|-----------------|-------|----------|----------------------------------------------------------------------------------------|
|        |                           | LEY16           | LEY25 | LEY32/40 |                                                                                        |
| Nil    | Step motor (Servo/24 VDC) | ●               | ●     | ●        | JXC51<br>JXC61<br>JXCE1<br>JXC91<br>JXCP1<br>JXCD1<br>JXCL1<br>JXCM1<br>LECP1<br>LECPA |
| A      | Servo motor (24 VDC)      | ●               | ●     | —        | LECA6                                                                                  |

### 4 Lead [mm]

| Symbol | LEY16 | LEY25 | LEY32/40 |
|--------|-------|-------|----------|
| A      | 10    | 12    | 16       |
| B      | 5     | 6     | 8        |
| C      | 2.5   | 3     | 4        |

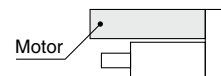
### 5 Stroke [mm]

|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

### 6 Motor option\*2

|     |                       |
|-----|-----------------------|
| Nil | Without option        |
| C   | With motor cover      |
| B   | With lock             |
| W   | With lock/motor cover |



### 7 Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

### 8 Mounting\*3

| Symbol | Type                             | Motor mounting position |         |
|--------|----------------------------------|-------------------------|---------|
|        |                                  | Parallel                | In-line |
| Nil    | Ends tapped/Body bottom tapped*4 | ●                       | ●       |
| L      | Foot bracket                     | ●                       | —       |
| F      | Rod flange*4                     | ●*6                     | ●       |
| G      | Head flange*4                    | ●*7                     | —       |
| D      | Double clevis*5                  | ●                       | —       |

### 9 Actuator cable type/length\*9

| Standard cable [m] |        | Robotic cable [m] |     |    |      |
|--------------------|--------|-------------------|-----|----|------|
| Nil                | None   | R1                | 1.5 | RA | 10*8 |
| S1                 | 1.5*11 | R3                | 3   | RB | 15*8 |
| S3                 | 3*11   | R5                | 5   | RC | 20*8 |
| S5                 | 5*11   | R8                | 8*8 |    |      |

### Applicable Stroke Table\*1

●: Standard

| Model    | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | Manufacturable stroke range |
|----------|-------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| LEY16    |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | —   | —   | —   | —   | 10 to 300                   |
| LEY25    |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                   |
| LEY32/40 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                   |

For auto switches, refer to pages 104 to 107.

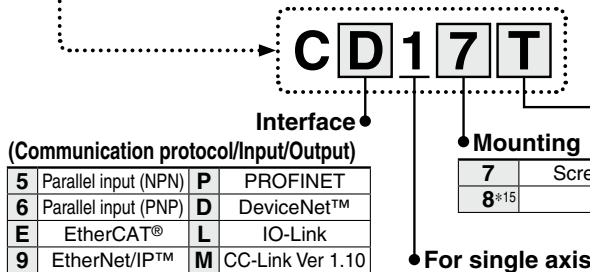
# Electric Actuator Rod Type **LEY Series**

Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

## JXC Series (For details, refer to page 57.)

### 10 Controller

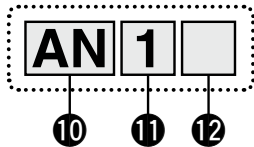
|       |                    |
|-------|--------------------|
| Nil   | Without controller |
| C□1□□ | With controller    |



### Communication plug connector I/O cable\*16

| Symbol | Type                                       | Applicable interface           |
|--------|--------------------------------------------|--------------------------------|
| Nil    | Without accessory                          | —                              |
| S      | Straight type communication plug connector | DeviceNet™<br>CC-Link Ver 1.10 |
| T      | T-branch type communication plug connector | DeviceNet™<br>CC-Link Ver 1.10 |
| 1      | I/O cable (1.5 m)                          | Parallel input (NPN)           |
| 3      | I/O cable (3 m)                            | Parallel input (PNP)           |
| 5      | I/O cable (5 m)                            | Parallel input (PNP)           |

## LEC Series (For details, refer to page 57.)



### 10 Controller/Driver type\*10

| Controller/driver type |                           |     |
|------------------------|---------------------------|-----|
| Nil                    | Without controller/driver |     |
| 6N                     | LECA6                     | NPN |
| 6P                     | (Step data input type)    | PNP |
| 1N                     | LECP1*11                  | NPN |
| 1P                     | (Programless type)        | PNP |
| AN                     | LECPA*11*12               | NPN |
| AP                     | (Pulse input type)        | PNP |

### 11 I/O cable length\*13

|     |                                                         |
|-----|---------------------------------------------------------|
| Nil | Without cable<br>(Without communication plug connector) |
| 1   | 1.5 m                                                   |
| 3   | 3 m*14                                                  |
| 5   | 5 m*14                                                  |

### 12 Controller/Driver mounting

|     |                |
|-----|----------------|
| Nil | Screw mounting |
| D   | DIN rail*15    |



- \*1 Please contact SMC for non-standard strokes as they are produced as special orders.
- \*2 When "With lock" or "With lock/motor cover" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 16/40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
- \*3 The mounting bracket is shipped together with the product but does not come assembled.
- \*4 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.  
· LEY25: 200 mm or less · LEY32/40: 100 mm or less
- \*5 For the mounting of the double clevis type, use the actuator within the following stroke range.  
· LEY16: 100 mm or less · LEY25: 200 mm or less · LEY32/40: 200 mm or less
- \*6 The rod flange type is not available for the LEY16/40 with a 30 mm stroke and motor option "With lock," "With lock/motor cover."
- \*7 The head flange type is not available for the LEY32/40.
- \*8 Produced upon receipt of order (Robotic cable only)
- \*9 The standard cable should only be used on fixed parts.  
For use on moving parts, select the robotic cable.  
Refer to pages 258 and 259 if only the actuator cable is required.

- \*10 For details on controllers/drivers and compatible motors, refer to the compatible controllers/drivers on the next page.
- \*11 Only available for the motor type "Step motor"
- \*12 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 240 separately.
- \*13 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 224 (For LECA6), page 234 (For LECP1), or page 240 (For LECPA) if I/O cable is required.
- \*14 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector
- \*15 The DIN rail is not included. It must be ordered separately.
- \*16 Select "Nil" for anything other than DeviceNet™, CC-Link, or parallel input.  
Select "Nil," "S," or "T" for DeviceNet™ or CC-Link.  
Select "Nil," "1," "3," or "5" for parallel input.

## ⚠ Caution

### [CE-compliant products]

- EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.  
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 224 for the noise filter set. Refer to the LECA series Operation Manual for installation.

### [UL-compliant products (For the LEC series)]

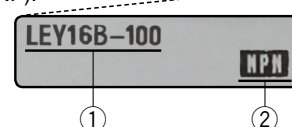
When compliance with UL is required, the electric actuator and controller/driver should be used with a UL1310 Class 2 power supply.

## The actuator and controller/driver are sold as a package.

Confirm that the combination of the controller/driver and actuator is correct.

### <Check the following before use.>

- Check the actuator label for the model number. This number should match that of the controller/driver.
- Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the "Operation Manual" for using the products. Please download it via our website: <https://www.smcworld.com>



# LEY Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

## Compatible Controllers/Drivers

| Type                     | Step data input type                                                              | Step data input type                                                              | Programless type                                                                  | Pulse input type                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                          |  |  |  |  |
| Series                   | <b>JXC51<br/>JXC61</b>                                                            | <b>LECA6</b>                                                                      | <b>LECP1</b>                                                                      | <b>LECPA</b>                                                                       |
| Features                 | Parallel I/O                                                                      |                                                                                   | Capable of setting up operation (step data) without using a PC or teaching box    | Operation by pulse signals                                                         |
| Compatible motor         | Step motor (Servo/24 VDC)                                                         | Servo motor (24 VDC)                                                              | Step motor (Servo/24 VDC)                                                         |                                                                                    |
| Max. number of step data | 64 points                                                                         |                                                                                   | 14 points                                                                         | —                                                                                  |
| Power supply voltage     | 24 VDC                                                                            |                                                                                   |                                                                                   |                                                                                    |
| Reference page           | 211                                                                               | 218                                                                               | 229                                                                               | 235                                                                                |

| Type                     | EtherCAT® direct input type                                                         | EtherNet/IP™ direct input type                                                      | PROFINET direct input type                                                          | DeviceNet™ direct input type                                                         | IO-Link direct input type                                                             | CC-Link direct input type                                                             |
|--------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                          |  |  |  |  |  |  |
| Series                   | <b>JXCE1</b>                                                                        | <b>JXC91</b>                                                                        | <b>JXCP1</b>                                                                        | <b>JXCD1</b>                                                                         | <b>JXCL1</b>                                                                          | <b>JXCM1</b>                                                                          |
| Features                 | EtherCAT® direct input                                                              | EtherNet/IP™ direct input                                                           | PROFINET direct input                                                               | DeviceNet™ direct input                                                              | IO-Link direct input                                                                  | CC-Link direct input                                                                  |
| Compatible motor         | Step motor (Servo/24 VDC)                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Max. number of step data | 64 points                                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Power supply voltage     | 24 VDC                                                                              |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Reference page           | 241                                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |

|                                 |                |       |                                                |       |       |       |       |          |             |        |        |                |     |                                                |     |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|----------|-------------|--------|--------|----------------|-----|------------------------------------------------|-----|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       |          | Environment |        |        | AC Servo Motor |     | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |     | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61 | 25A-LEY     | LEY-X5 | LEY-X7 | LEYG           | LEY | LEYG                                           | LEY |                    |

## Specifications

### Step Motor (Servo/24 VDC)

| Model                                                         |                                                     |                                                     |                                             | LEY16                     |          |           | LEY25         |            |            | LEY32          |            |            | LEY40          |            |             |
|---------------------------------------------------------------|-----------------------------------------------------|-----------------------------------------------------|---------------------------------------------|---------------------------|----------|-----------|---------------|------------|------------|----------------|------------|------------|----------------|------------|-------------|
| Actuator specifications                                       | Work load [kg] <sup>*1</sup>                        | Horizontal (JXC□ <sub>1</sub> , LECP1)              | (3000 [mm/s <sup>2</sup> ])                 | 6                         | 17       | 30        | 20            | 40         | 60         | 30             | 45         | 60         | 50             | 60         | 80          |
|                                                               |                                                     |                                                     | (2000 [mm/s <sup>2</sup> ])                 | 10                        | 23       | 35        | 30            | 55         | 70         | 40             | 60         | 80         | 60             | 70         | 90          |
|                                                               |                                                     | Horizontal (LECPA, JXC□ <sub>2</sub> <sup>3</sup> ) | (3000 [mm/s <sup>2</sup> ])                 | 4                         | 11       | 20        | 12            | 30         | 30         | 20             | 40         | 40         | 30             | 60         | 60          |
|                                                               |                                                     |                                                     | (2000 [mm/s <sup>2</sup> ])                 | 6                         | 17       | 30        | 18            | 50         | 50         | 30             | 60         | 60         | —              | —          | —           |
|                                                               |                                                     | Vertical                                            | (3000 [mm/s <sup>2</sup> ])                 | 2                         | 4        | 8         | 8             | 16         | 30         | 11             | 22         | 43         | 13             | 27         | 53          |
|                                                               | Pushing force [N] <sup>*2 *3 *4</sup>               |                                                     |                                             | 14 to 38                  | 27 to 74 | 51 to 141 | 63 to 122     | 126 to 238 | 232 to 452 | 80 to 189      | 156 to 370 | 296 to 707 | 132 to 283     | 266 to 553 | 562 to 1058 |
|                                                               | Speed [mm/s] <sup>*4</sup>                          | JXC□ <sub>1</sub> /LECP1                            | LECPA/JXC□ <sub>2</sub> <sup>3</sup>        | 15 to 500                 | 8 to 250 | 4 to 125  | 18 to 500     | 9 to 250   | 5 to 125   | 24 to 500      | 12 to 300  | 6 to 150   | 24 to 500      | 12 to 350  | 6 to 175    |
|                                                               |                                                     | 12 to 250                                           |                                             |                           |          |           |               |            |            |                | 6 to 125   | 24 to 300  | 12 to 150      | 6 to 75    |             |
|                                                               | Max. acceleration/deceleration [mm/s <sup>2</sup> ] |                                                     |                                             | 3000                      |          |           |               |            |            |                |            |            |                |            |             |
|                                                               | Pushing speed [mm/s] <sup>*5</sup>                  |                                                     |                                             | 50 or less                |          |           | 35 or less    |            |            | 30 or less     |            |            | 30 or less     |            |             |
|                                                               | Positioning repeatability [mm]                      |                                                     |                                             | ±0.02                     |          |           |               |            |            |                |            |            |                |            |             |
| Lost motion [mm] <sup>*6</sup>                                |                                                     |                                                     | 0.1 or less                                 |                           |          |           |               |            |            |                |            |            |                |            |             |
| Screw lead [mm]                                               |                                                     |                                                     | 10                                          | 5                         | 2.5      | 12        | 6             | 3          | 16         | 8              | 4          | 16         | 8              | 4          |             |
| Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*7</sup> |                                                     |                                                     | 50/20                                       |                           |          |           |               |            |            |                |            |            |                |            |             |
| Actuation type                                                |                                                     |                                                     | Ball screw + Belt (LEY□)/Ball screw (LEY□D) |                           |          |           |               |            |            |                |            |            |                |            |             |
| Guide type                                                    |                                                     |                                                     | Sliding bushing (Piston rod)                |                           |          |           |               |            |            |                |            |            |                |            |             |
| Operating temperature range [°C]                              |                                                     |                                                     | 5 to 40                                     |                           |          |           |               |            |            |                |            |            |                |            |             |
| Operating humidity range [%RH]                                |                                                     |                                                     | 90 or less (No condensation)                |                           |          |           |               |            |            |                |            |            |                |            |             |
| Electric specifications                                       | Motor size                                          |                                                     |                                             | □28                       |          |           | □42           |            |            | □56.4          |            |            | □56.4          |            |             |
|                                                               | Motor type                                          |                                                     |                                             | Step motor (Servo/24 VDC) |          |           |               |            |            |                |            |            |                |            |             |
|                                                               | Encoder                                             |                                                     |                                             | Incremental               |          |           |               |            |            |                |            |            |                |            |             |
|                                                               | Power supply voltage [V]                            |                                                     |                                             | 24 VDC ±10%               |          |           |               |            |            |                |            |            |                |            |             |
| Lock unit specifications                                      | Power [W] <sup>*8 *10</sup>                         |                                                     |                                             | Max. power 43             |          |           | Max. power 48 |            |            | Max. power 104 |            |            | Max. power 106 |            |             |
|                                                               | Type <sup>*9</sup>                                  |                                                     |                                             | Non-magnetizing lock      |          |           |               |            |            |                |            |            |                |            |             |
|                                                               | Holding force [N]                                   |                                                     |                                             | 20                        | 39       | 78        | 78            | 157        | 294        | 108            | 216        | 421        | 127            | 265        | 519         |
|                                                               | Power [W] <sup>*10</sup>                            |                                                     |                                             | 2.9                       |          |           | 5             |            |            | 5              |            |            | 5              |            |             |
|                                                               | Rated voltage [V]                                   |                                                     |                                             | 24 VDC ±10%               |          |           |               |            |            |                |            |            |                |            |             |

\*1 Horizontal: The max. value of the work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide. Also, speed changes according to the work load. Check the "Model Selection" on pages 37 and 38.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 37 and 38.

The values shown in ( ) are the acceleration/deceleration.

Set these values to be 3000 [mm/s<sup>2</sup>] or less.

\*2 Pushing force accuracy is ±20% (F.S.).

\*3 The pushing force values for LEY16□ are 35% to 85%, for LEY25□ are 35% to 65%, for LEY32□ are 35% to 85%, and for LEY40□ are 35% to 65%.

The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 40.

\*4 The speed and force may change depending on the cable length, load, and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)

\*5 The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*8 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.

\*9 With lock only

\*10 For an actuator with lock, add the power for the lock.

## Specifications

### Servo Motor (24 VDC)

| Model                            |                                        |                                               | LEY16□A              |          |           | LEY25□A       |          |           |
|----------------------------------|----------------------------------------|-----------------------------------------------|----------------------|----------|-----------|---------------|----------|-----------|
| Actuator specifications          | Work load [kg]*1                       | Horizontal (3000 [mm/s²])                     | 3                    | 6        | 12        | 7             | 15       | 30        |
|                                  |                                        | Vertical (3000 [mm/s²])                       | 2                    | 4        | 8         | 3             | 6        | 12        |
|                                  | Pushing force [N]*2 *3                 |                                               | 16 to 30             | 30 to 58 | 57 to 111 | 18 to 35      | 37 to 72 | 66 to 130 |
|                                  | Speed [mm/s]                           |                                               | 1 to 500             | 1 to 250 | 1 to 125  | 2 to 500      | 1 to 250 | 1 to 125  |
|                                  | Max. acceleration/deceleration [mm/s²] |                                               | 3000                 |          |           |               |          |           |
|                                  | Pushing speed [mm/s]*4                 |                                               | 50 or less           |          |           | 35 or less    |          |           |
|                                  | Positioning repeatability [mm]         |                                               | ±0.02                |          |           |               |          |           |
|                                  | Lost motion [mm]*5                     |                                               | 0.1 or less          |          |           |               |          |           |
|                                  | Screw lead [mm]                        |                                               | 10                   | 5        | 2.5       | 12            | 6        | 3         |
|                                  | Impact/Vibration resistance [m/s²]*6   |                                               | 50/20                |          |           |               |          |           |
| Actuation type                   |                                        | Ball screw + Belt (LEY□□)/Ball screw (LEY□□D) |                      |          |           |               |          |           |
| Guide type                       |                                        | Sliding bushing (Piston rod)                  |                      |          |           |               |          |           |
| Operating temperature range [°C] |                                        | 5 to 40                                       |                      |          |           |               |          |           |
| Operating humidity range [%RH]   |                                        | 90 or less (No condensation)                  |                      |          |           |               |          |           |
| Electric specifications          | Motor size                             |                                               | □28                  |          |           | □42           |          |           |
|                                  | Motor output [W]                       |                                               | 30                   |          |           | 36            |          |           |
|                                  | Motor type                             |                                               | Servo motor (24 VDC) |          |           |               |          |           |
|                                  | Encoder                                |                                               | Incremental          |          |           |               |          |           |
|                                  | Power supply voltage [V]               |                                               | 24 VDC ±10%          |          |           |               |          |           |
|                                  | Power [W]*7 *9                         |                                               | Max. power 59        |          |           | Max. power 96 |          |           |
| Lock unit specifications         | Type*8                                 |                                               | Non-magnetizing lock |          |           |               |          |           |
|                                  | Holding force [N]                      |                                               | 20                   | 39       | 78        | 78            | 157      | 294       |
|                                  | Power [W]*9                            |                                               | 2.9                  |          |           | 5             |          |           |
|                                  | Rated voltage [V]                      |                                               | 24 VDC ±10%          |          |           |               |          |           |

\*1 Horizontal: The max. value of the work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide.

Vertical: Check the "Model Selection" on page 39 for details. The values shown in ( ) are the acceleration/deceleration.

Set these values to be 3000 [mm/s²] or less.

\*2 Pushing force accuracy is ±20% (F.S.).

\*3 The thrust setting values for LEY16□ are 60% to 95% and for LEY25□ are 70% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 40.

\*4 The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.

\*5 A reference value for correcting errors in reciprocal operation

\*6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.) Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*7 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.

\*8 With lock only

\*9 For an actuator with lock, add the power for the lock.

## Weight

### Weight: Top/Right/Left Side Parallel Motor Type

| Series              |             | LEY16 |      |      |      |      |      |      | LEY25 |      |      |      |      |      |      |      | LEY32 |      |      |      |      |      |      |      |      |      |      |      |
|---------------------|-------------|-------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|-------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30    | 50   | 100  | 150  | 200  | 250  | 300  | 30    | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400   | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor  | 0.58  | 0.62 | 0.73 | 0.87 | 0.98 | 1.09 | 1.20 | 1.18  | 1.25 | 1.42 | 1.68 | 1.86 | 2.03 | 2.21 | 2.38 | 2.56  | 2.09 | 2.20 | 2.49 | 2.77 | 3.17 | 3.46 | 3.74 | 4.03 | 4.32 | 4.60 | 4.89 |
|                     | Servo motor | 0.58  | 0.62 | 0.73 | 0.87 | 0.98 | 1.09 | 1.20 | 1.14  | 1.21 | 1.38 | 1.64 | 1.82 | 1.99 | 2.17 | 2.34 | 2.52  | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    |

| Series              |             | LEY40 |      |      |      |      |      |      |      |      |      |      |
|---------------------|-------------|-------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30    | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor  | 2.39  | 2.50 | 2.79 | 3.07 | 3.47 | 3.76 | 4.04 | 4.33 | 4.62 | 4.90 | 5.19 |
|                     | Servo motor | —     | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    |

### Weight: In-line Motor Type

| Series              |             | LEY16D |      |      |      |      |      |      | LEY25D |      |      |      |      |      |      |      | LEY32D |      |      |      |      |      |      |      |      |      |      |      |
|---------------------|-------------|--------|------|------|------|------|------|------|--------|------|------|------|------|------|------|------|--------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30     | 50   | 100  | 150  | 200  | 250  | 300  | 30     | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400    | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor  | 0.58   | 0.62 | 0.73 | 0.87 | 0.98 | 1.09 | 1.20 | 1.17   | 1.24 | 1.41 | 1.67 | 1.85 | 2.02 | 2.20 | 2.37 | 2.55   | 2.08 | 2.19 | 2.48 | 2.76 | 3.16 | 3.45 | 3.73 | 4.02 | 4.31 | 4.59 | 4.88 |
|                     | Servo motor | 0.58   | 0.62 | 0.73 | 0.87 | 0.98 | 1.09 | 1.20 | 1.13   | 1.20 | 1.37 | 1.63 | 1.81 | 1.98 | 2.16 | 2.33 | 2.51   | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    |

| Series              |             | LEY40D |      |      |      |      |      |      |      |      |      |      |
|---------------------|-------------|--------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30     | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor  | 2.38   | 2.49 | 2.78 | 3.06 | 3.46 | 3.75 | 4.03 | 4.32 | 4.61 | 4.89 | 5.18 |
|                     | Servo motor | —      | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    |

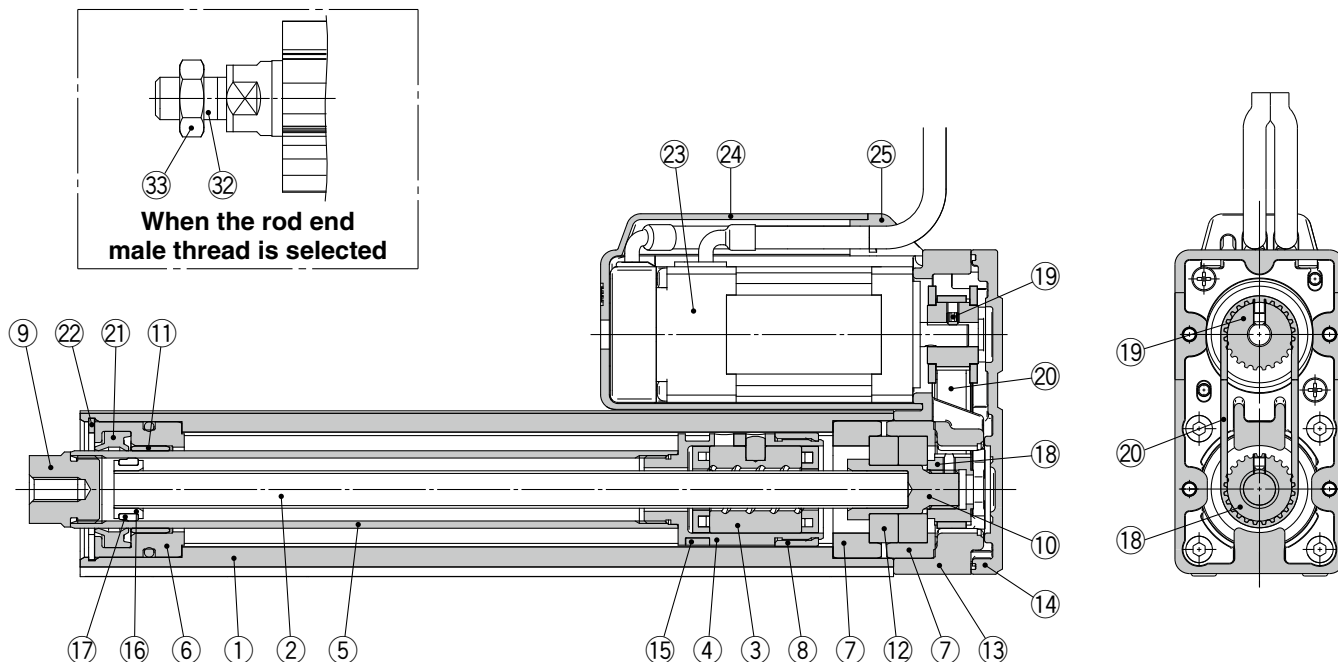
### Additional Weight

[kg]

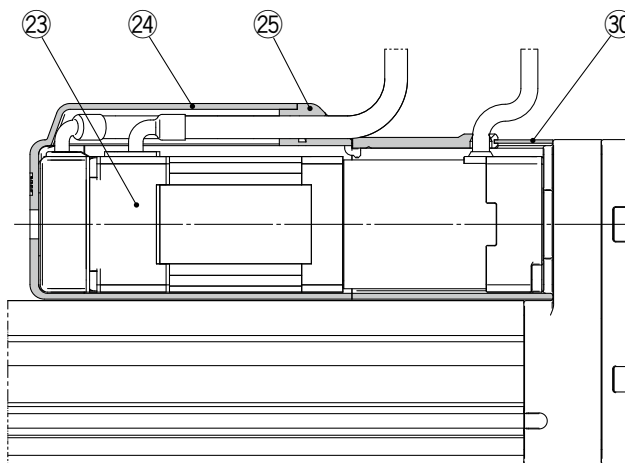
| Size                                                             |             | 16   | 25   | 32   | 40   |
|------------------------------------------------------------------|-------------|------|------|------|------|
| Lock                                                             |             | 0.12 | 0.26 | 0.53 | 0.53 |
| Motor cover                                                      |             | 0.02 | 0.03 | 0.04 | 0.05 |
| Lock/Motor cover                                                 |             | 0.16 | 0.32 | 0.61 | 0.62 |
| Rod end male thread                                              | Male thread | 0.01 | 0.03 | 0.03 | 0.03 |
|                                                                  | Nut         | 0.01 | 0.02 | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt)                    |             | 0.06 | 0.08 | 0.14 | 0.14 |
| Rod flange (including mounting bolt)                             |             | 0.13 | 0.17 | 0.20 | 0.20 |
| Head flange (including mounting bolt)                            |             |      |      |      |      |
| Double clevis (including pin, retaining ring, and mounting bolt) |             | 0.08 | 0.16 | 0.22 | 0.22 |

## Construction

Top side parallel motor type: LEY <sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub>



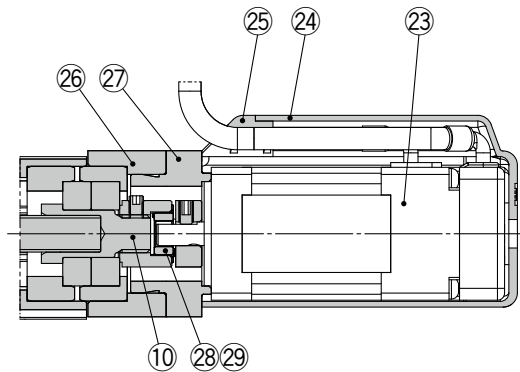
Top/Right/Left side parallel motor type  
With lock/motor cover



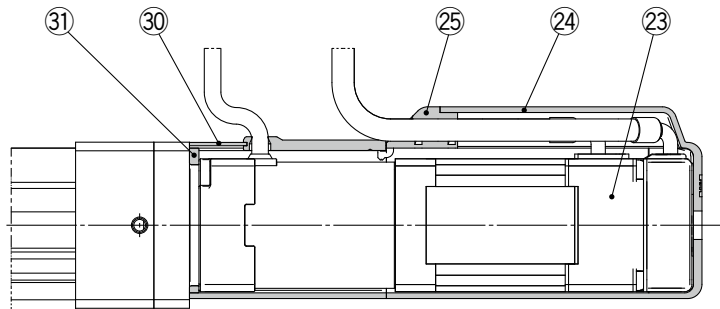


## Construction

In-line motor type: LEY 16  
25  
32 D  
40



In-line motor type: With lock/motor cover



## Component Parts

| No. | Description        | Material                    | Note                                     |
|-----|--------------------|-----------------------------|------------------------------------------|
| 1   | Body               | Aluminum alloy              | Anodized                                 |
| 2   | Ball screw shaft   | Alloy steel                 |                                          |
| 3   | Ball screw nut     | Synthetic resin/Alloy steel |                                          |
| 4   | Piston             | Aluminum alloy              |                                          |
| 5   | Piston rod         | Stainless steel             | Hard chrome plating                      |
| 6   | Rod cover          | Aluminum alloy              |                                          |
| 7   | Bearing holder     | Aluminum alloy              |                                          |
| 8   | Rotation stopper   | Synthetic resin             |                                          |
| 9   | Socket             | Free cutting carbon steel   | Nickel plating                           |
| 10  | Connected shaft    | Free cutting carbon steel   | Nickel plating<br>[Sizes 32 and 40 only] |
| 11  | Bushing            | Bearing alloy               |                                          |
| 12  | Bearing            | —                           |                                          |
| 13  | Return box         | Aluminum die-cast           | Coating                                  |
| 14  | Return plate       | Aluminum die-cast           | Coating                                  |
| 15  | Magnet             | —                           |                                          |
| 16  | Wear ring holder   | Stainless steel             | Stroke 101 mm or more                    |
| 17  | Wear ring          | Synthetic resin             | Stroke 101 mm or more                    |
| 18  | Screw shaft pulley | Aluminum alloy              |                                          |
| 19  | Motor pulley       | Aluminum alloy              |                                          |
| 20  | Belt               | —                           |                                          |
| 21  | Seal               | NBR                         |                                          |
| 22  | Retaining ring     | Steel for spring            | Phosphate coating                        |
| 23  | Motor              | —                           |                                          |

| No. | Description           | Material                  | Note                         |
|-----|-----------------------|---------------------------|------------------------------|
| 24  | Motor cover           | Synthetic resin           | Only "With motor cover"      |
| 25  | Grommet               | Synthetic resin           | Only "With motor cover"      |
| 26  | Motor block           | Aluminum alloy            | Anodized                     |
| 27  | Motor adapter         | Aluminum alloy            | Anodized/LEY16, 25 only      |
| 28  | Hub                   | Aluminum alloy            |                              |
| 29  | Spider                | NBR                       |                              |
| 30  | Motor cover with lock | Aluminum alloy            | Only "With lock/motor cover" |
| 31  | Cover support         | Aluminum alloy            | Only "With lock/motor cover" |
| 32  | Socket (Male thread)  | Free cutting carbon steel | Nickel plating               |
| 33  | Nut                   | Alloy steel               | Zinc chromating              |

## Replacement Parts (Top/Right/Left side parallel only)/Belt

| No. | Size   | Order no. |
|-----|--------|-----------|
| 20  | 16     | LE-D-2-1  |
|     | 25     | LE-D-2-2  |
|     | 32, 40 | LE-D-2-3  |

## Replacement Parts/Grease Pack

| Applied portion | Order no.                          |
|-----------------|------------------------------------|
| Piston rod      | GR-S-010 (10 g)<br>GR-S-020 (20 g) |

Model  
Selection

LEY

LEYG

LEY

LEYG

LEY-X7

LEY-X5

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

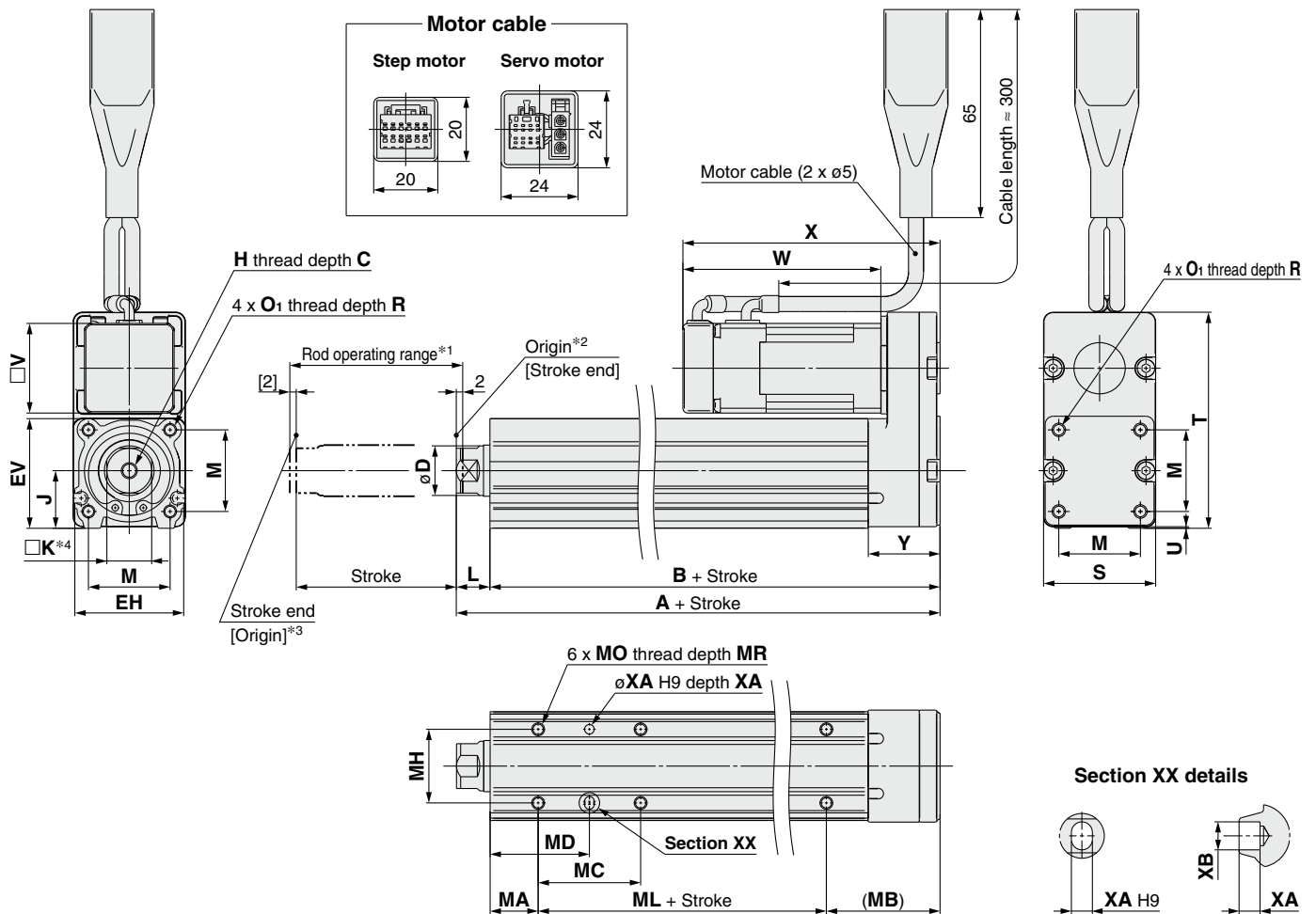
JXC□

LECS□

LECY□

Specific Product  
Precautions

## Dimensions: Top/Right/Left Side Parallel Motor



\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 Position after returning to origin

\*3 [ ] for when the direction of return to origin has changed

\*4 The direction of rod end width across flats (□K) differs depending on the products.

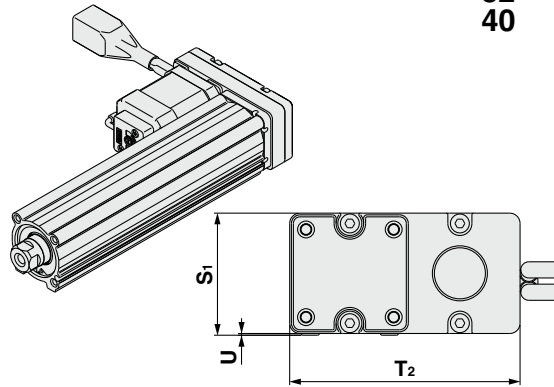
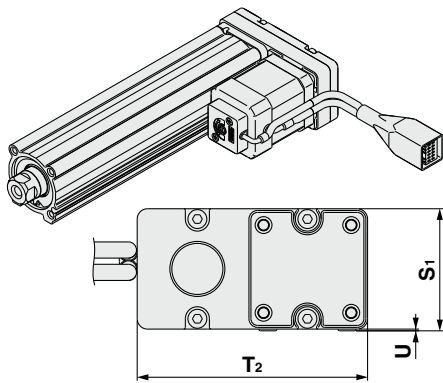
| [mm] |                   |       |       |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |       |             |      |      |
|------|-------------------|-------|-------|----|----|----|------|-----------|----|----|------|------|----------------|----|----|------|-----|------|------------|-------|-------------|------|------|
| Size | Stroke range [mm] | A     | B     | C  | D  | EH | EV   | H         | J  | K  | L    | M    | O <sub>1</sub> | R  | S  | T    | U   | V    | Step motor |       | Servo motor |      | Y    |
|      |                   |       |       |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      | W          | X     | W           | X    |      |
| 16   | 10 to 100         | 101   | 90.5  | 10 | 16 | 34 | 34.3 | M5 x 0.8  | 18 | 14 | 10.5 | 25.5 | M4 x 0.7       | 7  | 35 | 67.5 | 0.5 | 28   | 61.8       | 80.3  | 62.5        | 81   | 22.5 |
|      | 101 to 300        | 121   | 110.5 |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |       |             |      |      |
| 25   | 15 to 100         | 130.5 | 116   | 13 | 20 | 44 | 45.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34   | M5 x 0.8       | 8  | 46 | 92   | 1   | 42   | 63.4       | 85.4  | 59.6        | 81.6 | 26.5 |
|      | 101 to 400        | 155.5 | 141   |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |       |             |      |      |
| 32   | 20 to 100         | 148.5 | 130   | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40   | M6 x 1.0       | 10 | 60 | 118  | 1   | 56.4 | 68.4       | 95.4  | —           | —    | 34   |
|      | 101 to 500        | 178.5 | 160   |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |       |             |      |      |
| 40   | 20 to 100         | 148.5 | 130   | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40   | M6 x 1.0       | 10 | 60 | 118  | 1   | 56.4 | 90.4       | 117.4 | —           | —    | 34   |
|      | 101 to 500        | 178.5 | 160   |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |       |             |      |      |

## Body Bottom Tapped

| Size | Stroke range [mm] | MA | MB   | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|------|----|------|----|----|----------|-----|----|----|
| 16   | 10 to 39          | 15 | 35.5 | 17 | 23.5 | 23 | 40 | M4 x 0.7 | 5.5 | 3  | 4  |
|      | 40 to 100         |    |      | 32 | 31   |    |    |          |     |    |    |
|      | 101 to 300        |    |      | 62 | 46   |    |    |          |     |    |    |
| 25   | 15 to 39          | 20 | 46   | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100         |    |      | 42 | 41   |    |    |          |     |    |    |
|      | 101 to 124        |    |      | 59 | 49.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |      | 76 | 58   |    |    |          |     |    |    |
| 32   | 20 to 39          | 25 | 55   | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100         |    |      | 36 | 43   |    |    |          |     |    |    |
|      | 101 to 124        |    |      | 53 | 51.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |      | 70 | 60   |    |    |          |     |    |    |

## Dimensions: Top/Right/Left Side Parallel Motor

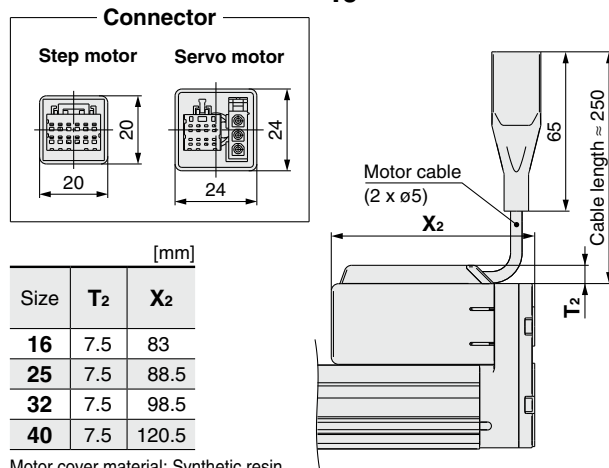
Left side parallel motor type: LEY<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub><sup>L</sup> Right side parallel motor type: LEY<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub><sup>R</sup>



| Size   | S <sub>1</sub> | T <sub>2</sub> | U   |
|--------|----------------|----------------|-----|
| 16     | 35.5           | 67             | 0.5 |
| 25     | 47             | 91             | 1   |
| 32, 40 | 61             | 117            | 1   |

\* When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

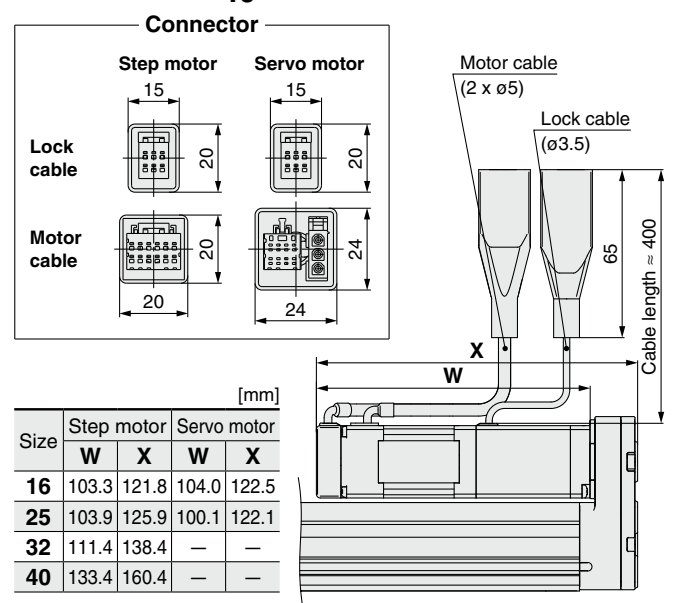
With motor cover: LEY<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub> <sup>A</sup>□□ <sup>B</sup>□□ <sup>C</sup>



| Size | T <sub>2</sub> | X <sub>2</sub> |
|------|----------------|----------------|
| 16   | 7.5            | 83             |
| 25   | 7.5            | 88.5           |
| 32   | 7.5            | 98.5           |
| 40   | 7.5            | 120.5          |

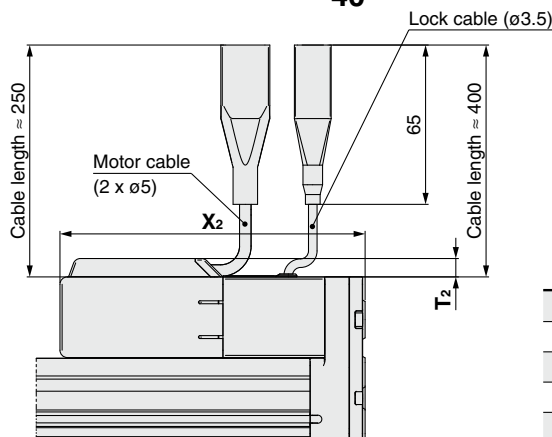
Motor cover material: Synthetic resin

With lock: LEY<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub> <sup>A</sup>□□ <sup>B</sup>□□ <sup>C</sup>



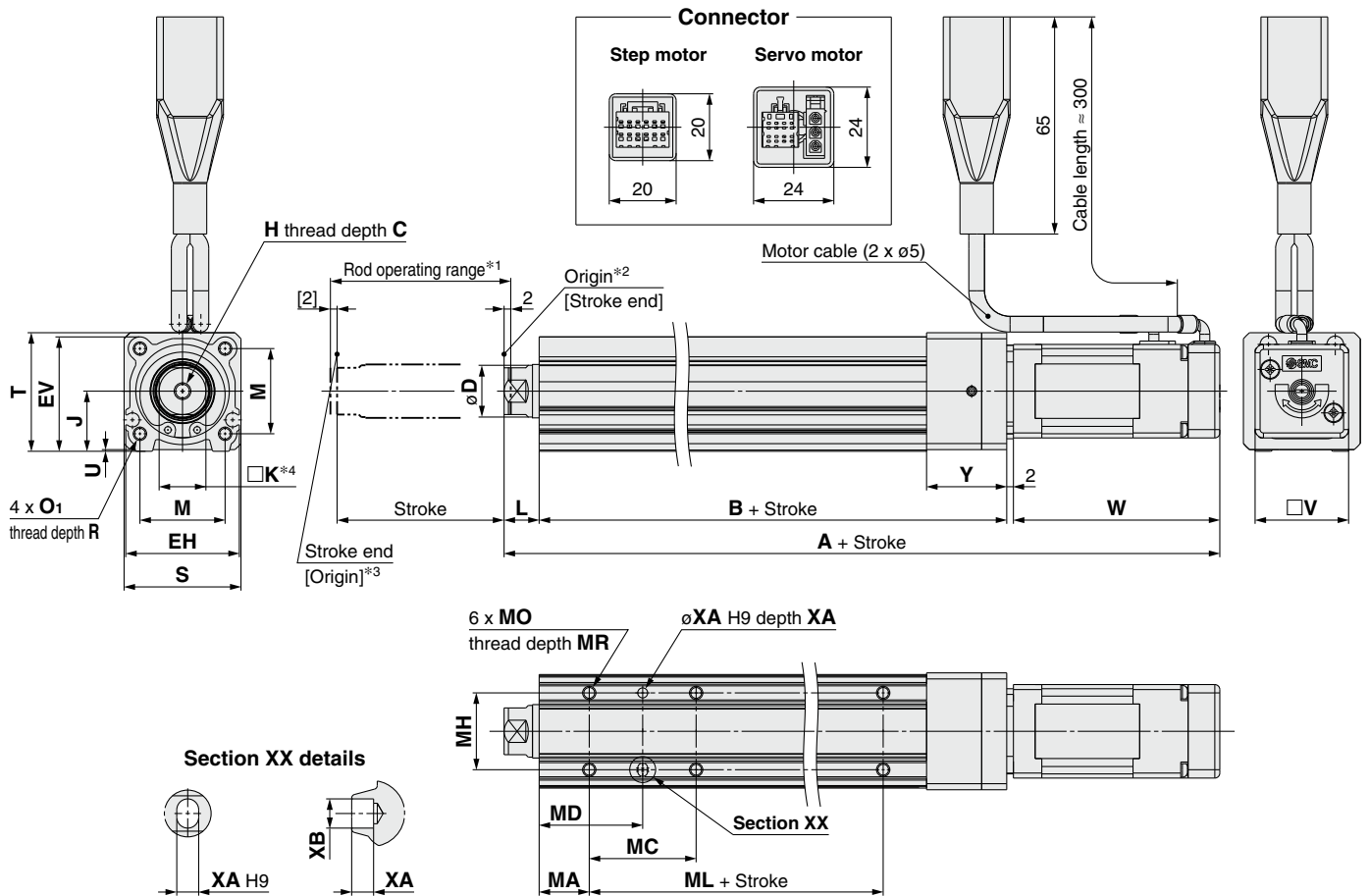
| Size | Step motor |       | Servo motor |       |
|------|------------|-------|-------------|-------|
|      | W          | X     | W           | X     |
| 16   | 103.3      | 121.8 | 104.0       | 122.5 |
| 25   | 103.9      | 125.9 | 100.1       | 122.1 |
| 32   | 111.4      | 138.4 | —           | —     |
| 40   | 133.4      | 160.4 | —           | —     |

With lock/motor cover: LEY<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub> <sup>A</sup>□□ <sup>B</sup>□□ <sup>C</sup>



| Size | T <sub>2</sub> | X <sub>2</sub> |
|------|----------------|----------------|
| 16   | 7.5            | 124.5          |
| 25   | 7.5            | 129            |
| 32   | 7.5            | 141.5          |
| 40   | 7.5            | 163.5          |

## Dimensions: In-line Motor



\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 Position after returning to origin

\*3 [ ] for when the direction of return to origin has changed

\*4 The direction of rod end width across flats (K) differs depending on the products.

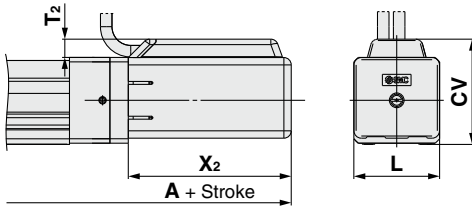
| [mm] |                   |            |             |       |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |             |    |
|------|-------------------|------------|-------------|-------|----|----|----|------|-----------|----|----|------|------|----------------|----|----|------|-----|------|------------|-------------|----|
| Size | Stroke range [mm] | Step motor | Servo motor | B     | C  | D  | EH | EV   | H         | J  | K  | L    | M    | O <sub>1</sub> | R  | S  | T    | U   | V    | Step motor | Servo motor | Y  |
|      |                   | A          |             |       |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      | W          |             |    |
|      |                   |            |             |       |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |             |    |
| 16   | 10 to 100         | 166.3      | 167         | 92    | 10 | 16 | 34 | 34.3 | M5 x 0.8  | 18 | 14 | 10.5 | 25.5 | M4 x 0.7       | 7  | 35 | 35.5 | 0.5 | 28   | 61.8       | 62.5        | 24 |
|      | 101 to 300        | 186.3      | 187         | 112   |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |             |    |
| 25   | 15 to 100         | 195.4      | 191.6       | 115.5 | 13 | 20 | 44 | 45.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34   | M5 x 0.8       | 8  | 45 | 46.5 | 1.5 | 42   | 63.4       | 59.6        | 26 |
|      | 101 to 400        | 220.4      | 216.6       | 140.5 |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |             |    |
| 32   | 20 to 100         | 216.9      | —           | 128   | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40   | M6 x 1         | 10 | 60 | 61   | 1   | 56.4 | 68.4       | —           | 32 |
|      | 101 to 500        | 246.9      | —           | 158   |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |             |    |
| 40   | 20 to 100         | 238.9      | —           | 128   | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40   | M6 x 1         | 10 | 60 | 61   | 1   | 56.4 | 90.4       | —           | 32 |
|      | 101 to 500        | 268.9      | —           | 158   |    |    |    |      |           |    |    |      |      |                |    |    |      |     |      |            |             |    |

## Body Bottom Tapped

| Size | Stroke range [mm] | MA | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|------|----|----|----------|-----|----|----|
| 16   | 10 to 39          | 15 | 17 | 23.5 | 23 | 40 | M4 x 0.7 | 5.5 | 3  | 4  |
|      | 40 to 100         |    | 32 | 31   |    |    |          |     |    |    |
|      | 101 to 300        |    | 62 | 46   |    |    |          |     |    |    |
| 25   | 15 to 39          | 20 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100         |    | 42 | 41   |    |    |          |     |    |    |
|      | 101 to 124        |    | 59 | 49.5 |    |    |          |     |    |    |
|      | 125 to 200        |    | 76 | 58   |    |    |          |     |    |    |
|      | 201 to 400        |    | 76 | 58   |    |    |          |     |    |    |
| 32   | 20 to 39          | 25 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100         |    | 36 | 43   |    |    |          |     |    |    |
|      | 101 to 124        |    | 53 | 51.5 |    |    |          |     |    |    |
|      | 125 to 200        |    | 53 | 51.5 |    |    |          |     |    |    |
|      | 201 to 500        |    | 70 | 60   |    |    |          |     |    |    |

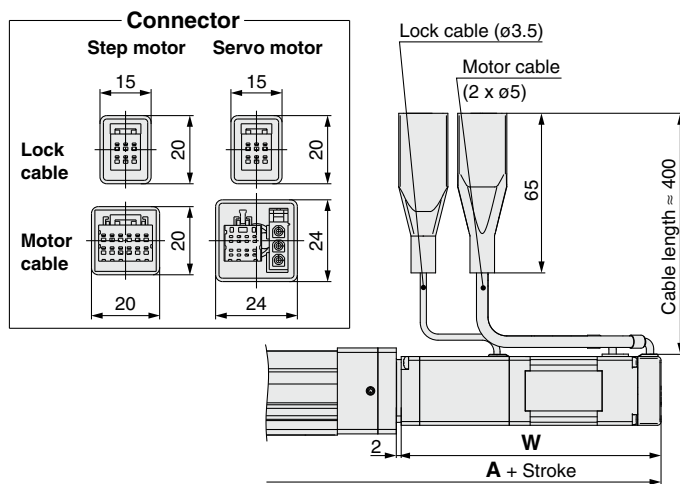
## Dimensions: In-line Motor

With motor cover: LEY <sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub> D <sup>A</sup><sub>B</sub> <sup>C</sup><sub>C</sub>



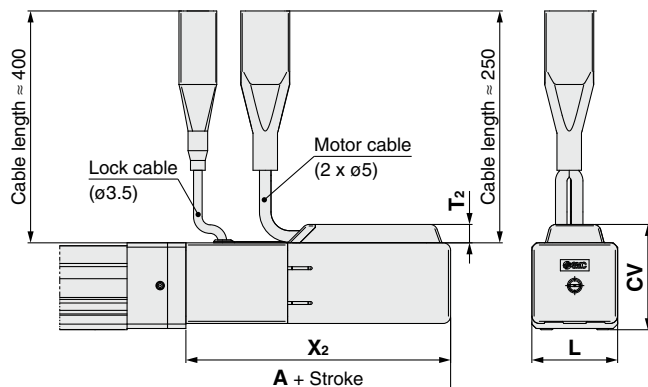
| Size | Stroke range                 | A     | T <sub>2</sub> | X <sub>2</sub> | L  | CV   |
|------|------------------------------|-------|----------------|----------------|----|------|
| 16   | 100st or less                | 169   | 7.5            | 66.5           | 35 | 43   |
|      | 101st or more, 300st or less | 189   |                |                |    |      |
| 25   | 100st or less                | 198.5 | 7.5            | 68.5           | 46 | 54.5 |
|      | 101st or more, 400st or less | 223.5 |                |                |    |      |
| 32   | 100st or less                | 220   | 7.5            | 73.5           | 60 | 68.5 |
|      | 101st or more, 500st or less | 250   |                |                |    |      |
| 40   | 100st or less                | 242   | 7.5            | 95.5           | 60 | 68.5 |
|      | 101st or more, 500st or less | 272   |                |                |    |      |

With lock: LEY <sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub> D <sup>A</sup><sub>B</sub> <sup>C</sup><sub>B</sub>



| Size | Stroke range                 | Step motor | Servo motor | Step motor | Servo motor |
|------|------------------------------|------------|-------------|------------|-------------|
|      |                              | A          |             | W          |             |
| 16   | 100st or less                | 207.8      | 208.5       | 103.3      | 104         |
|      | 101st or more, 300st or less | 227.8      | 228.5       |            |             |
| 25   | 100st or less                | 235.9      | 232.1       | 103.9      | 100.1       |
|      | 101st or more, 400st or less | 260.9      | 257.1       |            |             |
| 32   | 100st or less                | 259.9      | —           | 111.4      | —           |
|      | 101st or more, 500st or less | 289.9      | —           |            |             |
| 40   | 100st or less                | 281.9      | —           | 133.4      | —           |
|      | 101st or more, 500st or less | 311.9      | —           |            |             |

With lock/motor cover: LEY <sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub> D <sup>A</sup><sub>B</sub> <sup>C</sup><sub>W</sub>



| Size | Stroke range                 | A     | T <sub>2</sub> | X <sub>2</sub> | L  | CV   |
|------|------------------------------|-------|----------------|----------------|----|------|
| 16   | 100st or less                | 210.5 | 7.5            | 108            | 35 | 43   |
|      | 101st or more, 300st or less | 230.5 |                |                |    |      |
| 25   | 100st or less                | 239   | 7.5            | 109            | 46 | 54.4 |
|      | 101st or more, 400st or less | 264   |                |                |    |      |
| 32   | 100st or less                | 263   | 7.5            | 116.5          | 60 | 68.5 |
|      | 101st or more, 500st or less | 293   |                |                |    |      |
| 40   | 100st or less                | 285   | 7.5            | 138.5          | 60 | 68.5 |
|      | 101st or more, 500st or less | 315   |                |                |    |      |



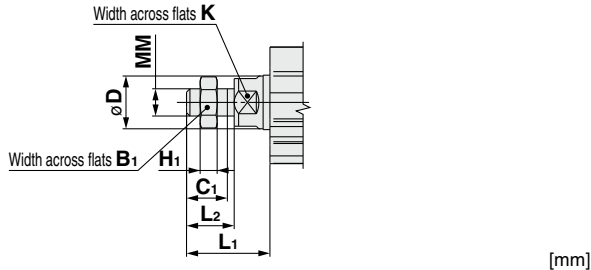
# LEY Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

## Dimensions

End male thread: LEY  $\begin{matrix} 16 \\ 25 \\ 32 \\ 40 \end{matrix}$   $\begin{matrix} A \\ B \\ C \end{matrix}$   $\begin{matrix} \square \\ \square \\ \square \\ \square \end{matrix}$   $\begin{matrix} B \\ B \\ C \\ C \end{matrix}$   $\begin{matrix} \square \\ \square \\ \square \\ \square \end{matrix}$  M

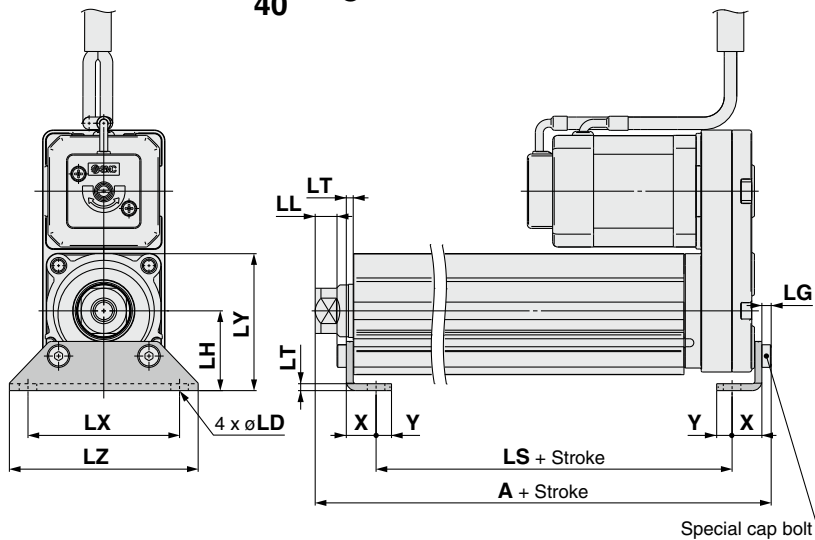


| Size   | B <sub>1</sub> | C <sub>1</sub> | D  | H <sub>1</sub> | K  | L <sub>1</sub> | L <sub>2</sub> | MM        |
|--------|----------------|----------------|----|----------------|----|----------------|----------------|-----------|
| 16     | 13             | 12             | 16 | 5              | 14 | 24.5           | 14             | M8 x 1.25 |
| 25     | 22             | 20.5           | 20 | 8              | 17 | 38             | 23.5           | M14 x 1.5 |
| 32, 40 | 22             | 20.5           | 25 | 8              | 22 | 42.0           | 23.5           | M14 x 1.5 |

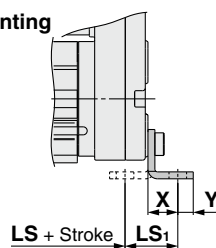
\* The L<sub>1</sub> measurement is when the unit is in the original position.  
At this position, 2 mm at the end.

\* Refer to pages 101 and 102 for details on the rod end nut and mounting bracket.  
\* Refer to the "Handling" precautions on pages 204 to 207 when mounting end brackets such as knuckle joint or workpieces.

Foot bracket: LEY  $\begin{matrix} 16 \\ 25 \\ 32 \\ 40 \end{matrix}$   $\begin{matrix} A \\ B \\ C \end{matrix}$   $\begin{matrix} \square \\ \square \\ \square \\ \square \end{matrix}$   $\begin{matrix} B \\ B \\ C \\ C \end{matrix}$   $\begin{matrix} \square \\ \square \\ \square \\ \square \end{matrix}$  L



### Outward mounting



Included parts  
• Foot bracket  
• Body mounting bolt

### Foot Bracket

| Size | Stroke range [mm] | A     | LS    | LS <sub>1</sub> | LL   | LD  | LG  | LH | LT  | LX | LY   | LZ | X    | Y   |
|------|-------------------|-------|-------|-----------------|------|-----|-----|----|-----|----|------|----|------|-----|
| 16   | 10 to 100         | 106.1 | 76.7  | 16.1            | 5.4  | 6.6 | 2.8 | 24 | 2.3 | 48 | 40.3 | 62 | 9.2  | 5.8 |
|      | 101 to 300        | 126.1 | 96.7  |                 |      |     |     |    |     |    |      |    |      |     |
| 25   | 15 to 100         | 136.6 | 98.8  | 19.8            | 8.4  | 6.6 | 3.5 | 30 | 2.6 | 57 | 51.5 | 71 | 11.2 | 5.8 |
|      | 101 to 400        | 161.6 | 123.8 |                 |      |     |     |    |     |    |      |    |      |     |
| 32   | 20 to 100         | 155.7 | 114   | 19.2            | 11.3 | 6.6 | 4   | 36 | 3.2 | 76 | 61.5 | 90 | 11.2 | 7   |
|      | 101 to 500        | 185.7 | 144   |                 |      |     |     |    |     |    |      |    |      |     |

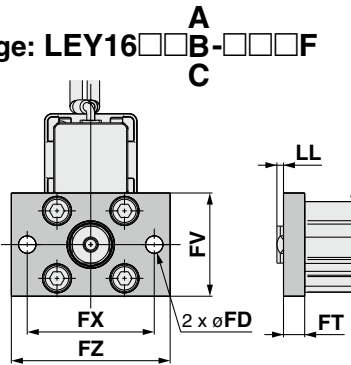
Material: Carbon steel (Chromating)

\* The A measurement is when the unit is in the original position. At this position, 2 mm at the end.

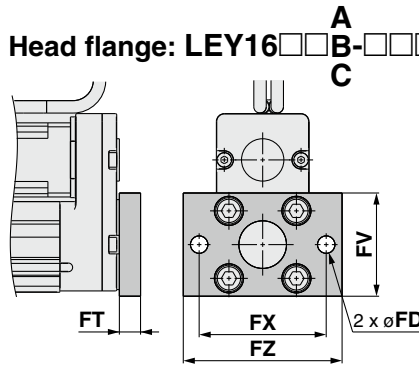
\* When the motor mounting is the right or left side parallel type, the head side foot bracket should be mounted outward.

## Dimensions

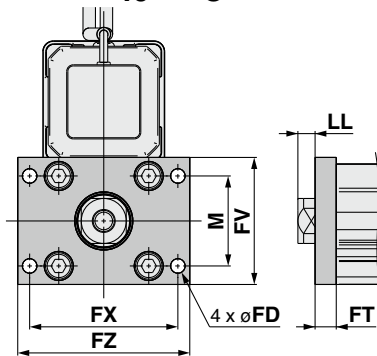
Rod flange: LEY16□□B-□□□F



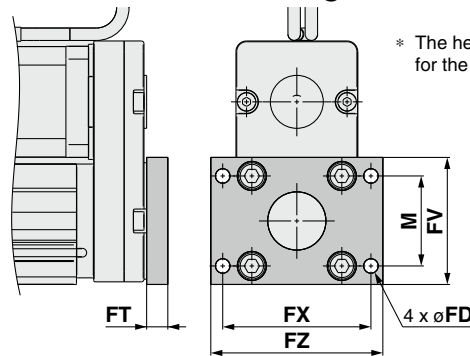
Head flange: LEY16□□B-□□□G



Rod flange: LEY32□□B-□□□F  
40 C



Head flange: LEY25□□B-□□□G



\* The head flange type is not available for the LEY32/40.

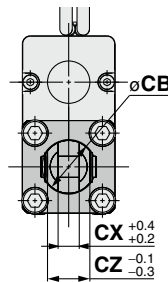
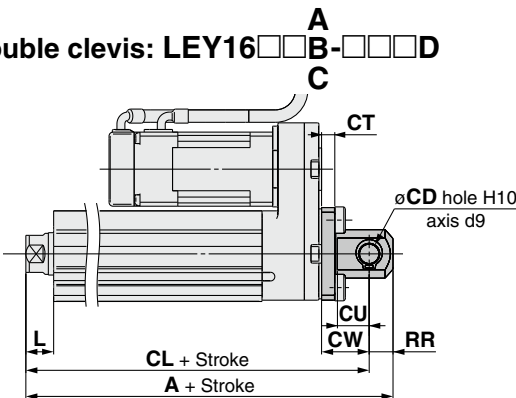
Included parts  
• Flange  
• Body mounting bolt

### Rod/Head Flange [mm]

| Size   | FD  | FT | FV | FX | FZ | LL   | M  |
|--------|-----|----|----|----|----|------|----|
| 16     | 6.6 | 8  | 39 | 48 | 60 | 2.5  | —  |
| 25     | 5.5 | 8  | 48 | 56 | 65 | 6.5  | 34 |
| 32, 40 | 5.5 | 8  | 54 | 62 | 72 | 10.5 | 40 |

Material: Carbon steel (Nickel plating)

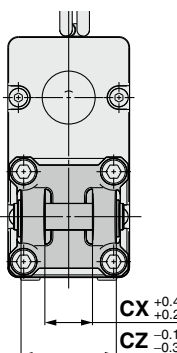
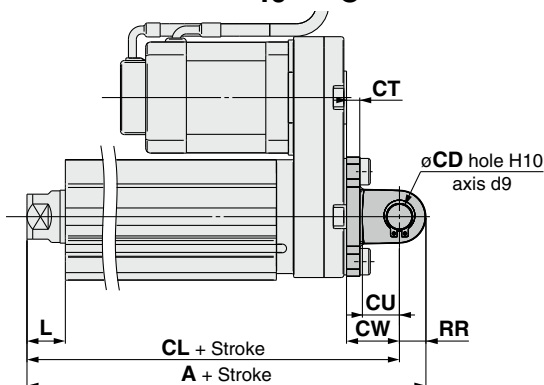
Double clevis: LEY16□□B-□□□D



Included parts  
• Double clevis  
• Body mounting bolt  
• Clevis pin  
• Retaining ring

\* Refer to pages 101 and 102 for details on the rod end nut and mounting bracket.

Double clevis: LEY32□□B-□□□D  
40 C



### Double Clevis [mm]

| Size | Stroke range [mm] | A     | CL    | CB | CD | CT |
|------|-------------------|-------|-------|----|----|----|
| 16   | 10 to 100         | 128   | 119   | 20 | 8  | 5  |
| 25   | 15 to 100         | 160.5 | 150.5 | —  | 10 | 5  |
|      | 101 to 200        | 185.5 | 175.5 | —  | 10 | 6  |
| 32   | 20 to 100         | 180.5 | 170.5 | —  | 10 | 6  |
| 40   | 101 to 200        | 210.5 | 200.5 | —  | 10 | 6  |

| Size | Stroke range [mm] | CU | CW | CX | CZ | L    | RR |
|------|-------------------|----|----|----|----|------|----|
| 16   | 10 to 100         | 12 | 18 | 8  | 16 | 10.5 | 9  |
| 25   | 15 to 100         | 14 | 20 | 18 | 36 | 14.5 | 10 |
|      | 101 to 200        | 14 | 22 | 18 | 36 | 18.5 | 10 |
| 32   | 20 to 100         | 14 | 22 | 18 | 36 | 18.5 | 10 |
| 40   | 101 to 200        | 14 | 22 | 18 | 36 | 18.5 | 10 |

Material: Cast iron (Coating)

\* The A and CL measurements are when the unit is in the original position. At this position, 2 mm at the end.

# Electric Actuator Rod Type



\* For details, refer to page 307 and onward.

**LEY Series** LEY25, 32 **Size** 25, 32

RoHS

**LEY**□ Series ▶ p. 91 **Dust-tight/Water-jet-proof** ▶ p. 181

**Secondary Battery Compatible** ▶ p. 199

The LECSB-S, LECS-C-S, and LECS-S electric actuator drivers are to be discontinued. The LECSB-T, LECS-C-T, and LECS-S-T drivers are available as substitutes. In the product number, select T6 instead of S6, or T7 instead of S7 for the **① Motor type**, and select B2 instead of B1, C2 instead of C1, or S2 instead of S1 for the **② Driver type**.

## How to Order

LEY **H** **25** **S2** **B** - **100** **S** **2** **A1**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬

### ① Accuracy

|     |                     |
|-----|---------------------|
| Nil | Basic type          |
| H   | High-precision type |

### ② Size

|    |
|----|
| 25 |
| 32 |

### ③ Motor mounting position

|     |                     |
|-----|---------------------|
| Nil | Top side parallel   |
| R   | Right side parallel |
| L   | Left side parallel  |
| D   | In-line             |

### ④ Motor type

| Symbol | Type                                 | Output [W] | Actuator size | Compatible drivers*3                                |
|--------|--------------------------------------|------------|---------------|-----------------------------------------------------|
| S2*1   | AC servo motor (Incremental encoder) | 100        | 25            | LECSA□-S1                                           |
| S3     |                                      | 200        | 32            | LECSA□-S3                                           |
| S6*1   | AC servo motor (Absolute encoder)    | 100        | 25            | LECSB□-S5<br>LECS-C□-S5<br>LECSS□-S5                |
| S7     |                                      | 200        | 32            | LECSB□-S7<br>LECS-C□-S7<br>LECSS□-S7                |
| T6*2   | AC servo motor (Absolute encoder)    | 100        | 25            | LECSB2-T5<br>LECS-C2-T5<br>LECSN2-T5-□<br>LECSS2-T5 |
| T7     |                                      | 200        | 32            | LECSB2-T7<br>LECS-C2-T7<br>LECSN2-T7-□<br>LECSS2-T7 |

\*1 For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

\*2 For motor type T6, the compatible driver part number is LECS□2-T5.

\*3 For details on the driver, refer to page 264.

### ⑤ Lead [mm]

| Symbol | LEY25 | LEY32*1 |
|--------|-------|---------|
| A      | 12    | 16 (20) |
| B      | 6     | 8 (10)  |
| C      | 3     | 4 (5)   |

\*1 The values shown in ( ) are the leads for the size 32 top/right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])

### ⑥ Stroke [mm]

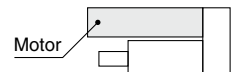
|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

### ⑦ Motor option

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock*1    |

\*1 When "With lock" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.



### ⑧ Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

### ⑨ Mounting\*1

| Symbol | Type                                 | Motor mounting position |         |
|--------|--------------------------------------|-------------------------|---------|
|        |                                      | Parallel                | In-line |
| Nil    | Ends tapped/<br>Body bottom tapped*2 | ●                       | ●       |
| L      | Foot bracket                         | ●                       | —       |
| F      | Rod flange*2                         | ●*4                     | ●       |
| G      | Head flange*2                        | ●*5                     | —       |
| D      | Double clevis*3                      | ●                       | —       |

### Applicable Stroke Table

●: Standard

| Model | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | Manufacturable stroke range |
|-------|-------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| LEY25 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                   |
| LEY32 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                   |

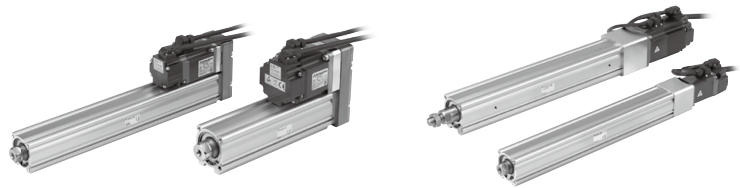
\* Please contact SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 104 to 107.

# Electric Actuator Rod Type **LEY Series**

AC Servo Motor

Size **25, 32**



Motor mounting position: Parallel

Motor mounting position: In-line

## 10 Cable type\*1 \*2

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>S</b>   | Standard cable                 |
| <b>R</b>   | Robotic cable (Flexible cable) |

\*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

\*2 Standard cable entry direction is  
 • Parallel: (A) Axis side  
 • In-line: (B) Counter axis side  
 (Refer to page 290 for details.)

## 11 Cable length\*1 [m]

|            |               |
|------------|---------------|
| <b>Nil</b> | Without cable |
| <b>2</b>   | 2             |
| <b>5</b>   | 5             |
| <b>A</b>   | 10            |

\*1 The length of the motor, encoder, and lock cables are the same.

## 12 Driver type\*1

|            | Compatible drivers | Power supply voltage [V] |
|------------|--------------------|--------------------------|
| <b>Nil</b> | Without driver     | —                        |
| <b>A1</b>  | LECSA1-S□          | 100 to 120               |
| <b>A2</b>  | LECSA2-S□          | 200 to 230               |
| <b>B1</b>  | LECSB1-S□          | 100 to 120               |
| <b>B2</b>  | LECSB2-S□          | 200 to 230               |
|            | LECSB2-T□          | 200 to 240               |
| <b>C1</b>  | LECSC1-S□          | 100 to 120               |
| <b>C2</b>  | LECSC2-S□          | 200 to 230               |
|            | LECSC2-T□          | 200 to 240               |
| <b>S1</b>  | LECSS1-S□          | 100 to 120               |
| <b>S2</b>  | LECSS2-S□          | 200 to 230               |
|            | LECSS2-T□          | 200 to 240               |
| <b>N2</b>  | LECSN2-T□          | 200 to 240               |
| <b>E2</b>  | LECSN2-T□-E        | 200 to 240               |
| <b>92</b>  | LECSN2-T□-9        | 200 to 240               |
| <b>P2</b>  | LECSN2-T□-P        | 200 to 240               |

\*1 When a driver type is selected, a cable is included. Select the cable type and cable length.

Example)

S2S2: Standard cable (2 m) + Driver (LECSS2)

S2: Standard cable (2 m)

Nil: Without cable and driver

## 13 I/O cable length [m]\*1

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>H</b>   | Without cable (Connector only) |
| <b>1</b>   | 1.5                            |

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected.

Refer to page 291 if an I/O cable is required. (Options are shown on page 291.)

## Compatible Drivers

| Driver type                     | Pulse input type /Positioning type | Pulse input type                                       | CC-Link direct input type       | SSCNET III type         | Pulse input type                       | CC-Link direct input type       | SSCNET III/H type         | Network card type               |
|---------------------------------|------------------------------------|--------------------------------------------------------|---------------------------------|-------------------------|----------------------------------------|---------------------------------|---------------------------|---------------------------------|
|                                 |                                    |                                                        |                                 |                         |                                        |                                 |                           |                                 |
| <b>Series</b>                   | <b>LECSA</b>                       | <b>LECSB</b>                                           | <b>LECSC</b>                    | <b>LECSS</b>            | <b>LECSB-T</b>                         | <b>LECSC-T</b>                  | <b>LECSS-T</b>            | <b>LECSN-T</b>                  |
| <b>Number of point tables*1</b> | Up to 7                            | —                                                      | Up to 255 (2 stations occupied) | —                       | Up to 255                              | Up to 255 (2 stations occupied) | —                         | Up to 255                       |
| <b>Pulse input</b>              | ○                                  | ○                                                      | —                               | —                       | ○                                      | —                               | —                         | —                               |
| <b>Applicable network</b>       | —                                  | —                                                      | CC-Link                         | SSCNET III              | —                                      | CC-Link                         | SSCNET III/H              | PROFINET EtherCAT® EtherNet/IP™ |
| <b>Control encoder</b>          | Incremental 17-bit encoder         | Absolute 18-bit encoder                                | Absolute 18-bit encoder         | Absolute 18-bit encoder | Absolute 22-bit encoder                | Absolute 18-bit encoder         | Absolute 22-bit encoder   | Absolute 22-bit encoder         |
| <b>Communication function</b>   | USB communication                  | USB communication, RS422 communication                 | USB communication               | USB communication       | USB communication, RS422 communication | USB communication               | USB communication         | USB communication               |
| <b>Power supply voltage [V]</b> |                                    | 100 to 120 VAC (50/60 Hz)<br>200 to 230 VAC (50/60 Hz) |                                 |                         | 200 to 240 VAC (50/60 Hz)              | 200 to 230 VAC (50/60 Hz)       | 200 to 240 VAC (50/60 Hz) | 200 to 240 VAC (50/60 Hz)       |
| <b>Reference page</b>           |                                    |                                                        |                                 |                         |                                        |                                 |                           |                                 |

\*1 The LECSN-T only supports PROFINET and EtherCAT®.

## Specifications: LECSA/LECSB/LECSC/LECSS

\* Refer to the next page for the LECSS-T.

| Model                            |                                                               |              | LEY25S <sup>2</sup> <sub>2</sub> (Parallel)/LEY25DS <sup>2</sup> <sub>2</sub> (In-line) |                                                                                                                                                   |            | LEY32S <sup>3</sup> <sub>3</sub> (Parallel) |                              |            | LEY32DS <sup>3</sup> <sub>3</sub> (In-line) |              |            |            |
|----------------------------------|---------------------------------------------------------------|--------------|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|------------|---------------------------------------------|------------------------------|------------|---------------------------------------------|--------------|------------|------------|
| Actuator specifications          | Work load [kg]                                                |              | Horizontal <sup>*1</sup>                                                                | 18                                                                                                                                                | 50         | 50                                          | 30                           | 60         | 60                                          | 30           | 60         | 60         |
|                                  |                                                               |              | Vertical                                                                                | 8                                                                                                                                                 | 16         | 30                                          | 9                            | 19         | 37                                          | 12           | 24         | 46         |
|                                  | Force [N] <sup>*2</sup> (Set value: 15 to 30%)                |              |                                                                                         | 65 to 131                                                                                                                                         | 127 to 255 | 242 to 485                                  | 79 to 157                    | 154 to 308 | 294 to 588                                  | 98 to 197    | 192 to 385 | 368 to 736 |
|                                  | Max. speed [mm/s]                                             | Stroke range | Up to 300                                                                               | 900                                                                                                                                               | 450        | 225                                         | 1200                         | 600        | 300                                         | 1000         | 500        | 250        |
|                                  |                                                               |              | 305 to 400                                                                              | 600                                                                                                                                               | 300        | 150                                         |                              |            |                                             |              |            |            |
|                                  |                                                               |              | 405 to 500                                                                              | —                                                                                                                                                 | —          | —                                           |                              |            |                                             |              |            |            |
|                                  | Pushing speed [mm/s] <sup>*4</sup>                            |              |                                                                                         | 35 or less                                                                                                                                        |            |                                             | 30 or less                   |            |                                             | 30 or less   |            |            |
|                                  | Max. acceleration/deceleration [mm/s <sup>2</sup> ]           |              |                                                                                         | 5000                                                                                                                                              |            |                                             | 5000                         |            |                                             |              |            |            |
|                                  | Positioning repeatability [mm]                                |              | Basic type                                                                              |                                                                                                                                                   |            |                                             |                              |            |                                             | ±0.02        |            |            |
|                                  |                                                               |              | High-precision type                                                                     |                                                                                                                                                   |            |                                             |                              |            |                                             | ±0.01        |            |            |
|                                  | Lost motion [mm] <sup>*5</sup>                                |              | Basic type                                                                              |                                                                                                                                                   |            |                                             |                              |            |                                             | 0.1 or less  |            |            |
|                                  |                                                               |              | High-precision type                                                                     |                                                                                                                                                   |            |                                             |                              |            |                                             | 0.05 or less |            |            |
|                                  | Lead [mm] (including pulley ratio)                            |              |                                                                                         | 12                                                                                                                                                | 6          | 3                                           | 20                           | 10         | 5                                           | 16           | 8          | 4          |
|                                  | Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*6</sup> |              |                                                                                         | 50/20                                                                                                                                             |            |                                             | 50/20                        |            |                                             |              |            |            |
| Actuation type                   |                                                               |              | Ball screw + Belt (LEY□□)/Ball screw (LEY□□)                                            |                                                                                                                                                   |            | Ball screw + Belt [1.25:1]                  |                              |            | Ball screw                                  |              |            |            |
| Guide type                       |                                                               |              | Sliding bushing (Piston rod)                                                            |                                                                                                                                                   |            | Sliding bushing (Piston rod)                |                              |            |                                             |              |            |            |
| Operating temperature range [°C] |                                                               |              | 5 to 40                                                                                 |                                                                                                                                                   |            | 5 to 40                                     |                              |            |                                             |              |            |            |
| Operating humidity range [%RH]   |                                                               |              | 90 or less (No condensation)                                                            |                                                                                                                                                   |            | 90 or less (No condensation)                |                              |            |                                             |              |            |            |
| Regeneration option              |                                                               |              | May be required depending on speed and work load (Refer to pages 43 and 44.)            |                                                                                                                                                   |            |                                             |                              |            |                                             |              |            |            |
| Electric specifications          | Motor output/Size                                             |              |                                                                                         | 100 W/□40                                                                                                                                         |            |                                             | 200 W/□60                    |            |                                             |              |            |            |
|                                  | Motor type                                                    |              |                                                                                         | AC servo motor (100/200 VAC)                                                                                                                      |            |                                             | AC servo motor (100/200 VAC) |            |                                             |              |            |            |
|                                  | Encoder                                                       |              |                                                                                         | Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev)<br>Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev) |            |                                             |                              |            |                                             |              |            |            |
| Power [W] <sup>*7</sup>          |                                                               |              | Max. power 445                                                                          |                                                                                                                                                   |            | Max. power 724                              |                              |            | Max. power 724                              |              |            |            |
| Lock unit specifications         | Type <sup>*8</sup>                                            |              |                                                                                         | Non-magnetizing lock                                                                                                                              |            |                                             |                              |            |                                             |              |            |            |
|                                  | Holding force [N]                                             |              |                                                                                         | 131                                                                                                                                               | 255        | 485                                         | 157                          | 308        | 588                                         | 197          | 385        | 736        |
|                                  | Power [W] at 20°C                                             |              |                                                                                         | 6.3                                                                                                                                               |            |                                             | 7.9                          |            |                                             | 7.9          |            |            |
|                                  | Rated voltage [V]                                             |              |                                                                                         | 24 VDC <sup>0</sup> <sub>-10%</sub>                                                                                                               |            |                                             |                              |            |                                             |              |            |            |

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph" on page 45.  
The driver applicable to the pushing operation is "LECSS".  
Combine the LECSS with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

\*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

\*3 The allowable speed changes according to the stroke. Set the number of rotations according to speed.

\*4 The allowable collision speed for collision with the workpiece with the torque control mode

\*5 A reference value for correcting errors in reciprocal operation

\*6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*7 Indicates the max. power during operation (including the driver)  
When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.

\*8 Only when motor option "With lock" is selected

## Weight

### Product Weight

[kg]

| Series     |                     | LEY25S <sub>2</sub> <sup>2</sup> (Motor mounting position: Parallel) |      |      |      |      |      |      |      |      |      | LEY32S <sub>3</sub> <sup>3</sup> (Motor mounting position: Parallel) |      |      |      |      |      |      |      |      |      |
|------------|---------------------|----------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|----------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Motor type | Stroke [mm]         | 30                                                                   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 30   | 50                                                                   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
|            | Incremental encoder | 1.31                                                                 | 1.38 | 1.55 | 1.81 | 1.99 | 2.16 | 2.34 | 2.51 | 2.69 | 2.42 | 2.53                                                                 | 2.82 | 3.29 | 3.57 | 3.85 | 4.14 | 4.42 | 4.70 | 4.98 | 5.26 |
|            | Absolute encoder    | 1.37                                                                 | 1.44 | 1.61 | 1.87 | 2.05 | 2.22 | 2.40 | 2.57 | 2.75 | 2.36 | 2.47                                                                 | 2.76 | 3.23 | 3.51 | 3.79 | 4.08 | 4.36 | 4.64 | 4.92 | 5.20 |
| Series     |                     | LEY25DS <sub>2</sub> <sup>2</sup> (Motor mounting position: In-line) |      |      |      |      |      |      |      |      |      | LEY32DS <sub>3</sub> <sup>3</sup> (Motor mounting position: In-line) |      |      |      |      |      |      |      |      |      |
| Motor type | Stroke [mm]         | 30                                                                   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 30   | 50                                                                   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
|            | Incremental encoder | 1.34                                                                 | 1.41 | 1.58 | 1.84 | 2.02 | 2.19 | 2.37 | 2.54 | 2.72 | 2.44 | 2.55                                                                 | 2.84 | 3.31 | 3.59 | 3.87 | 4.16 | 4.44 | 4.72 | 5.00 | 5.28 |
|            | Absolute encoder    | 1.40                                                                 | 1.47 | 1.64 | 1.90 | 2.08 | 2.25 | 2.43 | 2.60 | 2.78 | 2.38 | 2.49                                                                 | 2.78 | 3.25 | 3.53 | 3.81 | 4.10 | 4.38 | 4.66 | 4.94 | 5.22 |

### Additional Weight

[kg]

| Size                                                             |                          | 25   | 32   |
|------------------------------------------------------------------|--------------------------|------|------|
| Lock                                                             | Incremental encoder      | 0.20 | 0.40 |
|                                                                  | Absolute encoder [S6/S7] | 0.30 | 0.66 |
| Rod end male thread                                              | Male thread              | 0.03 | 0.03 |
|                                                                  | Nut                      | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt)                    |                          | 0.08 | 0.14 |
| Rod flange (including mounting bolt)                             |                          | 0.17 | 0.20 |
| Head flange (including mounting bolt)                            |                          |      |      |
| Double clevis (including pin, retaining ring, and mounting bolt) |                          | 0.16 | 0.22 |



## Specifications: LECS□-T

| Model                                             |                                                     |                     | LEY25T6 (Parallel)/LEY25DT6 (In-line)                                                                                                                                                   |            |            | LEY32T7 (Parallel)           |            |            | LEY32DT7 (In-line) |            |            |     |
|---------------------------------------------------|-----------------------------------------------------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------------------------|------------|------------|--------------------|------------|------------|-----|
| Actuator specifications                           | Work load [kg]                                      |                     | Horizontal*1                                                                                                                                                                            | 18         | 50         | 50                           | 30         | 60         | 60                 | 30         | 60         | 60  |
|                                                   |                                                     |                     | Vertical                                                                                                                                                                                | 8          | 16         | 30                           | 9          | 19         | 37                 | 12         | 24         | 46  |
|                                                   | Force [N]*2 (Set value: 12 to 24%)                  |                     | 65 to 131                                                                                                                                                                               | 127 to 255 | 242 to 485 | 79 to 157                    | 154 to 308 | 294 to 588 | 98 to 197          | 192 to 385 | 368 to 736 |     |
|                                                   | Max. speed<br>[mm/s]                                | Stroke<br>range     | Up to 300                                                                                                                                                                               | 900        | 450        | 225                          | 1200       | 600        | 300                | 1000       | 500        | 250 |
|                                                   |                                                     |                     | 305 to 400                                                                                                                                                                              | 600        | 300        | 150                          |            |            |                    |            |            |     |
|                                                   |                                                     |                     | 405 to 500                                                                                                                                                                              | —          | —          | —                            | 800        | 400        | 200                | 640        | 320        | 160 |
|                                                   | Pushing speed [mm/s]*4                              |                     |                                                                                                                                                                                         | 35 or less |            |                              | 30 or less |            |                    | 30 or less |            |     |
|                                                   | Max. acceleration/deceleration [mm/s <sup>2</sup> ] |                     |                                                                                                                                                                                         | 5000       |            |                              | 5000       |            |                    |            |            |     |
|                                                   | Positioning<br>repeatability [mm]                   |                     | Basic type                                                                                                                                                                              | ±0.02      |            |                              | ±0.02      |            |                    |            |            |     |
|                                                   |                                                     |                     | High-precision type                                                                                                                                                                     | ±0.01      |            |                              | ±0.01      |            |                    |            |            |     |
| Lost motion*5<br>[mm]                             |                                                     | Basic type          | 0.1 or less                                                                                                                                                                             |            |            | 0.1 or less                  |            |            |                    |            |            |     |
|                                                   |                                                     | High-precision type | 0.05 or less                                                                                                                                                                            |            |            | 0.05 or less                 |            |            |                    |            |            |     |
| Lead [mm] (including pulley ratio)                |                                                     |                     | 12                                                                                                                                                                                      | 6          | 3          | 20                           | 10         | 5          | 16                 | 8          | 4          |     |
| Impact/Vibration resistance [m/s <sup>2</sup> ]*6 |                                                     |                     | 50/20                                                                                                                                                                                   |            |            | 50/20                        |            |            |                    |            |            |     |
| Actuation type                                    |                                                     |                     | Ball screw + Belt (LEY□)/Ball screw (LEY□D)                                                                                                                                             |            |            | Ball screw + Belt [1.25:1]   |            |            | Ball screw         |            |            |     |
| Guide type                                        |                                                     |                     | Sliding bushing (Piston rod)                                                                                                                                                            |            |            | Sliding bushing (Piston rod) |            |            |                    |            |            |     |
| Operating temperature range [°C]                  |                                                     |                     | 5 to 40                                                                                                                                                                                 |            |            | 5 to 40                      |            |            |                    |            |            |     |
| Operating humidity range [%RH]                    |                                                     |                     | 90 or less (No condensation)                                                                                                                                                            |            |            | 90 or less (No condensation) |            |            |                    |            |            |     |
| Regeneration option                               |                                                     |                     | May be required depending on speed and work load (Refer to pages 43 and 44.)                                                                                                            |            |            |                              |            |            |                    |            |            |     |
| Electric specifications                           | Motor output/Size                                   |                     | 100 W/□40                                                                                                                                                                               |            |            | 200 W/□60                    |            |            |                    |            |            |     |
|                                                   | Motor type                                          |                     | AC servo motor (200 VAC)                                                                                                                                                                |            |            | AC servo motor (200 VAC)     |            |            |                    |            |            |     |
|                                                   | Encoder*9                                           |                     | Motor type T6, T7: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB-T□, LECSS-T□)<br>Motor type T6, T7: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC-T□) |            |            |                              |            |            |                    |            |            |     |
|                                                   | Power [W]*7                                         |                     | Max. power 445                                                                                                                                                                          |            |            | Max. power 724               |            |            | Max. power 724     |            |            |     |
| Lock unit specifications                          | Type*8                                              |                     | Non-magnetizing lock                                                                                                                                                                    |            |            |                              |            |            |                    |            |            |     |
|                                                   | Holding force [N]                                   |                     | 131                                                                                                                                                                                     | 255        | 485        | 157                          | 308        | 588        | 197                | 385        | 736        |     |
|                                                   | Power [W] at 20°C                                   |                     | 6.3                                                                                                                                                                                     |            |            | 7.9                          |            |            | 7.9                |            |            |     |
|                                                   | Rated voltage [V]                                   |                     | 24 VDC <sup>0</sup> / <sub>-10%</sub>                                                                                                                                                   |            |            |                              |            |            |                    |            |            |     |

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph (Guide)" on page 46. The driver applicable to the pushing operation is "LECSB-T", and "LECSS-T".

The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings. To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website: <https://www.smcworld.com>. When selecting the LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

\*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

\*3 The allowable speed changes according to the stroke.

\*4 The allowable collision speed for collision with the workpiece with the torque control mode

\*5 A reference value for correcting errors in reciprocal operation

\*6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*7 Indicates the max. power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.

\*8 Only when motor option "With lock" is selected

\*9 The resolution will change depending on the driver type.

## Weight

### Product Weight

| Series      |                  | LEY25T6 (Motor mounting position: Parallel) |     |     |     |     |     |     |     |     |     | LEY32T7 (Motor mounting position: Parallel) |     |     |     |     |     |     |     |     |     |
|-------------|------------------|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke [mm] |                  | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 30  | 50                                          | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Motor type  | Absolute encoder | 1.4                                         | 1.5 | 1.6 | 1.9 | 2.0 | 2.2 | 2.4 | 2.6 | 2.7 | 2.3 | 2.4                                         | 2.7 | 3.2 | 3.5 | 3.8 | 4.1 | 4.3 | 4.6 | 4.9 | 5.2 |
|             | Relative encoder | 1.4                                         | 1.5 | 1.6 | 1.9 | 2.0 | 2.2 | 2.4 | 2.6 | 2.7 | 2.3 | 2.4                                         | 2.7 | 3.2 | 3.5 | 3.8 | 4.1 | 4.3 | 4.6 | 4.9 | 5.2 |

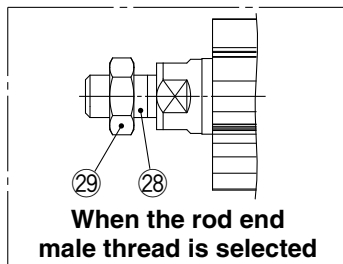
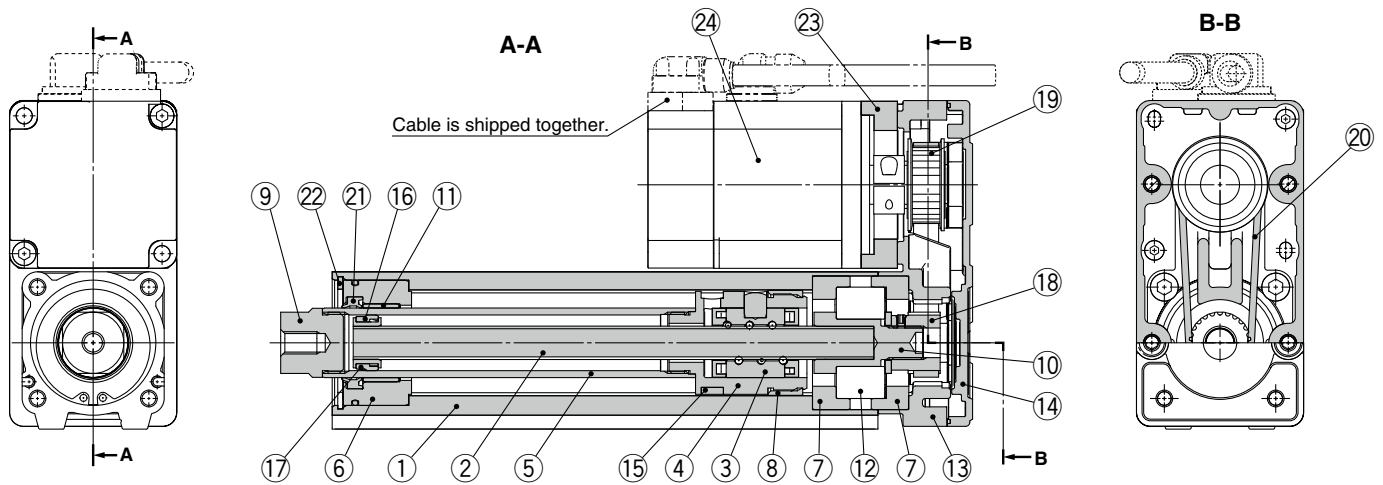
| Series      |                  | LEY25DT6 (Motor mounting position: In-line) |     |     |     |     |     |     |     |     |     | LEY32DT7 (Motor mounting position: In-line) |     |     |     |     |     |     |     |     |     |
|-------------|------------------|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke [mm] |                  | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 30  | 50                                          | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Motor type  | Absolute encoder | 1.4                                         | 1.5 | 1.6 | 1.9 | 2.1 | 2.2 | 2.4 | 2.6 | 2.8 | 2.4 | 2.5                                         | 2.8 | 3.2 | 3.5 | 3.8 | 4.1 | 4.4 | 4.6 | 4.9 | 5.2 |
|             | Relative encoder | 1.4                                         | 1.5 | 1.6 | 1.9 | 2.1 | 2.2 | 2.4 | 2.6 | 2.8 | 2.4 | 2.5                                         | 2.8 | 3.2 | 3.5 | 3.8 | 4.1 | 4.4 | 4.6 | 4.9 | 5.2 |

### Additional Weight

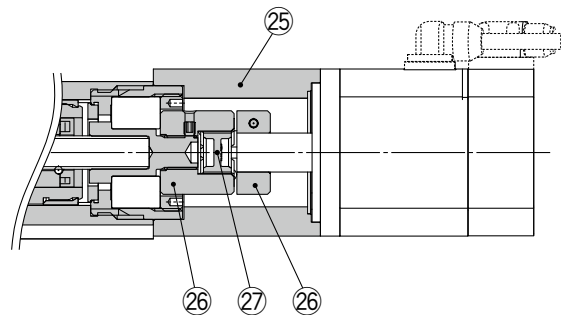
| Size                                                             |                          | 25   | 32   |
|------------------------------------------------------------------|--------------------------|------|------|
| Lock                                                             | Absolute encoder [T6/T7] | 0.3  | 0.4  |
|                                                                  | Male thread              | 0.03 | 0.03 |
| Rod end male thread                                              | Nut                      | 0.02 | 0.02 |
|                                                                  |                          | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt)                    |                          | 0.08 | 0.14 |
| Rod flange (including mounting bolt)                             |                          | 0.17 | 0.20 |
| Head flange (including mounting bolt)                            |                          | 0.17 | 0.20 |
| Double clevis (including pin, retaining ring, and mounting bolt) |                          | 0.16 | 0.22 |

## Construction

### Top side parallel motor type: LEY<sup>25</sup><sub>32</sub>



### In-line motor type: LEY<sup>25</sup><sub>32</sub>D



### Component Parts

| No. | Description        | Material                    | Note                  |
|-----|--------------------|-----------------------------|-----------------------|
| 1   | Body               | Aluminum alloy              | Anodized              |
| 2   | Ball screw shaft   | Alloy steel                 |                       |
| 3   | Ball screw nut     | Synthetic resin/Alloy steel |                       |
| 4   | Piston             | Aluminum alloy              |                       |
| 5   | Piston rod         | Stainless steel             | Hard chrome plating   |
| 6   | Rod cover          | Aluminum alloy              |                       |
| 7   | Bearing holder     | Aluminum alloy              |                       |
| 8   | Rotation stopper   | Synthetic resin             |                       |
| 9   | Socket             | Free cutting carbon steel   | Nickel plating        |
| 10  | Connected shaft    | Free cutting carbon steel   | Nickel plating        |
| 11  | Bushing            | Bearing alloy               |                       |
| 12  | Bearing            | —                           |                       |
| 13  | Return box         | Aluminum die-cast           | Coating               |
| 14  | Return plate       | Aluminum die-cast           | Coating               |
| 15  | Magnet             | —                           |                       |
| 16  | Wear ring holder   | Stainless steel             | Stroke 101 mm or more |
| 17  | Wear ring          | Synthetic resin             | Stroke 101 mm or more |
| 18  | Screw shaft pulley | Aluminum alloy              |                       |
| 19  | Motor pulley       | Aluminum alloy              |                       |
| 20  | Belt               | —                           |                       |
| 21  | Seal               | NBR                         |                       |
| 22  | Retaining ring     | Steel for spring            |                       |

| No. | Description          | Material                  | Note            |
|-----|----------------------|---------------------------|-----------------|
| 23  | Motor adapter        | Aluminum alloy            | Coating         |
| 24  | Motor                | —                         |                 |
| 25  | Motor block          | Aluminum alloy            | Coating         |
| 26  | Hub                  | Aluminum alloy            |                 |
| 27  | Spider               | Urethane                  |                 |
| 28  | Socket (Male thread) | Free cutting carbon steel | Nickel plating  |
| 29  | Nut                  | Alloy steel               | Zinc chromating |

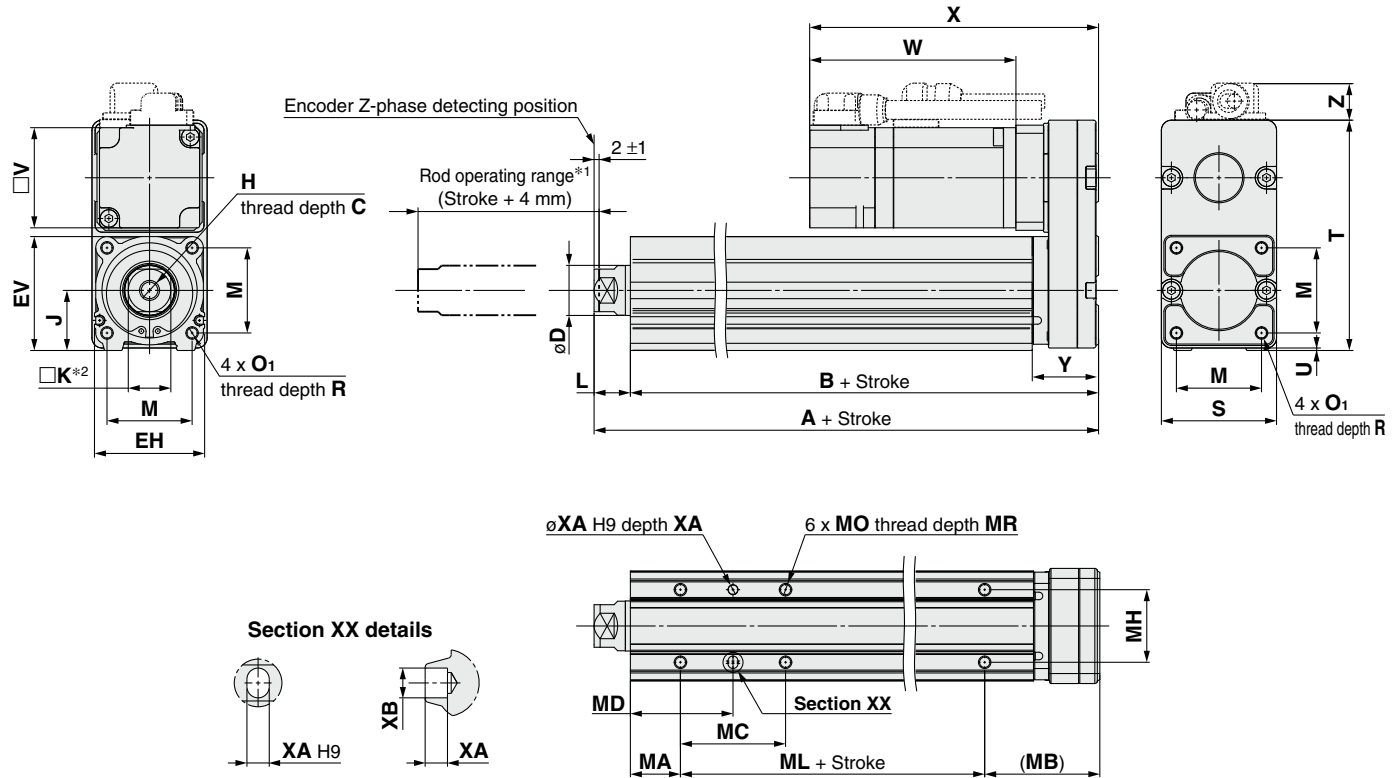
### Replacement Parts (Top/Right/Left side parallel only)/Belt

| No. | Size | Order no. |
|-----|------|-----------|
| 20  | 25   | LE-D-2-2  |
|     | 32   | LE-D-2-4  |

### Replacement Parts/Grease Pack

| Applied portion | Order no.                          |
|-----------------|------------------------------------|
| Piston rod      | GR-S-010 (10 g)<br>GR-S-020 (20 g) |

## Dimensions: Top/Right/Left Side Parallel Motor



- \*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.  
\*2 The direction of rod end width across flats (□K) differs depending on the products.

| Size | Stroke range [mm] | A     | B   | C  | D  | EH | EV   | H         | J  | K  | L    | M  | O <sub>1</sub> | R  | S  | T   | U | Y    | V  |
|------|-------------------|-------|-----|----|----|----|------|-----------|----|----|------|----|----------------|----|----|-----|---|------|----|
| 25   | 15 to 100         | 130.5 | 116 | 13 | 20 | 44 | 45.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34 | M5 x 0.8       | 8  | 46 | 92  | 1 | 26.5 | 40 |
|      | 105 to 400        | 155.5 | 141 |    |    |    |      |           |    |    |      |    |                |    |    |     |   |      |    |
| 32   | 20 to 100         | 148.5 | 130 | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       | 10 | 60 | 118 | 1 | 34   | 60 |
|      | 105 to 500        | 178.5 | 160 |    |    |    |      |           |    |    |      |    |                |    |    |     |   |      |    |

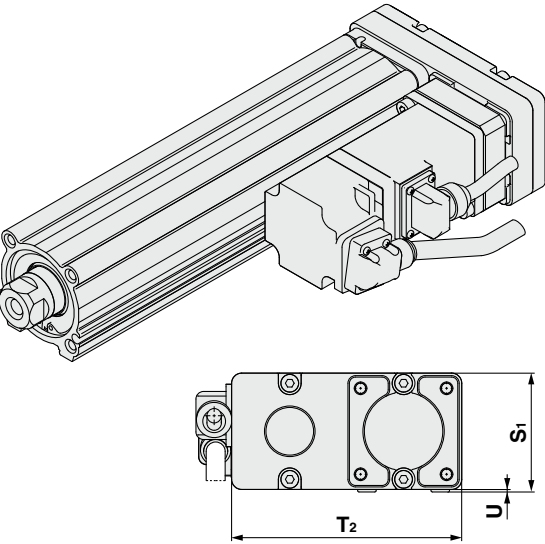
| Size | Stroke range [mm] | Incremental encoder [S2/S3] |       |      |           |       |      | Absolute encoder [S6/S7] |       |      |           |       |      | Absolute encoder [T6/T7] |       |      |           |       |      |
|------|-------------------|-----------------------------|-------|------|-----------|-------|------|--------------------------|-------|------|-----------|-------|------|--------------------------|-------|------|-----------|-------|------|
|      |                   | Without lock                |       |      | With lock |       |      | Without lock             |       |      | With lock |       |      | Without lock             |       |      | With lock |       |      |
|      |                   | W                           | X     | Z    | W         | X     | Z    | W                        | X     | Z    | W         | X     | Z    | W                        | X     | Z    | W         | X     | Z    |
| 25   | 15 to 100         | 87                          | 120   | 14.1 | 123.9     | 156.9 | 15.8 | 82.4                     | 115.4 | 14.1 | 123.5     | 156.5 | 15.8 | 82.4                     | 115.4 | 14.1 | 123       | 156   | 15.8 |
|      | 105 to 400        |                             |       |      |           |       |      |                          |       |      |           |       |      |                          |       |      |           |       |      |
| 32   | 20 to 100         | 88.2                        | 128.2 | 17.1 | 116.8     | 156.8 | 17.1 | 76.6                     | 116.6 | 17.1 | 116.1     | 156.1 | 17.1 | 76.6                     | 116.6 | 17.1 | 113.4     | 153.4 | 17.1 |
|      | 105 to 500        |                             |       |      |           |       |      |                          |       |      |           |       |      |                          |       |      |           |       |      |

## Body Bottom Tapped

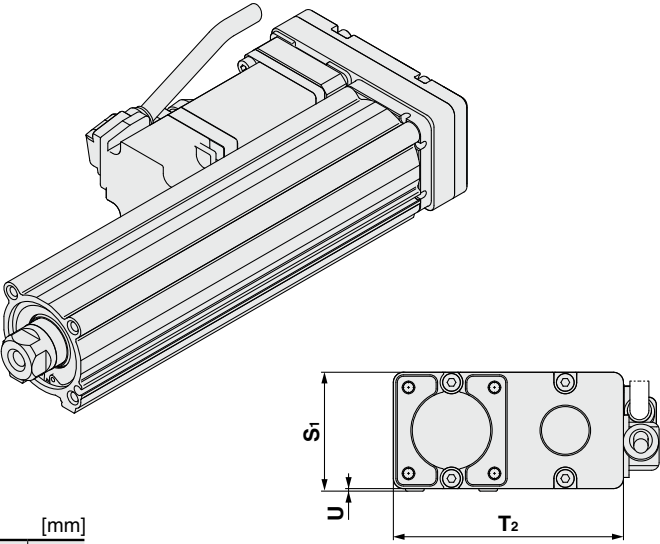
| Size | Stroke range<br>[mm] | MA | MB | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|----------------------|----|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39             | 20 | 46 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100            |    |    | 42 | 41   |    | 75 |          |     |    |    |
|      | 101 to 124           |    |    | 59 | 49.5 |    |    |          |     |    |    |
|      | 125 to 200           |    |    | 76 | 58   |    |    |          |     |    |    |
|      | 201 to 400           |    |    |    |      |    |    |          |     |    |    |
| 32   | 20 to 39             | 25 | 55 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100            |    |    | 36 | 43   |    | 80 |          |     |    |    |
|      | 101 to 124           |    |    | 53 | 51.5 |    |    |          |     |    |    |
|      | 125 to 200           |    |    | 70 | 60   |    |    |          |     |    |    |
|      | 201 to 500           |    |    |    |      |    |    |          |     |    |    |

Dimensions: Top/Right/Left Side Parallel Motor

Left side parallel motor type: LEY<sup>25</sup><sub>32</sub>L



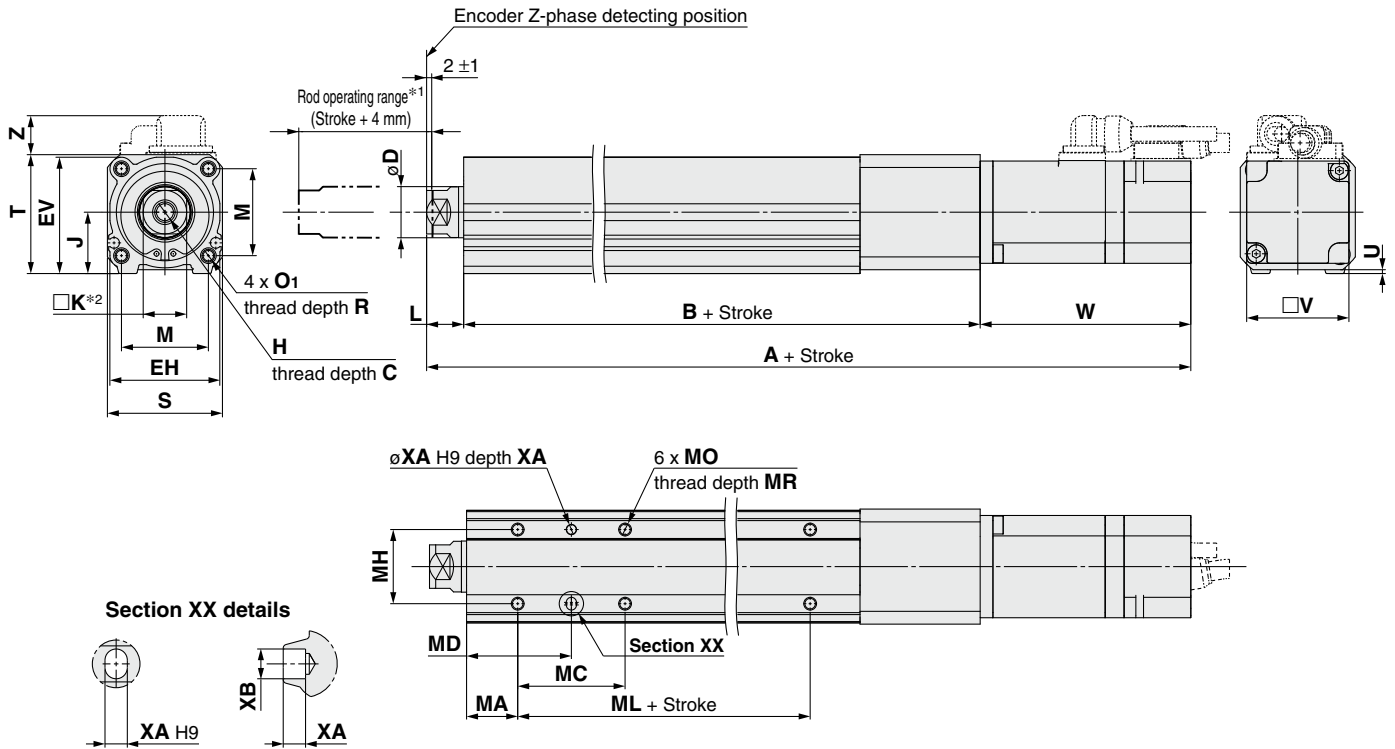
Right side parallel motor type: LEY<sup>25</sup><sub>32</sub>R



| [mm] |                |                |   |
|------|----------------|----------------|---|
| Size | S <sub>1</sub> | T <sub>2</sub> | U |
| 25   | 47             | 91             | 1 |
| 32   | 61             | 117            | 1 |

\* When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

## Dimensions: In-line Motor



- \*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.  
 \*2 The direction of rod end width across flats (□K) differs depending on the products.

| Size | Stroke range [mm] | C  | D  | EH | EV   | H         | J  | K  | L    | M  | O <sub>1</sub> | R  | S  | T    | U   | B     | V  |
|------|-------------------|----|----|----|------|-----------|----|----|------|----|----------------|----|----|------|-----|-------|----|
| 25   | 15 to 100         | 13 | 20 | 44 | 45.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34 | M5 x 0.8       | 8  | 45 | 46.5 | 1.5 | 136.5 | 40 |
|      | 105 to 400        |    |    |    |      |           |    |    |      |    |                |    |    |      |     | 161.5 |    |
| 32   | 20 to 100         | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       | 10 | 60 | 61   | 1   | 156   | 60 |
|      | 105 to 500        |    |    |    |      |           |    |    |      |    |                |    |    |      |     | 186   |    |

| Size | Stroke range [mm] | Incremental encoder [S2/S3] |      |      |           |       |      | Absolute encoder [S6/S7] |      |      |           |       |      | Absolute encoder [T6/T7] |      |      |           |       |      |
|------|-------------------|-----------------------------|------|------|-----------|-------|------|--------------------------|------|------|-----------|-------|------|--------------------------|------|------|-----------|-------|------|
|      |                   | Without lock                |      |      | With lock |       |      | Without lock             |      |      | With lock |       |      | Without lock             |      |      | With lock |       |      |
|      |                   | A                           | W    | Z    | A         | W     | Z    | A                        | W    | Z    | A         | W     | Z    | A                        | VB   | VC   | A         | VB    | VC   |
| 25   | 15 to 100         | 238                         |      |      | 274.9     |       |      | 233.4                    |      |      | 274.5     |       |      | 233.4                    |      |      | 274       |       |      |
|      | 105 to 400        | 263                         | 87   | 14.6 | 299.9     | 123.9 | 16.3 | 258.4                    | 82.4 | 14.6 | 299.5     | 123.5 | 16.3 | 258.4                    | 82.4 | 14.6 | 299       | 123   | 16.3 |
| 32   | 20 to 100         | 262.7                       |      |      | 291.3     |       |      | 251.1                    |      |      | 290.6     |       |      | 251.1                    |      |      | 287.9     |       |      |
|      | 105 to 500        | 292.7                       | 88.2 | 17.1 | 321.3     | 116.8 | 17.1 | 281.1                    | 76.6 | 17.1 | 320.6     | 116.1 | 17.1 | 281.1                    | 76.6 | 17.1 | 317.9     | 113.4 | 17.1 |

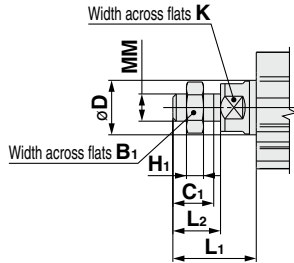
## Body Bottom Tapped

| Size | Stroke range [mm] | MA | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39          |    | 24 | 32   |    |    |          |     |    |    |
|      | 40 to 100         |    |    |      |    | 50 |          |     |    |    |
|      | 101 to 124        | 20 | 42 | 41   | 29 |    | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 125 to 200        |    | 59 | 49.5 |    | 75 |          |     |    |    |
|      | 201 to 400        |    | 76 | 58   |    |    |          |     |    |    |
| 32   | 20 to 39          |    | 22 | 36   |    |    |          |     |    |    |
|      | 40 to 100         |    |    |      |    | 50 |          |     |    |    |
|      | 101 to 124        | 25 | 36 | 43   | 30 |    | M6 x 1   | 8.5 | 5  | 6  |
|      | 125 to 200        |    | 53 | 51.5 |    | 80 |          |     |    |    |
|      | 201 to 500        |    | 70 | 60   |    |    |          |     |    |    |



## Dimensions

End male thread: LEY<sup>25</sup><sub>32</sub>□□<sup>A</sup><sub>B</sub>-□□<sup>C</sup><sub>M</sub>

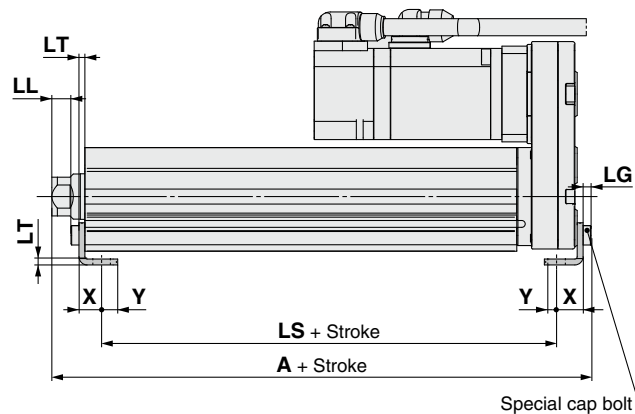
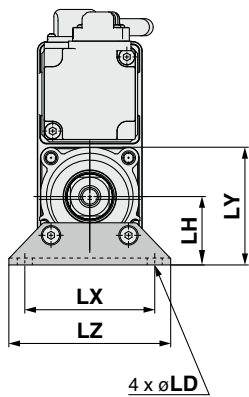


- \* Refer to pages 101 and 102 for details on the rod end nut and mounting bracket.
- \* Refer to the "Handling" precautions on pages 204 to 207 when mounting end brackets such as knuckle joint or workpieces.

| Size | B <sub>1</sub> | C <sub>1</sub> | D  | H <sub>1</sub> | K  | L <sub>1</sub> | L <sub>2</sub> | MM        |
|------|----------------|----------------|----|----------------|----|----------------|----------------|-----------|
| 25   | 22             | 20.5           | 20 | 8              | 17 | 38             | 23.5           | M14 x 1.5 |
| 32   | 22             | 20.5           | 25 | 8              | 22 | 42             | 23.5           | M14 x 1.5 |

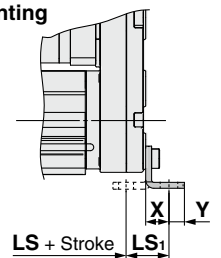
\* The L<sub>1</sub> measurement is when the unit is in the original position. At this position, 2 mm at the end.

Foot bracket: LEY<sup>25</sup><sub>32</sub>□□<sup>A</sup><sub>B</sub>-□□□<sup>C</sup><sub>L</sub>



Included parts  
• Foot bracket  
• Body mounting bolt

Outward mounting



### Foot Bracket

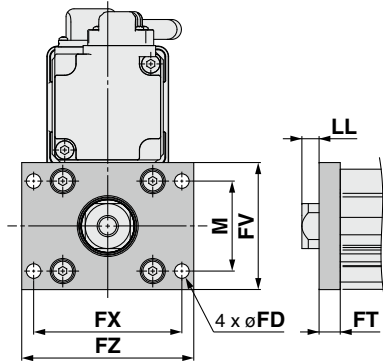
| Size | Stroke range [mm] | A     | LS    | LS <sub>1</sub> | LL   | LD  | LG  | LH | LT  | LX | LY   | LZ | X    | Y   |
|------|-------------------|-------|-------|-----------------|------|-----|-----|----|-----|----|------|----|------|-----|
| 25   | 15 to 100         | 136.6 | 98.8  | 19.8            | 8.4  | 6.6 | 3.5 | 30 | 2.6 | 57 | 51.5 | 71 | 11.2 | 5.8 |
|      | 101 to 400        | 161.6 | 123.8 |                 |      |     |     |    |     |    |      |    |      |     |
| 32   | 20 to 100         | 155.7 | 114   | 19.2            | 11.3 | 6.6 | 4   | 36 | 3.2 | 76 | 61.5 | 90 | 11.2 | 7   |
|      | 101 to 500        | 185.7 | 144   |                 |      |     |     |    |     |    |      |    |      |     |

Material: Carbon steel (Chromating)

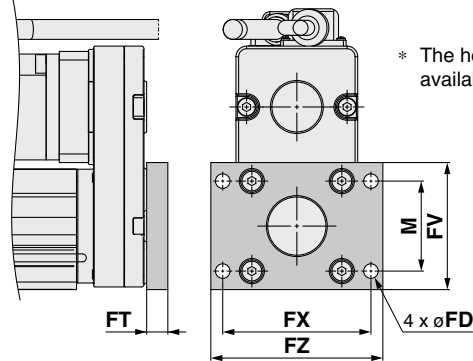
- \* The A measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end.
- \* When the motor mounting is the right or left side parallel type, the head side foot bracket should be mounted outward.

## Dimensions

Rod flange: LEY<sup>25</sup><sub>32</sub>□□<sup>A</sup><sub>B</sub>-□□□<sup>F</sup><sub>C</sub>



Head flange: LEY25□□<sup>A</sup><sub>B</sub>-□□□<sup>G</sup><sub>C</sub>



\* The head flange type is not available for the LEY32.

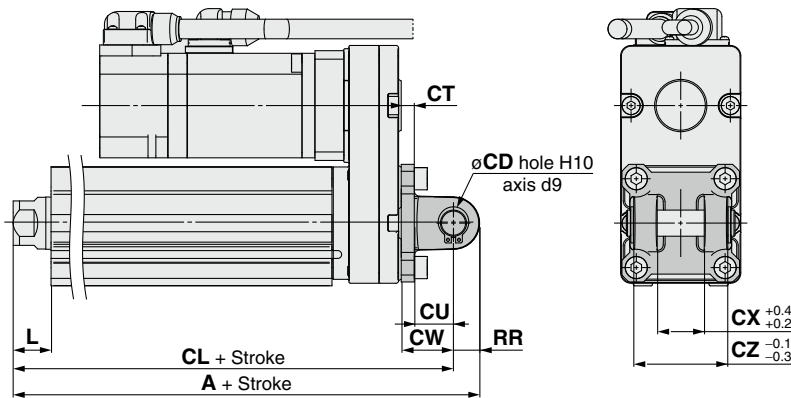
Included parts  
• Flange  
• Body mounting bolt

Rod/Head Flange [mm]

| Size | FD  | FT | FV | FX | FZ | LL   | M  |
|------|-----|----|----|----|----|------|----|
| 25   | 5.5 | 8  | 48 | 56 | 65 | 6.5  | 34 |
| 32   | 5.5 | 8  | 54 | 62 | 72 | 10.5 | 40 |

Material: Carbon steel (Nickel plating)

Double clevis: LEY<sup>25</sup><sub>32</sub>□□<sup>A</sup><sub>B</sub>-□□□<sup>D</sup><sub>C</sub>



Included parts  
• Double clevis  
• Body mounting bolt  
• Clevis pin  
• Retaining ring

\* Refer to pages 101 and 102 for details on the rod end nut and mounting bracket.

Double Clevis [mm]

| Size | Stroke range [mm] | A     | CL    | CD | CT |
|------|-------------------|-------|-------|----|----|
| 25   | 15 to 100         | 160.5 | 150.5 | 10 | 5  |
|      | 101 to 200        | 185.5 | 175.5 |    |    |
| 32   | 20 to 100         | 180.5 | 170.5 | 10 | 6  |
|      | 101 to 200        | 210.5 | 200.5 |    |    |

| Size | Stroke range [mm] | CU | CW | CX | CZ | L    | RR |
|------|-------------------|----|----|----|----|------|----|
| 25   | 15 to 100         | 14 | 20 | 18 | 36 | 14.5 | 10 |
|      | 101 to 200        |    |    |    |    |      |    |
| 32   | 20 to 100         | 14 | 22 | 18 | 36 | 18.5 | 10 |
|      | 101 to 200        |    |    |    |    |      |    |

Material: Cast iron (Coating)

\* The A and CL measurements are when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end.

# Electric Actuator Rod Type

Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

**LEY Series** LEY63 Size **63**

\* For details, refer to page 307 and onward.

The LECSB-S, LECS-C-S, and LECS-S electric actuator drivers are to be discontinued. The LECSB-T, LECS-C-T, and LECS-T drivers are available as substitutes. In the product number, select T8 instead of S8 for the **4 Motor type**.

LECY□ Series ▶ p. 91

Refer to pages 41 to 48 for model selection.

## How to Order



**LEY H 63 □ S4 B - 200 □ □ □ □ - S 2 A2 □**

1 2 3 4 5 6 7 8 9 10 11 12 13 14

### 1 Accuracy

|     |                     |
|-----|---------------------|
| Nil | Basic type          |
| H   | High-precision type |

### 2 Size

|    |
|----|
| 63 |
|----|

### 3 Motor mounting position

|     |                     |
|-----|---------------------|
| Nil | Top side parallel   |
| R   | Right side parallel |
| L   | Left side parallel  |
| D   | In-line             |

### 4 Motor type

| Symbol | Type                                 | Output [W] | Actuator size | Compatible drivers                                  |
|--------|--------------------------------------|------------|---------------|-----------------------------------------------------|
| S4     | AC servo motor (Incremental encoder) | 400        | 63            | LECSA2-S4                                           |
| S8     | AC servo motor (Absolute encoder)    | 400        | 63            | LECSB2-S8<br>LECS-C2-S8<br>LECSS2-S8                |
| T8     | AC servo motor (Absolute encoder)    | 400        | 63            | LECSB2-T8<br>LECS-C2-T8<br>LECSN2-T8-□<br>LECSS2-T8 |

### 5 Lead [mm]

| Symbol | LEY63     |
|--------|-----------|
| A      | 20        |
| B      | 10        |
| C      | 5         |
| L      | 2.86*1 *2 |

- \*1 Screw lead 5 mm, Pulley ratio [4:7] equivalent lead
- \*2 Only available for top/right/left side parallel motor types

### 6 Stroke [mm]

|     |     |
|-----|-----|
| 50  | 50  |
| to  | to  |
| 800 | 800 |

\* For details, refer to the applicable stroke table below.

### 7 Dust-tight/Water-jet-proof

|     |                                                                 |
|-----|-----------------------------------------------------------------|
| Nil | IP5x equivalent (Dust-protected)                                |
| P   | IP65 equivalent (Dust-tight/Water-jet-proof)/With vent hole tap |

- \* When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.
- \* The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].
- \* Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water. Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.

### 8 Motor option

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock      |

### 9 Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

### 10 Mounting\*1

| Symbol | Type                                  | Motor mounting position |         |
|--------|---------------------------------------|-------------------------|---------|
|        |                                       | Parallel                | In-line |
| Nil    | Ends tapped/<br>Body bottom tapped *2 | ●                       | ●       |
| L      | Foot bracket                          | ●                       | —       |
| F      | Rod flange *2                         | ●                       | ●       |
| D      | Double clevis *3                      | ●                       | —       |

- \*1 The mounting bracket is shipped together with the product but does not come assembled.
- \*2 For the horizontal cantilever mounting of the rod flange or ends tapped types, use the actuator within the following stroke range.
- LEY63: 400 mm or less
- \*3 For the mounting of the double clevis type, use the actuator within the following stroke range.
- LEY63: 300 mm or less

### 11 Cable type\*1

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| S   | Standard cable                 |
| R   | Robotic cable (Flexible cable) |

- \*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)
- \* Standard cable entry direction is
- Parallel: (A) Axis side
  - In-line: (B) Counter axis side
- (Refer to page 290 for details.)

### 12 Cable length\*2 [m]

|     |               |
|-----|---------------|
| Nil | Without cable |
| 2   | 2             |
| 5   | 5             |
| A   | 10            |

\*2 The length of the encoder, motor, and lock cables are the same.

### 13 Driver type\*

|     | Compatible drivers | Power supply voltage [V] |
|-----|--------------------|--------------------------|
| Nil | Without driver     | —                        |
| A2  | LECSA2-S4          | 200 to 230               |
| B2  | LECSB2-S8          | 200 to 230               |
|     | LECSB2-T8          | 200 to 240               |
| C2  | LECS-C2-S8         | 200 to 230               |
|     | LECS-C2-T8         |                          |
| S2  | LECSS2-S8          | 200 to 230               |
|     | LECSS2-T8          | 200 to 240               |
| N2  | LECSN2-T8          | 200 to 240               |
| E2  | LECSN2-T8-E        | 200 to 240               |
| 92  | LECSN2-T8-9        | 200 to 240               |
| P2  | LECSN2-T8-P        | 200 to 240               |

\* When a driver type is selected, a cable is included. Select the cable type and cable length.

Example) S2S2: Standard cable (2 m) + Driver (LECSS2)  
S2: Standard cable (2 m)  
Nil: Without cable and driver

### 14 I/O cable length [m]\*1

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| H   | Without cable (Connector only) |
| 1   | 1.5                            |

- \*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected.
- Refer to page 291 if an I/O cable is required. (Options are shown on page 291.)

### Applicable Stroke Table

| Model | Stroke [mm] | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | Manufacturable stroke range |
|-------|-------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| LEY63 |             | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 50 to 800                   |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

## Specifications

| Model                    |                                                                | LEY63S <sub>8</sub> /T8 (Parallel) |                                                                                                                                                                                                                                                                                                                               |             |             | LEY63DS <sub>8</sub> /T8 (In-line)   |                                                                                                                                                                                                                                                                                                                               |             |             |
|--------------------------|----------------------------------------------------------------|------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|--------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------|-------------|
| Actuator specifications  | Work load [kg]                                                 | Horizontal <sup>*1</sup>           | 40                                                                                                                                                                                                                                                                                                                            | 70          | 80          | 200                                  | 40                                                                                                                                                                                                                                                                                                                            | 70          | 80          |
|                          |                                                                | Vertical <sup>*11</sup>            | 19                                                                                                                                                                                                                                                                                                                            | 38          | 72          | 115                                  | 19                                                                                                                                                                                                                                                                                                                            | 38          | 72          |
|                          | Force [N]/Set value <sup>*2</sup> : 15 to 50% <sup>*3, 4</sup> |                                    | 156 to 521                                                                                                                                                                                                                                                                                                                    | 304 to 1012 | 573 to 1910 | 1003 to 3343                         | 156 to 521                                                                                                                                                                                                                                                                                                                    | 304 to 1012 | 573 to 1910 |
|                          | Max. speed [mm/s]                                              | Stroke range                       | Up to 500                                                                                                                                                                                                                                                                                                                     | 1000        | 500         | 250                                  | 1000                                                                                                                                                                                                                                                                                                                          | 500         | 250         |
|                          |                                                                |                                    | 505 to 600                                                                                                                                                                                                                                                                                                                    | 800         | 400         | 200                                  | 800                                                                                                                                                                                                                                                                                                                           | 400         | 200         |
|                          |                                                                |                                    | 605 to 700                                                                                                                                                                                                                                                                                                                    | 600         | 300         | 150                                  | 600                                                                                                                                                                                                                                                                                                                           | 300         | 150         |
|                          |                                                                |                                    | 705 to 800                                                                                                                                                                                                                                                                                                                    | 500         | 250         | 125                                  | 500                                                                                                                                                                                                                                                                                                                           | 250         | 125         |
|                          | Pushing speed [mm/s] <sup>*6</sup>                             |                                    | 30 or less                                                                                                                                                                                                                                                                                                                    |             |             |                                      | 5000                                                                                                                                                                                                                                                                                                                          |             |             |
|                          | Max. acceleration/deceleration [mm/s <sup>2</sup> ]            |                                    | 5000                                                                                                                                                                                                                                                                                                                          |             |             | 3000                                 | 5000                                                                                                                                                                                                                                                                                                                          |             |             |
|                          | Positioning repeatability [mm]                                 | Basic type                         | ±0.02                                                                                                                                                                                                                                                                                                                         |             |             |                                      | ±0.01                                                                                                                                                                                                                                                                                                                         |             |             |
| Electric specifications  | Lost motion [mm] <sup>*7</sup>                                 | High-precision type                | ±0.01                                                                                                                                                                                                                                                                                                                         |             |             |                                      | 0.1 or less                                                                                                                                                                                                                                                                                                                   |             |             |
|                          |                                                                | Basic type                         | 0.05 or less                                                                                                                                                                                                                                                                                                                  |             |             |                                      | 0.05 or less                                                                                                                                                                                                                                                                                                                  |             |             |
|                          | Screw lead [mm] (including pulley ratio)                       |                                    | 20                                                                                                                                                                                                                                                                                                                            | 10          | 5           | 5 (2.86)                             | 20                                                                                                                                                                                                                                                                                                                            | 10          | 5           |
|                          | Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*8</sup>  |                                    | 50/20                                                                                                                                                                                                                                                                                                                         |             |             |                                      | 50/20                                                                                                                                                                                                                                                                                                                         |             |             |
|                          | Actuation type                                                 |                                    | Ball screw + Belt                                                                                                                                                                                                                                                                                                             |             |             | Ball screw + Belt [Pulley ratio 4:7] | Ball screw                                                                                                                                                                                                                                                                                                                    |             |             |
|                          | Guide type                                                     |                                    | Sliding bushing (Piston rod)                                                                                                                                                                                                                                                                                                  |             |             |                                      | Sliding bushing (Piston rod)                                                                                                                                                                                                                                                                                                  |             |             |
|                          | Operating temperature range [°C]                               |                                    | 5 to 40                                                                                                                                                                                                                                                                                                                       |             |             |                                      | 5 to 40                                                                                                                                                                                                                                                                                                                       |             |             |
|                          | Operating humidity range [%RH]                                 |                                    | 90 or less (No condensation)                                                                                                                                                                                                                                                                                                  |             |             |                                      | 90 or less (No condensation)                                                                                                                                                                                                                                                                                                  |             |             |
|                          | Regeneration option                                            |                                    | May be required depending on speed and work load (Refer to pages 43 and 44.)                                                                                                                                                                                                                                                  |             |             |                                      | May be required depending on speed and work load (Refer to pages 43 and 44.)                                                                                                                                                                                                                                                  |             |             |
|                          | Motor output/Size                                              |                                    | 400 W/□60                                                                                                                                                                                                                                                                                                                     |             |             |                                      | 400 W/□60                                                                                                                                                                                                                                                                                                                     |             |             |
| Lock unit specifications | Motor type                                                     |                                    | AC servo motor (200 VAC)                                                                                                                                                                                                                                                                                                      |             |             |                                      | AC servo motor (200 VAC)                                                                                                                                                                                                                                                                                                      |             |             |
|                          | Encoder <sup>*12</sup>                                         |                                    | Motor type S4: Incremental 17-bit encoder (Resolution: 131072 p/rev)<br>Motor type S8: Absolute 18-bit encoder (Resolution: 262144 p/rev)<br>Motor type T8: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB2-T8, LECS2-T8)<br>Motor type T8: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECS2-T8) |             |             |                                      | Motor type S4: Incremental 17-bit encoder (Resolution: 131072 p/rev)<br>Motor type S8: Absolute 18-bit encoder (Resolution: 262144 p/rev)<br>Motor type T8: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB2-T8, LECS2-T8)<br>Motor type T8: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECS2-T8) |             |             |
|                          | Power [W] <sup>*9</sup>                                        |                                    | Max. power 1275                                                                                                                                                                                                                                                                                                               |             |             |                                      | Max. power 1275                                                                                                                                                                                                                                                                                                               |             |             |
|                          | Type <sup>*10</sup>                                            |                                    | Non-magnetizing lock                                                                                                                                                                                                                                                                                                          |             |             |                                      | Non-magnetizing lock                                                                                                                                                                                                                                                                                                          |             |             |
|                          | Holding force [N]                                              |                                    | 313                                                                                                                                                                                                                                                                                                                           | 607         | 1146        | 2006                                 | 313                                                                                                                                                                                                                                                                                                                           | 607         | 1146        |
| Lock unit specifications | Power [W] at 20°C                                              |                                    | 7.9                                                                                                                                                                                                                                                                                                                           |             |             |                                      | 7.9                                                                                                                                                                                                                                                                                                                           |             |             |
|                          | Rated voltage [V]                                              |                                    | 24 VDC <sup>0</sup> <sub>-10%</sub>                                                                                                                                                                                                                                                                                           |             |             |                                      | 24 VDC <sup>0</sup> <sub>-10%</sub>                                                                                                                                                                                                                                                                                           |             |             |

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 Set values for the driver

\*3 The force setting range (set values for the driver) for the force control with the torque control mode. The force and duty ratio change according to the set value. Set it while referencing the "Force Conversion Graph" on pages 45 and 46.

The driver applicable to the pushing operation is "LECS2", "LECSB-T", and "LECS2-T".

The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings.

To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website: <https://www.smcworld.com>

When selecting the LECS2 or LECS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

\*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

\*4 For the motor type T8, the set value is from 12 to 40%.

\*5 The allowable speed changes according to the stroke. Set the number

of rotations according to speed.

\*6 The allowable collision speed for collision with the workpiece with the torque control mode

\*7 A reference value for correcting errors in reciprocal operation

\*8 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*9 Indicates the max. power during operation (including the driver)

When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.

\*10 Only when motor option "With lock" is selected

\*11 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.

\*12 For motor type T8, the resolution will change depending on the driver type.

## Weight

### Product Weight

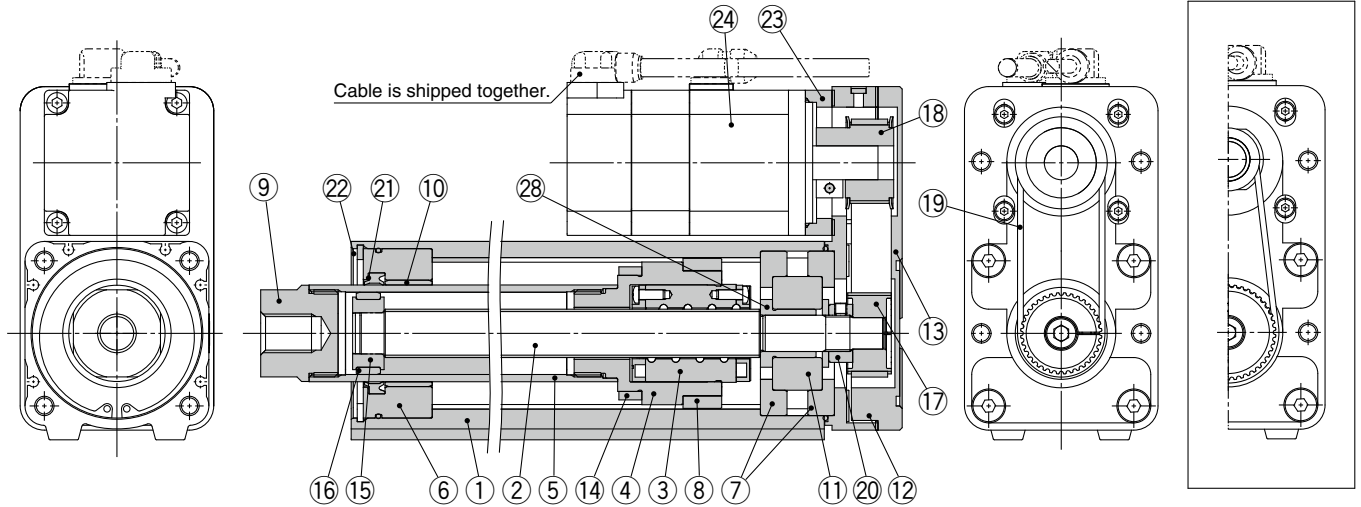
| Series      |                                  | LEY63S <sub>8</sub> (Motor mounting position: Parallel) |     |     |     |     |     |     |     |      |      |      |      |
|-------------|----------------------------------|---------------------------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| Stroke [mm] |                                  | 50                                                      | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450  | 500  | 600  | 800  |
| Motor type  | Incremental encoder              | 4.9                                                     | 5.4 | 6.0 | 6.6 | 7.8 | 8.3 | 8.9 | 9.4 | 10.0 | 10.5 | 12.2 | 14.5 |
|             | Absolute encoder (Motor type S8) | 5.0                                                     | 5.5 | 6.1 | 6.7 | 7.9 | 8.4 | 9.0 | 9.5 | 10.1 | 10.6 | 12.3 | 14.6 |
|             | Absolute encoder (Motor type T8) | 4.9                                                     | 5.4 | 6.0 | 6.6 | 7.8 | 8.3 | 8.9 | 9.4 | 10.0 | 10.5 | 12.2 | 14.5 |
| Series      |                                  | LEY63DS <sub>8</sub> (Motor mounting position: In-line) |     |     |     |     |     |     |     |      |      |      |      |
| Stroke [mm] |                                  | 50                                                      | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450  | 500  | 600  | 800  |
| Motor type  | Incremental encoder              | 5.1                                                     | 5.6 | 6.2 | 6.7 | 7.9 | 8.4 | 9.0 | 9.6 | 10.2 | 10.7 | 12.4 | 14.7 |
|             | Absolute encoder (Motor type S8) | 5.2                                                     | 5.7 | 6.3 | 6.8 | 8.0 | 8.5 | 9.1 | 9.7 | 10.3 | 10.8 | 12.5 | 14.8 |
|             | Absolute encoder (Motor type T8) | 5.1                                                     | 5.6 | 6.2 | 6.7 | 7.9 | 8.4 | 9.0 | 9.6 | 10.2 | 10.7 | 12.4 | 14.7 |

### Additional Weight

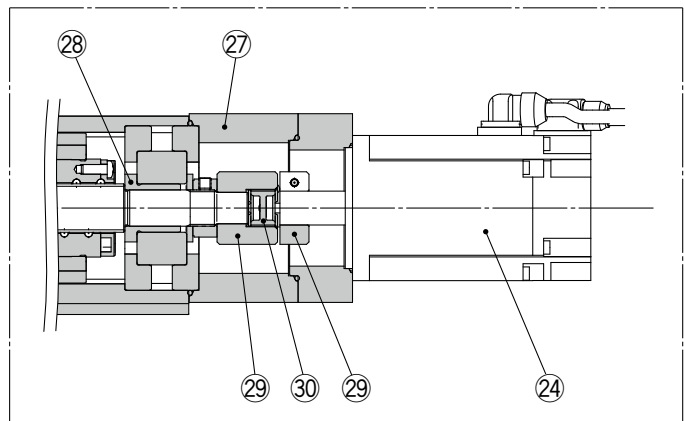
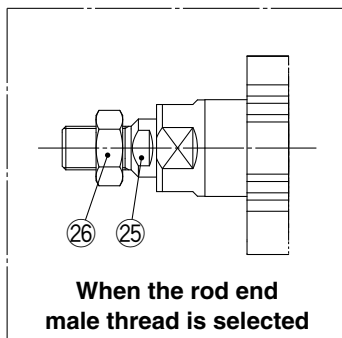
| Size                                                             |                                  | 63   |
|------------------------------------------------------------------|----------------------------------|------|
| Lock                                                             | Incremental encoder              | 0.4  |
|                                                                  | Absolute encoder (Motor type S8) | 0.6  |
|                                                                  | Absolute encoder (Motor type T8) | 0.4  |
| Rod end male thread                                              | Male thread                      | 0.12 |
|                                                                  | Nut                              | 0.04 |
| Foot bracket (2 sets including mounting bolt)                    |                                  | 0.26 |
| Rod flange (including mounting bolt)                             |                                  | 0.51 |
| Double clevis (including pin, retaining ring, and mounting bolt) |                                  | 0.58 |

## Construction

### Top side parallel motor type: LEY63



### In-line motor type: LEY63D



### Component Parts

| No. | Description      | Material                    | Note                |
|-----|------------------|-----------------------------|---------------------|
| 1   | Body             | Aluminum alloy              | Anodized            |
| 2   | Ball screw shaft | Alloy steel                 |                     |
| 3   | Ball screw nut   | Synthetic resin/Alloy steel |                     |
| 4   | Piston           | Aluminum alloy              |                     |
| 5   | Piston rod       | Stainless steel             | Hard chrome plating |
| 6   | Rod cover        | Aluminum alloy              |                     |
| 7   | Bearing holder   | Aluminum alloy              |                     |
| 8   | Rotation stopper | Synthetic resin             |                     |
| 9   | Socket           | Free cutting carbon steel   | Nickel plating      |
| 10  | Bushing          | Bearing alloy               |                     |
| 11  | Bearing          | —                           |                     |
| 12  | Return box       | Aluminum alloy              | Coating             |
| 13  | Return plate     | Aluminum alloy              | Coating             |
| 14  | Magnet           | —                           |                     |
| 15  | Wear ring holder | Stainless steel             |                     |

| No. | Description          | Material                  | Note                 |
|-----|----------------------|---------------------------|----------------------|
| 16  | Wear ring            | Synthetic resin           |                      |
| 17  | Screw shaft pulley   | Aluminum alloy            |                      |
| 18  | Motor pulley         | Aluminum alloy            |                      |
| 19  | Belt                 | —                         |                      |
| 20  | Lock nut             | Alloy steel               | Black dyed           |
| 21  | Seal                 | NBR                       |                      |
| 22  | Retaining ring       | Steel for spring          |                      |
| 23  | Motor adapter        | Aluminum alloy            | Coating              |
| 24  | Motor                | —                         |                      |
| 25  | Socket (Male thread) | Free cutting carbon steel | Nickel plating       |
| 26  | Nut                  | Alloy steel               | Trivalent chromating |
| 27  | Motor block          | Aluminum alloy            | Coating              |
| 28  | Spacer A             | Stainless steel           |                      |
| 29  | Hub                  | Aluminum alloy            |                      |
| 30  | Spider               | Urethane                  |                      |

### Replacement Parts (Top/Right/Left side parallel only)/Belt

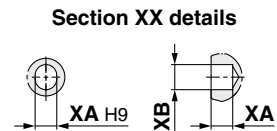
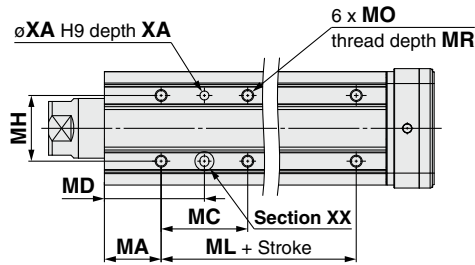
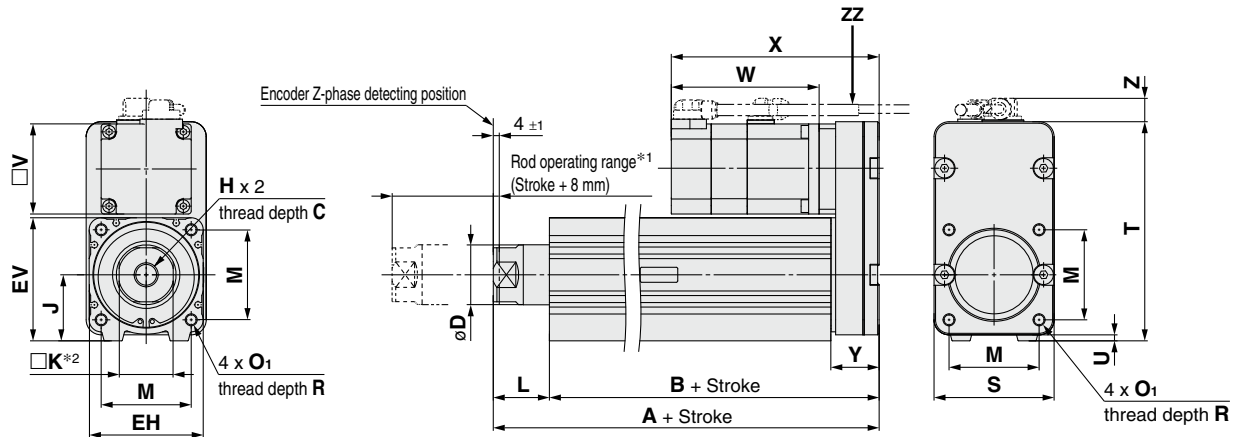
| No. | Size | Lead  | Order no. |
|-----|------|-------|-----------|
| 19  | 63   | A/B/C | LE-D-2-5  |
|     |      | L     | LE-D-2-6  |

### Replacement Parts/Grease Pack

| Applied portion | Order no.                          |
|-----------------|------------------------------------|
| Piston rod      | GR-S-010 (10 g)<br>GR-S-020 (20 g) |

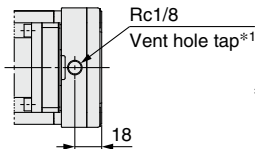


## Dimensions: Top/Right/Left Side Parallel Motor



- \*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- \*2 The direction of rod end width across flats (□K) differs depending on the products.

## IP65 equivalent (Dust-tight/Water-jet-proof): LEY63□□□-□P (View ZZ)



- \*1 When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

| Size | Stroke range [mm] | A     | B     | C  | D  | EH | EV | H       | J  | K  | L    | M  | O <sub>1</sub> | R  | S  | Y    | T   | U | V  |
|------|-------------------|-------|-------|----|----|----|----|---------|----|----|------|----|----------------|----|----|------|-----|---|----|
| 63   | Up to 200         | 192.6 | 155.2 | 21 | 40 | 76 | 82 | M16 x 2 | 44 | 36 | 37.4 | 60 | M8 x 1.25      | 16 | 80 | 32.2 | 146 | 4 | 60 |
|      | 205 to 500        | 227.6 | 190.2 |    |    |    |    |         |    |    |      |    |                |    |    |      |     |   |    |
|      | 505 to 800        | 262.6 | 225.2 |    |    |    |    |         |    |    |      |    |                |    |    |      |     |   |    |

| Size | Stroke range [mm] | Incremental encoder |       |               |           |       |               | Absolute encoder [S8] |       |               |           |     |               | Absolute encoder [T8] |       |               |           |       |               |
|------|-------------------|---------------------|-------|---------------|-----------|-------|---------------|-----------------------|-------|---------------|-----------|-----|---------------|-----------------------|-------|---------------|-----------|-------|---------------|
|      |                   | Without lock        |       |               | With lock |       |               | Without lock          |       |               | With lock |     |               | Without lock          |       |               | With lock |       |               |
|      |                   | W                   | X     | Z             | W         | X     | Z             | W                     | X     | Z             | W         | X   | Z             | W                     | X     | Z             | W         | X     | Z             |
| 63   | Up to 200         | 110.2               | 150.2 | 15.6 (16.6)*1 | 138.8     | 178.8 | 15.6 (16.6)*1 | 98.5                  | 138.5 | 15.6 (16.6)*1 | 138       | 178 | 15.6 (16.6)*1 | 98.3                  | 138.3 | 15.6 (16.6)*1 | 135.1     | 175.1 | 15.6 (16.6)*1 |
|      | 205 to 500        |                     |       |               |           |       |               |                       |       |               |           |     |               |                       |       |               |           |       |               |
|      | 505 to 800        |                     |       |               |           |       |               |                       |       |               |           |     |               |                       |       |               |           |       |               |

\*1 The values in ( ) are the dimensions when L is selected for screw lead.

## Body Bottom Tapped

| Size | Stroke range<br>[mm] | MA | MC | MD   | MH | ML  | MO        | MR | XA | XB |  |
|------|----------------------|----|----|------|----|-----|-----------|----|----|----|--|
| 63   | 50 to 74             | 38 | 24 | 50   | 44 | 65  | M8 x 1.25 | 10 | 6  | 7  |  |
|      | 75 to 124            |    | 45 | 60.5 |    |     |           |    |    |    |  |
|      | 125 to 200           |    | 58 | 67   |    |     |           |    |    |    |  |
|      | 201 to 500           |    | 86 | 81   |    | 100 |           |    |    |    |  |
|      | 501 to 800           |    |    |      |    | 135 |           |    |    |    |  |

# LEY Series

AC Servo Motor

Size **63**

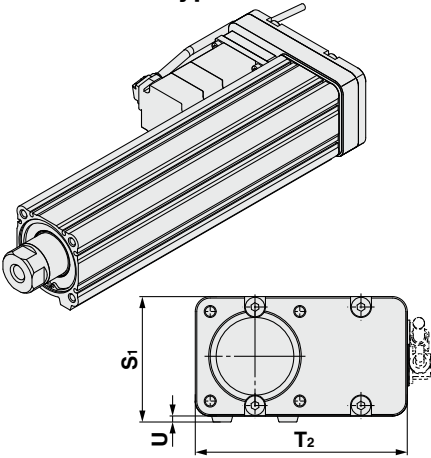
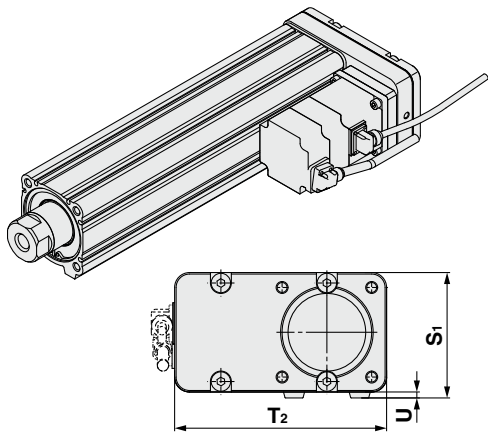
Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

## Dimensions: Top/Right/Left Side Parallel Motor

Left side parallel motor type: LEY63L

Right side parallel motor type: LEY63R

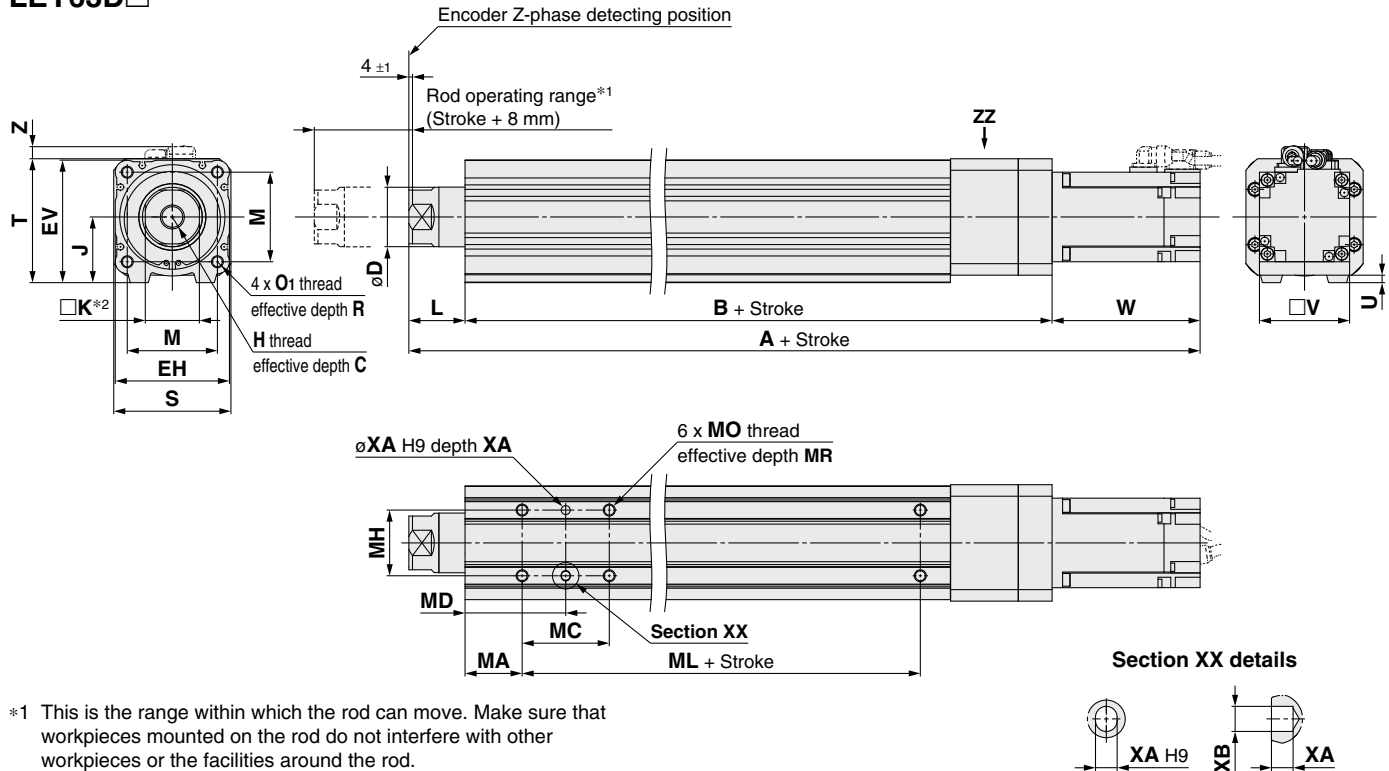


| [mm] |                |                |   |
|------|----------------|----------------|---|
| Size | S <sub>1</sub> | T <sub>2</sub> | U |
| 63   | 84             | 142            | 4 |

\* When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

## Dimensions: In-line Motor

### LEY63D□



- \*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- \*2 The direction of rod end width across flats (□K) differs depending on the products.

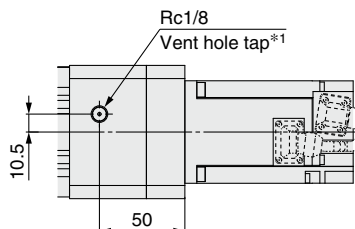
| Size | Stroke range [mm] | C  | D  | EH | EV | H       | J  | K  | L    | M  | O1        | R  | S  | T  | U | B     | V  |
|------|-------------------|----|----|----|----|---------|----|----|------|----|-----------|----|----|----|---|-------|----|
| 63   | Up to 200         | 21 | 40 | 76 | 82 | M16 x 2 | 44 | 36 | 37.4 | 60 | M8 x 1.25 | 16 | 78 | 83 | 5 | 190.7 | 60 |
|      | 205 to 500        |    |    |    |    |         |    |    |      |    |           |    |    |    |   | 225.7 |    |
|      | 505 to 800        |    |    |    |    |         |    |    |      |    |           |    |    |    |   | 260.7 |    |

| Size | Stroke range [mm] | Incremental encoder [S4] |       |     |           |       |     | Absolute encoder [S8] |      |     |           |     |     | Absolute encoder [T8] |      |     |           |       |     |
|------|-------------------|--------------------------|-------|-----|-----------|-------|-----|-----------------------|------|-----|-----------|-----|-----|-----------------------|------|-----|-----------|-------|-----|
|      |                   | Without lock             |       |     | With lock |       |     | Without lock          |      |     | With lock |     |     | Without lock          |      |     | With lock |       |     |
|      |                   | A                        | W     | Z   | A         | W     | Z   | A                     | W    | Z   | A         | W   | Z   | A                     | W    | Z   | A         | W     | Z   |
| 63   | Up to 200         | 338.3                    |       |     | 366.9     |       |     | 326.6                 |      |     | 366.1     |     |     | 326.4                 |      |     | 363.2     |       |     |
|      | 205 to 500        | 373.3                    | 110.2 | 8.1 | 401.9     | 138.8 | 8.1 | 361.6                 | 98.5 | 8.1 | 401.1     | 138 | 8.1 | 361.4                 | 98.3 | 8.1 | 398.2     | 135.1 | 8.1 |
|      | 505 to 800        | 408.3                    |       |     | 436.9     |       |     | 396.6                 |      |     | 436.1     |     |     | 396.4                 |      |     | 433.2     |       |     |

### Body Bottom Tapped

| Size | Stroke range [mm] | MA | MC | MD   | MH | ML  | MO        | MR | XA | XB |
|------|-------------------|----|----|------|----|-----|-----------|----|----|----|
| 63   | 50 to 74          |    | 24 | 50   |    |     |           |    |    |    |
|      | 75 to 124         |    | 45 | 60.5 |    | 65  |           |    |    |    |
|      | 125 to 200        | 38 | 58 | 67   | 44 |     | M8 x 1.25 | 10 | 6  | 7  |
|      | 201 to 500        |    |    |      |    | 100 |           |    |    |    |
|      | 501 to 800        |    | 86 | 81   |    | 135 |           |    |    |    |

### IP65 equivalent (Dust-tight/Water-jet-proof): LEY63D□□-□P (View ZZ)



- \*1 When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.  
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

# LEY Series

AC Servo Motor

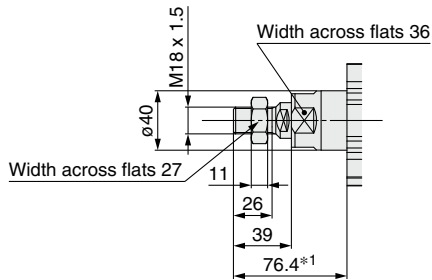
Size **63**

Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

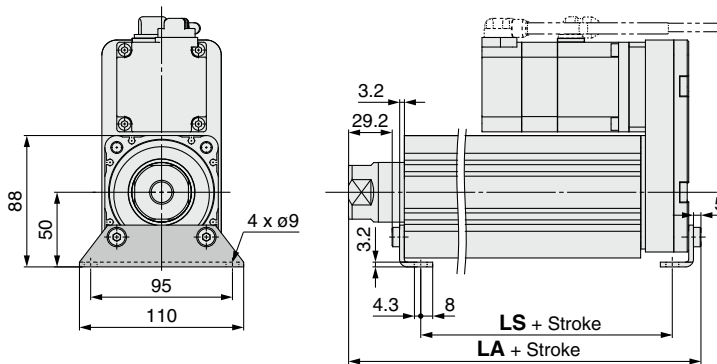
## Dimensions

End male thread: LEY63□□□-□□M

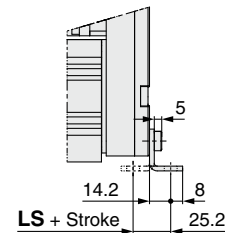


\*1 The measurement 76.4 is when the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.

Foot bracket: LEY63□□□-□□L



Outward mounting



Included parts  
• Foot bracket  
• Body mounting bolt

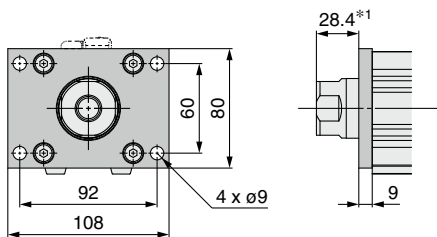
Material: Carbon steel (Chromating)

\* The overall length is when the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.

\* When the motor mounting is the right or left side parallel type, the head side foot bracket should be mounted outward.

| [mm]              |       |       |
|-------------------|-------|-------|
| Stroke range [mm] | LA    | LS    |
| 50 to 200         | 200.8 | 133.2 |
| 201 to 500        | 235.8 | 168.2 |
| 501 to 800        | 270.8 | 203.2 |

Rod flange: LEY63□□□-□□F

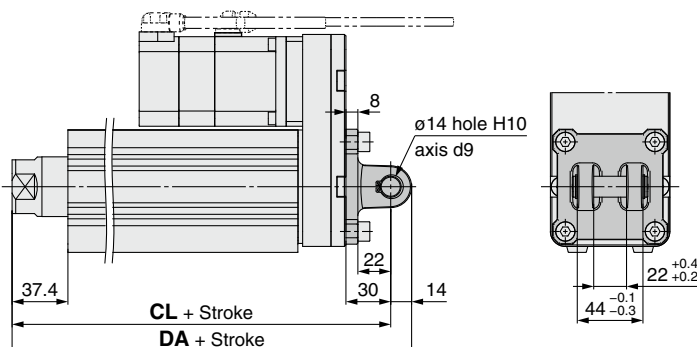


Included parts  
• Flange  
• Body mounting bolt

Material: Carbon steel (Nickel plating)

\*1 When the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.

Double clevis: LEY63□□□-□□D



Included parts  
• Double clevis  
• Body mounting bolt  
• Clevis pin  
• Retaining ring

Material: Cast iron (Coating)

\* The overall length is when the unit is in the Z-phase detecting position. At this position, 4 mm from the end of the operating range.

| [mm]              |       |       |
|-------------------|-------|-------|
| Stroke range [mm] | DA    | CL    |
| 50 to 200         | 236.6 | 222.6 |
| 201 to 500        | 271.6 | 257.6 |
| 501 to 800        | 306.6 | 292.6 |

# Electric Actuator Rod Type

**LEY Series** LEY100 Size **100**


Refer to pages 41 to 48 for model selection.

## How to Order



**LEY 100 D T9 B - 200 - S 2 B2**

1 2 3 4 5 6 7 8 9 10 11 12

### 1 Size

**100**

### 2 Motor mounting position

**D**

In-line

### 3 Motor type

| Symbol    | Type                              | Output [W] | Actuator size | Compatible drivers                                  |
|-----------|-----------------------------------|------------|---------------|-----------------------------------------------------|
| <b>T9</b> | AC servo motor (Absolute encoder) | 750        | 100           | LECSB2-T9<br>LECS2-T9<br>LECSS2-T9<br>LECSN2-T9(-□) |

### 4 Lead [mm]

| Symbol   | Lead (Equivalent) | Note                                |
|----------|-------------------|-------------------------------------|
| <b>B</b> | 10                | —                                   |
| <b>D</b> | 3.33*1            | With reducer/Reduction ratio [1: 3] |
| <b>L</b> | 2*1               | With reducer/Reduction ratio [1: 5] |

\*1 Screw lead 10 mm, Equivalent lead with reducer

### 5 Stroke [mm]

|             |      |
|-------------|------|
| <b>100</b>  | 100  |
| <b>to</b>   | to   |
| <b>1000</b> | 1000 |

\* For details, refer to the applicable stroke table below.

### 6 Motor option

|            |                |
|------------|----------------|
| <b>Nil</b> | Without option |
| <b>B</b>   | With lock      |

### 7 Rod end thread

|            |                                                  |
|------------|--------------------------------------------------|
| <b>Nil</b> | Rod end female thread                            |
| <b>M</b>   | Rod end male thread (1 rod end nut is included.) |

### 8 Mounting\*1 \*2

| Symbol     | Type         |
|------------|--------------|
| <b>Nil</b> | Ends tapped  |
| <b>L</b>   | Foot bracket |
| <b>F</b>   | Flange       |

\*1 The mounting bracket is shipped together with the product but does not come assembled.

\*2 Do not mount using the "flange" or "ends tapped" options for the horizontal type with one end secured.

### 9 Cable type\*1 \*2

|            |                          |
|------------|--------------------------|
| <b>Nil</b> | Without cable            |
| <b>S</b>   | Standard cable           |
| <b>R</b>   | Robotic cable (Flexible) |

\*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

\*2 Standard cable entry direction is "(B) Counter axis side." (Refer to page 290 for details.)

### 10 Cable length [m]\*1

|            |               |
|------------|---------------|
| <b>Nil</b> | Without cable |
| <b>2</b>   | 2             |
| <b>5</b>   | 5             |
| <b>A</b>   | 10            |

\*1 The length of the encoder, motor, and lock cables are the same.

### 11 Driver type\*1

|            | Compatible drivers                                | Power supply voltage [V] |
|------------|---------------------------------------------------|--------------------------|
| <b>Nil</b> | Without driver                                    |                          |
| <b>B2</b>  | LECSB2-T9/Pulse input (Absolute encoder)          | 200 to 240               |
| <b>C2</b>  | LECS2-T9/CC-Link (Absolute encoder)               | 200 to 230               |
| <b>S2</b>  | LECSS2-T9/SSCNET/H (Absolute encoder)             | 200 to 240               |
| <b>N2</b>  | LECSN2-T9/Without network card (Absolute encoder) | 200 to 240               |
| <b>E2</b>  | LECSN2-T9-E/EtherCAT® (Absolute encoder)          | 200 to 240               |
| <b>92</b>  | LECSN2-T9-9/EtherNet/IP™ (Absolute encoder)       | 200 to 240               |
| <b>P2</b>  | LECSN2-T9-P/PROFINET (Absolute encoder)           | 200 to 240               |

\*1 When a driver type is selected, a cable is included.

Select the cable type and cable length.

Example)

S2S2: Standard cable (2 m) + Driver (LECSS2)

S2: Standard cable (2 m)

Nil: Without cable and driver

### 12 I/O cable length [m]\*1

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>H</b>   | Without cable (Connector only) |
| <b>1</b>   | 1.5                            |

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected.

Refer to page 291 if an I/O cable is required.

### Applicable Stroke Table

| Size       | Stroke [mm] |     |     |     |     |     |     |     |     |      | Manufacturable stroke range |
|------------|-------------|-----|-----|-----|-----|-----|-----|-----|-----|------|-----------------------------|
|            | 100         | 200 | 300 | 400 | 500 | 600 | 700 | 800 | 900 | 1000 |                             |
| <b>100</b> | ●           | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●    | 100 to 1000                 |

\* Please contact SMC for non-standard strokes as they are produced as special orders.



## Specifications

| Model                   |                                                       |                                     | LEY100D□L                                                                                                                     | LEY100D□D | LEY100D□B |      |
|-------------------------|-------------------------------------------------------|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|------|
| Actuator specifications | Stroke [mm]                                           |                                     | 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000                                                                             |           |           |      |
|                         | Work load [kg]                                        | Horizontal*1                        | 1200                                                                                                                          | 1200      | 240       |      |
|                         |                                                       | Vertical                            | 200                                                                                                                           | 185       | 80        |      |
|                         | Rated force [N]/Set value*2: 25%*3                    |                                     | 5500                                                                                                                          | 3300      | 1100      |      |
|                         | Max. force [N]/Set value*2: 55%*3 *4                  |                                     | 12000                                                                                                                         | 7200      | 2600      |      |
|                         | Max. speed [mm/s]*5                                   | Stroke range                        | Up to 500                                                                                                                     | 100       | 167       | 500  |
|                         |                                                       |                                     | 600                                                                                                                           | 74        | 123       | 370  |
|                         |                                                       |                                     | 700                                                                                                                           | 57        | 95        | 285  |
|                         |                                                       |                                     | 800                                                                                                                           | 45        | 75        | 225  |
|                         |                                                       |                                     | 900                                                                                                                           | 36        | 60        | 180  |
|                         |                                                       |                                     | 1000                                                                                                                          | 30        | 50        | 150  |
|                         | Pushing speed [mm/s]*6                                |                                     | 20 or less                                                                                                                    |           |           |      |
|                         | Max. acceleration/deceleration [mm/s <sup>2</sup> ]*7 |                                     | 2000                                                                                                                          | 3000      |           |      |
|                         | Positioning repeatability [mm]                        |                                     | 0.02                                                                                                                          |           |           |      |
|                         | Lost motion [mm]*8                                    |                                     | 0.10                                                                                                                          |           |           |      |
|                         | Screw lead [mm]                                       |                                     | 10                                                                                                                            |           |           |      |
|                         | Reduction ratio                                       |                                     | 1/5                                                                                                                           | 1/3       | —         |      |
|                         | Lead [mm]                                             |                                     | 2                                                                                                                             | 3.3       | 10        |      |
| Electric specifications | Impact/Vibration resistance [m/s <sup>2</sup> ]*9     |                                     | 50/20                                                                                                                         |           |           |      |
|                         | Actuation type                                        |                                     | Ball screw                                                                                                                    |           |           |      |
|                         | Guide type                                            |                                     | Sliding bushing (Piston rod)                                                                                                  |           |           |      |
|                         | Operating temperature range [°C]                      |                                     | 5 to 40                                                                                                                       |           |           |      |
|                         | Operating humidity range [%RH]                        |                                     | 90 or less (No condensation)                                                                                                  |           |           |      |
|                         | Motor output [W]/Size [mm]                            |                                     | 750/□80                                                                                                                       |           |           |      |
|                         | Motor type                                            |                                     | AC servo motor (200 VAC)                                                                                                      |           |           |      |
|                         | Encoder                                               |                                     | Absolute 22-bit encoder (Resolution: 4194304 p/rev)<br>Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC-T□ only) |           |           |      |
|                         | Power [W]*10                                          |                                     | Max. power 1100                                                                                                               |           |           |      |
|                         | Type*11                                               |                                     | Non-magnetizing lock                                                                                                          |           |           |      |
|                         | Load specifications                                   | Holding force [N]                   |                                                                                                                               | 5700      | 3400      | 1200 |
|                         |                                                       | Power [W] at 20°C                   |                                                                                                                               | 10        |           |      |
| Rated voltage [V]       |                                                       | 24 VDC <sup>0</sup> <sub>-10%</sub> |                                                                                                                               |           |           |      |

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 Set values for the driver

\*3 The force setting range (set values for the driver) for the force control with the torque control mode. The force and duty ratio change according to the set value. Set it while referencing the "Force Conversion Graph" on page 46 and the "Load-Acceleration/Deceleration Graph" on page 47. The driver applicable to the pushing operation is "LECSB-T", and "LECSS-T."

The LECSB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings. To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website: <https://www.smcworld.com> When selecting the LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

\*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

\*4 The max. force changes according to the stroke. Check the "Force-Stroke Graph" on page 47.

\*5 The allowable speed changes according to the stroke. Set the number of rotations according to speed.

\*6 The allowable collision speed for collision with the workpiece with the torque control mode

\*7 The max. acceleration/deceleration changes according to the work load. Check the "Load-Acceleration/Deceleration Graph" on page 47.

\*8 A reference value for correcting errors in reciprocal operation

\*9 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*10 Indicates the max. power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.

\*11 Only when motor option "With lock" is selected

## Weight

### Product Weight

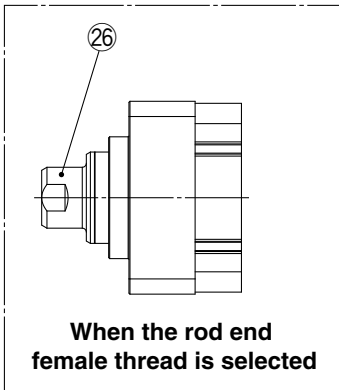
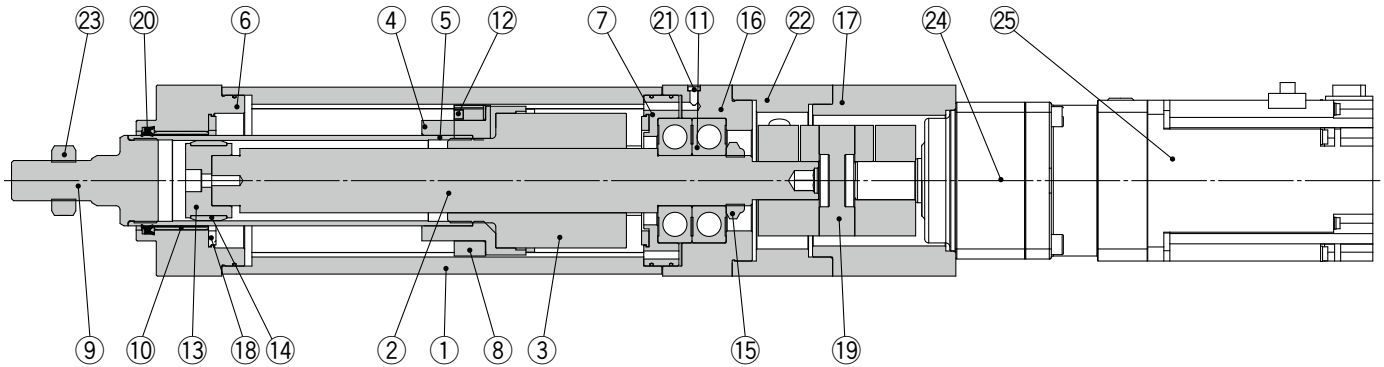
| Product Weight |                |                                |      |      |      |      |      |      |      |      |      | [kg] |
|----------------|----------------|--------------------------------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm]    |                |                                | 100  | 200  | 300  | 400  | 500  | 600  | 700  | 800  | 900  | 1000 |
| Motor type     | LEY100DT9B     | With motor,<br>Without reducer | 12.7 | 14.4 | 16.0 | 17.7 | 19.3 | 21.0 | 22.6 | 24.2 | 25.9 | 27.5 |
|                | LEY100DT9(D/L) | With motor,<br>With reducer    | 15.1 | 16.8 | 18.4 | 20.1 | 21.7 | 23.4 | 25.0 | 26.6 | 28.3 | 29.9 |

### Additional Weight

| Size           |              | 100  |
|----------------|--------------|------|
| Motor option   | With lock    | 1.0  |
|                | Male thread  | 0.11 |
| Rod end thread | Nut          | 0.05 |
|                | Foot bracket | 1.1  |
| Mounting       | Flange       | 0.8  |

## Construction

In-line motor type: LEY100



### Component Parts

| No. | Description          | Material        | Note                |
|-----|----------------------|-----------------|---------------------|
| 1   | Body                 | Aluminum alloy  | Anodized            |
| 2   | Screw shaft          | Alloy steel     |                     |
| 3   | Ball screw nut       | Alloy steel     |                     |
| 4   | Piston               | Aluminum alloy  |                     |
| 5   | Piston rod           | Alloy steel     | Hard chrome plating |
| 6   | Rod cover            | Aluminum alloy  | Anodized            |
| 7   | Bearing holder       | Aluminum alloy  |                     |
| 8   | Rotation stopper     | Synthetic resin |                     |
| 9   | Socket (Male thread) | Alloy steel     | Nickel plating      |
| 10  | Bushing              | Bearing alloy   |                     |
| 11  | Bearing              | —               |                     |
| 12  | Magnet               | —               |                     |
| 13  | Wear ring holder     | Aluminum alloy  |                     |

| No. | Description            | Material        | Note            |
|-----|------------------------|-----------------|-----------------|
| 14  | Wear ring              | Synthetic resin |                 |
| 15  | Lock nut               | Alloy steel     |                 |
| 16  | Motor block            | Aluminum alloy  | Anodized        |
| 17  | Motor flange           | Aluminum alloy  | Anodized        |
| 18  | Bumper                 | Urethane        |                 |
| 19  | Coupling               | —               |                 |
| 20  | Scraper                | NBR             |                 |
| 21  | Sintered element       | Stainless steel |                 |
| 22  | Motor adapter          | Aluminum alloy  | Anodized        |
| 23  | Nut                    | Alloy steel     | Zinc chromating |
| 24  | Reducer                | —               |                 |
| 25  | Motor                  | —               |                 |
| 26  | Socket (Female thread) | Alloy steel     | Nickel plating  |

### Replacement Parts/Grease Pack

| Applied portion | Order no.       |
|-----------------|-----------------|
| Piston rod      | GR-S-010 (10 g) |
|                 | GR-S-020 (20 g) |

Model  
Selection

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)  
LEY

AC Servo Motor  
LEY  
LEYG

Environment  
25A-LEY  
LEY-X5  
LEY-X7

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)  
JXC51/61  
LECA6  
LEC-G  
LECP1  
LECPA

JXC

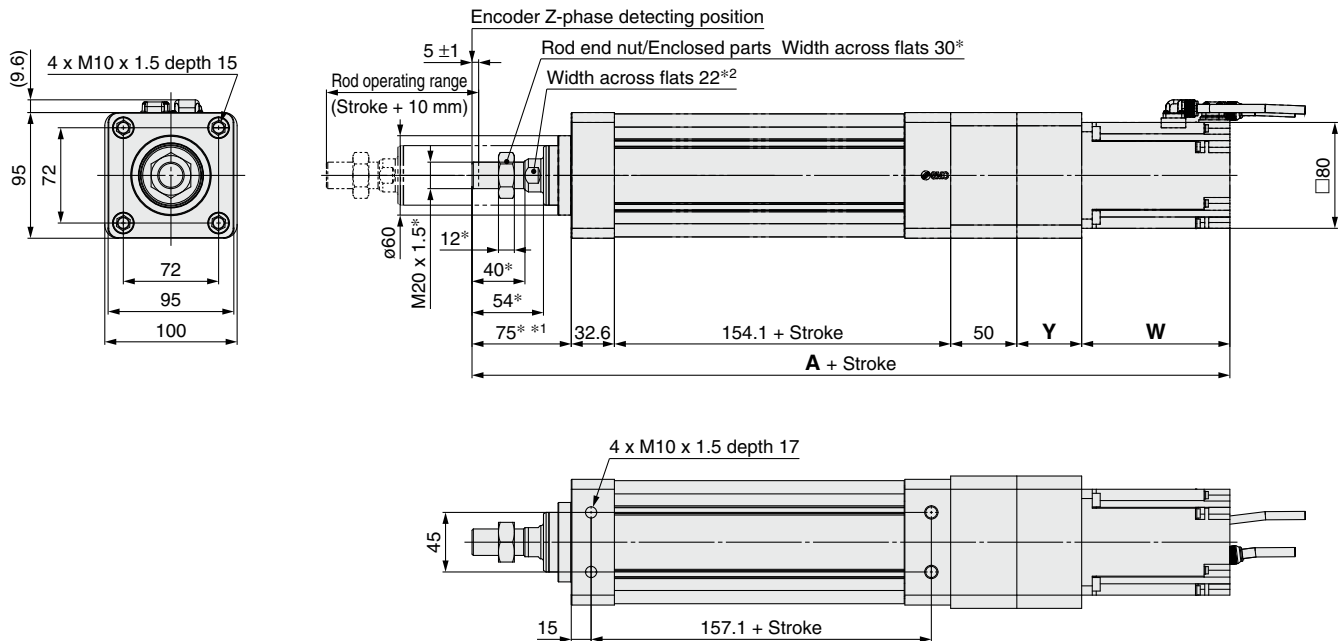
AC Servo Motor  
LECS  
LECY

Specific Product  
Precautions

## Dimensions: In-line Motor

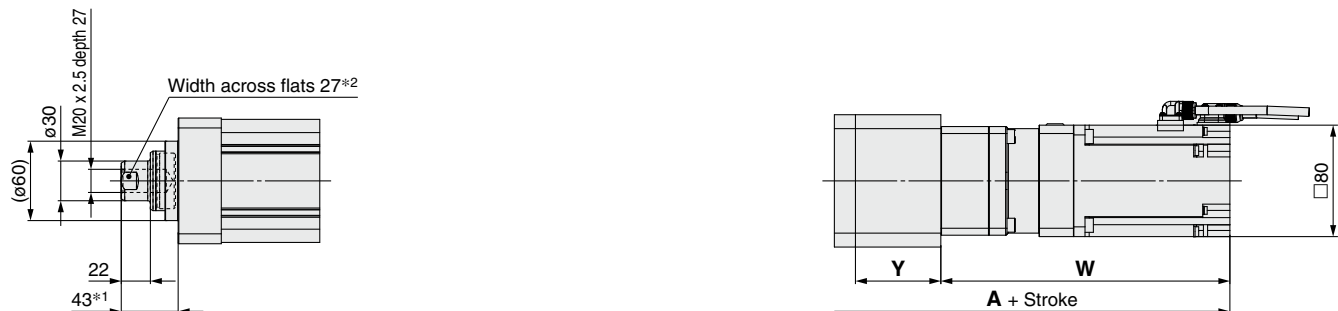
### LEY100D□

Dimensions with \* indicate the dimensions when a male rod end is selected.



### Rod end female thread: LEY100DT9□-□□□□

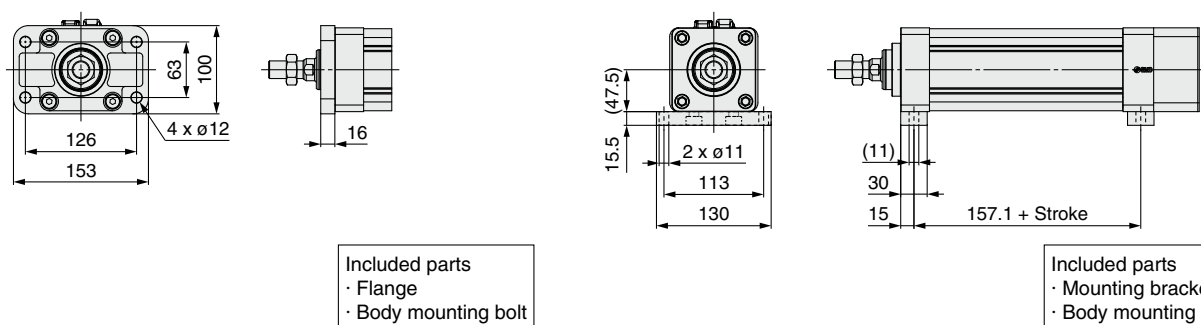
### With reducer: LEY100DT9(D/L)-□□□□□



| Size | Stroke range<br>[mm] | LEY100DT9B   |    |     |           |    |       | LEY100DT9(D/L) [With reducer] |      |       |           |      |       |
|------|----------------------|--------------|----|-----|-----------|----|-------|-------------------------------|------|-------|-----------|------|-------|
|      |                      | Without lock |    |     | With lock |    |       | Without lock                  |      |       | With lock |      |       |
|      |                      | A            | Y  | W   | A         | Y  | W     | A                             | Y    | W     | A         | Y    | W     |
| 100  | 100 to 1000          | 472.7        | 49 | 112 | 513       | 49 | 152.3 | 580.5                         | 61.3 | 207.5 | 620.8     | 61.3 | 247.8 |

### Rod flange: LEY100DT9□-□□□□F

### Foot bracket: LEY100DT9□-□□□□L



Included parts  
· Flange  
· Body mounting bolt

Included parts  
· Mounting bracket (2 pcs.)  
· Body mounting bolt

\*1 The dimension in the figure is the first Z-phase detecting position.

\*2 The orientation of the square-width width across flats at the end of the rod differs for each product.

|                                 |                |       |                                                |       |       |       |       |          |             |        |        |                |     |                                                |     |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|----------|-------------|--------|--------|----------------|-----|------------------------------------------------|-----|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       |          | Environment |        |        | AC Servo Motor |     | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |     | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61 | 25A-LEY     | LEY-X5 | LEY-X7 | LEYG           | LEY | LEYG                                           | LEY |                    |

# Electric Actuator Rod Type

Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

**LEY Series** LEY25, 32, 63

LECS□ Series ▶ pp. 69, 79, 86

Dust-tight/Water-jet-proof ▶ p. 187

Secondary Battery Compatible ▶ p. 201

## How to Order

LEY **H** **25** **V6** **B** - **200** **S** **3** **M2**

1 2 3 4 5 6 7 8 9 10 11 12 13 14

### 1 Accuracy

|            |                     |
|------------|---------------------|
| <b>Nil</b> | Basic type          |
| <b>H</b>   | High-precision type |

### 2 Size

|           |
|-----------|
| <b>25</b> |
| <b>32</b> |
| <b>63</b> |

### 3 Motor mounting position

|            |                     |
|------------|---------------------|
| <b>Nil</b> | Top side parallel   |
| <b>R</b>   | Right side parallel |
| <b>L</b>   | Left side parallel  |
| <b>D</b>   | In-line             |

### 4 Motor type

| Symbol       | Type                              | Output [W] | Size | Compatible drivers     |
|--------------|-----------------------------------|------------|------|------------------------|
| <b>V6</b> *1 | AC servo motor (Absolute encoder) | 100        | 25   | LECYM2-V5<br>LECYU2-V5 |
| <b>V7</b>    |                                   | 200        | 32   | LECYM2-V7<br>LECYU2-V7 |
| <b>V8</b>    |                                   | 400        | 63   | LECYM2-V8<br>LECYU2-V8 |

\*1 For motor type V6, the compatible driver part number suffix is V5.

### 5 Lead [mm]

| Symbol   | LEY25 | LEY32*1 | LEY63  |
|----------|-------|---------|--------|
| <b>A</b> | 12    | 16 (20) | 20     |
| <b>B</b> | 6     | 8 (10)  | 10     |
| <b>C</b> | 3     | 4 (5)   | 5      |
| <b>L</b> | —     | —       | 2.86*2 |

\*1 The values shown in ( ) are the leads for the top/right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])

\*2 Only available for top/right/left side parallel motor types (Equivalent leads which include the pulley ratio [4:7])

### 6 Stroke [mm]

|            |     |
|------------|-----|
| <b>30</b>  | 30  |
| <b>to</b>  | to  |
| <b>800</b> | 800 |

\* For details, refer to the applicable stroke table below.

### 7 Dust-tight/Water-jet-proof (Only available for LEY63)

| Symbol     | LEY25/32        | LEY63                                                           |
|------------|-----------------|-----------------------------------------------------------------|
| <b>Nil</b> | IP4x equivalent | IP5x equivalent (Dust-protected)                                |
| <b>P</b>   | —               | IP65 equivalent (Dust-tight/Water-jet-proof)/With vent hole tap |

\* When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water.

\* The fitting and tubing should be provided separately by the customer. Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].

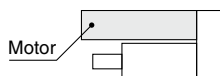
\* Cannot be used in environments exposed to cutting oil, etc. Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.

### 8 Motor option

|            |                |
|------------|----------------|
| <b>Nil</b> | Without option |
| <b>B</b>   | With lock      |

\* When "With lock" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less.

Check for interference with workpieces before selecting a model.



### 9 Rod end thread

|            |                                                  |
|------------|--------------------------------------------------|
| <b>Nil</b> | Rod end female thread                            |
| <b>M</b>   | Rod end male thread (1 rod end nut is included.) |

### Applicable Stroke Table

●: Standard

| Model        | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 | 700 | 800 | Manufacturable stroke range |
|--------------|-------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| <b>LEY25</b> |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | —   | —   | —   | 15 to 400                   |
| <b>LEY32</b> |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | —   | 20 to 500                   |
| <b>LEY63</b> |             | —  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 50 to 800                   |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 104 to 107.

# Electric Actuator Rod Type **LEY Series**

AC Servo Motor

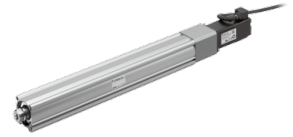
Size **25, 32, 63**

Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option



Motor mounting position: Parallel



Motor mounting position: In-line

## 10 Mounting<sup>\*1</sup>

| Symbol     | Type                                             | Motor mounting position |         |
|------------|--------------------------------------------------|-------------------------|---------|
|            |                                                  | Parallel                | In-line |
| <b>Nil</b> | Ends tapped/<br>Body bottom tapped <sup>*2</sup> | ●                       | ●       |
| <b>L</b>   | Foot bracket                                     | ●                       | —       |
| <b>F</b>   | Rod flange <sup>*2</sup>                         | ● <sup>*4</sup>         | ●       |
| <b>G</b>   | Head flange <sup>*2</sup>                        | ● <sup>*5</sup>         | —       |
| <b>D</b>   | Double clevis <sup>*3</sup>                      | ●                       | —       |

\*1 The mounting bracket is shipped together with the product but does not come assembled.

\*2 For the horizontal cantilever mounting of the ends tapped, rod flange, or head flange types, use the actuator within the following stroke range.

· LEY25: 200 mm or less · LEY32: 100 mm or less · LEY63: 400 mm or less

\*3 For the mounting of the double clevis type, use the actuator within the following stroke range.

· LEY25: 200 mm or less · LEY32: 200 mm or less · LEY63: 300 mm or less

\*4 The rod flange type is not available for the LEY25 with a 30 mm stroke and motor option "With lock."

\*5 The head flange type is not available for the LEY32/LEY63.

## 11 Cable type<sup>\*1</sup>

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>S</b>   | Standard cable                 |
| <b>R</b>   | Robotic cable (Flexible cable) |

\*1 A motor cable and encoder cable are included with the product.

The motor cable for lock option is included when the motor with lock option is selected.

## 12 Cable length [m]<sup>\*1</sup>

|            |               |
|------------|---------------|
| <b>Nil</b> | Without cable |
| <b>3</b>   | 3             |
| <b>5</b>   | 5             |
| <b>A</b>   | 10            |
| <b>C</b>   | 20            |

\*1 The length of the motor and encoder cables are the same. (For with lock)

## 13 Driver type

|            | Compatible drivers | Power supply voltage [V] |
|------------|--------------------|--------------------------|
| <b>Nil</b> | Without driver     | —                        |
| <b>M2</b>  | LECYM2-V□          | 200 to 230               |
| <b>U2</b>  | LECYU2-V□          | 200 to 230               |

\* When a driver type is selected, a cable is included. Select the cable type and cable length.

## 14 I/O cable length [m]<sup>\*1</sup>

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>H</b>   | Without cable (Connector only) |
| <b>1</b>   | 1.5                            |

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected.

Refer to page 302 if an I/O cable is required.

(Options are shown on page 302.)

## Compatible Drivers

| Driver type                     | MECHATROLINK-II type                                                                | MECHATROLINK-III type                                                                 |
|---------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                 |  |  |
| <b>Series</b>                   | <b>LECYM</b>                                                                        | <b>LECYU</b>                                                                          |
| <b>Applicable network</b>       | MECHATROLINK-II                                                                     | MECHATROLINK-III                                                                      |
| <b>Control encoder</b>          | Absolute<br>20-bit encoder                                                          |                                                                                       |
| <b>Communication device</b>     | USB communication, RS-422 communication                                             |                                                                                       |
| <b>Power supply voltage [V]</b> | 200 to 230 VAC (50/60 Hz)                                                           |                                                                                       |
| <b>Reference page</b>           | 295                                                                                 |                                                                                       |



# LEY Series

AC Servo Motor

Size **25, 32, 63**

Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

## Specifications

| Model                    |                                                                      |                          | LEY25V6 (Parallel)/LEY25DV6 (In-line)               |            |            | LEY32V7 (Parallel)           |            |            | LEY32DV7 (In-line) |            |            |
|--------------------------|----------------------------------------------------------------------|--------------------------|-----------------------------------------------------|------------|------------|------------------------------|------------|------------|--------------------|------------|------------|
| Actuator specifications  | Work load [kg]                                                       | Horizontal <sup>*1</sup> | 18                                                  | 50         | 50         | 30                           | 60         | 60         | 30                 | 60         | 60         |
|                          |                                                                      | Vertical                 | 8                                                   | 16         | 30         | 9                            | 19         | 37         | 12                 | 24         | 46         |
|                          | Force [N] <sup>*2</sup><br>(Set value: 45 to 90%)                    |                          | 65 to 131                                           | 127 to 255 | 242 to 485 | 79 to 157                    | 154 to 308 | 294 to 588 | 98 to 197          | 192 to 385 | 368 to 736 |
|                          | Max. <sup>*3</sup> speed [mm/s]                                      | Up to 300                | 900                                                 | 450        | 225        | 1200                         | 600        | 300        | 1000               | 500        | 250        |
|                          |                                                                      | 305 to 400               | 600                                                 | 300        | 150        |                              |            |            |                    |            |            |
|                          |                                                                      | 405 to 500               | —                                                   | —          | —          | 800                          | 400        | 200        | 640                | 320        | 160        |
|                          | Stroke range [mm]                                                    |                          |                                                     |            |            |                              |            |            |                    |            |            |
|                          | Pushing speed [mm/s] <sup>*4</sup>                                   |                          | 35 or less                                          |            |            | 30 or less                   |            |            | 30 or less         |            |            |
|                          | Max. acceleration/deceleration [mm/s <sup>2</sup> ]                  |                          | 5000                                                |            |            | 5000                         |            |            |                    |            |            |
|                          | Positioning repeatability [mm]                                       | Basic type               | ±0.02                                               |            |            | ±0.02                        |            |            | ±0.02              |            |            |
|                          |                                                                      | High-precision type      | ±0.01                                               |            |            | ±0.01                        |            |            | ±0.01              |            |            |
|                          | Lost motion <sup>*5</sup> [mm]                                       | Basic type               | 0.1 or less                                         |            |            | 0.1 or less                  |            |            | 0.1 or less        |            |            |
|                          |                                                                      | High-precision type      | 0.05 or less                                        |            |            | 0.05 or less                 |            |            | 0.05 or less       |            |            |
|                          | Lead [mm] (including pulley ratio)                                   |                          | 12                                                  | 6          | 3          | 20                           | 10         | 5          | 16                 | 8          | 4          |
|                          | Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*6</sup>        |                          | 50/20                                               |            |            | 50/20                        |            |            |                    |            |            |
| Electric specifications  | Actuation type                                                       |                          | Ball screw + Belt (LEY□□)/Ball screw (LEY□□)        |            |            | Ball screw + Belt [1.25:1]   |            |            | Ball screw         |            |            |
|                          | Guide type                                                           |                          | Sliding bushing (Piston rod)                        |            |            | Sliding bushing (Piston rod) |            |            |                    |            |            |
|                          | Operating temperature range [°C]                                     |                          | 5 to 40                                             |            |            | 5 to 40                      |            |            |                    |            |            |
|                          | Operating humidity range [%RH]                                       |                          | 90 or less (No condensation)                        |            |            | 90 or less (No condensation) |            |            |                    |            |            |
|                          | Required conditions for the regenerative resistor <sup>*7</sup> [kg] | Horizontal               | Not required                                        |            |            | Not required                 |            |            | Not required       |            |            |
|                          |                                                                      | Vertical                 | 6 or more                                           |            |            | 4 or more                    |            |            |                    |            |            |
|                          | Motor output/Size                                                    |                          | 100 W/□40                                           |            |            | 200 W/□60                    |            |            |                    |            |            |
|                          | Motor type                                                           |                          | AC servo motor (200 VAC)                            |            |            | AC servo motor (200 VAC)     |            |            |                    |            |            |
|                          | Encoder                                                              |                          | Absolute 20-bit encoder (Resolution: 1048576 p/rev) |            |            |                              |            |            |                    |            |            |
|                          | Power [W] <sup>*8</sup>                                              |                          | Max. power 445                                      |            |            | Max. power 724               |            |            | Max. power 724     |            |            |
| Lock unit specifications | Type <sup>*9</sup>                                                   |                          | Non-magnetizing lock                                |            |            |                              |            |            |                    |            |            |
|                          | Holding force [N]                                                    |                          | 131                                                 | 255        | 485        | 157                          | 308        | 588        | 197                | 385        | 736        |
|                          | Power [W] at 20°C                                                    |                          | 5.5                                                 |            |            | 6                            |            |            | 6                  |            |            |
|                          | Rated voltage [V]                                                    |                          | 24 VDC <sup>+10%</sup> <sub>0</sub>                 |            |            |                              |            |            |                    |            |            |

- \*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.
- \*2 The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph (Guide)" on page 53.
- \*3 The allowable speed changes according to the stroke.
- \*4 The allowable collision speed for collision with the workpiece with the torque control mode
- \*5 A reference value for correcting errors in reciprocal operation
- \*6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

- Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*7 The work load conditions which require the regenerative resistor when operating at the max. speed (Duty ratio: 100%). Order the regenerative resistor separately. For details, refer to the "Required Conditions for the Regenerative Resistor (Guide)" on pages 51 and 52.
- \*8 Indicates the max. power during operation (including the driver) When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
- \*9 Only when motor option "With lock" is selected

## Weight

### Product Weight

[kg]

| Series      | LEY25V6 (Motor mounting position: Parallel) |     |     |     |     |     |     |     |     |  | LEY32V7 (Motor mounting position: Parallel) |     |     |     |     |     |     |     |     |     |
|-------------|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|--|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke [mm] | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 |  | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 500 |
| Weight [kg] | 1.2                                         | 1.3 | 1.6 | 1.7 | 1.9 | 2.1 | 2.2 | 2.4 | 2.6 |  | 2.3                                         | 2.4 | 2.7 | 3.2 | 3.5 | 3.8 | 4.0 | 4.3 | 4.6 | 5.2 |

| Series      | LEY25DV6 (Motor mounting position: In-line) |     |     |     |     |     |     |     |     |  | LEY32DV7 (Motor mounting position: In-line) |     |     |     |     |     |     |     |     |     |
|-------------|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|--|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke [mm] | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 |  | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 500 |
| Weight [kg] | 1.2                                         | 1.3 | 1.5 | 1.7 | 1.9 | 2.1 | 2.3 | 2.4 | 2.6 |  | 2.3                                         | 2.4 | 2.7 | 3.2 | 3.5 | 3.8 | 4.1 | 4.3 | 4.6 | 5.2 |

### Additional Weight

[kg]

| Size                                                             |             | 25   | 32   |
|------------------------------------------------------------------|-------------|------|------|
| Lock                                                             |             | 0.30 | 0.60 |
| Rod end male thread                                              | Male thread | 0.03 | 0.03 |
|                                                                  | Nut         | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt)                    |             | 0.08 | 0.14 |
| Rod flange (including mounting bolt)                             |             | 0.17 | 0.20 |
| Head flange (including mounting bolt)                            |             |      |      |
| Double clevis (including pin, retaining ring, and mounting bolt) |             | 0.16 | 0.22 |

## Specifications

| Model                                                       |                                          |                 | LEY63V8 (Parallel)                                  |              |             |              | LEY63DV8 (In-line) |                                      |             |     |            |
|-------------------------------------------------------------|------------------------------------------|-----------------|-----------------------------------------------------|--------------|-------------|--------------|--------------------|--------------------------------------|-------------|-----|------------|
| Actuator specifications                                     | Work load [kg]                           |                 | Horizontal*1                                        | 40           | 70          | 80           | 200                | 40                                   | 70          | 80  |            |
|                                                             |                                          |                 | Vertical                                            | 19           | 38          | 72           | 115                | 19                                   | 38          | 72  |            |
|                                                             | Force [N]/Set value*2 : 45 to 150%*3     |                 | 156 to 521                                          | 304 to 1012  | 573 to 1910 | 1003 to 3343 | 156 to 521         | 304 to 1012                          | 573 to 1910 |     |            |
|                                                             | Max. speed<br>[mm/s]                     | Stroke<br>range | Up to 500                                           | 1000         | 500         | 250          | 70                 | 1000                                 | 500         | 250 |            |
|                                                             |                                          |                 | 505 to 600                                          | 800          | 400         | 200          |                    | 800                                  | 400         | 200 |            |
|                                                             |                                          |                 | 605 to 700                                          | 600          | 300         | 150          |                    | 600                                  | 300         | 150 |            |
|                                                             |                                          |                 | 705 to 800                                          | 500          | 250         | 125          |                    | 500                                  | 250         | 125 |            |
|                                                             | Pushing speed [mm/s]*5                   |                 | 30 or less                                          |              |             |              |                    |                                      |             |     |            |
|                                                             | Max. acceleration/deceleration [mm/s²]   |                 | 5000                                                |              |             |              | 3000               | 5000                                 |             |     |            |
|                                                             | Positioning repeatability<br>[mm]        |                 | Basic type                                          | ±0.02        |             |              |                    |                                      |             |     |            |
|                                                             |                                          |                 | High-precision type                                 | ±0.01        |             |              |                    |                                      |             |     |            |
|                                                             | Lost motion [mm]*6                       |                 | Basic type                                          | 0.1 or less  |             |              |                    |                                      |             |     |            |
|                                                             |                                          |                 | High-precision type                                 | 0.05 or less |             |              |                    |                                      |             |     |            |
|                                                             | Screw lead [mm] (including pulley ratio) |                 |                                                     | 20           | 10          | 5            | 5 (2.86)           | 20                                   | 10          | 5   |            |
|                                                             | Impact/Vibration resistance [m/s²]*7     |                 |                                                     | 50/20        |             |              |                    |                                      |             |     |            |
|                                                             | Actuation type                           |                 |                                                     | Ball screw   |             |              |                    | Ball screw + Belt [Pulley ratio 4:7] |             |     | Ball screw |
| Guide type                                                  |                                          |                 | Sliding bushing (Piston rod)                        |              |             |              |                    |                                      |             |     |            |
| Operating temperature range [°C]                            |                                          |                 | 5 to 40                                             |              |             |              |                    |                                      |             |     |            |
| Operating humidity range [%RH]                              |                                          |                 | 90 or less (No condensation)                        |              |             |              |                    |                                      |             |     |            |
| Required conditions for the<br>regenerative resistor*8 [kg] |                                          | Horizontal      | Not required                                        |              |             |              |                    |                                      |             |     |            |
|                                                             |                                          | Vertical        | 2.5 or more                                         |              |             |              |                    |                                      |             |     |            |
| Motor output/Size                                           |                                          |                 | 400 W/□60                                           |              |             |              |                    |                                      |             |     |            |
| Motor type                                                  |                                          |                 | AC servo motor (200 VAC)                            |              |             |              |                    |                                      |             |     |            |
| Encoder                                                     |                                          |                 | Absolute 20-bit encoder (Resolution: 1048576 p/rev) |              |             |              |                    |                                      |             |     |            |
| Power [W]*9                                                 |                                          |                 | Max. power 1275                                     |              |             |              |                    |                                      |             |     |            |
| Type*10                                                     |                                          |                 | Non-magnetizing lock                                |              |             |              |                    |                                      |             |     |            |
| Load unit specifications                                    | Holding force [N]                        |                 | 313                                                 | 607          | 1146        | 2006         | 313                | 607                                  | 1146        |     |            |
|                                                             | Power [W] at 20°C                        |                 | 6                                                   |              |             |              |                    |                                      |             |     |            |
|                                                             | Rated voltage [V]                        |                 | 24 VDC <sup>+10%</sup> <sub>0</sub>                 |              |             |              |                    |                                      |             |     |            |

- \*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.
- \*2 Set values for the driver
- \*3 The force setting range (set values for the driver) for the force control with the torque control mode. The force and duty ratio change according to the set value. Set it while referencing the "Force Conversion Graph (Guide)" on page 53.
- \*4 The allowable speed changes according to the stroke.
- \*5 The allowable collision speed for collision with the workpiece with the torque control mode
- \*6 A reference value for correcting errors in reciprocal operation
- \*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*8 The work load conditions which require the regenerative resistor when operating at the max. speed (Duty ratio: 100%)
- \*9 Indicates the max. power during operation (including the driver)  
When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
- \*10 Only when motor option "With lock" is selected

## Weight

### Product Weight

| Series      | LEY63V8 (Motor mounting position: Parallel) |     |     |     |     |     |     |     |     |      |      |      |      |
|-------------|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|
| Stroke [mm] | 50                                          | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500  | 600  | 700  | 800  |
| Weight [kg] | 4.8                                         | 5.3 | 6.0 | 6.5 | 7.7 | 8.2 | 8.8 | 9.3 | 9.9 | 10.4 | 12.1 | 13.3 | 14.4 |

| Series      | LEY63DV8 (Motor mounting position: In-line) |     |     |     |     |     |     |     |      |      |      |      |      |
|-------------|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Stroke [mm] | 50                                          | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450  | 500  | 600  | 700  | 800  |
| Weight [kg] | 5.0                                         | 5.5 | 6.1 | 6.6 | 7.8 | 8.3 | 9.0 | 9.5 | 10.1 | 10.6 | 12.3 | 13.4 | 14.6 |

### Additional Weight

| Size                                                             | 63   |
|------------------------------------------------------------------|------|
| Lock                                                             | 0.6  |
| Rod end male thread                                              | 0.12 |
| Nut                                                              | 0.04 |
| Foot bracket (2 sets including mounting bolt)                    | 0.26 |
| Rod flange (including mounting bolt)                             | 0.51 |
| Double clevis (including pin, retaining ring, and mounting bolt) | 0.58 |

# LEY Series

AC Servo Motor

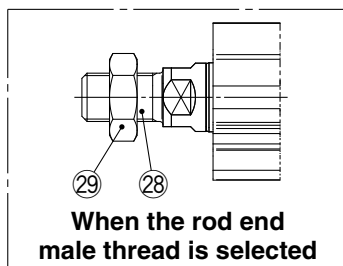
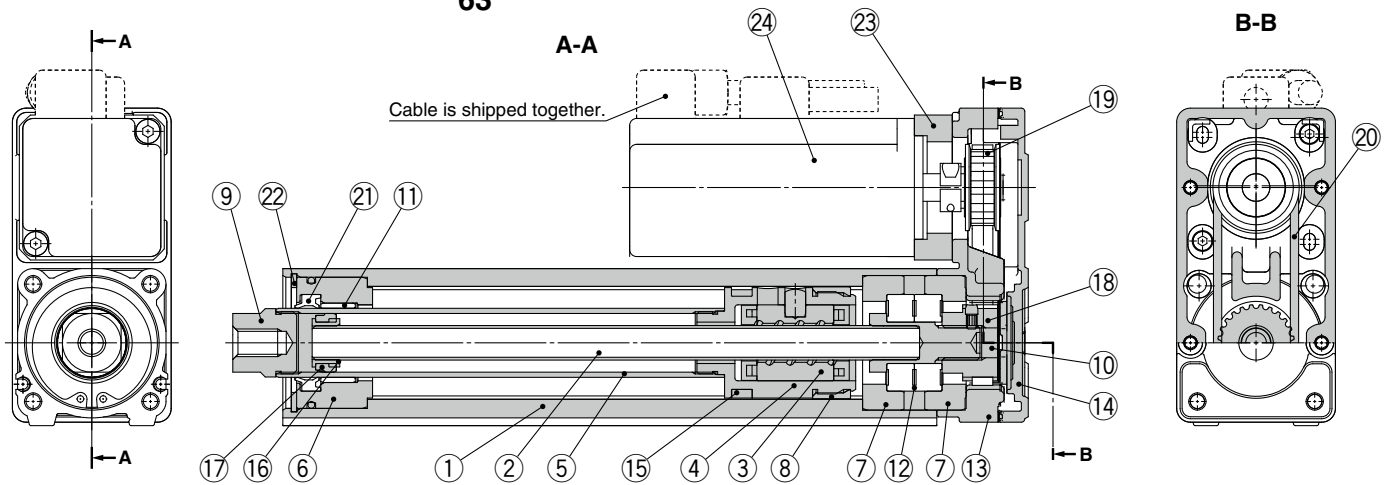
Size **25, 32, 63**

Dust-tight/Water-jet-proof (IP65 Equivalent)

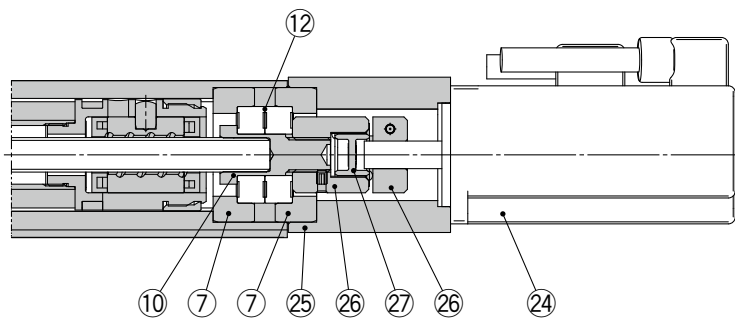
\* Option

## Construction

Top side parallel motor type: **LEY 25  
32  
63**



In-line motor type: **LEY 25  
32D  
63**



## Component Parts

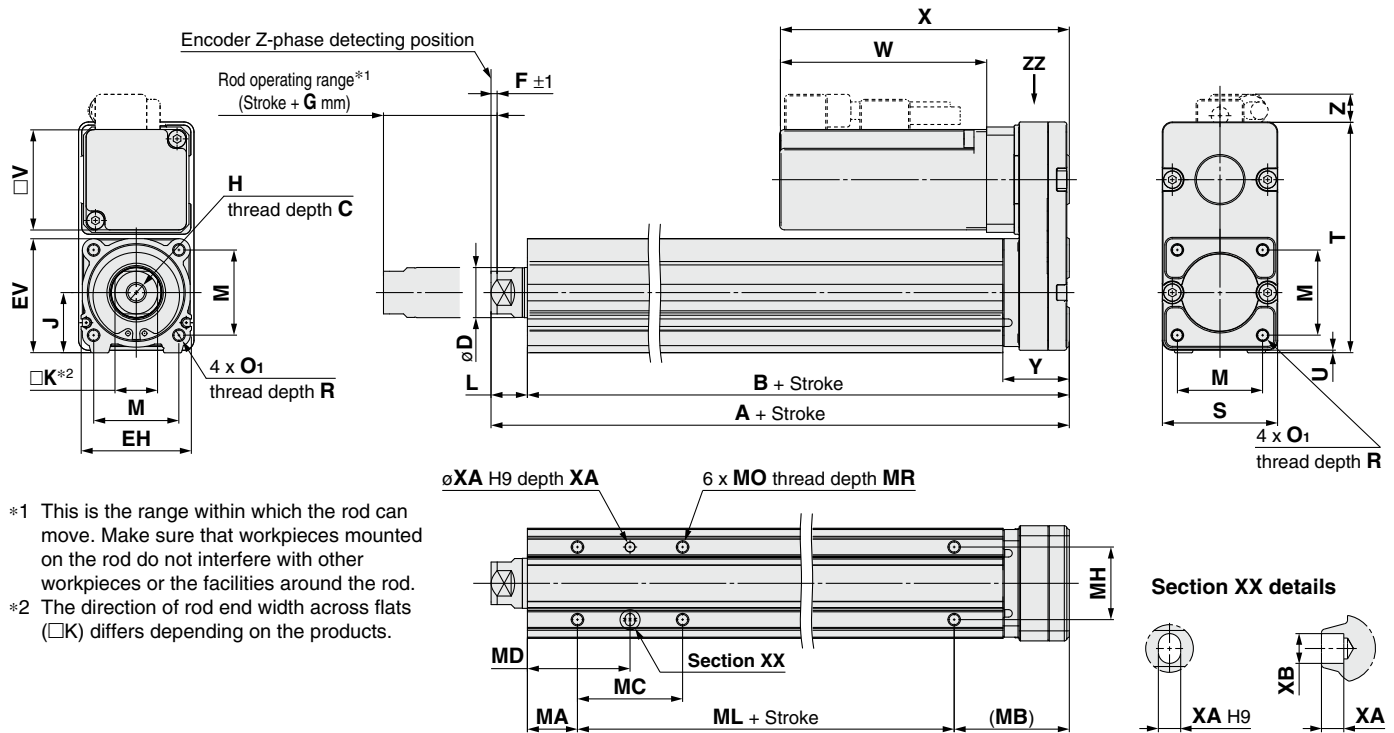
| No. | Description        | Material                    | Note                  |
|-----|--------------------|-----------------------------|-----------------------|
| 1   | Body               | Aluminum alloy              | Anodized              |
| 2   | Ball screw shaft   | Alloy steel                 |                       |
| 3   | Ball screw nut     | Synthetic resin/Alloy steel |                       |
| 4   | Piston             | Aluminum alloy              |                       |
| 5   | Piston rod         | Stainless steel             | Hard chrome plating   |
| 6   | Rod cover          | Aluminum alloy              |                       |
| 7   | Bearing holder     | Aluminum alloy              |                       |
| 8   | Rotation stopper   | Synthetic resin             |                       |
| 9   | Socket             | Free cutting carbon steel   | Nickel plating        |
| 10  | Connected shaft    | Free cutting carbon steel   | Nickel plating        |
| 11  | Bushing            | Bearing alloy               |                       |
| 12  | Bearing            | —                           |                       |
| 13  | Return box         | Aluminum die-cast           | Coating               |
| 14  | Return plate       | Aluminum die-cast           | Coating               |
| 15  | Magnet             | —                           |                       |
| 16  | Wear ring holder   | Stainless steel             | Stroke 101 mm or more |
| 17  | Wear ring          | Synthetic resin             | Stroke 101 mm or more |
| 18  | Screw shaft pulley | Aluminum alloy              |                       |

| No. | Description          | Material                  | Note              |
|-----|----------------------|---------------------------|-------------------|
| 19  | Motor pulley         | Aluminum alloy            |                   |
| 20  | Belt                 | —                         |                   |
| 21  | Seal                 | NBR                       |                   |
| 22  | Retaining ring       | Steel for spring          | Phosphate coating |
| 23  | Motor adapter        | Aluminum alloy            | Coating           |
| 24  | Motor                | —                         |                   |
| 25  | Motor block          | Aluminum alloy            | Coating           |
| 26  | Hub                  | Aluminum alloy            |                   |
| 27  | Spider               | Urethane                  |                   |
| 28  | Socket (Male thread) | Free cutting carbon steel | Nickel plating    |
| 29  | Nut                  | Alloy steel               | Zinc chromating   |

## Replacement Parts (Top/Right/Left side parallel only)/Belt

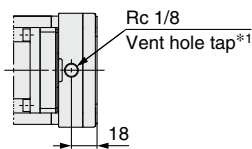
| No. | Size | Order no. | No. | Size | Lead  | Order no. |
|-----|------|-----------|-----|------|-------|-----------|
| 20  | 25   | LE-D-2-2  | 20  | 63   | A/B/C | LE-D-2-5  |
|     | 32   | LE-D-2-4  |     |      | L     | LE-D-2-6  |

## Dimensions: Top/Right/Left Side Parallel Motor



## IP65 equivalent (Dust-tight/Water-jet-proof): LEY63□□□-□P

(View ZZ)



\*<sup>1</sup> When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.  
Select [Applicable tubing O.D.: ∅4 or more, Connection thread: Rc1/8].

| Size | Stroke range [mm] | A     | B     | C  | D  | EH | EV   | H         | J  | K  | L    | M  | O <sub>1</sub> | R  | S  | T   | U | Y    | V  |
|------|-------------------|-------|-------|----|----|----|------|-----------|----|----|------|----|----------------|----|----|-----|---|------|----|
| 25   | 15 to 100         | 130.5 | 116   | 13 | 20 | 44 | 45.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34 | M5 x 0.8       | 8  | 46 | 92  | 1 | 26.5 | 40 |
|      | 105 to 400        | 155.5 | 141   |    |    |    |      |           |    |    |      |    |                |    |    |     |   |      |    |
| 32   | 20 to 100         | 148.5 | 130   | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       | 10 | 60 | 118 | 1 | 34   | 60 |
|      | 105 to 500        | 178.5 | 160   |    |    |    |      |           |    |    |      |    |                |    |    |     |   |      |    |
| 63   | Up to 200         | 192.6 | 155.2 | 21 | 40 | 76 | 82   | M16 x 2   | 44 | 36 | 37.4 | 60 | M8 x 1.25      | 16 | 80 | 146 | 4 | 32.2 | 60 |
|      | 205 to 500        | 227.6 | 190.2 |    |    |    |      |           |    |    |      |    |                |    |    |     |   |      |    |
|      | 505 to 800        | 262.6 | 225.2 |    |    |    |      |           |    |    |      |    |                |    |    |     |   |      |    |

| Size | Stroke range [mm] | Without lock |       |                           | With lock |       |                           | F | G |
|------|-------------------|--------------|-------|---------------------------|-----------|-------|---------------------------|---|---|
|      |                   | W            | X     | Z                         | W         | X     | Z                         |   |   |
| 25   | 15 to 100         | 82.5         | 115.5 | 11                        | 127.5     | 160.5 | 11                        | 2 | 4 |
|      | 105 to 400        |              |       |                           |           |       |                           |   |   |
| 32   | 20 to 100         | 80           | 120   | 14                        | 120       | 160   | 14                        | 2 | 4 |
|      | 105 to 500        |              |       |                           |           |       |                           |   |   |
| 63   | 50 to 200         |              |       |                           |           |       |                           |   |   |
|      | 205 to 500        | 98.5         | 138.5 | 12.5 (13.5)* <sup>1</sup> | 138.5     | 178.5 | 12.5 (13.5)* <sup>1</sup> | 4 | 8 |
|      | 505 to 800        |              |       |                           |           |       |                           |   |   |

\*<sup>1</sup> L lead

## Body Bottom Tapped

| Size | Stroke range<br>[mm] | MA | MB   | MC | MD   | MH | ML  | MO        | MR  | XA | XB |     |
|------|----------------------|----|------|----|------|----|-----|-----------|-----|----|----|-----|
| 25   | 15 to 35             | 20 | 46   | 24 | 32   | 29 | 50  | M5 x 0.8  | 6.5 | 4  | 5  |     |
|      | 40 to 100            |    |      | 42 | 41   |    | 75  |           |     |    |    |     |
|      | 105 to 120           |    |      | 59 | 49.5 |    |     |           |     |    |    |     |
|      | 125 to 200           |    |      | 76 | 58   |    |     |           |     |    |    |     |
|      | 205 to 400           |    |      |    |      |    |     |           |     |    |    |     |
| 32   | 20 to 35             | 25 | 55   | 22 | 36   | 30 | 50  | M6 x 1    | 8.5 | 5  | 6  |     |
|      | 40 to 100            |    |      | 36 | 43   |    | 80  |           |     |    |    |     |
|      | 105 to 120           |    |      | 53 | 51.5 |    |     |           |     |    |    |     |
|      | 125 to 200           |    |      | 70 | 60   |    |     |           |     |    |    |     |
|      | 205 to 500           |    |      |    |      |    |     |           |     |    |    |     |
| 63   | 50 to 70             | 38 | 52.2 | 24 | 50   | 44 | 65  | M8 x 1.25 | 10  | 6  | 7  |     |
|      | 75 to 120            |    |      | 45 | 60.5 |    | 100 |           |     |    |    |     |
|      | 125 to 200           |    |      | 58 | 67   |    |     |           |     |    |    | 135 |
|      | 205 to 500           |    |      | 86 | 81   |    |     |           |     |    |    |     |
|      | 505 to 800           |    |      |    |      |    |     |           |     |    |    |     |

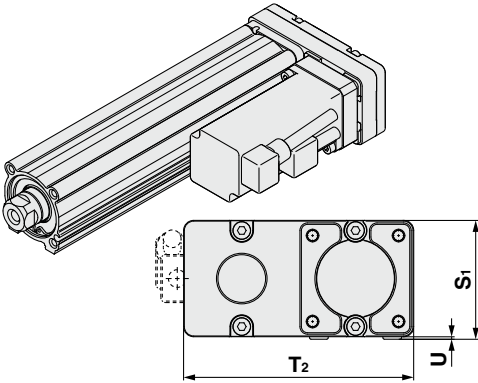
# LEY Series

AC Servo Motor    Size **25, 32, 63**    Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

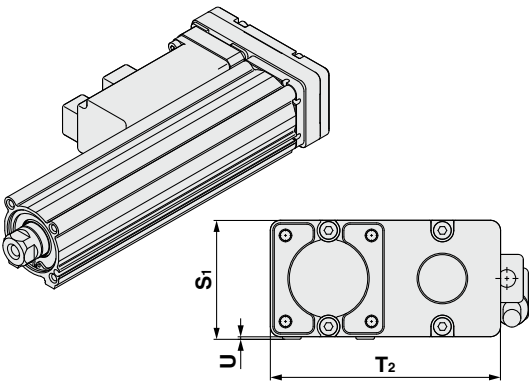
## Dimensions: Top/Right/Left Side Parallel Motor

Left side parallel motor type: LEY**25**  
LEY**32** L  
LEY**63**



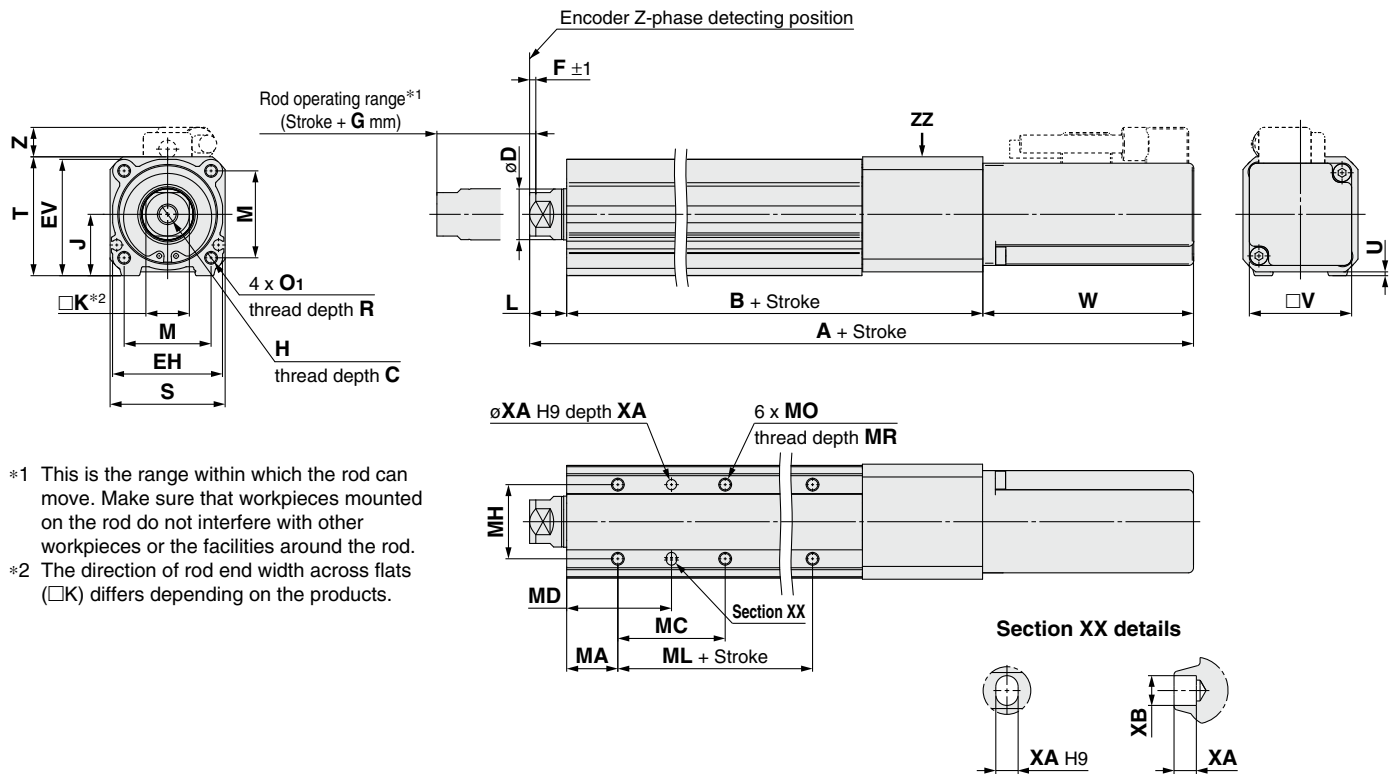
| Size | S <sub>1</sub> | T <sub>2</sub> | U |
|------|----------------|----------------|---|
| 25   | 47             | 91             | 1 |
| 32   | 61             | 117            | 1 |
| 63   | 84             | 142            | 4 |

Right side parallel motor type: LEY**25**  
LEY**32** R  
LEY**63**



\* When the motor is mounted on the left or right side in parallel, the groove for auto switch on the side to which the motor is mounted is hidden.

## Dimensions: In-line Motor



- \*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.  
\*2 The direction of rod end width across flats (□K) differs depending on the products.

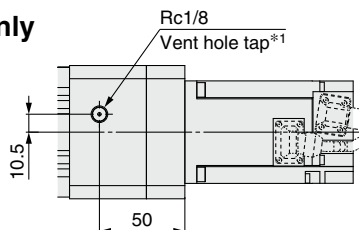
| Size | Stroke range [mm] | C  | D  | EH | EV   | H         | J  | K  | L    | M  | O1        | R  | S  | T    | U   | B     | V  |
|------|-------------------|----|----|----|------|-----------|----|----|------|----|-----------|----|----|------|-----|-------|----|
| 25   | 15 to 100         | 13 | 20 | 44 | 45.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34 | M5 x 0.8  | 8  | 45 | 46.5 | 1.5 | 136.5 | 40 |
|      | 105 to 400        | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0  | 10 | 60 | 61   | 1   | 161.5 | 60 |
| 32   | 20 to 100         | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0  | 10 | 60 | 61   | 1   | 156   | 60 |
|      | 105 to 500        | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0  | 10 | 60 | 61   | 1   | 186   | 60 |
|      | 50 to 200         | 21 | 40 | 76 | 82   | M16 x 2   | 44 | 36 | 37.4 | 60 | M8 x 1.25 | 16 | 78 | 83   | 5   | 190.7 | 60 |
| 63   | 205 to 500        | 21 | 40 | 76 | 82   | M16 x 2   | 44 | 36 | 37.4 | 60 | M8 x 1.25 | 16 | 78 | 83   | 5   | 225.7 | 60 |
|      | 505 to 800        | 21 | 40 | 76 | 82   | M16 x 2   | 44 | 36 | 37.4 | 60 | M8 x 1.25 | 16 | 78 | 83   | 5   | 260.7 | 60 |

| Size | Stroke range [mm] | Without lock |      |      | With lock |       |      | F | G |
|------|-------------------|--------------|------|------|-----------|-------|------|---|---|
|      |                   | A            | W    | Z    | A         | W     | Z    |   |   |
| 25   | 15 to 100         | 233.5        | 82.5 | 11.5 | 278.5     | 127.5 | 11.5 | 2 | 4 |
|      | 105 to 400        | 258.5        | 82.5 | 11.5 | 303.5     | 127.5 | 11.5 | 2 | 4 |
| 32   | 20 to 100         | 254.5        | 80   | 14   | 294.5     | 120   | 14   | 2 | 4 |
|      | 105 to 500        | 284.5        | 80   | 14   | 324.5     | 120   | 14   | 2 | 4 |
| 63   | 50 to 200         | 326.6        | 98.5 | 5    | 366.6     | 138.5 | 5    | 4 | 8 |
|      | 205 to 500        | 361.6        | 98.5 | 5    | 401.6     | 138.5 | 5    | 4 | 8 |
|      | 505 to 800        | 396.6        | 98.5 | 5    | 436.6     | 138.5 | 5    | 4 | 8 |

| Body Bottom Tapped |                   |    |    |      |    |    |    |    |    |    | [mm] |  |
|--------------------|-------------------|----|----|------|----|----|----|----|----|----|------|--|
| Size               | Stroke range [mm] | MA | MC | MD   | MH | ML | MO | MR | XA | XB |      |  |
| 25                 | 15 to 35          | 20 | 24 | 32   |    | 50 |    |    |    |    |      |  |
|                    | 40 to 100         | 20 | 42 | 41   | 29 | 75 |    |    |    |    |      |  |
|                    | 105 to 120        | 20 | 42 | 41   | 29 | 75 |    |    |    |    |      |  |
|                    | 125 to 200        | 20 | 59 | 49.5 |    |    |    |    |    |    |      |  |
|                    | 205 to 400        | 20 | 76 | 58   |    |    |    |    |    |    |      |  |
| 32                 | 20 to 35          | 25 | 22 | 36   |    | 50 |    |    |    |    |      |  |
|                    | 40 to 100         | 25 | 36 | 43   | 30 | 80 |    |    |    |    |      |  |
|                    | 105 to 120        | 25 | 36 | 43   | 30 | 80 |    |    |    |    |      |  |
|                    | 125 to 200        | 25 | 53 | 51.5 |    |    |    |    |    |    |      |  |
|                    | 205 to 500        | 25 | 70 | 60   |    |    |    |    |    |    |      |  |
| 63                 | 50 to 70          | 38 | 24 | 50   |    | 65 |    |    |    |    |      |  |
|                    | 75 to 120         | 38 | 45 | 60.5 |    |    |    |    |    |    |      |  |
|                    | 125 to 200        | 38 | 58 | 67   | 44 |    |    |    |    |    |      |  |
|                    | 205 to 500        | 38 | 86 | 81   |    |    |    |    |    |    |      |  |
|                    | 505 to 800        | 38 | 86 | 81   |    |    |    |    |    |    |      |  |

IP65 equivalent (Dust-tight/Water-jet-proof): LEY63D□□-□P  
(View ZZ)

\* LEY63 only



- \*1 When using the dust-tight/water-jet-proof (IP65 equivalent), correctly mount the fitting and tubing to the vent hole tap, and then place the end of the tubing in an area not exposed to dust or water. The fitting and tubing should be provided separately by the customer.  
Select [Applicable tubing O.D.: ø4 or more, Connection thread: Rc1/8].



# LEY Series

AC Servo Motor

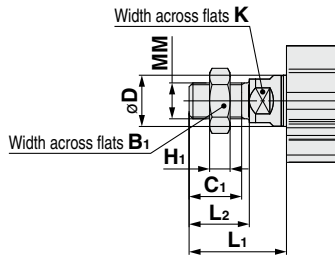
Size **25, 32, 63**

Dust-tight/Water-jet-proof (IP65 Equivalent)

\* Option

## Dimensions

End male thread: LEY **25** **32** **63** **A** **B** **C** **L** **□** **□** **M**



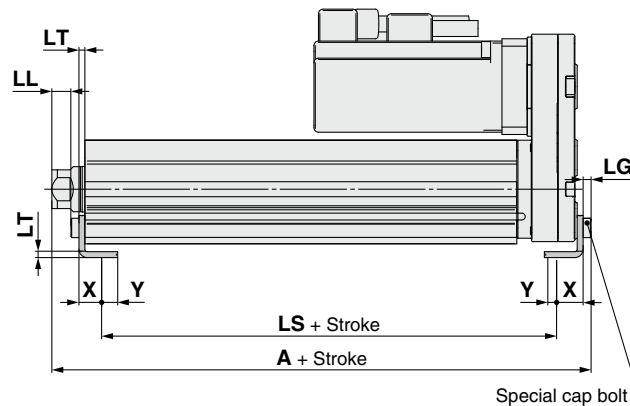
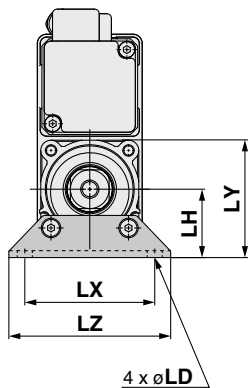
\* Refer to pages 101 and 102 for details on the rod end nut and mounting bracket.

\* Refer to the "Handling" precautions on pages 204 to 207 when mounting end brackets such as knuckle joint or workpieces.

| Size      | B <sub>1</sub> | C <sub>1</sub> | D  | H <sub>1</sub> | K  | L <sub>1</sub> *1 | L <sub>2</sub> | MM        |
|-----------|----------------|----------------|----|----------------|----|-------------------|----------------|-----------|
| <b>25</b> | 22             | 20.5           | 20 | 8              | 17 | 38                | 23.5           | M14 x 1.5 |
| <b>32</b> | 22             | 20.5           | 25 | 8              | 22 | 42                | 23.5           | M14 x 1.5 |
| <b>63</b> | 27             | 26             | 40 | 11             | 36 | 76.4              | 39             | M18 x 1.5 |

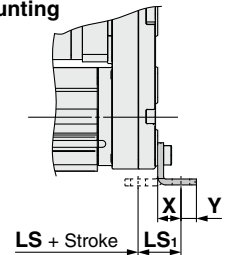
\*1 The L<sub>1</sub> measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

Foot bracket: LEY **25** **32** **63** **A** **B** **C** **L** **□** **□** **L**



Included parts  
·Foot bracket  
·Body mounting bolt

Outward mounting



### Foot Bracket

| Size      | Stroke range [mm] | A     | LS    | LS <sub>1</sub> | LL   | LD  | LG  | LH | LT  | LX | LY   | LZ  | X    | Y   |
|-----------|-------------------|-------|-------|-----------------|------|-----|-----|----|-----|----|------|-----|------|-----|
| <b>25</b> | 15 to 100         | 136.6 | 98.8  | 19.8            | 8.4  | 6.6 | 3.5 | 30 | 2.6 | 57 | 51.5 | 71  | 11.2 | 5.8 |
|           | 105 to 400        | 161.6 | 123.8 |                 |      |     |     |    |     |    |      |     |      |     |
| <b>32</b> | 20 to 100         | 155.7 | 114   | 19.2            | 11.3 | 6.6 | 4   | 36 | 3.2 | 76 | 61.5 | 90  | 11.2 | 7   |
|           | 105 to 500        | 185.7 | 144   |                 |      |     |     |    |     |    |      |     |      |     |
| <b>63</b> | 50 to 200         | 200.8 | 133.2 | 25.2            | 29.2 | 8.6 | 5   | 50 | 3.2 | 95 | 88   | 110 | 14.2 | 8   |
|           | 205 to 500        | 235.8 | 168.2 |                 |      |     |     |    |     |    |      |     |      |     |
|           | 505 to 800        | 270.8 | 203.2 |                 |      |     |     |    |     |    |      |     |      |     |

Material: Carbon steel (Chromating)

\* The A measurement is when the unit is in the Z-phase first detecting position. At this position, 2 mm at the end (size 25, 32) and 4 mm at the end (size 63).

\* When the motor mounting is the right or left side parallel type, the head side foot bracket should be mounted outward.

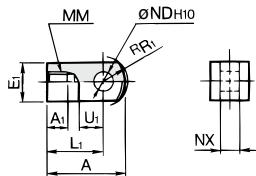


## Accessory Brackets/Support Brackets

### Single Knuckle Joint

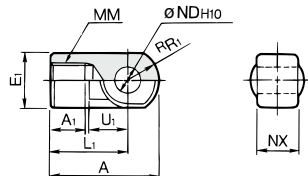
\* If a knuckle joint is used, select the body option [end male thread].

#### I-G02



Material: Carbon steel

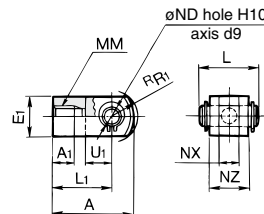
#### I-G04 I-G05 I-G10



Material: Cast iron

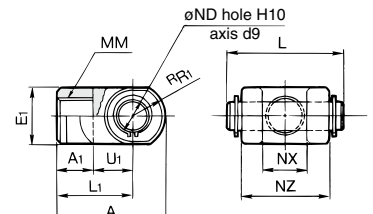
### Double Knuckle Joint

#### Y-G02



Material: Carbon steel

#### Y-G04 Y-G05 Y-G10



Material: Cast iron

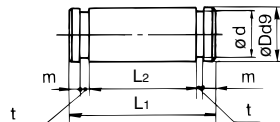
| Part no. | Applicable size | A  | A <sub>1</sub> | E <sub>1</sub> | L <sub>1</sub> | MM        | R <sub>1</sub> | U <sub>1</sub> | NDH <sub>10</sub>                 | NX                                 |
|----------|-----------------|----|----------------|----------------|----------------|-----------|----------------|----------------|-----------------------------------|------------------------------------|
| I-G02    | 16              | 34 | 8.5            | □16            | 25             | M8 x 1.25 | 10.3           | 11.5           | 8 <sup>+0.058</sup> <sub>0</sub>  | 8 <sup>-0.2</sup> <sub>-0.4</sub>  |
| I-G04    | 25, 32, 40      | 42 | 14             | ∅22            | 30             | M14 x 1.5 | 12             | 14             | 10 <sup>+0.058</sup> <sub>0</sub> | 18 <sup>-0.3</sup> <sub>-0.5</sub> |
| I-G05    | 63              | 56 | 18             | ∅28            | 40             | M18 x 1.5 | 16             | 20             | 14 <sup>+0.070</sup> <sub>0</sub> | 22 <sup>-0.3</sup> <sub>-0.5</sub> |

\* Knuckle pin and retaining ring are included. [mm]

| Part no. | Applicable size | A  | A <sub>1</sub> | E <sub>1</sub> | L <sub>1</sub> | MM        | R <sub>1</sub> |
|----------|-----------------|----|----------------|----------------|----------------|-----------|----------------|
| Y-G02    | 16              | 34 | 8.5            | □16            | 25             | M8 x 1.25 | 10.3           |
| Y-G04    | 25, 32, 40      | 42 | 16             | ∅22            | 30             | M14 x 1.5 | 12             |
| Y-G05    | 63              | 56 | 20             | ∅28            | 40             | M18 x 1.5 | 16             |

### Knuckle Pin

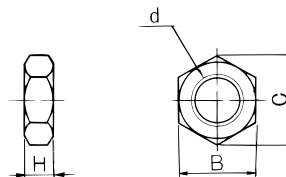
\* Common with double clevis pin



Material: Carbon steel  
[mm]

| Part no. | Applicable size | Dd9                                    | L <sub>1</sub> | L <sub>2</sub> | d    | m    | t    | Retaining ring           |
|----------|-----------------|----------------------------------------|----------------|----------------|------|------|------|--------------------------|
| IY-G02   | 16              | 8 <sup>-0.040</sup> <sub>-0.076</sub>  | 21             | 16.2           | 7.6  | 1.5  | 0.9  | Type C retaining ring 8  |
| IY-G04   | 25, 32, 40      | 10 <sup>-0.040</sup> <sub>-0.076</sub> | 41.6           | 36.2           | 9.6  | 1.55 | 1.15 | Type C retaining ring 10 |
| IY-G05   | 63              | 14 <sup>-0.050</sup> <sub>-0.093</sub> | 50.6           | 44.2           | 13.4 | 2.05 | 1.15 | Type C retaining ring 14 |

### Rod End Nut



Material: Carbon steel  
[mm]

| Part no. | Applicable size | d         | H  | B  | C    |
|----------|-----------------|-----------|----|----|------|
| NT-02    | 16              | M8 x 1.25 | 5  | 13 | 15.0 |
| NT-04    | 25, 32, 40      | M14 x 1.5 | 8  | 22 | 25.4 |
| NT-05    | 63              | M18 x 1.5 | 11 | 27 | 31.2 |
| DA00B7   | 100             | M20 x 1.5 | 12 | 30 | 34.6 |

### Mounting Bracket Part Nos.

| Mounting bracket | Order qty. | Applicable size |          |          |          |          | Contents                                                                                |
|------------------|------------|-----------------|----------|----------|----------|----------|-----------------------------------------------------------------------------------------|
|                  |            | 16              | 25       | 32, 40   | 63       | 100      |                                                                                         |
| Foot bracket     | 2*1        | LEY-L016        | LEY-L025 | LEY-L032 | LEY-L063 | LEY-L100 | Foot bracket x 2<br>Mounting bolt x 4                                                   |
| Flange           | 1          | LEY-F016        | LEY-F025 | LEY-F032 | LEY-F063 | LEY-F100 | Flange x 1<br>Mounting bolt x 4                                                         |
| Double clevis    | 1          | LEY-D016        | LEY-D025 | LEY-D032 | LEY-D063 | —        | Clevis x 1<br>Mounting bolt x 4<br>Clevis pin x 1<br>Type C retaining ring for axis x 2 |

\*1 When ordering foot brackets, order 2 pieces per actuator.

## Simple Joint Brackets

\* The joint is not included for type A and type B mounting brackets. Therefore, it must be ordered separately.  
\* Use with a force of 7800 N or less.

### Joint and Mounting Bracket (Type A/B)/Part No.

**Joint** **LEY-U025**

**Applicable size**

|     |            |
|-----|------------|
| 025 | 25, 32, 40 |
|-----|------------|

Type A mounting bracket

**Mounting bracket** **YA-03**

**Applicable size**

|    |            |
|----|------------|
| 03 | 25, 32, 40 |
|----|------------|

Type B mounting bracket

**Mounting bracket**

|    |                         |
|----|-------------------------|
| YA | Type A mounting bracket |
| YB | Type B mounting bracket |

**Applicable size**

|    |            |
|----|------------|
| 03 | 25, 32, 40 |
|----|------------|

**Allowable Eccentricity** [mm]

| Applicable size        | 25  | 32 | 40 |
|------------------------|-----|----|----|
| Eccentricity tolerance | ±1  |    |    |
| Backlash               | 0.5 |    |    |

<How to Order>

- The joint is not included for type A and type B mounting brackets. Therefore, it must be ordered separately.

Example) Order no.  
• Joint..... LEY-U025  
• Type A mounting bracket..... YA-03

### Joint and Mounting Bracket (Type A/B)/Part No.

| Applicable size | Joint part no. | Applicable mounting bracket part no. |                         |
|-----------------|----------------|--------------------------------------|-------------------------|
|                 |                | Type A mounting bracket              | Type B mounting bracket |
| 25, 32, 40      | LEY-U025       | YA-03                                | YB-03                   |

**Joint**

With locking adhesive

Material: Stainless steel [mm]

| Part no. | Applicable size | UA | C  | d1 | d2 | H         | K  | L | UT | Weight [g] |
|----------|-----------------|----|----|----|----|-----------|----|---|----|------------|
| LEY-U025 | 25, 32, 40      | 17 | 11 | 16 | 8  | M8 x 1.25 | 14 | 7 | 6  | 22         |

### Type A Mounting Bracket

Material: Chromium molybdenum steel [mm]

| Part no. | Applicable size | B  | D   | E  | F | M  | T1  | T2 | U |
|----------|-----------------|----|-----|----|---|----|-----|----|---|
| YA-03    | 25, 32, 40      | 18 | 6.8 | 16 | 6 | 42 | 6.5 | 10 | 6 |

| Part no. | Applicable size | V  | W  | Weight [g] |
|----------|-----------------|----|----|------------|
| YA-03    | 25, 32, 40      | 18 | 56 | 55         |

### Type B Mounting Bracket

Material: Stainless steel [mm]

| Part no. | Applicable size | B  | D | E  | J | M  | øO             |
|----------|-----------------|----|---|----|---|----|----------------|
| YB-03    | 25, 32, 40      | 12 | 7 | 25 | 9 | 34 | 11.5 depth 7.5 |

| Part no. | Applicable size | T1  | T2 | V  | W  | RS | Weight [g] |
|----------|-----------------|-----|----|----|----|----|------------|
| YB-03    | 25, 32, 40      | 6.5 | 10 | 18 | 50 | 9  | 80         |

## Floating Joints (Refer to the Web Catalog for details.)

### ●For Male Thread/JC (Light weight type)

- With an aluminum case



### ●For Male Thread/JS (Stainless steel)

- Stainless steel 304 (Exterior)

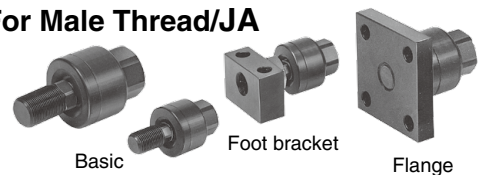
- Dust cover

Fluororubber/Silicone rubber



| Applicable size | Thread size |
|-----------------|-------------|
| 16              | M8 x 1.25   |
| 25, 32, 40      | M14 x 1.5   |
| 63              | M18 x 1.5   |

### ●For Male Thread/JA



### ●For Female Thread/JB

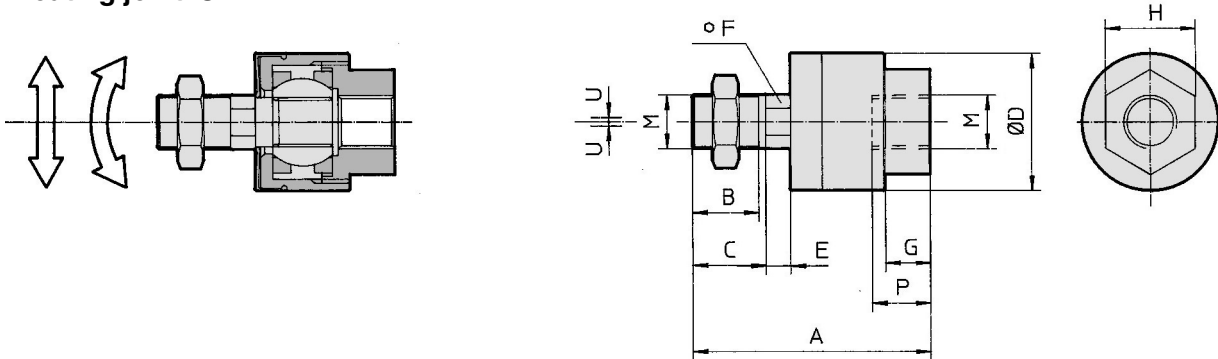


| Applicable size | Thread size |
|-----------------|-------------|
| 16              | M5 x 0.8    |
| 25, 32, 40      | M8 x 1.25   |
| 63              | M16 x 2     |
| 100             | M20 x 1.5   |

# Accessory Mounting Brackets 2

## Dimensions: Piston Rod Accessories

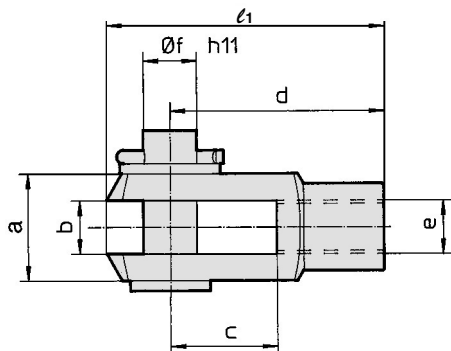
### Floating joint: JA



| Size | Part no.     | M         | A   | B  | C  | ØD   | E    | F  | G  | H  | P  | U | Load [kN] | Weight [g] | Rotating angle |
|------|--------------|-----------|-----|----|----|------|------|----|----|----|----|---|-----------|------------|----------------|
| 100  | JAH50-20-150 | M20 x 1.5 | 101 | 28 | 31 | 59.5 | 11.5 | 24 | 16 | 32 | 18 | 2 | 18        | 1080       | ±0.5°          |

\* Black color

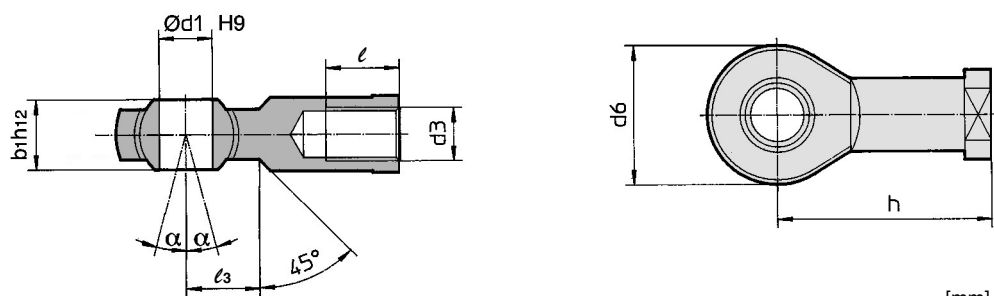
### Rod clevis: GKM (ISO 8140)



| Size | Part no. | e         | b                                   | d  | Øf h11 (Shaft) | Øf H9 (Hole) | l1  | c (Min.) | a (Max.) |
|------|----------|-----------|-------------------------------------|----|----------------|--------------|-----|----------|----------|
| 100  | GKM20-40 | M20 x 1.5 | 20 <sup>+0.5</sup> <sub>+0.15</sub> | 80 | 20             | 20           | 105 | 40       | 40       |

\* Supplied with clevis pin and clevis pin bracket

### Rod end: KJ (ISO 8139)

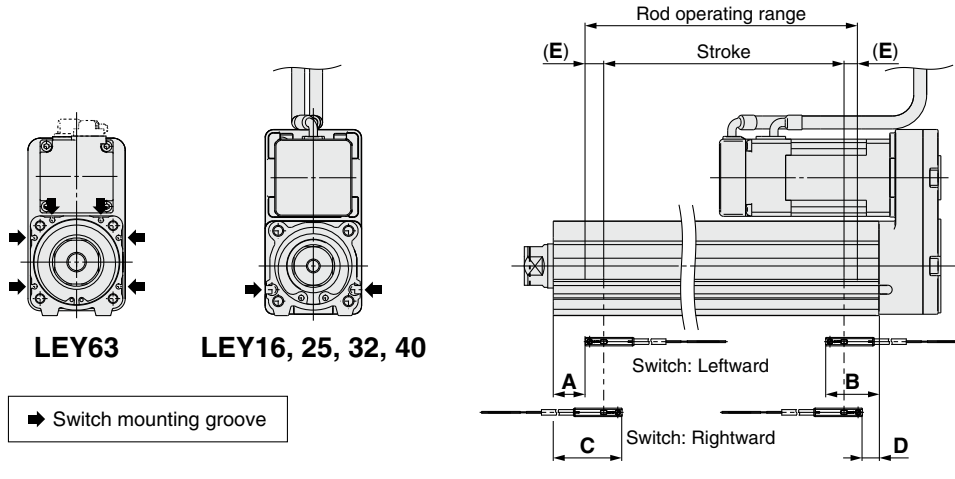


| Size | Part no. | d3        | Ød1 H9 | h  | d6 (Max.) | b1 h12 | l (Min.) | α  | l3 |
|------|----------|-----------|--------|----|-----------|--------|----------|----|----|
| 100  | KJ20D    | M20 x 1.5 | 20     | 77 | 50        | 25     | 33       | 4° | 27 |

# LEY Series Auto Switch Mounting

## Auto Switch Proper Mounting Position

Applicable auto switch: D-M9□(V), D-M9□E(V), D-M9□W(V), D-M9□A(V)

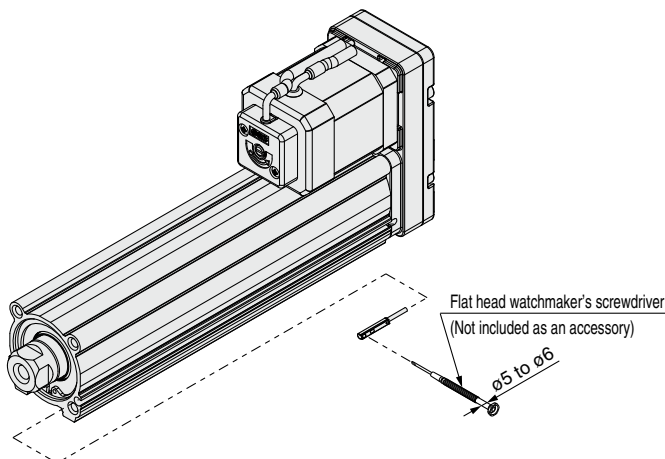


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- \* The values in the table to the left are to be used as a reference when mounting auto switches for stroke end detection. Adjust the auto switch after confirming the operating conditions in the actual setting.
- \* An auto switch cannot be mounted on the same side as a motor.
- \* For LEYG series models (with a guide), an auto switch cannot be mounted on the guide attachment side (rod side).
- \* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approx.  $\pm 30\%$  dispersion). It may change substantially depending on the ambient environment.

## Auto Switch Mounting

Size: 16, 25, 32, 40, 63



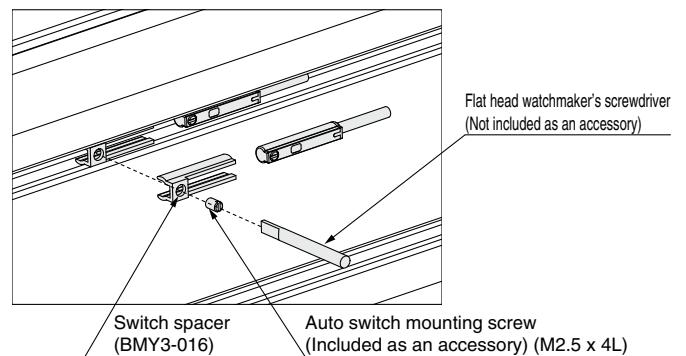
### Tightening Torque for Auto Switch Mounting Screw [N·m]

| Auto switch model                  | Tightening torque |
|------------------------------------|-------------------|
| D-M9□(V)<br>D-M9□E(V)<br>D-M9□W(V) | 0.05 to 0.15      |
| D-M9□A(V)                          | 0.05 to 0.10      |

- \* When tightening the auto switch mounting screw (included with the auto switch), use a watchmaker's screwdriver with a handle diameter of 5 to 6 mm.

Size: 100

A switch spacer is required in order to mount an auto switch. When mounting an auto switch, first, hold a switch spacer between your fingers and press it into the slot. When doing this, confirm that it is set in the correct mounting orientation, or reinsert it if necessary. Next, insert the auto switch into the slot and slide it until it is positioned under the switch spacer. After confirming the mounting position, use a flat head watchmaker's screwdriver to tighten the included auto switch mounting screw.



### Switch Spacer Part No.

|               |          |
|---------------|----------|
| Switch spacer | BMY3-016 |
|---------------|----------|

### Tightening Torque for Auto Switch Mounting Screw

| Auto switch model     | Tightening torque |
|-----------------------|-------------------|
| D-M9□(V)<br>D-M9□W(V) | 0.10 to 0.15      |



# Solid State Auto Switch Direct Mounting Type D-M9N(V)/D-M9P(V)/D-M9B(V)



Refer to the SMC website for details on products that are compliant with international standards.

## Auto Switch Specifications

PLC: Programmable Logic Controller

### Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard spec.



| D-M9□, D-M9□V (With indicator light) |                                               |               |         |               |                       |               |
|--------------------------------------|-----------------------------------------------|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model                    | D-M9N                                         | D-M9NV        | D-M9P   | D-M9PV        | D-M9B                 | D-M9BV        |
| Electrical entry direction           | In-line                                       | Perpendicular | In-line | Perpendicular | In-line               | Perpendicular |
| Wiring type                          | 3-wire                                        |               |         |               | 2-wire                |               |
| Output type                          | NPN                                           |               | PNP     |               | —                     |               |
| Applicable load                      | IC circuit, Relay, PLC                        |               |         |               | 24 VDC relay, PLC     |               |
| Power supply voltage                 | 5, 12, 24 VDC (4.5 to 28 V)                   |               |         |               | —                     |               |
| Current consumption                  | 10 mA or less                                 |               |         |               | —                     |               |
| Load voltage                         | 28 VDC or less                                |               | —       |               | 24 VDC (10 to 28 VDC) |               |
| Load current                         | 40 mA or less                                 |               |         |               | 2.5 to 40 mA          |               |
| Internal voltage drop                | 0.8 V or less at 10 mA (2 V or less at 40 mA) |               |         |               | 4 V or less           |               |
| Leakage current                      | 100 μA or less at 24 VDC                      |               |         |               | 0.8 mA or less        |               |
| Indicator light                      | Red LED illuminates when turned ON.           |               |         |               |                       |               |
| Standard                             | CE marking, RoHS                              |               |         |               |                       |               |

## Oilproof Heavy-duty Lead Wire Specifications

| Auto switch model                           |                                   | D-M9N(V)                   | D-M9P(V) | D-M9B(V)             |
|---------------------------------------------|-----------------------------------|----------------------------|----------|----------------------|
| Sheath                                      | Outside diameter [mm]             | 2.6                        |          |                      |
| Insulator                                   | Number of cores                   | 3 cores (Brown/Blue/Black) |          | 2 cores (Brown/Blue) |
|                                             | Outside diameter [mm]             | 0.88                       |          |                      |
| Conductor                                   | Effective area [mm <sup>2</sup> ] | 0.15                       |          |                      |
|                                             | Strand diameter [mm]              | 0.05                       |          |                      |
| Min. bending radius [mm] (Reference values) |                                   | 17                         |          |                      |

- \* Refer to the **Web Catalog** for solid state auto switch common specifications.
- \* Refer to the **Web Catalog** for lead wire lengths.

### Caution

#### Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

## Weight

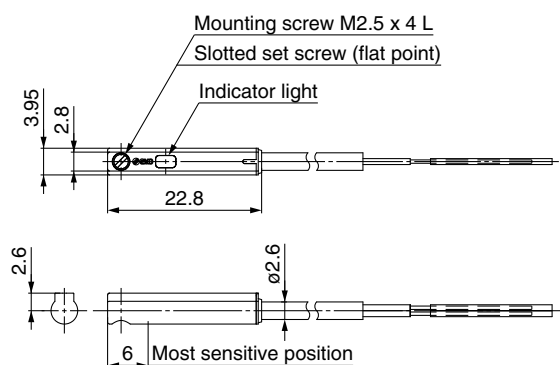
[g]

| Auto switch model |             | D-M9N(V) | D-M9P(V) | D-M9B(V) |
|-------------------|-------------|----------|----------|----------|
| Lead wire length  | 0.5 m (Nil) | 8        | —        | 7        |
|                   | 1 m (M)     | 14       | —        | 13       |
|                   | 3 m (L)     | 41       | —        | 38       |
|                   | 5 m (Z)     | 68       | —        | 63       |

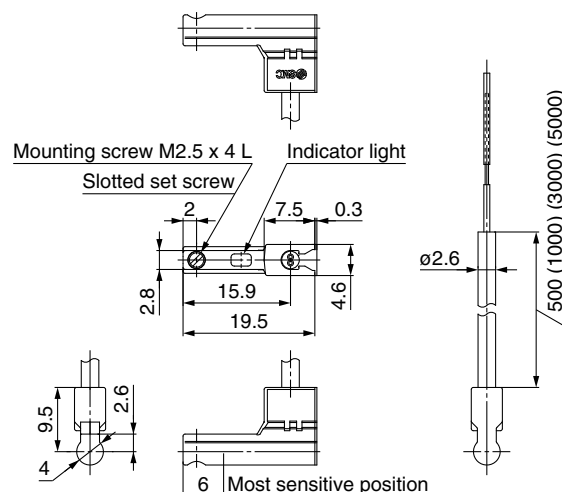
## Dimensions

[mm]

### D-M9□



### D-M9□V



# Normally Closed Solid State Auto Switch Direct Mounting Type D-M9NE(V)/D-M9PE(V)/D-M9BE(V)



RoHS

Refer to the SMC website for details on products that are compliant with international standards.

## Auto Switch Specifications

PLC: Programmable Logic Controller

| D-M9□E, D-M9□EV (With indicator light) |                                               |               |         |               |                       |               |
|----------------------------------------|-----------------------------------------------|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model                      | D-M9NE                                        | D-M9NEV       | D-M9PE  | D-M9PEV       | D-M9BE                | D-M9BEV       |
| Electrical entry direction             | In-line                                       | Perpendicular | In-line | Perpendicular | In-line               | Perpendicular |
| Wiring type                            | 3-wire                                        |               |         |               | 2-wire                |               |
| Output type                            | NPN                                           |               | PNP     |               | —                     |               |
| Applicable load                        | IC circuit, Relay, PLC                        |               |         |               | 24 VDC relay, PLC     |               |
| Power supply voltage                   | 5, 12, 24 VDC (4.5 to 28 V)                   |               |         |               | —                     |               |
| Current consumption                    | 10 mA or less                                 |               |         |               | —                     |               |
| Load voltage                           | 28 VDC or less                                |               | —       |               | 24 VDC (10 to 28 VDC) |               |
| Load current                           | 40 mA or less                                 |               |         |               | 2.5 to 40 mA          |               |
| Internal voltage drop                  | 0.8 V or less at 10 mA (2 V or less at 40 mA) |               |         |               | 4 V or less           |               |
| Leakage current                        | 100 μA or less at 24 VDC                      |               |         |               | 0.8 mA or less        |               |
| Indicator light                        | Red LED illuminates when turned ON.           |               |         |               |                       |               |
| Standard                               | CE marking, RoHS                              |               |         |               |                       |               |

## Oilproof Heavy-duty Lead Wire Specifications

| Auto switch model                           | D-M9NE(V)                         | D-M9PE(V) | D-M9BE(V)            |
|---------------------------------------------|-----------------------------------|-----------|----------------------|
| Sheath                                      | Outside diameter [mm]             |           |                      |
|                                             | 2.6                               |           |                      |
| Insulator                                   | Number of cores                   |           | 2 cores (Brown/Blue) |
|                                             | Outside diameter [mm]             |           | 0.88                 |
| Conductor                                   | Effective area [mm <sup>2</sup> ] |           | 0.15                 |
|                                             | Strand diameter [mm]              |           | 0.05                 |
| Min. bending radius [mm] (Reference values) |                                   | 17        |                      |

\* Refer to the **Web Catalog** for solid state auto switch common specifications.

\* Refer to the **Web Catalog** for lead wire lengths.

## Weight

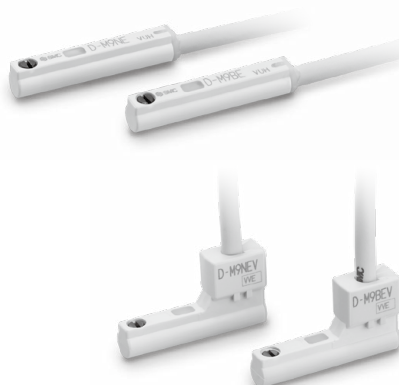
[g]

| Auto switch model | D-M9NE(V)   | D-M9PE(V) | D-M9BE(V) |
|-------------------|-------------|-----------|-----------|
| Lead wire length  | 0.5 m (Nil) | 8         | 7         |
|                   | 1 m (M)*1   | 14        | 13        |
|                   | 3 m (L)     | 41        | 38        |
|                   | 5 m (Z)*1   | 68        | 63        |

\*1 The 1 m and 5 m options are produced upon receipt of order.

## Grommet

- Output signal turns on when no magnetic force is detected.
- Can be used for the actuator adopted by the solid state auto switch D-M9 series (excluding special order products)



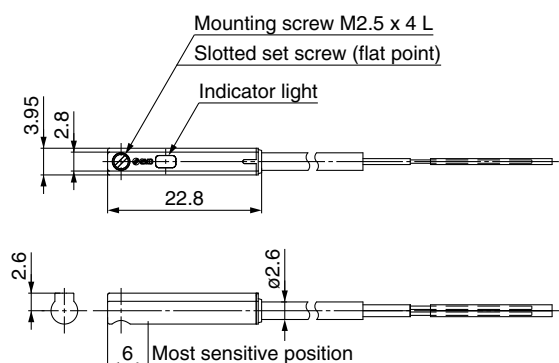
## Caution

### Precautions

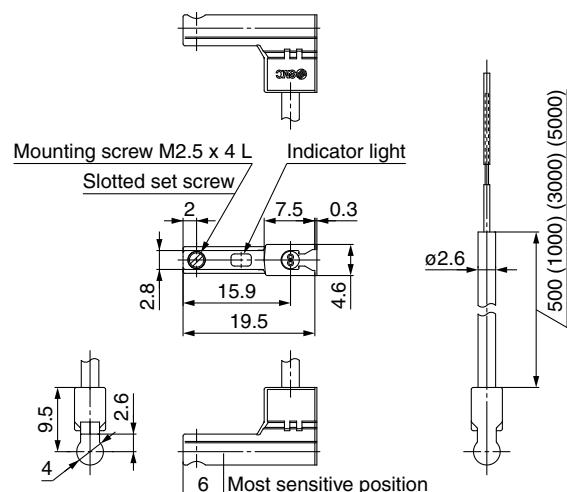
Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

## Dimensions

### D-M9□E



### D-M9□EV



# 2-Color Indicator Solid State Auto Switch Direct Mounting Type D-M9NW(V)/D-M9PW(V)/D-M9BW(V)

Refer to the SMC website for details on products that are compliant with international standards.

PLC: Programmable Logic Controller

## Grommet

- 2-wire load current is reduced (2.5 to 40 mA).
- Using flexible cable as standard spec.
- The proper operating range can be determined by the color of the light. (Red → Green ← Red)



## Caution

### Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.

## Auto Switch Specifications

| D-M9□W, D-M9□WV (With indicator light) |                                                                                                   |               |         |               |                       |               |
|----------------------------------------|---------------------------------------------------------------------------------------------------|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model                      | D-M9NW                                                                                            | D-M9NWV       | D-M9PW  | D-M9PWV       | D-M9BW                | D-M9BWV       |
| Electrical entry direction             | In-line                                                                                           | Perpendicular | In-line | Perpendicular | In-line               | Perpendicular |
| Wiring type                            | 3-wire                                                                                            |               |         |               | 2-wire                |               |
| Output type                            | NPN                                                                                               |               | PNP     |               | —                     |               |
| Applicable load                        | IC circuit, Relay, PLC                                                                            |               |         |               | 24 VDC relay, PLC     |               |
| Power supply voltage                   | 5, 12, 24 VDC (4.5 to 28 V)                                                                       |               |         |               | —                     |               |
| Current consumption                    | 10 mA or less                                                                                     |               |         |               | —                     |               |
| Load voltage                           | 28 VDC or less                                                                                    |               | —       |               | 24 VDC (10 to 28 VDC) |               |
| Load current                           | 40 mA or less                                                                                     |               |         |               | 2.5 to 40 mA          |               |
| Internal voltage drop                  | 0.8 V or less at 10 mA (2 V or less at 40 mA)                                                     |               |         |               | 4 V or less           |               |
| Leakage current                        | 100 μA or less at 24 VDC                                                                          |               |         |               | 0.8 mA or less        |               |
| Indicator light                        | Operating range ..... Red LED illuminates.<br>Proper operating range ..... Green LED illuminates. |               |         |               |                       |               |
| Standard                               | CE marking, RoHS                                                                                  |               |         |               |                       |               |

## Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model                           | D-M9NW(V)                         | D-M9PW(V)                  | D-M9BW(V) |
|---------------------------------------------|-----------------------------------|----------------------------|-----------|
| Sheath                                      | Outside diameter [mm]             | 2.6                        |           |
| Insulator                                   | Number of cores                   | 3 cores (Brown/Blue/Black) |           |
|                                             | Outside diameter [mm]             | 0.88                       |           |
| Conductor                                   | Effective area [mm <sup>2</sup> ] | 0.15                       |           |
|                                             | Strand diameter [mm]              | 0.05                       |           |
| Min. bending radius [mm] (Reference values) |                                   | 17                         |           |

- \* Refer to the **Web Catalog** for solid state auto switch common specifications.
- \* Refer to the **Web Catalog** for lead wire lengths.

## Weight

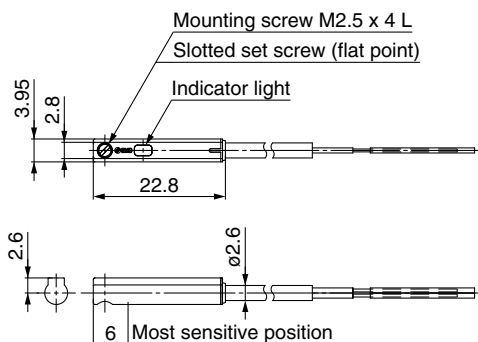
[g]

| Auto switch model | D-M9NW(V)   | D-M9PW(V) | D-M9BW(V) |
|-------------------|-------------|-----------|-----------|
| Lead wire length  | 0.5 m (Nil) | 8         | 7         |
|                   | 1 m (M)     | 14        | 13        |
|                   | 3 m (L)     | 41        | 38        |
|                   | 5 m (Z)     | 68        | 63        |

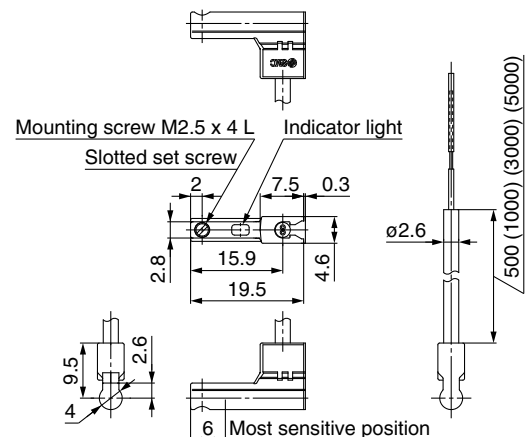
## Dimensions

[mm]

### D-M9□W



### D-M9□WV



# Electric Actuators

## Guide Rod Type

### LEYG Series

Step Motor (Servo/24 VDC)

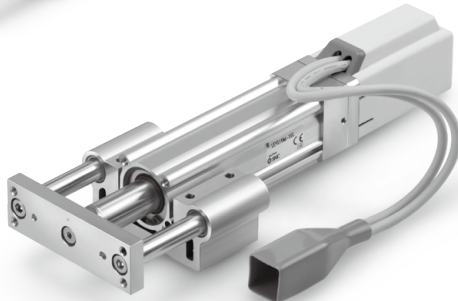
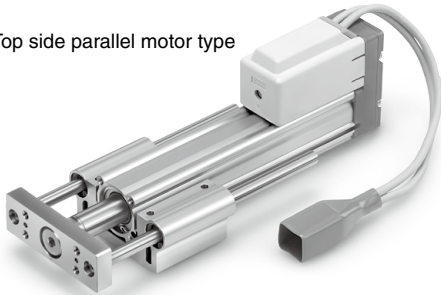
p. 125

Servo Motor (24 VDC)

AC Servo Motor

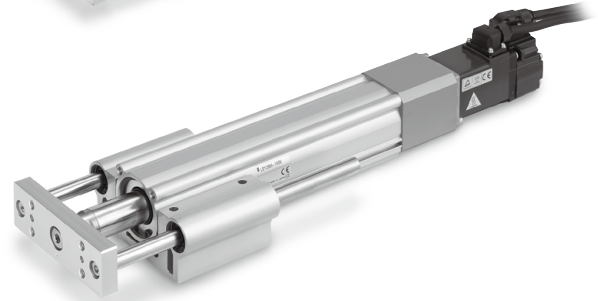
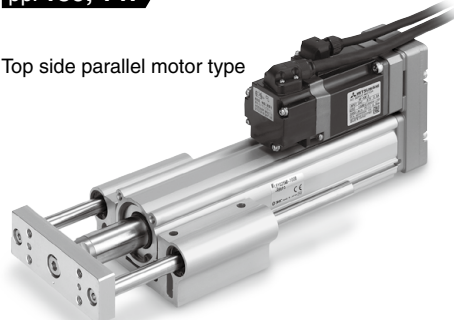
pp. 139, 147

Top side parallel motor type



In-line motor type

Top side parallel motor type



In-line motor type

Step Motor/Servo Motor Controller/Driver p. 210

AC Servo Motor Driver p. 264

Model  
Selection

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)  
LEY

LEYG

AC Servo Motor  
LEY

LEYG

Environment  
LEY-X7

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC

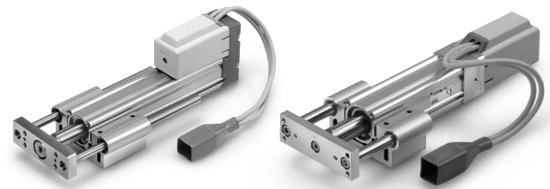
LECS

LECY

Specific Product  
Precautions

# Model Selection

LEYG Series ▶ p. 125



## Moment Load Graph

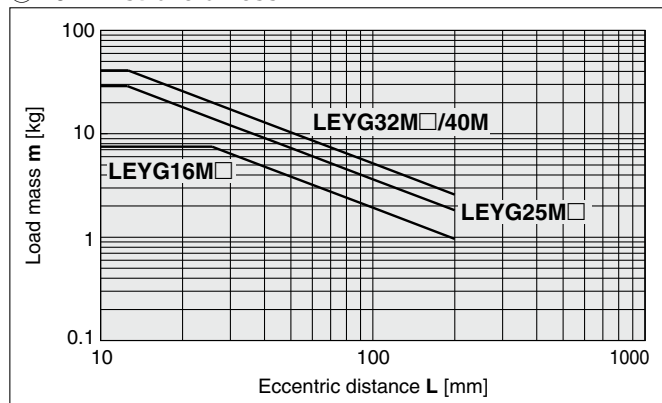
### Selection conditions

| Mounting position |                      | Vertical                | Horizontal  |                           |
|-------------------|----------------------|-------------------------|-------------|---------------------------|
|                   |                      |                         |             |                           |
| Max. speed [mm/s] |                      | “Speed–Work Load Graph” |             |                           |
| Bearing           | Sliding bearing      | Graphs ①, ②             | 200 or less | Graphs ⑤, ⑥* <sup>1</sup> |
|                   | Ball bushing bearing | Graphs ③, ④             | Graphs ⑦, ⑧ | Over 200<br>Graphs ⑨, ⑩   |

\*<sup>1</sup> For the sliding bearing type, the speed is restricted with a horizontal/moment load.

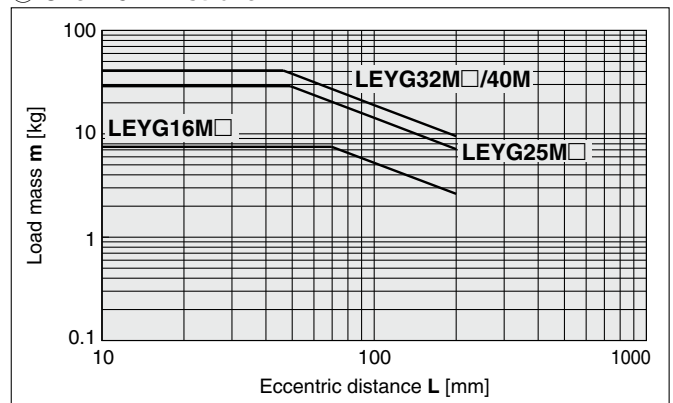
### Vertical Mounting, Sliding Bearing

#### ① 70 mm stroke or less



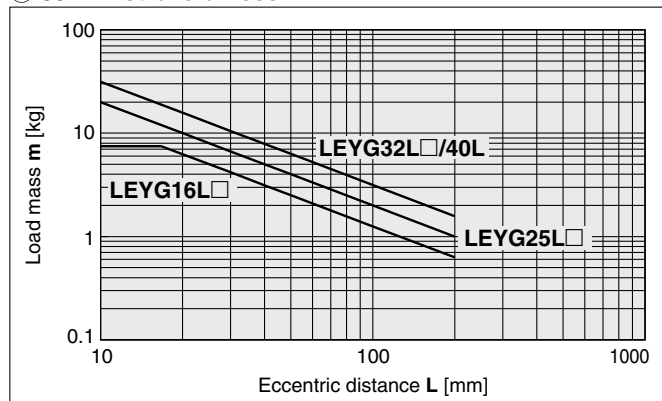
\* The limit of vertical load mass varies depending on “lead” and “speed.”  
Check the “Speed–Work Load Graph” on pages 111 to 113.

#### ② Over 75 mm stroke



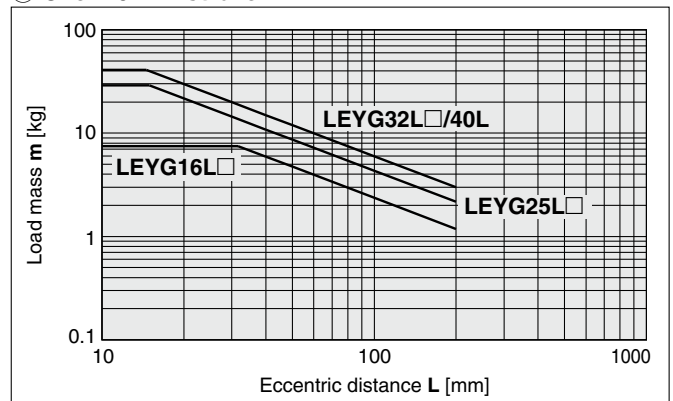
### Vertical Mounting, Ball Bushing Bearing

#### ③ 35 mm stroke or less



\* The limit of vertical load mass varies depending on “lead” and “speed.”  
Check the “Speed–Work Load Graph” on pages 111 to 113.

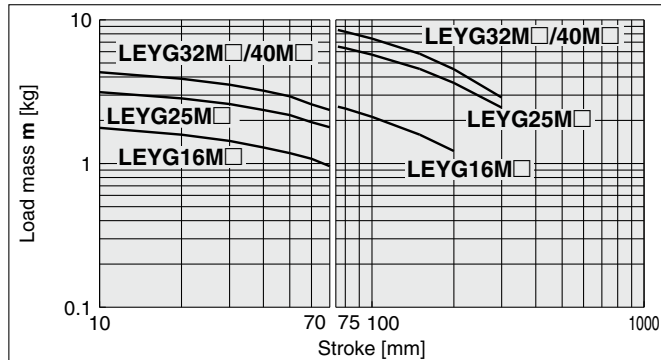
#### ④ Over 40 mm stroke



## Moment Load Graph

### Horizontal Mounting, Sliding Bearing

⑤ L = 50 mm



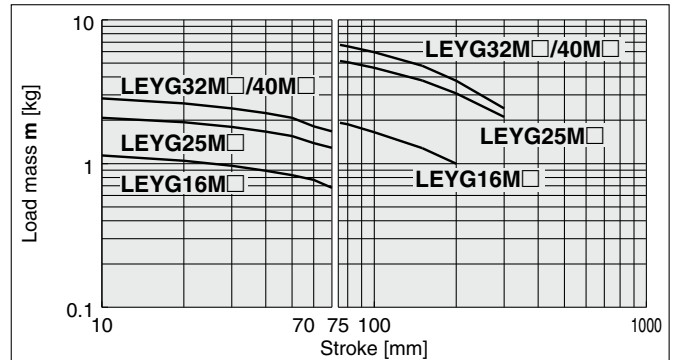
\* Set the speed to less than or equal to the values shown below.

| Motor type                | LEYG□M□A | LEYG□M□B | LEYG□M□C |
|---------------------------|----------|----------|----------|
| Step motor (Servo/24 VDC) | 200 mm/s | 125 mm/s | 75 mm/s  |
| Servo motor (24 VDC)      | 200 mm/s | 200 mm/s | 125 mm/s |

\* For the specifications below, operate the system at the "load mass" shown in the graph x 80%.

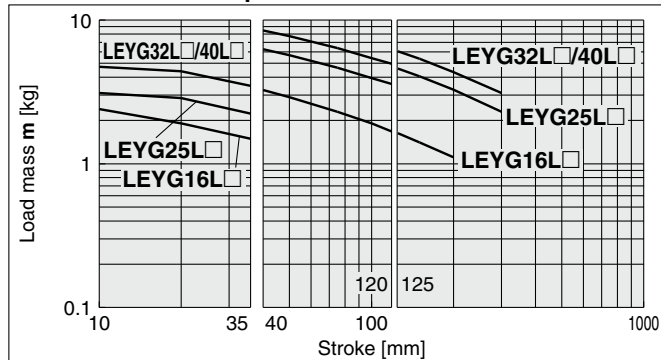
- LEYG25MAA/Servo motor (24 VDC), Lead 12

⑥ L = 100 mm

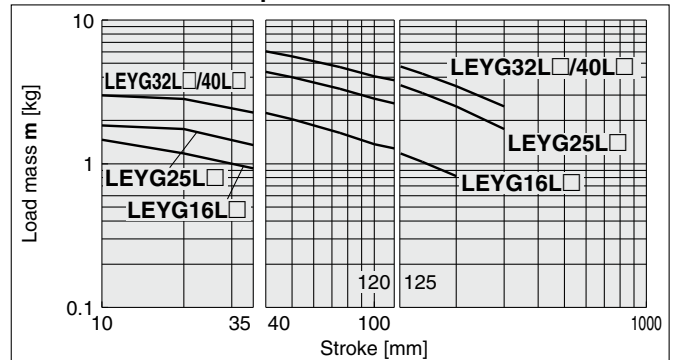


### Horizontal Mounting, Ball Bushing Bearing

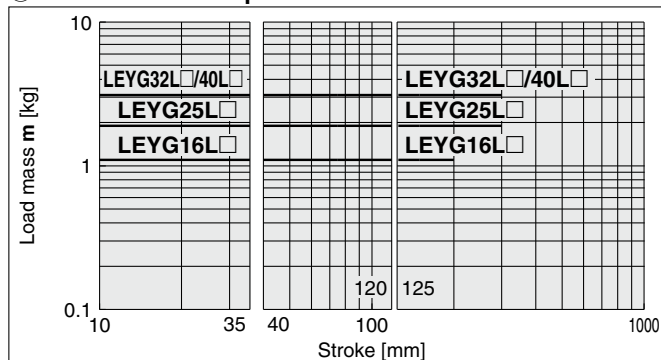
⑦ L = 50 mm Max. speed = 200 mm/s or less



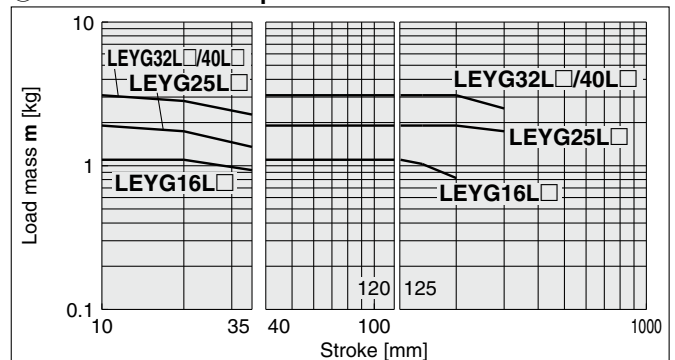
⑧ L = 100 mm Max. speed = 200 mm/s or less



⑨ L = 50 mm Max. speed = Over 200 mm/s

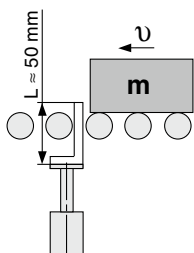


⑩ L = 100 mm Max. speed = Over 200 mm/s



## Operating Range when Used as a Stopper

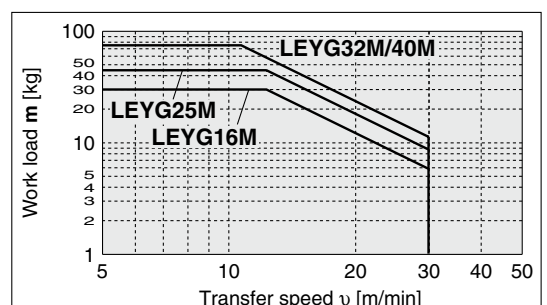
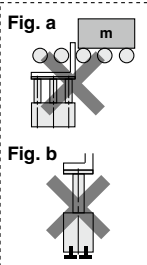
### LEYG□M (Sliding bearing)



#### ⚠ Caution

#### Handling Precautions

- \* When used as a stopper, select a model with a stroke of 30 mm or less.
- \* LEYG□L (ball bushing bearing) cannot be used as a stopper.
- \* Workpiece collision in series with guide rod cannot be permitted (Fig. a).
- \* The body should not be mounted on the end. It must be mounted on the top or bottom (Fig. b).





# LEYG Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

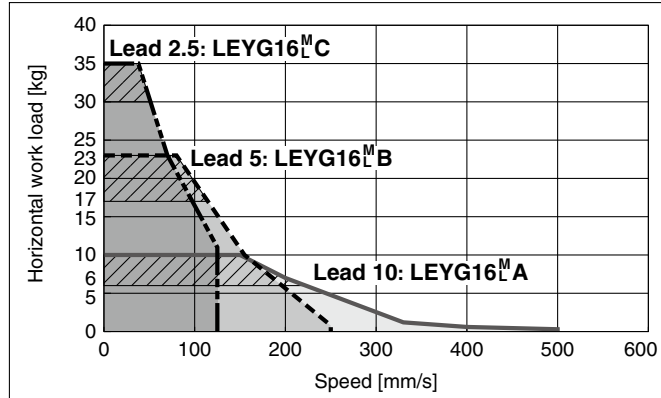
\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 109 and 110.

Refer to page 112 for the LECPA, JXC□<sub>3</sub> and page 113 for the LECA6.

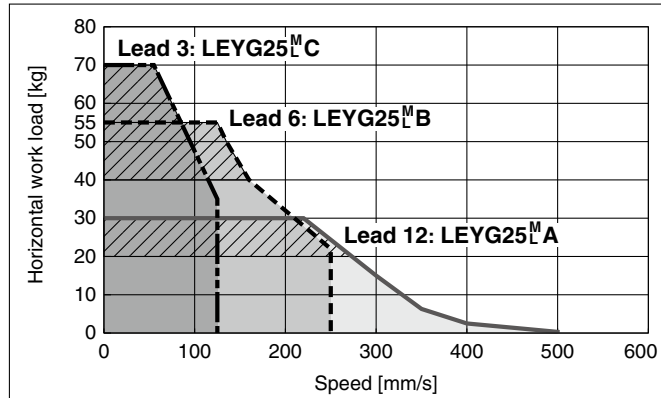
## Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) JXC□1, LECP1

### Horizontal

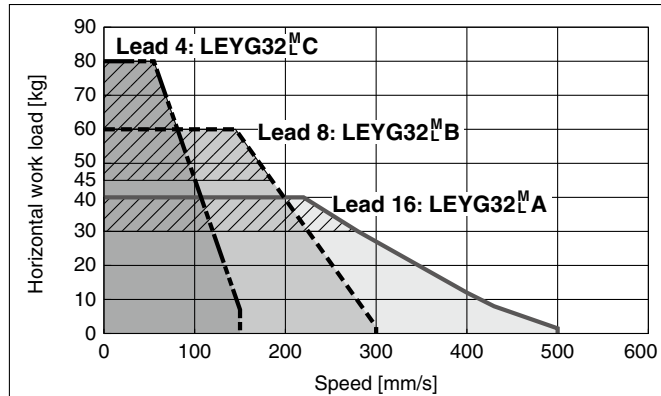
LEYG16<sup>M</sup><sub>L</sub>□ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



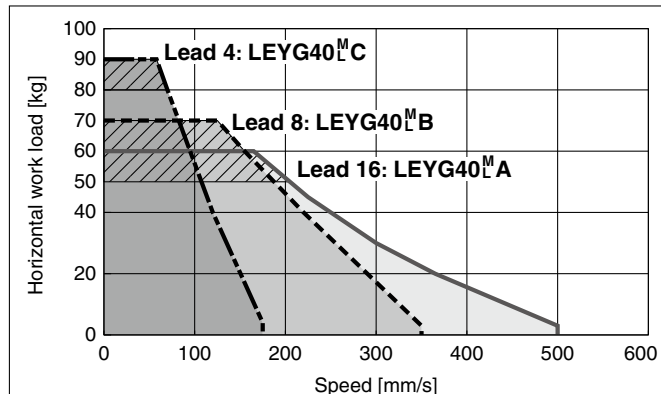
LEYG25<sup>M</sup><sub>L</sub>□ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



LEYG32<sup>M</sup><sub>L</sub>□ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

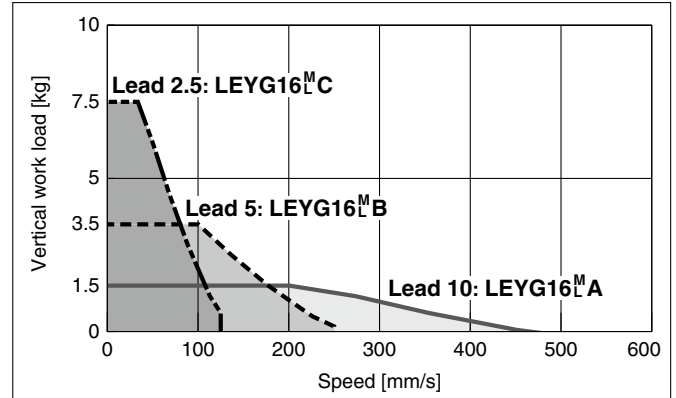


LEYG40<sup>M</sup><sub>L</sub>□ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

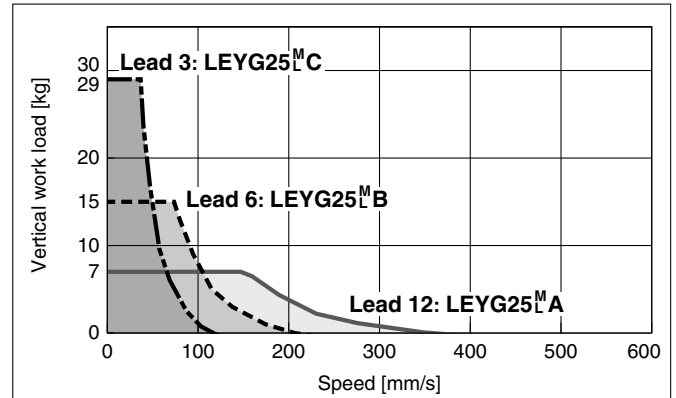


### Vertical

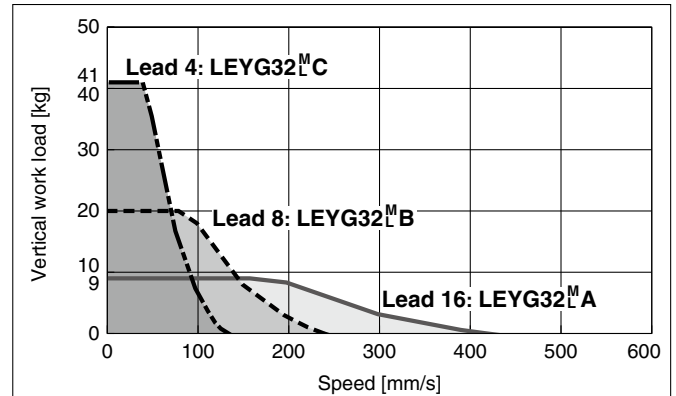
LEYG16<sup>M</sup><sub>L</sub>□



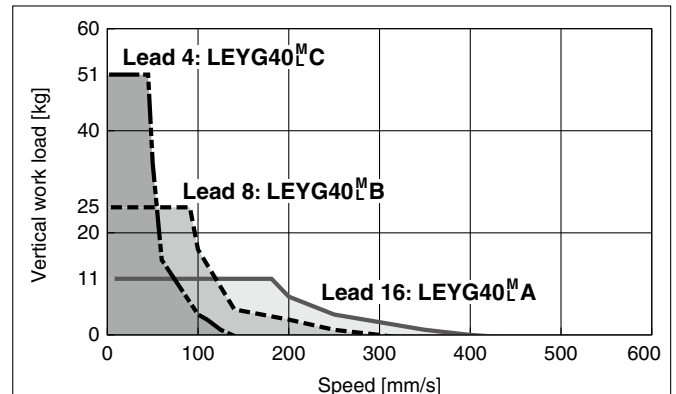
LEYG25<sup>M</sup><sub>L</sub>□



LEYG32<sup>M</sup><sub>L</sub>□



LEYG40<sup>M</sup><sub>L</sub>□



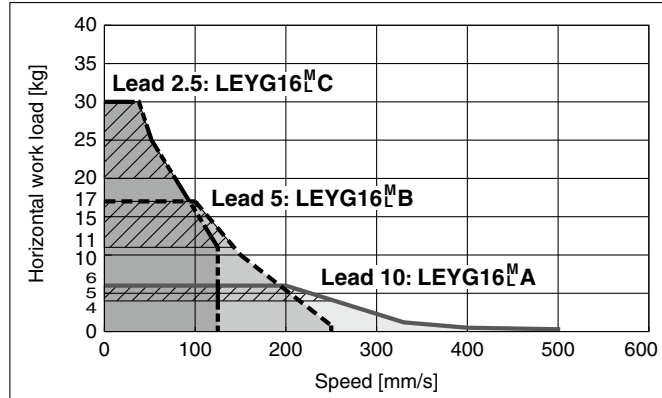
Refer to page 111 for the JXC□1, LECP1 and page 113 for the LECA6.

## Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) LECPA, JXC□<sup>2</sup>/<sub>3</sub>

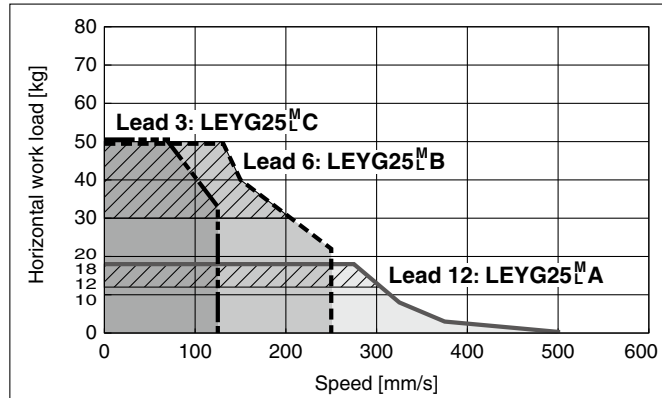
\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 109 and 110.

### Horizontal

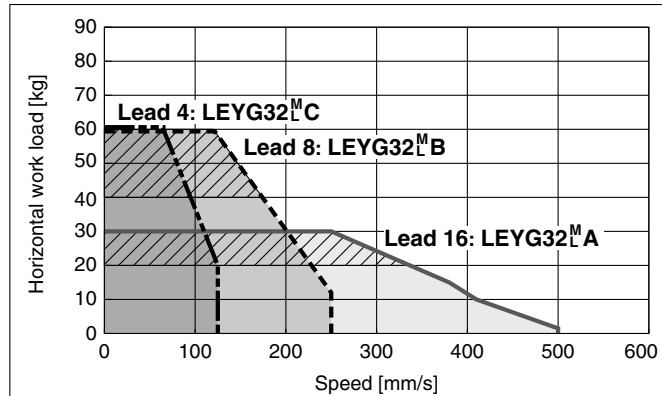
**LEYG16<sup>M</sup>□** for acceleration/deceleration: 2000 mm/s<sup>2</sup>



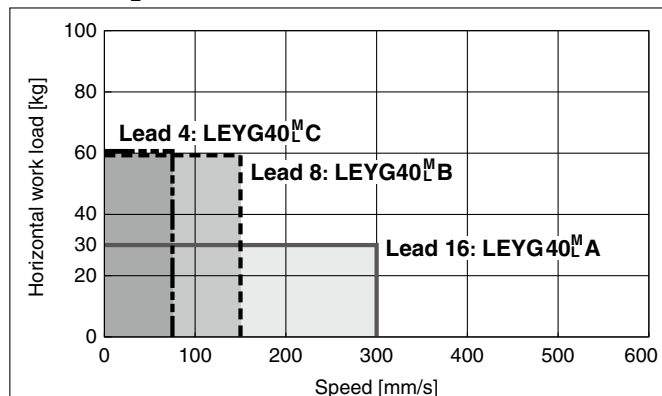
**LEYG25<sup>M</sup>□** for acceleration/deceleration: 2000 mm/s<sup>2</sup>



**LEYG32<sup>M</sup>□** for acceleration/deceleration: 2000 mm/s<sup>2</sup>

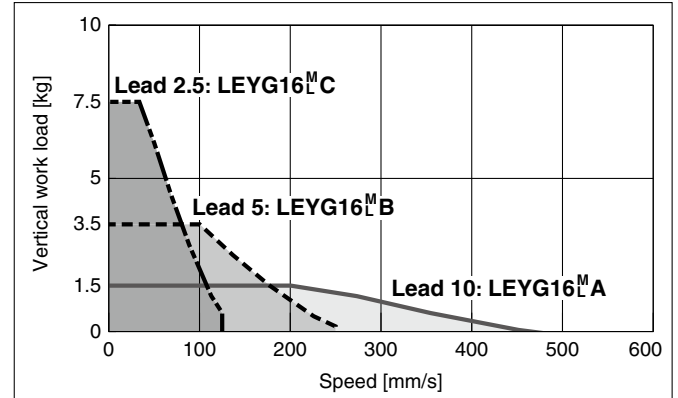


**LEYG40<sup>M</sup>□**

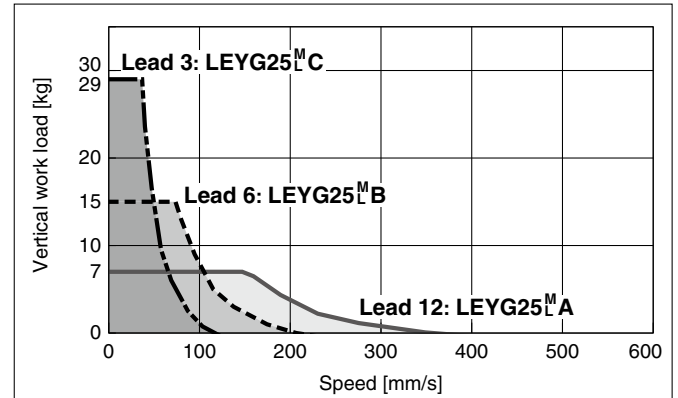


### Vertical

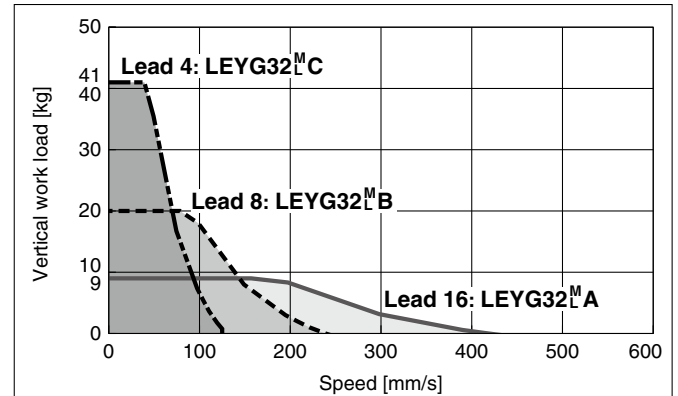
**LEYG16<sup>M</sup>□**



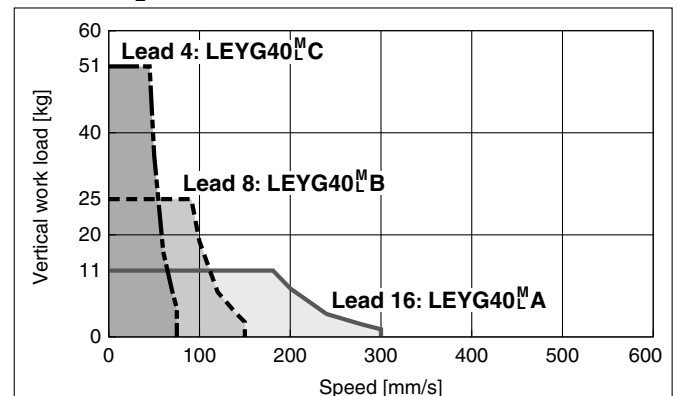
**LEYG25<sup>M</sup>□**



**LEYG32<sup>M</sup>□**



**LEYG40<sup>M</sup>□**



# LEYG Series

Step Motor (Servo/24 VDC)

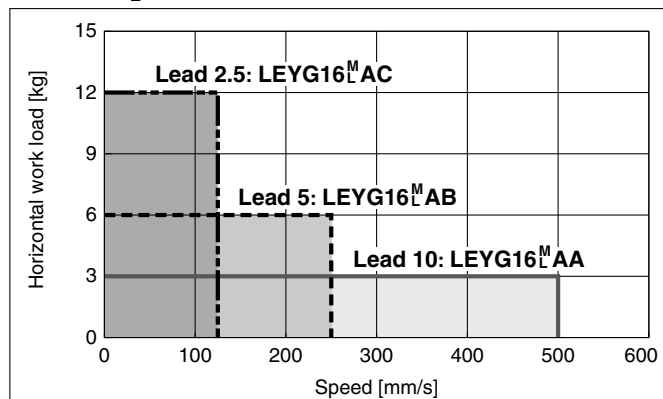
Servo Motor (24 VDC)

Refer to page 111 for the JXC□1, LECP1 and page 112 for the LECPA, JXC□2.

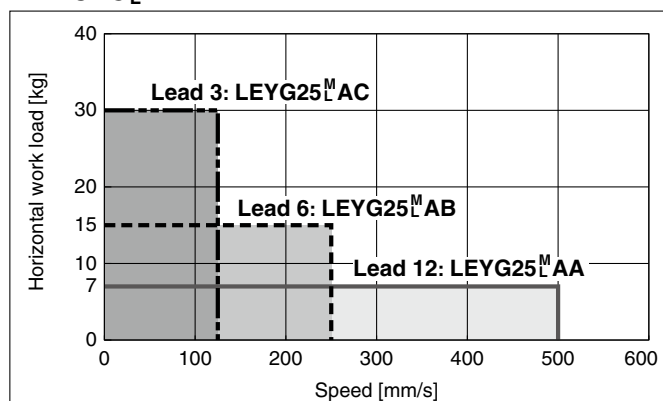
## Speed-Work Load Graph (Guide) For Servo Motor (24 VDC) LECA6

### Horizontal

#### LEYG16<sup>M</sup>□A

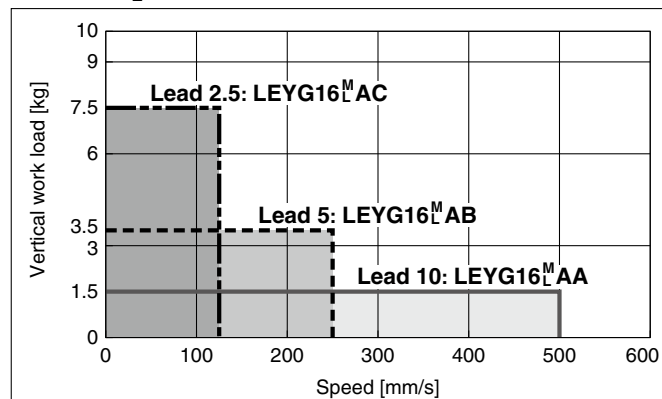


#### LEYG25<sup>M</sup>□A

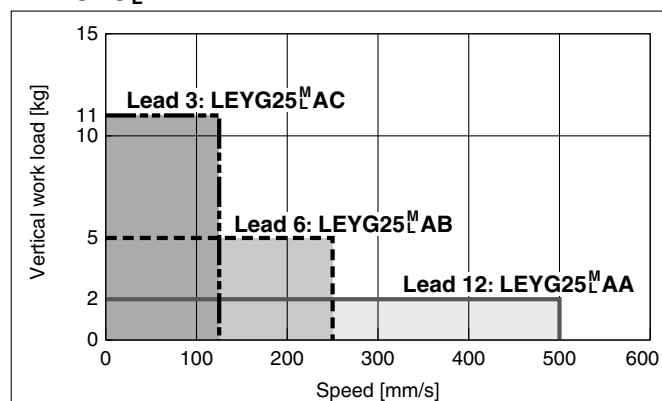


### Vertical

#### LEYG16<sup>M</sup>□A



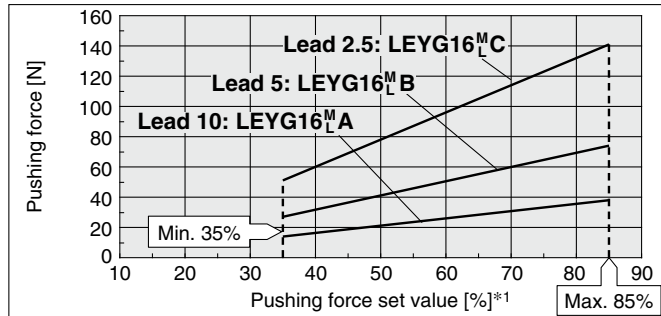
#### LEYG25<sup>M</sup>□A



## Force Conversion Graph (Guide)

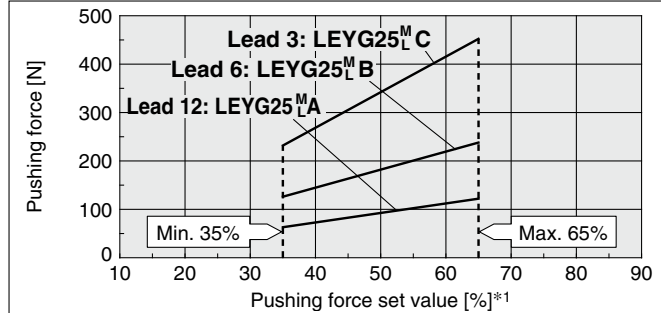
### Step Motor (Servo/24 VDC)

#### LEYG16<sup>M</sup><sub>L</sub>□



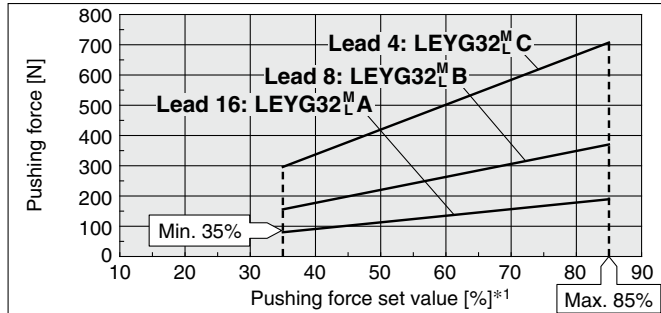
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 25°C or less        | 85 or less                  | 100            | —                             |
| 40°C                | 40 or less                  | 100            | —                             |
|                     | 50                          | 70             | 12 or less                    |
|                     | 70                          | 20             | 1.3 or less                   |
|                     | 85                          | 15             | 0.8 or less                   |

#### LEYG25<sup>M</sup><sub>L</sub>□



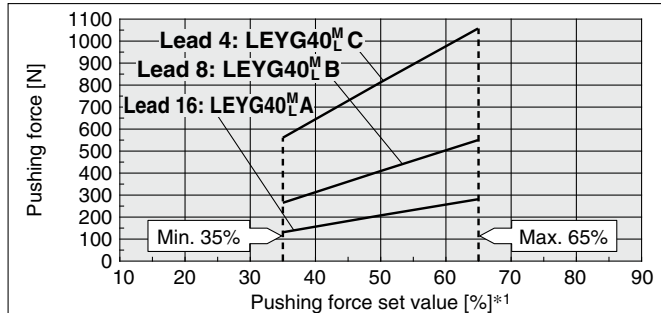
| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 65 or less                  | 100            | —                             |

#### LEYG32<sup>M</sup><sub>L</sub>□



| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 25°C or less        | 85 or less                  | 100            | —                             |
| 40°C                | 65 or less                  | 100            | —                             |
|                     | 85                          | 50             | 15 or less                    |

#### LEYG40<sup>M</sup><sub>L</sub>□

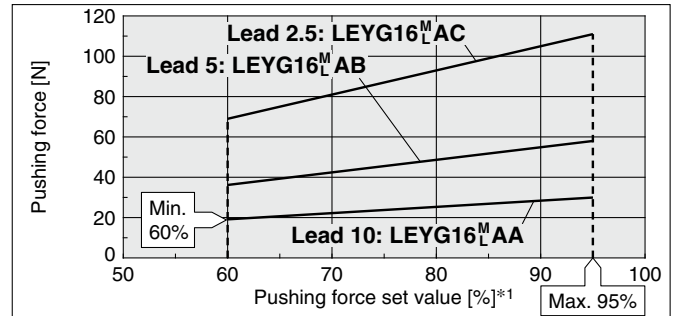


| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 65 or less                  | 100            | —                             |

\*1 Set values for the controller

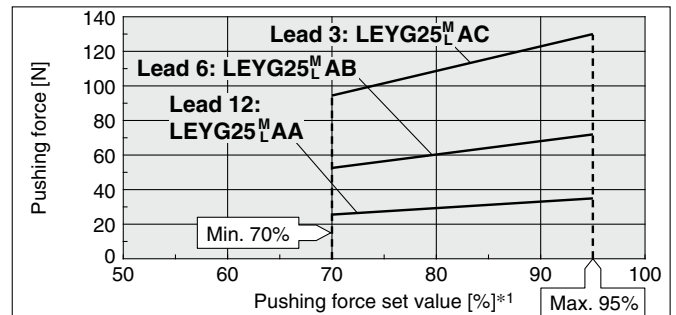
### Servo Motor (24 VDC)

#### LEYG16<sup>M</sup><sub>L</sub>A□



| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 95 or less                  | 100            | —                             |

#### LEYG25<sup>M</sup><sub>L</sub>A□



| Ambient temperature | Pushing force set value [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-----------------------------|----------------|-------------------------------|
| 40°C or less        | 95 or less                  | 100            | —                             |

### <Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

| Model                              | Lead  | Pushing speed [mm/s] | Pushing force (Setting input value) | Model                               | Lead  | Pushing speed [mm/s] | Pushing force (Setting input value) |
|------------------------------------|-------|----------------------|-------------------------------------|-------------------------------------|-------|----------------------|-------------------------------------|
| LEYG16 <sup>M</sup> <sub>L</sub> □ | A/B/C | 21 to 50             | 60 to 85%                           | LEYG16 <sup>M</sup> <sub>L</sub> A□ | A/B/C | 21 to 50             | 80 to 95%                           |
| LEYG25 <sup>M</sup> <sub>L</sub> □ | A/B/C | 21 to 35             | 50 to 65%                           | LEYG25 <sup>M</sup> <sub>L</sub> A□ | A/B/C | 21 to 35             | 80 to 95%                           |
| LEYG32 <sup>M</sup> <sub>L</sub> □ | A     | 24 to 30             | 60 to 85%                           | LEYG40 <sup>M</sup> <sub>L</sub> □  | A     | 24 to 30             | 50 to 65%                           |
|                                    | B/C   | 21 to 30             |                                     |                                     | B/C   | 21 to 30             |                                     |

There is a limit to the pushing force in relation to the pushing speed. If the product is operated outside of the range (low pushing force), the completion signal [INP] may be output before the pushing operation has been completed (during the moving operation). If operating with the pushing speed below the min. speed, please check for operating problems before using the product.

### <Set Values for Vertical Upward Transfer Pushing Operations>

For vertical loads (upward), set the pushing force to the max. value shown below and operate at the work load or less.

| Model          | LEYG16 <sup>M</sup> <sub>L</sub> □ | LEYG25 <sup>M</sup> <sub>L</sub> □ | LEYG32 <sup>M</sup> <sub>L</sub> □ | LEYG40 <sup>M</sup> <sub>L</sub> □ | LEYG16 <sup>M</sup> <sub>L</sub> A□ | LEYG25 <sup>M</sup> <sub>L</sub> A□ |
|----------------|------------------------------------|------------------------------------|------------------------------------|------------------------------------|-------------------------------------|-------------------------------------|
| Lead           | A B C                              | A B C                              | A B C                              | A B C                              | A B C                               | A B C                               |
| Work load [kg] | 0.5 1 2.5 1.5 4 9                  | 2.5 7 16                           | 5 12 26                            | 0.5 1 2.5 0.5 1.5 4                |                                     |                                     |
| Pushing force  | 85%                                | 65%                                | 85%                                | 65%                                | 95%                                 | 95%                                 |

# Model Selection

LEYG Series ▶ p. 139

LECY Series ▶ p. 147



## Moment Load Graph

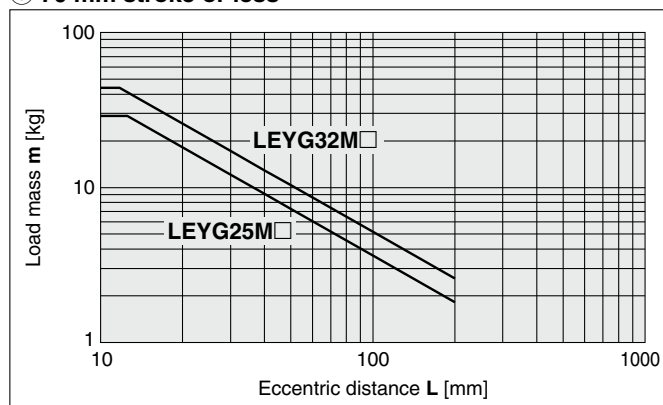
### Selection conditions

| Mounting position |                      | Vertical                         | Horizontal |             |
|-------------------|----------------------|----------------------------------|------------|-------------|
|                   |                      |                                  |            |             |
| Max. speed [mm/s] |                      | “Speed–Vertical Work Load Graph” |            |             |
| Bearing           | Sliding bearing      | Graphs ①, ②                      |            | 200 or less |
|                   | Ball bushing bearing | Graphs ③, ④                      |            | Over 200    |
|                   |                      | Graphs ⑤, ⑥*1                    |            | Graphs ⑦, ⑧ |
|                   |                      | Graphs ⑨, ⑩                      |            | Graphs ⑪, ⑫ |

\*1 For the sliding bearing type, the speed is restricted with a horizontal/moment load.

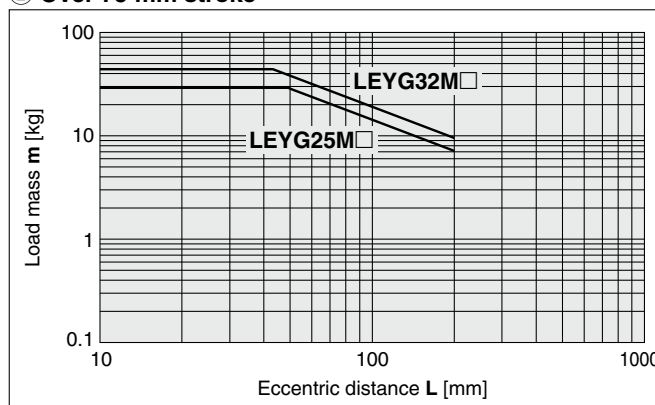
### Vertical Mounting, Sliding Bearing

#### ① 70 mm stroke or less



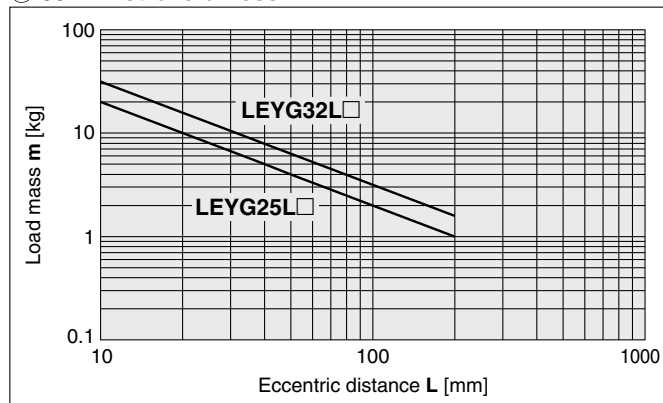
\* The limit of vertical load mass varies depending on “lead” and “speed.”  
Check the “Speed–Vertical Work Load Graph” on page 117.

#### ② Over 75 mm stroke



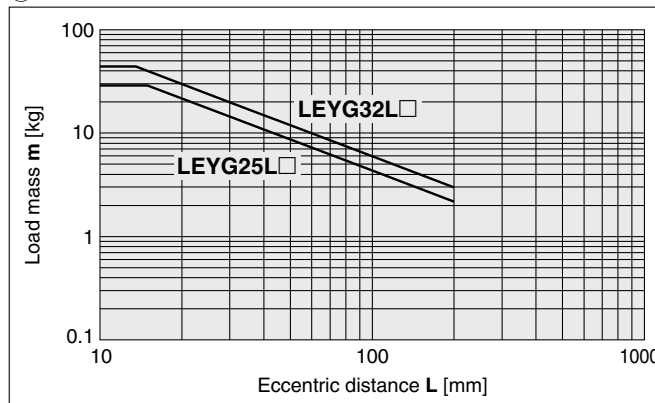
### Vertical Mounting, Ball Bushing Bearing

#### ③ 35 mm stroke or less



\* The limit of vertical load mass varies depending on “lead” and “speed.”  
Check the “Speed–Vertical Work Load Graph” on page 117.

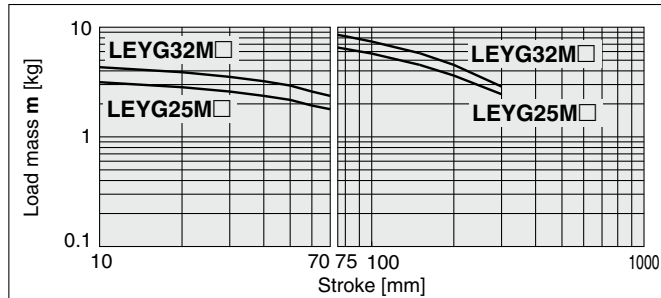
#### ④ Over 40 mm stroke



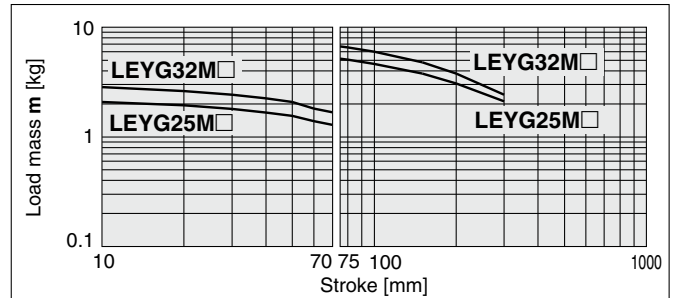
## Moment Load Graph

### Horizontal Mounting, Sliding Bearing

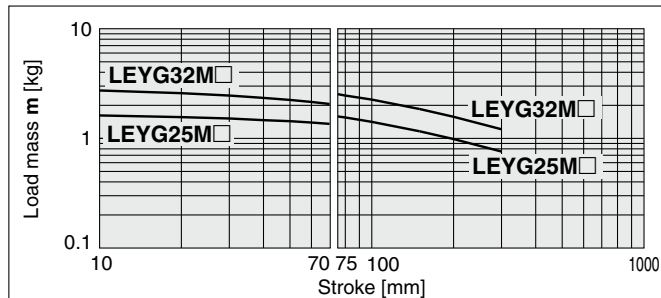
⑤ L = 50 mm Max. speed = 200 mm/s or less



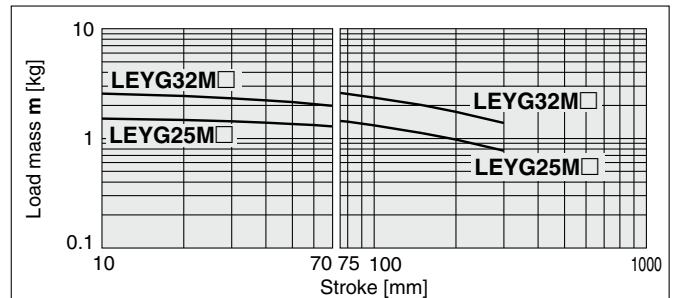
⑥ L = 100 mm Max. speed = 200 mm/s or less



⑦ L = 50 mm Max. speed = Over 200 mm/s

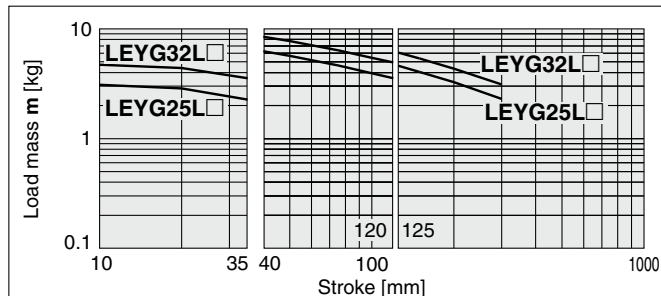


⑧ L = 100 mm Max. speed = Over 200 mm/s

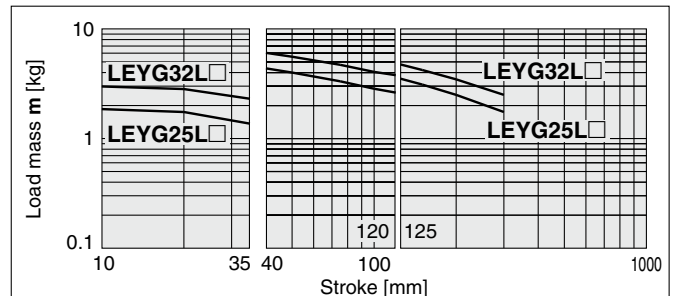


### Horizontal Mounting, Ball Bushing Bearing

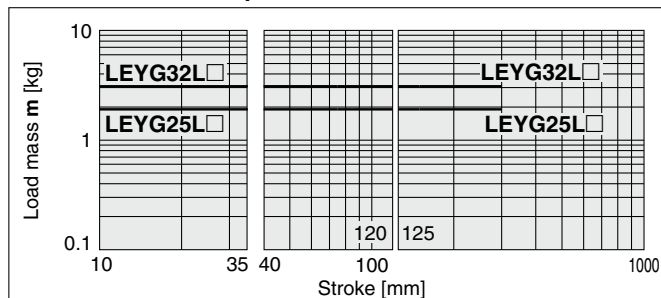
⑨ L = 50 mm Max. speed = 200 mm/s or less



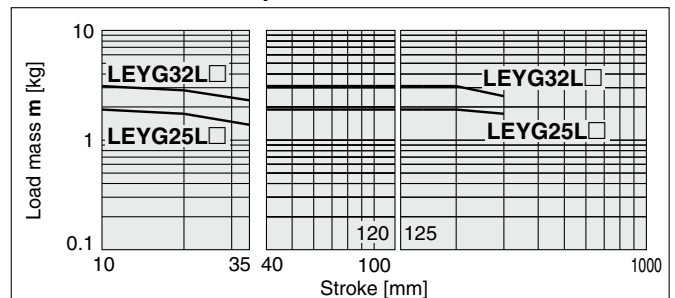
⑩ L = 100 mm Max. speed = 200 mm/s or less



⑪ L = 50 mm Max. speed = Over 200 mm/s

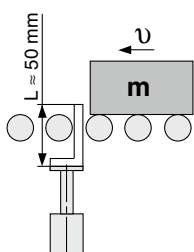


⑫ L = 100 mm Max. speed = Over 200 mm/s



## Operating Range when Used as a Stopper

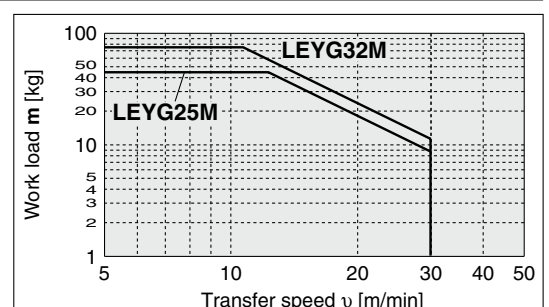
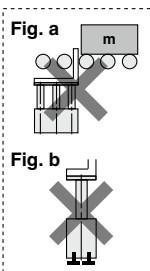
### LEYG□M (Sliding bearing)



#### ⚠ Caution

#### Handling Precautions

- \* When used as a stopper, select a model with a stroke of 30 mm or less.
- \* LEYG□L (ball bushing bearing) cannot be used as a stopper.
- \* Workpiece collision in series with guide rod cannot be permitted (Fig. a).
- \* The body should not be mounted on the end. It must be mounted on the top or bottom (Fig. b).

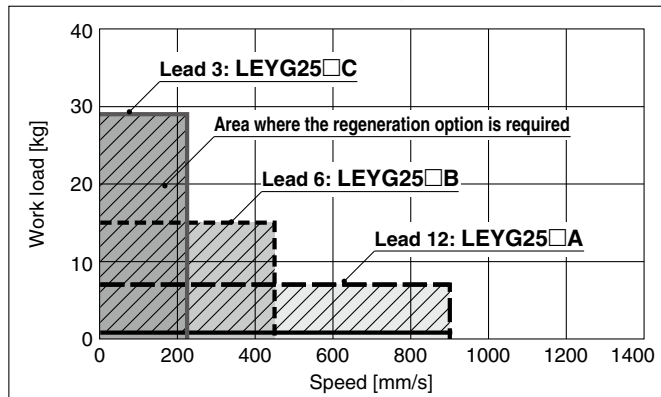




### Speed-Vertical Work Load Graph/Required Conditions for the Regeneration Option

\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 115 and 116.

#### LEYG25□S<sub>6</sub>/T6 (Motor mounting position: Parallel/In-line)



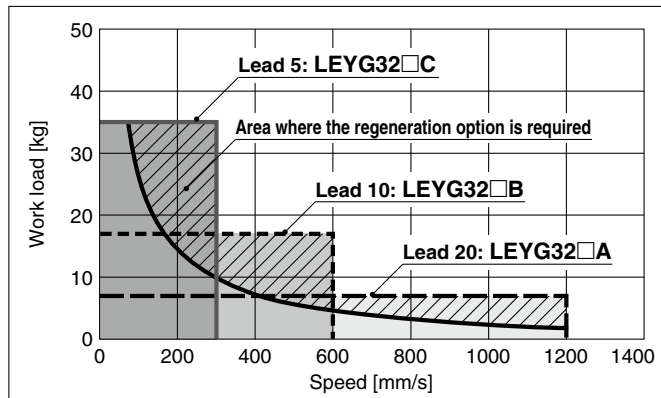
#### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

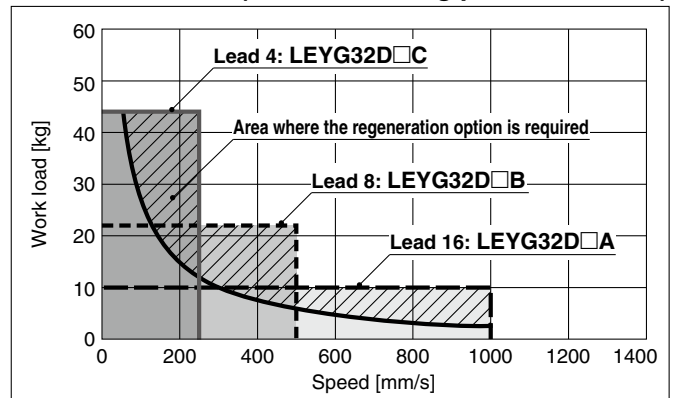
#### Regeneration Option Models

| Size    | Model         |
|---------|---------------|
| LEYG25□ | LEC-MR-RB-032 |
| LEYG32□ | LEC-MR-RB-032 |

#### LEYG32S<sub>7</sub>/T7 (Motor mounting position: Parallel)



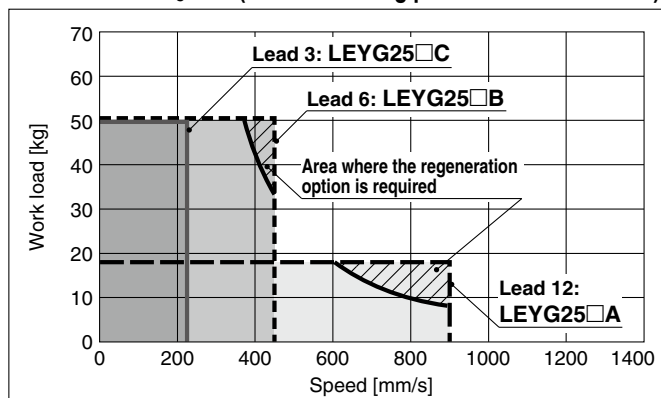
#### LEYG32DS<sub>7</sub>/T7 (Motor mounting position: In-line)



### Speed-Horizontal Work Load Graph/Required Conditions for the Regeneration Option

\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 115 and 116.

#### LEYG25□S<sub>6</sub>/T6 (Motor mounting position: Parallel/In-line)



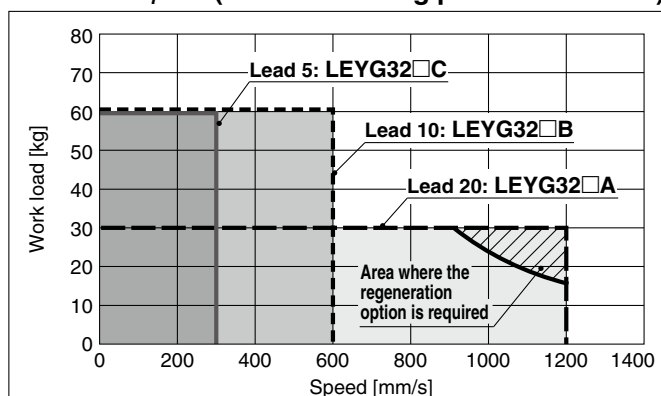
#### Required conditions for the regeneration option

\* The regeneration option is required when using the product above the regeneration line in the graph. (It must be ordered separately.)

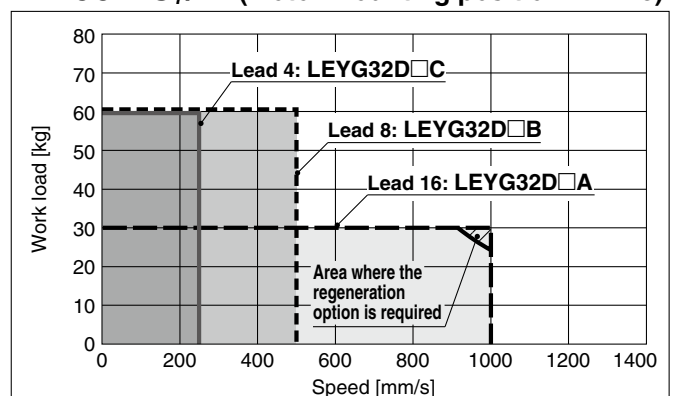
#### Regeneration Option Models

| Size    | Model         |
|---------|---------------|
| LEYG25□ | LEC-MR-RB-032 |
| LEYG32□ | LEC-MR-RB-032 |

#### LEYG32S<sub>7</sub>/T7 (Motor mounting position: Parallel)

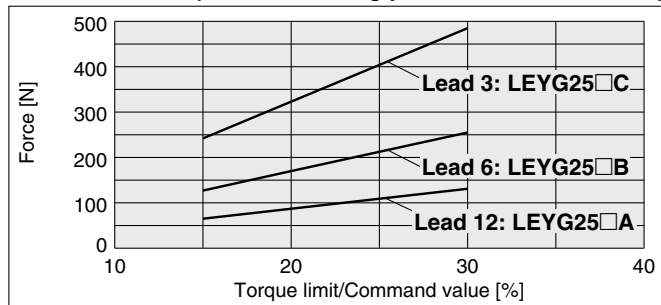


#### LEYG32DS<sub>7</sub>/T7 (Motor mounting position: In-line)



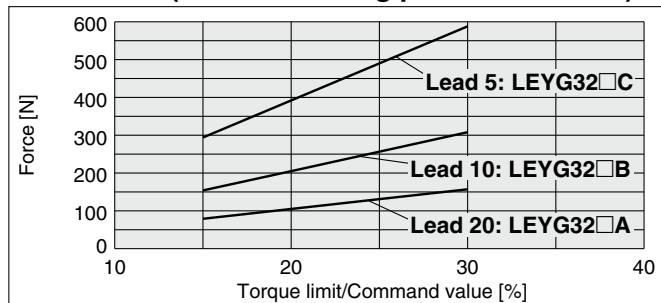
## Force Conversion Graph: LECSA, LECSB, LECS, LECS

### LEYG25□S<sub>6</sub><sup>2</sup> (Motor mounting position: Parallel/In-line)



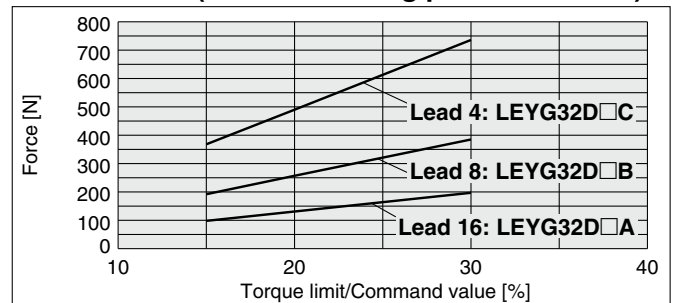
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |

### LEYG32S<sub>7</sub><sup>3</sup> (Motor mounting position: Parallel)



| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |

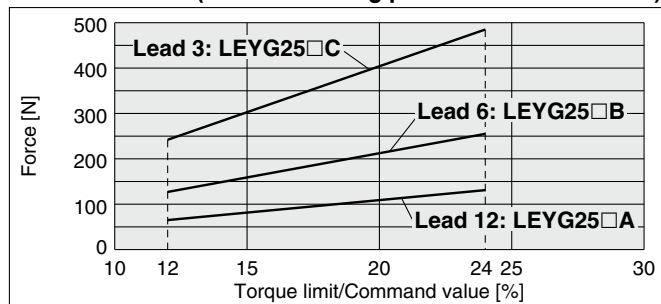
### LEYG32DS<sub>7</sub><sup>3</sup> (Motor mounting position: In-line)



| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 25 or less                     | 100            | —                             |
| 30                             | 60             | 1.5 or less                   |

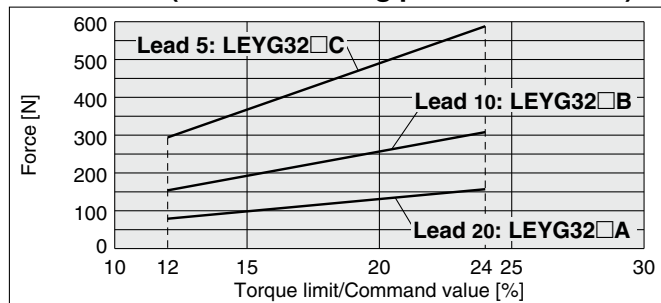
## Force Conversion Graph: LECS-T

### LEYG25□T<sub>6</sub> (Motor mounting position: Parallel/In-line)



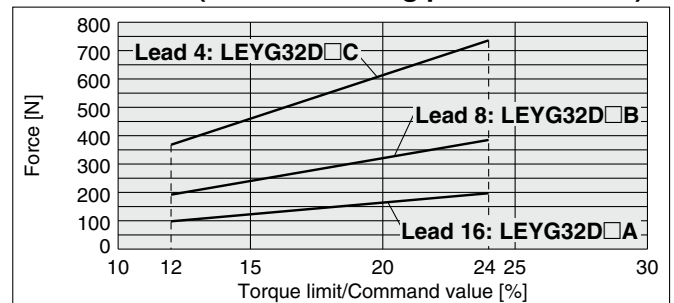
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 20 or less                     | 100            | —                             |
| 24                             | 60             | 1.5 or less                   |

### LEYG32T<sub>7</sub> (Motor mounting position: Parallel)



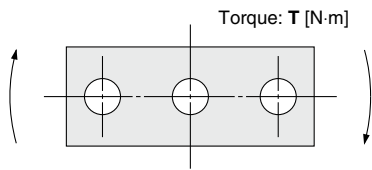
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 20 or less                     | 100            | —                             |
| 24                             | 60             | 1.5 or less                   |

### LEYG32DT<sub>7</sub> (Motor mounting position: In-line)



| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 20 or less                     | 100            | —                             |
| 24                             | 60             | 1.5 or less                   |

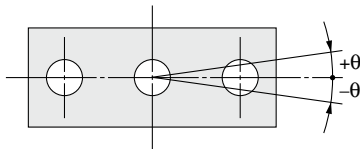
## Allowable Rotational Torque of Plate



T [N·m]

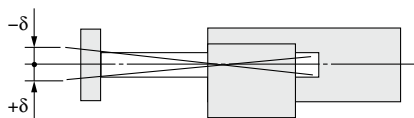
| Model   | Stroke [mm] |      |      |      |      |
|---------|-------------|------|------|------|------|
|         | 30          | 50   | 100  | 200  | 300  |
| LEYG16M | 0.70        | 0.57 | 1.05 | 0.56 | —    |
| LEYG16L | 0.82        | 1.48 | 0.97 | 0.57 | —    |
| LEYG25M | 1.56        | 1.29 | 3.50 | 2.18 | 1.36 |
| LEYG25L | 1.52        | 3.57 | 2.47 | 2.05 | 1.44 |
| LEYG32M | 2.55        | 2.09 | 5.39 | 3.26 | 1.88 |
| LEYG32L | 2.80        | 5.76 | 4.05 | 3.23 | 2.32 |
| LEYG40M | 2.55        | 2.09 | 5.39 | 3.26 | 1.88 |
| LEYG40L | 2.80        | 5.76 | 4.05 | 3.23 | 2.32 |

## Non-rotating Accuracy of Plate



| Size | Non-rotating accuracy $\theta$ |        |
|------|--------------------------------|--------|
|      | LEYG□M                         | LEYG□L |
| 16   | 0.06°                          | 0.05°  |
| 25   |                                | 0.04°  |
| 32   | 0.05°                          |        |
| 40   |                                |        |

## Plate Displacement: $\delta$



[mm]

| Model   | Stroke [mm] |       |       |       |       |
|---------|-------------|-------|-------|-------|-------|
|         | 30          | 50    | 100   | 200   | 300   |
| LEYG16M | ±0.20       | ±0.25 | ±0.24 | ±0.27 | —     |
| LEYG16L | ±0.13       | ±0.12 | ±0.17 | ±0.19 | —     |
| LEYG25M | ±0.26       | ±0.31 | ±0.25 | ±0.38 | ±0.36 |
| LEYG25L | ±0.13       | ±0.13 | ±0.17 | ±0.20 | ±0.23 |
| LEYG32M | ±0.23       | ±0.29 | ±0.23 | ±0.36 | ±0.34 |
| LEYG32L | ±0.11       | ±0.11 | ±0.15 | ±0.19 | ±0.22 |
| LEYG40M | ±0.23       | ±0.29 | ±0.23 | ±0.36 | ±0.34 |
| LEYG40L | ±0.11       | ±0.11 | ±0.15 | ±0.19 | ±0.22 |

\* The values without a load are shown.

# Model Selection

LEYG Series ▶ p. 147

LECS Series ▶ p. 139



## Moment Load Graph

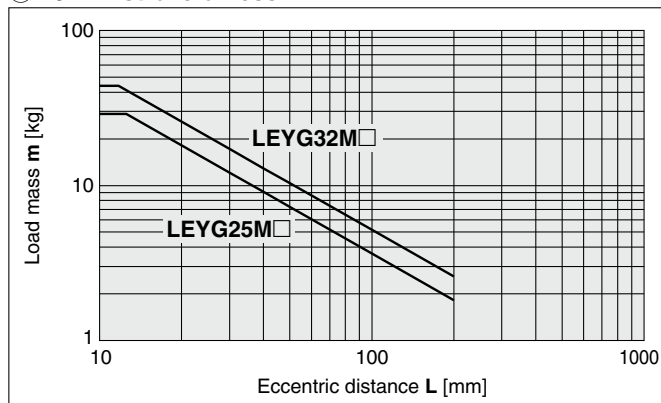
### Selection conditions

| Mounting position |                      | Vertical                | Horizontal |                           |
|-------------------|----------------------|-------------------------|------------|---------------------------|
|                   |                      |                         |            |                           |
| Max. speed [mm/s] |                      | "Speed-Work Load Graph" |            |                           |
| Bearing           | Sliding bearing      | Graphs ①, ②             |            | 200 or less               |
|                   | Ball bushing bearing | Graphs ③, ④             |            | Over 200                  |
|                   |                      |                         |            | Graphs ⑤, ⑥* <sup>1</sup> |
|                   |                      |                         |            | Graphs ⑦, ⑧               |
|                   |                      |                         |            | Graphs ⑨, ⑩               |
|                   |                      |                         |            | Graphs ⑪, ⑫               |

\*<sup>1</sup> For the sliding bearing type, the speed is restricted with a horizontal/moment load.

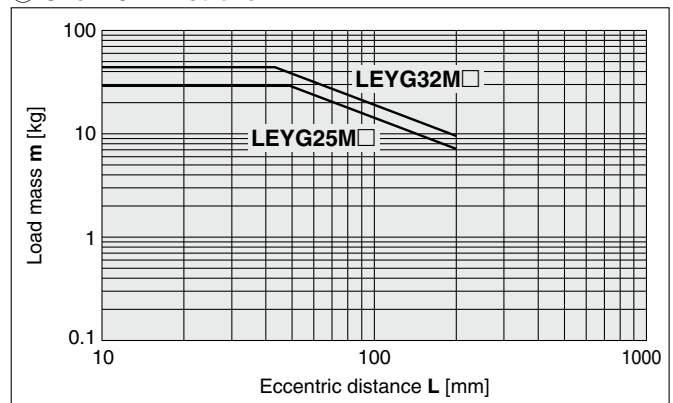
### Vertical Mounting, Sliding Bearing

#### ① 70 mm stroke or less



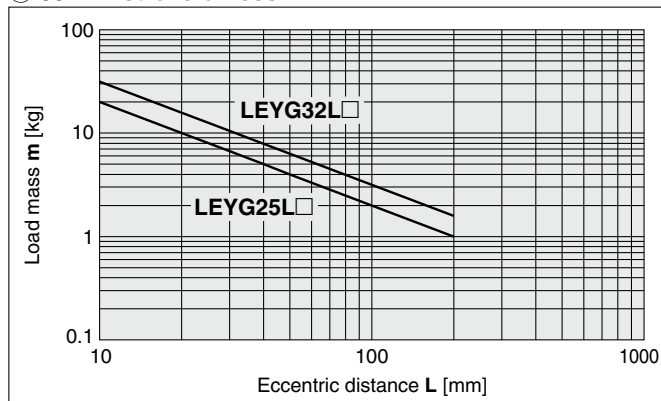
\* The limit of vertical load mass varies depending on "lead" and "speed."  
Check the "Speed-Work Load Graph" on page 122.

#### ② Over 75 mm stroke



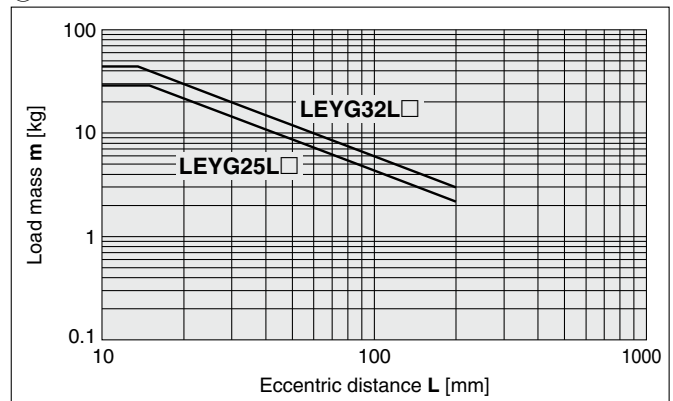
### Vertical Mounting, Ball Bushing Bearing

#### ③ 35 mm stroke or less



\* The limit of vertical load mass varies depending on "lead" and "speed."  
Check the "Speed-Work Load Graph" on page 122.

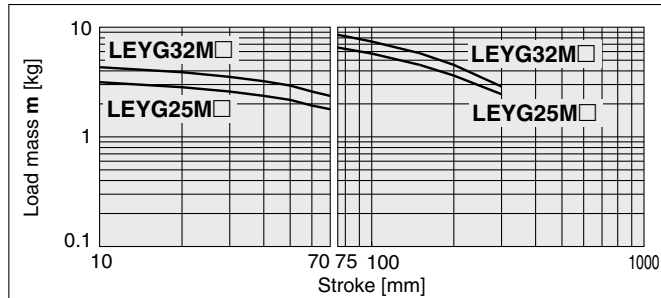
#### ④ Over 40 mm stroke



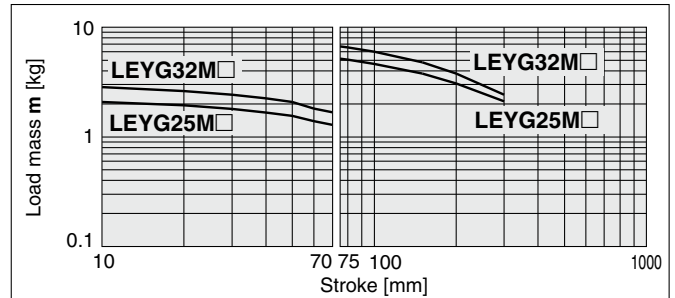
## Moment Load Graph

### Horizontal Mounting, Sliding Bearing

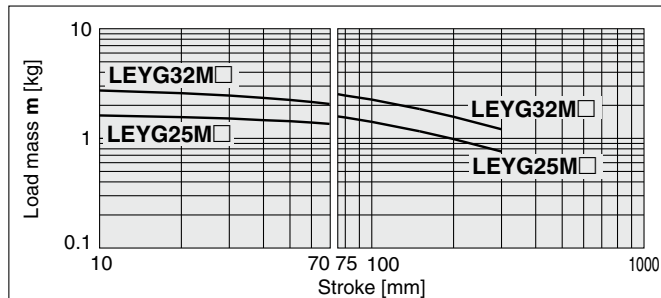
⑤ L = 50 mm Max. speed = 200 mm/s or less



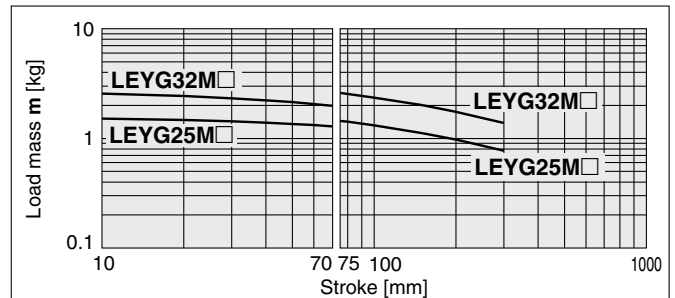
⑥ L = 100 mm Max. speed = 200 mm/s or less



⑦ L = 50 mm Max. speed = Over 200 mm/s

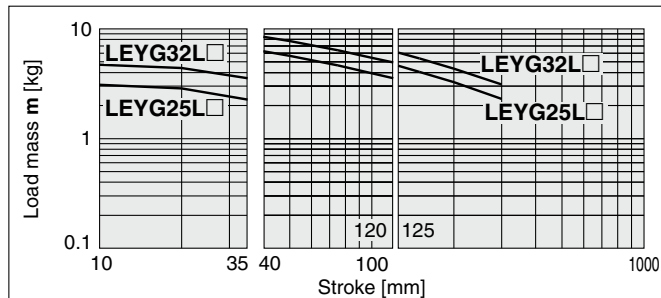


⑧ L = 100 mm Max. speed = Over 200 mm/s

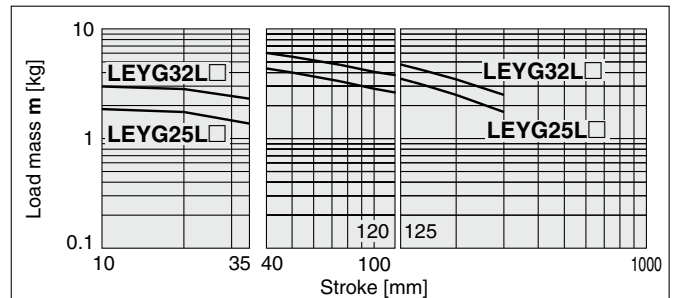


### Horizontal Mounting, Ball Bushing Bearing

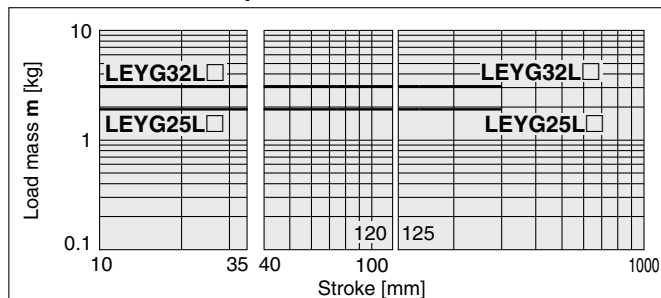
⑨ L = 50 mm Max. speed = 200 mm/s or less



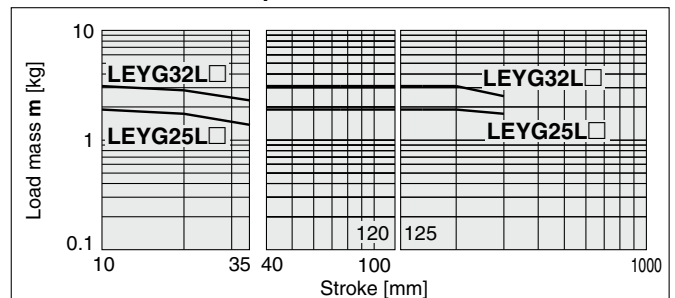
⑩ L = 100 mm Max. speed = 200 mm/s or less



⑪ L = 50 mm Max. speed = Over 200 mm/s

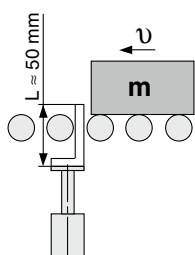


⑫ L = 100 mm Max. speed = Over 200 mm/s



## Operating Range when Used as a Stopper

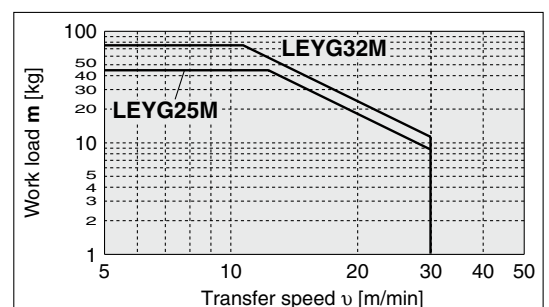
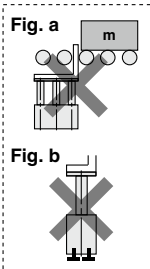
### LEYG□M (Sliding bearing)



#### ⚠ Caution

##### Handling Precautions

- \* When used as a stopper, select a model with a stroke of 30 mm or less.
- \* LEYG□L (ball bushing bearing) cannot be used as a stopper.
- \* Workpiece collision in series with guide rod cannot be permitted (Fig. a).
- \* The body should not be mounted on the end. It must be mounted on the top or bottom (Fig. b).

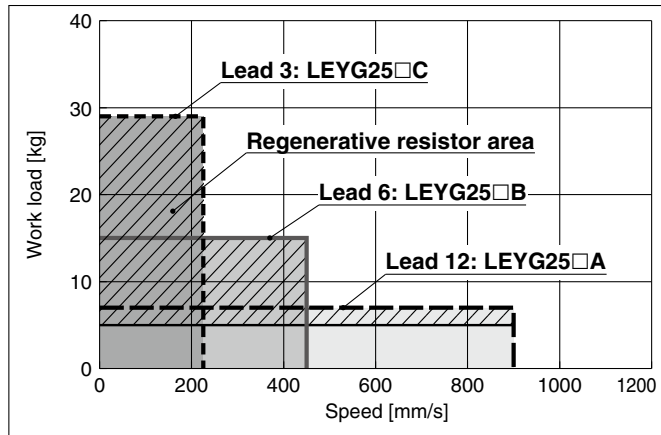


\* These graphs show the work load when the external guide is used together. When using the LEYG alone, refer to pages 120 and 121.

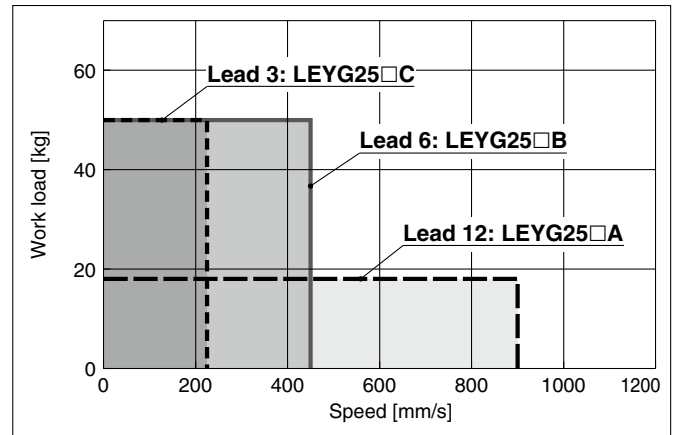
## Speed-Work Load Graph/Required Conditions for the Regenerative Resistor (Guide)

### LEYG25□V6 (Motor mounting position: Parallel/In-line)

#### Vertical

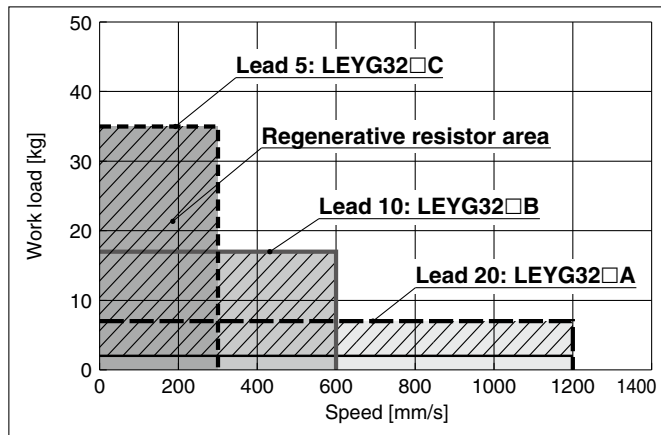


#### Horizontal

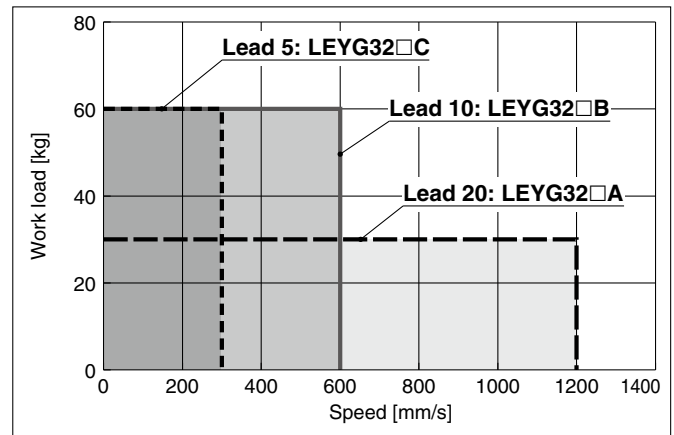


### LEYG32V7 (Motor mounting position: Parallel)

#### Vertical

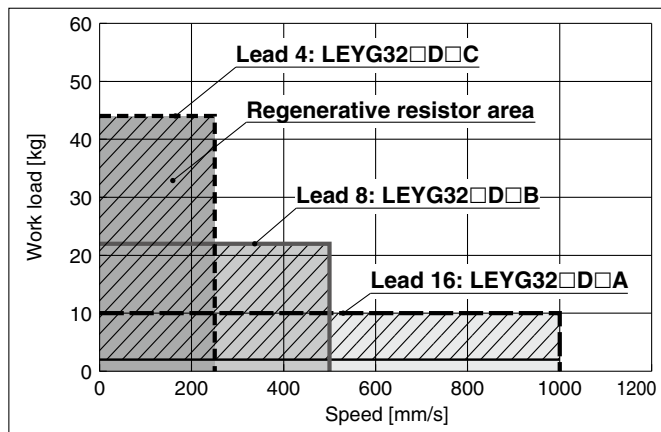


#### Horizontal

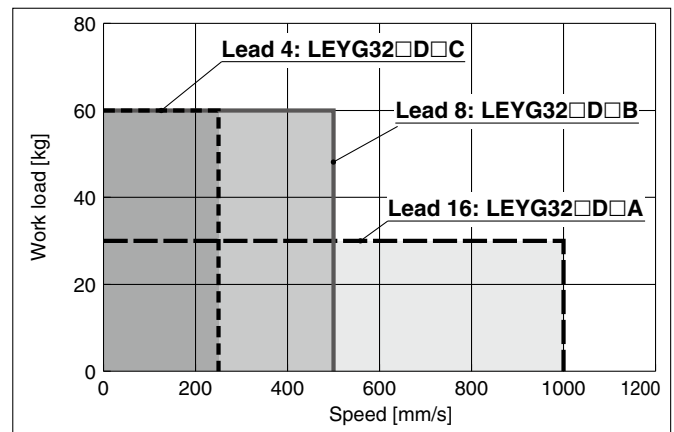


### LEYG32DV7 (Motor mounting position: In-line)

#### Vertical



#### Horizontal



#### Regenerative resistor area

- \* When using the actuator in the regenerative resistor area, download the "AC servo drive capacity selection program/SigmaJunmaSize+" from the SMC website. Then, calculate the necessary regenerative resistor capacity to prepare an appropriate external regenerative resistor.
- \* The regenerative resistor should be provided by the customer.

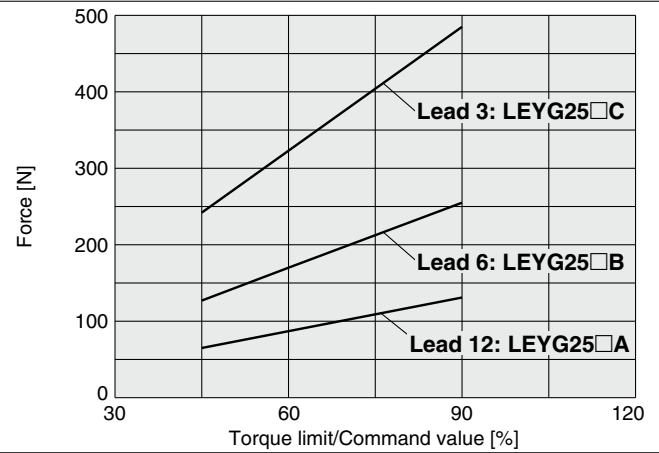
#### Applicable Motors/Drivers

| Model   | Applicable model |                          |
|---------|------------------|--------------------------|
|         | Motor            | Servopack (SMC driver)   |
| LEYG25□ | SGMJV-01A3A      | SGDV-R90A11□ (LECYM2-V5) |
|         |                  | SGDV-R90A21□ (LECYU2-V5) |
| LEYG32□ | SGMJV-02A3A      | SGDV-1R6A11□ (LECYM2-V7) |
|         |                  | SGDV-1R6A21□ (LECYU2-V7) |



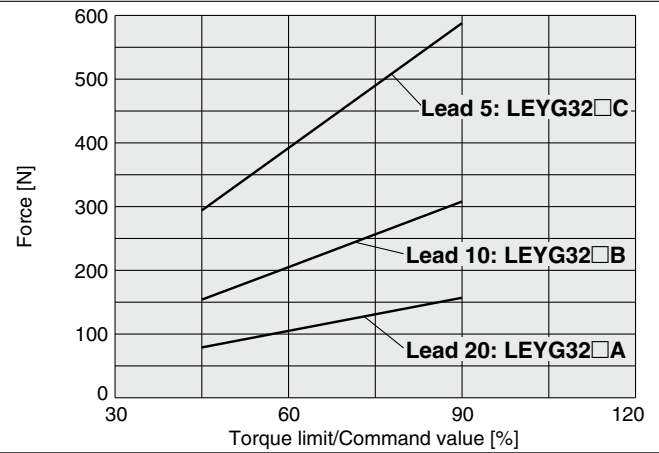
Force Conversion Graph

LEYG25□V6 (Motor mounting position: Parallel/In-line)



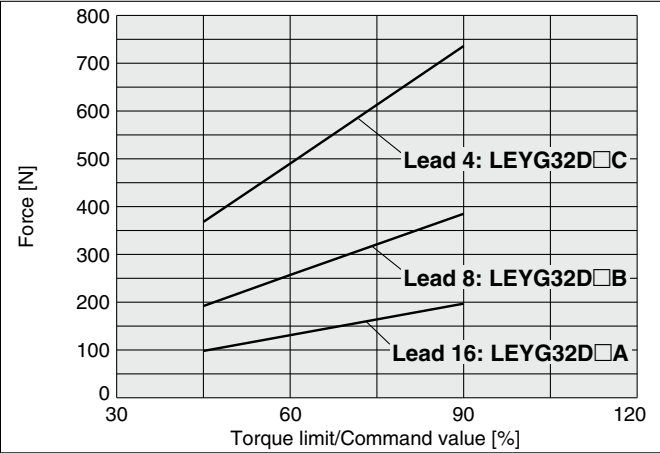
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 75 or less                     | 100            | —                             |
| 90                             | 60             | 1.5 or less                   |

LEYG32□V7 (Motor mounting position: Parallel)



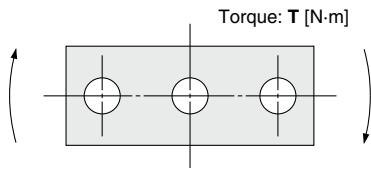
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 75 or less                     | 100            | —                             |
| 90                             | 60             | 1.5 or less                   |

LEYG32DV7 (Motor mounting position: In-line)



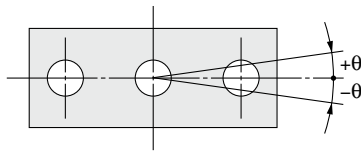
| Torque limit/Command value [%] | Duty ratio [%] | Continuous pushing time [min] |
|--------------------------------|----------------|-------------------------------|
| 75 or less                     | 100            | —                             |
| 90                             | 60             | 1.5 or less                   |

## Allowable Rotational Torque of Plate: T



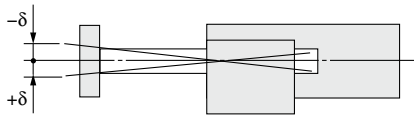
| Model   | Stroke [mm] |      |      |      |      | T [N·m] |
|---------|-------------|------|------|------|------|---------|
|         | 30          | 50   | 100  | 200  | 300  |         |
| LEYG25M | 1.56        | 1.29 | 3.50 | 2.18 | 1.36 |         |
| LEYG25L | 1.52        | 3.57 | 2.47 | 2.05 | 1.44 |         |
| LEYG32M | 2.55        | 2.09 | 5.39 | 3.26 | 1.88 |         |
| LEYG32L | 2.80        | 5.76 | 4.05 | 3.23 | 2.32 |         |

## Non-rotating Accuracy of Plate: $\theta$



| Size | LEYG□M           | LEYG□L           |
|------|------------------|------------------|
| 25   | $\pm 0.06^\circ$ | $\pm 0.04^\circ$ |
| 32   | $\pm 0.05^\circ$ |                  |

## Plate Displacement: $\delta$



| Model   | Stroke [mm] |            |            |            |            | [mm] |
|---------|-------------|------------|------------|------------|------------|------|
|         | 30          | 50         | 100        | 200        | 300        |      |
| LEYG25M | $\pm 0.26$  | $\pm 0.31$ | $\pm 0.25$ | $\pm 0.38$ | $\pm 0.36$ |      |
| LEYG25L | $\pm 0.13$  | $\pm 0.13$ | $\pm 0.17$ | $\pm 0.20$ | $\pm 0.23$ |      |
| LEYG32M | $\pm 0.23$  | $\pm 0.29$ | $\pm 0.23$ | $\pm 0.36$ | $\pm 0.34$ |      |
| LEYG32L | $\pm 0.11$  | $\pm 0.11$ | $\pm 0.15$ | $\pm 0.19$ | $\pm 0.22$ |      |

\* The values without a load are shown.

Model  
Selection

LEY

LEYG

LEY

LEYG

LEY-X7

LEY-X5

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC□

LECS□

LECY□

Specific Product  
Precautions

AC Servo Motor

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

# Electric Actuator Guide Rod Type

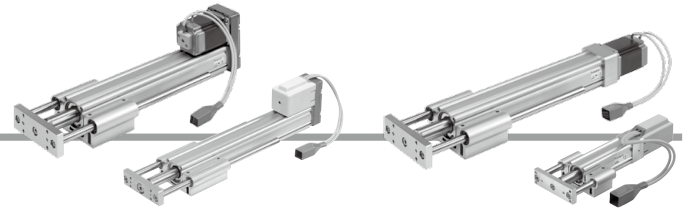
**LEYG Series** LEYG16, 25, 32, 40



\* For details, refer to page 307 and onward.



## How to Order

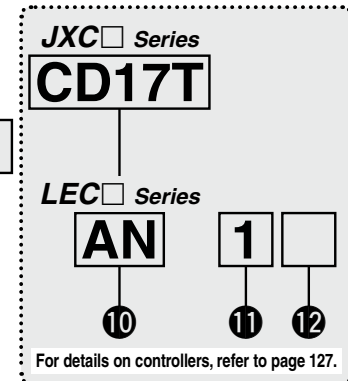


Motor mounting position:  
Parallel

Motor mounting position: In-line

LEYG **16** **M** **B** - **50** **S1**

1 2 3 4 5 6 7 8 9



### 1 Size

|    |
|----|
| 16 |
| 25 |
| 32 |
| 40 |

### 2 Bearing type\*1

|   |                      |
|---|----------------------|
| M | Sliding bearing      |
| L | Ball bushing bearing |

### 3 Motor mounting position

|     |                   |
|-----|-------------------|
| Nil | Top side parallel |
| D   | In-line           |

### 4 Motor type

| Symbol | Type                         | Applicable size |        |           | Compatible controllers/<br>drivers                                      |
|--------|------------------------------|-----------------|--------|-----------|-------------------------------------------------------------------------|
|        |                              | LEYG16          | LEYG25 | LEYG32/40 |                                                                         |
| Nil    | Step motor<br>(Servo/24 VDC) | ●               | ●      | ●         | JXC51 JXCD1 LECP1<br>JXC61 JXCL1 LECPA<br>JXCE1 JXCM1<br>JXC91<br>JXCP1 |
| A      | Servo motor<br>(24 VDC)      | ●               | ●      | —         | LECA6                                                                   |

### 5 Lead [mm]

| Symbol | LEYG16 | LEYG25 | LEYG32/40 |
|--------|--------|--------|-----------|
| A      | 10     | 12     | 16        |
| B      | 5      | 6      | 8         |
| C      | 2.5    | 3      | 4         |

### 6 Stroke\*2 \*3 [mm]

|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 300 | 300 |

\* For details, refer to the applicable stroke table below.

### 7 Motor option\*4

|     |                       |
|-----|-----------------------|
| Nil | Without option        |
| C   | With motor cover      |
| B   | With lock             |
| W   | With lock/motor cover |

### 8 Guide option\*5

|     |                                |
|-----|--------------------------------|
| Nil | Without option                 |
| F   | With grease retaining function |

### 9 Actuator cable type/length\*7

| Standard cable [m] |       | Robotic cable [m] |      |
|--------------------|-------|-------------------|------|
| Nil                | None  | R1                | 1.5  |
| S1                 | 1.5*9 | RA                | 10*6 |
| S3                 | 3*9   | R3                | 3    |
| S5                 | 5*9   | RB                | 15*6 |
|                    |       | R5                | 5    |
|                    |       | RC                | 20*6 |
|                    |       | R8                | 8*6  |

### Applicable Stroke Table\*2

| Model     | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | Manufacturable stroke range [mm] |
|-----------|-------------|----|----|-----|-----|-----|-----|-----|----------------------------------|
| LEYG16    |             | ●  | ●  | ●   | ●   | ●   | —   | —   | 10 to 200                        |
| LEYG25    |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | 15 to 300                        |
| LEYG32/40 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | 20 to 300                        |

●: Standard

For auto switches, refer to pages 105 to 107.

#### Use of auto switches for the guide rod type LEYG series

- Auto switches must be inserted from the front side with the rod (plate) sticking out.
- Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
- Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

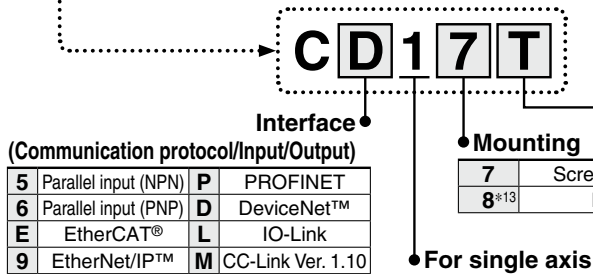
# Electric Actuator Guide Rod Type **LEYG Series**

Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

## JXC Series (For details, refer to page 127.)

### 10 Controller

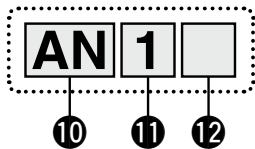
|       |                    |
|-------|--------------------|
| Nil   | Without controller |
| C□1□□ | With controller    |



### Communication plug connector, I/O cable\*14

| Symbol | Type                                       | Applicable interface                         |
|--------|--------------------------------------------|----------------------------------------------|
| Nil    | Without accessory                          | —                                            |
| S      | Straight type communication plug connector | DeviceNet™                                   |
| T      | T-branch type communication plug connector | CC-Link Ver. 1.10                            |
| 1      | I/O cable (1.5 m)                          | Parallel input (NPN)<br>Parallel input (PNP) |
| 3      | I/O cable (3 m)                            |                                              |
| 5      | I/O cable (5 m)                            |                                              |

## LEC Series (For details, refer to page 127.)



### 10 Controller/Driver type\*8

|     |                           |     |
|-----|---------------------------|-----|
| Nil | Without controller/driver |     |
| 6N  | LECA6                     | NPN |
| 6P  | (Step data input type)    | PNP |
| 1N  | LECP1*9                   | NPN |
| 1P  | (Programless type)        | PNP |
| AN  | LECPA*9 *10               | NPN |
| AP  | (Pulse input type)        | PNP |

### 11 I/O cable length\*11

|     |                                                         |
|-----|---------------------------------------------------------|
| Nil | Without cable<br>(Without communication plug connector) |
| 1   | 1.5 m                                                   |
| 3   | 3 m*12                                                  |
| 5   | 5 m*12                                                  |

### 12 Controller/Driver mounting

|     |                |
|-----|----------------|
| Nil | Screw mounting |
| D   | DIN rail*13    |



- \*1 When [M: Sliding bearing] is selected, the max. speed of lead [A] is 400 mm/s (at no-load, horizontal mounting). The speed is also restricted with a horizontal/moment load. Refer to the "Model Selection" on page 110.
- \*2 Please contact SMC for non-standard strokes as they are produced as special orders.
- \*3 There is a limit for mounting the size 32/40 top side parallel motor types and strokes of 50 mm or less. Refer to the dimensions.
- \*4 When "With lock" or "With lock/motor cover" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 16/40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
- \*5 Only available for size 25, 32, and 40 sliding bearings (Refer to the "Construction" on page 132.)
- \*6 Produced upon receipt of order (Robotic cable only)
- \*7 The standard cable should only be used on fixed parts.  
For use on moving parts, select the robotic cable.  
Refer to pages 258 and 259 if only the actuator cable is required.
- \*8 For details on controllers/drivers and compatible motors, refer to the compatible controllers/drivers on the next page.

- \*9 Only available for the motor type "Step motor"
- \*10 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 240 separately.
- \*11 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 224 (For LECA6), page 234 (For LECP1), or page 240 (For LECPA) if I/O cable is required.
- \*12 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector
- \*13 The DIN rail is not included. It must be ordered separately.
- \*14 Select "Nil" for anything other than DeviceNet™, CC-Link, or parallel input.  
Select "Nil," "S," or "T" for DeviceNet™ or CC-Link.  
Select "Nil," "1," "3," or "5" for parallel input.

## ⚠ Caution

### [CE-compliant products]

- EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.  
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 224 for the noise filter set. Refer to the LECA series Operation Manual for installation.

### [UL-compliant products (For the LEC series)]

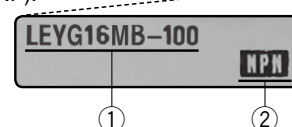
When compliance with UL is required, the electric actuator and controller/driver should be used with a UL1310 Class 2 power supply.

## The actuator and controller/driver are sold as a package.

Confirm that the combination of the controller/driver and actuator is correct.

### <Check the following before use.>

- Check the actuator label for the model number. This number should match that of the controller/driver.
- Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the Operation Manual for using the products. Please download it via our website: <https://www.smcworld.com>

# LEYG Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

## Compatible Controllers/Drivers

| Type                     | Step data input type                                                              | Step data input type                                                              | Programless type                                                                  | Pulse input type                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                          |  |  |  |  |
| Series                   | <b>JXC51<br/>JXC61</b>                                                            | <b>LECA6</b>                                                                      | <b>LECP1</b>                                                                      | <b>LECPA</b>                                                                       |
| Features                 | Parallel I/O                                                                      |                                                                                   | Capable of setting up operation (step data) without using a PC or teaching box    | Operation by pulse signals                                                         |
| Compatible motor         | Step motor (Servo/24 VDC)                                                         | Servo motor (24 VDC)                                                              | Step motor (Servo/24 VDC)                                                         |                                                                                    |
| Max. number of step data | 64 points                                                                         |                                                                                   | 14 points                                                                         | —                                                                                  |
| Power supply voltage     | 24 VDC                                                                            |                                                                                   |                                                                                   |                                                                                    |
| Reference page           | 211                                                                               | 218                                                                               | 229                                                                               | 235                                                                                |

| Type                     | EtherCAT® direct input type                                                         | EtherNet/IP™ direct input type                                                      | PROFINET direct input type                                                          | DeviceNet™ direct input type                                                         | IO-Link direct input type                                                             | CC-Link direct input type                                                             |
|--------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                          |  |  |  |  |  |  |
| Series                   | <b>JXCE1</b>                                                                        | <b>JXC91</b>                                                                        | <b>JXCP1</b>                                                                        | <b>JXCD1</b>                                                                         | <b>JXCL1</b>                                                                          | <b>JXCM1</b>                                                                          |
| Features                 | EtherCAT® direct input                                                              | EtherNet/IP™ direct input                                                           | PROFINET direct input                                                               | DeviceNet™ direct input                                                              | IO-Link direct input                                                                  | CC-Link direct input                                                                  |
| Compatible motor         | Step motor (Servo/24 VDC)                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Max. number of step data | 64 points                                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Power supply voltage     | 24 VDC                                                                              |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Reference page           | 241                                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |

|                                 |                |       |                                                |       |       |       |       |          |             |        |        |                |     |                                                |     |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|----------|-------------|--------|--------|----------------|-----|------------------------------------------------|-----|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       |          | Environment |        |        | AC Servo Motor |     | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |     | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61 | 25A-LEY     | LEY-X5 | LEY-X7 | LEYG           | LEY | LEYG                                           | LEY |                    |



## Specifications

### Step Motor (Servo/24 VDC)

| Model                                                         |                                                     |                                  |                                                           | LEYG16 <sup>M</sup> <sub>L</sub> |          |           | LEYG25 <sup>M</sup> <sub>L</sub> |            |            | LEYG32 <sup>M</sup> <sub>L</sub> |            |            | LEYG40 <sup>M</sup> <sub>L</sub> |            |             |
|---------------------------------------------------------------|-----------------------------------------------------|----------------------------------|-----------------------------------------------------------|----------------------------------|----------|-----------|----------------------------------|------------|------------|----------------------------------|------------|------------|----------------------------------|------------|-------------|
| Actuator specifications                                       | Work load<br>[kg] <sup>*1</sup>                     | Horizontal<br>(JXC□□1,<br>LECP1) | Acceleration/Deceleration<br>at 3000 [mm/s <sup>2</sup> ] | 6                                | 17       | 30        | 20                               | 40         | 60         | 30                               | 45         | 60         | 50                               | 60         | 80          |
|                                                               |                                                     |                                  | Acceleration/Deceleration<br>at 2000 [mm/s <sup>2</sup> ] | 10                               | 23       | 35        | 30                               | 55         | 70         | 40                               | 60         | 80         | 60                               | 70         | 90          |
|                                                               |                                                     | Horizontal<br>(LECPA,<br>JXC□□3) | Acceleration/Deceleration<br>at 3000 [mm/s <sup>2</sup> ] | 4                                | 11       | 20        | 12                               | 30         | 30         | 20                               | 40         | 40         | 30                               | 60         | 60          |
|                                                               |                                                     |                                  | Acceleration/Deceleration<br>at 2000 [mm/s <sup>2</sup> ] | 6                                | 17       | 30        | 18                               | 50         | 50         | 30                               | 60         | 60         | —                                | —          | —           |
|                                                               |                                                     | Vertical                         | Acceleration/Deceleration<br>at 3000 [mm/s <sup>2</sup> ] | 1.5                              | 3.5      | 7.5       | 7                                | 15         | 29         | 9                                | 20         | 41         | 11                               | 25         | 51          |
|                                                               | Pushing force [N] <sup>*2 *3 *4</sup>               |                                  |                                                           | 14 to 38                         | 27 to 74 | 51 to 141 | 63 to 122                        | 126 to 238 | 232 to 452 | 80 to 189                        | 156 to 370 | 296 to 707 | 132 to 283                       | 266 to 553 | 562 to 1058 |
|                                                               | Speed<br>[mm/s] <sup>*4</sup>                       | JXC□□1/LECP1                     | 15 to 500                                                 | 8 to 250                         | 4 to 125 | 18 to 500 | 9 to 250                         | 5 to 125   | 24 to 500  | 12 to 300                        | 6 to 150   | 24 to 500  | 12 to 350                        | 6 to 175   |             |
|                                                               |                                                     | LECPA/JXC□□3                     |                                                           |                                  |          |           |                                  |            |            | 12 to 250                        | 6 to 125   | 24 to 300  | 12 to 150                        | 6 to 75    |             |
|                                                               | Max. acceleration/deceleration [mm/s <sup>2</sup> ] |                                  |                                                           | 3000                             |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
|                                                               | Pushing speed [mm/s] <sup>*5</sup>                  |                                  |                                                           | 50 or less                       |          |           | 35 or less                       |            |            | 30 or less                       |            |            | 30 or less                       |            |             |
|                                                               | Positioning repeatability [mm]                      |                                  |                                                           | ±0.02                            |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
| Lost motion [mm] <sup>*6</sup>                                |                                                     |                                  | 0.1 or less                                               |                                  |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
| Screw lead [mm]                                               |                                                     |                                  | 10                                                        | 5                                | 2.5      | 12        | 6                                | 3          | 16         | 8                                | 4          | 16         | 8                                | 4          |             |
| Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*7</sup> |                                                     |                                  | 50/20                                                     |                                  |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
| Actuation type                                                |                                                     |                                  | Ball screw + Belt (LEYG□□□), Ball screw (LEYG□□□D)        |                                  |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
| Guide type                                                    |                                                     |                                  | Sliding bearing (LEYG□□M), Ball bushing bearing (LEYG□□L) |                                  |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
| Operating temp. range [°C]                                    |                                                     |                                  | 5 to 40                                                   |                                  |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
| Operating humidity range [%RH]                                |                                                     |                                  | 90 or less (No condensation)                              |                                  |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
| Electric specifications                                       | Motor size                                          |                                  |                                                           | □28                              |          |           | □42                              |            |            | □56.4                            |            |            | □56.4                            |            |             |
|                                                               | Motor type                                          |                                  |                                                           | Step motor (Servo/24 VDC)        |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
|                                                               | Encoder                                             |                                  |                                                           | Incremental                      |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
|                                                               | Power supply voltage [V]                            |                                  |                                                           | 24 VDC ±10%                      |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
|                                                               | Power [W] <sup>*8 *10</sup>                         |                                  |                                                           | Max. power 43                    |          |           | Max. power 48                    |            |            | Max. power 104                   |            |            | Max. power 106                   |            |             |
| Lock unit specifications                                      | Type <sup>*9</sup>                                  |                                  |                                                           | Non-magnetizing lock             |          |           |                                  |            |            |                                  |            |            |                                  |            |             |
|                                                               | Holding force [N]                                   |                                  |                                                           | 20                               | 39       | 78        | 78                               | 157        | 294        | 108                              | 216        | 421        | 127                              | 265        | 519         |
|                                                               | Power [W] <sup>*10</sup>                            |                                  |                                                           | 2.9                              |          |           | 5                                |            |            | 5                                |            |            | 5                                |            |             |
|                                                               | Rated voltage [V]                                   |                                  |                                                           | 24 VDC ±10%                      |          |           |                                  |            |            |                                  |            |            |                                  |            |             |

\*1 Horizontal: An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide. Also, speed changes according to the work load. Check the "Model Selection" on pages 111 and 112.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 111 and 112.

Set the acceleration/deceleration values to be 3000 [mm/s<sup>2</sup>] or less.

\*2 Pushing force accuracy is ±20% (F.S.).

\*3 The pushing force values for LEYG16□□ are 35% to 85%, for LEYG25□□ are 35% to 65%, for LEYG32□□ are 35% to 85%, and for LEYG40□□ are 35% to 65%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 114.

\*4 The speed and force may change depending on the cable length, load, and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)

When [M: Sliding bearing] is selected, the max. speed of lead [A] is 400 mm/s (at no-load, horizontal mounting).

The speed is also restricted with a horizontal/moment load. Refer to the "Model Selection" on page 110.

\*5 The allowable speed for the pushing operation

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*8 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.

\*9 With lock only

\*10 For an actuator with lock, add the power for the lock.

## Specifications

### Servo Motor (24 VDC)

| Model                          |                                                               |            |                                                           | LEYG16 <sup>M</sup> □A |          |           | LEYG25 <sup>M</sup> □A |          |           |
|--------------------------------|---------------------------------------------------------------|------------|-----------------------------------------------------------|------------------------|----------|-----------|------------------------|----------|-----------|
| Actuator specifications        | Work load [kg] <sup>*1</sup>                                  | Horizontal | Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]    | 3                      | 6        | 12        | 7                      | 15       | 30        |
|                                |                                                               | Vertical   | Acceleration/Deceleration at 3000 [mm/s <sup>2</sup> ]    | 1.5                    | 3.5      | 7.5       | 2                      | 5        | 11        |
|                                | Pushing force [N] <sup>*2 *3</sup>                            |            |                                                           | 16 to 30               | 30 to 58 | 57 to 111 | 18 to 35               | 37 to 72 | 66 to 130 |
|                                | Speed [mm/s]                                                  |            |                                                           | 1 to 500               | 1 to 250 | 1 to 125  | 2 to 500               | 1 to 250 | 1 to 125  |
|                                | Max. acceleration/deceleration [mm/s <sup>2</sup> ]           |            |                                                           | 3000                   |          |           |                        |          |           |
|                                | Pushing speed [mm/s] <sup>*4</sup>                            |            |                                                           | 50 or less             |          |           | 35 or less             |          |           |
|                                | Positioning repeatability [mm]                                |            |                                                           | ±0.02                  |          |           |                        |          |           |
|                                | Lost motion [mm] <sup>*5</sup>                                |            |                                                           | 0.1 or less            |          |           |                        |          |           |
|                                | Screw lead [mm]                                               |            |                                                           | 10                     | 5        | 2.5       | 12                     | 6        | 3         |
|                                | Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*6</sup> |            |                                                           | 50/20                  |          |           |                        |          |           |
| Actuation type                 |                                                               |            | Ball screw + Belt (LEYG□□), Ball screw (LEYG□□□D)         |                        |          |           |                        |          |           |
| Guide type                     |                                                               |            | Sliding bearing (LEYG□□M), Ball bushing bearing (LEYG□□L) |                        |          |           |                        |          |           |
| Operating temp. range [°C]     |                                                               |            | 5 to 40                                                   |                        |          |           |                        |          |           |
| Operating humidity range [%RH] |                                                               |            | 90 or less (No condensation)                              |                        |          |           |                        |          |           |
| Electric specifications        | Motor size                                                    |            |                                                           | □28                    |          |           | □42                    |          |           |
|                                | Motor output [W]                                              |            |                                                           | 30                     |          |           | 36                     |          |           |
|                                | Motor type                                                    |            |                                                           | Servo motor (24 VDC)   |          |           |                        |          |           |
|                                | Encoder                                                       |            |                                                           | Incremental            |          |           |                        |          |           |
|                                | Power supply voltage [V]                                      |            |                                                           | 24 VDC ±10%            |          |           |                        |          |           |
| Lock unit specifications       | Power [W] <sup>*7 *9</sup>                                    |            |                                                           | Max. power 59          |          |           | Max. power 96          |          |           |
|                                | Type <sup>*8</sup>                                            |            |                                                           | Non-magnetizing lock   |          |           |                        |          |           |
|                                | Holding force [N]                                             |            |                                                           | 20                     | 39       | 78        | 78                     | 157      | 294       |
|                                | Power [W] <sup>*9</sup>                                       |            |                                                           | 2.9                    |          |           | 5                      |          |           |
|                                | Rated voltage [V]                                             |            |                                                           | 24 VDC ±10%            |          |           |                        |          |           |

- <sup>\*1</sup> Horizontal: An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load and transfer speed change according to the condition of the external guide.  
Vertical: Check the "Model Selection" on page 113 for details.  
Set the acceleration/deceleration values to be 3000 [mm/s<sup>2</sup>] or less.
- <sup>\*2</sup> Pushing force accuracy is ±20% (F.S.).
- <sup>\*3</sup> The thrust setting values for LEYG16□□ are 60% to 95% and for LEYG25□□ are 70% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 114.
- <sup>\*4</sup> The allowable speed for the pushing operation
- <sup>\*5</sup> A reference value for correcting errors in reciprocal operation
- <sup>\*6</sup> Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- <sup>\*7</sup> Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.
- <sup>\*8</sup> With lock only
- <sup>\*9</sup> For an actuator with lock, add the power for the lock.

## Weight

### Weight: Top Side Parallel Motor Type

| Model               |             | LEYG16M |      |      |      |      | LEYG25M |      |      |      |      |      |      | LEYG32M |      |      |      |      |      |      |
|---------------------|-------------|---------|------|------|------|------|---------|------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30      | 50   | 100  | 150  | 200  | 30      | 50   | 100  | 150  | 200  | 250  | 300  | 30      | 50   | 100  | 150  | 200  | 250  | 300  |
| Product weight [kg] | Step motor  | 0.83    | 0.97 | 1.20 | 1.49 | 1.66 | 1.67    | 1.86 | 2.18 | 2.60 | 2.94 | 3.28 | 3.54 | 2.91    | 3.17 | 3.72 | 4.28 | 4.95 | 5.44 | 5.88 |
|                     | Servo motor | 0.83    | 0.97 | 1.20 | 1.49 | 1.66 | 1.63    | 1.82 | 2.14 | 2.56 | 2.90 | 3.24 | 3.50 | —       | —    | —    | —    | —    | —    | —    |

| Model               |             | LEYG16L |      |      |      |      | LEYG25L |      |      |      |      |      |      | LEYG32L |      |      |      |      |      |      |
|---------------------|-------------|---------|------|------|------|------|---------|------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30      | 50   | 100  | 150  | 200  | 30      | 50   | 100  | 150  | 200  | 250  | 300  | 30      | 50   | 100  | 150  | 200  | 250  | 300  |
| Product weight [kg] | Step motor  | 0.84    | 0.97 | 1.14 | 1.43 | 1.58 | 1.68    | 1.89 | 2.13 | 2.56 | 2.82 | 3.14 | 3.38 | 2.91    | 3.18 | 3.57 | 4.12 | 4.66 | 5.17 | 5.56 |
|                     | Servo motor | 0.84    | 0.97 | 1.14 | 1.43 | 1.58 | 1.64    | 1.85 | 2.09 | 2.52 | 2.78 | 3.10 | 3.34 | —       | —    | —    | —    | —    | —    | —    |

| Model               |             | LEYG40M |      |      |      |      |      |      | LEYG40L |      |      |      |      |      |      |
|---------------------|-------------|---------|------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30      | 50   | 100  | 150  | 200  | 250  | 300  | 30      | 50   | 100  | 150  | 200  | 250  | 300  |
| Product weight [kg] | Step motor  | 3.21    | 3.47 | 4.02 | 4.58 | 5.25 | 5.74 | 6.18 | 3.21    | 3.48 | 3.87 | 4.42 | 4.96 | 5.47 | 5.86 |
|                     | Servo motor | —       | —    | —    | —    | —    | —    | —    | —       | —    | —    | —    | —    | —    | —    |

### Weight: In-line Motor Type

| Model               |             | LEYG16M |      |      |      |      | LEYG25M |      |      |      |      |      |      | LEYG32M |      |      |      |      |      |      |
|---------------------|-------------|---------|------|------|------|------|---------|------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30      | 50   | 100  | 150  | 200  | 30      | 50   | 100  | 150  | 200  | 250  | 300  | 30      | 50   | 100  | 150  | 200  | 250  | 300  |
| Product weight [kg] | Step motor  | 0.83    | 0.97 | 1.20 | 1.49 | 1.66 | 1.66    | 1.85 | 2.17 | 2.59 | 2.93 | 3.27 | 3.53 | 2.90    | 3.16 | 3.71 | 4.27 | 4.94 | 5.43 | 5.87 |
|                     | Servo motor | 0.83    | 0.97 | 1.20 | 1.49 | 1.66 | 1.62    | 1.81 | 2.13 | 2.55 | 2.89 | 3.23 | 3.49 | —       | —    | —    | —    | —    | —    | —    |

| Model               |             | LEYG16L |      |      |      |      | LEYG25L |      |      |      |      |      |      | LEYG32L |      |      |      |      |      |      |
|---------------------|-------------|---------|------|------|------|------|---------|------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30      | 50   | 100  | 150  | 200  | 30      | 50   | 100  | 150  | 200  | 250  | 300  | 30      | 50   | 100  | 150  | 200  | 250  | 300  |
| Product weight [kg] | Step motor  | 0.84    | 0.97 | 1.14 | 1.43 | 1.58 | 1.67    | 1.88 | 2.12 | 2.55 | 2.81 | 3.13 | 3.37 | 2.90    | 3.17 | 3.56 | 4.11 | 4.65 | 5.16 | 5.55 |
|                     | Servo motor | 0.84    | 0.97 | 1.14 | 1.43 | 1.58 | 1.63    | 1.84 | 2.08 | 2.51 | 2.77 | 3.09 | 3.33 | —       | —    | —    | —    | —    | —    | —    |

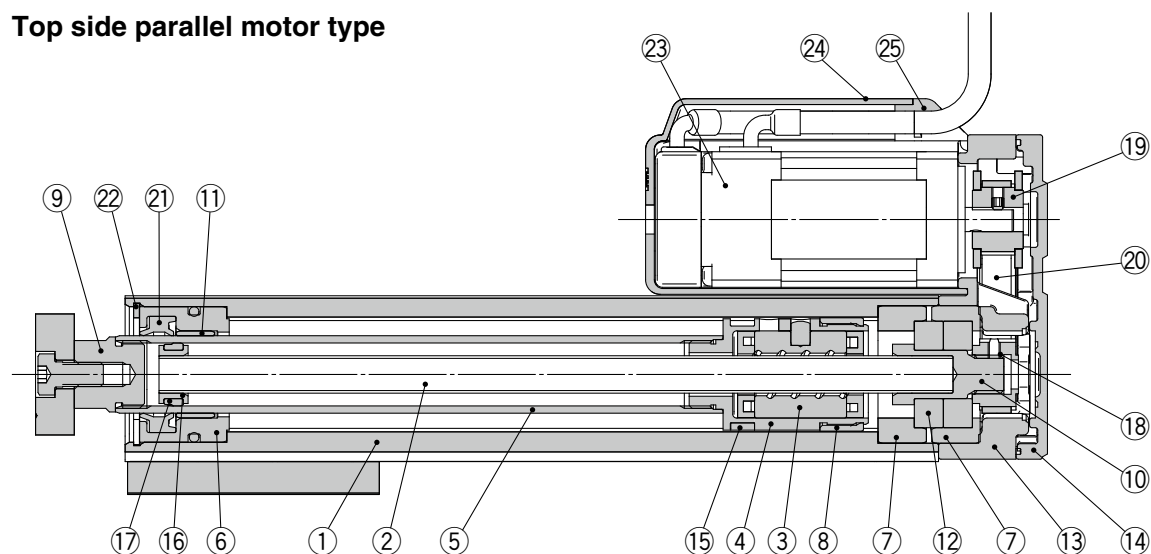
| Model               |             | LEYG40M |      |      |      |      |      |      | LEYG40L |      |      |      |      |      |      |
|---------------------|-------------|---------|------|------|------|------|------|------|---------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30      | 50   | 100  | 150  | 200  | 250  | 300  | 30      | 50   | 100  | 150  | 200  | 250  | 300  |
| Product weight [kg] | Step motor  | 3.20    | 3.46 | 4.01 | 4.57 | 5.24 | 5.73 | 6.17 | 3.20    | 3.47 | 3.86 | 4.41 | 4.95 | 5.46 | 5.85 |
|                     | Servo motor | —       | —    | —    | —    | —    | —    | —    | —       | —    | —    | —    | —    | —    | —    |

### Additional Weight

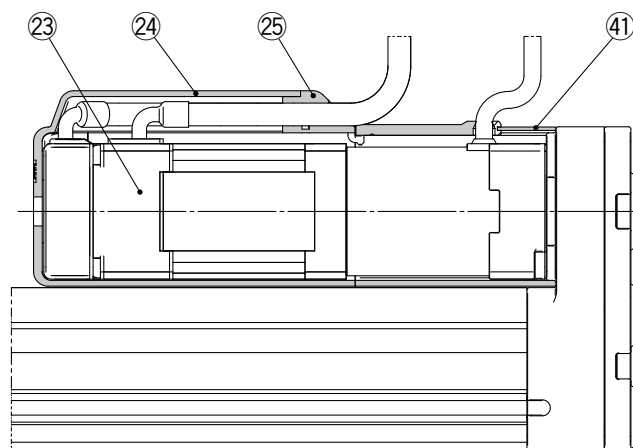
| Size             | 16   | 25   | 32   | 40   |
|------------------|------|------|------|------|
| Lock             | 0.12 | 0.26 | 0.53 | 0.53 |
| Motor cover      | 0.02 | 0.03 | 0.04 | 0.05 |
| Lock/Motor cover | 0.16 | 0.32 | 0.61 | 0.62 |

## Construction

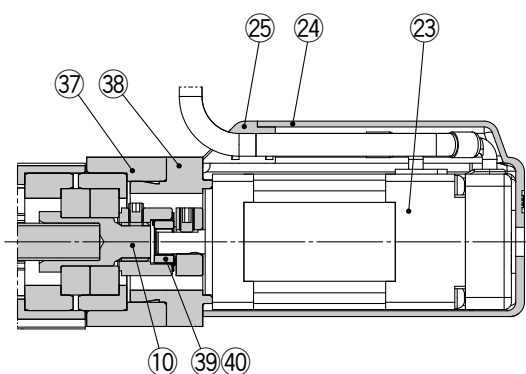
### Top side parallel motor type



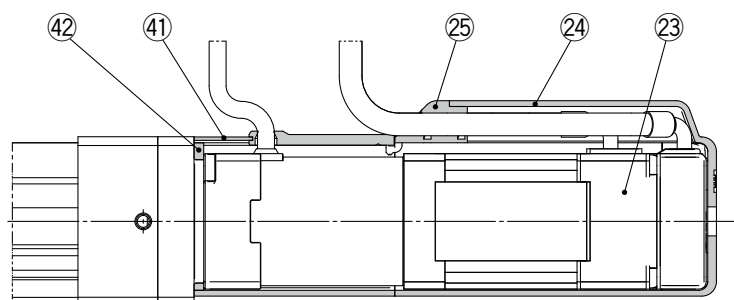
### Top side parallel motor type With lock/motor cover



### In-line motor type

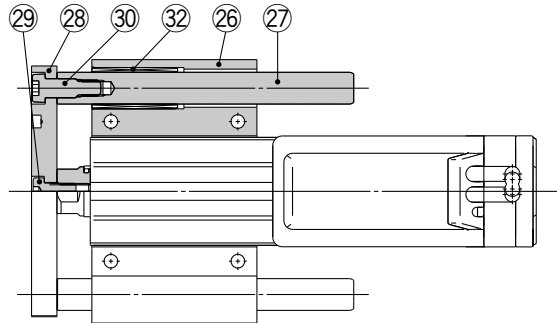


### In-line motor type With lock/motor cover



## Construction

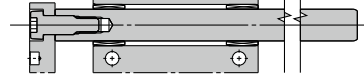
### LEYG□M



LEYG<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub>M: 50st or less

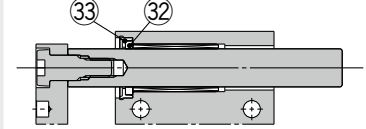


LEYG<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub>M: Over 50st

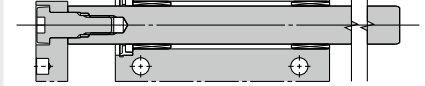


When grease retaining function selected

LEYG<sup>25</sup><sub>32</sub><sub>40</sub>M□□<sup>A</sup><sub>B</sub>-□□F: 50st or less

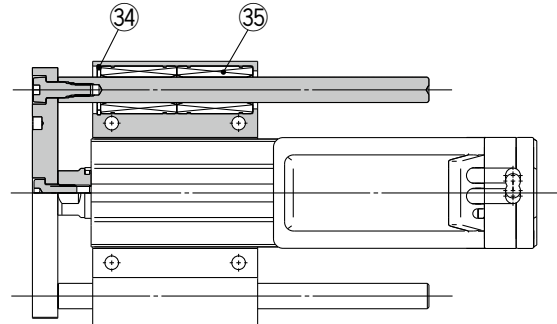


LEYG<sup>25</sup><sub>32</sub><sub>40</sub>M□□<sup>A</sup><sub>B</sub>-□□F: Over 50st



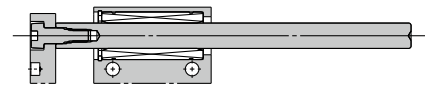
\* Felt material is inserted to retain grease at the sliding part of the sliding bearing. This lengthens the life of the sliding part, but does not guarantee it permanently.

### LEYG□L

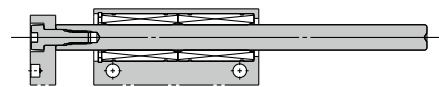


LEYG16L: 30st or less

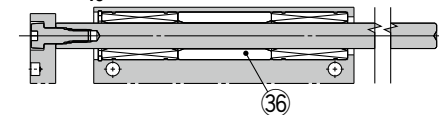
LEYG<sup>25</sup><sub>32</sub><sub>40</sub>L: 100st or less



LEYG16L: Over 30st, 100st or less



LEYG<sup>16</sup><sub>25</sub><sub>32</sub><sub>40</sub>L: Over 100st



## Component Parts

| No. | Description        | Material                    | Note                    |
|-----|--------------------|-----------------------------|-------------------------|
| 1   | Body               | Aluminum alloy              | Anodized                |
| 2   | Ball screw shaft   | Alloy steel                 |                         |
| 3   | Ball screw nut     | Synthetic resin/Alloy steel |                         |
| 4   | Piston             | Aluminum alloy              |                         |
| 5   | Piston rod         | Stainless steel             | Hard chrome plating     |
| 6   | Rod cover          | Aluminum alloy              |                         |
| 7   | Bearing holder     | Aluminum alloy              |                         |
| 8   | Rotation stopper   | Synthetic resin             |                         |
| 9   | Socket             | Free cutting carbon steel   | Nickel plating          |
| 10  | Connected shaft    | Free cutting carbon steel   | Nickel plating          |
| 11  | Bushing            | Bearing alloy               |                         |
| 12  | Bearing            | —                           |                         |
| 13  | Return box         | Aluminum die-cast           | Coating                 |
| 14  | Return plate       | Aluminum die-cast           | Coating                 |
| 15  | Magnet             | —                           |                         |
| 16  | Wear ring holder   | Stainless steel             | Stroke 101 mm or more   |
| 17  | Wear ring          | Synthetic resin             | Stroke 101 mm or more   |
| 18  | Screw shaft pulley | Aluminum alloy              |                         |
| 19  | Motor pulley       | Aluminum alloy              |                         |
| 20  | Belt               | —                           |                         |
| 21  | Seal               | NBR                         |                         |
| 22  | Retaining ring     | Steel for spring            | Phosphate coated        |
| 23  | Motor              | —                           |                         |
| 24  | Motor cover        | Synthetic resin             | Only "With motor cover" |
| 25  | Grommet            | Synthetic resin             | Only "With motor cover" |
| 26  | Guide attachment   | Aluminum alloy              | Anodized                |
| 27  | Guide rod          | Carbon steel                |                         |

| No. | Description              | Material         | Note                         |
|-----|--------------------------|------------------|------------------------------|
| 28  | Plate                    | Aluminum alloy   | Anodized                     |
| 29  | Plate mounting cap screw | Carbon steel     | Nickel plating               |
| 30  | Guide cap screw          | Carbon steel     | Nickel plating               |
| 31  | Sliding bearing          | Bearing alloy    |                              |
| 32  | Lube-retainer            | Felt             |                              |
| 33  | Holder                   | Synthetic resin  |                              |
| 34  | Retaining ring           | Steel for spring | Phosphate coating            |
| 35  | Ball bushing             | —                |                              |
| 36  | Spacer                   | Aluminum alloy   | Chromating                   |
| 37  | Motor block              | Aluminum alloy   | Anodized                     |
| 38  | Motor adapter            | Aluminum alloy   | Anodized/LEY16, 25 only      |
| 39  | Hub                      | Aluminum alloy   |                              |
| 40  | Spider                   | NBR              |                              |
| 41  | Motor cover with lock    | Aluminum alloy   | Only "With lock/motor cover" |
| 42  | Cover support            | Aluminum alloy   | Only "With lock/motor cover" |

## Replacement Parts/Belt

| No. | Size   | Order no. |
|-----|--------|-----------|
| 20  | 16     | LE-D-2-1  |
|     | 25     | LE-D-2-2  |
|     | 32, 40 | LE-D-2-3  |

## Replacement Parts/Grease Pack

| Applied portion | Order no.       |
|-----------------|-----------------|
| Piston rod      | GR-S-010 (10 g) |
| Guide rod       | GR-S-020 (20 g) |

Step Motor (Servo/24 VDC)      Servo Motor (24 VDC)

- \*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- \*2 Position after returning to origin
- \*3 [ ] for when the direction of return to origin has changed
- \*4 Through holes cannot be used for size  $\varnothing 32/40$  with strokes of 50 mm or less.



| Size      | Stroke range                 | L     | DB |
|-----------|------------------------------|-------|----|
| <b>16</b> | 90st or less                 | 75    | 8  |
|           | 91st or more, 200st or less  | 105   |    |
| <b>25</b> | 114st or less                | 91    | 10 |
|           | 115st or more, 190st or less | 115   |    |
|           | 191st or more, 300st or less | 133   |    |
| <b>32</b> | 114st or less                | 97.5  | 13 |
| <b>40</b> | 115st or more, 190st or less | 116.5 |    |
|           | 191st or more, 300st or less | 134   |    |

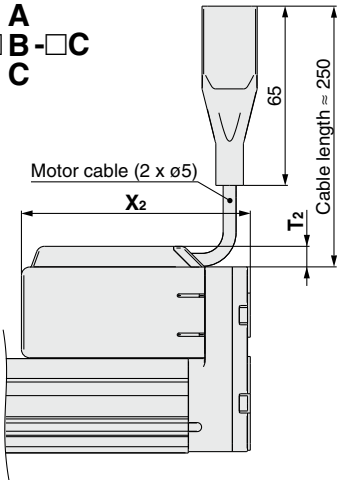
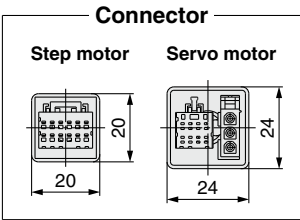


| Size     | Stroke range                 | L     | DB |
|----------|------------------------------|-------|----|
| 16       | 64st or less                 | 51.5  | 10 |
|          | 65st or more, 90st or less   | 74.5  |    |
|          | 91st or more, 200st or less  | 105   |    |
| 25       | 59st or less                 | 67.5  | 12 |
|          | 60st or more, 185st or less  | 100.5 |    |
|          | 186st or more, 300st or less | 138   |    |
| 32<br>40 | 54st or less                 | 74    | 16 |
|          | 55st or more, 180st or less  | 107   |    |
|          | 181st or more, 300st or less | 144   |    |

| Size     | Stroke range                 | A        | B     | C    | DA | EA | EB  | EH  | EV   | FA         | FB   | FC          | G    | GA   | H     | J    | K  | M    | NA       | NB   | NC  |
|----------|------------------------------|----------|-------|------|----|----|-----|-----|------|------------|------|-------------|------|------|-------|------|----|------|----------|------|-----|
| 16       | 39st or less                 | 109      | 90.5  | 37   | 16 | 35 | 69  | 83  | 41.1 | 8          | 10.5 | 8.5         | 4.3  | 31.8 | 74.3  | 24.8 | 23 | 25.5 | M4 x 0.7 | 7    | 5.5 |
|          | 40st or more, 100st or less  |          | 52    |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 101st or more, 200st or less | 129      | 110.5 | 82   |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
| 25       | 39st or less                 | 141.5    | 116   | 50   | 20 | 46 | 85  | 103 | 52.3 | 11         | 14.5 | 12.5        | 5.4  | 40.3 | 98.8  | 30.8 | 29 | 34   | M5 x 0.8 | 8    | 6.5 |
|          | 40st or more, 100st or less  |          | 67.5  |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 101st or more, 124st or less |          |       |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 125st or more, 200st or less | 166.5    | 141   | 84.5 |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 201st or more, 300st or less |          | 102   |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
| 32<br>40 | 39st or less                 | 160.5    | 130   | 55   | 25 | 60 | 101 | 123 | 63.8 | 12         | 18.5 | 16.5        | 5.4  | 50.3 | 125.3 | 38.3 | 30 | 40   | M6 x 1.0 | 10   | 8.5 |
|          | 40st or more, 100st or less  |          | 68    |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 101st or more, 124st or less |          |       |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 125st or more, 200st or less | 190.5    | 160   | 85   |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 201st or more, 300st or less |          | 102   |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
| Size     | Stroke range                 | OA       | OB    | P    | Q  | S  | T   | U   | V    | Step motor |      | Servo motor |      | WA   | WB    | WC   | X  | XA   | XB       | Y    | Z   |
|          |                              |          |       |      |    |    |     |     |      | VA         | VB   | VA          | VB   |      |       |      |    |      |          |      |     |
| 16       | 39st or less                 | M5 x 0.8 | 10    | 65   | 15 | 25 | 79  | 6.8 | 28   | 80.3       | 61.8 | 81          | 62.5 | 25   | 19    | 55   | 44 | 3    | 4        | 22.5 | 6.5 |
|          | 40st or more, 100st or less  |          |       |      |    |    |     |     |      |            |      |             |      | 40   | 26.5  |      |    |      |          |      |     |
|          | 101st or more, 200st or less |          |       |      |    |    |     |     |      |            |      |             |      | 70   | 41.5  |      |    |      |          |      |     |
| 25       | 39st or less                 | M6 x 1.0 | 12    | 80   | 18 | 30 | 95  | 6.8 | 42   | 85.4       | 63.4 | 81.6        | 59.6 | 35   | 26    | 70   | 54 | 4    | 5        | 26.5 | 8.5 |
|          | 40st or more, 100st or less  |          |       |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 101st or more, 124st or less |          |       |      |    |    |     |     |      |            |      |             |      | 50   | 33.5  |      |    |      |          |      |     |
|          | 125st or more, 200st or less |          |       |      |    |    |     |     |      |            |      |             |      | 70   | 43.5  | 95   |    |      |          |      |     |
|          | 201st or more, 300st or less |          |       |      |    |    |     |     |      |            |      |             |      | 85   | 51    |      |    |      |          |      |     |
| 32       | 39st or less                 | M6 x 1.0 | 12    | 95   | 28 | 40 | 117 | 7.3 | 56.4 | 95.4       | 68.4 | —           | —    | 40   | 28.5  | 75   | 64 | 5    | 6        | 34   | 8.5 |
|          | 40st or more, 100st or less  |          |       |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 101st or more, 124st or less |          |       |      |    |    |     |     |      |            |      |             |      | 50   | 33.5  |      |    |      |          |      |     |
|          | 125st or more, 200st or less |          |       |      |    |    |     |     |      |            |      |             |      | 70   | 43.5  | 105  |    |      |          |      |     |
|          | 201st or more, 300st or less |          |       |      |    |    |     |     |      |            |      |             |      | 85   | 51    |      |    |      |          |      |     |
| 40       | 39st or less                 | M6 x 1.0 | 12    | 95   | 28 | 40 | 117 | 7.3 | 56.4 | 117.4      | 90.4 | —           | —    | 40   | 28.5  | 75   | 64 | 5    | 6        | 34   | 8.5 |
|          | 40st or more, 100st or less  |          |       |      |    |    |     |     |      |            |      |             |      |      |       |      |    |      |          |      |     |
|          | 101st or more, 124st or less |          |       |      |    |    |     |     |      |            |      |             |      | 50   | 33.5  |      |    |      |          |      |     |
|          | 125st or more, 200st or less |          |       |      |    |    |     |     |      |            |      |             |      | 70   | 43.5  | 105  |    |      |          |      |     |
|          | 201st or more, 300st or less |          |       |      |    |    |     |     |      |            |      |             |      | 85   | 51    |      |    |      |          |      |     |

Dimensions: Top Side Parallel Motor

With motor cover: LEYG 16 25 32 40 A B C

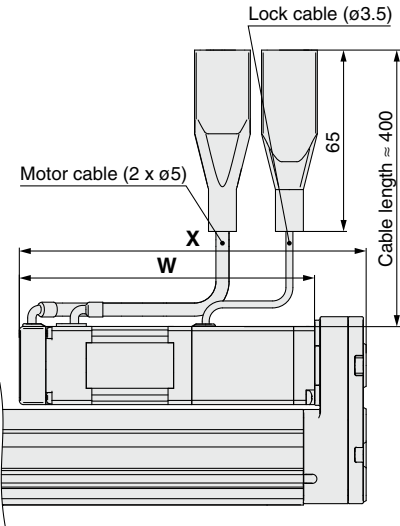
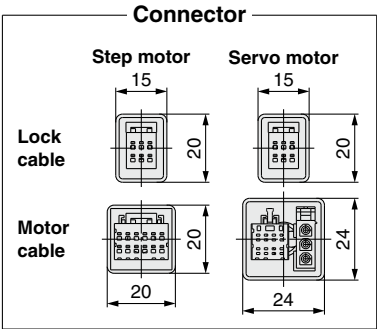


[mm]

| Size | T <sub>2</sub> | X <sub>2</sub> |
|------|----------------|----------------|
| 16   | 7.5            | 83             |
| 25   | 7.5            | 88.5           |
| 32   | 7.5            | 98.5           |
| 40   | 7.5            | 120.5          |

Motor cover material: Synthetic resin

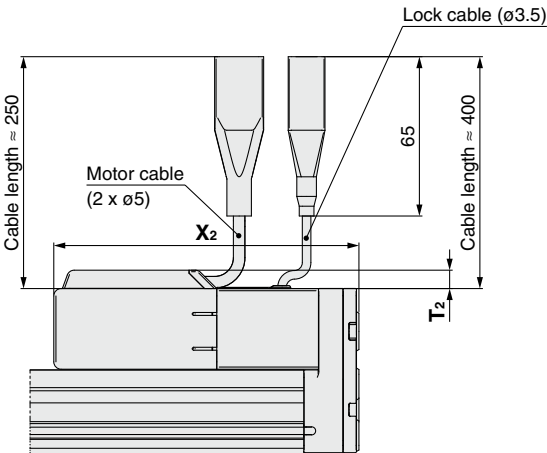
With lock: LEYG 16 25 32 40 A B C



[mm]

| Size | Step motor |       | Servo motor |       |
|------|------------|-------|-------------|-------|
|      | W          | X     | W           | X     |
| 16   | 103.3      | 121.8 | 104         | 122.5 |
| 25   | 103.9      | 125.9 | 100.1       | 122.1 |
| 32   | 111.4      | 138.4 | —           | —     |
| 40   | 133.4      | 160.4 | —           | —     |

With lock/motor cover: LEYG 16 25 32 40 A B C W



[mm]

| Size | T <sub>2</sub> | X <sub>2</sub> |
|------|----------------|----------------|
| 16   | 7.5            | 124.5          |
| 25   | 7.5            | 129            |
| 32   | 7.5            | 141.5          |
| 40   | 7.5            | 163.5          |



Step Motor (Servo/24 VDC)      Servo Motor (24 VDC)

- \*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- \*2 Position after returning to origin
- \*3 [ ] for when the direction of return to origin has changed



| Size | Stroke range                 | L     | DB |
|------|------------------------------|-------|----|
| 16   | 90st or less                 | 75    | 8  |
|      | 91st or more, 200st or less  | 105   |    |
| 25   | 114st or less                | 91    | 10 |
|      | 115st or more, 190st or less | 115   |    |
|      | 191st or more, 300st or less | 133   |    |
| 32   | 114st or less                | 97.5  | 13 |
| 40   | 115st or more, 190st or less | 116.5 |    |
|      | 191st or more, 300st or less | 134   |    |



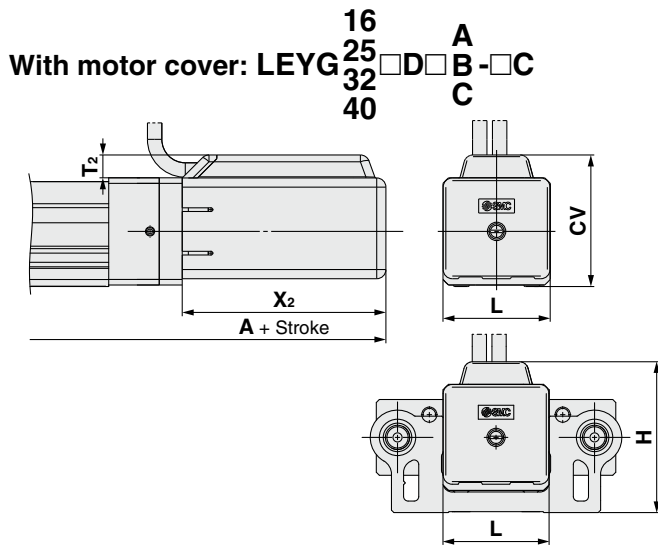
| Size     | Stroke range                 | L     | DB |
|----------|------------------------------|-------|----|
| 16       | 64st or less                 | 51.5  | 10 |
|          | 65st or more, 90st or less   | 74.5  |    |
|          | 91st or more, 200st or less  | 105   |    |
| 25       | 59st or less                 | 67.5  | 12 |
|          | 60st or more, 185st or less  | 100.5 |    |
|          | 186st or more, 300st or less | 138   |    |
| 32<br>40 | 54st or less                 | 74    | 16 |
|          | 55st or more, 180st or less  | 107   |    |
|          | 181st or more, 300st or less | 144   |    |

**LEYG□M, LEYG□L Common**

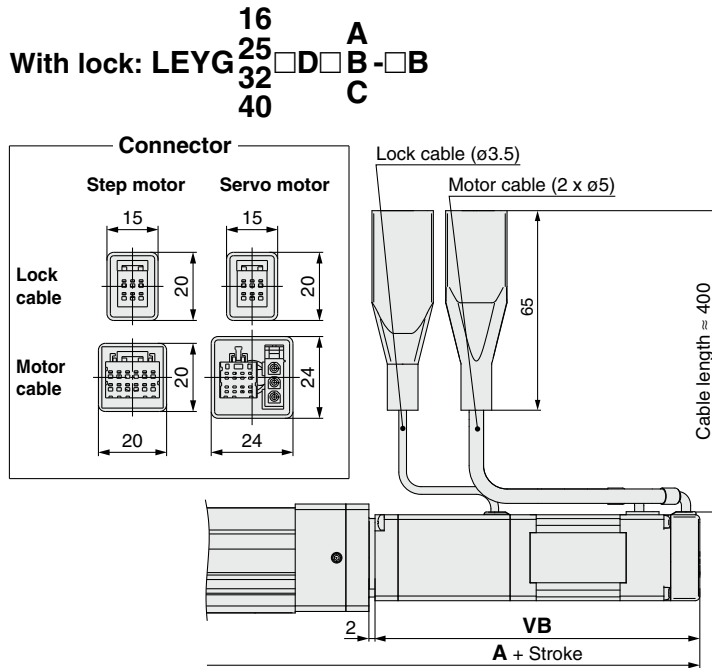
| Size | Stroke range                 | Step motor<br>A | Servo motor | B     | C    | DA | EA | EB  | EH  | EV   | FA | FB   | FC   | G   | GA   | H    | J    | K  | NA       | NC  |
|------|------------------------------|-----------------|-------------|-------|------|----|----|-----|-----|------|----|------|------|-----|------|------|------|----|----------|-----|
| 16   | 39st or less                 | 174.3           | 175         | 92    | 37   | 16 | 35 | 69  | 83  | 41.1 | 8  | 10.5 | 8.5  | 4.3 | 31.8 | 42.3 | 24.8 | 23 | M4 x 0.7 | 5.5 |
|      | 40st or more, 100st or less  |                 |             |       | 52   |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 101st or more, 200st or less |                 |             |       | 82   |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
| 25   | 39st or less                 | 206.4           | 202.6       | 115.5 | 50   | 20 | 45 | 85  | 103 | 52.3 | 11 | 14.5 | 12.5 | 5.4 | 40.3 | 53.3 | 30.8 | 29 | M5 x 0.8 | 6.5 |
|      | 40st or more, 100st or less  |                 |             |       | 67.5 |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 101st or more, 124st or less |                 |             |       | 84.5 |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 125st or more, 200st or less | 84.5            |             |       |      |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 201st or more, 300st or less | 102             |             |       |      |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 231.4                        | 227.6           | 140.5       |       |      |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
| 32   | 39st or less                 | 228.9           | —           | 128   | 55   | 25 | 60 | 101 | 123 | 63.8 | 12 | 18.5 | 16.5 | 5.4 | 50.3 | 68.3 | 38.3 | 30 | M6 x 1.0 | 8.5 |
|      | 40st or more, 100st or less  |                 |             |       | 68   |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 101st or more, 124st or less | 258.9           | —           | 158   | 85   |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 125st or more, 200st or less |                 |             |       | 102  |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 201st or more, 300st or less |                 |             |       | 102  |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
| 40   | 39st or less                 | 250.9           | —           | 128   | 55   | 25 | 60 | 101 | 123 | 63.8 | 12 | 18.5 | 16.5 | 5.4 | 50.3 | 68.3 | 38.3 | 30 | M6 x 1.0 | 8.5 |
|      | 40st or more, 100st or less  |                 |             |       | 68   |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 101st or more, 124st or less | 280.9           | —           | 158   | 85   |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 125st or more, 200st or less |                 |             |       | 102  |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 201st or more, 300st or less |                 |             |       | 102  |    |    |     |     |      |    |      |      |     |      |      |      |    |          |     |

| Size | Stroke range                 | OA       | OB | P  | Q  | S  | T   | U   | V    | Step motor<br>VB | Servo motor | WA | WB   | WC  | X  | XA | XB | YD | Z   |
|------|------------------------------|----------|----|----|----|----|-----|-----|------|------------------|-------------|----|------|-----|----|----|----|----|-----|
| 16   | 39st or less                 | M5 x 0.8 | 10 | 65 | 15 | 25 | 79  | 6.8 | 28   | 61.8             | 62.5        | 25 | 19   | 55  | 44 | 3  | 4  | 24 | 6.5 |
|      | 40st or more, 100st or less  |          |    |    |    |    |     |     |      |                  |             | 40 | 26.5 |     |    |    |    |    |     |
|      | 101st or more, 200st or less |          |    |    |    |    |     |     |      |                  |             | 70 | 41.5 |     |    |    |    |    |     |
| 25   | 39st or less                 | M6 x 1.0 | 12 | 80 | 18 | 30 | 95  | 6.8 | 42   | 63.4             | 59.6        | 35 | 26   | 70  | 54 | 4  | 5  | 26 | 8.5 |
|      | 40st or more, 100st or less  |          |    |    |    |    |     |     |      |                  |             | 50 | 33.5 |     |    |    |    |    |     |
|      | 101st or more, 124st or less |          |    |    |    |    |     |     |      |                  |             | 70 | 43.5 |     |    |    |    |    |     |
|      | 125st or more, 200st or less |          |    |    |    |    |     |     |      |                  |             |    |      | 95  |    |    |    |    |     |
|      | 201st or more, 300st or less |          |    |    |    |    |     |     |      |                  |             |    |      |     |    |    |    |    |     |
| 32   | 39st or less                 | M6 x 1.0 | 12 | 95 | 28 | 40 | 117 | 7.3 | 56.4 | 68.4             | —           | 40 | 28.5 | 75  | 64 | 5  | 6  | 32 | 8.5 |
|      | 40st or more, 100st or less  |          |    |    |    |    |     |     |      |                  |             | 50 | 33.5 |     |    |    |    |    |     |
|      | 101st or more, 124st or less |          |    |    |    |    |     |     |      |                  |             | 70 | 43.5 |     |    |    |    |    |     |
|      | 125st or more, 200st or less |          |    |    |    |    |     |     |      |                  |             |    |      | 105 |    |    |    |    |     |
|      | 201st or more, 300st or less |          |    |    |    |    |     |     |      |                  |             |    |      |     |    |    |    |    |     |
| 40   | 39st or less                 | M6 x 1.0 | 12 | 95 | 28 | 40 | 117 | 7.3 | 56.4 | 90.4             | —           | 40 | 28.5 | 75  | 64 | 5  | 6  | 32 | 8.5 |
|      | 40st or more, 100st or less  |          |    |    |    |    |     |     |      |                  |             | 50 | 33.5 |     |    |    |    |    |     |
|      | 101st or more, 124st or less |          |    |    |    |    |     |     |      |                  |             | 70 | 43.5 |     |    |    |    |    |     |
|      | 125st or more, 200st or less |          |    |    |    |    |     |     |      |                  |             |    |      | 105 |    |    |    |    |     |
|      | 201st or more, 300st or less |          |    |    |    |    |     |     |      |                  |             |    |      |     |    |    |    |    |     |

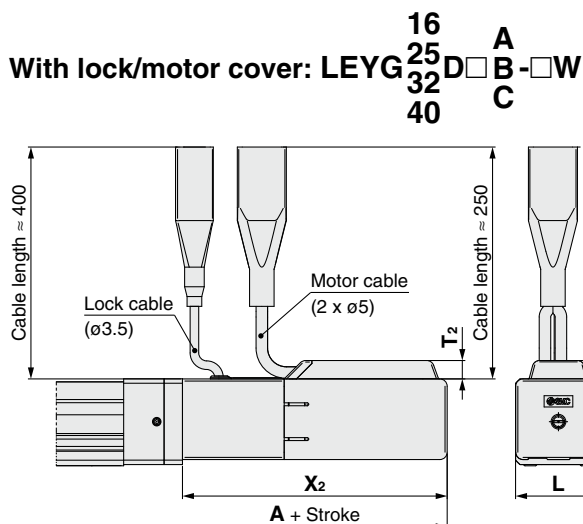
## Dimensions: In-line Motor



| Size | Stroke range                 | A     | T <sub>2</sub> | X <sub>2</sub> | L  | H    | CV   |
|------|------------------------------|-------|----------------|----------------|----|------|------|
| 16   | 100st or less                | 177   | 7.5            | 66.5           | 35 | 49.8 | 43   |
|      | 101st or more, 200st or less | 197   |                |                |    |      |      |
| 25   | 100st or less                | 209.5 | 7.5            | 68.5           | 46 | 61.3 | 54.5 |
|      | 101st or more, 300st or less | 234.5 |                |                |    |      |      |
| 32   | 100st or less                | 232   | 7.5            | 73.5           | 60 | 75.8 | 68.5 |
|      | 101st or more, 300st or less | 262   |                |                |    |      |      |
| 40   | 100st or less                | 254   | 7.5            | 95.5           | 60 | 75.8 | 68.5 |
|      | 101st or more, 300st or less | 284   |                |                |    |      |      |



| Size | Stroke range                 | Step motor | Servo motor | Step motor | Servo motor |
|------|------------------------------|------------|-------------|------------|-------------|
| 16   | 100st or less                | 215.8      | 216.5       | 103.3      | 104         |
|      | 101st or more, 200st or less | 235.8      | 236.5       |            |             |
| 25   | 100st or less                | 246.9      | 243.1       | 103.9      | 100.1       |
|      | 101st or more, 300st or less | 271.9      | 268.1       |            |             |
| 32   | 100st or less                | 271.9      | —           | 111.4      | —           |
|      | 101st or more, 300st or less | 301.9      | —           |            |             |
| 40   | 100st or less                | 293.9      | —           | 133.4      | —           |
|      | 101st or more, 300st or less | 323.9      | —           |            |             |



| Size | Stroke range                 | A     | T <sub>2</sub> | X <sub>2</sub> | L  | H    | CV   |
|------|------------------------------|-------|----------------|----------------|----|------|------|
| 16   | 100st or less                | 218.5 | 7.5            | 108            | 35 | 49.8 | 43   |
|      | 101st or more, 200st or less | 238.5 |                |                |    |      |      |
| 25   | 100st or less                | 250   | 7.5            | 109            | 46 | 61.3 | 54.4 |
|      | 101st or more, 300st or less | 275   |                |                |    |      |      |
| 32   | 100st or less                | 275   | 7.5            | 116.5          | 60 | 75.8 | 68.5 |
|      | 101st or more, 300st or less | 305   |                |                |    |      |      |
| 40   | 100st or less                | 297   | 7.5            | 138.5          | 60 | 75.8 | 68.5 |
|      | 101st or more, 300st or less | 327   |                |                |    |      |      |

# LEYG Series

Step Motor (Servo/24 VDC) Servo Motor (24 VDC)

## Support Block

### ● Guide for support block application

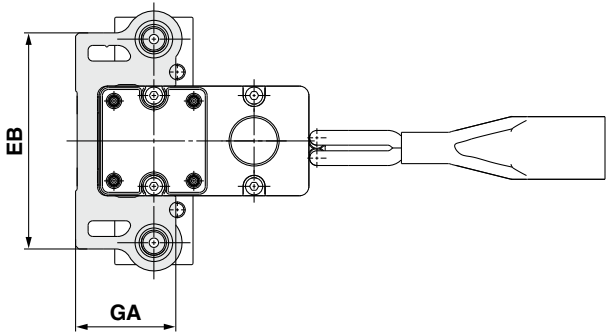
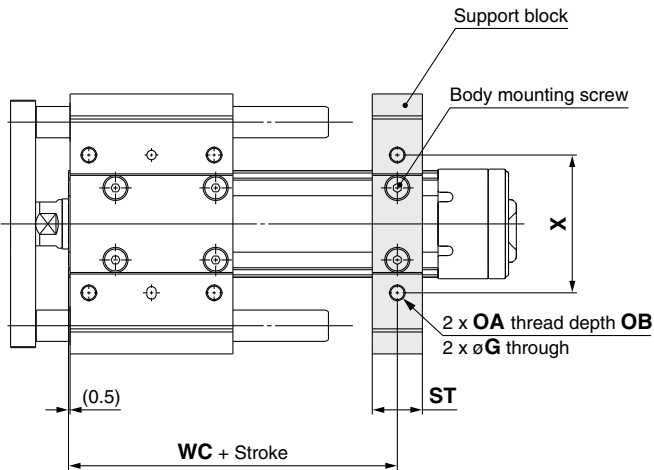
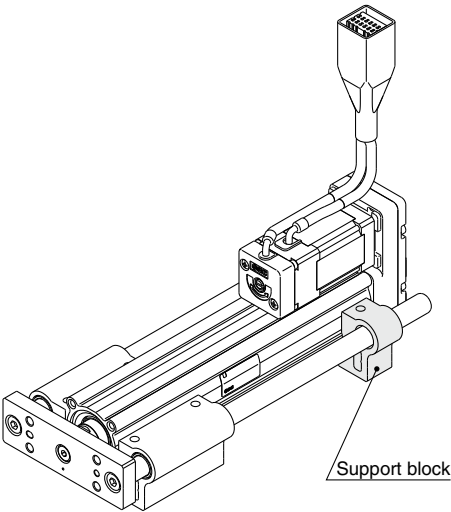
When the stroke exceeds 100 mm and the mounting orientation is horizontal, the body will be bent. Mounting the support block is recommended. (Please order it separately from the models shown below.)

### Support Block Model

LEYG-S016

● Size

|     |                  |
|-----|------------------|
| 016 | For size 16      |
| 025 | For size 25      |
| 032 | For sizes 32, 40 |



### ⚠ Caution

Do not install the body using only a support block.  
The support block should be used only for support.

| [mm]     |           |                              |     |       |        |          |    |    |     |    |
|----------|-----------|------------------------------|-----|-------|--------|----------|----|----|-----|----|
| Size     | Model     | Stroke range                 | EB  | G     | GA     | OA       | OB | ST | WC  | X  |
| 16       | LEYG-S016 | 100st or less                | 69  | 4.3   | 31.8   | M5 x 0.8 | 10 | 16 | 55  | 44 |
|          |           | 101st or more, 200st or less |     |       |        |          |    |    | 75  |    |
| 25       | LEYG-S025 | 100st or less                | 85  | 5.4   | 40.3   | M6 x 1.0 | 12 | 20 | 70  | 54 |
|          |           | 101st or more, 300st or less |     |       |        |          |    |    | 95  |    |
| 32<br>40 | LEYG-S032 | 100st or less                | 101 | (5.4) | (50.3) | M6 x 1.0 | 12 | 22 | 75  | 64 |
|          |           | 101st or more, 300st or less |     |       |        |          |    |    | 105 |    |

\* Two body mounting screws are included with the support block.  
\* The through holes of the LEYG-S032 cannot be used for the top side parallel motor type. Use taps on the bottom.

|                                 |                |       |                                                |       |       |       |       |          |             |        |        |                |     |                                                |     |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|----------|-------------|--------|--------|----------------|-----|------------------------------------------------|-----|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       |          | Environment |        |        | AC Servo Motor |     | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |     | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61 | 25A-LEY     | LEY-X5 | LEY-X7 | LEYG           | LEY | LEYG                                           | LEY |                    |

# Electric Actuator Guide Rod Type

## LEYG Series LEYG25, 32

The LECSB-S, LECS-C-S, and LECS-S-S electric actuator drivers are to be discontinued. The LECSB-T, LECS-C-T, and LECS-S-T drivers are available as substitutes. In the product number, select T6 instead of S6, or T7 instead of S7 for the **Motor type**, and select B2 instead of B1, C2 instead of C1, or S2 instead of S1 for the **Driver type**.



\* For details, refer to page 307 and onward.

LECY□ Series ▶ p. 147

### How to Order

LEY **H** **G** **25** **M** **S2** **B** - **100** **□** **□** - **S** **2** **A1** **□**

1 2 3 4 5 6 7 8 9 10 11 12 13

#### 1 Accuracy

|            |                     |
|------------|---------------------|
| <b>Nil</b> | Basic type          |
| <b>H</b>   | High-precision type |

#### 2 Size

|           |
|-----------|
| <b>25</b> |
| <b>32</b> |

#### 3 Bearing type

|          |                      |
|----------|----------------------|
| <b>M</b> | Sliding bearing      |
| <b>L</b> | Ball bushing bearing |

#### 4 Motor mounting position

|            |                   |
|------------|-------------------|
| <b>Nil</b> | Top side parallel |
| <b>D</b>   | In-line           |

#### 5 Motor type\*1

| Symbol       | Type                                    | Output [W] | Actuator size | Compatible drivers*3                                |
|--------------|-----------------------------------------|------------|---------------|-----------------------------------------------------|
| <b>S2</b> *1 | AC servo motor<br>(Incremental encoder) | 100        | 25            | LECSA□-S1                                           |
| <b>S3</b>    |                                         | 200        | 32            | LECSA□-S3                                           |
| <b>S6</b> *1 | AC servo motor<br>(Absolute encoder)    | 100        | 25            | LECSB□-S5<br>LECS-C□-S5<br>LECSS□-S5                |
| <b>S7</b>    |                                         | 200        | 32            | LECSB□-S7<br>LECS-C□-S7<br>LECSS□-S7                |
| <b>T6</b> *2 | AC servo motor<br>(Absolute encoder)    | 100        | 25            | LECSB2-T5<br>LECS-C2-T5<br>LECSN2-T5-□<br>LECSS2-T5 |
| <b>T7</b>    |                                         | 200        | 32            | LECSB2-T7<br>LECS-C2-T7<br>LECSN2-T7-□<br>LECSS2-T7 |

\*1 For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

\*2 For motor type T6, the compatible driver part number is LECS□2-T5.

\*3 For details on the driver, refer to page 264.

#### 6 Lead [mm]

| Symbol   | LEYG25 | LEYG32*1 |
|----------|--------|----------|
| <b>A</b> | 12     | 16 (20)  |
| <b>B</b> | 6      | 8 (10)   |
| <b>C</b> | 3      | 4 (5)    |

\*1 The values shown in ( ) are the leads for the size 32 top side parallel motor type. (Equivalent leads which include the pulley ratio [1.25:1])

#### 7 Stroke [mm]

|            |     |
|------------|-----|
| <b>30</b>  | 30  |
| <b>to</b>  | to  |
| <b>300</b> | 300 |

\* For details, refer to the applicable stroke table below.

\* There is a limit for mounting the size 32 top side parallel motor type and strokes of 50 mm or less. Refer to the dimensions.

#### 8 Motor option

|            |                |
|------------|----------------|
| <b>Nil</b> | Without option |
| <b>B</b>   | With lock      |

#### 9 Guide option

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without option                 |
| <b>F</b>   | With grease retaining function |

\* Only available for size 25 and 32 sliding bearings. (Refer to the "Construction" on page 142.)

#### 11 Cable length\*1 [m]

|            |               |
|------------|---------------|
| <b>Nil</b> | Without cable |
| <b>2</b>   | 2             |
| <b>5</b>   | 5             |
| <b>A</b>   | 10            |

\*1 The length of the motor, encoder, and lock cables are the same.

#### 10 Cable type\*1 \*2

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>S</b>   | Standard cable                 |
| <b>R</b>   | Robotic cable (Flexible cable) |

\*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

\*2 Standard cable entry direction is

- Top side parallel: (A) Axis side
  - In-line: (B) Counter axis side
- (Refer to page 290 for details.)

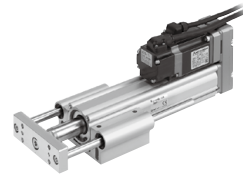
#### Applicable Stroke Table

●: Standard

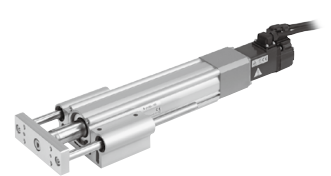
| Model         | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | Manufacturable stroke range |
|---------------|-------------|----|----|-----|-----|-----|-----|-----|-----------------------------|
| <b>LEYG25</b> |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | 15 to 300                   |
| <b>LEYG32</b> |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | 20 to 300                   |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 105 to 107.



Motor mounting position: Parallel



Motor mounting position: In-line

## 12 Driver type\*1

|     | Compatible drivers | Power supply voltage [V] |
|-----|--------------------|--------------------------|
| Nil | Without driver     | —                        |
| A1  | LECSA1-S□          | 100 to 120               |
| A2  | LECSA2-S□          | 200 to 230               |
| B1  | LECSB1-S□          | 100 to 120               |
| B2  | LECSB2-S□          | 200 to 230               |
|     | LECSB2-T□          | 200 to 240               |
| C1  | LECSC1-S□          | 100 to 120               |
| C2  | LECSC2-S□          | 200 to 230               |
|     | LECSC2-T□          |                          |
| S1  | LECSS1-S□          | 100 to 120               |
| S2  | LECSS2-S□          | 200 to 230               |
|     | LECSS2-T□          | 200 to 240               |
| N2  | LECSN2-T□          | 200 to 240               |
| E2  | LECSN2-T□-E        | 200 to 240               |
| 92  | LECSN2-T□-9        | 200 to 240               |
| P2  | LECSN2-T□-P        | 200 to 240               |

\*1 When a driver type is selected, a cable is included.  
Select the cable type and cable length.

Example)

S2S2: Standard cable (2 m) + Driver (LECSS2)

S2: Standard cable (2 m)

Nil: Without cable and driver

## 13 I/O cable length [m]\*1

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| H   | Without cable (Connector only) |
| 1   | 1.5                            |

\*1 When “Nil: Without driver” is selected for the driver type, only “Nil: Without cable” can be selected.  
Refer to page 291 if an I/O cable is required.  
(Options are shown on page 291.)

### Use of auto switches for the guide rod type LEYG series

- Auto switches must be inserted from the front side with the rod (plate) sticking out.
- Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
- Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

## Compatible Drivers

| Driver type              | Pulse input type /Positioning type                     | Pulse input type                       | CC-Link direct input type       | SSCNET III type         | Pulse input type                       | CC-Link direct input type       | SSCNET III/H type         | Network card type                     |
|--------------------------|--------------------------------------------------------|----------------------------------------|---------------------------------|-------------------------|----------------------------------------|---------------------------------|---------------------------|---------------------------------------|
|                          |                                                        |                                        |                                 |                         |                                        |                                 |                           |                                       |
| Series                   | LECSA                                                  | LECSB                                  | LECSC                           | LECSS                   | LECSB-T                                | LECSC-T                         | LECSS-T                   | LECSN-T                               |
| Number of point tables*1 | Up to 7                                                | —                                      | Up to 255 (2 stations occupied) | —                       | Up to 255                              | Up to 255 (2 stations occupied) | —                         | Up to 255                             |
| Pulse input              | ○                                                      | ○                                      | —                               | —                       | ○                                      | —                               | —                         | —                                     |
| Applicable network       | —                                                      | —                                      | CC-Link                         | SSCNET III              | —                                      | CC-Link                         | SSCNET III/H              | PROFINET<br>EtherCAT®<br>EtherNet/IP™ |
| Control encoder          | Incremental 17-bit encoder                             | Absolute 18-bit encoder                | Absolute 18-bit encoder         | Absolute 18-bit encoder | Absolute 22-bit encoder                | Absolute 18-bit encoder         | Absolute 22-bit encoder   | Absolute 22-bit encoder               |
| Communication function   | USB communication                                      | USB communication, RS422 communication | USB communication               | USB communication       | USB communication, RS422 communication | USB communication               | USB communication         | USB communication                     |
| Power supply voltage [V] | 100 to 120 VAC (50/60 Hz)<br>200 to 230 VAC (50/60 Hz) |                                        |                                 |                         | 200 to 240 VAC (50/60 Hz)              | 200 to 230 VAC (50/60 Hz)       | 200 to 240 VAC (50/60 Hz) | 200 to 240 VAC (50/60 Hz)             |
| Reference page           | 269                                                    |                                        |                                 |                         |                                        |                                 |                           |                                       |

\*1 The LECSN-T only supports PROFINET and EtherCAT®.



### Specifications

| Model                            |                                        |                                                                                                                                                                                                                                                                                                                                               | LEYG25□S <sup>2</sup> /T6 (Parallel)<br>LEYG25□DS <sup>2</sup> /T6 (In-line) |            |                              | LEYG32□S <sup>3</sup> /T7 (Parallel) |            |                              | LEYG32□DS <sup>3</sup> /T7 (In-line) |            |            |
|----------------------------------|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------|------------|------------------------------|--------------------------------------|------------|------------------------------|--------------------------------------|------------|------------|
| Actuator specifications          | Work load [kg]                         | Horizontal*1                                                                                                                                                                                                                                                                                                                                  | 18                                                                           | 50         | 50                           | 30                                   | 60         | 60                           | 30                                   | 60         | 60         |
|                                  |                                        | Vertical                                                                                                                                                                                                                                                                                                                                      | 7                                                                            | 15         | 29                           | 7                                    | 17         | 35                           | 10                                   | 22         | 44         |
|                                  | Force [N]*2 (Set value: 15 to 30%)*8   |                                                                                                                                                                                                                                                                                                                                               | 65 to 131                                                                    | 127 to 255 | 242 to 485                   | 79 to 157                            | 154 to 308 | 294 to 588                   | 98 to 197                            | 192 to 385 | 368 to 736 |
|                                  | Max. speed [mm/s]                      |                                                                                                                                                                                                                                                                                                                                               | 900                                                                          | 450        | 225                          | 1200                                 | 600        | 300                          | 1000                                 | 500        | 250        |
|                                  | Pushing speed [mm/s²]*3                |                                                                                                                                                                                                                                                                                                                                               | 35 or less                                                                   |            |                              | 30 or less                           |            |                              | 30 or less                           |            |            |
|                                  | Max. acceleration/deceleration [mm/s²] |                                                                                                                                                                                                                                                                                                                                               | 5000                                                                         |            |                              | 5000                                 |            |                              |                                      |            |            |
|                                  | Positioning repeatability [mm]         | Basic type                                                                                                                                                                                                                                                                                                                                    |                                                                              |            |                              | ±0.02                                |            |                              |                                      |            |            |
|                                  |                                        | High-precision type                                                                                                                                                                                                                                                                                                                           |                                                                              |            |                              | ±0.01                                |            |                              |                                      |            |            |
|                                  | Lost motion*4 [mm]                     | Basic type                                                                                                                                                                                                                                                                                                                                    |                                                                              |            |                              | 0.1 or less                          |            |                              |                                      |            |            |
|                                  |                                        | High-precision type                                                                                                                                                                                                                                                                                                                           |                                                                              |            |                              | 0.05 or less                         |            |                              |                                      |            |            |
|                                  | Lead [mm] (including pulley ratio)     |                                                                                                                                                                                                                                                                                                                                               | 12                                                                           | 6          | 3                            | 20                                   | 10         | 5                            | 16                                   | 8          | 4          |
|                                  | Impact/Vibration resistance [m/s²]*5   |                                                                                                                                                                                                                                                                                                                                               | 50/20                                                                        |            |                              | 50/20                                |            |                              |                                      |            |            |
| Actuation type                   |                                        | Ball screw + Belt [1:1]/Ball screw                                                                                                                                                                                                                                                                                                            |                                                                              |            | Ball screw + Belt [1.25:1]   |                                      |            | Ball screw                   |                                      |            |            |
| Guide type                       |                                        | Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)                                                                                                                                                                                                                                                                                       |                                                                              |            |                              |                                      |            |                              |                                      |            |            |
| Operating temperature range [°C] |                                        | 5 to 40                                                                                                                                                                                                                                                                                                                                       |                                                                              |            | 5 to 40                      |                                      |            | 5 to 40                      |                                      |            |            |
| Operating humidity range [%RH]   |                                        | 90 or less (No condensation)                                                                                                                                                                                                                                                                                                                  |                                                                              |            | 90 or less (No condensation) |                                      |            | 90 or less (No condensation) |                                      |            |            |
| Regeneration option              |                                        | May be required depending on speed and work load (Refer to page 117.)                                                                                                                                                                                                                                                                         |                                                                              |            |                              |                                      |            |                              |                                      |            |            |
| Motor output/Size                |                                        | 100 W/□40                                                                                                                                                                                                                                                                                                                                     |                                                                              |            | 200 W/□60                    |                                      |            |                              |                                      |            |            |
| Motor type                       |                                        | AC servo motor (100/200 VAC)                                                                                                                                                                                                                                                                                                                  |                                                                              |            | AC servo motor (100/200 VAC) |                                      |            |                              |                                      |            |            |
| Encoder*9                        |                                        | Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev)<br>Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)<br>Motor type T6, T7: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSSB-T□, LECSS-T□)<br>Motor type T6, T7: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC-T□) |                                                                              |            |                              |                                      |            |                              |                                      |            |            |
| Power [W]*6                      |                                        | Max. power 445                                                                                                                                                                                                                                                                                                                                |                                                                              |            | Max. power 724               |                                      |            | Max. power 724               |                                      |            |            |
| Type*7                           |                                        | Non-magnetizing lock                                                                                                                                                                                                                                                                                                                          |                                                                              |            | Non-magnetizing lock         |                                      |            |                              |                                      |            |            |
| Holding force [N]                |                                        | 131                                                                                                                                                                                                                                                                                                                                           | 255                                                                          | 485        | 157                          | 308                                  | 588        | 197                          | 385                                  | 736        |            |
| Power at 20°C [W]                |                                        | 6.3                                                                                                                                                                                                                                                                                                                                           |                                                                              |            | 7.9                          |                                      |            | 7.9                          |                                      |            |            |
| Rated voltage [V]                |                                        | 24 VDC <sup>0</sup> <sub>-10%</sub>                                                                                                                                                                                                                                                                                                           |                                                                              |            |                              |                                      |            |                              |                                      |            |            |

\*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.

\*2 The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph" on page 118.

The driver applicable to the pushing operation is "LECS", "LECSB-T", and "LECS-T".

The LECSSB-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings.

To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website: <https://www.smcworld.com>

When selecting the LECSS or LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.

\*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.

\*3 The allowable collision speed for collision with the workpiece with the torque control mode

\*4 A reference value for correcting errors in reciprocal operation

\*5 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*6 Indicates the max. power during operation (including the driver)  
When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.

\*7 Only when motor option "With lock" is selected

\*8 For motor types T6 and T7, the set value is 12 to 24%.

\*9 For motor types T6 and T7, the resolution will change depending on the driver type.

### Weight

#### Weight: Top Side Parallel Motor Type

| Series      |                                    | LEYG25MS <sup>2</sup> /T6 |      |      |      |      |      |      | LEYG32MS <sup>3</sup> /T7 |      |      |      |      |      |      |
|-------------|------------------------------------|---------------------------|------|------|------|------|------|------|---------------------------|------|------|------|------|------|------|
| Stroke [mm] |                                    | 30                        | 50   | 100  | 150  | 200  | 250  | 300  | 30                        | 50   | 100  | 150  | 200  | 250  | 300  |
| Motor type  | Incremental encoder                | 1.80                      | 1.99 | 2.31 | 2.73 | 3.07 | 3.41 | 3.67 | 3.24                      | 3.50 | 4.05 | 4.80 | 5.35 | 5.83 | 6.28 |
|             | Absolute encoder [S <sup>2</sup> ] | 1.86                      | 2.05 | 2.37 | 2.79 | 3.13 | 3.47 | 3.73 | 3.18                      | 3.44 | 3.99 | 4.74 | 5.29 | 5.77 | 6.22 |
|             | Absolute encoder [T <sup>2</sup> ] | 1.8                       | 2.0  | 2.4  | 2.8  | 3.1  | 3.5  | 3.7  | 3.2                       | 3.4  | 4.0  | 4.7  | 5.3  | 5.7  | 6.2  |

| Series        |                                    | LEYG25LS <sup>2</sup> /T6 |      |      |      |      |      |      | LEYG32LS <sup>3</sup> /T7 |      |      |      |      |      |      |
|---------------|------------------------------------|---------------------------|------|------|------|------|------|------|---------------------------|------|------|------|------|------|------|
| Stroke [mm]   |                                    | 30                        | 50   | 100  | 150  | 200  | 250  | 300  | 30                        | 50   | 100  | 150  | 200  | 250  | 300  |
| Motor<br>type | Incremental encoder                | 1.81                      | 2.02 | 2.26 | 2.69 | 2.95 | 3.27 | 3.51 | 3.24                      | 3.51 | 3.9  | 4.64 | 5.06 | 5.56 | 5.96 |
|               | Absolute encoder [S <sup>6</sup> ] | 1.87                      | 2.08 | 2.32 | 2.75 | 3.01 | 3.33 | 3.57 | 3.18                      | 3.45 | 3.84 | 4.58 | 5.00 | 5.50 | 5.90 |
|               | Absolute encoder [T <sup>5</sup> ] | 1.9                       | 2.1  | 2.3  | 2.7  | 3.0  | 3.3  | 3.6  | 3.2                       | 3.4  | 3.8  | 4.6  | 5.0  | 5.5  | 5.9  |

#### Weight: In-line Motor Type

| Series      |                                    | LEYG25MDS <sup>2</sup> /T6 |      |      |      |      |      |      | LEYG32MDS <sup>3</sup> /T7 |      |      |      |      |      |      |
|-------------|------------------------------------|----------------------------|------|------|------|------|------|------|----------------------------|------|------|------|------|------|------|
| Stroke [mm] |                                    | 30                         | 50   | 100  | 150  | 200  | 250  | 300  | 30                         | 50   | 100  | 150  | 200  | 250  | 300  |
| Motor type  | Incremental encoder                | 1.83                       | 2.02 | 2.34 | 2.76 | 3.10 | 3.44 | 3.70 | 3.26                       | 3.52 | 4.07 | 4.82 | 5.37 | 5.85 | 6.30 |
|             | Absolute encoder [S <sup>2</sup> ] | 1.89                       | 2.08 | 2.40 | 2.82 | 3.16 | 3.50 | 3.76 | 3.20                       | 3.46 | 4.01 | 4.76 | 5.31 | 5.79 | 6.24 |
|             | Absolute encoder [T <sup>2</sup> ] | 1.9                        | 2.1  | 2.4  | 2.8  | 3.1  | 3.5  | 3.7  | 3.2                        | 3.4  | 4.0  | 4.7  | 5.3  | 5.8  | 6.2  |

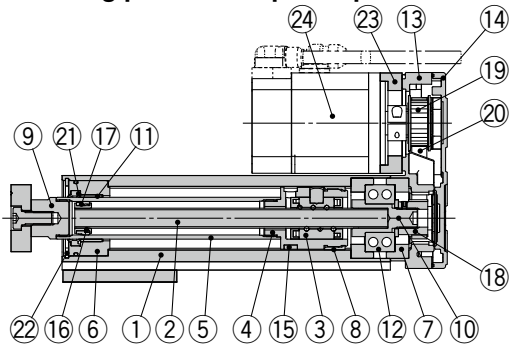
| Series      |                                    | LEYG25LDS <sup>2</sup> /T6 |      |      |      |      |      |      | LEYG32LDS <sup>3</sup> /T7 |      |      |      |      |      |      |
|-------------|------------------------------------|----------------------------|------|------|------|------|------|------|----------------------------|------|------|------|------|------|------|
| Stroke [mm] |                                    | 30                         | 50   | 100  | 150  | 200  | 250  | 300  | 30                         | 50   | 100  | 150  | 200  | 250  | 300  |
| Motor type  | Incremental encoder                | 1.84                       | 2.05 | 2.29 | 2.72 | 2.98 | 3.30 | 3.54 | 3.26                       | 3.53 | 3.92 | 4.66 | 5.08 | 5.58 | 5.98 |
|             | Absolute encoder [S <sup>2</sup> ] | 1.90                       | 2.11 | 2.35 | 2.78 | 3.04 | 3.36 | 3.60 | 3.20                       | 3.47 | 3.86 | 4.60 | 5.02 | 5.52 | 5.92 |
|             | Absolute encoder [T <sup>2</sup> ] | 1.9                        | 2.1  | 2.3  | 2.8  | 3.0  | 3.3  | 3.6  | 3.2                        | 3.4  | 3.8  | 4.6  | 5.0  | 5.5  | 5.9  |

#### Additional Weight

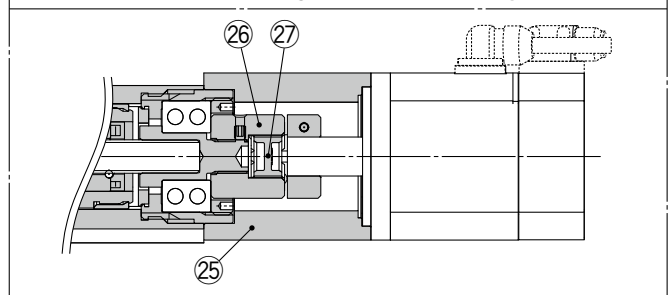
| Size |                                    | 25   | 32   |
|------|------------------------------------|------|------|
| Lock | Incremental encoder                | 0.20 | 0.40 |
|      | Absolute encoder [S <sup>2</sup> ] | 0.30 | 0.66 |
|      | Absolute encoder [T <sup>2</sup> ] | 0.3  | 0.7  |

## Construction

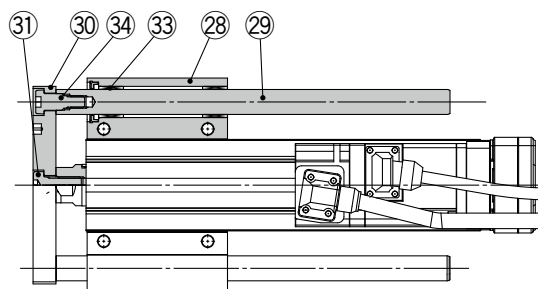
### Motor mounting position: Top side parallel motor type



### Motor mounting position: In-line type



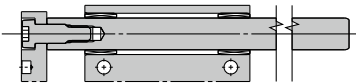
### LEYG□M



#### LEYG25/32M: 50st or less

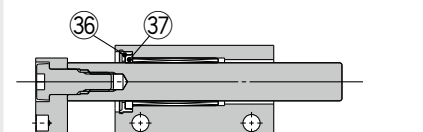


#### LEYG25/32M: Over 50st

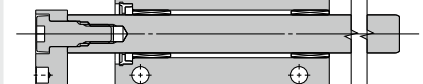


#### When grease retaining function selected

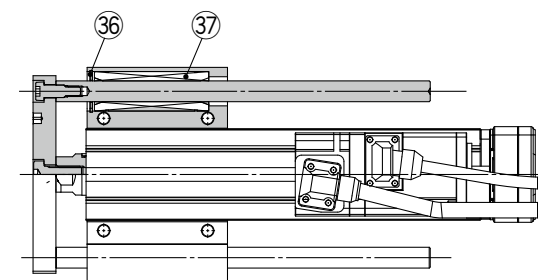
#### LEYG25/32M: 50st or less



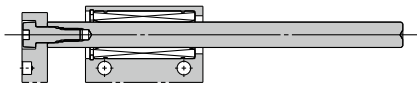
#### LEYG25/32M: Over 50st



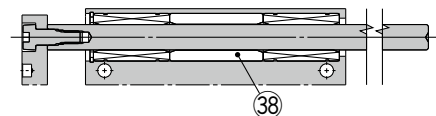
### LEYG□L



#### LEYG25/32L: 100st or less



#### LEYG25/32L: Over 100st



## Component Parts

| No. | Description        | Material                    | Note                  |
|-----|--------------------|-----------------------------|-----------------------|
| 1   | Body               | Aluminum alloy              | Anodized              |
| 2   | Ball screw shaft   | Alloy steel                 |                       |
| 3   | Ball screw nut     | Synthetic resin/Alloy steel |                       |
| 4   | Piston             | Aluminum alloy              |                       |
| 5   | Piston rod         | Stainless steel             | Hard chrome plating   |
| 6   | Rod cover          | Aluminum alloy              |                       |
| 7   | Bearing holder     | Aluminum alloy              |                       |
| 8   | Rotation stopper   | Synthetic resin             |                       |
| 9   | Socket             | Free cutting carbon steel   | Nickel plating        |
| 10  | Connected shaft    | Free cutting carbon steel   | Nickel plating        |
| 11  | Bushing            | Bearing alloy               |                       |
| 12  | Bearing            | —                           |                       |
| 13  | Return box         | Aluminum die-cast           | Coating               |
| 14  | Return plate       | Aluminum die-cast           | Coating               |
| 15  | Magnet             | —                           |                       |
| 16  | Wear ring holder   | Stainless steel             | Stroke 101 mm or more |
| 17  | Wear ring          | Synthetic resin             | Stroke 101 mm or more |
| 18  | Screw shaft pulley | Aluminum alloy              |                       |
| 19  | Motor pulley       | Aluminum alloy              |                       |
| 20  | Belt               | —                           |                       |
| 21  | Seal               | NBR                         |                       |
| 22  | Retaining ring     | Steel for spring            | Phosphate coating     |
| 23  | Motor adapter      | Aluminum alloy              | Coating               |
| 24  | Motor              | —                           |                       |
| 25  | Motor block        | Aluminum alloy              | Coating               |
| 26  | Hub                | Aluminum alloy              |                       |

| No. | Description              | Material         | Note              |
|-----|--------------------------|------------------|-------------------|
| 27  | Spider                   | Urethane         |                   |
| 28  | Guide attachment         | Aluminum alloy   | Anodized          |
| 29  | Guide rod                | Carbon steel     |                   |
| 30  | Plate                    | Aluminum alloy   | Anodized          |
| 31  | Plate mounting cap screw | Carbon steel     | Nickel plating    |
| 32  | Guide cap screw          | Carbon steel     | Nickel plating    |
| 33  | Sliding bearing          | Bearing alloy    |                   |
| 34  | Felt                     | Felt             |                   |
| 35  | Holder                   | Synthetic resin  |                   |
| 36  | Retaining ring           | Steel for spring | Phosphate coating |
| 37  | Ball bushing             | —                |                   |
| 38  | Spacer                   | Aluminum alloy   | Chromating        |

### Support Block

| Size | Order no. |
|------|-----------|
| 25   | LEYG-S025 |
| 32   | LEYG-S032 |

\* Two body mounting screws are included with the support block.

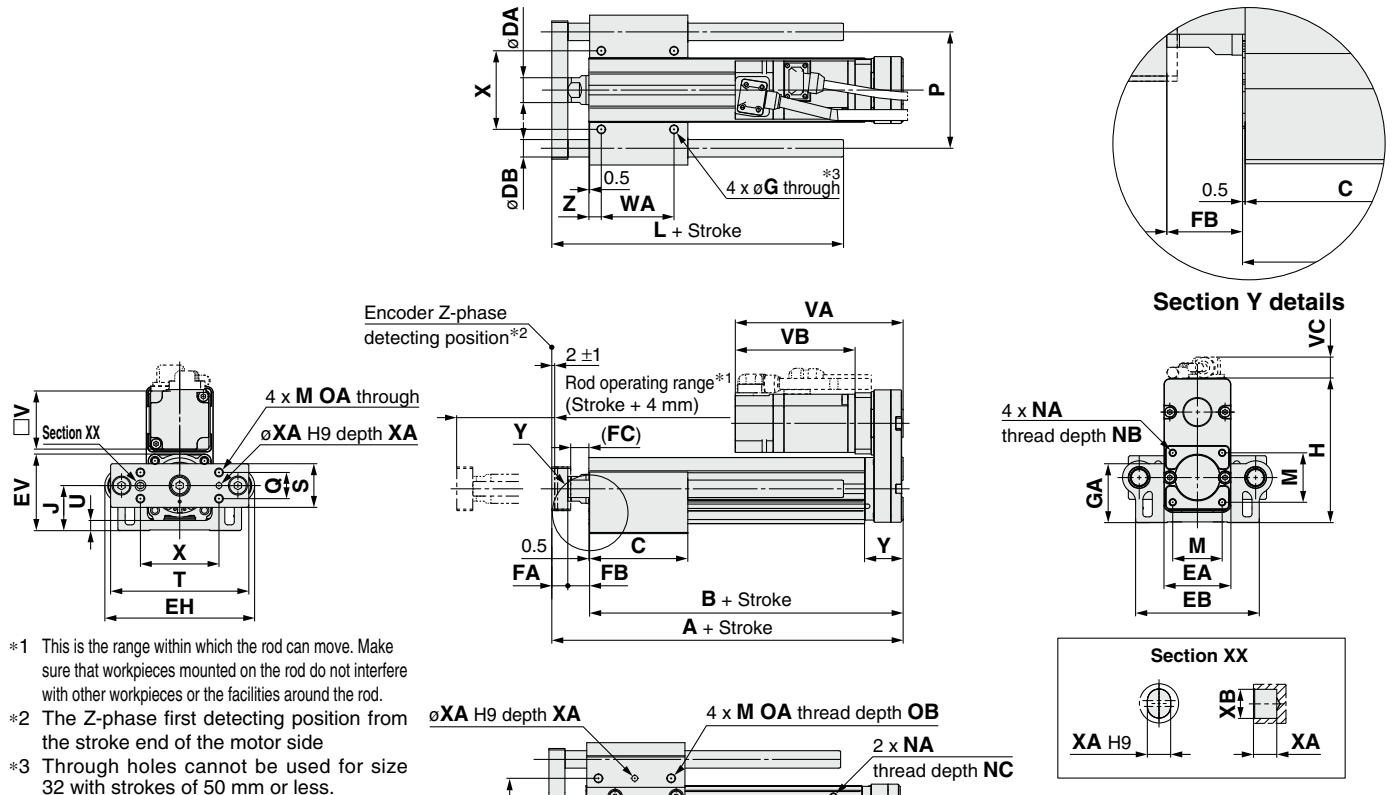
### Replacement Parts/Belt

| Size | Order no. |
|------|-----------|
| 25   | LE-D-2-2  |
| 32   | LE-D-2-4  |

### Replacement Parts/Grease Pack

| Applied portion | Order no.       |
|-----------------|-----------------|
| Piston rod      | GR-S-010 (10 g) |
| Guide rod       | GR-S-020 (20 g) |

### Dimensions: Top Side Parallel Motor



- \*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- \*2 The Z-phase first detecting position from the stroke end of the motor side
- \*3 Through holes cannot be used for size 32 with strokes of 50 mm or less.

| LEYG□L (Ball bushing bearing) [mm] |                   |       |    |
|------------------------------------|-------------------|-------|----|
| Size                               | Stroke range [mm] | L     | DB |
| 25                                 | Up to 114         | 91    | 10 |
|                                    | 115 to 190        | 115   |    |
|                                    | 191 to 300        | 133   |    |
| 32                                 | Up to 114         | 97.5  | 13 |
|                                    | 115 to 190        | 116.5 |    |
|                                    | 191 to 300        | 134   |    |

| LEYG□M (Sliding bearing) [mm] |                   |       |    |
|-------------------------------|-------------------|-------|----|
| Size                          | Stroke range [mm] | L     | DB |
| 25                            | Up to 59          | 67.5  | 12 |
|                               | 60 to 185         | 100.5 |    |
|                               | 186 to 300        | 138   |    |
| 32                            | Up to 59          | 74    | 16 |
|                               | 60 to 185         | 107   |    |
|                               | 186 to 300        | 144   |    |

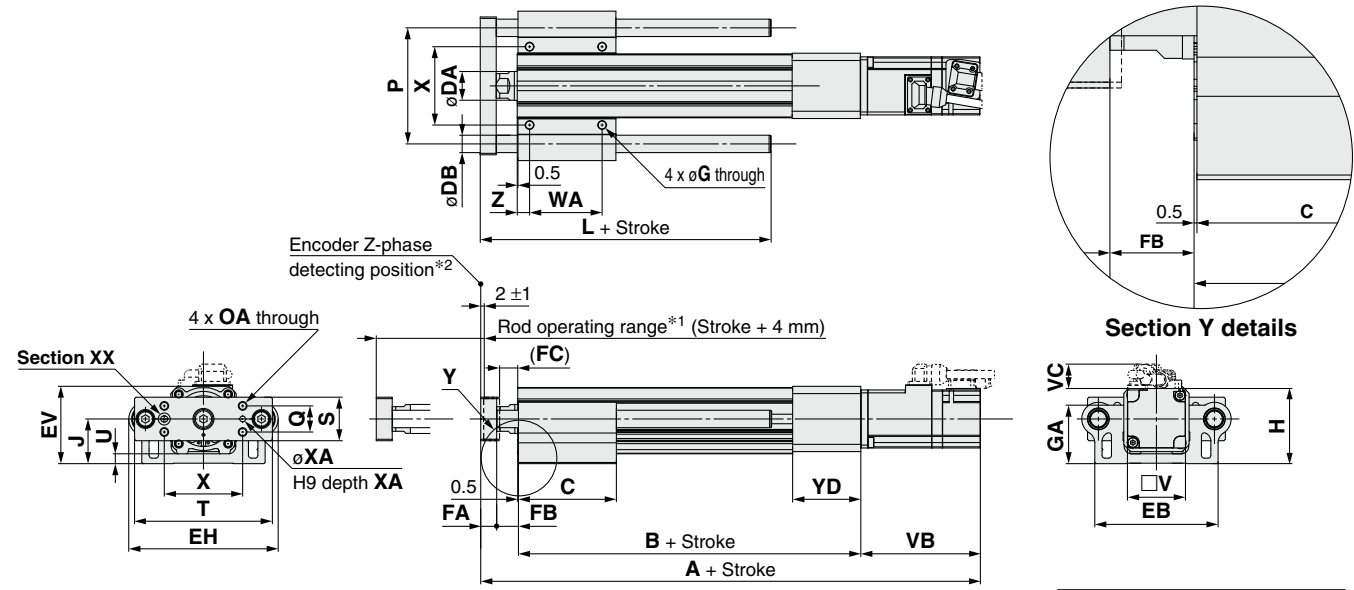
### LEYG□M, LEYG□L Common

| Size | Stroke range<br>[mm] | A     | B   | C    | DA | EA | EB  | EH  | EV   | FA | FB   | FC   | G   | GA   | H     | J    | K  | M  | NA       | NB | NC  |
|------|----------------------|-------|-----|------|----|----|-----|-----|------|----|------|------|-----|------|-------|------|----|----|----------|----|-----|
| 25   | Up to 39             | 141.5 | 116 | 50   | 20 | 46 | 85  | 103 | 52.3 | 11 | 14.5 | 12.5 | 5.4 | 40.3 | 98.8  | 30.8 | 29 | 34 | M5 x 0.8 | 8  | 6.5 |
|      | 40 to 100            |       |     | 67.5 |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 101 to 124           | 166.5 | 141 | 84.5 |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 125 to 200           |       |     | 102  |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 201 to 300           |       |     |      |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
| 32   | Up to 39             | 160.5 | 130 | 55   | 25 | 60 | 101 | 123 | 63.8 | 12 | 18.5 | 16.5 | 5.4 | 50.3 | 125.3 | 38.3 | 30 | 40 | M6 x 1.0 | 10 | 8.5 |
|      | 40 to 100            |       |     | 68   |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 101 to 124           | 190.5 | 160 | 85   |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 125 to 200           |       |     | 102  |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 201 to 300           |       |     |      |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |

| Size | Stroke range<br>[mm] | OA       | OB | P  | Q  | S  | T   | U   | V  | WA  | WB   | WC | X  | XA | XB | Y    | Z   |
|------|----------------------|----------|----|----|----|----|-----|-----|----|-----|------|----|----|----|----|------|-----|
| 25   | Up to 39             | M6 x 1.0 | 12 | 80 | 18 | 30 | 95  | 6.8 | 40 | 35  | 26   | 70 | 54 | 4  | 5  | 26.5 | 8.5 |
|      | 40 to 100            |          |    |    |    |    |     |     |    | 50  | 33.5 |    |    |    |    |      |     |
|      | 101 to 124           |          |    |    |    |    |     |     |    | 70  | 43.5 | 95 |    |    |    |      |     |
|      | 125 to 200           |          |    |    |    |    |     |     |    | 85  | 51   |    |    |    |    |      |     |
|      | 201 to 300           |          |    |    |    |    |     |     |    | 40  | 28.5 |    |    |    |    |      |     |
| 32   | Up to 39             | M6 x 1.0 | 12 | 95 | 28 | 40 | 117 | 7.3 | 60 | 50  | 33.5 | 75 | 64 | 5  | 6  | 34   | 8.5 |
|      | 40 to 100            |          |    |    |    |    |     |     |    | 70  | 43.5 |    |    |    |    |      |     |
|      | 101 to 124           |          |    |    |    |    |     |     |    | 105 |      |    |    |    |    |      |     |
|      | 125 to 200           |          |    |    |    |    |     |     |    |     | 85   | 51 |    |    |    |      |     |
|      | 201 to 300           |          |    |    |    |    |     |     |    |     |      |    |    |    |    |      |     |

| Size | Incremental encoder [S2/S3] |      |      |           |       |      | Absolute encoder [S6/S7] |      |      |           |       |      | Absolute encoder [T6/T7] |      |      |           |       |      |
|------|-----------------------------|------|------|-----------|-------|------|--------------------------|------|------|-----------|-------|------|--------------------------|------|------|-----------|-------|------|
|      | Without lock                |      |      | With lock |       |      | Without lock             |      |      | With lock |       |      | Without lock             |      |      | With lock |       |      |
|      | VA                          | VB   | VC   | VA        | VB    | VC   | VA                       | VB   | VC   | VA        | VB    | VC   | VA                       | VB   | VC   | VA        | VB    | VC   |
| 25   | 120                         | 87   | 14.1 | 156.9     | 123.9 | 15.8 | 115.4                    | 82.4 | 14.1 | 156.5     | 123.5 | 15.8 | 115.4                    | 82.4 | 14.1 | 156       | 123   | 15.8 |
| 32   | 128.2                       | 88.2 | 17.1 | 156.8     | 116.8 | 17.1 | 116.6                    | 76.6 | 17.1 | 156.1     | 116.1 | 17.1 | 116.6                    | 76.6 | 17.1 | 153.4     | 113.4 | 17.1 |

## Dimensions: In-line Motor



- \*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.
- \*2 The Z-phase first detecting position from the stroke end of the motor side

### LEYG□L (Ball bushing bearing) [mm]

| Size | Stroke range [mm] | L     | DB |
|------|-------------------|-------|----|
| 25   | Up to 114         | 91    | 10 |
|      | 115 to 190        | 115   |    |
|      | 191 to 300        | 133   |    |
| 32   | Up to 114         | 97.5  | 13 |
|      | 115 to 190        | 116.5 |    |
|      | 191 to 300        | 134   |    |

### LEYG□M (Sliding bearing) [mm]

| Size | Stroke range [mm] | L     | DB |
|------|-------------------|-------|----|
| 25   | Up to 59          | 67.5  | 12 |
|      | 60 to 185         | 100.5 |    |
|      | 186 to 300        | 138   |    |
| 32   | Up to 59          | 74    | 16 |
|      | 60 to 185         | 107   |    |
|      | 186 to 300        | 144   |    |

### LEYG□M, LEYG□L Common [mm]

| Size | Stroke range<br>[mm] | B        | C    | DA | EB  | EH  | EV   | FA  | FB   | FC   | G    | GA   | H    | J    | K  | NA       | NC  |
|------|----------------------|----------|------|----|-----|-----|------|-----|------|------|------|------|------|------|----|----------|-----|
| 25   | Up to 39             | 136.5    | 50   | 20 | 85  | 103 | 52.3 | 11  | 14.5 | 12.5 | 5.4  | 40.3 | 53.3 | 30.8 | 29 | M5 x 0.8 | 6.5 |
|      | 40 to 100            |          | 67.5 |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
|      | 101 to 124           | 161.5    | 84.5 |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
|      | 125 to 200           |          | 102  |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
|      | 201 to 300           |          |      |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
| 32   | Up to 39             | 156      | 55   | 25 | 101 | 123 | 63.8 | 12  | 18.5 | 16.5 | 5.4  | 50.3 | 68.3 | 38.3 | 30 | M6 x 1.0 | 8.5 |
|      | 40 to 100            |          | 68   |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
|      | 101 to 124           | 186      | 85   |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
|      | 125 to 200           |          | 102  |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
|      | 201 to 300           |          |      |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
| Size | Stroke range<br>[mm] | OA       | OB   | P  | Q   | S   | T    | U   | V    | WA   | WB   | WC   | X    | XA   | XB | YD       | Z   |
| 25   | Up to 39             | M6 x 1.0 | 12   | 80 | 18  | 30  | 95   | 6.8 | 40   | 35   | 26   | 70   | 54   | 4    | 5  | 47       | 8.5 |
|      | 40 to 100            |          |      |    |     |     |      |     |      | 50   | 33.5 |      |      |      |    |          |     |
|      | 101 to 124           |          |      |    |     |     |      |     |      | 70   | 43.5 | 95   |      |      |    |          |     |
|      | 125 to 200           |          |      |    |     |     |      |     |      | 85   | 51   |      |      |      |    |          |     |
|      | 201 to 300           |          |      |    |     |     |      |     |      |      |      |      |      |      |    |          |     |
| 32   | Up to 39             | M6 x 1.0 | 12   | 95 | 28  | 40  | 117  | 7.3 | 60   | 40   | 28.5 | 75   | 64   | 5    | 6  | 60       | 8.5 |
|      | 40 to 100            |          |      |    |     |     |      |     |      | 50   | 33.5 |      |      |      |    |          |     |
|      | 101 to 124           |          |      |    |     |     |      |     |      | 70   | 43.5 | 105  |      |      |    |          |     |
|      | 125 to 200           |          |      |    |     |     |      |     |      | 85   | 51   |      |      |      |    |          |     |
|      | 201 to 300           |          |      |    |     |     |      |     |      |      |      |      |      |      |    |          |     |

| Size | Stroke range [mm] | Incremental encoder [S2/S3] |      |      |           |       |      | Absolute encoder [S6/S7] |      |      |           |       |      | Absolute encoder [T6/T7] |      |      |           |       |      |
|------|-------------------|-----------------------------|------|------|-----------|-------|------|--------------------------|------|------|-----------|-------|------|--------------------------|------|------|-----------|-------|------|
|      |                   | Without lock                |      |      | With lock |       |      | Without lock             |      |      | With lock |       |      | Without lock             |      |      | With lock |       |      |
|      |                   | A                           | VB   | VC   | A         | VB    | VC   | A                        | VB   | VC   | A         | VB    | VC   | A                        | VB   | VC   | A         | VB    | VC   |
| 25   | 15 to 100         | 249                         | 87   | 14.6 | 285.9     | 123.9 | 16.3 | 244.4                    | 82.4 | 14.6 | 285.5     | 123.5 | 16.3 | 244.4                    | 82.4 | 14.6 | 285       | 123   | 16.3 |
|      | 105 to 300        | 274                         |      |      | 310.9     |       |      | 269.4                    |      |      | 310.5     |       |      | 269.4                    |      |      | 310       |       |      |
| 32   | 15 to 100         | 274.7                       | 88.2 | 17.1 | 303.3     | 116.8 | 17.1 | 263.1                    | 76.6 | 17.1 | 302.6     | 116.1 | 17.1 | 263.1                    | 76.6 | 17.1 | 299.9     | 113.4 | 17.1 |
|      | 105 to 300        | 304.7                       |      |      | 333.3     |       |      | 293.1                    |      |      | 332.6     |       |      | 293.1                    |      |      | 329.9     |       |      |

# LEYG Series

AC Servo Motor

## Support Block

### ● Guide for support block application

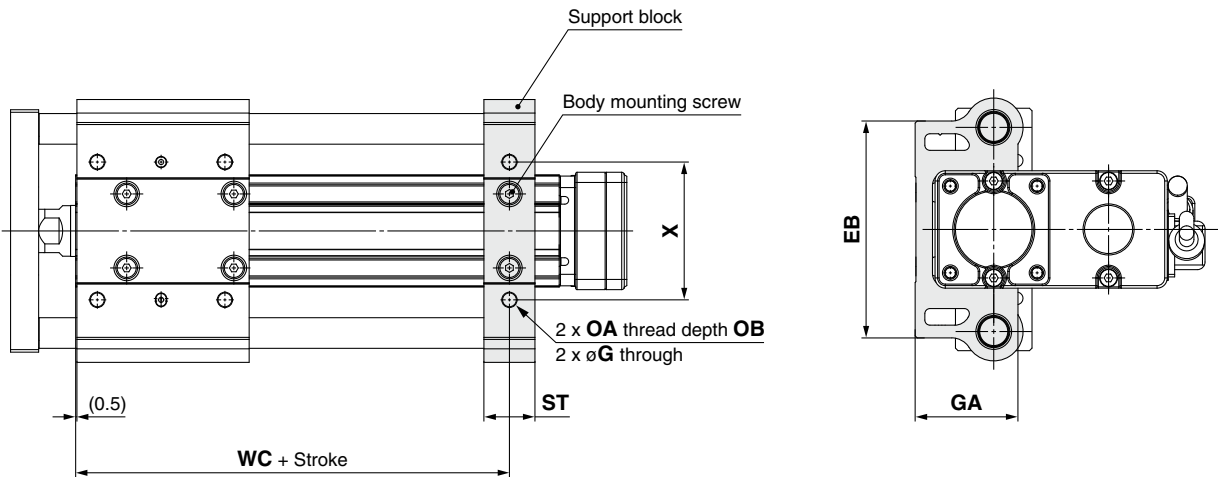
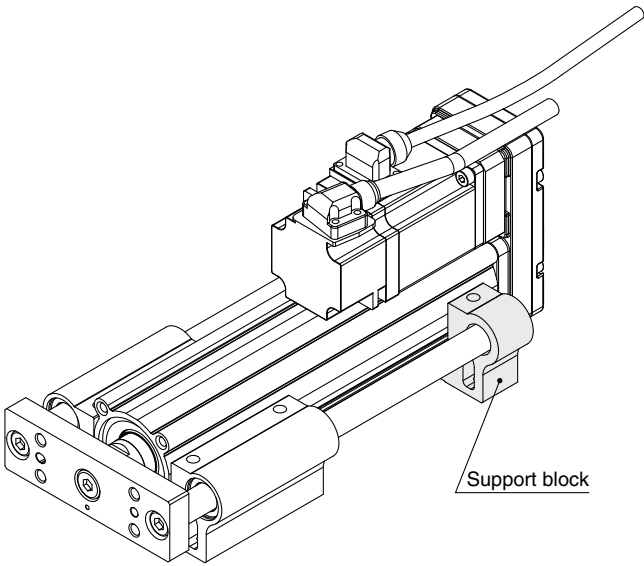
When the stroke exceeds 100 mm and the mounting orientation is horizontal, the body will be bent. Mounting the support block is recommended. (Please order it separately from the models shown below.)

### Support Block Model

LEYG-S 025

● Size

|     |             |
|-----|-------------|
| 025 | For size 25 |
| 032 | For size 32 |



### ⚠ Caution

Do not install the body using only a support block.  
The support block should be used only for support.

| [mm] |           |                              |     |       |        |          |    |    |     |    |
|------|-----------|------------------------------|-----|-------|--------|----------|----|----|-----|----|
| Size | Model     | Stroke range                 | EB  | G     | GA     | OA       | OB | ST | WC  | X  |
| 25   | LEYG-S025 | 100st or less                | 85  | 5.4   | 40.3   | M6 x 1.0 | 12 | 20 | 70  | 54 |
|      |           | 101st or more, 300st or less |     |       |        |          |    |    | 95  |    |
| 32   | LEYG-S032 | 100st or less                | 101 | (5.4) | (50.3) | M6 x 1.0 | 12 | 22 | 75  | 64 |
|      |           | 101st or more, 300st or less |     |       |        |          |    |    | 105 |    |

\* Two body mounting screws are included with the support block.  
\* The through holes of the LEYG-S032 cannot be used for the top side parallel motor type. Use taps on the bottom.

|                                 |                |       |                                                |       |       |       |       |          |             |        |        |                |     |                                                |     |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|----------|-------------|--------|--------|----------------|-----|------------------------------------------------|-----|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       |          | Environment |        |        | AC Servo Motor |     | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |     | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61 | 25A-LEY     | LEY-X5 | LEY-X7 | LEYG           | LEY | LEYG                                           | LEY |                    |



# Electric Actuator Guide Rod Type

## LEYG Series LEYG25, 32



\* For details, refer to page 307 and onward.

LECS□ Series ▶ p. 139

### How to Order

LEY **H** **G** **25** **M** **V6** **B** - **200** - **S** **3** **M2**

1 2 3 4 5 6 7 8 9 10 11 12 13

#### 1 Accuracy

|     |                     |
|-----|---------------------|
| Nil | Basic type          |
| H   | High-precision type |

#### 2 Size

|    |
|----|
| 25 |
| 32 |

#### 3 Bearing type

|   |                      |
|---|----------------------|
| M | Sliding bearing      |
| L | Ball bushing bearing |

#### 4 Motor mounting position

|     |                   |
|-----|-------------------|
| Nil | Top side parallel |
| D   | In-line           |

#### 5 Motor type

| Symbol | Type                              | Output [W] | Actuator size | Compatible drivers     |
|--------|-----------------------------------|------------|---------------|------------------------|
| V6*1   | AC servo motor (Absolute encoder) | 100        | 25            | LECYM2-V5<br>LECYU2-V5 |
| V7     |                                   | 200        | 32            | LECYM2-V7<br>LECYU2-V7 |

\*1 For motor type V6, the compatible driver part number suffix is V5.

#### 6 Lead [mm]

| Symbol | LEYG25 | LEYG32*1 |
|--------|--------|----------|
| A      | 12     | 16 (20)  |
| B      | 6      | 8 (10)   |
| C      | 3      | 4 (5)    |

\*1 The values shown in ( ) are the leads for the top side parallel motor type. (Equivalent leads which include the pulley ratio [1.25:1])

#### 7 Stroke [mm]

|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 300 | 300 |

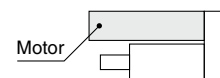
\* For details, refer to the applicable stroke table below.

\* There is a limit for mounting the size 32 top side parallel motor type and strokes of 50 mm or less. Refer to the dimensions.

#### 8 Motor option

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock      |

\* When "With lock" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.



#### 9 Guide option

|     |                                |
|-----|--------------------------------|
| Nil | Without option                 |
| F   | With grease retaining function |

\* Only available for the sliding bearing

#### 10 Cable type\*1

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| S   | Standard cable                 |
| R   | Robotic cable (Flexible cable) |

\*1 A motor cable and encoder cable are included with the product.

The motor cable for lock option is included when the motor with lock option is selected.

#### 11 Cable length [m]\*1

|     |               |
|-----|---------------|
| Nil | Without cable |
| 3   | 3             |
| 5   | 5             |
| A   | 10            |
| C   | 20            |

\*1 The length of the motor and encoder cables are the same. (For with lock)

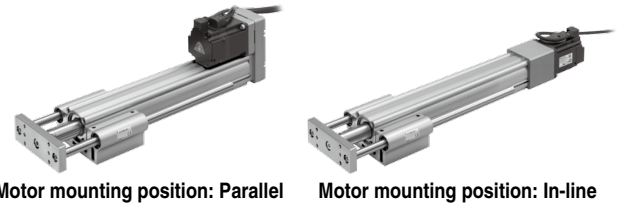
#### Applicable Stroke Table

●: Standard

| Model \ Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | Manufacturable stroke range |
|---------------------|----|----|-----|-----|-----|-----|-----|-----------------------------|
| LEYG25              | ●  | ●  | ●   | ●   | ●   | ●   | ●   | 15 to 300                   |
| LEYG32              | ●  | ●  | ●   | ●   | ●   | ●   | ●   | 20 to 300                   |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 105 to 107.



## 12 Driver type

|            | Compatible drivers | Power supply voltage [V] |
|------------|--------------------|--------------------------|
| <b>Nil</b> | Without driver     | —                        |
| <b>M2</b>  | LECYM2-V□          | 200 to 230               |
| <b>U2</b>  | LECYU2-V□          | 200 to 230               |

\* When a driver type is selected, a cable is included. Select the cable type and cable length.

## 13 I/O cable length [m]\*1

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>H</b>   | Without cable (Connector only) |
| <b>1</b>   | 1.5                            |

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to page 302 if an I/O cable is required. (Options are shown on page 302.)

### Use of auto switches for the guide rod type LEYG series

- Auto switches must be inserted from the front side with the rod (plate) sticking out.
- Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
- Please contact SMC when using auto switches on the side of the rod that sticks out, as it is produced as a special order.

## Compatible Drivers

| Driver type                     | MECHATROLINK-II type                    | MECHATROLINK-III type |
|---------------------------------|-----------------------------------------|-----------------------|
|                                 |                                         |                       |
| <b>Series</b>                   | <b>LECYM</b>                            | <b>LECYU</b>          |
| <b>Applicable network</b>       | MECHATROLINK-II                         | MECHATROLINK-III      |
| <b>Control encoder</b>          | Absolute<br>20-bit encoder              |                       |
| <b>Communication device</b>     | USB communication, RS-422 communication |                       |
| <b>Power supply voltage [V]</b> | 200 to 230 VAC (50/60 Hz)               |                       |
| <b>Reference page</b>           | 295                                     |                       |

# LEYG Series

AC Servo Motor

## Specifications

| Model                                                                |                                                               |                              | LEYG25 <sup>M</sup> V6 (Parallel)<br>LEYG25 <sup>L</sup> DV6 (In-line) |            |                              | LEYG32 <sup>M</sup> V7 (Parallel) |            |            | LEYG32 <sup>L</sup> DV7 (In-line) |            |            |
|----------------------------------------------------------------------|---------------------------------------------------------------|------------------------------|------------------------------------------------------------------------|------------|------------------------------|-----------------------------------|------------|------------|-----------------------------------|------------|------------|
| Actuator specifications                                              | Work load [kg]                                                | Horizontal <sup>*1</sup>     | 18                                                                     | 50         | 50                           | 30                                | 60         | 60         | 30                                | 60         | 60         |
|                                                                      |                                                               | Vertical                     | 7                                                                      | 15         | 29                           | 7                                 | 17         | 35         | 10                                | 22         | 44         |
|                                                                      | Force [N] <sup>*2</sup> (Set value: 45 to 90%)                |                              | 65 to 131                                                              | 127 to 255 | 242 to 485                   | 79 to 157                         | 154 to 308 | 294 to 588 | 98 to 197                         | 192 to 385 | 368 to 736 |
|                                                                      | Max. speed [mm/s]                                             |                              | 900                                                                    | 450        | 225                          | 1200                              | 600        | 300        | 1000                              | 500        | 250        |
|                                                                      | Pushing speed [mm/s] <sup>*3</sup>                            |                              | 35 or less                                                             |            |                              | 30 or less                        |            |            | 30 or less                        |            |            |
|                                                                      | Max. acceleration/deceleration [mm/s <sup>2</sup> ]           |                              | 5000                                                                   |            |                              | 5000                              |            |            |                                   |            |            |
|                                                                      | Positioning repeatability [mm]                                | Basic type                   | ±0.02                                                                  |            |                              | ±0.02                             |            |            |                                   |            |            |
|                                                                      |                                                               | High-precision type          | ±0.01                                                                  |            |                              | ±0.01                             |            |            |                                   |            |            |
|                                                                      | Lost motion [mm]                                              | Basic type                   | 0.1 or less                                                            |            |                              | 0.1 or less                       |            |            |                                   |            |            |
|                                                                      |                                                               | High-precision type          | 0.05 or less                                                           |            |                              | 0.05 or less                      |            |            |                                   |            |            |
|                                                                      | Lead [mm] (including pulley ratio)                            |                              | 12                                                                     | 6          | 3                            | 20                                | 10         | 5          | 16                                | 8          | 4          |
|                                                                      | Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*4</sup> |                              | 50/20                                                                  |            |                              | 50/20                             |            |            |                                   |            |            |
|                                                                      | Actuation type                                                |                              | Ball screw + Belt [1:1]/Ball screw                                     |            |                              | Ball screw + Belt [1:1.25]        |            |            | Ball screw                        |            |            |
|                                                                      | Guide type                                                    |                              | Sliding bearing (LEYG□M), Ball bushing bearing (LEYG□L)                |            |                              |                                   |            |            |                                   |            |            |
| Operating temperature range [°C]                                     |                                                               | 5 to 40                      |                                                                        |            | 5 to 40                      |                                   |            |            |                                   |            |            |
| Operating humidity range [%RH]                                       |                                                               | 90 or less (No condensation) |                                                                        |            | 90 or less (No condensation) |                                   |            |            |                                   |            |            |
| Required conditions for the regenerative resistor <sup>*5</sup> [kg] | Horizontal                                                    | Not required                 |                                                                        |            | Not required                 |                                   |            |            |                                   |            |            |
|                                                                      | Vertical                                                      | 5 or more                    |                                                                        |            | 2 or more                    |                                   |            |            |                                   |            |            |
| Electric specifications                                              | Motor output/Size                                             |                              | 100 W/□40                                                              |            |                              | 200 W/□60                         |            |            |                                   |            |            |
|                                                                      | Motor type                                                    |                              | AC servo motor (200 VAC)                                               |            |                              | AC servo motor (200 VAC)          |            |            |                                   |            |            |
|                                                                      | Encoder                                                       |                              | Absolute 20-bit encoder (Resolution: 1048576 p/rev)                    |            |                              |                                   |            |            |                                   |            |            |
|                                                                      | Power [W] <sup>*6</sup>                                       |                              | Max. power 445                                                         |            |                              | Max. power 724                    |            |            | Max. power 724                    |            |            |
| Lock unit specifications                                             | Type <sup>*7</sup>                                            |                              | Non-magnetizing lock                                                   |            |                              | Non-magnetizing lock              |            |            |                                   |            |            |
|                                                                      | Holding force [N]                                             |                              | 131                                                                    | 255        | 485                          | 157                               | 308        | 588        | 197                               | 385        | 736        |
|                                                                      | Power at 20°C [W]                                             |                              | 5.5                                                                    |            |                              | 6                                 |            |            | 6                                 |            |            |
|                                                                      | Rated voltage [V]                                             |                              | 24 VDC <sup>+10%</sup> <sub>0</sub>                                    |            |                              |                                   |            |            |                                   |            |            |

- \*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.
- \*2 The force setting range (set values for the driver) for the force control with the torque control mode  
Set it while referencing the "Force Conversion Graph" on page 123.
- \*3 The allowable collision speed for collision with the workpiece with the torque control mode
- \*4 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

- Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*5 The work load conditions which require the regenerative resistor when operating at the max. speed (Duty ratio: 100%).  
Order the regenerative resistor separately. For details, refer to the "Required Conditions for the Regenerative Resistor (Guide)" on page 122.
- \*6 Indicates the max. power during operation (including the driver)  
When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
- \*7 Only when motor option "With lock" is selected

## Weight

### Product Weight: Top Side Parallel Motor Type

[kg]

| Series      | LEYG25MV6 |     |     |     |     |     |     | LEYG32MV7 |     |     |     |     |     |     |
|-------------|-----------|-----|-----|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-----|-----|
| Stroke [mm] | 30        | 50  | 100 | 150 | 200 | 250 | 300 | 30        | 50  | 100 | 150 | 200 | 250 | 300 |
| Weight [kg] | 1.7       | 1.9 | 2.2 | 2.6 | 3.0 | 3.3 | 3.6 | 3.1       | 3.4 | 4.0 | 4.7 | 5.3 | 5.7 | 6.2 |

| Series      | LEYG25LV6 |     |     |     |     |     |     | LEYG32LV7 |     |     |     |     |     |     |
|-------------|-----------|-----|-----|-----|-----|-----|-----|-----------|-----|-----|-----|-----|-----|-----|
| Stroke [mm] | 30        | 50  | 100 | 150 | 200 | 250 | 300 | 30        | 50  | 100 | 150 | 200 | 250 | 300 |
| Weight [kg] | 1.7       | 1.9 | 2.2 | 2.6 | 2.9 | 3.2 | 3.4 | 3.1       | 3.4 | 3.8 | 4.5 | 5.0 | 5.5 | 5.9 |

### Product Weight: In-line Motor Type

[kg]

| Series      | LEYG25MDV6 |     |     |     |     |     |     | LEYG32MDV7 |     |     |     |     |     |     |
|-------------|------------|-----|-----|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|-----|
| Stroke [mm] | 30         | 50  | 100 | 150 | 200 | 250 | 300 | 30         | 50  | 100 | 150 | 200 | 250 | 300 |
| Weight [kg] | 1.7        | 1.9 | 2.2 | 2.6 | 3.0 | 3.3 | 3.6 | 3.2        | 3.4 | 4.0 | 4.7 | 5.3 | 5.8 | 6.2 |

| Series      | LEYG25LDV6 |     |     |     |     |     |     | LEYG32LDV7 |     |     |     |     |     |     |
|-------------|------------|-----|-----|-----|-----|-----|-----|------------|-----|-----|-----|-----|-----|-----|
| Stroke [mm] | 30         | 50  | 100 | 150 | 200 | 250 | 300 | 30         | 50  | 100 | 150 | 200 | 250 | 300 |
| Weight [kg] | 1.7        | 2.0 | 2.2 | 2.6 | 2.9 | 3.2 | 3.4 | 3.2        | 3.4 | 3.8 | 4.6 | 5.0 | 5.5 | 5.9 |

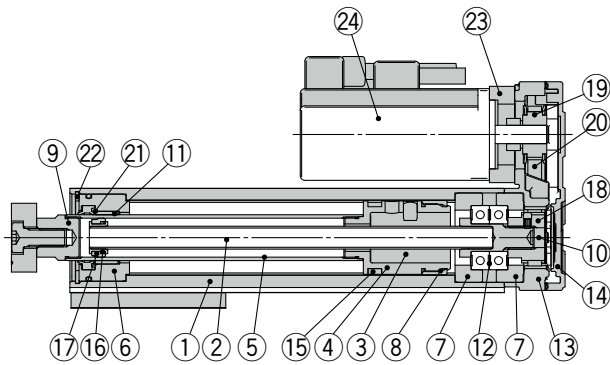
### Additional Weight

[kg]

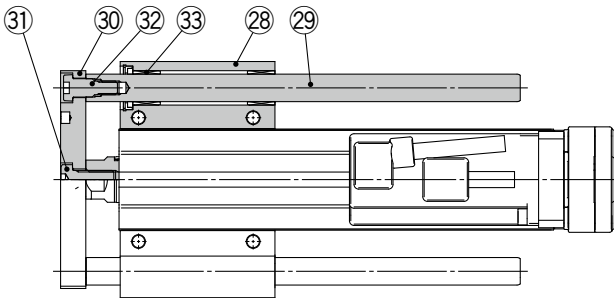
|      |     |     |
|------|-----|-----|
| Size | 25  | 32  |
| Lock | 0.3 | 0.6 |

## Construction

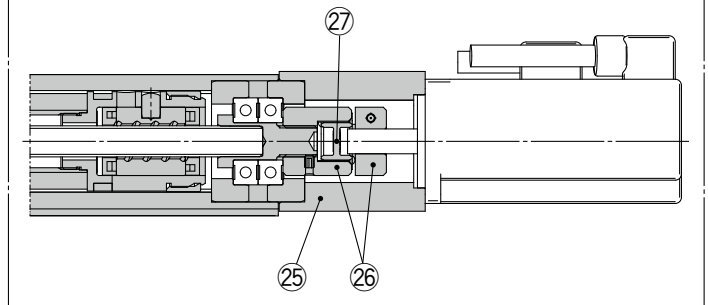
Motor mounting position: Top side parallel motor type



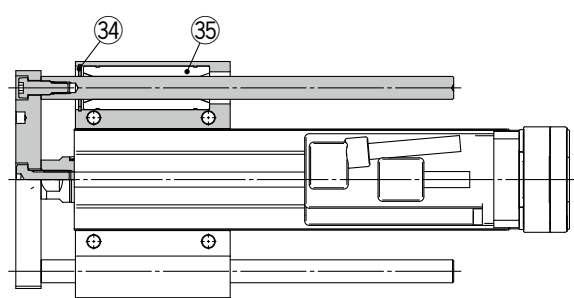
LEYG□M



Motor mounting position: In-line type



LEYG□L



## Component Parts

| No. | Description        | Material                  | Note                  |
|-----|--------------------|---------------------------|-----------------------|
| 1   | Body               | Aluminum alloy            | Anodized              |
| 2   | Ball screw shaft   | Alloy steel               |                       |
| 3   | Ball screw nut     | —                         |                       |
| 4   | Piston             | Aluminum alloy            |                       |
| 5   | Piston rod         | Stainless steel           | Hard chrome plating   |
| 6   | Rod cover          | Aluminum alloy            |                       |
| 7   | Bearing holder     | Aluminum alloy            |                       |
| 8   | Rotation stopper   | Synthetic resin           |                       |
| 9   | Socket             | Free cutting carbon steel | Nickel plating        |
| 10  | Connected shaft    | Free cutting carbon steel | Nickel plating        |
| 11  | Bushing            | Bearing alloy             |                       |
| 12  | Bearing            | —                         |                       |
| 13  | Return box         | Aluminum die-cast         | Coating               |
| 14  | Return plate       | Aluminum die-cast         | Coating               |
| 15  | Magnet             | —                         |                       |
| 16  | Wear ring holder   | Stainless steel           | Stroke 101 mm or more |
| 17  | Wear ring          | Synthetic resin           | Stroke 101 mm or more |
| 18  | Screw shaft pulley | Aluminum alloy            |                       |

## Support Block

| Size | Order no. |
|------|-----------|
| 25   | LEYG-S025 |
| 32   | LEYG-S032 |

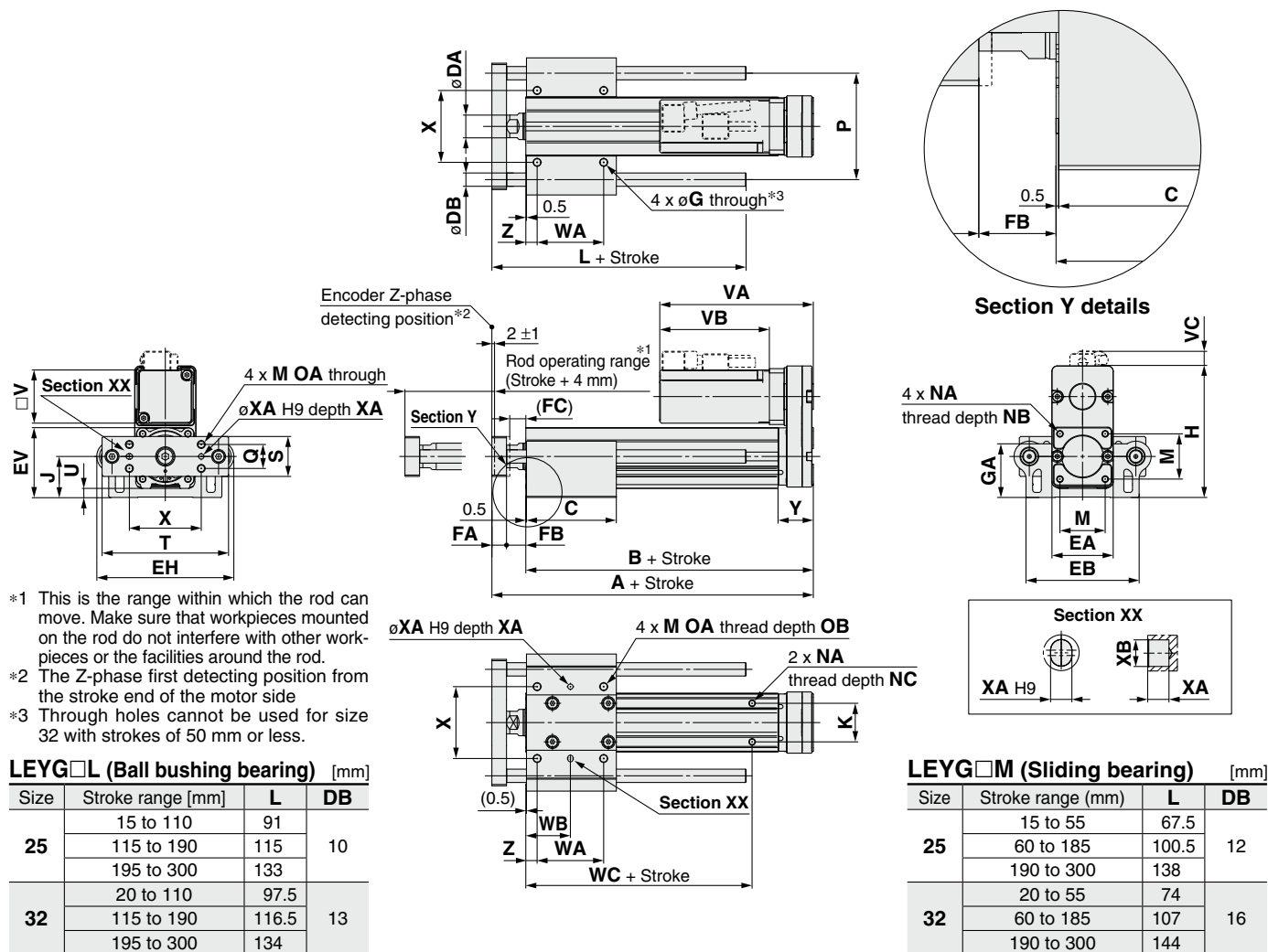
\* Two body mounting screws are included with the support block.

| No. | Description              | Material         | Note              |
|-----|--------------------------|------------------|-------------------|
| 19  | Motor pulley             | Aluminum alloy   |                   |
| 20  | Belt                     | —                |                   |
| 21  | Seal                     | NBR              |                   |
| 22  | Retaining ring           | Steel for spring | Phosphate coating |
| 23  | Motor adapter            | Aluminum alloy   | Coating           |
| 24  | Motor                    | —                |                   |
| 25  | Motor block              | Aluminum alloy   | Coating           |
| 26  | Hub                      | Aluminum alloy   |                   |
| 27  | Spider                   | Urethane         | Spider            |
| 28  | Guide attachment         | Aluminum alloy   | Anodized          |
| 29  | Guide rod                | Carbon steel     |                   |
| 30  | Plate                    | Aluminum alloy   | Anodized          |
| 31  | Plate mounting cap screw | Carbon steel     | Nickel plating    |
| 32  | Guide cap screw          | Carbon steel     | Nickel plating    |
| 33  | Sliding bearing          | Bearing alloy    |                   |
| 34  | Retaining ring           | Steel for spring | Phosphate coating |
| 35  | Ball bushing             | —                |                   |

## Replacement Parts/Belt

| Size | Order no. |
|------|-----------|
| 25   | LE-D-2-2  |
| 32   | LE-D-2-4  |

### Dimensions: Top Side Parallel Motor



### LEYG□M, LEYG□L Common

| Size | Stroke range [mm] | A     | B   | C    | DA | EA | EB  | EH  | EV   | FA | FB   | FC   | G   | GA   | H     | J    | K  | M  | NA       | NB | NC  |
|------|-------------------|-------|-----|------|----|----|-----|-----|------|----|------|------|-----|------|-------|------|----|----|----------|----|-----|
| 25   | 15 to 35          | 141.5 | 116 | 50   | 20 | 46 | 85  | 103 | 52.3 | 11 | 14.5 | 12.5 | 5.4 | 40.3 | 98.8  | 30.8 | 29 | 34 | M5 x 0.8 | 8  | 6.5 |
|      | 40 to 100         |       |     | 67.5 |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 105 to 120        |       |     | 84.5 |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 125 to 200        |       |     | 102  |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
| 32   | 20 to 35          | 160.5 | 130 | 55   | 25 | 60 | 101 | 123 | 63.8 | 12 | 18.5 | 16.5 | 5.4 | 50.3 | 125.3 | 38.3 | 30 | 40 | M6 x 1.0 | 10 | 8.5 |
|      | 40 to 100         |       |     | 68   |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 105 to 120        |       |     | 85   |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 125 to 200        |       |     | 102  |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
| 32   | 20 to 35          | 160.5 | 130 | 55   | 25 | 60 | 101 | 123 | 63.8 | 12 | 18.5 | 16.5 | 5.4 | 50.3 | 125.3 | 38.3 | 30 | 40 | M6 x 1.0 | 10 | 8.5 |
|      | 40 to 100         |       |     | 68   |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 105 to 120        |       |     | 85   |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |
|      | 125 to 200        |       |     | 102  |    |    |     |     |      |    |      |      |     |      |       |      |    |    |          |    |     |

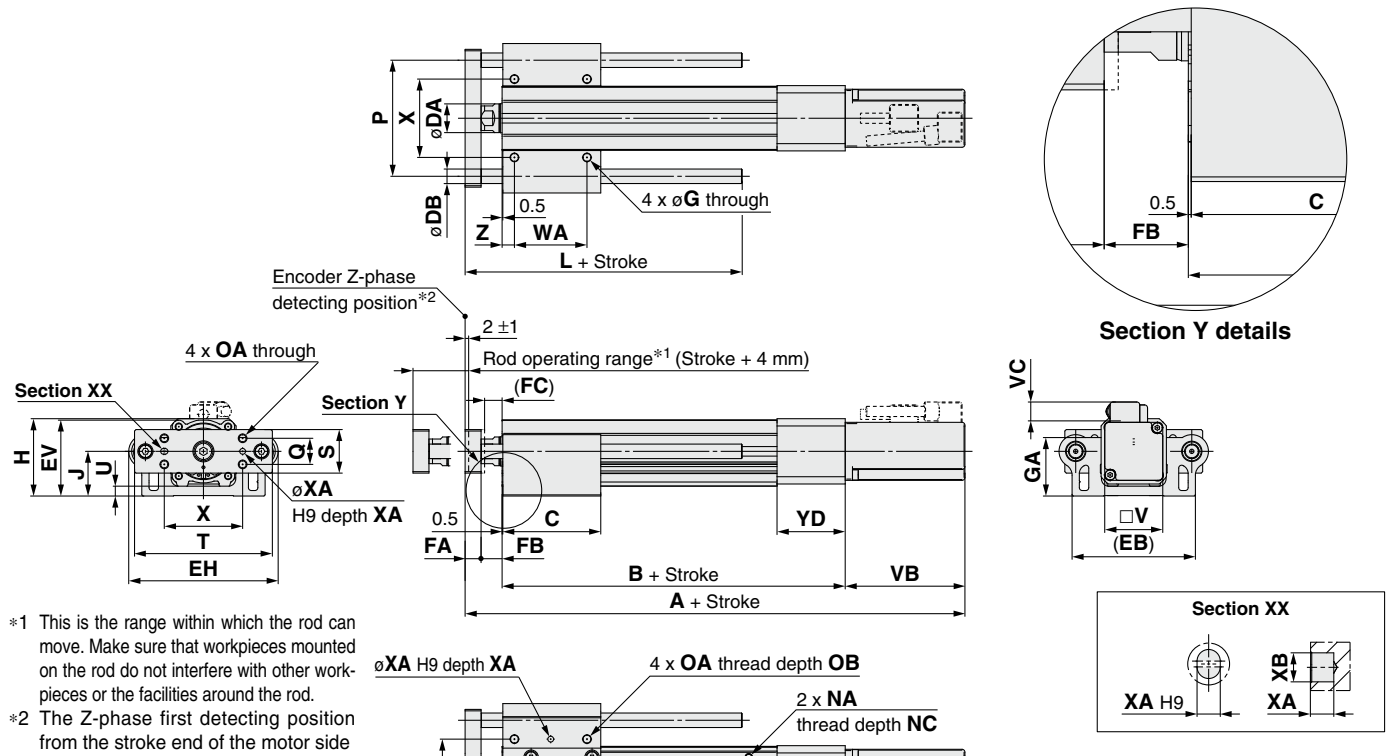
  

| Size | Stroke range [mm] | OA       | OB | P  | Q  | S  | T   | U   | V  | WA | WB   | WC | X  | XA | XB | Y    | Z   |
|------|-------------------|----------|----|----|----|----|-----|-----|----|----|------|----|----|----|----|------|-----|
| 25   | 15 to 35          | M6 x 1.0 | 12 | 80 | 18 | 30 | 95  | 6.8 | 40 | 35 | 26   | 70 | 54 | 4  | 5  | 26.5 | 8.5 |
|      | 40 to 100         |          |    |    |    |    |     |     |    | 50 | 33.5 |    |    |    |    |      |     |
|      | 105 to 120        |          |    |    |    |    |     |     |    | 70 | 43.5 |    |    |    |    |      |     |
|      | 125 to 200        |          |    |    |    |    |     |     |    | 85 | 51   |    |    |    |    |      |     |
| 32   | 20 to 35          | M6 x 1.0 | 12 | 95 | 28 | 40 | 117 | 7.3 | 60 | 40 | 28.5 | 75 | 64 | 5  | 6  | 34   | 8.5 |
|      | 40 to 100         |          |    |    |    |    |     |     |    | 50 | 33.5 |    |    |    |    |      |     |
|      | 105 to 120        |          |    |    |    |    |     |     |    | 70 | 43.5 |    |    |    |    |      |     |
|      | 125 to 200        |          |    |    |    |    |     |     |    | 85 | 51   |    |    |    |    |      |     |

| Size | Without lock |      |    | With lock |       |    |
|------|--------------|------|----|-----------|-------|----|
|      | VA           | VB   | VC | VA        | VB    | VC |
| 25   | 115.5        | 82.5 | 11 | 160.5     | 127.5 | 11 |
| 32   | 120          | 80   | 14 | 160       | 120   | 14 |

## Dimensions: In-line Motor



**LEYG□L (Ball bushing bearing)** [mm]

| Size | Stroke range [mm] | L     | DB |
|------|-------------------|-------|----|
| 25   | 15 to 110         | 91    | 10 |
|      | 115 to 190        | 115   |    |
|      | 195 to 300        | 133   |    |
| 32   | 20 to 110         | 97.5  | 13 |
|      | 115 to 190        | 116.5 |    |
|      | 195 to 300        | 134   |    |

**LEYG□M (Sliding bearing)** [mm]

| Size | Stroke range [mm] | L     | DB |
|------|-------------------|-------|----|
| 25   | 15 to 55          | 67.5  | 12 |
|      | 60 to 185         | 100.5 |    |
|      | 190 to 300        | 138   |    |
| 32   | 20 to 55          | 74    | 16 |
|      | 60 to 185         | 107   |    |
|      | 190 to 300        | 144   |    |

**LEYG□M, LEYG□L Common**

| Size | Stroke range<br>[mm] | B     | C    | DA | EB  | EH  | EV   | FA | FB   | FC   | G   | GA   | H    | J    | K  | NA       | NC  |
|------|----------------------|-------|------|----|-----|-----|------|----|------|------|-----|------|------|------|----|----------|-----|
| 25   | 15 to 35             | 136.5 | 50   | 20 | 85  | 103 | 52.3 | 11 | 14.5 | 12.5 | 5.4 | 40.3 | 53.3 | 30.8 | 29 | M5 x 0.8 | 6.5 |
|      | 40 to 100            |       | 67.5 |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 105 to 120           | 161.5 | 84.5 |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 125 to 200           |       | 102  |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 205 to 300           |       | 102  |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
| 32   | 20 to 35             | 156   | 55   | 25 | 101 | 123 | 63.8 | 12 | 18.5 | 16.5 | 5.4 | 50.3 | 68.3 | 38.3 | 30 | M6 x 1.0 | 8.5 |
|      | 40 to 100            |       | 68   |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 105 to 120           | 186   | 85   |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 125 to 200           |       | 102  |    |     |     |      |    |      |      |     |      |      |      |    |          |     |
|      | 205 to 300           |       | 102  |    |     |     |      |    |      |      |     |      |      |      |    |          |     |

| Size | Stroke range<br>[mm] | OA       | OB | P  | Q  | S  | T   | U   | V  | WA | WB   | WC  | X  | XA | XB | YD | Z   |
|------|----------------------|----------|----|----|----|----|-----|-----|----|----|------|-----|----|----|----|----|-----|
| 25   | 15 to 35             | M6 x 1.0 | 12 | 80 | 18 | 30 | 95  | 6.8 | 40 | 35 | 26   | 70  | 54 | 4  | 5  | 47 | 8.5 |
|      | 40 to 100            |          |    |    |    |    |     |     |    | 50 | 33.5 |     |    |    |    |    |     |
|      | 105 to 120           |          |    |    |    |    |     |     |    | 70 | 43.5 | 95  |    |    |    |    |     |
|      | 125 to 200           |          |    |    |    |    |     |     |    | 85 | 51   |     |    |    |    |    |     |
|      | 205 to 300           |          |    |    |    |    |     |     |    | 85 | 51   |     |    |    |    |    |     |
| 32   | 20 to 35             | M6 x 1.0 | 12 | 95 | 28 | 40 | 117 | 7.3 | 60 | 40 | 28.5 | 75  | 64 | 5  | 6  | 60 | 8.5 |
|      | 40 to 100            |          |    |    |    |    |     |     |    | 50 | 33.5 |     |    |    |    |    |     |
|      | 105 to 120           |          |    |    |    |    |     |     |    | 70 | 43.5 | 105 |    |    |    |    |     |
|      | 125 to 200           |          |    |    |    |    |     |     |    | 85 | 51   |     |    |    |    |    |     |
|      | 205 to 300           |          |    |    |    |    |     |     |    | 85 | 51   |     |    |    |    |    |     |

| Size | Stroke range<br>[mm] | Without lock |      |      | With lock |       |      |
|------|----------------------|--------------|------|------|-----------|-------|------|
|      |                      | A            | VB   | VC   | A         | VB    | VC   |
| 25   | 15 to 100            | 255.5        | 82.5 | 11.5 | 300.5     | 127.5 | 11.5 |
|      | 105 to 300           | 280.5        |      |      | 325.5     |       |      |
| 32   | 15 to 100            | 266.5        | 80   | 14   | 306.5     | 120   | 14   |
|      | 105 to 300           | 296.5        |      |      | 336.5     |       |      |



## Support Block

### ● Guide for support block application

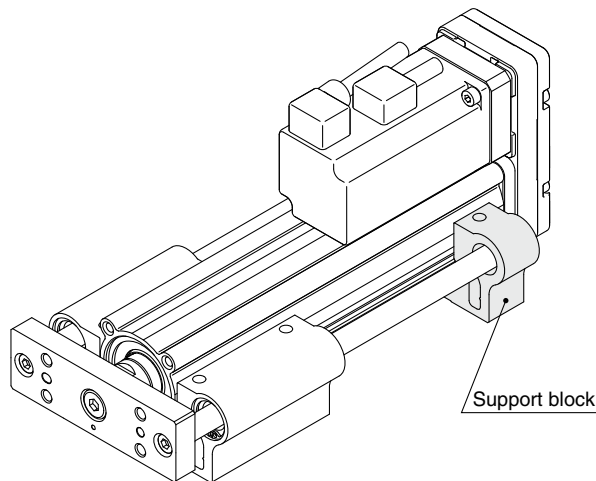
When the stroke exceeds 100 mm and the mounting orientation is horizontal, the body will be bent. Mounting the support block is recommended. (Please order it separately from the models shown below.)

### Support Block Model

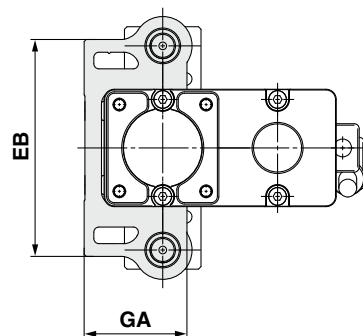
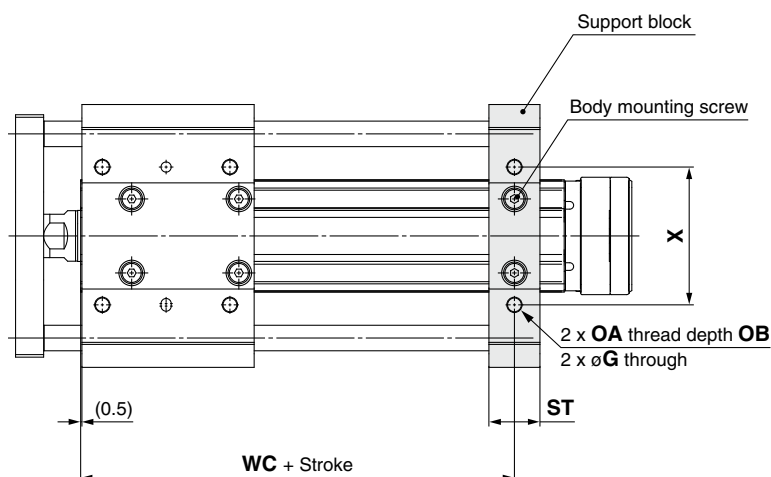
**LEYG-S 025**

● **Size**

|            |             |
|------------|-------------|
| <b>025</b> | For size 25 |
| <b>032</b> | For size 32 |



Support block



### ⚠ Caution

Do not install the body using only a support block.  
The support block should be used only for support.

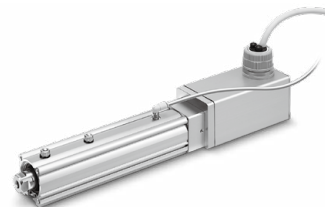
| [mm]      |                  |              |     |     |      |          |    |    |     |    |
|-----------|------------------|--------------|-----|-----|------|----------|----|----|-----|----|
| Size      | Model            | Stroke range | EB  | G   | GA   | OA       | OB | ST | WC  | X  |
| <b>25</b> | <b>LEYG-S025</b> | 15 to 100    | 85  | 5.4 | 40.3 | M6 x 1.0 | 12 | 20 | 70  | 54 |
|           |                  | 105 to 300   |     |     |      |          |    |    | 95  |    |
| <b>32</b> | <b>LEYG-S032</b> | 20 to 100    | 101 | 5.4 | 50.3 | M6 x 1.0 | 12 | 22 | 75  | 64 |
|           |                  | 105 to 300   |     |     |      |          |    |    | 105 |    |

\* Two body mounting screws are included with the support block.

\* The through holes of the LEYG-S032 cannot be used for the top side parallel motor type. Use taps on the bottom.



# Model Selection



Refer to page 156 for the LECPA, JXC□<sub>3</sub> and page 157 for the LECA6.

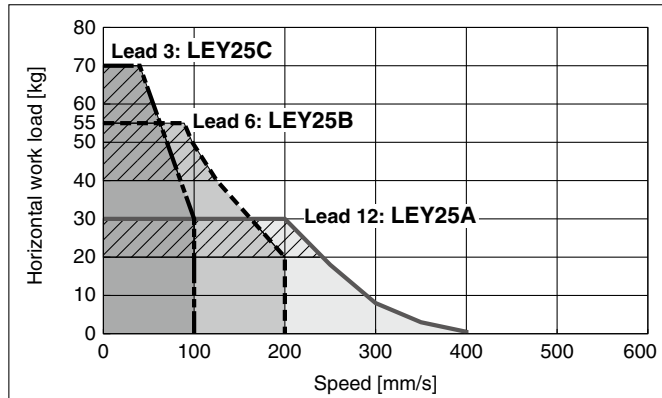
LEY-X7 Series ▶ p. 163

## Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) JXC□1, LECP1

### Horizontal

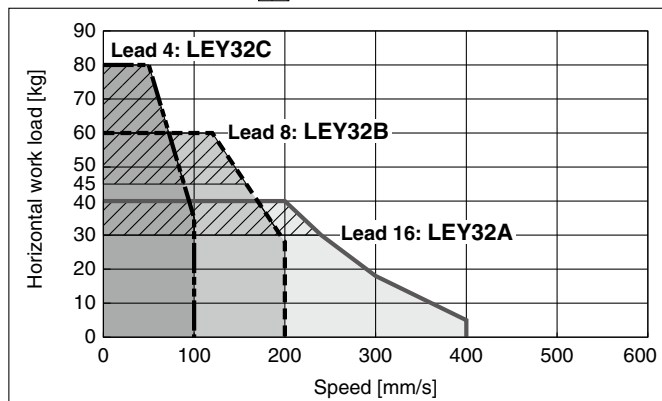
#### LEY25□-X7

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



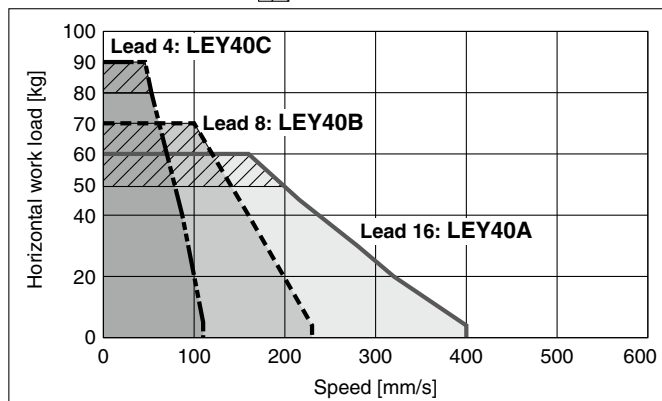
#### LEY32□-X7

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



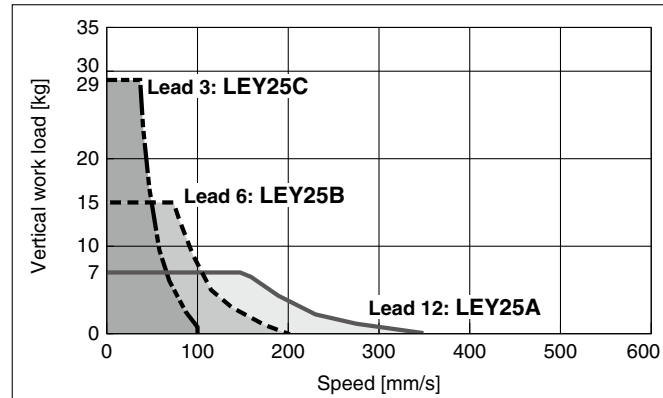
#### LEY40□-X7

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

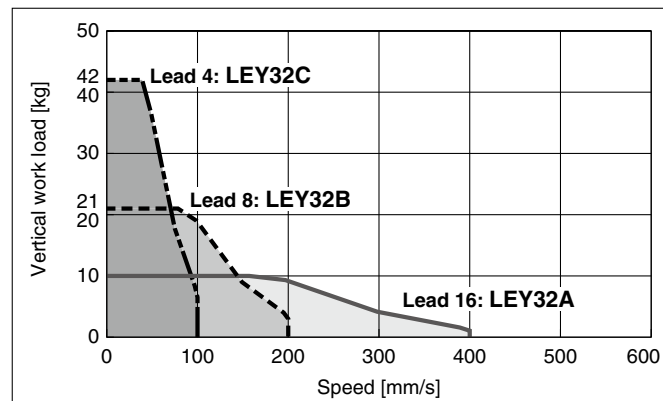


### Vertical

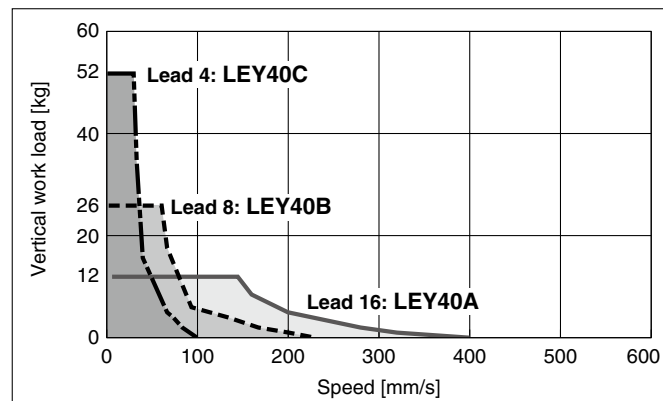
#### LEY25□-X7



#### LEY32□-X7



#### LEY40□-X7



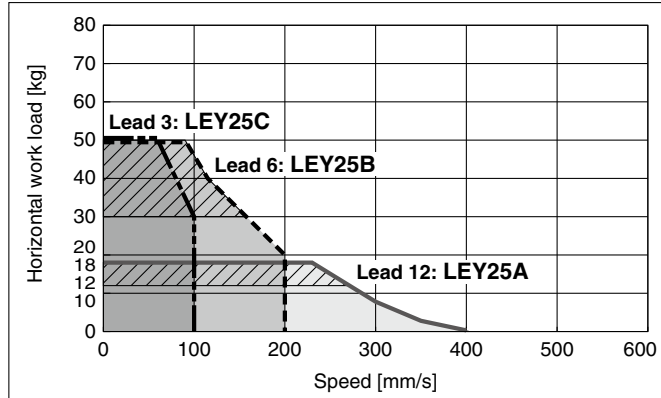
## Speed-Work Load Graph (Guide) For Step Motor (Servo/24 VDC) LECPA, JXC<sup>2</sup><sub>3</sub>

Refer to page 155 for the JXC<sup>1</sup><sub>1</sub>,  
LECP1 and page 157 for the LECA6.

### Horizontal

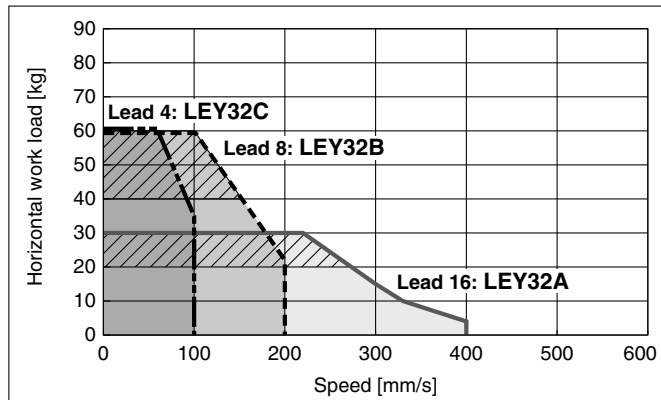
#### LEY25<sup>□</sup>-X7

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

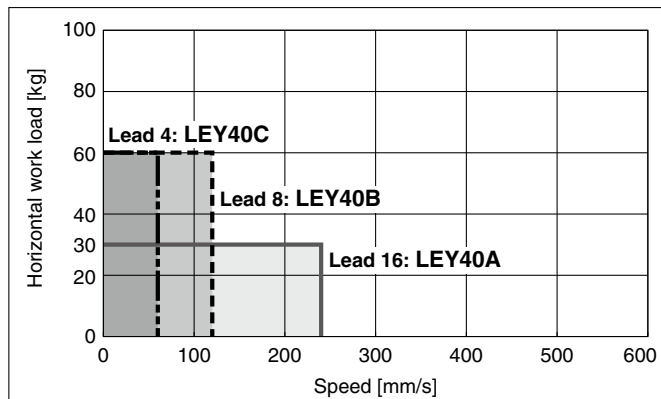


#### LEY32<sup>□</sup>-X7

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

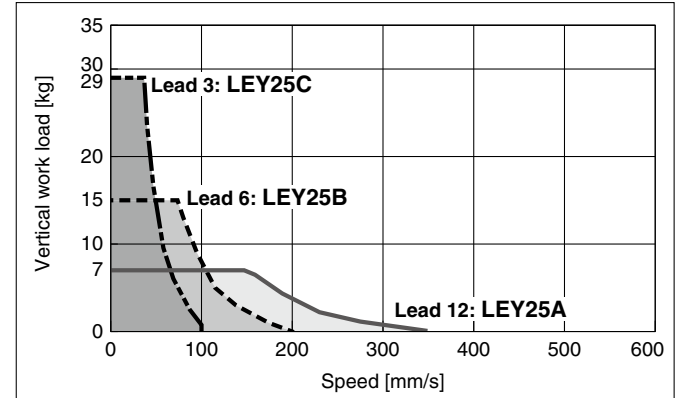


#### LEY40<sup>□</sup>-X7

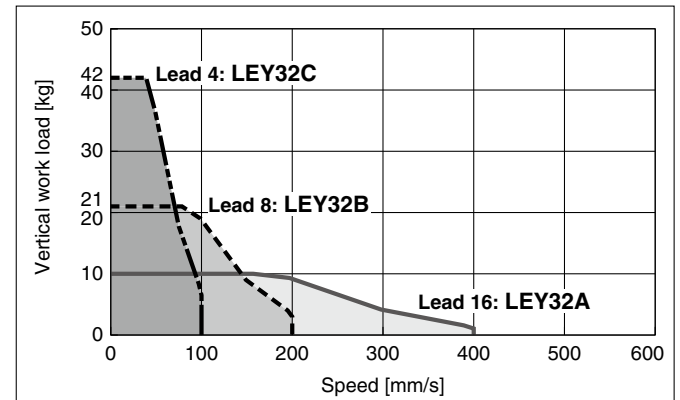


### Vertical

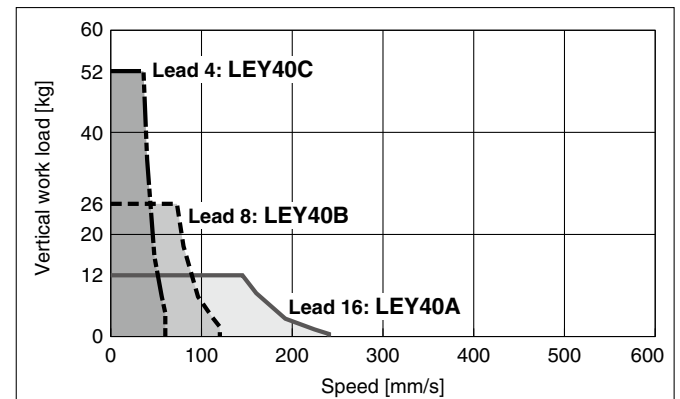
#### LEY25<sup>□</sup>-X7



#### LEY32<sup>□</sup>-X7



#### LEY40<sup>□</sup>-X7



# LEY-X7 Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

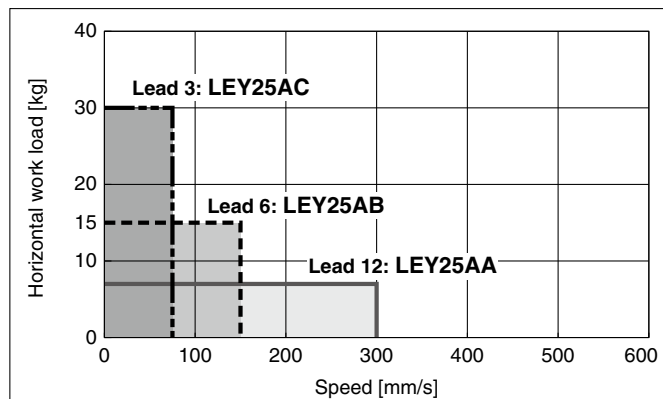
Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

## Speed-Work Load Graph (Guide) For Servo Motor (24 VDC) LECA6

Refer to page 155 for the JXC□1, LEC□1  
and page 156 for the LEC□2, JXC□3.

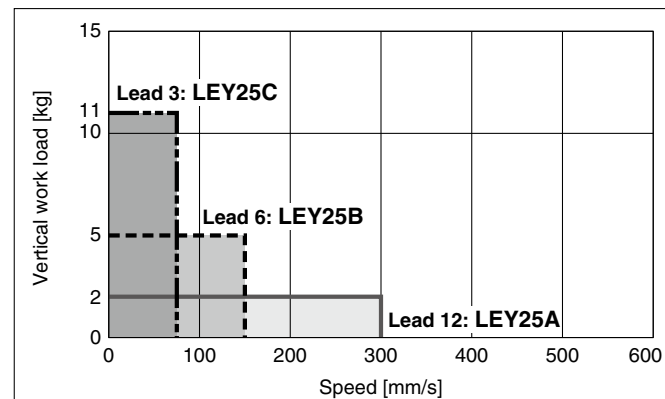
### Horizontal

#### LEY25□A-X7



### Vertical

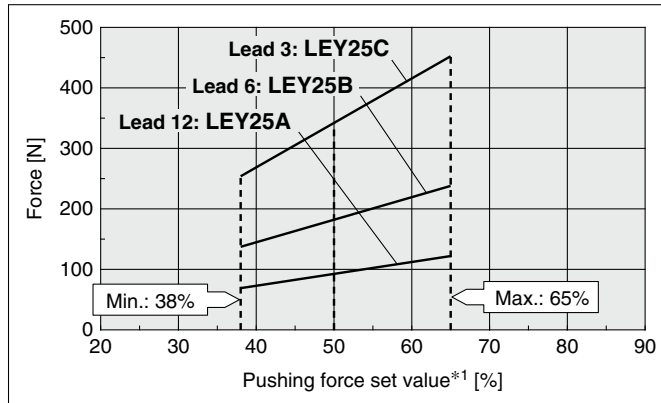
#### LEY25□A-X7



## Force Conversion Graph

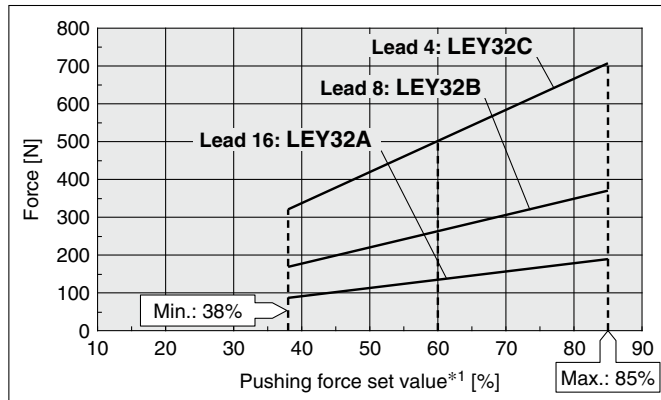
### Step Motor (Servo/24 VDC)

#### LEY25□-X7



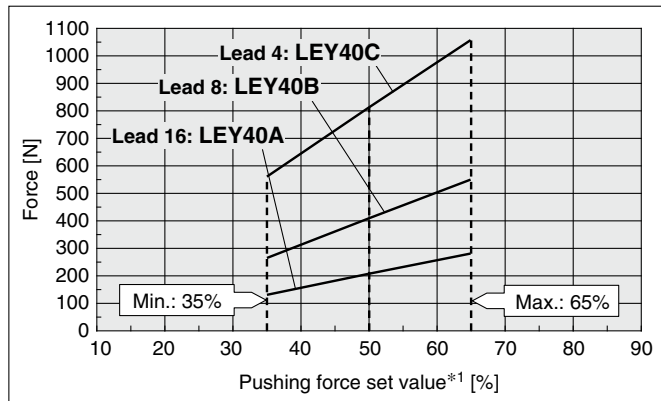
| Ambient temperature | Pushing force set value*1 [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-------------------------------|----------------|-------------------------------|
| 40°C or less        | 65 or less                    | 100            | —                             |

#### LEY32□-X7



| Ambient temperature | Pushing force set value*1 [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-------------------------------|----------------|-------------------------------|
| 25°C or less        | 85 or less                    | 100            | —                             |
| 40°C                | 65 or less                    | 100            | —                             |
|                     | 85                            | 50             | 15 or less                    |

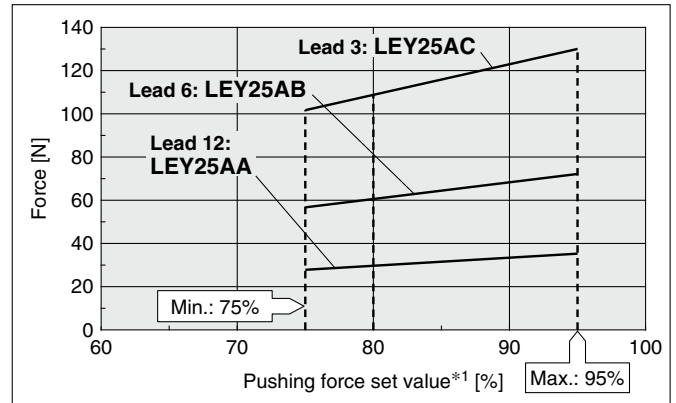
#### LEY40□-X7



| Ambient temperature | Pushing force set value*1 [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-------------------------------|----------------|-------------------------------|
| 40°C or less        | 65 or less                    | 100            | —                             |

### Servo Motor (24 VDC)

#### LEY25□A-X7



| Ambient temperature | Pushing force set value*1 [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-------------------------------|----------------|-------------------------------|
| 40°C or less        | 95 or less                    | 100            | —                             |

### <Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

| Model | Lead  | Pushing speed [mm/s] | Pushing force (Setting input value) | Model   | Lead  | Pushing speed [mm/s] | Pushing force (Setting input value) |
|-------|-------|----------------------|-------------------------------------|---------|-------|----------------------|-------------------------------------|
| LEY25 | A/B/C | 21 to 35             | 50 to 65%                           | LEY25□A | A/B/C | 21 to 35             | 80 to 95%                           |
| LEY32 | A     | 24 to 30             | 60 to 85%                           |         |       |                      |                                     |
|       | B/C   | 21 to 30             | 60 to 85%                           |         |       |                      |                                     |
| LEY40 | A     | 24 to 30             | 50 to 65%                           |         |       |                      |                                     |
|       | B/C   | 21 to 30             | 50 to 65%                           |         |       |                      |                                     |

There is a limit to the pushing force in relation to the pushing speed. If the product is operated outside of the range (low pushing force), the completion signal [INP] may be output before the pushing operation has been completed (during the moving operation). If operating with the pushing speed below the min. speed, please check for operating problems before using the product.

### <Set Values for Vertical Upward Transfer Pushing Operations>

For vertical loads (upward), set the pushing force to the max. value shown below and operate at the work load or less.

| Model          | LEY25□   | LEY32□   | LEY40□  | LEY25□A   |
|----------------|----------|----------|---------|-----------|
| Lead           | A B C    | A B C    | A B C   | A B C     |
| Work load [kg] | 2.5 5 10 | 4.5 9 18 | 7 14 28 | 1.2 2.5 5 |
| Pushing force  | 65%      | 85%      | 65%     | 95%       |

\*1 Set values for the controller



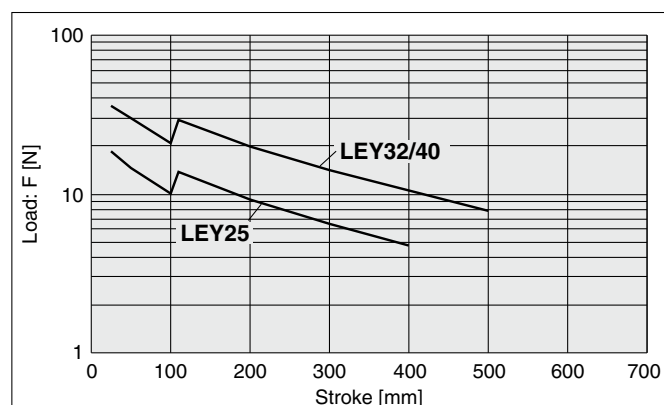
# LEY-X7 Series

Step Motor (Servo/24 VDC)

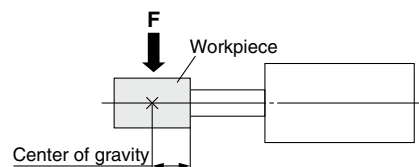
Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

## Graph of Allowable Lateral Load on the Rod End (Guide)



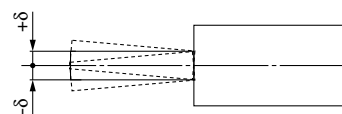
[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



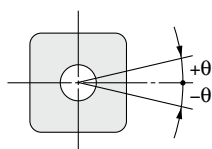
## Rod Displacement: $\delta$ [mm]

| Stroke | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
|--------|------|------|------|------|------|------|------|------|------|------|------|
| Size   |      |      |      |      |      |      |      |      |      |      |      |
| 25     | ±0.3 | ±0.4 | ±0.7 | ±0.7 | ±0.9 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | —    | —    |
| 32/40  | ±0.3 | ±0.4 | ±0.7 | ±0.6 | ±0.8 | ±1.0 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.8 |

\* The values without a load are shown.



## Non-rotating Accuracy of Rod



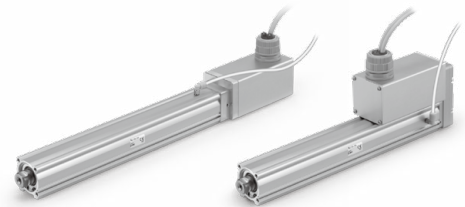
| Size  | Non-rotating accuracy $\theta$ |
|-------|--------------------------------|
| 25    | ±0.8°                          |
| 32/40 | ±0.7°                          |

\* Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

This may cause the deformation of the non-rotating guide, abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.

# Model Selection

LEY-X5 Series ▶ p. 173



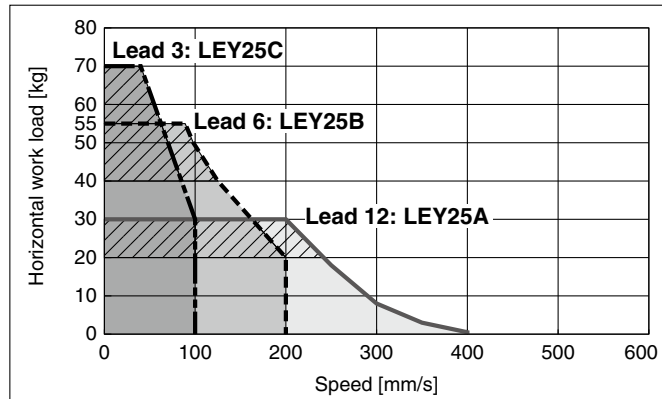
Refer to page 161 for the LECPA, JXC□<sub>3</sub>, and LECA6.

## Speed-Work Load Graph (Guide) for Step Motor (Servo/24 VDC) JXC□1, LECP1

### Horizontal

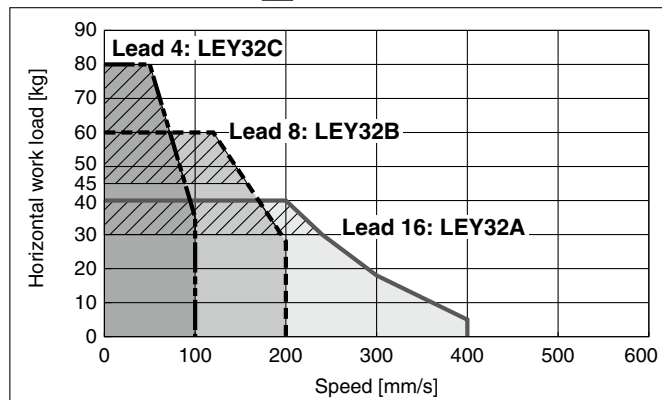
#### LEY25□-X5

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



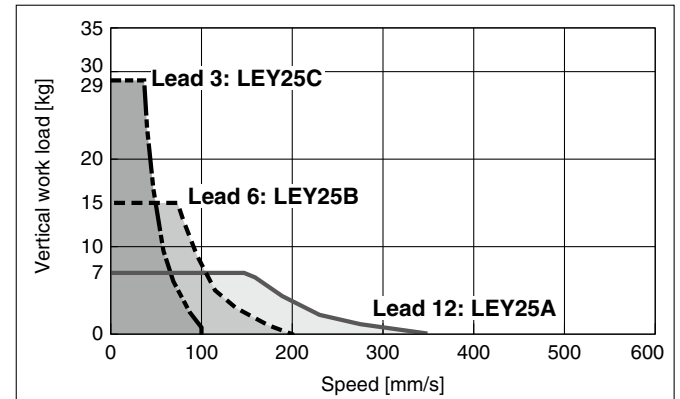
#### LEY32□-X5

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

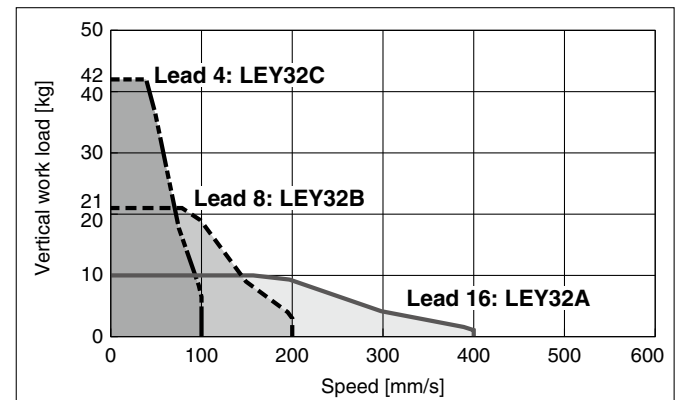


### Vertical

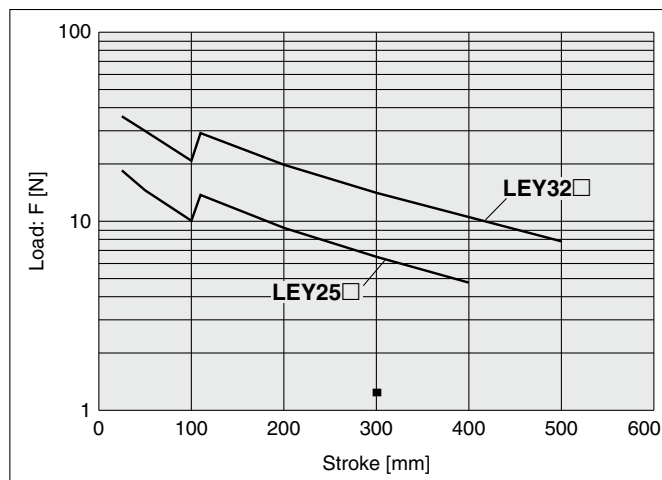
#### LEY25□-X5



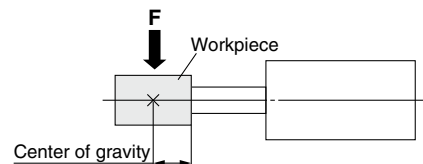
#### LEY32□-X5



## Graph of Allowable Lateral Load on the Rod End (Guide)



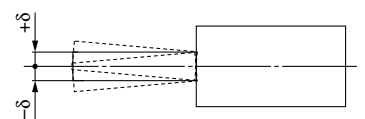
[Stroke] = [Product stroke] + [Distance from the rod end to the center of gravity of the workpiece]



## Rod Displacement: $\delta$ [mm]

| Stroke | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
|--------|------|------|------|------|------|------|------|------|------|------|------|
| Size   |      |      |      |      |      |      |      |      |      |      |      |
| 25     | ±0.3 | ±0.4 | ±0.7 | ±0.7 | ±0.9 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | —    | —    |
| 32     | ±0.3 | ±0.4 | ±0.7 | ±0.6 | ±0.8 | ±1.0 | ±1.1 | ±1.3 | ±1.5 | ±1.7 | ±1.8 |

\* The values without a load are shown.



# LEY-X5 Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent)

Refer to page 160 for the JXC□1, LECP1 and below for the LECA6.

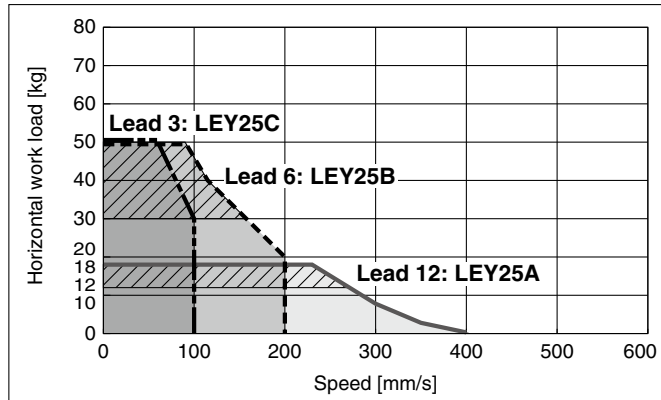
## Speed-Work Load Graph (Guide)

For Step Motor (Servo/24 VDC) LECPA, JXC□<sup>2</sup><sub>3</sub>

### Horizontal

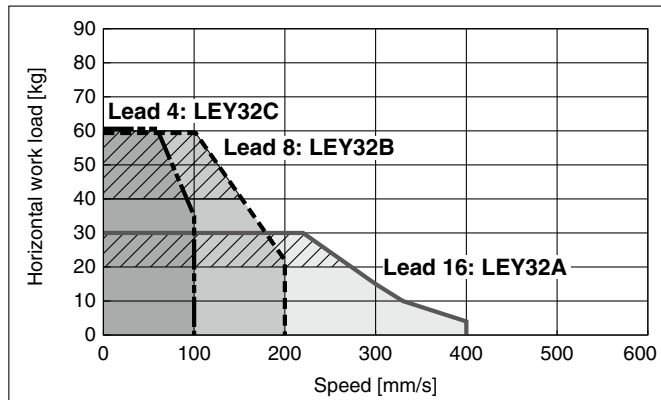
#### LEY25□-X5

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>



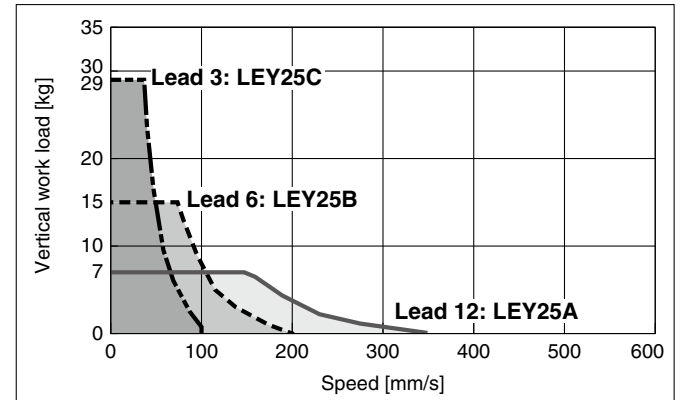
#### LEY32□-X5

▨ for acceleration/deceleration: 2000 mm/s<sup>2</sup>

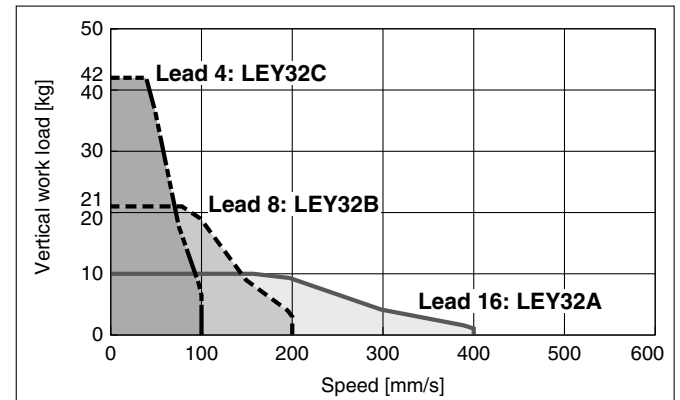


### Vertical

#### LEY25□-X5



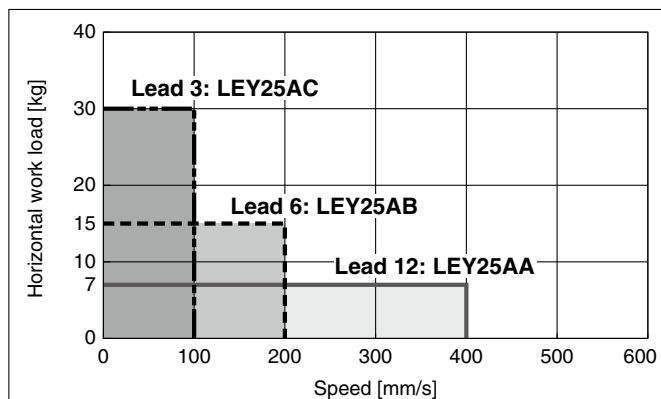
#### LEY32□-X5



## For Servo Motor (24 VDC) LECA6

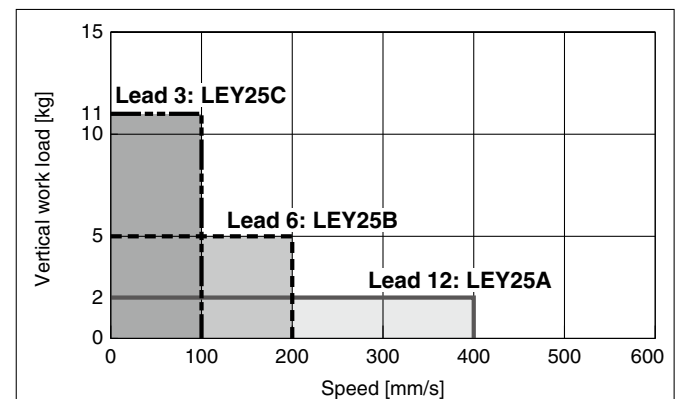
### Horizontal

#### LEY25□A-X5



### Vertical

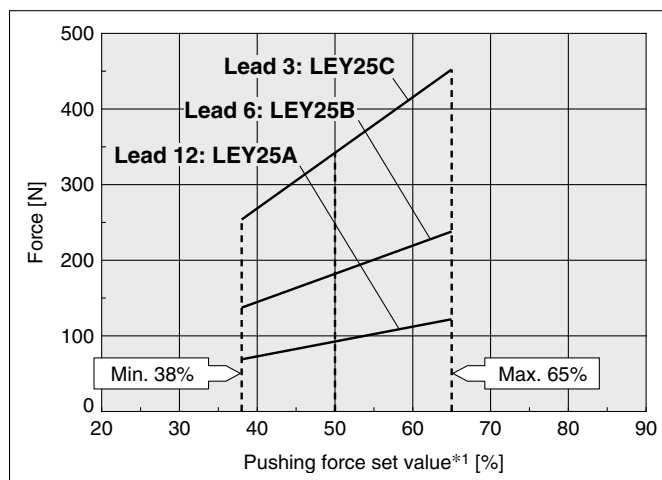
#### LEY25□A-X5



## Force Conversion Graph

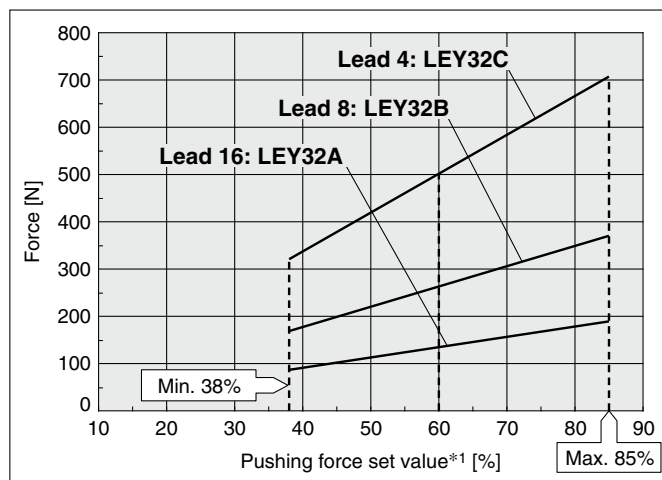
### Step Motor (Servo/24 VDC)

#### LEY25□-X5



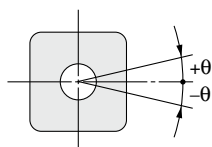
| Ambient temperature | Pushing force set value*1 [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-------------------------------|----------------|-------------------------------|
| 40°C or less        | 65 or less                    | 100            | —                             |

#### LEY32□-X5



| Ambient temperature | Pushing force set value*1 [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-------------------------------|----------------|-------------------------------|
| 25°C or less        | 85 or less                    | 100            | —                             |
| 40°C                | 65 or less                    | 100            | —                             |
|                     | 85                            | 50             | 15 or less                    |

## Non-rotating Accuracy of Rod

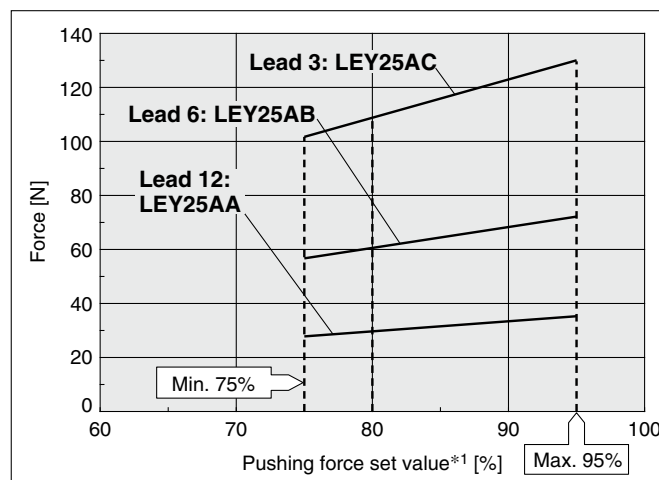


| Size | Non-rotating accuracy θ |
|------|-------------------------|
| 25   | ±0.8°                   |
| 32   | ±0.7°                   |

\* Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod. Failure to do so may result in the deformation of the non-rotating guide, abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.

### Servo Motor (24 VDC)

#### LEY25□A-X5



| Ambient temperature | Pushing force set value*1 [%] | Duty ratio [%] | Continuous pushing time [min] |
|---------------------|-------------------------------|----------------|-------------------------------|
| 40°C or less        | 95 or less                    | 100            | —                             |

### <Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

| Model | Lead  | Pushing speed [mm/s] | Pushing force (Setting input value) |
|-------|-------|----------------------|-------------------------------------|
| LEY25 | A/B/C | 21 to 35             | 50 to 65%                           |
| LEY32 | A     | 24 to 30             | 60 to 85%                           |
|       | B/C   | 21 to 30             | 60 to 85%                           |

There is a limit to the pushing force in relation to the pushing speed. If the product is operated outside of the range (low pushing force), the completion signal [INP] may be output before the pushing operation has been completed (during the moving operation). If operating with the pushing speed below the min. speed, please check for operating problems before using the product.

### <Set Values for Vertical Upward Transfer Pushing Operations>

For vertical loads (upward), set the pushing force to the max. value shown below and operate at the work load or less.

| Model          | LEY25□   | LEY32□   | LEY25□A   |
|----------------|----------|----------|-----------|
| Lead           | A B C    | A B C    | A B C     |
| Work load [kg] | 2.5 5 10 | 4.5 9 18 | 1.2 2.5 5 |
| Pushing force  | 65%      | 85%      | 95%       |

\*1 Set values for the controller

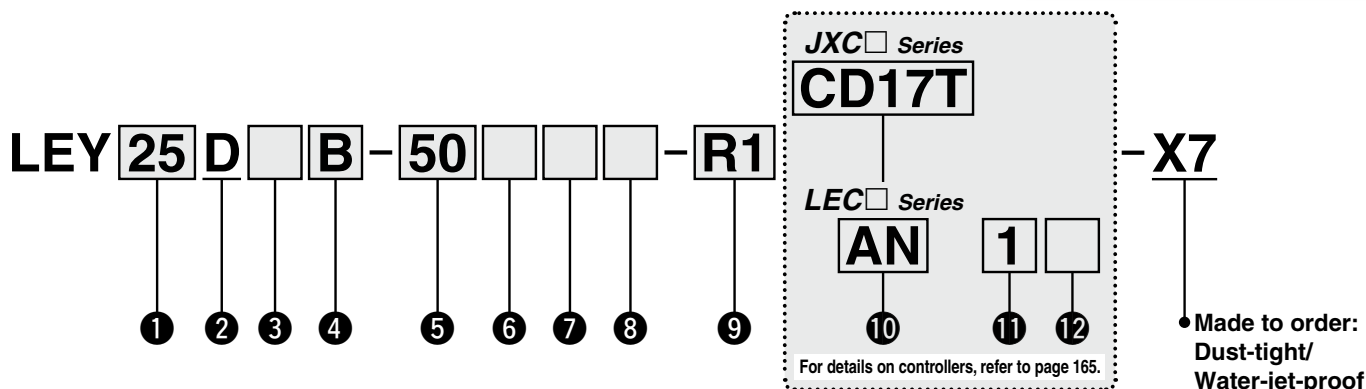
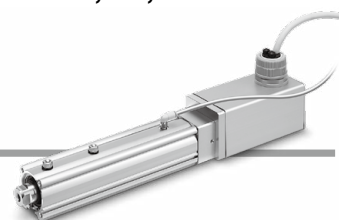
**Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)**

\* For details, refer to page 307 and onward

**RoHS**

**Refer to pages 155 to 159 for model selection.**

## How to Order



### 1 Size

25  
32/40

## 2 Motor mounting position

|   |         |
|---|---------|
| D | In-line |
|---|---------|

### 3 Motor type

| Symbol     | Type                         | Size |       | Compatible controllers/<br>drivers                                                     |
|------------|------------------------------|------|-------|----------------------------------------------------------------------------------------|
|            |                              | 25   | 32/40 |                                                                                        |
| <b>Nil</b> | Step motor<br>(Servo/24 VDC) | ●    | ●     | JXC51<br>JXC61<br>JXCE1<br>JXC91<br>JXCP1<br>JXCD1<br>JXCL1<br>JXCM1<br>LECP1<br>LECPA |
| <b>A</b>   | Servo motor<br>(24 VDC)      | ●    | —     | LECA6                                                                                  |

**4 Lead [mm]**

| Symbol   | LEY25 | LEY32/40 |
|----------|-------|----------|
| <b>A</b> | 12    | 16       |
| <b>B</b> | 6     | 8        |
| <b>C</b> | 3     | 4        |

**5 Stroke [mm]**

|            |     |
|------------|-----|
| <b>30</b>  | 30  |
| <b>to</b>  | to  |
| <b>500</b> | 500 |

\* For details, refer to the applicable stroke table below.

## 6 Motor option

|            |                |
|------------|----------------|
| <b>Nil</b> | Without option |
| <b>B</b>   | With lock      |

### 7 Rod end thread

|            |                                                     |
|------------|-----------------------------------------------------|
| <b>Nil</b> | Rod end female thread                               |
| <b>M</b>   | Rod end male thread<br>(1 rod end nut is included.) |

## 8 Mounting\*2

| Symbol     | Type                                              | Motor mounting position |
|------------|---------------------------------------------------|-------------------------|
|            |                                                   | In-line                 |
| <b>Nil</b> | Ends tapped/<br>Body bottom tapped <sup>1*3</sup> | ●                       |
| <b>F</b>   | Rod flange <sup>*3</sup>                          | ●                       |

### ⑨ Actuator cable type/length

| Robotic cable |          | [m]       |           |
|---------------|----------|-----------|-----------|
| <b>R1</b>     | 1.5      | <b>RA</b> | $10^{*5}$ |
| <b>R3</b>     | 3        | <b>RB</b> | $15^{*5}$ |
| <b>R5</b>     | 5        | <b>RC</b> | $20^{*5}$ |
| <b>R8</b>     | $8^{*5}$ |           |           |

### Applicable Stroke Table\*1

[illegible]

●: Standard

\* For auto switches, refer to pages 170 and 171.

\* “-X7” is not added to an actuator model with a controller/driver part number suffix.  
Example) “LEY25DB-100” for the LEY25DB-100BM-R1AN1-X7

# Electric Actuator Rod Type **LEY-X7 Series**

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

## JXC Series (For details, refer to page 165.)

### 10 Controller

|       |                    |
|-------|--------------------|
| Nil   | Without controller |
| C□1□□ | With controller    |

**C D 1 7 T**

Interface

(Communication protocol/Input/Output)

|   |                      |
|---|----------------------|
| 5 | Parallel input (NPN) |
| 6 | Parallel input (PNP) |
| E | EtherCAT®            |
| 9 | EtherNet/IP™         |
| P | PROFINET             |
| D | DeviceNet™           |
| L | IO-Link              |
| M | CC-Link Ver. 1.10    |

Mounting

|      |                |
|------|----------------|
| 7    | Screw mounting |
| 8*10 | DIN rail       |

For single axis

Communication plug connector, I/O cable\*11

| Symbol | Type                                       | Applicable interface                         |
|--------|--------------------------------------------|----------------------------------------------|
| Nil    | Without accessory                          | —                                            |
| S      | Straight type communication plug connector | DeviceNet™                                   |
| T      | T-branch type communication plug connector | CC-Link Ver. 1.10                            |
| 1      | I/O cable (1.5 m)                          | Parallel input (NPN)<br>Parallel input (PNP) |
| 3      | I/O cable (3 m)                            |                                              |
| 5      | I/O cable (5 m)                            |                                              |

## LEC Series (For details, refer to page 165.)

**AN 1**

10 11 12

### 10 Controller/Driver type\*6

|     |                           |     |
|-----|---------------------------|-----|
| Nil | Without controller/driver |     |
| 6N  | <b>LECA6</b>              | NPN |
| 6P  | (Step data input type)    | PNP |
| 1N  | <b>LECP1</b>              | NPN |
| 1P  | (Programless type)        | PNP |
| AN  | <b>LECPA</b> *7           | NPN |
| AP  | (Pulse input type)        | PNP |

### 11 I/O cable length\*8, Communication plug

|     |               |
|-----|---------------|
| Nil | Without cable |
| 1   | 1.5 m         |
| 3   | 3 m*9         |
| 5   | 5 m*9         |

### 12 Controller/Driver mounting

|     |                |
|-----|----------------|
| Nil | Screw mounting |
| D   | DIN rail*10    |

- \*1 Please contact SMC for non-standard strokes as they are produced as special orders.
- \*2 The mounting bracket is shipped together with the product but does not come assembled.
- \*3 For the horizontal cantilever mounting of the rod flange or ends tapped types, use the actuator within the following stroke range.  
·LEY25: 200 mm or less ·LEY32/40: 100 mm or less
- \*4 The head flange type is not available for the LEY32/40.
- \*5 Produced upon receipt of order (Robotic cable only)
- \*6 For details on controllers/drivers and compatible motors, refer to the compatible controllers/drivers on the next page.
- \*7 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) separately after referring to page 238.

- \*8 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 224 (For LECA6), page 234 (For LECP1), or page 240 (For LECPA) if I/O cable is required.
- \*9 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector
- \*10 The DIN rail is not included. It must be ordered separately.
- \*11 Select "Nil" for anything other than DeviceNet™, CC-Link, or parallel input.  
Select "Nil," "S," or "T" for DeviceNet™ or CC-Link.  
Select "Nil," "1," "3," or "5" for parallel input.

## Caution

### [CE-compliant products]

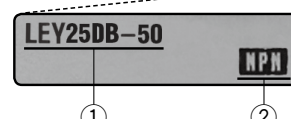
- EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.  
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 224 for the noise filter set. Refer to the LECA series Operation Manual for installation.

## The actuator and controller/driver are sold as a package.

Confirm that the combination of the controller/driver and actuator is correct.

### <Check the following before use.>

- Check the actuator label for the model number. This number should match that of the controller/driver.
- Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the Operation Manual for using the products.  
Please download it via our website: <https://www.smcworld.com>



# LEY-X7 Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

## Compatible Controllers/Drivers

| Type                     | Step data input type                                                              | Step data input type                                                              | Programless type                                                                  | Pulse input type                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                          |  |  |  |  |
| Series                   | JXC51<br>JXC61                                                                    | LECA6                                                                             | LECP1                                                                             | LECPA                                                                              |
| Features                 | Parallel I/O                                                                      |                                                                                   | Capable of setting up operation (step data) without using a PC or teaching box    | Operation by pulse signals                                                         |
| Compatible motor         | Step motor (Servo/24 VDC)                                                         | Servo motor (24 VDC)                                                              | Step motor (Servo/24 VDC)                                                         |                                                                                    |
| Max. number of step data | 64 points                                                                         |                                                                                   | 14 points                                                                         | —                                                                                  |
| Power supply voltage     | 24 VDC                                                                            |                                                                                   |                                                                                   |                                                                                    |
| Reference page           | 211                                                                               | 218                                                                               | 229                                                                               | 235                                                                                |

| Type                     | EtherCAT® direct input type                                                         | EtherNet/IP™ direct input type                                                      | PROFINET direct input type                                                          | DeviceNet™ direct input type                                                         | IO-Link direct input type                                                             | CC-Link direct input type                                                             |
|--------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                          |  |  |  |  |  |  |
| Series                   | JXCE1                                                                               | JXC91                                                                               | JXCP1                                                                               | JXCD1                                                                                | JXCL1                                                                                 | JXCM1                                                                                 |
| Features                 | EtherCAT® direct input                                                              | EtherNet/IP™ direct input                                                           | PROFINET direct input                                                               | DeviceNet™ direct input                                                              | IO-Link direct input                                                                  | CC-Link direct input                                                                  |
| Compatible motor         | Step motor (Servo/24 VDC)                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Max. number of step data | 64 points                                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Power supply voltage     | 24 VDC                                                                              |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Reference page           | 241                                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |

## Specifications

### Step Motor (Servo/24 VDC)

| Model                                             |                                                     |            |                                             | LEY25□-X7                       |                           |            | LEY32□-X7  |                |            | LEY40□-X7  |                |            |             |
|---------------------------------------------------|-----------------------------------------------------|------------|---------------------------------------------|---------------------------------|---------------------------|------------|------------|----------------|------------|------------|----------------|------------|-------------|
| Actuator specifications                           | Work load*1<br>[kg]                                 | Horizontal | For JXC□1<br>LECP1                          | (3000 [mm/s <sup>2</sup> ])     | 20                        | 40         | 60         | 30             | 45         | 60         | 50             | 60         | 80          |
|                                                   |                                                     |            |                                             | (2000 [mm/s <sup>2</sup> ])     | 30                        | 55         | 70         | 40             | 60         | 80         | 60             | 70         | 90          |
|                                                   |                                                     |            | For LECPA<br>JXC□ <sub>2</sub> <sup>3</sup> | (3000 [mm/s <sup>2</sup> ])     | 12                        | 30         | 30         | 20             | 40         | 40         | 30             | 60         | 60          |
|                                                   |                                                     |            |                                             | (2000 [mm/s <sup>2</sup> ])     | 18                        | 50         | 50         | 30             | 60         | 60         | —              | —          | —           |
|                                                   |                                                     | Vertical   | (3000 [mm/s <sup>2</sup> ])                 | 7                               | 15                        | 29         | 10         | 21             | 42         | 12         | 26             | 52         |             |
|                                                   | Pushing force [N]*2 *3 *4                           |            |                                             |                                 | 63 to 122                 | 126 to 238 | 232 to 452 | 80 to 189      | 156 to 370 | 296 to 707 | 132 to 283     | 266 to 553 | 562 to 1058 |
|                                                   | Speed [mm/s]*4                                      |            |                                             |                                 | 18 to 300                 | 9 to 150   | 5 to 75    | 24 to 300      | 12 to 150  | 6 to 75    | 24 to 300      | 12 to 210  | 6 to 105    |
|                                                   | Max. acceleration/deceleration [mm/s <sup>2</sup> ] |            |                                             |                                 | 3000                      |            |            |                |            |            |                |            |             |
|                                                   | Pushing speed [mm/s]*5                              |            |                                             |                                 | 35 or less                |            |            | 30 or less     |            |            | 30 or less     |            |             |
|                                                   | Positioning repeatability [mm]                      |            |                                             |                                 | ±0.02                     |            |            |                |            |            |                |            |             |
| Lost motion [mm]*6                                |                                                     |            |                                             | 0.1 or less                     |                           |            |            |                |            |            |                |            |             |
| Screw lead [mm]                                   |                                                     |            |                                             | 12                              | 6                         | 3          | 16         | 8              | 4          | 16         | 8              | 4          |             |
| Impact/Vibration resistance [m/s <sup>2</sup> ]*7 |                                                     |            |                                             | 50/20                           |                           |            |            |                |            |            |                |            |             |
| Actuation type                                    |                                                     |            |                                             | Ball screw (LEY□D)              |                           |            |            |                |            |            |                |            |             |
| Guide type                                        |                                                     |            |                                             | Sliding bushing (Piston rod)    |                           |            |            |                |            |            |                |            |             |
| Enclosure*8                                       |                                                     |            |                                             | IP65 equivalent/IP67 equivalent |                           |            |            |                |            |            |                |            |             |
| Operating temperature range [°C]                  |                                                     |            |                                             | 5 to 40                         |                           |            |            |                |            |            |                |            |             |
| Operating humidity range [%RH]                    |                                                     |            |                                             | 90 or less (No condensation)    |                           |            |            |                |            |            |                |            |             |
| Electric specifications                           | Motor size                                          |            |                                             |                                 | □42                       |            |            | □56.4          |            |            | □56.4          |            |             |
|                                                   | Motor type                                          |            |                                             |                                 | Step motor (Servo/24 VDC) |            |            |                |            |            |                |            |             |
|                                                   | Encoder                                             |            |                                             |                                 | Incremental               |            |            |                |            |            |                |            |             |
|                                                   | Power supply voltage [V]                            |            |                                             |                                 | 24 VDC ±10%               |            |            |                |            |            |                |            |             |
| Lock unit specifications                          | Power [W]*9 *11                                     |            |                                             |                                 | Max. power 48             |            |            | Max. power 104 |            |            | Max. power 106 |            |             |
|                                                   | Type*10                                             |            |                                             |                                 | Non-magnetizing lock      |            |            |                |            |            |                |            |             |
|                                                   | Holding force [N]                                   |            |                                             |                                 | 78                        | 157        | 294        | 108            | 216        | 421        | 127            | 265        | 519         |
|                                                   | Power [W]*11                                        |            |                                             |                                 | 5                         |            |            | 5              |            |            | 5              |            |             |
|                                                   | Rated voltage [V]                                   |            |                                             |                                 | 24 VDC ±10%               |            |            |                |            |            |                |            |             |

\*1 Horizontal: The max. value of the work load. An external guide is necessary to support the load. (Friction coefficient of guide: 0.1 or less) The actual work load and transfer speed change according to the condition of the external guide. Also, speed changes according to the work load. Check the "Model Selection" on pages 155 and 156.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 155 and 156.

The values shown in ( ) are the acceleration/deceleration. Set these values to be 3000 [mm/s<sup>2</sup>] or less.

\*2 Pushing force accuracy is ±20% (F.S.).

\*3 The thrust setting values for LEY25□ are 38% to 65%, for LEY32□ are 38% to 85%, and for LEY40□ are 35% to 65%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 158.

\*4 The speed and force may change depending on the cable length, load, and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)

\*5 The allowable speed for pushing operation. When push conveying a workpiece, operate at the vertical work load or less.

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*8 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water

Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.

\*9 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.

\*10 With lock only

\*11 For an actuator with lock, add the power for the lock.

# LEY-X7 Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

## Specifications

### Servo Motor (24 VDC)

| Model                    |                                                     |                                           | LEY25□A-X7                                     |          |           |
|--------------------------|-----------------------------------------------------|-------------------------------------------|------------------------------------------------|----------|-----------|
| Actuator specifications  | Work load*1<br>[kg]                                 | Horizontal<br>(3000 [mm/s <sup>2</sup> ]) | 7                                              | 15       | 30        |
|                          | Vertical<br>(3000 [mm/s <sup>2</sup> ])             | 2                                         | 5                                              | 11       |           |
|                          | Pushing force [N]*2 *3                              |                                           | 18 to 35                                       | 37 to 72 | 66 to 130 |
|                          | Speed [mm/s]                                        |                                           | 2 to 300                                       | 1 to 150 | 1 to 75   |
|                          | Max. acceleration/deceleration [mm/s <sup>2</sup> ] |                                           | 3000                                           |          |           |
|                          | Pushing speed [mm/s]*4                              |                                           | 35 or less                                     |          |           |
|                          | Positioning repeatability [mm]                      |                                           | ±0.02                                          |          |           |
|                          | Lost motion [mm]*5                                  |                                           | 0.1 or less                                    |          |           |
|                          | Screw lead [mm]                                     |                                           | 12                                             | 6        | 3         |
|                          | Impact/Vibration resistance [m/s <sup>2</sup> ]*6   |                                           | 50/20                                          |          |           |
| Actuator specifications  | Actuation type                                      |                                           | Ball screw + Belt (LEY□)<br>Ball screw (LEY□D) |          |           |
|                          | Guide type                                          |                                           | Sliding bushing (Piston rod)                   |          |           |
|                          | Enclosure*7                                         |                                           | IP65 equivalent/IP67 equivalent                |          |           |
|                          | Operating temperature range [°C]                    |                                           | 5 to 40                                        |          |           |
|                          | Operating humidity range [%RH]                      |                                           | 90 or less (No condensation)                   |          |           |
| Electric specifications  | Motor size                                          |                                           | □42                                            |          |           |
|                          | Motor type                                          |                                           | Servo motor (24 VDC)                           |          |           |
|                          | Encoder                                             |                                           | Incremental                                    |          |           |
|                          | Power supply voltage [V]                            |                                           | 24 VDC ±10%                                    |          |           |
|                          | Power [W]*8 *10                                     |                                           | Max. power 96                                  |          |           |
| Lock unit specifications | Type*9                                              |                                           | Non-magnetizing lock                           |          |           |
|                          | Holding force [N]                                   |                                           | 78                                             | 157      | 294       |
|                          | Power [W]*10                                        |                                           | 5                                              |          |           |
|                          | Rated voltage [V]                                   |                                           | 24 VDC ±10%                                    |          |           |

- \*1 Horizontal: The max. value of the work load. An external guide is necessary to support the load. (Friction coefficient of guide: 0.1 or less) The actual work load and transfer speed change according to the condition of the external guide.  
Vertical: Speed changes according to the work load. Check the "Model Selection" on page 157.  
The values shown in ( ) are the acceleration/deceleration. Set these values to be 3000 [mm/s<sup>2</sup>] or less.
- \*2 Pushing force accuracy is ±20% (F.S.).
- \*3 The thrust setting values for LEY25A□ are 75% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 158.
- \*4 The allowable speed for pushing operation  
When push conveying a workpiece, operate at the vertical work load or less.
- \*5 A reference value for correcting errors in reciprocal operation
- \*6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*7 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water. Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.
- \*8 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.
- \*9 With lock only
- \*10 For an actuator with lock, add the power for the lock.

## Weight

### Weight: In-line Motor Type

| LEY25D              |             |      |      |      |      |      |      |      |      |      |
|---------------------|-------------|------|------|------|------|------|------|------|------|------|
| Stroke              |             | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  |
| Product weight [kg] | Step motor  | 1.49 | 1.56 | 1.73 | 1.98 | 2.16 | 2.33 | 2.51 | 2.68 | 2.86 |
|                     | Servo motor | 1.45 | 1.52 | 1.69 | 1.94 | 2.12 | 2.29 | 2.47 | 2.64 | 2.82 |

| LEY32D              |            |      |      |      |      |      |      |      |      |      |      |      |
|---------------------|------------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke              |            | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor | 2.59 | 2.70 | 2.99 | 3.37 | 3.66 | 3.95 | 4.23 | 4.52 | 4.81 | 5.09 | 5.38 |

| LEY40D              |            |      |      |      |      |      |      |      |      |      |      |      |
|---------------------|------------|------|------|------|------|------|------|------|------|------|------|------|
| Stroke              |            | 30   | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor | 2.94 | 3.05 | 3.34 | 3.72 | 4.01 | 4.30 | 4.58 | 4.87 | 5.16 | 5.44 | 5.73 |

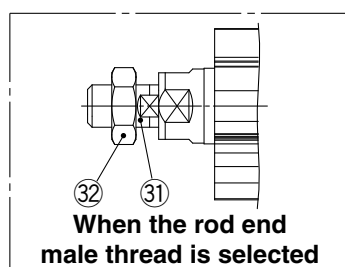
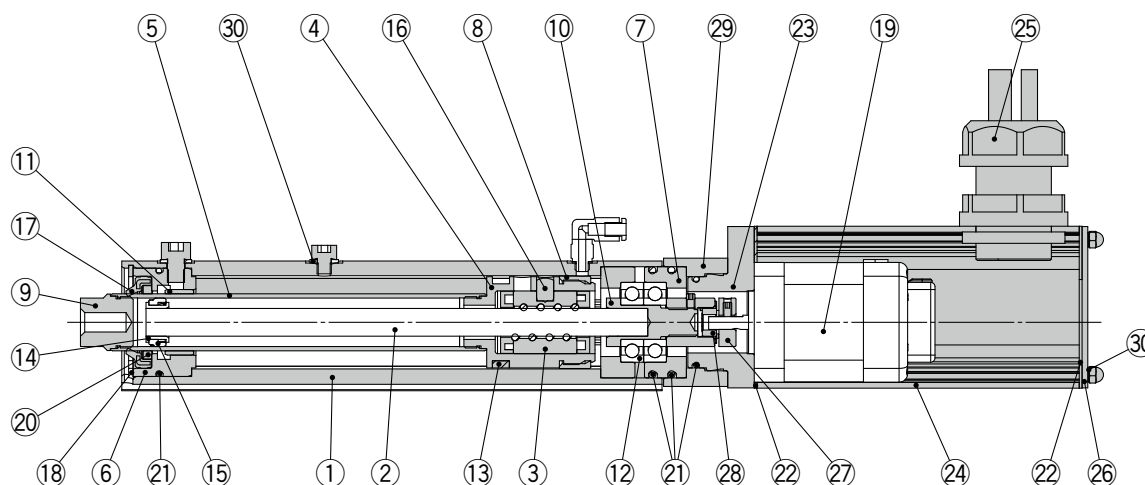
### Additional Weight

[kg]

| Size                                          |             | 25   | 32   | 40   |
|-----------------------------------------------|-------------|------|------|------|
| Lock                                          |             | 0.33 | 0.63 | 0.63 |
| Rod end male thread                           | Male thread | 0.03 | 0.03 | 0.03 |
|                                               | Nut         | 0.02 | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt) |             | 0.08 | 0.14 | 0.14 |
| Rod flange (including mounting bolt)          |             | 0.17 | 0.20 | 0.20 |
| Head flange (including mounting bolt)         |             |      |      |      |

## Construction

In-line motor type: LEY<sup>25</sup><sub>32</sub><sup>D</sup><sub>40</sub>



## Component Parts

| No. | Description      | Material                    | Note                  |
|-----|------------------|-----------------------------|-----------------------|
| 1   | Body             | Aluminum alloy              | Anodized              |
| 2   | Ball screw       | Alloy steel                 |                       |
| 3   | Ball screw nut   | Synthetic resin/Alloy steel |                       |
| 4   | Piston           | Aluminum alloy              |                       |
| 5   | Piston rod       | Stainless steel             | Hard chrome plating   |
| 6   | Rod cover        | Aluminum alloy              | Anodized              |
| 7   | Bearing holder   | Aluminum alloy              |                       |
| 8   | Rotation stopper | Resin                       |                       |
| 9   | Socket           | Stainless steel             |                       |
| 10  | Connected shaft  | Free cutting carbon steel   | Nickel plating        |
| 11  | Bushing          | Bearing alloy               |                       |
| 12  | Bearing          | —                           |                       |
| 13  | Magnet           | —                           |                       |
| 14  | Wear ring holder | Stainless steel             | Stroke 101 mm or more |
| 15  | Wear ring        | Resin                       | Stroke 101 mm or more |
| 16  | Parallel pin     | Stainless steel             |                       |

| No. | Description                     | Material            | Note       |
|-----|---------------------------------|---------------------|------------|
| 17  | Greater water resistant scraper | Stainless steel/NBR |            |
| 18  | Retaining ring                  | Stainless steel     |            |
| 19  | Motor                           | —                   |            |
| 20  | Lube-retainer                   | Felt                |            |
| 21  | O-ring                          | NBR                 |            |
| 22  | Gasket                          | Chloroprene         |            |
| 23  | Motor adapter                   | Aluminum alloy      | LEY25 only |
| 24  | Motor cover                     | Aluminum alloy      | Anodized   |
| 25  | Seal connector                  | —                   |            |
| 26  | End cover                       | Aluminum alloy      | Anodized   |
| 27  | Hub                             | Aluminum alloy      |            |
| 28  | Spider                          | NBR                 |            |
| 29  | Motor block                     | Aluminum alloy      | Anodized   |
| 30  | Seal washer                     | Stainless steel/NBR |            |
| 31  | Socket (Male thread)            | Stainless steel     |            |
| 32  | Nut                             | Stainless steel     |            |

## Replacement Parts/Grease Pack

| Applied portion | Order no.       |
|-----------------|-----------------|
| Piston rod      | GR-S-010 (10 g) |
| Piston          | GR-S-020 (20 g) |

\* Apply grease to the piston rod periodically.  
Grease should be applied when 1 million cycles or 200 km have been reached, whichever comes first.

Model  
Selection

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)  
LEY

LEYG

LEY

LEYG

LEY

LEYG

Environment  
LEY-X7

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC

LECS

LECY

Specific Product  
Precautions

# LEY-X7 Series

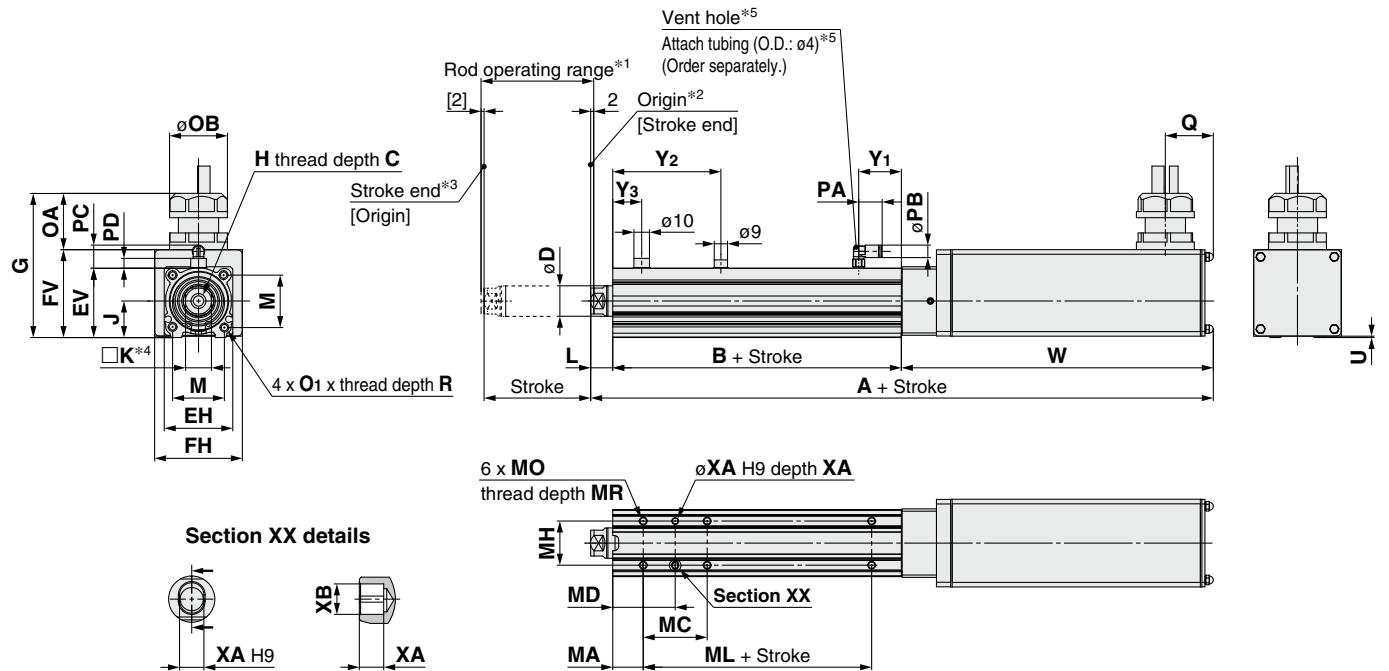
Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent/IP67 Equivalent)

## Dimensions

### In-line motor type



| [mm] |                   |              |           |       |    |    |    |      |      |      |       |           |    |    |      |    |
|------|-------------------|--------------|-----------|-------|----|----|----|------|------|------|-------|-----------|----|----|------|----|
| Size | Stroke range [mm] | A            |           | B     | C  | D  | EH | EV   | FH   | FV   | G     | H         | J  | K  | L    | M  |
|      |                   | Without lock | With lock |       |    |    |    |      |      |      |       |           |    |    |      |    |
| 25   | 30 to 100         | 259          | 309       | 89.5  | 13 | 20 | 44 | 45.5 | 57.6 | 57.7 | 94.7  | M8 x 1.25 | 24 | 17 | 14.5 | 34 |
|      | 105 to 400        | 284          | 334       | 114.5 |    |    |    |      |      |      |       |           |    |    |      |    |
| 32   | 30 to 100         | 269.5        | 319.5     | 96    | 13 | 25 | 51 | 56.5 | 69.6 | 79.6 | 116.6 | M8 x 1.25 | 31 | 22 | 18.5 | 40 |
|      | 105 to 500        | 299.5        | 349.5     | 126   |    |    |    |      |      |      |       |           |    |    |      |    |
| 40   | 30 to 100         | 291.5        | 341.5     | 96    | 13 | 25 | 51 | 56.5 | 69.6 | 79.6 | 116.6 | M8 x 1.25 | 31 | 22 | 18.5 | 40 |
|      | 105 to 500        | 321.5        | 371.5     | 126   |    |    |    |      |      |      |       |           |    |    |      |    |

| Size | Stroke range [mm] | O <sub>1</sub> | R  | OA | OB | PA   | PB  | PC   | PD  | Q    | U   | W            |           | Y <sub>1</sub> | Y <sub>2</sub> | Y <sub>3</sub> |
|------|-------------------|----------------|----|----|----|------|-----|------|-----|------|-----|--------------|-----------|----------------|----------------|----------------|
|      |                   |                |    |    |    |      |     |      |     |      |     | Without lock | With lock |                |                |                |
| 25   | 30 to 100         | M5 x 0.8       | 8  | 37 | 38 | 15.4 | 8.2 | 15.9 | 6.5 | 31.5 | 0.9 | 155          | 205       | 28             | 71             | 19             |
|      | 105 to 400        |                |    |    |    |      |     |      |     |      |     |              |           |                | 96             |                |
| 32   | 30 to 100         | M6 x 1.0       | 10 | 37 | 38 | 15.4 | 8.2 | 15.9 | 7.1 | 31.5 | 1   | 155          | 205       | 30             | 75.5           | 16             |
|      | 105 to 500        |                |    |    |    |      |     |      |     |      |     |              |           |                | 105.5          |                |
| 40   | 30 to 100         | M6 x 1.0       | 10 | 37 | 38 | 15.4 | 8.2 | 15.9 | 7.1 | 31.5 | 1   | 177          | 227       | 30             | 75.5           | 16             |
|      | 105 to 500        |                |    |    |    |      |     |      |     |      |     |              |           |                | 105.5          |                |

### Body Bottom Tapped

| [mm]  |                   |    |    |      |    |    |          |     |    |    |
|-------|-------------------|----|----|------|----|----|----------|-----|----|----|
| Size  | Stroke range [mm] | MA | MC | MD   | MH | ML | MO       | MR  | XA | XB |
| 25    | 30 to 39          | 20 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|       | 40 to 100         |    | 42 | 41   |    | 75 |          |     |    |    |
|       | 101 to 124        |    | 59 | 49.5 |    |    |          |     |    |    |
|       | 125 to 200        |    | 76 | 58   |    |    |          |     |    |    |
|       | 201 to 400        |    |    |      |    |    |          |     |    |    |
| 32/40 | 30 to 39          | 25 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|       | 40 to 100         |    | 36 | 43   |    | 80 |          |     |    |    |
|       | 101 to 124        |    | 53 | 51.5 |    |    |          |     |    |    |
|       | 125 to 200        |    | 70 | 60   |    |    |          |     |    |    |
|       | 201 to 500        |    |    |      |    |    |          |     |    |    |

\*1 This is the range within which the rod can move when it returns to origin.

Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 Position after return to origin

\*3 [ ] for when the direction of return to origin has changed

\*4 The direction of rod end width across flats (□K) differs depending on the products.

\*5 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

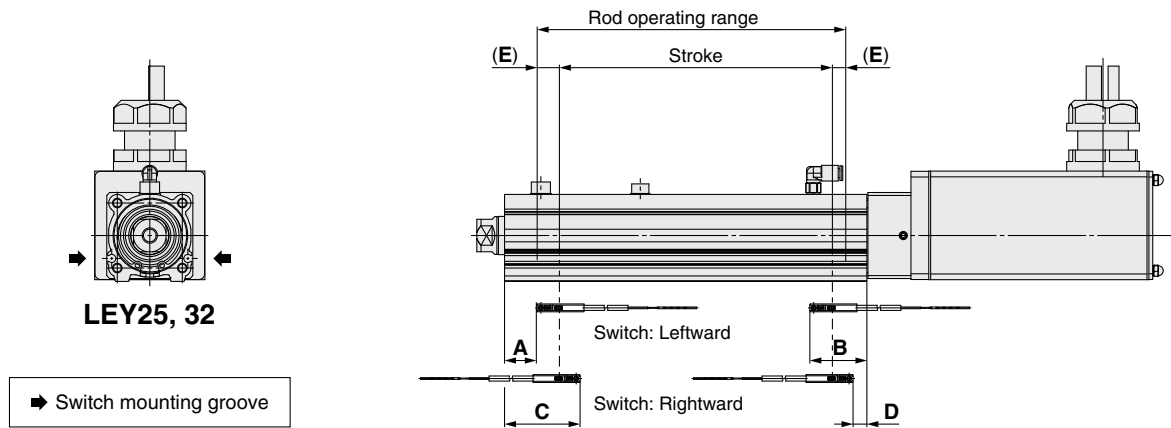
Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 67. For the mounting bracket dimensions, refer to page 101.

# LEY-X7 Series Auto Switch Mounting

## Auto Switch Proper Mounting Position

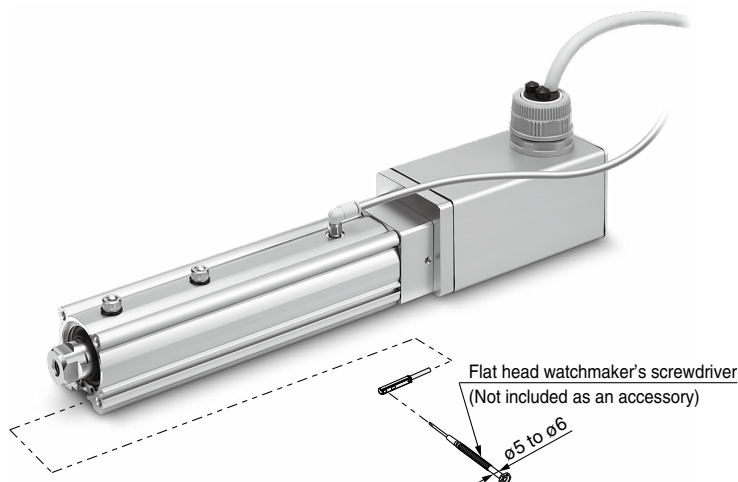
Applicable auto switch: D-M9□A(V)



| [mm]  |              |                      |      |                    |      |                           |                 |
|-------|--------------|----------------------|------|--------------------|------|---------------------------|-----------------|
| Size  | Stroke range | Auto switch position |      |                    |      | Return to origin distance | Operating range |
|       |              | Leftward mounting    |      | Rightward mounting |      |                           |                 |
|       |              | A                    | B    | C                  | D    |                           |                 |
| 25    | 15 to 100    | 27                   | 62.5 | 39                 | 50.5 | (2)                       | 4.2             |
|       | 105 to 400   | 52                   |      | 64                 |      |                           |                 |
| 32/40 | 20 to 100    | 30.5                 | 85.5 | 42.5               | 53.5 | (2)                       | 4.9             |
|       | 105 to 500   | 90.5                 |      | 102.5              |      |                           |                 |

- \* The values in the table above are to be used as a reference when mounting auto switches for stroke end detection. Adjust the auto switch after confirming the operating conditions in the actual setting.
- \* An auto switch cannot be mounted on the same side as a motor.
- \* For LEYG series models (with a guide), an auto switch cannot be mounted on the guide attachment side (rod side).
- \* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approx.  $\pm 30\%$  dispersion). It may change substantially depending on the ambient environment.

## Auto Switch Mounting



### Tightening Torque for Auto Switch Mounting Screw [N·m]

| Auto switch model | Tightening torque |
|-------------------|-------------------|
| D-M9□A(V)         | 0.05 to 0.10      |

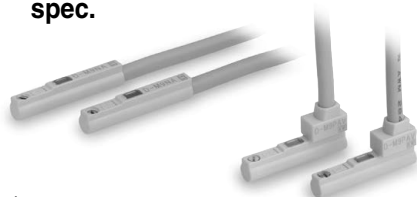
- \* When tightening the auto switch mounting screw (included with the auto switch), use a watchmaker's screwdriver with a handle diameter of 5 to 6 mm.



# Water Resistant 2-Color Indicator Solid State Auto Switch: Direct Mounting Type D-M9NA(V)/D-M9PA(V)/D-M9BA(V) C € RoHS

## Grommet

- Water (coolant) resistant type
- 2-wire load current is reduced (2.5 to 40 mA).
- The proper operating range can be determined by the color of the light. (Red → Green ← Red)
- Using flexible cable as standard spec.



## Caution

### Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.  
Please contact SMC if using coolant liquid other than water based solution.

## Weight

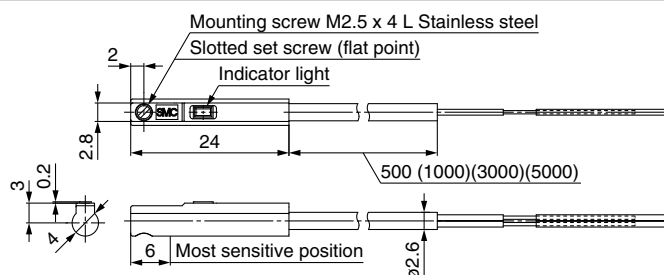
[g]

| Auto switch model | D-M9NA(V) | D-M9PA(V) | D-M9BA(V) |
|-------------------|-----------|-----------|-----------|
| Lead wire length  |           |           |           |
| 0.5 m (Nil)       | 8         | 7         |           |
| 1 m (M)           | 14        | 13        |           |
| 3 m (L)           | 41        | 38        |           |
| 5 m (Z)           | 68        | 63        |           |

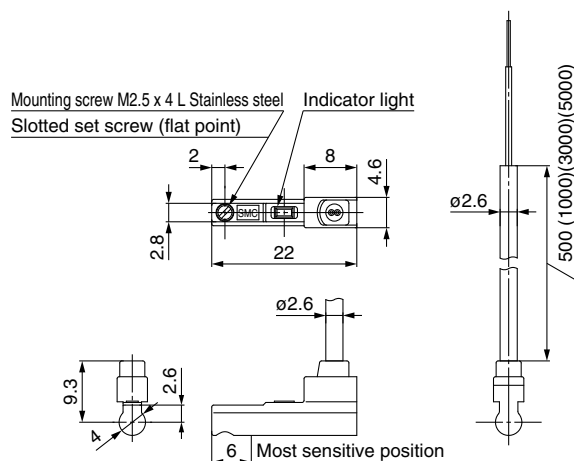
## Dimensions

[mm]

### D-M9□A



### D-M9□AV



## Auto Switch Specifications

PLC: Programmable Logic Controller

| D-M9□A, D-M9□AV (With indicator light) |                                                                                                   |               |         |               |                       |               |
|----------------------------------------|---------------------------------------------------------------------------------------------------|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model                      | D-M9NA                                                                                            | D-M9NAV       | D-M9PA  | D-M9PAV       | D-M9BA                | D-M9BAV       |
| Electrical entry direction             | In-line                                                                                           | Perpendicular | In-line | Perpendicular | In-line               | Perpendicular |
| Wiring type                            | 3-wire                                                                                            |               |         |               | 2-wire                |               |
| Output type                            | NPN                                                                                               |               | PNP     |               | —                     |               |
| Applicable load                        | IC circuit, Relay, PLC                                                                            |               |         |               | 24 VDC relay, PLC     |               |
| Power supply voltage                   | 5, 12, 24 VDC (4.5 to 28 V)                                                                       |               |         |               | —                     |               |
| Current consumption                    | 10 mA or less                                                                                     |               |         |               | —                     |               |
| Load voltage                           | 28 VDC or less                                                                                    |               | —       |               | 24 VDC (10 to 28 VDC) |               |
| Load current                           | 40 mA or less                                                                                     |               |         |               | 2.5 to 40 mA          |               |
| Internal voltage drop                  | 0.8 V or less at 10 mA (2 V or less at 40 mA)                                                     |               |         |               | 4 V or less           |               |
| Leakage current                        | 100 μA or less at 24 VDC                                                                          |               |         |               | 0.8 mA or less        |               |
| Indicator light                        | Operating range ..... Red LED illuminates.<br>Proper operating range ..... Green LED illuminates. |               |         |               |                       |               |
| Standard                               | CE marking (EMC directive/RoHS directive)                                                         |               |         |               |                       |               |

## Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model        |                       | D-M9NA□                    | D-M9NAV□ | D-M9PA□ | D-M9PAV□ | D-M9BA□              | D-M9BAV□ |
|--------------------------|-----------------------|----------------------------|----------|---------|----------|----------------------|----------|
| Sheath                   | Outside diameter [mm] | 2.6                        |          |         |          |                      |          |
| Insulator                | Number of cores       | 3 cores (Brown/Blue/Black) |          |         |          | 2 cores (Brown/Blue) |          |
|                          | Outside diameter [mm] | 0.88                       |          |         |          |                      |          |
| Conductor                | Effective area [mm²]  | 0.15                       |          |         |          |                      |          |
|                          | Strand diameter [mm]  | 0.05                       |          |         |          |                      |          |
| Min. bending radius [mm] |                       | 17                         |          |         |          |                      |          |

\* Refer to the **Web Catalog** for solid state auto switch common specifications.

\* Refer to the **Web Catalog** for lead wire lengths.

|                                 |                |       |      |       |                                                |       |       |          |         |        |             |      |     |                |     |                                                |     |                    |
|---------------------------------|----------------|-------|------|-------|------------------------------------------------|-------|-------|----------|---------|--------|-------------|------|-----|----------------|-----|------------------------------------------------|-----|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       |      |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |          |         |        | Environment |      |     | AC Servo Motor |     | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |     | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□ | LECPA | LECP1                                          | LEC-G | LECA6 | JXC51/61 | 25A-LEY | LEY-X5 | LEY-X7      | LEYG | LEY | LEYG           | LEY | LEYG                                           | LEY |                    |

# Electric Actuator Rod Type

Dust-tight/Water-jet-proof (IP65 Equivalent)



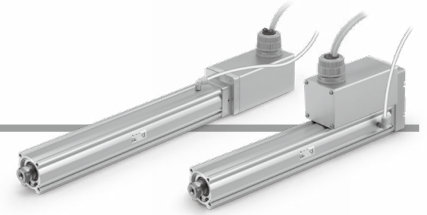
\* For details, refer to page 307 and onward.

## LEY-X5 (Made to Order) Series LEY25, 32



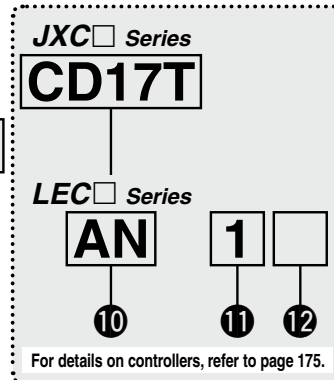
Refer to pages 160 to 162 for model selection.

### How to Order



LEY **25** **D** **B** - **50**    - **R1**

1 2 3 4 5 6 7 8 9



- **X5**

• Made to order:  
Dust-tight/  
Water-jet-proof

#### 1 Size

|    |
|----|
| 25 |
| 32 |

#### 2 Motor mounting position

|     |                   |
|-----|-------------------|
| Nil | Top side parallel |
| D   | In-line           |

#### 3 Motor type

| Symbol | Type                      | Size |    | Compatible controllers/drivers                                                         |
|--------|---------------------------|------|----|----------------------------------------------------------------------------------------|
|        |                           | 25   | 32 |                                                                                        |
| Nil    | Step motor (Servo/24 VDC) | ●    | ●  | JXC51<br>JXC61<br>JXCE1<br>JXC91<br>JXCP1<br>JXCD1<br>JXCL1<br>JXCM1<br>LECP1<br>LECPA |
| A      | Servo motor (24 VDC)      | ●    | —  | LECA6                                                                                  |

#### 4 Lead [mm]

| Symbol | LEY25 | LEY32 |
|--------|-------|-------|
| A      | 12    | 16    |
| B      | 6     | 8     |
| C      | 3     | 4     |

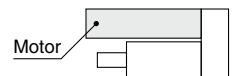
#### 5 Stroke [mm]

|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

#### 6 Motor option\*2

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock      |



#### 7 Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

#### 8 Mounting\*3

| Symbol | Type                             | Motor mounting position |         |
|--------|----------------------------------|-------------------------|---------|
|        |                                  | Parallel                | In-line |
| Nil    | Ends tapped/Body bottom tapped*4 | ●                       | ●       |
| L      | Foot bracket                     | ●                       | —       |
| F      | Rod flange*4                     | ●*5                     | ●       |
| G      | Head flange*4                    | ●*6                     | —       |

#### 9 Actuator cable type/length

| Robotic cable [m] |     |    |      |
|-------------------|-----|----|------|
| R1                | 1.5 | RA | 10*7 |
| R3                | 3   | RB | 15*7 |
| R5                | 5   | RC | 20*7 |
| R8                | 8*7 |    |      |

#### Applicable Stroke Table\*1

●: Standard

| Model | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | Manufacturable stroke range |
|-------|-------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| LEY25 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                   |
| LEY32 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                   |

\* For auto switches, refer to pages 192 and 193.

\* "-X5" is not added to an actuator model with a controller/driver part number suffix.  
Example) "LEY25DB-100" for the LEY25DB-100BM-R1AN1-X5

# Electric Actuator Rod Type **LEY-X5 Series**

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent)

## JXC Series (For details, refer to page 175.)

### 10 Controller

|       |                    |
|-------|--------------------|
| Nil   | Without controller |
| C□1□□ | With controller    |

**C D 1 7 T**

Interface

(Communication protocol/Input/Output)

|   |                      |   |                   |
|---|----------------------|---|-------------------|
| 5 | Parallel input (NPN) | P | PROFINET          |
| 6 | Parallel input (PNP) | D | DeviceNet™        |
| E | EtherCAT®            | L | IO-Link           |
| 9 | EtherNet/IP™         | M | CC-Link Ver. 1.10 |

Mounting

|      |                |
|------|----------------|
| 7    | Screw mounting |
| 8*13 | DIN rail       |

For single axis



Communication plug connector, I/O cable\*14

| Symbol | Type                                       | Applicable interface                         |
|--------|--------------------------------------------|----------------------------------------------|
| Nil    | Without accessory                          | —                                            |
| S      | Straight type communication plug connector | DeviceNet™                                   |
| T      | T-branch type communication plug connector | CC-Link Ver. 1.10                            |
| 1      | I/O cable (1.5 m)                          | Parallel input (NPN)<br>Parallel input (PNP) |
| 3      | I/O cable (3 m)                            |                                              |
| 5      | I/O cable (5 m)                            |                                              |

## LEC Series (For details, refer to page 175.)

**AN 1**

### 10 Controller/Driver type\*8

|     |                           |     |
|-----|---------------------------|-----|
| Nil | Without controller/driver |     |
| 6N  | LECA6                     | NPN |
| 6P  | (Step data input type)    | PNP |
| 1N  | LECP1*9                   | NPN |
| 1P  | (Programless type)        | PNP |
| AN  | LECPA*9 *10               | NPN |
| AP  | (Pulse input type)        | PNP |

### 11 I/O cable length\*11

|     |               |
|-----|---------------|
| Nil | Without cable |
| 1   | 1.5 m         |
| 3   | 3 m*12        |
| 5   | 5 m*12        |

### 12 Controller/Driver mounting

|     |                |
|-----|----------------|
| Nil | Screw mounting |
| D   | DIN rail*13    |



- \*1 Please contact SMC for non-standard strokes as they are produced as special orders.
- \*2 When "With lock" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for strokes of 50 mm or less. Check for interference with workpieces before selecting a model.
- \*3 The mounting bracket is shipped together with the product but does not come assembled.
- \*4 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.  
· LEY25: 200 mm or less · LEY32: 100 mm or less
- \*5 The rod flange type is not available for the LEY25/32 with strokes of 50 mm or less and motor option "With lock."
- \*6 The head flange type is not available for the LEY32.
- \*7 Produced upon receipt of order (Robotic cable only)
- \*8 For details on controllers/drivers and compatible motors, refer to the compatible controllers/drivers on the next page.

- \*9 Only available for the motor type "Step motor"
- \*10 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 238 separately.
- \*11 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 224 (For LECA6), page 234 (For LECP1), or page 240 (For LECPA) if I/O cable is required.
- \*12 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector
- \*13 The DIN rail is not included. It must be ordered separately.
- \*14 Select "Nil," "S," or "T" for DeviceNet™ or CC-Link.  
Select "Nil," "1," "3," or "5" for parallel input.

## ⚠ Caution

### [CE-compliant products]

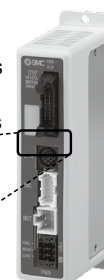
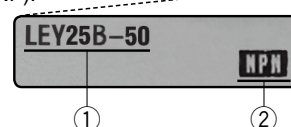
- EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.  
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 224 for the noise filter set. Refer to the LECA series Operation Manual for installation.

## The actuator and controller/driver are sold as a package.

Confirm that the combination of the controller/driver and actuator is correct.

### <Check the following before use.>

- Check the actuator label for the model number. This number should match that of the controller/driver.
- Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the Operation Manual for using the products. Please download it via our website: <https://www.smcworld.com>

# LEY-X5 Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent)

## Compatible Controllers/Drivers

| Type                     | Step data input type                                                              | Step data input type                                                              | Programless type                                                                  | Pulse input type                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                          |  |  |  |  |
| Series                   | <b>JXC51<br/>JXC61</b>                                                            | <b>LECA6</b>                                                                      | <b>LECP1</b>                                                                      | <b>LECPA</b>                                                                       |
| Features                 | Parallel I/O                                                                      |                                                                                   | Capable of setting up operation (step data) without using a PC or teaching box    | Operation by pulse signals                                                         |
| Compatible motor         | Step motor (Servo/24 VDC)                                                         | Servo motor (24 VDC)                                                              | Step motor (Servo/24 VDC)                                                         |                                                                                    |
| Max. number of step data | 64 points                                                                         |                                                                                   | 14 points                                                                         | —                                                                                  |
| Power supply voltage     | 24 VDC                                                                            |                                                                                   |                                                                                   |                                                                                    |
| Reference page           | 211                                                                               | 218                                                                               | 229                                                                               | 235                                                                                |

| Type                     | EtherCAT® direct input type                                                         | EtherNet/IP™ direct input type                                                      | PROFINET direct input type                                                          | DeviceNet™ direct input type                                                         | IO-Link direct input type                                                             | CC-Link direct input type                                                             |
|--------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                          |  |  |  |  |  |  |
| Series                   | <b>JXCE1</b>                                                                        | <b>JXC91</b>                                                                        | <b>JXCP1</b>                                                                        | <b>JXCD1</b>                                                                         | <b>JXCL1</b>                                                                          | <b>JXCM1</b>                                                                          |
| Features                 | EtherCAT® direct input                                                              | EtherNet/IP™ direct input                                                           | PROFINET direct input                                                               | DeviceNet™ direct input                                                              | IO-Link direct input                                                                  | CC-Link direct input                                                                  |
| Compatible motor         | Step motor (Servo/24 VDC)                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Max. number of step data | 64 points                                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Power supply voltage     | 24 VDC                                                                              |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Reference page           | 241                                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |

## Specifications

### Step Motor (Servo/24 VDC)

| Model                                |                                        |                             |                                                | LEY25□-X5                 |            |            | LEY32□-X5      |            |            |
|--------------------------------------|----------------------------------------|-----------------------------|------------------------------------------------|---------------------------|------------|------------|----------------|------------|------------|
| Work load [kg]*1                     | Horizontal                             | For JXC□1<br>LECP1          | (3000 [mm/s²])                                 | 20                        | 40         | 60         | 30             | 45         | 60         |
|                                      |                                        |                             | (2000 [mm/s²])                                 | 30                        | 60         | 70         | 40             | 60         | 80         |
|                                      |                                        | For LECPA<br>JXC□2<br>JXC□3 | (3000 [mm/s²])                                 | 12                        | 30         | 30         | 20             | 40         | 40         |
|                                      |                                        |                             | (2000 [mm/s²])                                 | 18                        | 50         | 50         | 30             | 60         | 60         |
|                                      | Vertical*14                            |                             | (3000 [mm/s²])                                 | 7                         | 15         | 29         | 10             | 21         | 42         |
|                                      | Pushing force [N]*2 *3 *4              |                             |                                                | 63 to 122                 | 126 to 238 | 232 to 452 | 80 to 189      | 156 to 370 | 296 to 707 |
|                                      | Speed [mm/s]*4                         |                             |                                                | 18 to 400                 | 9 to 200   | 5 to 100   | 24 to 400      | 12 to 200  | 6 to 100   |
|                                      | Max. acceleration/deceleration [mm/s²] |                             |                                                | 3000                      |            |            |                |            |            |
|                                      | Pushing speed [mm/s]*5                 |                             |                                                | 35 or less                |            |            | 30 or less     |            |            |
|                                      | Positioning repeatability [mm]         |                             |                                                | ±0.02                     |            |            |                |            |            |
| Lost motion [mm]*6                   |                                        |                             | 0.1 or less                                    |                           |            |            |                |            |            |
| Screw lead [mm]                      |                                        |                             | 12                                             | 6                         | 3          | 16         | 8              | 4          |            |
| Impact/Vibration resistance [m/s²]*7 |                                        |                             | 50/20                                          |                           |            |            |                |            |            |
| Actuation type                       |                                        |                             | Ball screw + Belt (LEY□)<br>Ball screw (LEY□D) |                           |            |            |                |            |            |
| Guide type                           |                                        |                             | Sliding bushing (Piston rod)                   |                           |            |            |                |            |            |
| Enclosure*8                          |                                        |                             | IP65 equivalent                                |                           |            |            |                |            |            |
| Operating temperature range [°C]     |                                        |                             | 5 to 40                                        |                           |            |            |                |            |            |
| Operating humidity range [%RH]       |                                        |                             | 90 or less (No condensation)                   |                           |            |            |                |            |            |
| Electric specifications              | Motor size                             |                             |                                                | □42                       |            |            | □56.4          |            |            |
|                                      | Motor type                             |                             |                                                | Step motor (Servo/24 VDC) |            |            |                |            |            |
|                                      | Encoder                                |                             |                                                | Incremental               |            |            |                |            |            |
|                                      | Power supply voltage [V]               |                             |                                                | 24 VDC ±10%               |            |            |                |            |            |
| Lock unit specifications             | Power [W]*9 *11                        |                             |                                                | Max. power 48             |            |            | Max. power 104 |            |            |
|                                      | Type*10                                |                             |                                                | Non-magnetizing lock      |            |            |                |            |            |
|                                      | Holding force [N]                      |                             |                                                | 78                        | 157        | 294        | 108            | 216        | 421        |
|                                      | Power [W]*11                           |                             |                                                | 5                         |            |            | 5              |            |            |
|                                      | Rated voltage [V]                      |                             |                                                | 24 VDC ±10%               |            |            |                |            |            |

\*1 Horizontal: The max. value of the work load. An external guide is necessary to support the load. (Friction coefficient of guide: 0.1 or less) The actual work load and transfer speed change according to the condition of the external guide. Also, speed changes according to the work load. Check the "Model Selection" on pages 160 and 161.

Vertical: Speed changes according to the work load. Check the "Model Selection" on pages 160 and 161.

The values shown in ( ) are the acceleration/deceleration. Set these values to be 3000 [mm/s<sup>2</sup>] or less.

\*2 Pushing force accuracy is ±20% (F.S.).

\*3 The thrust setting values for LEY25□ are 38% to 65% and for LEY32□ are 38% to 85%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 162.

\*4 The speed and force may change depending on the cable length, load, and mounting conditions. Furthermore, if the cable length exceeds 5 m, then it will decrease by up to 10% for each 5 m. (At 15 m: Reduced by up to 20%)

\*5 The allowable speed for pushing operations. When push conveying a workpiece, operate at the vertical work load or less.

\*6 A reference value for correcting errors in reciprocal operation

\*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

\*8 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water

Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.

\*9 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.

\*10 With lock only

\*11 For an actuator with lock, add the power for the lock.

\*12 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.



# LEY-X5 Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent)

## Specifications

### Servo Motor (24 VDC)

| Model                          |                                                     |             |                              | LEY25□A-X5                                     |          |           |
|--------------------------------|-----------------------------------------------------|-------------|------------------------------|------------------------------------------------|----------|-----------|
| Actuator specifications        | Work load [kg]*1                                    | Horizontal  | (3000 [mm/s <sup>2</sup> ])  | 7                                              | 15       | 30        |
|                                |                                                     | Vertical*13 | (3000 [mm/s <sup>2</sup> ])  | 2                                              | 5        | 11        |
|                                | Pushing force [N]*2 *3                              |             |                              | 18 to 35                                       | 37 to 72 | 66 to 130 |
|                                | Speed [mm/s]                                        |             |                              | 2 to 400                                       | 1 to 200 | 1 to 100  |
|                                | Max. acceleration/deceleration [mm/s <sup>2</sup> ] |             |                              | 3000                                           |          |           |
|                                | Pushing speed [mm/s]*4                              |             |                              | 35 or less                                     |          |           |
|                                | Positioning repeatability [mm]                      |             |                              | ±0.02                                          |          |           |
|                                | Lost motion [mm]*5                                  |             |                              | 0.1 or less                                    |          |           |
|                                | Screw lead [mm]                                     |             |                              | 12                                             | 6        | 3         |
|                                | Impact/Vibration resistance [m/s <sup>2</sup> ]*6   |             |                              | 50/20                                          |          |           |
|                                | Actuation type                                      |             |                              | Ball screw + Belt (LEY□)<br>Ball screw (LEY□D) |          |           |
|                                | Guide type                                          |             |                              | Sliding bushing (Piston rod)                   |          |           |
|                                | Enclosure*7                                         |             |                              | IP65 equivalent                                |          |           |
|                                | Operating temperature range [°C]                    |             |                              | 5 to 40                                        |          |           |
| Operating humidity range [%RH] |                                                     |             | 90 or less (No condensation) |                                                |          |           |
| Electric specifications        | Motor size                                          |             |                              | □42                                            |          |           |
|                                | Motor type                                          |             |                              | Servo motor (24 VDC)                           |          |           |
|                                | Encoder                                             |             |                              | Incremental                                    |          |           |
|                                | Power supply voltage [V]                            |             |                              | 24 VDC ±10%                                    |          |           |
| Lock unit specifications       | Power [W]*8 *10                                     |             |                              | Max. power 96                                  |          |           |
|                                | Type*9                                              |             |                              | Non-magnetizing lock                           |          |           |
|                                | Holding force [N]                                   |             |                              | 78                                             | 157      | 294       |
|                                | Power [W]*10                                        |             |                              | 5                                              |          |           |
| Rated voltage [V]              |                                                     |             | 24 VDC ±10%                  |                                                |          |           |

- \*1 Horizontal: The max. value of the work load. An external guide is necessary to support the load. (Friction coefficient of guide: 0.1 or less) The actual work load and transfer speed change according to the condition of the external guide.  
Vertical: Speed changes according to the work load. Check the "Model Selection" on page 161. The values shown in ( ) are the acceleration/deceleration.  
Set these values to be 3000 [mm/s<sup>2</sup>] or less.
- \*2 Pushing force accuracy is ±20% (F.S.).
- \*3 The thrust setting values for LEY25A□ are 75% to 95%. The pushing force values change according to the duty ratio and pushing speed. Check the "Model Selection" on page 162.
- \*4 The allowable speed for pushing operations  
When push conveying a workpiece, operate at the vertical work load or less.
- \*5 A reference value for correcting errors in reciprocal operation
- \*6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*7 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water  
Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.
- \*8 Indicates the max. power during operation (including the controller). This value can be used for the selection of the power supply.
- \*9 With lock only
- \*10 For an actuator with lock, add the power for the lock.
- \*11 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.

## Weight

### Weight: Top Side Parallel Motor Type

| Model               |             | LEY25-X5 |      |      |      |      |      |      |      |      | LEY32-X5 |      |      |      |      |      |      |      |      |      |      |
|---------------------|-------------|----------|------|------|------|------|------|------|------|------|----------|------|------|------|------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30       | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 30       | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor  | 1.45     | 1.52 | 1.69 | 1.95 | 2.13 | 2.30 | 2.48 | 2.65 | 2.83 | 2.48     | 2.59 | 2.88 | 3.35 | 3.64 | 3.91 | 4.21 | 4.49 | 4.76 | 5.04 | 5.32 |
|                     | Servo motor | 1.41     | 1.48 | 1.65 | 1.91 | 2.09 | 2.26 | 2.44 | 2.61 | 2.79 | —        | —    | —    | —    | —    | —    | —    | —    | —    | —    | —    |

### Weight: In-line Motor Type

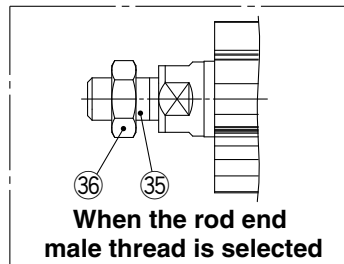
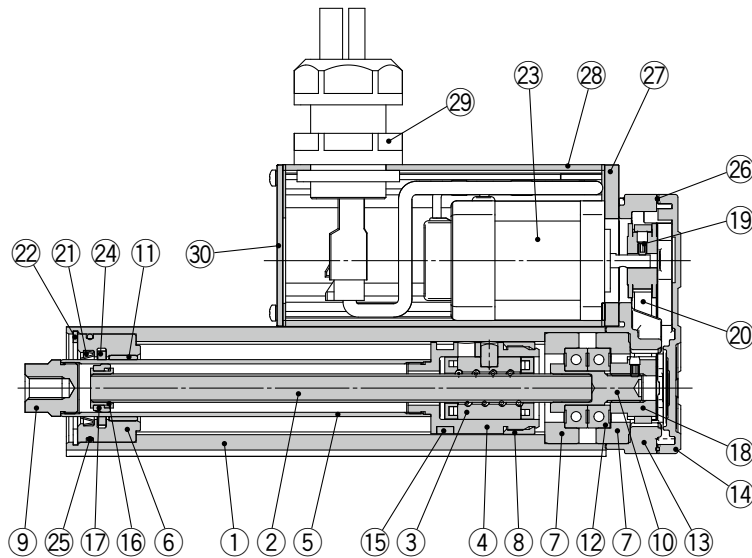
| Model               |             | LEY25D-X5 |      |      |      |      |      |      |      |      |      | LEY32D-X5 |      |      |      |      |      |      |      |      |      |
|---------------------|-------------|-----------|------|------|------|------|------|------|------|------|------|-----------|------|------|------|------|------|------|------|------|------|
| Stroke [mm]         |             | 30        | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 30   | 50        | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Product weight [kg] | Step motor  | 1.46      | 1.53 | 1.70 | 1.96 | 2.14 | 2.31 | 2.49 | 2.66 | 2.84 | 2.49 | 2.60      | 2.89 | 3.36 | 3.65 | 3.92 | 4.22 | 4.50 | 4.77 | 5.05 | 5.33 |
|                     | Servo motor | 1.42      | 1.49 | 1.66 | 1.92 | 2.10 | 2.27 | 2.45 | 2.62 | 2.80 | —    | —         | —    | —    | —    | —    | —    | —    | —    | —    | —    |

### Additional Weight

| Size                                          |             | 25   | 32   |
|-----------------------------------------------|-------------|------|------|
| Lock                                          |             | 0.33 | 0.63 |
| Rod end male thread                           | Male thread | 0.03 | 0.03 |
|                                               | Nut         | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt) |             | 0.08 | 0.14 |
| Rod flange (including mounting bolt)          |             | 0.17 | 0.20 |
| Head flange (including mounting bolt)         |             |      |      |

## Construction

### Top side parallel motor type: LEY<sup>25</sup><sub>32</sub>



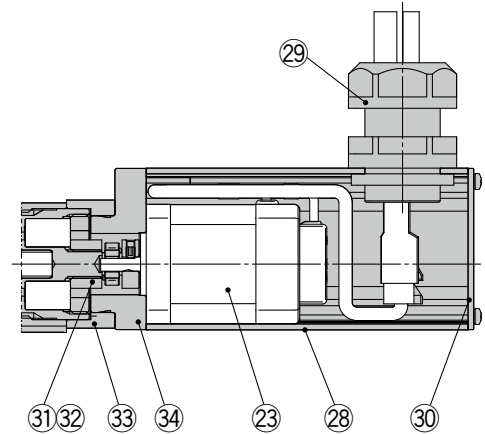
### Component Parts

| No. | Description        | Material                    | Note                  |
|-----|--------------------|-----------------------------|-----------------------|
| 1   | Body               | Aluminum alloy              | Anodized              |
| 2   | Ball screw shaft   | Alloy steel                 |                       |
| 3   | Ball screw nut     | Synthetic resin/Alloy steel |                       |
| 4   | Piston             | Aluminum alloy              |                       |
| 5   | Piston rod         | Stainless steel             | Hard chrome plating   |
| 6   | Rod cover          | Aluminum alloy              |                       |
| 7   | Bearing holder     | Aluminum alloy              |                       |
| 8   | Rotation stopper   | Synthetic resin             |                       |
| 9   | Socket             | Free cutting carbon steel   | Nickel plating        |
| 10  | Connected shaft    | Free cutting carbon steel   | Nickel plating        |
| 11  | Bushing            | Bearing alloy               |                       |
| 12  | Bearing            | —                           |                       |
| 13  | Return box         | Aluminum die-cast           | Coating               |
| 14  | Return plate       | Aluminum die-cast           | Coating               |
| 15  | Magnet             | —                           |                       |
| 16  | Wear ring holder   | Stainless steel             | Stroke 101 mm or more |
| 17  | Wear ring          | Synthetic resin             | Stroke 101 mm or more |
| 18  | Screw shaft pulley | Aluminum alloy              |                       |
| 19  | Motor pulley       | Aluminum alloy              |                       |

### Replacement Parts (Top side parallel only)/Belt

| No. | Size | Order no. |
|-----|------|-----------|
| 20  | 25   | LE-D-2-2  |
|     | 32   | LE-D-2-3  |

### In-line motor type: LEY<sup>25</sup><sub>32</sub>D



| No. | Description          | Material                  | Note              |
|-----|----------------------|---------------------------|-------------------|
| 20  | Belt                 | —                         |                   |
| 21  | Scraper              | Synthetic resin           |                   |
| 22  | Retaining ring       | Steel for spring          | Phosphate coating |
| 23  | Motor                | —                         |                   |
| 24  | Lube-retainer        | Felt                      |                   |
| 25  | O-ring               | NBR                       |                   |
| 26  | Gasket               | NBR                       |                   |
| 27  | Motor adapter        | Aluminum alloy            | Anodized          |
| 28  | Motor cover          | Aluminum alloy            | Anodized          |
| 29  | Seal connector       | —                         |                   |
| 30  | End cover            | Aluminum alloy            | Anodized          |
| 31  | Hub                  | Aluminum alloy            |                   |
| 32  | Spider               | NBR                       |                   |
| 33  | Motor block          | Aluminum alloy            | Anodized          |
| 34  | Motor adapter        | Aluminum alloy            | LEY25 only        |
| 35  | Socket (Male thread) | Free cutting carbon steel | Nickel plating    |
| 36  | Nut                  | Alloy steel               | Zinc chromating   |

### Replacement Parts/Grease Pack

| Applied portion | Order no.                          |
|-----------------|------------------------------------|
| Piston rod      | GR-S-010 (10 g)<br>GR-S-020 (20 g) |

\* Apply grease to the piston rod periodically.  
Grease should be applied when 1 million cycles or 200 km have been reached, whichever comes first.

# LEY-X5 Series

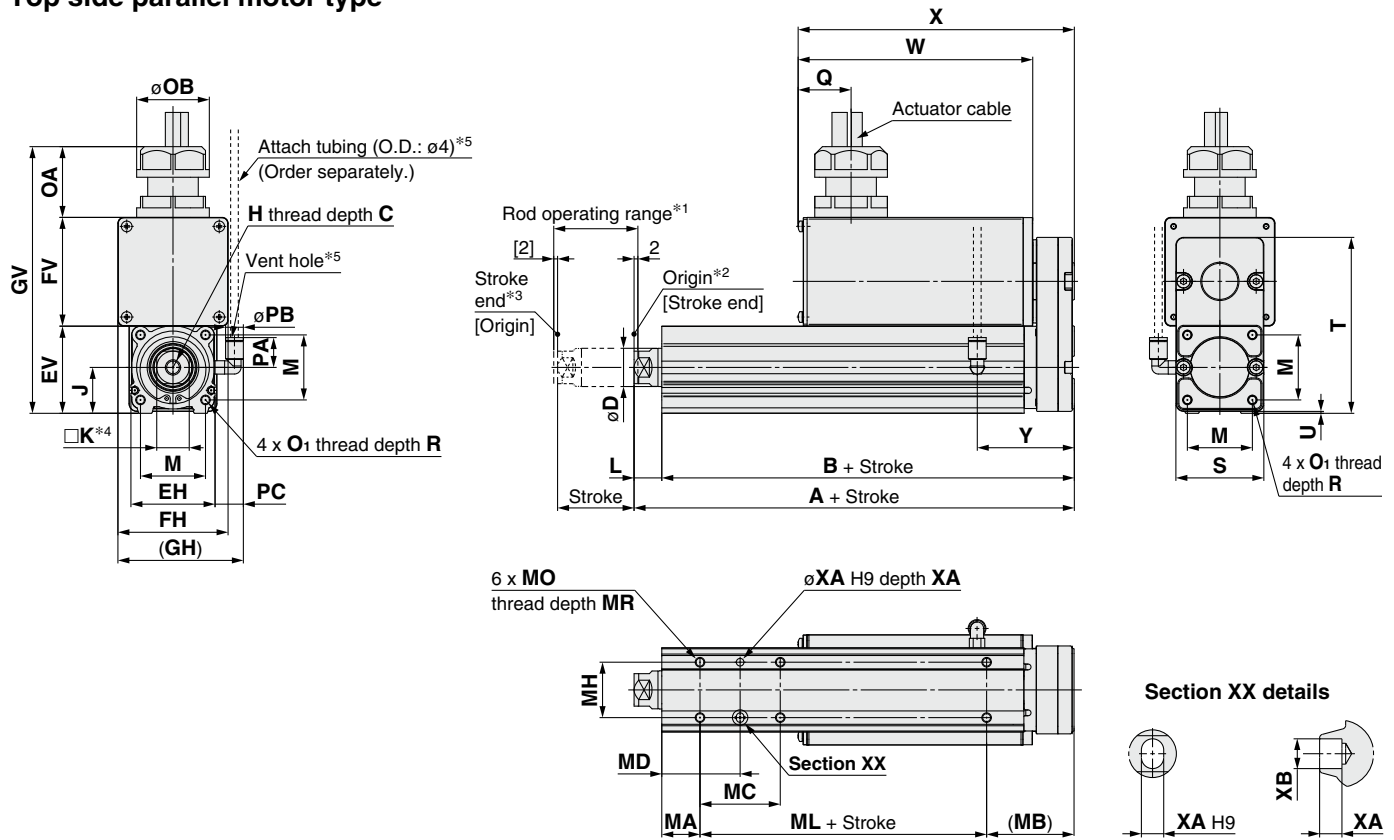
Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Dust-tight/Water-jet-proof (IP65 Equivalent)

## Dimensions

### Top side parallel motor type



| [mm] |                   |       |     |    |    |    |      |      |      |      |       |           |    |    |      |    |                |
|------|-------------------|-------|-----|----|----|----|------|------|------|------|-------|-----------|----|----|------|----|----------------|
| Size | Stroke range [mm] | A     | B   | C  | D  | EH | EV   | FH   | FV   | GH   | GV    | H         | J  | K  | L    | M  | O <sub>1</sub> |
| 25   | 15 to 100         | 130.5 | 116 | 13 | 20 | 44 | 45.5 | 57.6 | 56.8 | 66.2 | 139.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34 | M5 x 0.8       |
|      | 101 to 400        | 155.5 | 141 | 13 | 25 | 51 | 56.5 | 69.6 | 78.6 | 76.2 | 173.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       |
| 32   | 20 to 100         | 148.5 | 130 | 13 | 25 | 51 | 56.5 | 69.6 | 78.6 | 76.2 | 173.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       |
|      | 101 to 500        | 178.5 | 160 | 13 | 25 | 51 | 56.5 | 69.6 | 78.6 | 76.2 | 173.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       |

| Size | Stroke range [mm] | R  | OA | OB | PA   | PB  | Q  | S  | T   | U | PC   | W            |           | X            |           | Y  |
|------|-------------------|----|----|----|------|-----|----|----|-----|---|------|--------------|-----------|--------------|-----------|----|
|      |                   |    |    |    |      |     |    |    |     |   |      | Without lock | With lock | Without lock | With lock |    |
| 25   | 15 to 100         | 8  | 37 | 38 | 15.4 | 8.2 | 28 | 46 | 92  | 1 | 15.4 | 123          | 173       | 145          | 195       | 51 |
|      | 101 to 400        | 8  | 37 | 38 | 15.4 | 8.2 | 28 | 46 | 92  | 1 | 15.4 | 123          | 173       | 145          | 195       | 51 |
| 32   | 20 to 100         | 10 | 37 | 38 | 15.4 | 8.2 | 28 | 60 | 118 | 1 | 15.9 | 123          | 173       | 150          | 200       | 61 |
|      | 101 to 500        | 10 | 37 | 38 | 15.4 | 8.2 | 28 | 60 | 118 | 1 | 15.9 | 123          | 173       | 150          | 200       | 61 |

### Body Bottom Tapped

| Size | Stroke range [mm] | MA | MB | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39          | 20 | 46 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100         |    |    | 42 | 41   |    | 75 |          |     |    |    |
|      | 101 to 124        |    |    | 59 | 49.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |    | 76 | 58   |    |    |          |     |    |    |
|      | 201 to 400        |    |    |    |      |    |    |          |     |    |    |
| 32   | 20 to 39          | 25 | 55 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100         |    |    | 36 | 43   |    | 80 |          |     |    |    |
|      | 101 to 124        |    |    | 53 | 51.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |    | 70 | 60   |    |    |          |     |    |    |
|      | 201 to 500        |    |    |    |      |    |    |          |     |    |    |

\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 Position after returning to origin

\*3 [ ] for when the direction of return to origin has changed

\*4 The direction of rod end width across flats (□K) differs depending on the products.

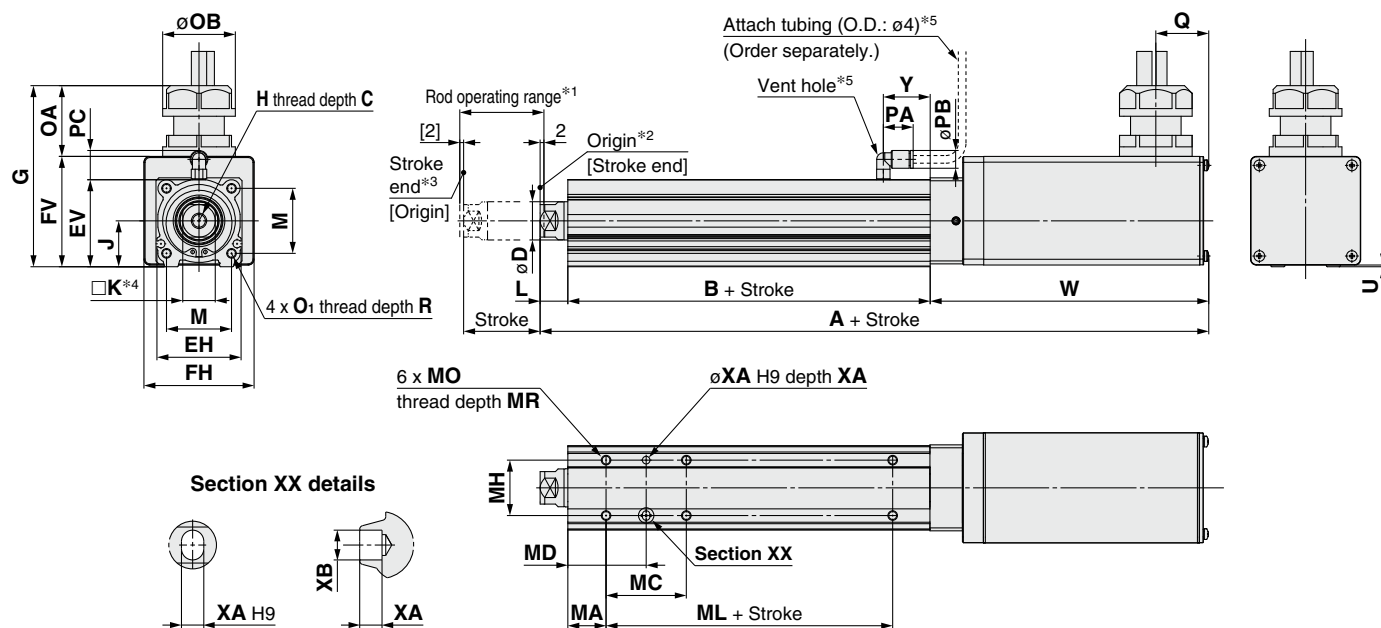
\*5 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 67. For the mounting bracket dimensions, refer to page 101.

## Dimensions

### In-line motor type



| Size | Stroke range [mm] | A            |           | B     | C  | D  | EH | EV   | FH   | FV   | G     | H         | J  | K  | L    |
|------|-------------------|--------------|-----------|-------|----|----|----|------|------|------|-------|-----------|----|----|------|
|      |                   | Without lock | With lock |       |    |    |    |      |      |      |       |           |    |    |      |
| 25   | 15 to 100         | 250          | 300       | 89.5  | 13 | 20 | 44 | 45.5 | 57.6 | 57.7 | 94.7  | M8 x 1.25 | 24 | 17 | 14.5 |
|      | 101 to 400        | 275          | 325       | 114.5 |    |    |    |      |      |      |       |           |    |    |      |
| 32   | 20 to 100         | 265.5        | 315.5     | 96    | 13 | 25 | 51 | 56.5 | 69.6 | 79.6 | 116.6 | M8 x 1.25 | 31 | 22 | 18.5 |
|      | 101 to 500        | 295.5        | 345.5     | 126   |    |    |    |      |      |      |       |           |    |    |      |

| Size | Stroke range [mm] | M  | O <sub>1</sub> | R  | OA | OB | PA   | PB  | Q  | U   | PC   | W            |           | Y    |
|------|-------------------|----|----------------|----|----|----|------|-----|----|-----|------|--------------|-----------|------|
|      |                   |    |                |    |    |    |      |     |    |     |      | Without lock | With lock |      |
| 25   | 15 to 100         | 34 | M5 x 0.8       | 8  | 37 | 38 | 15.4 | 8.2 | 28 | 0.9 | 15.9 | 146          | 196       | 24.5 |
|      | 101 to 400        |    |                |    |    |    |      |     |    |     |      | 146          | 196       |      |
| 32   | 20 to 100         | 40 | M6 x 1.0       | 10 | 37 | 38 | 15.4 | 8.2 | 28 | 1   | 15.9 | 151          | 201       | 27   |
|      | 101 to 500        |    |                |    |    |    |      |     |    |     |      | 151          | 201       |      |

### Body Bottom Tapped

| Size | Stroke range [mm] | MA | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39          | 20 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100         |    | 42 | 41   |    | 75 |          |     |    |    |
|      | 101 to 124        |    | 59 | 49.5 |    | 75 |          |     |    |    |
|      | 125 to 200        |    | 76 | 58   |    | 75 |          |     |    |    |
|      | 201 to 400        |    | 76 | 58   |    | 75 |          |     |    |    |
| 32   | 20 to 39          | 25 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100         |    | 36 | 43   |    | 80 |          |     |    |    |
|      | 101 to 124        |    | 53 | 51.5 |    | 80 |          |     |    |    |
|      | 125 to 200        |    | 53 | 51.5 |    | 80 |          |     |    |    |
|      | 201 to 500        |    | 70 | 60   |    | 80 |          |     |    |    |

\*1 This is the range within which the rod can move when it returns to origin. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 Position after returning to origin

\*3 [ ] for when the direction of return to origin has changed

\*4 The direction of rod end width across flats (□K) differs depending on the products.

\*5 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 67. For the mounting bracket dimensions, refer to page 101.

# Electric Actuator

## Rod Type

Dust-tight/Water-jet-proof (IP65 Equivalent)

## LEY-X5 (Made to Order) Series LEY25, 32

Refer to page 41 for model selection.

Size 63 is available by selecting option P. Refer to page 79.

LEY□ Series ▶ p. 187



\* For details, refer to page 307 and onward.

### How to Order

LEY **H** **25** **S2** **B** - **100** **S** **2** **A1** - **X5**

1 2 3 4 5 6 7 8 9 10 11 12 13

• Made to order:  
Dust-tight/  
Water-jet-proof

#### 1 Accuracy

|     |                     |
|-----|---------------------|
| Nil | Basic type          |
| H   | High-precision type |

#### 2 Size

|    |
|----|
| 25 |
| 32 |

#### 3 Motor mounting position

|     |                   |
|-----|-------------------|
| Nil | Top side parallel |
| D   | In-line           |

#### 4 Motor type

| Symbol | Type                                 | Output [W] | Actuator size | Compatible drivers                                |
|--------|--------------------------------------|------------|---------------|---------------------------------------------------|
| S2*1   | AC servo motor (Incremental encoder) | 100        | 25            | LECSA□-S1                                         |
| S3     |                                      | 200        | 32            | LECSA□-S3                                         |
| S6*1   | AC servo motor (Absolute encoder)    | 100        | 25            | LECSB□-S5<br>LECS□-S5<br>LECSS□-S5                |
| S7     |                                      | 200        | 32            | LECSB□-S7<br>LECS□-S7<br>LECSS□-S7                |
| T6*2   | AC servo motor (Absolute encoder)    | 100        | 25            | LECSB2-T5<br>LECS2-T5<br>LECSN2-T5-□<br>LECSS2-T5 |
| T7     |                                      | 200        | 32            | LECSB2-T7<br>LECS2-T7<br>LECSN2-T7-□<br>LECSS2-T7 |

\*1 For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

\*2 For motor type T6, the compatible driver part number is LECS□2-T5.

#### 5 Lead [mm]

| Symbol | LEY25□ | LEY32□*1 |
|--------|--------|----------|
| A      | 12     | 16 (20)  |
| B      | 6      | 8 (10)   |
| C      | 3      | 4 (5)    |

\*1 The values shown in ( ) are the equivalent leads which include the pulley ratio for the size 32 top side parallel motor type.

#### 6 Stroke [mm]

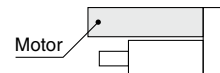
|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

#### 7 Motor option

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock*1    |

\*1 When "With lock" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.



#### 8 Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

#### 9 Mounting\*1

| Symbol | Type                                 | Motor mounting position |         |
|--------|--------------------------------------|-------------------------|---------|
|        |                                      | Parallel                | In-line |
| Nil    | Ends tapped/<br>Body bottom tapped*2 | ●                       | ●       |
| L      | Foot bracket                         | ●                       | —       |
| F      | Rod flange*2                         | ●*3                     | ●       |
| G      | Head flange*2                        | ●*4                     | —       |

\*1 The mounting bracket is shipped together with the product but does not come assembled.

\*2 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.

- LEY25: 200 mm or less
- LEY32: 100 mm or less

\*3 The rod flange type is not available for the LEY25 with a 30 mm stroke and motor option "With lock."

\*4 The head flange type is not available for the LEY32.

#### Applicable Stroke Table

| Model | Stroke |    |     |     |     |     |     |     |     |     |     | Manufacturable stroke range [mm] |
|-------|--------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------------------------------|
|       | 30     | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |                                  |
| LEY25 | ●      | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                        |
| LEY32 | ●      | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                        |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

\* For auto switches, refer to pages 192 and 193.

The LECSB-S, LECS□-S, and LECS□-S electric actuator drivers are to be discontinued. The LECSB-T, LECS□-T, and LECS□-T drivers are available as substitutes. In the product number, select T6 instead of S6, or T7 instead of S7 for the ④ Motor type, and select B2 instead of B1, C2 instead of C1, or S2 instead of S1 for the ④ Driver type.

# Electric Actuator Rod Type **LEY-X5 Series**

AC Servo Motor

Dust-tight/Water-jet-proof (IP65 Equivalent)



## 10 Cable type\*1 \*2

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| S   | Standard cable                 |
| R   | Robotic cable (Flexible cable) |

\*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

\*2 Standard cable entry direction is  
 • Top side parallel: (A) Axis side  
 • In-line: (B) Counter axis side  
 (Refer to page 290 for details.)

## 11 Cable length [m]\*1

|     |               |
|-----|---------------|
| Nil | Without cable |
| 2   | 2             |
| 5   | 5             |
| A   | 10            |

\*1 The length of the encoder, motor, and lock cables are the same.

## 12 Driver type\*1

|     | Compatible drivers | Power supply voltage [V] |
|-----|--------------------|--------------------------|
| Nil | Without driver     | —                        |
| A1  | LECSA1-S□          | 100 to 120               |
| A2  | LECSA2-S□          | 200 to 230               |
| B1  | LECSB1-S□          | 100 to 120               |
| B2  | LECSB2-S□          | 200 to 230               |
|     | LECSB2-T□          | 200 to 240               |
| C1  | LECSC1-S□          | 100 to 120               |
| C2  | LECSC2-S□          | 200 to 230               |
|     | LECSC2-T□          |                          |
| S1  | LECSS1-S□          | 100 to 120               |
| S2  | LECSS2-S□          | 200 to 230               |
|     | LECSS2-T□          | 200 to 240               |
| N2  | LECSN2-T□          | 200 to 240               |
| E2  | LECSN2-T□-E        | 200 to 240               |
| 92  | LECSN2-T□-9        | 200 to 240               |
| P2  | LECSN2-T□-P        | 200 to 240               |

\*1 When a driver type is selected, a cable is included. Select the cable type and cable length.

Example)

S2S2: Standard cable (2 m) + Driver (LECSS2)

S2: Standard cable (2 m)

Nil: Without cable and driver

## 13 I/O cable length [m]\*1

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| H   | Without cable (Connector only) |
| 1   | 1.5                            |

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected.

Refer to page 291 if an I/O cable is required. (Options are shown on page 291.)

## Compatible Drivers

| Driver type              | Pulse input type /Positioning type                     | Pulse input type                       | CC-Link direct input type       | SSCNET III type         | Pulse input type                       | CC-Link direct input type       | SSCNET III/H type         | Network card type               |
|--------------------------|--------------------------------------------------------|----------------------------------------|---------------------------------|-------------------------|----------------------------------------|---------------------------------|---------------------------|---------------------------------|
|                          |                                                        |                                        |                                 |                         |                                        |                                 |                           |                                 |
| Series                   | LECSA                                                  | LECSB                                  | LECSC                           | LECSS                   | LECSB-T                                | LECSC-T                         | LECSS-T                   | LECSN-T                         |
| Number of point tables*1 | Up to 7                                                | —                                      | Up to 255 (2 stations occupied) | —                       | Up to 255                              | Up to 255 (2 stations occupied) | —                         | Up to 255                       |
| Pulse input              | ○                                                      | ○                                      | —                               | —                       | ○                                      | —                               | —                         | —                               |
| Applicable network       | —                                                      | —                                      | CC-Link                         | SSCNET III              | —                                      | CC-Link                         | SSCNET III/H              | PROFINET EtherCAT® EtherNet/IP™ |
| Control encoder          | Incremental 17-bit encoder                             | Absolute 18-bit encoder                | Absolute 18-bit encoder         | Absolute 18-bit encoder | Absolute 22-bit encoder                | Absolute 18-bit encoder         | Absolute 22-bit encoder   | Absolute 22-bit encoder         |
| Communication function   | USB communication                                      | USB communication, RS422 communication | —                               | USB communication       | USB communication, RS422 communication | —                               | USB communication         | —                               |
| Power supply voltage [V] | 100 to 120 VAC (50/60 Hz)<br>200 to 230 VAC (50/60 Hz) |                                        |                                 |                         | 200 to 240 VAC (50/60 Hz)              | 200 to 230 VAC (50/60 Hz)       | 200 to 240 VAC (50/60 Hz) | 200 to 240 VAC (50/60 Hz)       |
| Reference page           | 269                                                    |                                        |                                 |                         |                                        |                                 |                           |                                 |

\*1 The LECSN-T only supports PROFINET and EtherCAT®.



# LEY-X5 Series

AC Servo Motor

Dust-tight/Water-jet-proof (IP65 Equivalent)

## Specifications: LECSA/LECSB/LECSC/LECSN/LECSS

| Model                                                                                |                                                     |              | LEY25S <sub>6</sub> <sup>2</sup> /T6-X5 /LEY25DS <sub>6</sub> <sup>2</sup> /T6-X5               |                              |            | LEY32S <sub>7</sub> <sup>3</sup> /T7-X5 (Parallel) |                              |            | LEY32DS <sub>7</sub> <sup>3</sup> /T7-X5 (In-line) |            |            |     |
|--------------------------------------------------------------------------------------|-----------------------------------------------------|--------------|-------------------------------------------------------------------------------------------------|------------------------------|------------|----------------------------------------------------|------------------------------|------------|----------------------------------------------------|------------|------------|-----|
| Actuator specifications                                                              | Work load [kg]                                      | Horizontal*1 | 18                                                                                              | 50                           | 50         | 30                                                 | 60                           | 60         | 30                                                 | 60         | 60         |     |
|                                                                                      |                                                     | Vertical*8   | 8                                                                                               | 16                           | 30         | 9                                                  | 19                           | 37         | 12                                                 | 24         | 46         |     |
|                                                                                      | Force [N]*2 (Set value: 15 to 30%)*12               |              | 65 to 131                                                                                       | 127 to 255                   | 242 to 485 | 79 to 157                                          | 154 to 308                   | 294 to 588 | 98 to 197                                          | 192 to 385 | 368 to 736 |     |
|                                                                                      | Max. speed [mm/s]*3                                 | Stroke range | Up to 300                                                                                       | 900                          | 450        | 225                                                | 1200                         | 600        | 300                                                | 1000       | 500        | 250 |
|                                                                                      |                                                     |              | 305 to 400                                                                                      | 600                          | 300        | 150                                                |                              |            |                                                    |            |            |     |
|                                                                                      |                                                     |              | 405 to 500                                                                                      | —                            | —          | —                                                  |                              |            |                                                    |            |            |     |
|                                                                                      | Pushing speed [mm/s]*3*4                            |              | 35 or less                                                                                      |                              |            | 30 or less                                         |                              |            | 30 or less                                         |            |            |     |
|                                                                                      | Max. acceleration/deceleration [mm/s <sup>2</sup> ] |              | 5000                                                                                            |                              |            |                                                    |                              |            | 5000                                               |            |            |     |
|                                                                                      | Positioning repeatability [mm]                      |              | Basic type                                                                                      | ±0.02                        |            |                                                    |                              |            |                                                    |            |            |     |
|                                                                                      |                                                     |              | High-precision type                                                                             | ±0.01                        |            |                                                    |                              |            |                                                    |            |            |     |
|                                                                                      | Lost motion [mm]*5                                  |              | Basic type                                                                                      | 0.1 or less                  |            |                                                    |                              |            |                                                    |            |            |     |
|                                                                                      |                                                     |              | High-precision type                                                                             | 0.05 or less                 |            |                                                    |                              |            |                                                    |            |            |     |
|                                                                                      | Lead [mm] (including pulley ratio)                  |              |                                                                                                 | 12                           | 6          | 3                                                  | 20                           | 10         | 5                                                  | 16         | 8          | 4   |
|                                                                                      | Impact/Vibration resistance [m/s <sup>2</sup> ]*6   |              |                                                                                                 | 50/20                        |            |                                                    | 50/20                        |            |                                                    |            |            |     |
|                                                                                      | Actuation type                                      |              |                                                                                                 | Ball screw + Belt/Ball screw |            |                                                    | Ball screw + Belt [1.25:1]   |            |                                                    | Ball screw |            |     |
|                                                                                      | Guide type                                          |              |                                                                                                 | Sliding bushing (Piston rod) |            |                                                    | Sliding bushing (Piston rod) |            |                                                    |            |            |     |
| Enclosure*7                                                                          |                                                     |              | IP65 equivalent                                                                                 |                              |            |                                                    |                              |            |                                                    |            |            |     |
| Operating temperature range [°C]                                                     |                                                     |              | 5 to 40                                                                                         |                              |            | 5 to 40                                            |                              |            |                                                    |            |            |     |
| Operating humidity range [%RH]                                                       |                                                     |              | 90 or less (No condensation)                                                                    |                              |            | 90 or less (No condensation)                       |                              |            |                                                    |            |            |     |
| Regeneration option                                                                  |                                                     |              | May be required depending on speed and work load (Refer to pages 43 and 44.)                    |                              |            |                                                    |                              |            |                                                    |            |            |     |
| Electric specifications                                                              | Motor output/Size                                   |              | 100 W/□40                                                                                       |                              |            | 200 W/□60                                          |                              |            |                                                    |            |            |     |
|                                                                                      | Motor type                                          |              | AC servo motor (100/200 VAC)                                                                    |                              |            | AC servo motor (100/200 VAC)                       |                              |            |                                                    |            |            |     |
|                                                                                      | Encoder*11                                          |              | Motor type S2, S3: Incremental 17-bit encoder (Resolution: 131072 p/rev)                        |                              |            |                                                    |                              |            |                                                    |            |            |     |
|                                                                                      |                                                     |              | Motor type S6, S7: Absolute 18-bit encoder (Resolution: 262144 p/rev)                           |                              |            |                                                    |                              |            |                                                    |            |            |     |
|                                                                                      |                                                     |              | Motor type T6, T7: Absolute 22-bit encoder (Resolution: 4194304 p/rev) (For LECSB-T□, LECSS-T□) |                              |            |                                                    |                              |            |                                                    |            |            |     |
| Motor type T6, T7: Absolute 18-bit encoder (Resolution: 262144 p/rev) (For LECSC-T□) |                                                     |              |                                                                                                 |                              |            |                                                    |                              |            |                                                    |            |            |     |
| Power [W]*9                                                                          |                                                     |              | Max. power 445                                                                                  |                              |            | Max. power 724                                     |                              |            | Max. power 724                                     |            |            |     |
| Lock unit specifications                                                             | Type*10                                             |              | Non-magnetizing lock                                                                            |                              |            |                                                    |                              |            |                                                    |            |            |     |
|                                                                                      | Holding force [N]                                   |              | 131                                                                                             | 255                          | 485        | 157                                                | 308                          | 588        | 197                                                | 385        | 736        |     |
|                                                                                      | Power at 20°C [W]                                   |              | 6.3                                                                                             |                              |            | 7.9                                                |                              |            | 7.9                                                |            |            |     |
|                                                                                      | Rated voltage [V]                                   |              | 24 VDC <sup>0</sup> <sub>-10%</sub>                                                             |                              |            |                                                    |                              |            |                                                    |            |            |     |

- \*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.
- \*2 The force setting range (set values for the driver) for the force control with the torque control mode. Set it while referencing the "Force Conversion Graph" on pages 45 and 46. The driver applicable to the pushing operation is "LECSC", "LECSB-T", and "LECSC-T". The LECSCB2-T is only applicable when the control method is positioning. The point table is used to set the pushing operation settings.
- To set the pushing operation settings, an additional dedicated file (pushing operation extension file) must be downloaded separately to be used with the setup software (MR Configurator2™: LEC-MRC2□). Please download this dedicated file from the SMC website: <https://www.smcworld.com>
- When selecting the LECSS or LECSS2-T, combine it with upper level equipment (such as the Simple Motion module manufactured by Mitsubishi Electric Corporation) which has a pushing operation function.
- \*\* For customer-provided PLC and motion controller setting and usage instructions, confirm with the retailer or manufacturer.
- \*3 The allowable speed changes according to the stroke.
- \*4 The allowable collision speed for collision with the workpiece with the torque control mode
- \*5 A reference value for correcting errors in reciprocal operation

- \*6 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)
- \*7 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water  
Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.
- \*8 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.
- \*9 Indicates the max. power during operation (including the driver)  
When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
- \*10 Only when motor option "With lock" is selected
- \*11 The resolution will change depending on the driver type.
- \*12 For motor type T6 and T7, the set value is from 12 to 24%.

## Weight

### Product Weight

[kg]

| Series      |                     |       | LEY25S <sub>6</sub> <sup>2</sup> /T6-X5 (Motor mounting position: Parallel) |      |      |      |      |      |      |      |      |      | LEY32S <sub>7</sub> <sup>3</sup> /T7-X5 (Motor mounting position: Parallel) |      |      |      |      |      |      |      |      |      |
|-------------|---------------------|-------|-----------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|-----------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] |                     |       | 30                                                                          | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 30   | 50                                                                          | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Motor type  | Incremental encoder |       | 1.31                                                                        | 1.38 | 1.55 | 1.81 | 1.99 | 2.16 | 2.34 | 2.51 | 2.69 | 2.42 | 2.53                                                                        | 2.82 | 3.29 | 3.57 | 3.85 | 4.14 | 4.42 | 4.70 | 4.98 | 5.26 |
|             | Absolute encoder    | S6/S7 | 1.37                                                                        | 1.44 | 1.61 | 1.87 | 2.05 | 2.22 | 2.40 | 2.57 | 2.75 | 2.36 | 2.47                                                                        | 2.76 | 3.23 | 3.51 | 3.79 | 4.08 | 4.36 | 4.64 | 4.92 | 5.20 |
|             |                     | T6/T7 | 1.4                                                                         | 1.5  | 1.6  | 1.9  | 2.0  | 2.2  | 2.4  | 2.6  | 2.7  | 2.3  | 2.4                                                                         | 2.7  | 3.2  | 3.5  | 3.8  | 4.1  | 4.3  | 4.6  | 4.9  | 5.2  |

| Series      |                     |       | LEY25DS <sub>6</sub> <sup>2</sup> /T6-X5 (Motor mounting position: In-line) |      |      |      |      |      |      |      |      |      | LEY32DS <sub>7</sub> <sup>3</sup> /T7-X5 (Motor mounting position: In-line) |      |      |      |      |      |      |      |      |      |
|-------------|---------------------|-------|-----------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|-----------------------------------------------------------------------------|------|------|------|------|------|------|------|------|------|
| Stroke [mm] |                     |       | 30                                                                          | 50   | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 30   | 50                                                                          | 100  | 150  | 200  | 250  | 300  | 350  | 400  | 450  | 500  |
| Motor type  | Incremental encoder |       | 1.34                                                                        | 1.41 | 1.58 | 1.84 | 2.02 | 2.19 | 2.37 | 2.54 | 2.72 | 2.44 | 2.55                                                                        | 2.84 | 3.31 | 3.59 | 3.87 | 4.16 | 4.44 | 4.72 | 5.00 | 5.28 |
|             | Absolute encoder    | S6/S7 | 1.40                                                                        | 1.47 | 1.64 | 1.90 | 2.08 | 2.25 | 2.43 | 2.60 | 2.78 | 2.38 | 2.49                                                                        | 2.78 | 3.25 | 3.53 | 3.81 | 4.10 | 4.38 | 4.66 | 4.94 | 5.22 |
|             |                     | T6/T7 | 1.4                                                                         | 1.5  | 1.6  | 1.9  | 2.1  | 2.2  | 2.4  | 2.6  | 2.8  | 2.4  | 2.5                                                                         | 2.8  | 3.2  | 3.5  | 3.8  | 4.1  | 4.4  | 4.6  | 4.9  | 5.2  |

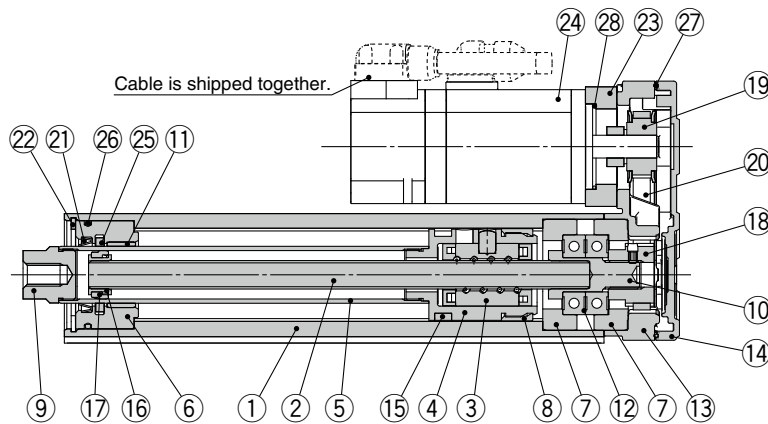
### Additional Weight

[kg]

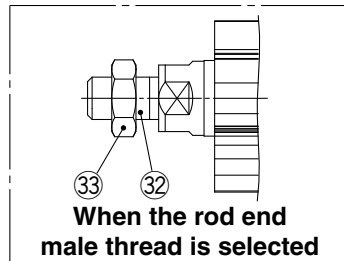
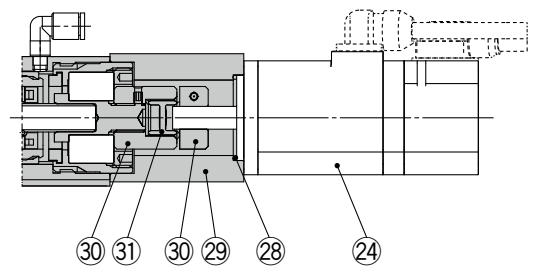
| Size                                                             |                     | 25   | 32   |
|------------------------------------------------------------------|---------------------|------|------|
| Lock                                                             | Incremental encoder | 0.20 | 0.40 |
|                                                                  | Absolute encoder    | 0.30 | 0.66 |
| Rod end male thread                                              | Male thread         | 0.03 | 0.03 |
|                                                                  | Nut                 | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt)                    |                     | 0.08 | 0.14 |
| Rod flange (including mounting bolt)                             |                     | 0.17 | 0.20 |
| Head flange (including mounting bolt)                            |                     |      |      |
| Double clevis (including pin, retaining ring, and mounting bolt) |                     | 0.16 | 0.22 |

## Construction

Top side parallel motor type: LEY<sup>25</sup><sub>32</sub>



In-line motor type: LEY<sup>25</sup><sub>32</sub> D



## Component Parts

| No. | Description             | Material                    | Note                  |
|-----|-------------------------|-----------------------------|-----------------------|
| 1   | <b>Body</b>             | Aluminum alloy              | Anodized              |
| 2   | <b>Ball screw shaft</b> | Alloy steel                 |                       |
| 3   | <b>Ball screw nut</b>   | Synthetic resin/Alloy steel |                       |
| 4   | <b>Piston</b>           | Aluminum alloy              |                       |
| 5   | <b>Piston rod</b>       | Stainless steel             | Hard chrome plating   |
| 6   | <b>Rod cover</b>        | Aluminum alloy              |                       |
| 7   | <b>Bearing holder</b>   | Aluminum alloy              |                       |
| 8   | <b>Rotation stopper</b> | Synthetic resin             |                       |
| 9   | <b>Socket</b>           | Free cutting carbon steel   | Nickel plating        |
| 10  | <b>Connected shaft</b>  | Free cutting carbon steel   | Nickel plating        |
| 11  | <b>Bushing</b>          | Bearing alloy               |                       |
| 12  | <b>Bearing</b>          | —                           |                       |
| 13  | <b>Return box</b>       | Aluminum die-cast           | Coating               |
| 14  | <b>Return plate</b>     | Aluminum die-cast           | Coating               |
| 15  | <b>Magnet</b>           | —                           |                       |
| 16  | <b>Wear ring holder</b> | Stainless steel             | Stroke 101 mm or more |
| 17  | <b>Wear ring</b>        | Synthetic resin             | Stroke 101 mm or more |

| No. | Description                 | Material                  | Note                 |
|-----|-----------------------------|---------------------------|----------------------|
| 18  | <b>Screw shaft pulley</b>   | Aluminum alloy            |                      |
| 19  | <b>Motor pulley</b>         | Aluminum alloy            |                      |
| 20  | <b>Belt</b>                 | —                         |                      |
| 21  | <b>Scraper</b>              | Synthetic resin           |                      |
| 22  | <b>Retaining ring</b>       | Steel for spring          | Phosphate coating    |
| 23  | <b>Motor adapter</b>        | Aluminum alloy            | Coating              |
| 24  | <b>Motor</b>                | —                         |                      |
| 25  | <b>Lube-retainer</b>        | Felt                      |                      |
| 26  | <b>O-ring</b>               | NBR                       |                      |
| 27  | <b>Gasket</b>               | NBR                       |                      |
| 28  | <b>O-ring</b>               | NBR                       |                      |
| 29  | <b>Motor block</b>          | Aluminum alloy            | Coating              |
| 30  | <b>Hub</b>                  | Aluminum alloy            |                      |
| 31  | <b>Spider</b>               | Urethane                  |                      |
| 32  | <b>Socket (Male thread)</b> | Free cutting carbon steel | Nickel plating       |
| 33  | <b>Nut</b>                  | Alloy steel               | Trivalent chromating |

## Replacement Parts (Top side parallel only)/Belt

| No. | Size | Order no. |
|-----|------|-----------|
| 20  | 25   | LE-D-2-2  |
|     | 32   | LE-D-2-4  |

## Replacement Parts/Grease Pack

| Applied portion | Order no.                          |
|-----------------|------------------------------------|
| Piston rod      | GR-S-010 (10 g)<br>GR-S-020 (20 g) |

\* Apply grease to the piston rod periodically.  
Grease should be applied when 1 million cycles or 200 km have been reached, whichever comes first.

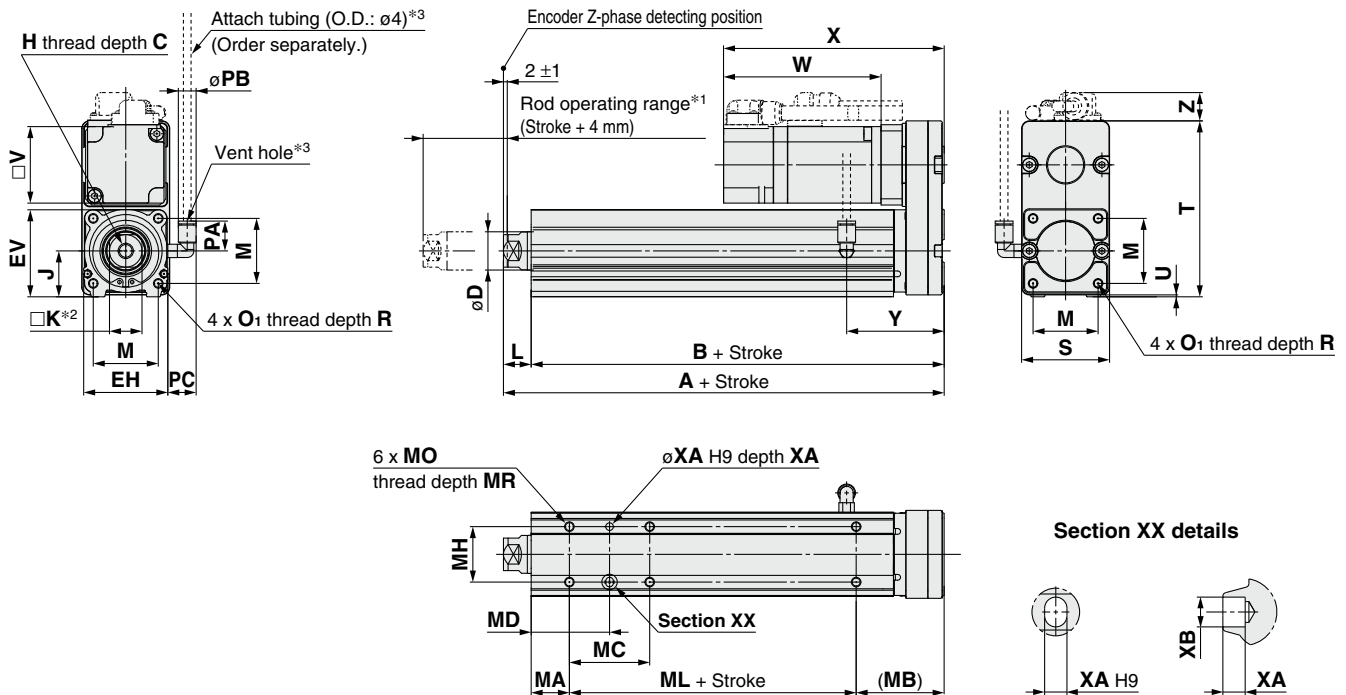
# LEY-X5 Series

AC Servo Motor

Dust-tight/Water-jet-proof (IP65 Equivalent)

## Dimensions

### Top side parallel motor type: LEY<sub>32</sub><sup>25</sup>



|      |                      |       |                     |       |      |           |       |           |                          |       |      |           |                |      |                          |       |      |           |       | [mm] |    |
|------|----------------------|-------|---------------------|-------|------|-----------|-------|-----------|--------------------------|-------|------|-----------|----------------|------|--------------------------|-------|------|-----------|-------|------|----|
| Size | Stroke range<br>[mm] | A     | B                   | C     | D    | EH        | EV    | H         | J                        | K     | L    | M         | O <sub>1</sub> | R    | PA                       | PB    | V    | S         | T     | U    |    |
| 25   | 15 to 100            | 130.5 | 116                 | 13    | 20   | 44        | 45.5  | M8 x 1.25 | 24                       | 17    | 14.5 | 34        | M5 x 0.8       | 8    | 15.4                     | 8.2   | 40   | 46        | 92    | 1    |    |
|      | 101 to 400           | 155.5 | 141                 |       |      |           |       |           |                          |       |      |           |                |      |                          |       |      |           |       |      |    |
| 32   | 20 to 100            | 148.5 | 130                 | 13    | 25   | 51        | 56.5  | M8 x 1.25 | 31                       | 22    | 18.5 | 40        | M6 x 1.0       | 10   | 15.4                     | 8.2   | 60   | 60        | 118   | 1    |    |
|      | 101 to 500           | 178.5 | 160                 |       |      |           |       |           |                          |       |      |           |                |      |                          |       |      |           |       |      |    |
| Size | Stroke range<br>[mm] | PC    | Incremental encoder |       |      |           |       |           | Absolute encoder [S6/S7] |       |      |           |                |      | Absolute encoder [T6/T7] |       |      |           |       |      | Y  |
|      |                      |       | Without lock        |       |      | With lock |       |           | Without lock             |       |      | With lock |                |      | Without lock             |       |      | With lock |       |      |    |
|      |                      |       | W                   | X     | Z    | W         | X     | Z         | W                        | X     | Z    | W         | X              | Z    | W                        | X     | Z    | W         | X     | Z    |    |
| 25   | 15 to 100            | 15.4  | 87                  | 120   | 14.1 | 123.9     | 156.9 | 15.8      | 82.4                     | 115.4 | 14.1 | 123.5     | 156.5          | 15.8 | 82.4                     | 115.4 | 14.1 | 123       | 156   | 15.8 | 51 |
|      | 101 to 400           |       |                     |       |      |           |       |           |                          |       |      |           |                |      |                          |       |      |           |       |      |    |
| 32   | 20 to 100            | 15.9  | 88.2                | 128.2 | 17.1 | 116.8     | 156.8 | 17.1      | 76.6                     | 116.6 | 17.1 | 116.1     | 156.1          | 17.1 | 76.6                     | 116.6 | 17.1 | 113.4     | 153.4 | 17.1 | 61 |
|      | 101 to 500           |       |                     |       |      |           |       |           |                          |       |      |           |                |      |                          |       |      |           |       |      |    |

### Body Bottom Tapped

| Size | Stroke range [mm] | MA | MB | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39          | 20 | 46 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100         |    |    | 42 | 41   |    | 75 |          |     |    |    |
|      | 101 to 124        |    |    | 59 | 49.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |    | 76 | 58   |    |    |          |     |    |    |
|      | 201 to 400        |    |    |    |      |    |    |          |     |    |    |
| 32   | 20 to 39          | 25 | 55 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100         |    |    | 36 | 43   |    | 80 |          |     |    |    |
|      | 101 to 124        |    |    | 53 | 51.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |    | 70 | 60   |    |    |          |     |    |    |
|      | 201 to 500        |    |    |    |      |    |    |          |     |    |    |

\*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 The direction of rod end width across flats (□K) differs depending on the products.

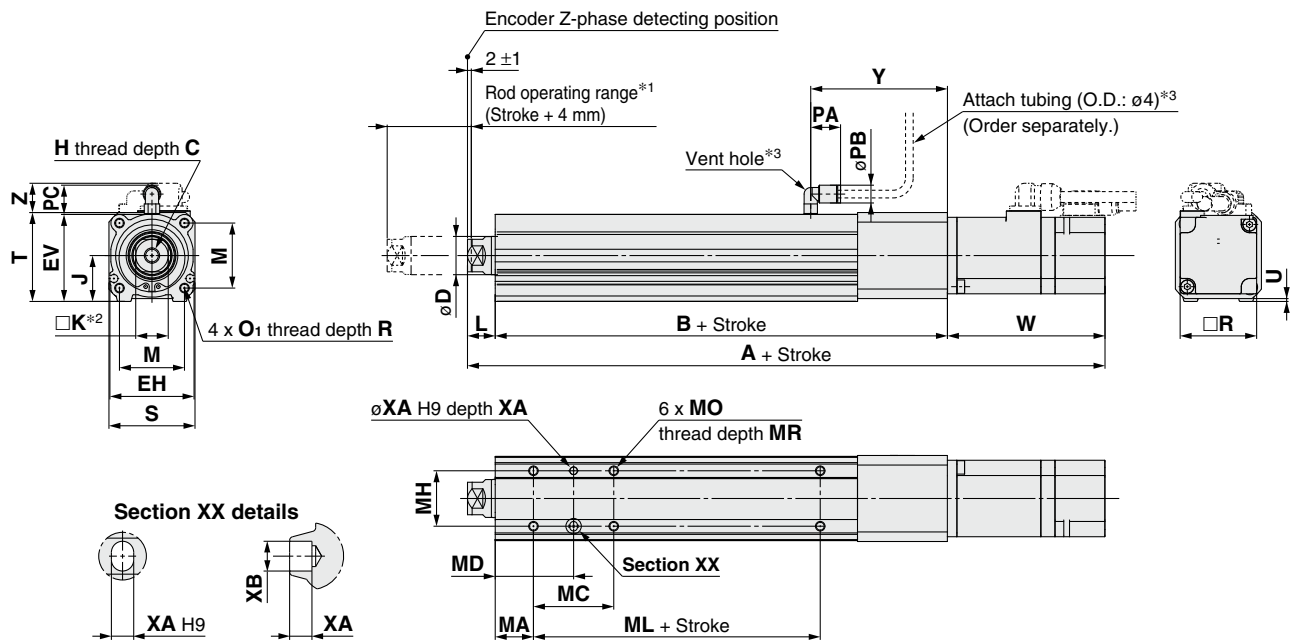
\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 77. For the mounting bracket dimensions, refer to page 101.

## Dimensions

### In-line motor type: LEY<sup>25</sup><sub>32</sub>D



| [mm] |                      |                     |      |      |           |           |      |                          |      |      |                |       |      |                          |      |      |           |       |      |       |
|------|----------------------|---------------------|------|------|-----------|-----------|------|--------------------------|------|------|----------------|-------|------|--------------------------|------|------|-----------|-------|------|-------|
| Size | Stroke range<br>[mm] | Incremental encoder |      |      |           |           |      | Absolute encoder [S6/S7] |      |      |                |       |      | Absolute encoder [T6/T7] |      |      |           |       |      | B     |
|      |                      | Without lock        |      |      | With lock |           |      | Without lock             |      |      | With lock      |       |      | Without lock             |      |      | With lock |       |      |       |
|      |                      | A                   | W    | Z    | A         | W         | Z    | A                        | W    | Z    | A              | W     | Z    | A                        | VB   | VC   | A         | VB    | VC   |       |
| 25   | 15 to 100            | 238                 | 87   | 14.6 | 274.9     | 123.9     | 16.3 | 233.4                    | 82.4 | 14.6 | 274.5          | 123.5 | 16.3 | 233.4                    | 82.4 | 14.6 | 274       | 123   | 16.3 | 136.5 |
|      | 101 to 400           | 263                 |      |      | 299.9     |           |      | 258.4                    |      |      | 299.5          |       |      | 258.4                    |      |      | 299       |       |      |       |
| 32   | 20 to 100            | 262.7               | 88.2 | 17.1 | 291.3     | 116.8     | 17.1 | 251.1                    | 76.6 | 17.1 | 290.6          | 116.1 | 17.1 | 251.1                    | 76.6 | 17.1 | 287.9     | 113.4 | 17.1 | 156   |
|      | 101 to 500           | 292.7               |      |      | 321.3     |           |      | 281.1                    |      |      | 320.6          |       |      | 281.1                    |      |      | 317.9     |       |      |       |
| Size | Stroke range<br>[mm] | C                   | D    | EH   | EV        | H         | J    | K                        | L    | M    | O <sub>1</sub> | R     | PA   | PB                       | V    | S    | T         | U     | PC   | Y     |
| 25   | 15 to 100            | 13                  | 20   | 44   | 45.5      | M8 x 1.25 | 24   | 17                       | 14.5 | 34   | M5 x 0.8       | 8     | 15.4 | 8.2                      | 40   | 45   | 46.5      | 1.5   | 15.9 | 71.5  |
|      | 101 to 400           |                     |      |      |           |           |      |                          |      |      |                |       |      |                          |      |      |           |       |      |       |
| 32   | 20 to 100            | 13                  | 25   | 51   | 56.5      | M8 x 1.25 | 31   | 22                       | 18.5 | 40   | M6 x 1.0       | 10    | 15.4 | 8.2                      | 60   | 60   | 61        | 1     | 15.9 | 87    |
|      | 101 to 500           |                     |      |      |           |           |      |                          |      |      |                |       |      |                          |      |      |           |       |      |       |

### Body Bottom Tapped

| Size | Stroke range [mm] | MA | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39          |    | 24 | 32   |    |    |          |     |    |    |
|      | 40 to 100         |    | 42 | 41   | 29 | 50 |          |     |    |    |
|      | 101 to 124        | 20 |    |      |    |    | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 125 to 200        |    | 59 | 49.5 |    | 75 |          |     |    |    |
|      | 201 to 400        |    | 76 | 58   |    |    |          |     |    |    |
| 32   | 20 to 39          |    | 22 | 36   |    |    |          |     |    |    |
|      | 40 to 100         |    |    |      | 30 | 50 |          |     |    |    |
|      | 101 to 124        | 25 | 36 | 43   |    |    | M6 x 1   | 8.5 | 5  | 6  |
|      | 125 to 200        |    | 53 | 51.5 |    | 80 |          |     |    |    |
|      | 201 to 500        |    | 70 | 60   |    |    |          |     |    |    |

\*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 The direction of rod end width across flats (□K) differs depending on the products.

\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 77. For the mounting bracket dimensions, refer to page 101.

# Electric Actuator Rod Type

Dust-tight/Water-jet-proof (IP65 Equivalent)

## LEY-X5 (Made to Order) Series LEY25, 32

Refer to page 49 for model selection.

Size 63 is available by selecting option P. Refer to page 91.



\* For details, refer to page 307 and onward.

LECY Series ▶ p. 181

### How to Order

LEY **H** **25** **V6** **B** - **200** **S** **3** **M2** - **X5**

1 2 3 4 5 6 7 8 9 10 11 12 13

• Made to order:  
Dust-tight/  
Water-jet-proof

#### 1 Accuracy

|     |                     |
|-----|---------------------|
| Nil | Basic type          |
| H   | High-precision type |

#### 2 Size

|    |
|----|
| 25 |
| 32 |

#### 3 Motor mounting position

|     |                   |
|-----|-------------------|
| Nil | Top side parallel |
| D   | In-line           |

#### 4 Motor type

| Symbol | Type                              | Output [W] | Size | Compatible drivers     |
|--------|-----------------------------------|------------|------|------------------------|
| V6*1   | AC servo motor (Absolute encoder) | 100        | 25   | LECYM2-V5<br>LECYU2-V5 |
| V7     |                                   | 200        | 32   | LECYM2-V7<br>LECYU2-V7 |

\*1 For motor type V6, the compatible driver part number suffix is V5.

#### 5 Lead [mm]

| Symbol | LEY25 | LEY32   |
|--------|-------|---------|
| A      | 12    | 16 (20) |
| B      | 6     | 8 (10)  |
| C      | 3     | 4 (5)   |

\* The values shown in ( ) are the leads for the top side parallel motor type. (Equivalent leads which include the pulley ratio [1.25:1])

#### 6 Stroke [mm]

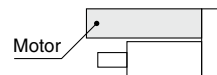
|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

#### 7 Motor option

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock      |

\* When "With lock" is selected for the top side parallel motor type, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.



#### 8 Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

#### Applicable Stroke Table

●: Standard

| Model \ Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | Manufacturable stroke range |
|---------------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| LEY25               | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                   |
| LEY32               | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                   |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

For auto switches, refer to pages 192 and 193.

# Electric Actuator Rod Type **LEY-X5 Series**

AC Servo Motor

Dust-tight/Water-jet-proof (IP65 Equivalent)



Motor mounting position: Parallel



Motor mounting position: In-line

## 9 Mounting<sup>\*1</sup>

| Symbol     | Type                                             | Motor mounting position |         |
|------------|--------------------------------------------------|-------------------------|---------|
|            |                                                  | Parallel                | In-line |
| <b>Nil</b> | Ends tapped/<br>Body bottom tapped <sup>*2</sup> | ●                       | ●       |
| <b>L</b>   | Foot bracket                                     | ●                       | —       |
| <b>F</b>   | Rod flange <sup>*2</sup>                         | ● <sup>*3</sup>         | ●       |
| <b>G</b>   | Head flange <sup>*2</sup>                        | ● <sup>*4</sup>         | —       |

<sup>\*1</sup> The mounting bracket is shipped together with the product but does not come assembled.

<sup>\*2</sup> For the horizontal cantilever mounting of the ends tapped, rod flange, or head flange types, use the actuator within the following stroke range.  
· LEY25: 200 mm or less · LEY32: 100 mm or less

<sup>\*3</sup> The rod flange type is not available for the LEY25 with a 30 mm stroke and motor option "With lock."

<sup>\*4</sup> The head flange type is not available for the LEY32.

## 10 Cable type<sup>\*1</sup>

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>S</b>   | Standard cable                 |
| <b>R</b>   | Robotic cable (Flexible cable) |

<sup>\*1</sup> A motor cable and encoder cable are included with the product.

The motor cable for lock option is included when the motor with lock option is selected.

## 11 Cable length [m]<sup>\*1</sup>

|            |               |
|------------|---------------|
| <b>Nil</b> | Without cable |
| <b>3</b>   | 3             |
| <b>5</b>   | 5             |
| <b>A</b>   | 10            |
| <b>C</b>   | 20            |

<sup>\*1</sup> The length of the motor and encoder cables are the same. (For with lock)

## 12 Driver type

|            | Compatible drivers | Power supply voltage [V] |
|------------|--------------------|--------------------------|
| <b>Nil</b> | Without driver     | —                        |
| <b>M2</b>  | LECYM2-V□          | 200 to 230               |
| <b>U2</b>  | LECYU2-V□          | 200 to 230               |

\* When a driver type is selected, a cable is included. Select the cable type and cable length.

## 13 I/O cable length [m]<sup>\*1</sup>

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>H</b>   | Without cable (Connector only) |
| <b>1</b>   | 1.5                            |

<sup>\*1</sup> When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected.

Refer to page 302 if an I/O cable is required. (Options are shown on page 302.)

## Compatible Drivers

| Driver type                     | MECHATROLINK-II type                                                                | MECHATROLINK-III type                                                                 |
|---------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                                 |  |  |
| <b>Series</b>                   | <b>LECYM</b>                                                                        | <b>LECYU</b>                                                                          |
| <b>Applicable network</b>       | MECHATROLINK-II                                                                     | MECHATROLINK-III                                                                      |
| <b>Control encoder</b>          | Absolute<br>20-bit encoder                                                          |                                                                                       |
| <b>Communication device</b>     | USB communication, RS-422 communication                                             |                                                                                       |
| <b>Power supply voltage [V]</b> | 200 to 230 VAC (50/60 Hz)                                                           |                                                                                       |
| <b>Reference page</b>           | 295                                                                                 |                                                                                       |



# LEY-X5 Series

AC Servo Motor

Dust-tight/Water-jet-proof (IP65 Equivalent)

## Specifications: LECY

| Model                                                                |                                                               |              | LEY25V6-X5/LEY25DV6-X5                              |                                              |            | LEY32V7-X5 (Parallel)                               |                              |                  | LEY32DV7-X5 (In-line)                               |                              |            |     |
|----------------------------------------------------------------------|---------------------------------------------------------------|--------------|-----------------------------------------------------|----------------------------------------------|------------|-----------------------------------------------------|------------------------------|------------------|-----------------------------------------------------|------------------------------|------------|-----|
| Actuator specifications                                              | Work load [kg]                                                |              | Horizontal <sup>*1</sup>                            | 18                                           | 50         | 50                                                  | 30                           | 60               | 60                                                  | 30                           | 60         | 60  |
|                                                                      |                                                               |              | Vertical <sup>*9</sup>                              | 8                                            | 16         | 30                                                  | 9                            | 19               | 37                                                  | 12                           | 24         | 46  |
|                                                                      | Force [N] <sup>*2</sup> (Set value: 45 to 90%)                |              | 65 to 131                                           | 127 to 255                                   | 242 to 485 | 79 to 157                                           | 154 to 308                   | 294 to 588       | 98 to 197                                           | 192 to 385                   | 368 to 736 |     |
|                                                                      | Max. speed [mm/s]                                             | Stroke range | Up to 300                                           | 900                                          | 450        | 225                                                 | 1200                         | 600              | 300                                                 | 1000                         | 500        | 250 |
|                                                                      |                                                               |              | 305 to 400                                          | 600                                          | 300        | 150                                                 |                              |                  |                                                     |                              |            |     |
|                                                                      |                                                               |              | 405 to 500                                          | —                                            | —          | —                                                   |                              |                  |                                                     |                              |            |     |
|                                                                      | Pushing speed [mm/s] <sup>*4</sup>                            |              | 35 or less                                          |                                              |            | 30 or less                                          |                              |                  | 30 or less                                          |                              |            |     |
|                                                                      | Max. acceleration/deceleration [mm/s <sup>2</sup> ]           |              | 5000                                                |                                              |            | 5000                                                |                              |                  | 5000                                                |                              |            |     |
|                                                                      | Positioning repeatability [mm]                                |              | Basic type                                          | ±0.02                                        |            |                                                     | ±0.02                        |                  |                                                     | ±0.02                        |            |     |
|                                                                      |                                                               |              | High-precision type                                 | ±0.01                                        |            |                                                     | ±0.01                        |                  |                                                     | ±0.01                        |            |     |
|                                                                      | Lost motion [mm] <sup>*5</sup>                                |              | Basic type                                          | 0.1 or less                                  |            |                                                     | 0.1 or less                  |                  |                                                     | 0.1 or less                  |            |     |
|                                                                      |                                                               |              | High-precision type                                 | 0.05 or less                                 |            |                                                     | 0.05 or less                 |                  |                                                     | 0.05 or less                 |            |     |
|                                                                      | Lead [mm] (including pulley ratio)                            |              |                                                     | 12                                           | 6          | 3                                                   | 20 <sup>*6</sup>             | 10 <sup>*6</sup> | 5 <sup>*6</sup>                                     | 16                           | 8          | 4   |
|                                                                      | Impact/Vibration resistance [m/s <sup>2</sup> ] <sup>*7</sup> |              |                                                     | 50/20                                        |            |                                                     | 50/20                        |                  |                                                     | 50/20                        |            |     |
|                                                                      | Actuation type                                                |              |                                                     | Ball screw + Belt (LEY□□)/Ball screw (LEY□□) |            |                                                     | Ball screw + Belt [1.25:1]   |                  |                                                     | Ball screw                   |            |     |
|                                                                      | Guide type                                                    |              |                                                     | Sliding bushing (Piston rod)                 |            |                                                     | Sliding bushing (Piston rod) |                  |                                                     | Sliding bushing (Piston rod) |            |     |
|                                                                      | Enclosure <sup>*8</sup>                                       |              |                                                     | IP65 equivalent                              |            |                                                     | IP65 equivalent              |                  |                                                     | IP65 equivalent              |            |     |
| Operating temperature range [°C]                                     |                                                               |              | 5 to 40                                             |                                              |            | 5 to 40                                             |                              |                  | 5 to 40                                             |                              |            |     |
| Operating humidity range [%RH]                                       |                                                               |              | 90 or less (No condensation)                        |                                              |            | 90 or less (No condensation)                        |                              |                  | 90 or less (No condensation)                        |                              |            |     |
| Required conditions for the regenerative resisto <sup>*10</sup> [kg] | Horizontal                                                    |              | Not required                                        |                                              |            | Not required                                        |                              |                  | Not required                                        |                              |            |     |
|                                                                      | Vertical                                                      |              | 6 or more                                           |                                              |            | 4 or more                                           |                              |                  | 4 or more                                           |                              |            |     |
| Motor output/Size                                                    |                                                               |              | 100 W/□40                                           |                                              |            | 200 W/□60                                           |                              |                  | 200 W/□60                                           |                              |            |     |
| Motor type                                                           |                                                               |              | AC servo motor (200 VAC)                            |                                              |            | AC servo motor (200 VAC)                            |                              |                  | AC servo motor (200 VAC)                            |                              |            |     |
| Encoder                                                              |                                                               |              | Absolute 20-bit encoder (Resolution: 1048576 p/rev) |                                              |            | Absolute 20-bit encoder (Resolution: 1048576 p/rev) |                              |                  | Absolute 20-bit encoder (Resolution: 1048576 p/rev) |                              |            |     |
| Power [W] <sup>*11</sup>                                             |                                                               |              | Max. power 445                                      |                                              |            | Max. power 724                                      |                              |                  | Max. power 724                                      |                              |            |     |
| Type <sup>*12</sup>                                                  |                                                               |              | Non-magnetizing lock                                |                                              |            | Non-magnetizing lock                                |                              |                  | Non-magnetizing lock                                |                              |            |     |
| Lock unit specifications                                             | Holding force [N]                                             |              | 131                                                 | 255                                          | 485        | 157                                                 | 308                          | 588              | 197                                                 | 385                          | 736        |     |
|                                                                      | Power at 20°C [W]                                             |              | 5.5                                                 |                                              |            | 6                                                   |                              |                  | 6                                                   |                              |            |     |
|                                                                      | Rated voltage [V]                                             |              | 24 VDC                                              |                                              |            | 24 VDC                                              |                              |                  | 24 VDC                                              |                              |            |     |

- \*1 This is the max. value of the horizontal work load. An external guide is necessary to support the load (Friction coefficient of guide: 0.1 or less). The actual work load changes according to the condition of the external guide. Confirm the load using the actual device.
- \*2 The force setting range (set values for the driver) for the force control with the torque control mode  
Set it while referencing the "Force Conversion Graph (Guide)" on page 53.
- \*3 The allowable speed changes according to the stroke.
- \*4 The allowable collision speed for collision with the workpiece with the torque control mode
- \*5 A reference value for correcting errors in reciprocal operation
- \*6 Equivalent leads which include the pulley ratio [1.25:1]
- \*7 Impact resistance: No malfunction occurred when the actuator was tested with a drop tester in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)  
Vibration resistance: No malfunction occurred in a test ranging between 45 to 2000 Hz. The test was performed in both an axial direction and a perpendicular direction to the lead screw. (The test was performed with the actuator in the initial state.)

- \*8 Cannot be used in an environment where oil such as cutting oil splashes or it is constantly exposed to water  
Take appropriate protective measures. For details on enclosure, refer to the "Enclosure" on page 207.
- \*9 When mounting vertically and using the product facing upwards in an environment where water is present, take necessary measures to prevent water from splashing on the rod cover, because water will accumulate on the rod seal due to the structure of the product.
- \*10 The work load conditions which require the regenerative resistor when operating at the max. speed (Duty ratio: 100%). Order the regenerative resistor separately. For details, refer to the "Required Conditions for the Regenerative Resistor (Guide)" on pages 51 and 52.
- \*11 Indicates the max. power during operation (including the driver)  
When selecting the power supply capacity, refer to the power supply capacity in the operation manual of each driver.
- \*12 Only when motor option "With lock" is selected

## Weight

### Product Weight

| LEY25V6 (Motor mounting position: Parallel) |     |     |     |     |     |     |     |     |     | LEY32V7 (Motor mounting position: Parallel) |     |     |     |     |     |     |     |     |     |     |
|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke [mm]                                 | 30  | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Weight [kg]                                 | 1.2 | 1.3 | 1.6 | 1.7 | 1.9 | 2.1 | 2.2 | 2.4 | 2.6 | 2.3                                         | 2.4 | 2.7 | 3.2 | 3.5 | 3.8 | 4.0 | 4.3 | 4.6 | 4.9 | 5.2 |

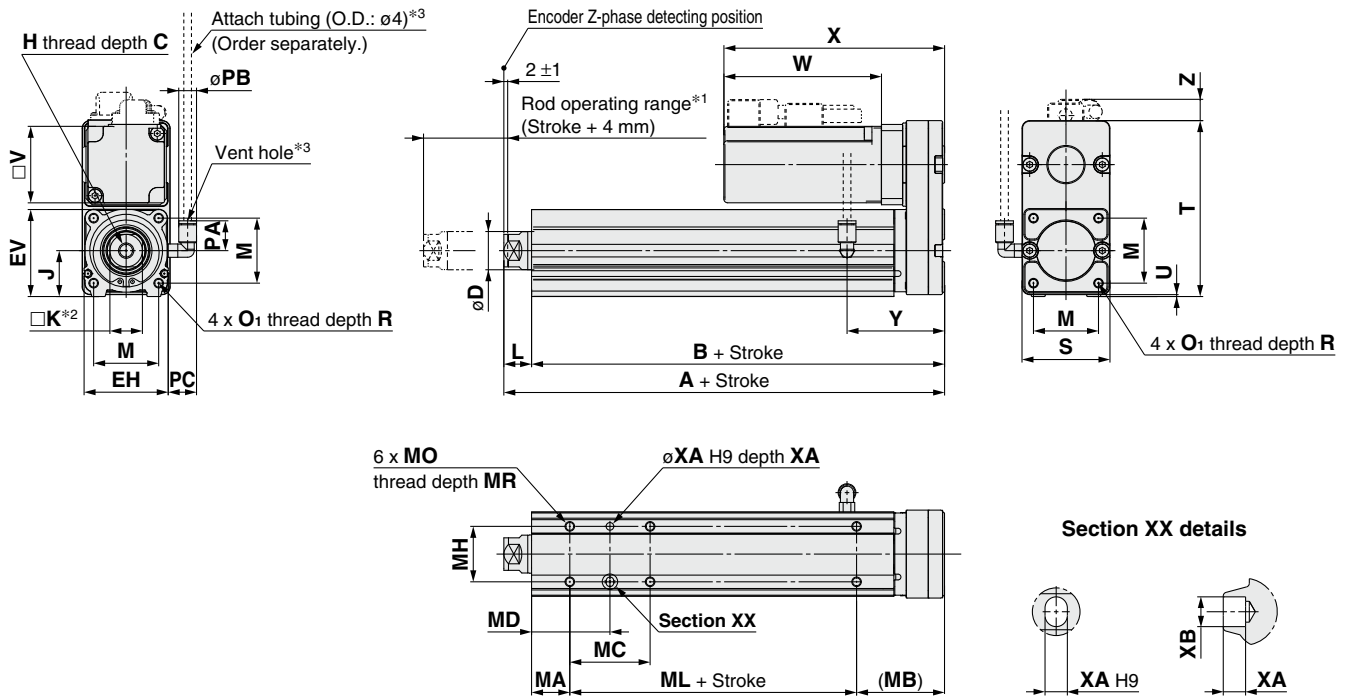
| LEY25DV6 (Motor mounting position: In-line) |     |     |     |     |     |     |     |     |     | LEY32DV7 (Motor mounting position: In-line) |     |     |     |     |     |     |     |     |     |     |
|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke [mm]                                 | 30  | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 30                                          | 50  | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 |
| Weight [kg]                                 | 1.2 | 1.3 | 1.5 | 1.7 | 1.9 | 2.1 | 2.3 | 2.4 | 2.6 | 2.3                                         | 2.4 | 2.7 | 3.2 | 3.5 | 3.8 | 4.1 | 4.3 | 4.6 | 4.9 | 5.2 |

### Additional Weight

| Size                                          |             | 25   | 32   |
|-----------------------------------------------|-------------|------|------|
| Lock                                          |             | 0.30 | 0.60 |
| Rod end male thread                           | Male thread | 0.03 | 0.03 |
|                                               | Nut         | 0.02 | 0.02 |
| Foot bracket (2 sets including mounting bolt) |             | 0.08 | 0.14 |
| Rod flange (including mounting bolt)          |             | 0.17 | 0.20 |
| Head flange (including mounting bolt)         |             |      |      |

## Dimensions

### Top side parallel motor type: LEY<sup>25</sup><sub>32</sub>



| Size | Stroke range [mm] | A     | B   | C  | D  | EH | EV   | H         | J  | K  | L    | M  | O <sub>1</sub> | R  | PA   | PB  | V  |
|------|-------------------|-------|-----|----|----|----|------|-----------|----|----|------|----|----------------|----|------|-----|----|
| 25   | 15 to 100         | 130.5 | 116 | 13 | 20 | 44 | 45.5 | M8 x 1.25 | 24 | 17 | 14.5 | 34 | M5 x 0.8       | 8  | 15.4 | 8.2 | 40 |
|      | 101 to 400        | 155.5 | 141 |    |    |    |      |           |    |    |      |    |                |    |      |     |    |
| 32   | 20 to 100         | 148.5 | 130 | 13 | 25 | 51 | 56.5 | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       | 10 | 15.4 | 8.2 | 60 |
|      | 101 to 500        | 178.5 | 160 |    |    |    |      |           |    |    |      |    |                |    |      |     |    |

| Size | Stroke range [mm] | S  | T   | U | PC   | Without lock |       |    | With lock |       |    | Y  |
|------|-------------------|----|-----|---|------|--------------|-------|----|-----------|-------|----|----|
|      |                   |    |     |   |      | W            | X     | Z  | W         | X     | Z  |    |
| 25   | 15 to 100         | 46 | 92  | 1 | 15.4 | 82.5         | 115.5 | 11 | 127.5     | 160.5 | 11 | 51 |
|      | 101 to 400        |    |     |   |      |              |       |    |           |       |    |    |
| 32   | 20 to 100         | 60 | 118 | 1 | 15.9 | 80           | 120   | 14 | 120       | 160   | 14 | 61 |
|      | 101 to 500        |    |     |   |      |              |       |    |           |       |    |    |

### Body Bottom Tapped

| Size | Stroke range [mm] | MA | MB | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39          | 20 | 46 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100         |    |    | 42 | 41   |    | 75 |          |     |    |    |
|      | 101 to 124        |    |    | 59 | 49.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |    | 76 | 58   |    |    |          |     |    |    |
|      | 201 to 400        |    |    |    |      |    |    |          |     |    |    |
| 32   | 20 to 39          | 25 | 55 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100         |    |    | 36 | 43   |    | 80 |          |     |    |    |
|      | 101 to 124        |    |    | 53 | 51.5 |    |    |          |     |    |    |
|      | 125 to 200        |    |    | 70 | 60   |    |    |          |     |    |    |
|      | 201 to 500        |    |    |    |      |    |    |          |     |    |    |

\*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 The direction of rod end width across flats (□K) differs depending on the products.

\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 99. For the mounting bracket dimensions, refer to page 101.

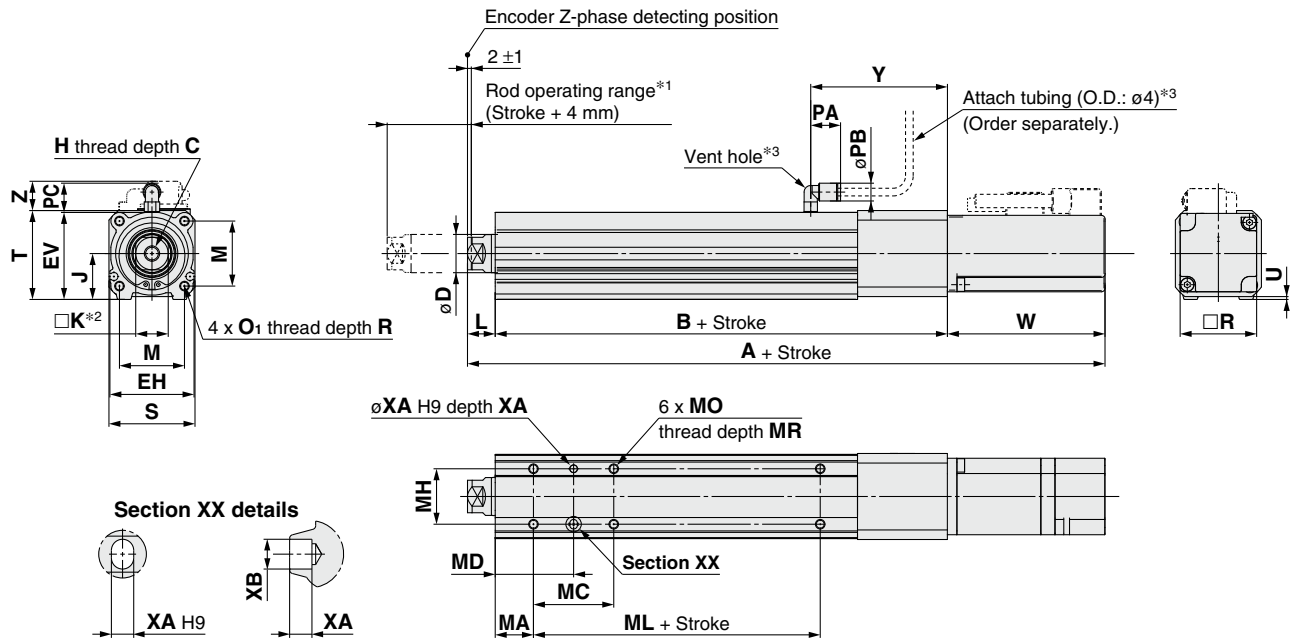
# LEY-X5 Series

AC Servo Motor

Dust-tight/Water-jet-proof (IP65 Equivalent)

## Dimensions

In-line motor type: LEY<sup>25</sup><sub>32</sub>D



| Size | Stroke range [mm] | Without lock |      |      | With lock |       |      | B     | C  | D  | EH | EV   |
|------|-------------------|--------------|------|------|-----------|-------|------|-------|----|----|----|------|
|      |                   | A            | W    | Z    | A         | W     | Z    |       |    |    |    |      |
| 25   | 15 to 100         | 233.5        | 82.5 | 11.5 | 278.5     | 127.5 | 11.5 | 136.5 | 13 | 20 | 44 | 45.5 |
|      | 101 to 400        | 258.5        |      |      | 303.5     |       |      | 161.5 |    |    |    |      |
| 32   | 20 to 100         | 254.5        | 80   | 14   | 294.5     | 120   | 14   | 156   | 13 | 25 | 51 | 56.5 |
|      | 101 to 500        | 284.5        |      |      | 324.5     |       |      | 186   |    |    |    |      |

| Size | Stroke range [mm] | H         | J  | K  | L    | M  | O <sub>1</sub> | R  | PA   | PB  | V  | S  | T    | U   | PC   | Y    |
|------|-------------------|-----------|----|----|------|----|----------------|----|------|-----|----|----|------|-----|------|------|
| 25   | 15 to 100         | M8 x 1.25 | 24 | 17 | 14.5 | 34 | M5 x 0.8       | 8  | 15.4 | 8.2 | 40 | 45 | 46.5 | 1.5 | 15.9 | 71.5 |
|      | 101 to 400        |           |    |    |      |    |                |    |      |     |    |    |      |     |      |      |
| 32   | 20 to 100         | M8 x 1.25 | 31 | 22 | 18.5 | 40 | M6 x 1.0       | 10 | 15.4 | 8.2 | 60 | 60 | 61   | 1   | 15.9 | 87   |
|      | 101 to 500        |           |    |    |      |    |                |    |      |     |    |    |      |     |      |      |

## Body Bottom Tapped

| Size | Stroke range [mm] | MA | MC | MD   | MH | ML | MO       | MR  | XA | XB |
|------|-------------------|----|----|------|----|----|----------|-----|----|----|
| 25   | 15 to 39          | 20 | 24 | 32   | 29 | 50 | M5 x 0.8 | 6.5 | 4  | 5  |
|      | 40 to 100         |    | 42 | 41   |    | 75 |          |     |    |    |
|      | 101 to 124        |    | 59 | 49.5 |    |    |          |     |    |    |
|      | 125 to 200        |    | 76 | 58   |    |    |          |     |    |    |
|      | 201 to 400        |    |    |      |    |    |          |     |    |    |
| 32   | 20 to 39          | 25 | 22 | 36   | 30 | 50 | M6 x 1   | 8.5 | 5  | 6  |
|      | 40 to 100         |    | 36 | 43   |    | 80 |          |     |    |    |
|      | 101 to 124        |    | 53 | 51.5 |    |    |          |     |    |    |
|      | 125 to 200        |    | 70 | 60   |    |    |          |     |    |    |
|      | 201 to 500        |    |    |      |    |    |          |     |    |    |

\*1 This is the range within which the rod can move. Make sure that workpieces mounted on the rod do not interfere with other workpieces or the facilities around the rod.

\*2 The direction of rod end width across flats (□K) differs depending on the products.

\*3 The vent hole is the port for releasing to atmosphere. Do not apply pressure to this hole.

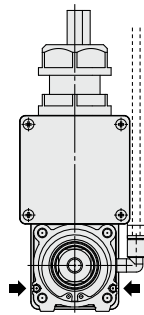
Attach tubing to the vent hole and place the end of the tubing so it is not exposed to dust or water.

For the rod end male thread, refer to page 99. For the mounting bracket dimensions, refer to page 101.

# LEY-X5 Series Auto Switch Mounting

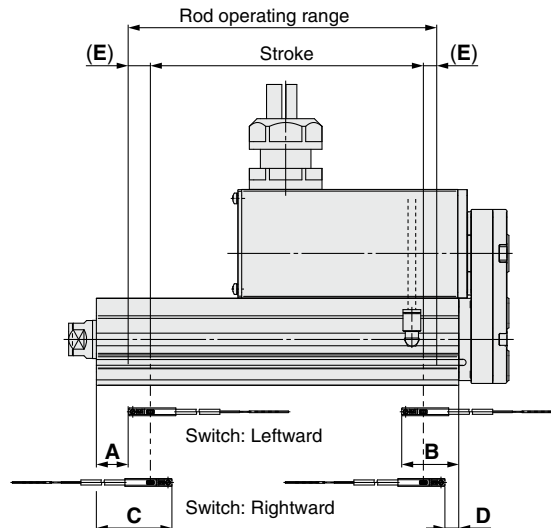
## Auto Switch Proper Mounting Position

Applicable auto switch: D-M9□A(V)



LEY25, 32

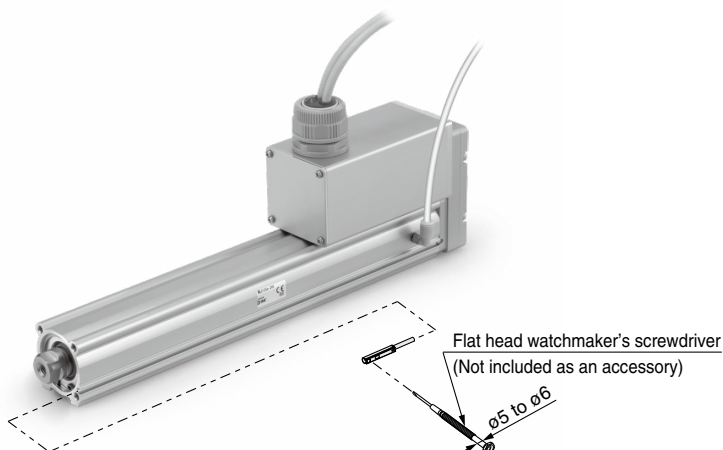
➔ Switch mounting groove



|      |              |                      |      |                    |      |                           |                 | [mm] |
|------|--------------|----------------------|------|--------------------|------|---------------------------|-----------------|------|
| Size | Stroke range | Auto switch position |      |                    |      | Return to origin distance | Operating range |      |
|      |              | Leftward mounting    |      | Rightward mounting |      |                           |                 |      |
|      |              | A                    | B    | C                  | D    |                           |                 |      |
| 25   | 15 to 100    | 27                   | 62.5 | 39                 | 50.5 | (2)                       | 4.2             |      |
|      | 105 to 400   | 52                   |      | 64                 |      |                           |                 |      |
| 32   | 20 to 100    | 30.5                 | 85.5 | 42.5               | 53.5 | (2)                       | 4.9             |      |
|      | 105 to 500   | 90.5                 |      | 102.5              |      |                           |                 |      |

- \* The values in the table above are to be used as a reference when mounting auto switches for stroke end detection. Adjust the auto switch after confirming the operating conditions in the actual setting.
- \* An auto switch cannot be mounted on the same side as a motor.
- \* For LEYG series models (with a guide), an auto switch cannot be mounted on the guide attachment side (rod side).
- \* Since the operating range is provided as a guideline including hysteresis, it cannot be guaranteed (assuming approx.  $\pm 30\%$  dispersion). It may change substantially depending on the ambient environment.

## Auto Switch Mounting



### Tightening Torque for Auto Switch Mounting Screw [N·m]

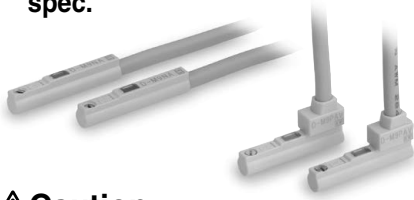
| Auto switch model | Tightening torque |
|-------------------|-------------------|
| D-M9□A(V)         | 0.05 to 0.10      |

- \* When tightening the auto switch mounting screw (included with the auto switch), use a watchmaker's screwdriver with a handle diameter of 5 to 6 mm.

# Water Resistant 2-Color Indicator Solid State Auto Switch: Direct Mounting Type D-M9NA(V)/D-M9PA(V)/D-M9BA(V)

## Grommet

- Water (coolant) resistant type
- 2-wire load current is reduced (2.5 to 40 mA).
- The proper operating range can be determined by the color of the light. (Red → Green ← Red)
- Using flexible cable as standard spec.



## Caution

### Precautions

Fix the auto switch with the existing screw installed on the auto switch body. The auto switch may be damaged if a screw other than the one supplied is used.  
Please contact SMC if using coolant liquid other than water based solution.

## Weight

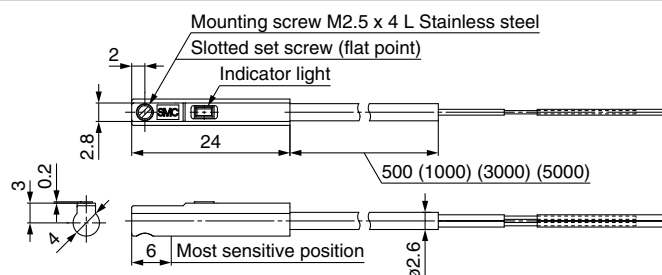
[g]

| Auto switch model | D-M9NA(V) | D-M9PA(V) | D-M9BA(V) |
|-------------------|-----------|-----------|-----------|
| Lead wire length  |           |           |           |
| 0.5 m (Nil)       | 8         | 7         |           |
| 1 m (M)           | 14        | 13        |           |
| 3 m (L)           | 41        | 38        |           |
| 5 m (Z)           | 68        | 63        |           |

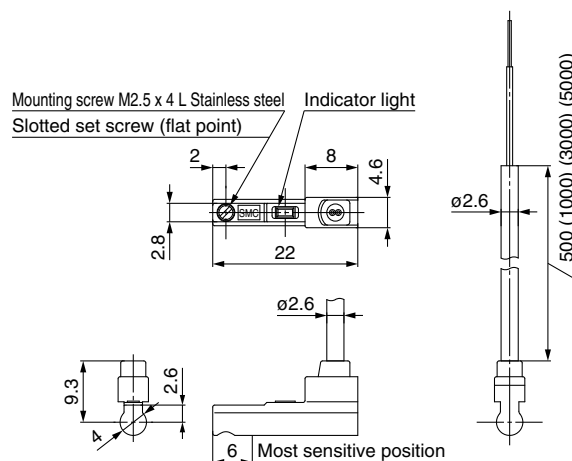
## Dimensions

[mm]

### D-M9□A



### D-M9□AV



## Auto Switch Specifications

PLC: Programmable Logic Controller

| D-M9□A, D-M9□AV (With indicator light) |                                                                                                   |               |         |               |                       |               |
|----------------------------------------|---------------------------------------------------------------------------------------------------|---------------|---------|---------------|-----------------------|---------------|
| Auto switch model                      | D-M9NA                                                                                            | D-M9NAV       | D-M9PA  | D-M9PAV       | D-M9BA                | D-M9BAV       |
| Electrical entry direction             | In-line                                                                                           | Perpendicular | In-line | Perpendicular | In-line               | Perpendicular |
| Wiring type                            | 3-wire                                                                                            |               |         |               | 2-wire                |               |
| Output type                            | NPN                                                                                               |               | PNP     |               | —                     |               |
| Applicable load                        | IC circuit, Relay, PLC                                                                            |               |         |               | 24 VDC relay, PLC     |               |
| Power supply voltage                   | 5, 12, 24 VDC (4.5 to 28 V)                                                                       |               |         |               | —                     |               |
| Current consumption                    | 10 mA or less                                                                                     |               |         |               | —                     |               |
| Load voltage                           | 28 VDC or less                                                                                    |               | —       |               | 24 VDC (10 to 28 VDC) |               |
| Load current                           | 40 mA or less                                                                                     |               |         |               | 2.5 to 40 mA          |               |
| Internal voltage drop                  | 0.8 V or less at 10 mA (2 V or less at 40 mA)                                                     |               |         |               | 4 V or less           |               |
| Leakage current                        | 100 μA or less at 24 VDC                                                                          |               |         |               | 0.8 mA or less        |               |
| Indicator light                        | Operating range ..... Red LED illuminates.<br>Proper operating range ..... Green LED illuminates. |               |         |               |                       |               |
| Standard                               | CE marking (EMC directive/RoHS directive)                                                         |               |         |               |                       |               |

## Oilproof Flexible Heavy-duty Lead Wire Specifications

| Auto switch model        |                       | D-M9NA□                    | D-M9NAV□ | D-M9PA□ | D-M9PAV□ | D-M9BA□              | D-M9BAV□ |
|--------------------------|-----------------------|----------------------------|----------|---------|----------|----------------------|----------|
| Sheath                   | Outside diameter [mm] | 2.6                        |          |         |          |                      |          |
| Insulator                | Number of cores       | 3 cores (Brown/Blue/Black) |          |         |          | 2 cores (Brown/Blue) |          |
|                          | Outside diameter [mm] | 0.88                       |          |         |          |                      |          |
| Conductor                | Effective area [mm²]  | 0.15                       |          |         |          |                      |          |
|                          | Strand diameter [mm]  | 0.05                       |          |         |          |                      |          |
| Min. bending radius [mm] |                       | 17                         |          |         |          |                      |          |

\* Refer to the **Web Catalog** for solid state auto switch common specifications.

\* Refer to the **Web Catalog** for lead wire lengths.

|                                 |                |       |                                                |       |       |       |       |             |         |                |        |                                                |     |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|-------------|---------|----------------|--------|------------------------------------------------|-----|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       | Environment |         | AC Servo Motor |        | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |     | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61    | 25A-LEY | LEY-X5         | LEY-X7 | LEYG                                           | LEY |                    |



# Electric Actuator Rod Type

Secondary Battery Compatible



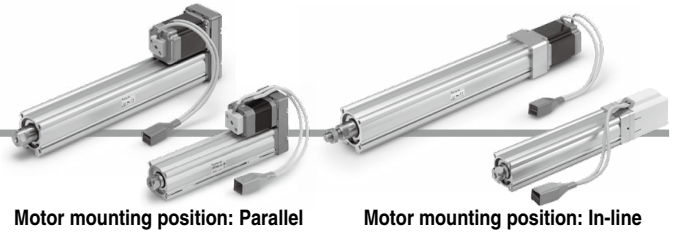
\* For details, refer to page 307 and onward.

## 25A-LEY Series LEY16, 25, 32, 40

RoHS

Refer to page 35 for model selection.

### How to Order



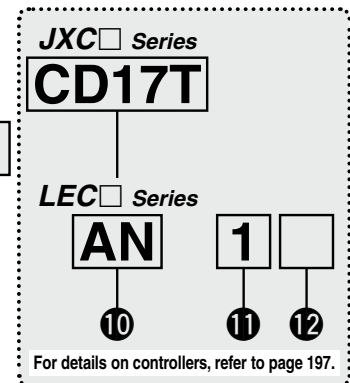
Motor mounting position: Parallel

Motor mounting position: In-line

**25A-LEY** **16** **B** - **30** **S1**

Series compatible with secondary batteries

1 2 3 4 5 6 7 8 9



#### 1 Size

|    |
|----|
| 16 |
| 25 |
| 32 |
| 40 |

#### 2 Motor mounting position

| Nil | Top side parallel   |
|-----|---------------------|
| R   | Right side parallel |
| L   | Left side parallel  |
| D   | In-line             |

#### 3 Motor type

| Symbol | Type                      | Applicable size |       |          | Compatible controllers/drivers            |                         |                |
|--------|---------------------------|-----------------|-------|----------|-------------------------------------------|-------------------------|----------------|
|        |                           | LEY16           | LEY25 | LEY32/40 |                                           |                         |                |
| Nil    | Step motor (Servo/24 VDC) | ●               | ●     | ●        | JXC51<br>JXC61<br>JXCE1<br>JXC91<br>JXCP1 | JXCD1<br>JXCL1<br>JXCM1 | LECP1<br>LECPA |
| A      | Servo motor (24 VDC)      | ●               | ●     | —        | LECA6                                     |                         |                |

#### 4 Lead [mm]

| Symbol | LEY16 | LEY25 | LEY32/40 |
|--------|-------|-------|----------|
| A      | 10    | 12    | 16       |
| B      | 5     | 6     | 8        |
| C      | 2.5   | 3     | 4        |

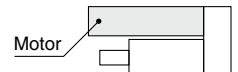
#### 5 Stroke [mm]

|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

#### 6 Motor option\*2

|     |                       |
|-----|-----------------------|
| Nil | Without option        |
| C   | With motor cover      |
| W   | With lock/motor cover |



#### 7 Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

#### 8 Mounting\*5

| Symbol | Type                             | Motor mounting position |         |
|--------|----------------------------------|-------------------------|---------|
|        |                                  | Parallel                | In-line |
| Nil    | Ends tapped/Body bottom tapped*6 | ●                       | ●       |
| L      | Foot bracket                     | ●                       | —       |
| F      | Rod flange*6                     | ●*8                     | ●       |
| G      | Head flange*6                    | ●*9                     | —       |
| D      | Double clevis*7                  | ●                       | —       |

#### 9 Actuator cable type/length\*11

| Standard cable [m] |        | Robotic cable [m] |      |    |       |
|--------------------|--------|-------------------|------|----|-------|
| Nil                | None   | R1                | 1.5  | RA | 10*10 |
| S1                 | 1.5*12 | R3                | 3    | RB | 15*10 |
| S3                 | 3*12   | R5                | 5    | RC | 20*10 |
| S5                 | 5*12   | R8                | 8*10 |    |       |

#### Mounting Bracket Part Nos. for the 25A- Series\*4

| Applicable size   | Foot bracket*3 | Flange      | Double clevis                                 |
|-------------------|----------------|-------------|-----------------------------------------------|
| 16                | 25-LEY-L016    | 25-LEY-F016 | 25-LEY-D016                                   |
| 25                | 25-LEY-L025    | 25-LEY-F025 | 25-LEY-D025                                   |
| 32, 40            | 25-LEY-L032    | 25-LEY-F032 | 25-LEY-D032                                   |
| Surface treatment | RAYDENT®       | RAYDENT®    | Coating (Size 16: Electroless nickel plating) |

Solid state auto switches should be ordered separately. For details on auto switches, refer to page 203.

#### Applicable auto switches

D-M9N(V)-900, D-M9P(V)-900, D-M9B(V)-900  
D-M9NW(V)-900, D-M9PW(V)-900, D-M9BW(V)-900

#### Applicable Stroke Table\*1

| Model        | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | Manufacturable stroke range |
|--------------|-------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----------------------------|
| 25A-LEY16    |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | —   | —   | —   | —   | 10 to 300                   |
| 25A-LEY25    |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                   |
| 25A-LEY32/40 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                   |

●: Standard

# Electric Actuator Rod Type **25A-LEY Series**

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Secondary Battery Compatible

**JXC** Series (For details, refer to page 197.)

## 10 Controller

|       |                    |
|-------|--------------------|
| Nil   | Without controller |
| C□1□□ | With controller    |

**C D 1 7 T**

Interface

(Communication protocol/Input/Output)

|   |                      |   |                   |
|---|----------------------|---|-------------------|
| 5 | Parallel input (NPN) | P | PROFINET          |
| 6 | Parallel input (PNP) | D | DeviceNet™        |
| E | EtherCAT®            | L | IO-Link           |
| 9 | EtherNet/IP™         | M | CC-Link Ver. 1.10 |

Mounting

|      |                |
|------|----------------|
| 7    | Screw mounting |
| 8*17 | DIN rail       |

For single axis



Communication plug connector, I/O cable\*18

| Symbol | Type                                       | Applicable interface                         |
|--------|--------------------------------------------|----------------------------------------------|
| Nil    | Without accessory                          | —                                            |
| S      | Straight type communication plug connector | DeviceNet™<br>CC-Link Ver. 1.10              |
| T      | T-branch type communication plug connector | DeviceNet™<br>CC-Link Ver. 1.10              |
| 1      | I/O cable (1.5 m)                          | Parallel input (NPN)<br>Parallel input (PNP) |
| 3      | I/O cable (3 m)                            | Parallel input (NPN)<br>Parallel input (PNP) |
| 5      | I/O cable (5 m)                            | Parallel input (NPN)<br>Parallel input (PNP) |

**LEC** Series (For details, refer to page 197.)

**AN 1**

## 10 Controller/Driver type\*12

|     |                           |     |
|-----|---------------------------|-----|
| Nil | Without controller/driver |     |
| 6N  | LECA6                     | NPN |
| 6P  | (Step data input type)    | PNP |
| 1N  | LECP1*13                  | NPN |
| 1P  | (Programless type)        | PNP |
| AN  | LECPA*13 *14              | NPN |
| AP  | (Pulse input type)        | PNP |

## 11 I/O cable length\*15

|     |                                                         |
|-----|---------------------------------------------------------|
| Nil | Without cable<br>(Without communication plug connector) |
| 1   | 1.5 m                                                   |
| 3   | 3 m*16                                                  |
| 5   | 5 m*16                                                  |

## 12 Controller/Driver mounting

|     |                |
|-----|----------------|
| Nil | Screw mounting |
| D   | DIN rail*17    |



- \*1 Please contact SMC for non-standard strokes as they are produced as special orders.
- \*2 When "With lock" or "With lock/motor cover" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 16/40 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.
- \*3 When ordering foot brackets, order 2 pieces per actuator.
- \*4 Parts belonging to each bracket are as follows.  
Foot bracket, Flange: Body mounting bolt, Double clevis: Clevis pin, Type C retaining ring for axis, Body mounting bolt
- \*5 The mounting bracket is shipped together with the product but does not come assembled.
- \*6 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.  
·LEY25: 200 mm or less ·LEY32/40: 100 mm or less
- \*7 For the mounting of the double clevis type, use the actuator within the following stroke range.  
·LEY16: 100 mm or less ·LEY25: 200 mm or less ·LEY32/40: 200 mm or less
- \*8 The rod flange type is not available for the LEY16/40 with a 30 mm stroke and motor option "With lock," "With lock/motor cover."
- \*9 The head flange type is not available for the LEY32/40.
- \*10 Produced upon receipt of order (Robotic cable only)

- \*11 The standard cable should only be used on fixed parts.  
For use on moving parts, select the robotic cable.  
Refer to pages 258 and 259 if only the actuator cable is required.
- \*12 For details on controllers/drivers and compatible motors, refer to the compatible controllers/drivers on the next page.
- \*13 Only available for the motor type "Step motor"
- \*14 When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) on page 240 separately.
- \*15 When "Without controller/driver" is selected for controller/driver types, I/O cable cannot be selected. Refer to page 224 (For LECA6), page 234 (For LECP1), or page 240 (For LECPA) if I/O cable is required.
- \*16 When "Pulse input type" is selected for controller/driver types, pulse input usable only with differential. Only 1.5 m cables usable with open collector
- \*17 The DIN rail is not included. It must be ordered separately.
- \*18 Select "Nil" for anything other than DeviceNet™, CC-Link, or parallel input.  
Select "Nil," "S," or "T" for DeviceNet™ or CC-Link.  
Select "Nil," "1," "3," or "5" for parallel input.

## ⚠ Caution

### [CE-compliant products]

- ① EMC compliance was tested by combining the electric actuator LEY series and the controller LEC/JXC series.  
The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.
- ② For the servo motor (24 VDC) specification, EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 224 for the noise filter set. Refer to the LECA series Operation Manual for installation.

### [UL-compliant products (For the LEC series)]

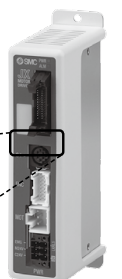
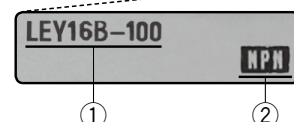
When compliance with UL is required, the electric actuator and controller/driver should be used with a UL1310 Class 2 power supply.

## The actuator and controller/driver are sold as a package.

Confirm that the combination of the controller/driver and actuator is correct.

### <Check the following before use.>

- ① Check the actuator label for the model number (after "25A-").  
This number should match that of the controller/driver.
- ② Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the Operation Manual for using the products. Please download it via our website: <https://www.smcworld.com>

# 25A-LEY Series

Step Motor (Servo/24 VDC)

Servo Motor (24 VDC)

Secondary Battery Compatible

## Compatible Controllers/Drivers

| Type                     | Step data input type                                                              | Step data input type                                                              | Programless type                                                                  | Pulse input type                                                                   |
|--------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                          |  |  |  |  |
| Series                   | <b>JXC51<br/>JXC61</b>                                                            | <b>LECA6</b>                                                                      | <b>LECP1</b>                                                                      | <b>LECPA</b>                                                                       |
| Features                 | Parallel I/O                                                                      |                                                                                   | Capable of setting up operation (step data) without using a PC or teaching box    | Operation by pulse signals                                                         |
| Compatible motor         | Step motor (Servo/24 VDC)                                                         | Servo motor (24 VDC)                                                              | Step motor (Servo/24 VDC)                                                         |                                                                                    |
| Max. number of step data | 64 points                                                                         |                                                                                   | 14 points                                                                         | —                                                                                  |
| Power supply voltage     | 24 VDC                                                                            |                                                                                   |                                                                                   |                                                                                    |
| Reference page           | 211                                                                               | 218                                                                               | 229                                                                               | 235                                                                                |

| Type                     | EtherCAT® direct input type                                                         | EtherNet/IP™ direct input type                                                      | PROFINET direct input type                                                          | DeviceNet™ direct input type                                                         | IO-Link direct input type                                                             | CC-Link direct input type                                                             |
|--------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|                          |  |  |  |  |  |  |
| Series                   | <b>JXCE1</b>                                                                        | <b>JXC91</b>                                                                        | <b>JXCP1</b>                                                                        | <b>JXCD1</b>                                                                         | <b>JXCL1</b>                                                                          | <b>JXCM1</b>                                                                          |
| Features                 | EtherCAT® direct input                                                              | EtherNet/IP™ direct input                                                           | PROFINET direct input                                                               | DeviceNet™ direct input                                                              | IO-Link direct input                                                                  | CC-Link direct input                                                                  |
| Compatible motor         | Step motor (Servo/24 VDC)                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Max. number of step data | 64 points                                                                           |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Power supply voltage     | 24 VDC                                                                              |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |
| Reference page           | 241                                                                                 |                                                                                     |                                                                                     |                                                                                      |                                                                                       |                                                                                       |

|                                 |                |       |                                                |       |       |       |       |             |         |        |                |      |                                                |      |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|-------------|---------|--------|----------------|------|------------------------------------------------|------|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       | Environment |         |        | AC Servo Motor |      | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |      | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61    | 25A-LEY | LEY-X5 | LEY-X7         | LEYG | LEY                                            | LEYG | LEY                |

# Electric Actuator Rod Type

Secondary Battery Compatible

**25A-LEY Series** LEY25, 32Size **25, 32**

RoHS

The LECSB-S, LECS-C, and LECS-S electric actuator drivers are to be discontinued. The LECSB-T, LECS-C-T, and LECS-S-T drivers are available as substitutes. In the product number, select T6 instead of S6, or T7 instead of S7 for the **Motor type**, and select B2 instead of B1, C2 instead of C1, or S2 instead of S1 for the **Driver type**.



\* For details, refer to page 307 and onward.

LECY□ Series ▶ p. 201

Refer to page 41 for model selection.

## How to Order

**25A-LEY** **H** **25** **S2** **B** - **100** **S** **2** **A1**

Series compatible with secondary batteries

### 1 Accuracy

|     |                     |
|-----|---------------------|
| Nil | Basic type          |
| H   | High-precision type |

### 2 Size

|    |
|----|
| 25 |
| 32 |

### 3 Motor mounting position

|     |                     |
|-----|---------------------|
| Nil | Top side parallel   |
| R   | Right side parallel |
| L   | Left side parallel  |
| D   | In-line             |

### 5 Lead [mm]

| Symbol | LEY25 | LEY32*1 |
|--------|-------|---------|
| A      | 12    | 16 (20) |
| B      | 6     | 8 (10)  |
| C      | 3     | 4 (5)   |

\*1 The values shown in ( ) are the leads for the size 32 top/right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])

### 6 Stroke [mm]

|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

### 8 Rod end thread

|     |                                                     |
|-----|-----------------------------------------------------|
| Nil | Rod end female thread                               |
| M   | Rod end male thread<br>(1 rod end nut is included.) |

### 4 Motor type\*1

| Symbol | Type                                    | Output [W] | Actuator size | Compatible drivers*3                                |
|--------|-----------------------------------------|------------|---------------|-----------------------------------------------------|
| S2*1   | AC servo motor<br>(Incremental encoder) | 100        | 25            | LECSA□-S1                                           |
| S3     |                                         | 200        | 32            | LECSA□-S3                                           |
| S6*1   | AC servo motor<br>(Absolute encoder)    | 100        | 25            | LECSB□-S5<br>LECS-C□-S5<br>LECSS□-S5                |
| S7     |                                         | 200        | 32            | LECSB□-S7<br>LECS-C□-S7<br>LECSS□-S7                |
| T6*2   | AC servo motor<br>(Absolute encoder)    | 100        | 25            | LECSB2-T5<br>LECS-C2-T5<br>LECSN2-T5-□<br>LECSS2-T5 |
| T7     |                                         | 200        | 32            | LECSB2-T7<br>LECS-C2-T7<br>LECSN2-T7-□<br>LECSS2-T7 |

\*1 For motor type S2 and S6, the compatible driver part number suffixes are S1 and S5 respectively.

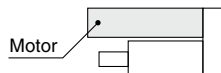
\*2 For motor type T6, the compatible driver part number is LECS□2-T5.

\*3 For details on the driver, refer to page 269.

### 7 Motor option

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock*1    |

\*1 When "With lock" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.



### 9 Mounting\*1

| Symbol | Type                                 | Motor mounting position |         |
|--------|--------------------------------------|-------------------------|---------|
|        |                                      | Parallel                | In-line |
| Nil    | Ends tapped/<br>Body bottom tapped*2 | ●                       | ●       |
| L      | Foot bracket                         | ●                       | —       |
| F      | Rod flange*2                         | ●*4                     | ●       |
| G      | Head flange*2                        | ●*5                     | —       |
| D      | Double clevis*3                      | ●                       | —       |

\*1 The mounting bracket is shipped together with the product but does not come assembled.

\*2 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.

- 25A-LEY25: 200 mm or less
- 25A-LEY32: 100 mm or less

\*3 For the mounting of the double clevis type, use the actuator within the following stroke range.

- 25A-LEY25: 200 mm or less
- 25A-LEY32: 200 mm or less

\*4 The rod flange type is not available for the 25A-LEY25 with a 30 mm stroke and motor option "With lock."

\*5 The head flange type is not available for the 25A-LEY32.

## Mounting Bracket Part Nos. for the 25A- Series

| Applicable size   | Foot bracket*1 | Flange      | Double clevis                                    |
|-------------------|----------------|-------------|--------------------------------------------------|
| 25                | 25-LEY-L025    | 25-LEY-F025 | 25-LEY-D025                                      |
| 32                | 25-LEY-L032    | 25-LEY-F032 | 25-LEY-D032                                      |
| Surface treatment | RAYDENT®       | RAYDENT®    | Coating<br>(Size 16: Electroless nickel plating) |

\*1 When ordering foot brackets, order 2 pieces per actuator.

\* Parts belonging to each bracket are as follows.

Foot bracket, Flange: Body mounting bolt, Double clevis: Clevis pin, Type C retaining ring for axis, Body mounting bolt

## Applicable Stroke Table

| Model     | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | Manufacturable stroke range [mm] |
|-----------|-------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------------------------------|
| 25A-LEY25 | ●           | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                        |
| 25A-LEY32 | ●           | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                        |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

Solid state auto switches should be ordered separately. For details on auto switches, refer to page 203.

## Applicable auto switches

D-M9N(V)-900, D-M9P(V)-900, D-M9B(V)-900  
D-M9NW(V)-900, D-M9PW(V)-900, D-M9BW(V)-900

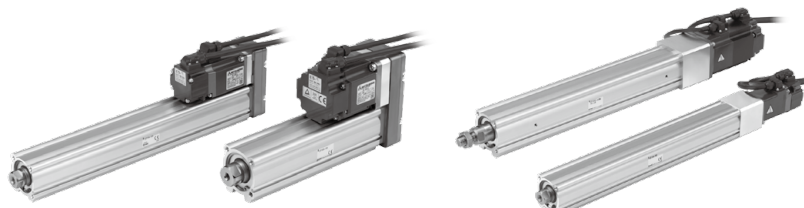


# Electric Actuator Rod Type **25A-LEY Series**

AC Servo Motor

Size **25, 32**

Secondary Battery Compatible



Motor mounting position:  
Parallel

Motor mounting position:  
In-line

## 10 Cable type\*1 \*2

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| S   | Standard cable                 |
| R   | Robotic cable (Flexible cable) |

\*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

\*2 Standard cable entry direction is  
· Parallel: (A) Axis side  
· In-line: (B) Counter axis side

## 11 Cable length\*1 [m]

|     |               |
|-----|---------------|
| Nil | Without cable |
| 2   | 2             |
| 5   | 5             |
| A   | 10            |

\*1 The length of the encoder, motor, and lock cables are the same.

## 12 Driver type\*1

|     | Compatible drivers | Power supply voltage [V] |
|-----|--------------------|--------------------------|
| Nil | Without driver     | —                        |
| A1  | LECSA1-S□          | 100 to 120               |
| A2  | LECSA2-S□          | 200 to 230               |
| B1  | LECSB1-S□          | 100 to 120               |
| B2  | LECSB2-S□          | 200 to 230               |
|     | LECSB2-T□          | 200 to 240               |
| C1  | LECSC1-S□          | 100 to 120               |
| C2  | LECSC2-S□          | 200 to 230               |
|     | LECSC2-T□          |                          |
| S1  | LECSS1-S□          | 100 to 120               |
| S2  | LECSS2-S□          | 200 to 230               |
|     | LECSS2-T□          | 200 to 240               |
| N2  | LECSN2-T□          | 200 to 240               |
| E2  | LECSN2-T□-E        | 200 to 240               |
| 92  | LECSN2-T□-9        | 200 to 240               |
| P2  | LECSN2-T□-P        | 200 to 240               |

\*1 When a driver type is selected, a cable is included. Select the cable type and cable length.

Example)

S2S2: Standard cable (2 m) + Driver (LECSS2)

S2: Standard cable (2 m)

Nil: Without cable and driver

\* The 25A- series specifications and dimensions are the same as those of the standard model.

## 13 I/O cable length [m]\*1

|     |                                |
|-----|--------------------------------|
| Nil | Without cable                  |
| H   | Without cable (Connector only) |
| 1   | 1.5                            |

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to page 291 if an I/O cable is required.

## Compatible Drivers\*1

| Driver type                 | Pulse input type/<br>Positioning type                | Pulse input<br>type                    | CC-Link direct<br>input type    | SSCNET III type            | Pulse input<br>type                    | CC-Link direct<br>input type    | SSCNET III/H<br>type            | Network card<br>type                  |
|-----------------------------|------------------------------------------------------|----------------------------------------|---------------------------------|----------------------------|----------------------------------------|---------------------------------|---------------------------------|---------------------------------------|
|                             |                                                      |                                        |                                 |                            |                                        |                                 |                                 |                                       |
| Series                      | LECSA                                                | LECSB                                  | LECSC                           | LECSS                      | LECSB-T                                | LECSC-T                         | LECSS-T                         | LECSN-T                               |
| Number of point tables*2    | Up to 7                                              | —                                      | Up to 255 (2 stations occupied) | —                          | Up to 255                              | Up to 255 (2 stations occupied) | —                               | Up to 255                             |
| Pulse input                 | ○                                                    | ○                                      | —                               | —                          | ○                                      | —                               | —                               | —                                     |
| Applicable network          | —                                                    | —                                      | CC-Link                         | SSCNET III                 | —                                      | CC-Link                         | SSCNET III/H                    | PROFINET<br>EtherCAT®<br>EtherNet/IP™ |
| Control encoder             | Incremental<br>17-bit encoder                        | Absolute<br>18-bit encoder             | Absolute<br>18-bit encoder      | Absolute<br>18-bit encoder | Absolute<br>22-bit encoder             | Absolute<br>18-bit encoder      | Absolute<br>22-bit encoder      | Absolute<br>22-bit encoder            |
| Communication function      | USB communication                                    | USB communication, RS422 communication | USB communication               | USB communication          | USB communication, RS422 communication | USB communication               | USB communication               | USB communication                     |
| Power supply<br>voltage [V] | 100 to 120 VAC (50/60 Hz), 200 to 230 VAC (50/60 Hz) |                                        |                                 |                            | 200 to 240<br>VAC<br>(50/60 Hz)        | 200 to 230<br>VAC<br>(50/60 Hz) | 200 to 240<br>VAC<br>(50/60 Hz) | 200 to 240<br>VAC<br>(50/60 Hz)       |
| Reference page              | 269                                                  |                                        |                                 |                            |                                        |                                 |                                 |                                       |

\*1 Copper and zinc materials are used for the motors, cables, controllers/drivers.

\*2 The LECSN-T only supports PROFINET and EtherCAT®.



# Electric Actuator Rod Type

Secondary Battery Compatible



\* For details, refer to page 307 and onward.

**25A-LEY Series** LEY25, 32 Size **25, 32**

RoHS

LECS□ Series ▶ p. 199

Refer to page 49 for model selection.

## How to Order

**25A-LEY** **H** **25** **V6** **B** - **100** - **S** **2** **M2**

Series compatible with secondary batteries

1 2 3 4 5 6 7 8 9 10 11 12 13

### 1 Accuracy

|     |                     |
|-----|---------------------|
| Nil | Basic type          |
| H   | High-precision type |

### 2 Size

|    |
|----|
| 25 |
| 32 |

### 3 Motor mounting position

|     |                     |
|-----|---------------------|
| Nil | Top side parallel   |
| R   | Right side parallel |
| L   | Left side parallel  |
| D   | In-line             |

### 4 Motor type

| Symbol | Type                              | Output [W] | Size | Compatible drivers     |
|--------|-----------------------------------|------------|------|------------------------|
| V6*1   | AC servo motor (Absolute encoder) | 100        | 25   | LECYM2-V5<br>LECYU2-V5 |
| V7     |                                   | 200        | 32   | LECYM2-V7<br>LECYU2-V7 |

\*1 For motor type V6, the compatible driver part number suffix is V5.

### 5 Lead [mm]

| Symbol | 25A-LEY25 | 25A-LEY32*1 |
|--------|-----------|-------------|
| A      | 12        | 16 (20)     |
| B      | 6         | 8 (10)      |
| C      | 3         | 4 (5)       |

\*1 The values shown in ( ) are the leads for the size 32 top/right/left side parallel motor types. (Equivalent leads which include the pulley ratio [1.25:1])

### 6 Stroke [mm]

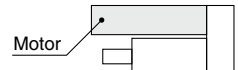
|     |     |
|-----|-----|
| 30  | 30  |
| to  | to  |
| 500 | 500 |

\* For details, refer to the applicable stroke table below.

### 7 Motor option

|     |                |
|-----|----------------|
| Nil | Without option |
| B   | With lock*1    |

\*1 When "With lock" is selected for the top/right/left side parallel motor types, the motor body will stick out from the end of the body for size 25 with strokes of 30 mm or less. Check for interference with workpieces before selecting a model.



### 8 Rod end thread

|     |                                                  |
|-----|--------------------------------------------------|
| Nil | Rod end female thread                            |
| M   | Rod end male thread (1 rod end nut is included.) |

### 9 Mounting\*1

| Symbol | Type                                  | Motor mounting position |         |
|--------|---------------------------------------|-------------------------|---------|
|        |                                       | Parallel                | In-line |
| Nil    | Ends tapped/<br>Body bottom tapped *2 | ●                       | ●       |
| L      | Foot bracket                          | ●                       | —       |
| F      | Rod flange*2                          | ●*4                     | ●       |
| G      | Head flange*2                         | ●*5                     | —       |
| D      | Double clevis*3                       | ●                       | —       |

\*1 The mounting bracket is shipped together with the product but does not come assembled.

\*2 For the horizontal cantilever mounting of the rod flange, head flange, or ends tapped types, use the actuator within the following stroke range.  
· LEY25: 200 mm or less · LEY32: 100 mm or less\*3 For the mounting of the double clevis type, use the actuator within the following stroke range.  
· LEY25: 200 mm or less · LEY32: 200 mm or less

\*4 The rod flange type is not available for the LEY25 with a 30 mm stroke and motor option "With lock."

\*5 The head flange type is not available for the LEY32.

### Mounting Bracket Part Nos. for the 25A- Series

| Applicable size   | Foot bracket*1 | Flange      | Double clevis                                 |
|-------------------|----------------|-------------|-----------------------------------------------|
| 25                | 25-LEY-L025    | 25-LEY-F025 | 25-LEY-D025                                   |
| 32                | 25-LEY-L032    | 25-LEY-F032 | 25-LEY-D032                                   |
| Surface treatment | RAYDENT®       | RAYDENT®    | Coating (Size 16: Electroless nickel plating) |

\*1 When ordering foot brackets, order 2 pieces per actuator.

\* Parts belonging to each bracket are as follows.

Foot bracket, Flange: Body mounting bolt, Double clevis: Clevis pin, Type C retaining ring for axis, Body mounting bolt

Solid state auto switches should be ordered separately. For details on auto switches, refer to page 203.

### Applicable auto switches

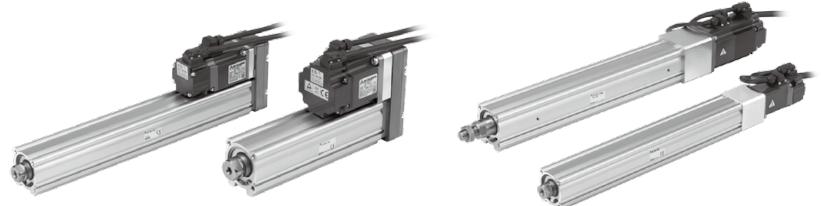
D-M9N(V)-900, D-M9P(V)-900, D-M9B(V)-900

D-M9NW(V)-900, D-M9PW(V)-900, D-M9BW(V)-900

### Applicable Stroke Table

| Model     | Stroke [mm] | 30 | 50 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | Manufacturable stroke range [mm] |
|-----------|-------------|----|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----------------------------------|
|           |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   |                                  |
| 25A-LEY25 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | —   | —   | 15 to 400                        |
| 25A-LEY32 |             | ●  | ●  | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | ●   | 20 to 500                        |

\* Please contact SMC for non-standard strokes as they are produced as special orders.

Motor mounting position:  
ParallelMotor mounting position:  
In-line**10 Cable type**\*1 \*2

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>S</b>   | Standard cable                 |
| <b>R</b>   | Robotic cable (Flexible cable) |

\*1 A motor cable and encoder cable are included with the product. (A lock cable is also included if motor option "B: With lock" is selected.)

\*2 Standard cable entry direction is  
 · Parallel: (A) Axis side  
 · In-line: (B) Counter axis side

**11 Cable length [m]**\*1

|            |               |
|------------|---------------|
| <b>Nil</b> | Without cable |
| <b>3</b>   | 3             |
| <b>5</b>   | 5             |
| <b>A</b>   | 10            |
| <b>C</b>   | 20            |

\*1 The length of the motor and encoder cables are the same. (For with lock)

**12 Driver type**\*1

|            | Compatible drivers | Power supply voltage [V] |
|------------|--------------------|--------------------------|
| <b>Nil</b> | Without driver     | —                        |
| <b>M2</b>  | LECYM2-V□          | 200 to 230               |
| <b>U2</b>  | LECYU2-V□          | 200 to 230               |

\*1 When a driver type is selected, a cable is included. Select the cable type and cable length.

**13 I/O cable length [m]**\*1

|            |                                |
|------------|--------------------------------|
| <b>Nil</b> | Without cable                  |
| <b>H</b>   | Without cable (Connector only) |
| <b>1</b>   | 1.5                            |

\*1 When "Nil: Without driver" is selected for the driver type, only "Nil: Without cable" can be selected. Refer to page 302 if an I/O cable is required.

\* The 25A- series specifications and dimensions are the same as those of the standard model.

**Compatible Drivers**

|                                 |                                                                                                                 |                                                                                                                    |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| <b>Driver type</b>              |  <b>MECHATROLINK-II type</b> |  <b>MECHATROLINK-III type</b> |
| <b>Series</b>                   | <b>LECYM</b>                                                                                                    | <b>LECYU</b>                                                                                                       |
| <b>Applicable network</b>       | MECHATROLINK-II                                                                                                 | MECHATROLINK-III                                                                                                   |
| <b>Control encoder</b>          | Absolute<br>20-bit encoder                                                                                      |                                                                                                                    |
| <b>Communication device</b>     | USB communication, RS-422 communication                                                                         |                                                                                                                    |
| <b>Power supply voltage [V]</b> | 200 to 230 VAC (50/60 Hz)                                                                                       |                                                                                                                    |
| <b>Reference page</b>           | 295                                                                                                             |                                                                                                                    |

\* Copper and zinc materials are used for the motors, cables, controllers/drivers.

## 25A- Series

# Applicable Auto Switches

### Applicable Electric Actuator Series

| Auto switches           |                                           |                  |                 |                 |                            |                   |                      |   |   |   |                     |
|-------------------------|-------------------------------------------|------------------|-----------------|-----------------|----------------------------|-------------------|----------------------|---|---|---|---------------------|
| Type                    | Special function                          | Electrical entry | Indicator light | Wiring (Output) | Electrical entry direction | Auto switch model | Lead wire length [m] |   |   |   | Pre-wired connector |
|                         |                                           |                  |                 |                 |                            |                   | 0.5                  | 1 | 3 | 5 | SDPC                |
|                         |                                           |                  |                 |                 |                            |                   | Nil                  | M | L | Z |                     |
| Solid state auto switch | —                                         | Grommet          | Yes             | 3-wire (NPN)    | In-line                    | D-M9N-900         | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 3-wire (PNP)    |                            | D-M9P-900         | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 2-wire          |                            | D-M9B-900         | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 3-wire (NPN)    | Perpendicular              | D-M9NV-900        | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 3-wire (PNP)    |                            | D-M9PV-900        | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 2-wire          |                            | D-M9BV-900        | ●                    | ● | ● | ○ | —                   |
|                         | Diagnostic indication (2-color indicator) | Grommet          | Yes             | 3-wire (NPN)    | In-line                    | D-M9NW-900        | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 3-wire (PNP)    |                            | D-M9PW-900        | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 2-wire          |                            | D-M9BW-900        | ●                    | ● | ● | ○ | ○                   |
|                         |                                           |                  |                 | 3-wire (NPN)    | Perpendicular              | D-M9NWV-900       | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 3-wire (PNP)    |                            | D-M9PWV-900       | ●                    | ● | ● | ○ | —                   |
|                         |                                           |                  |                 | 2-wire          |                            | D-M9BWV-900       | ●                    | ● | ● | ○ | ○                   |

\* Solid state auto switches marked with a "○" are produced upon receipt of order.

\* Auto switches cannot be ordered with the actuator part number. They should be ordered separately. Please refer below for ordering.  
One each of the right-hand-type and the left-hand-type are shipped together with the actuator.

### Ordering the Auto Switches

- Individual auto switch: D-M9BWL-900  
(Place the order with the part number for auto switch shown in the table above.)

\* Lead wire length symbols: 0.5 m..... Nil (Example) M9NW  
1 m..... M (Example) M9NWM  
3 m..... L (Example) M9NWL  
5 m..... Z (Example) M9NWZ



# LEY/LEYG Series Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

## Design / Selection

### Warning

#### 1. Do not apply a load in excess of the specification limits.

Select a suitable actuator by work load and allowable lateral load on the rod end. If a load in excess of the specification limits is applied to the piston rod, the generation of play in the piston rod sliding parts, reduced accuracy, etc., may occur and adversely affect the operation and service life of the product.

#### 2. Do not use the product in applications where excessive external force or impact force is applied to it.

Failure to do so may result in a malfunction.

#### 3. When used as a stopper, select the LEYG series “Sliding bearing” for strokes of 30 mm or less.

#### 4. When used as a stopper, fix the main body with a guide attachment (“Top mounting” or “Bottom mounting”).

If the end of the actuator is used to fix the main body (end mounting), the excessive load acts on the actuator, which may adversely affect the operation and service life of the product.

## Handling

### Caution

#### 1. INP output signal

##### 1) Positioning operation

When the product comes within the set range of the step data [In position], the INP output signal will turn ON.

Initial value: Set to [0.50] or higher.

##### 2) Pushing operation

When the effective force exceeds the step data [Trigger LV], the INP output signal will turn ON.

Use the product within the specified range of the [Pushing force] and [Trigger LV].

- To ensure that the actuator pushes the workpieces with the set [Pushing force], it is recommended that the [Trigger LV] be set to the same value as the [Pushing force].
- When the [Pushing force] and the [Trigger LV] are set below the specified range, the INP output signal will turn ON from the pushing start position.

#### <Limit Values for Pushing Force and Trigger Level in Relation to Pushing Speed> Without Load

| Model  | Lead  | Pushing speed<br>[mm/s] | Pushing force<br>(Setting input value) | Model   | Lead  | Pushing speed<br>[mm/s] | Pushing force<br>(Setting input value) |
|--------|-------|-------------------------|----------------------------------------|---------|-------|-------------------------|----------------------------------------|
| LEY16□ | A/B/C | 21 to 50                | 60 to 85%                              | LEY16□A | A/B/C | 21 to 50                | 80 to 95%                              |
| LEY25□ | A/B/C | 21 to 35                | 50 to 65%                              | LEY25□A | A/B/C | 21 to 35                | 80 to 95%                              |
| LEY32□ | A     | 24 to 30                | 60 to 85%                              |         |       |                         |                                        |
|        | B/C   | 21 to 30                |                                        |         |       |                         |                                        |
| LEY40□ | A     | 24 to 30                | 50 to 65%                              |         |       |                         |                                        |
|        | B/C   | 21 to 30                |                                        |         |       |                         |                                        |

There is a limit to the pushing force in relation to the pushing speed. If the product is operated outside of the range (low pushing force), the completion signal [INP] may be output before the pushing operation has been completed (during the moving operation). If operating with the pushing speed below the min. speed, please check for operating problems before using the product.

## Handling

### Caution

#### <Set Values for Vertical Upward Transfer Pushing Operations>

For vertical loads (upward), set the pushing force to the max. value shown below and operate at the work load or less.

| Model          | LEY16□ |     |   | LEY25□ |   |    | LEY32□ |   |    | LEY40□ |    |    |
|----------------|--------|-----|---|--------|---|----|--------|---|----|--------|----|----|
| Lead           | A      | B   | C | A      | B | C  | A      | B | C  | A      | B  | C  |
| Work load [kg] | 1      | 1.5 | 3 | 2.5    | 5 | 10 | 4.5    | 9 | 18 | 7      | 14 | 28 |
| Pushing force  | 85%    |     |   | 65%    |   |    | 85%    |   |    | 65%    |    |    |

| Model          | LEY16□A |     |   | LEY25□A |     |   |
|----------------|---------|-----|---|---------|-----|---|
| Lead           | A       | B   | C | A       | B   | C |
| Work load [kg] | 1       | 1.5 | 3 | 1.2     | 2.5 | 5 |
| Pushing force  | 95%     |     |   | 95%     |     |   |

| Model          | LEYG16□ |   |     | LEYG25□ |   |   | LEYG32□ |   |    | LEYG40□ |    |    |
|----------------|---------|---|-----|---------|---|---|---------|---|----|---------|----|----|
| Lead           | A       | B | C   | A       | B | C | A       | B | C  | A       | B  | C  |
| Work load [kg] | 0.5     | 1 | 2.5 | 1.5     | 4 | 9 | 2.5     | 7 | 16 | 5       | 12 | 26 |
| Pushing force  | 85%     |   |     | 65%     |   |   | 85%     |   |    | 65%     |    |    |

| Model          | LEYG16□A |   |     | LEYG25□A |     |   |
|----------------|----------|---|-----|----------|-----|---|
| Lead           | A        | B | C   | A        | B   | C |
| Work load [kg] | 0.5      | 1 | 2.5 | 0.5      | 1.5 | 4 |
| Pushing force  | 95%      |   |     | 95%      |     |   |

#### 2. To conduct a pushing operation, be sure to set the product to [Pushing operation].

Also, refrain from bumping the workpiece during a positioning operation or when in the range of the positioning operation. Failure to do so may result in a malfunction.

#### 3. Use the product within the specified pushing speed range for the pushing operation.

Failure to do so may result in damage or malfunction.

#### 4. The moving force should be the initial value (LEY16□/25□/32□/40□: 100%, LEY16A□: 150%, and LEY25A□: 200%).

If the moving force is set below the initial value, it may cause the generation of an alarm.

#### 5. The actual speed of this actuator is affected by the load.

Check the model selection section of the catalog.

#### 6. Do not apply a load, impact, or resistance in addition to the transferred load during return to origin.

Additional force will cause the displacement of the origin position since it is based on the detected motor torque.

#### 7. For pushing operations, set the product to a position at least 2 mm away from a workpiece. (This position is referred to as the pushing start position.)

The following alarms may be generated and operation may become unstable if setting is not done correctly.

##### a. “Posn failed”

The product cannot reach the pushing start position due to variations in the target positions.

##### b. “Pushing ALM”

The product is pushed back from the pushing start position after starting to push.

Model  
Selection

LEY

LEYG

LEY

LEYG

LEY-X7

LEY-X5

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC□

LECS□

LECY□

Specific Product  
Precautions

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

AC Servo Motor

Environment

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

AC Servo Motor



# LEY/LEYG Series Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

## Handling

### Caution

8. Do not scratch or dent the sliding parts of the piston rod by bumping them or placing objects on them.

The piston rod and guide rod are manufactured to precise tolerances, so even a slight deformation may result in a malfunction.

9. When an external guide is used, connect it in such a way that no impact or load is applied to it.

Use a freely moving connector (such as a floating joint).

10. Do not operate by fixing the piston rod and moving the actuator body.

Excessive load will be applied to the piston rod, resulting in damage to the actuator and a reduced service life of the product.

11. When an actuator is operated with one end fixed and the other free (ends tapped or flange), a bending moment may act on the actuator due to vibration generated at the stroke end, which can damage the actuator. In such cases, install a mounting bracket to suppress the vibration of the actuator body or reduce the speed so that the actuator does not vibrate at the stroke end.

Also, use a mounting bracket when moving the actuator body or when a long stroke actuator is mounted horizontally and fixed at one end.

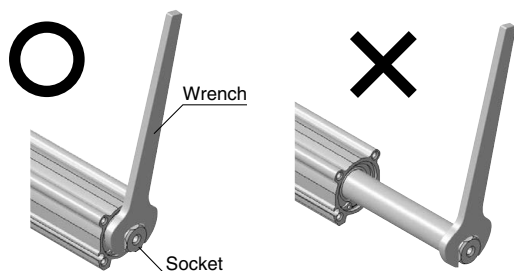
12. Avoid using the electric actuator in such a way that rotational torque would be applied to the piston rod.

Failure to do so may result in the deformation of the non-rotating guide, abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.

Refer to the table below for the approximate values of the allowable range of rotational torque.

| Allowable rotational torque [N·m] or less | LEY16□□ | LEY25□□ | LEY32/40□□ | LEY63 | LEY100 |
|-------------------------------------------|---------|---------|------------|-------|--------|
|                                           | 0.8     | 1.1     | 1.4        | 2.8   | 4.6    |

When screwing a bracket or nut into the piston rod end, hold the flats of the end of the “socket” with a wrench (the piston rod should be fully retracted). Do not apply tightening torque to the non-rotating mechanism.



13. When rotational torque is applied to the end of the plate, use it within the allowable range. [LEYG series]

Failure to do so may result in the deformation of the guide rod and bushing, play in the guide, or an increase in the sliding resistance.

14. For pushing operations, use the product within the duty ratio range below.

The duty ratio is a ratio of the operation time in one cycle.

### • Step motor (Servo/24 VDC)

#### LEY16□

| Pushing force [%] | Ambient temperature: 25°C or less |                               | Ambient temperature: 40°C |                               |
|-------------------|-----------------------------------|-------------------------------|---------------------------|-------------------------------|
|                   | Duty ratio [%]                    | Continuous pushing time [min] | Duty ratio [%]            | Continuous pushing time [min] |
| 40 or less        | 100                               | —                             | 100                       | —                             |
| 50                |                                   |                               | 70                        | 12 or less                    |
| 70                |                                   |                               | 20                        | 1.3 or less                   |
| 85                |                                   |                               | 15                        | 0.8 or less                   |

#### LEY25□/40□

| Pushing force [%] | Ambient temperature: 25°C or less |                               | Ambient temperature: 40°C |                               |
|-------------------|-----------------------------------|-------------------------------|---------------------------|-------------------------------|
|                   | Duty ratio [%]                    | Continuous pushing time [min] | Duty ratio [%]            | Continuous pushing time [min] |
| 65 or less        | 100                               | —                             | 100                       | —                             |

#### LEY32□

| Pushing force [%] | Ambient temperature: 25°C or less |                               | Ambient temperature: 40°C |                               |
|-------------------|-----------------------------------|-------------------------------|---------------------------|-------------------------------|
|                   | Duty ratio [%]                    | Continuous pushing time [min] | Duty ratio [%]            | Continuous pushing time [min] |
| 65 or less        | 100                               | —                             | 100                       | —                             |
| 85                |                                   |                               | 50                        | 15 or less                    |

### • Servo motor (24 VDC)

#### LEY16A□

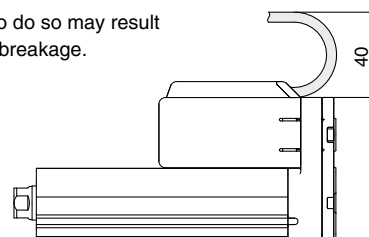
| Pushing force [%] | Ambient temperature: 25°C or less |                               | Ambient temperature: 40°C |                               |
|-------------------|-----------------------------------|-------------------------------|---------------------------|-------------------------------|
|                   | Duty ratio [%]                    | Continuous pushing time [min] | Duty ratio [%]            | Continuous pushing time [min] |
| 95 or less        | 100                               | —                             | 100                       | —                             |

#### LEY25A□

| Pushing force [%] | Ambient temperature: 25°C or less |                               | Ambient temperature: 40°C |                               |
|-------------------|-----------------------------------|-------------------------------|---------------------------|-------------------------------|
|                   | Duty ratio [%]                    | Continuous pushing time [min] | Duty ratio [%]            | Continuous pushing time [min] |
| 95 or less        | 100                               | —                             | 100                       | —                             |

15. When mounting the product, secure a space of 40 mm or more to allow for bends in the cable.

\* Failure to do so may result in cable breakage.



16. When mounting a bolt, workpiece, or attachment, hold the flats of the piston rod end with a wrench so that the piston rod does not rotate. The bolt should be tightened within the specified torque range.

Failure to do so may result in abnormal auto switch responses, play in the internal guide, or an increase in the sliding resistance.





# LEY/LEYG Series Specific Product Precautions 3

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator and auto switch precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

## Handling

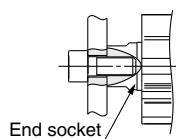
### ⚠ Caution

#### 17. When mounting the product and/or a workpiece, tighten the mounting screws within the specified torque range.

Tightening the screws with a higher torque than recommended may result in a malfunction, while tightening with a lower torque can result in the displacement of the mounting position or, in extreme conditions, the actuator could become detached from its mounting position.

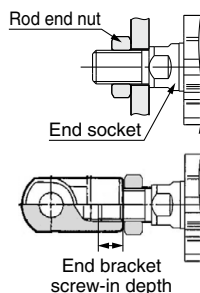
#### <LEY series>

##### Workpiece fixed/Rod end female thread



| Model    | Screw size | Max. tightening torque [N·m] | Max. screw-in depth [mm] | End socket width across flats [mm] |
|----------|------------|------------------------------|--------------------------|------------------------------------|
| LEY16    | M5 x 0.8   | 3.0                          | 10                       | 14                                 |
| LEY25    | M8 x 1.25  | 12.5                         | 13                       | 17                                 |
| LEY32/40 | M8 x 1.25  | 12.5                         | 13                       | 22                                 |
| LEY63    | M16 x 2    | 106                          | 21                       | 36                                 |
| LEY100   | M20 x 2.5  | 204                          | 27                       | 27                                 |

##### Workpiece fixed/Rod end male thread (When “Rod end male thread” is selected)



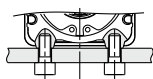
| Model    | Thread size | Max. tightening torque [N·m] | Effective thread length [mm] | End socket width across flats [mm] |
|----------|-------------|------------------------------|------------------------------|------------------------------------|
| LEY16    | M8 x 1.25   | 12.5                         | 12                           | 14                                 |
| LEY25    | M14 x 1.5   | 65.0                         | 20.5                         | 17                                 |
| LEY32/40 | M14 x 1.5   | 65.0                         | 20.5                         | 22                                 |
| LEY63    | M18 x 1.5   | 97.0                         | 26                           | 36                                 |

| Model    | Rod end nut             |             | End bracket screw-in depth [mm] |
|----------|-------------------------|-------------|---------------------------------|
|          | Width across flats [mm] | Length [mm] |                                 |
| LEY16    | 13                      | 5           | 5 or more                       |
| LEY25    | 22                      | 8           | 8 or more                       |
| LEY32/40 | 22                      | 8           | 8 or more                       |
| LEY63    | 27                      | 11          | 18                              |

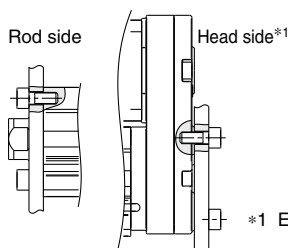
\* The rod end nut is an accessory.

##### Body fixed/Body bottom tapped type (When “Body bottom tapped” is selected)



| Model    | Screw size | Max. tightening torque [N·m] | Max. screw-in depth [mm] |
|----------|------------|------------------------------|--------------------------|
| LEY16    | M4 x 0.7   | 1.5                          | 5.5                      |
| LEY25    | M5 x 0.8   | 3.0                          | 6.5                      |
| LEY32/40 | M6 x 1.0   | 5.2                          | 8.8                      |
| LEY63    | M8 x 1.25  | 12.5                         | 10                       |
| LEY100   | M10 x 1.5  | 24.5                         | 17                       |

##### Body fixed/Rod side/Head side tapped type

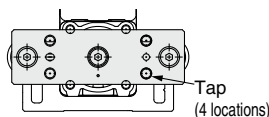


| Model    | Screw size | Max. tightening torque [N·m] | Max. screw-in depth [mm] |
|----------|------------|------------------------------|--------------------------|
| LEY16    | M4 x 0.7   | 1.5                          | 7                        |
| LEY25    | M5 x 0.8   | 3.0                          | 8                        |
| LEY32/40 | M6 x 1.0   | 5.2                          | 10                       |
| LEY63    | M8 x 1.25  | 12.5                         | 16                       |

\*1 Excludes the LEY□□

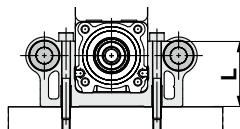
#### <LEYG series>

##### Workpiece fixed/Plate tapped type



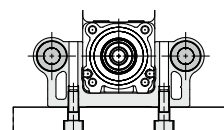
| Model                                | Screw size | Max. tightening torque [N·m] | Max. screw-in depth [mm] |
|--------------------------------------|------------|------------------------------|--------------------------|
| LEYG16 <sup>M</sup>                  | M5 x 0.8   | 3.0                          | 8                        |
| LEYG25 <sup>M</sup>                  | M6 x 1.0   | 5.2                          | 11                       |
| LEYG32 <sup>M</sup> /40 <sup>L</sup> | M6 x 1.0   | 5.2                          | 12                       |

##### Body fixed/Top mounting



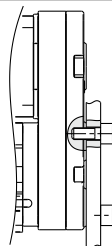
| Model                                | Screw size | Max. tightening torque [N·m] | Length: L [mm] |
|--------------------------------------|------------|------------------------------|----------------|
| LEYG16 <sup>M</sup>                  | M4 x 0.7   | 1.5                          | 32             |
| LEYG25 <sup>M</sup>                  | M5 x 0.8   | 3.0                          | 40.3           |
| LEYG32 <sup>M</sup> /40 <sup>L</sup> | M5 x 0.8   | 3.0                          | 50.3           |

##### Body fixed/Bottom mounting



| Model                                | Screw size | Max. tightening torque [N·m] | Max. screw-in depth [mm] |
|--------------------------------------|------------|------------------------------|--------------------------|
| LEYG16 <sup>M</sup>                  | M5 x 0.8   | 3.0                          | 10                       |
| LEYG25 <sup>M</sup>                  | M6 x 1.0   | 5.2                          | 12                       |
| LEYG32 <sup>M</sup> /40 <sup>L</sup> | M6 x 1.0   | 5.2                          | 12                       |

##### Body fixed/Head side tapped type



| Model                                | Screw size | Max. tightening torque [N·m] | Max. screw-in depth [mm] |
|--------------------------------------|------------|------------------------------|--------------------------|
| LEYG16 <sup>M</sup>                  | M4 x 0.7   | 1.5                          | 7                        |
| LEYG25 <sup>M</sup>                  | M5 x 0.8   | 3.0                          | 8                        |
| LEYG32 <sup>M</sup> /40 <sup>L</sup> | M6 x 1.0   | 5.2                          | 10                       |

#### 18. Keep the flatness of the mounting surface within the following ranges when mounting the actuator body and workpiece.

Mounting the product on an uneven workpiece or base may result in an increase in the sliding resistance.

| Model | Mounting position            | Flatness        |
|-------|------------------------------|-----------------|
| LEY□  | Body/Body bottom             | 0.1 mm or less  |
| LEYG□ | Top mounting/Bottom mounting | 0.02 mm or less |
|       | Workpiece/Plate mounting     | 0.02 mm or less |

#### 19. When using auto switches with the guide rod type LEYG series, the following limits apply. Please consider the following before selecting the product.

- Auto switches must be inserted from the front side with the rod (plate) sticking out.
- Auto switches with perpendicular electrical entries cannot be used.
- Auto switches cannot be fixed with the parts hidden behind the guide attachment (the side of the rod that sticks out).
- Please contact SMC when using auto switches on the side of the rod that sticks out.





# LEY/LEYG Series Specific Product Precautions 4

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## Handling

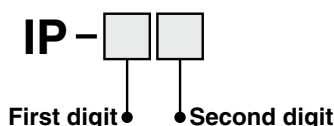
### ⚠ Caution

20. When using the product with the IP65 or equivalent specifications, be sure to mount the tubing to the vent hole, and then place the end of the tubing in an area where it is not exposed to dust or water. When the actuator is used without mounting the fitting and tubing to the vent hole, water or dust may enter the inside of the actuator, resulting in a malfunction.
21. When fluctuations in the load are caused during operation, malfunction, noise, or alarm generation may occur. (In the case of the AC servo motor)

The gain tuning may not be suitable for fluctuating loads.

Adjust the gain properly by following the instructions in the driver manual.

## Enclosure



### • First Digit: Degree of protection against solid foreign objects

|   |                                                               |
|---|---------------------------------------------------------------|
| 0 | Not protected                                                 |
| 1 | Protected against solid foreign objects of 50 mmø and larger  |
| 2 | Protected against solid foreign objects of 12 mmø and larger  |
| 3 | Protected against solid foreign objects of 2.5 mmø and larger |
| 4 | Protected against solid foreign objects of 1.0 mmø and larger |
| 5 | Dust protected                                                |
| 6 | Dust-tight                                                    |

### • Second Digit: Degree of protection against water

|   |                                                                                        |                               |
|---|----------------------------------------------------------------------------------------|-------------------------------|
| 0 | Not protected                                                                          | —                             |
| 1 | Protected against vertically falling water droplets                                    | Dripproof type 1              |
| 2 | Protected against vertically falling water droplets when enclosure is tilted up to 15° | Dripproof type 2              |
| 3 | Protected against rainfall when enclosure is tilted up to 60°                          | Rainproof type                |
| 4 | Protected against splashing water                                                      | Splashproof type              |
| 5 | Protected against water jets                                                           | Water-jet-proof type          |
| 6 | Protected against powerful water jets                                                  | Powerful water-jet-proof type |
| 7 | Protected against the effects of temporary immersion in water                          | Immersible type               |
| 8 | Protected against the effects of continuous immersion in water                         | Submersible type              |

### Example) Degrees of protection

| Degrees of protection |                       |                   | Details                                                                                                                                                             |
|-----------------------|-----------------------|-------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| IP65                  | Solid foreign objects | Dust-tight        | Dust particles are prevented from entering the device.                                                                                                              |
|                       | Entry of water        | Water-jet-proof*1 | The direct application of water jets to the device from any direction will not cause any damage.                                                                    |
| IP67                  | Solid foreign objects | Dust-tight        | Dust particles are prevented from entering the device.                                                                                                              |
|                       | Entry of water        | Immersible*1      | The amount of water that enters the device when the actuator (in the stopped state) is submersed in up to 1 m of water for up to 30 mins will not cause any damage. |

\*1 Be sure to take appropriate protective measures if the product is to be used in an environment where it will be constantly exposed to water or fluids other than water splash.  
In particular, the product cannot be used in environments where oils, such as cutting oil or cutting fluid, are present.

## Maintenance

### ⚠ Warning

1. Ensure that the power supply is stopped and the workpiece is removed before starting maintenance work or replacing the product.

#### • Maintenance frequency

Perform maintenance according to the table below.

| Frequency                                               | Appearance check | Belt check |
|---------------------------------------------------------|------------------|------------|
| Inspection before daily operation                       | ○                | —          |
| Inspection every 6 months/<br>250 km/5 million cycles*1 | ○                | ○          |

\*1 Select whichever comes first.

#### • Items for visual appearance check

1. Loose set screws, Abnormal amount of dirt, etc.
2. Check for visible damage, Check of cable joint
3. Vibration, Noise

#### • Items for belt check

Stop operation immediately and replace the belt when any of the following occur. In addition, ensure your operating environment and conditions satisfy the requirements specified for the product.

##### a. Tooth shape canvas is worn out

Canvas fiber becomes fuzzy, Rubber is coming off and the fiber has become whitish, Lines of fibers have become unclear

##### b. Peeling off or wearing of the side of the belt

Belt corner has become rounded and frayed threads stick out

##### c. Belt is partially cut

Belt is partially cut, Foreign matter caught in the teeth of other parts is causing damage

##### d. A vertical line on belt teeth is visible

Damage which is made when the belt runs on the flange

##### e. Rubber back of the belt is softened and sticky

##### f. Cracks on the back of the belt are visible



# 25A- Series Precautions

Be sure to read this before handling products.

Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and the “Operation Manual” before use.

## Precautions

### ⚠ Caution

#### ■ Change of material

For the 25A- series, there is a restriction on the use of copper and zinc as main components in the metal materials used. Keep in mind that the aluminum alloy, aluminum die cast, and some of the stainless steel materials contain traces of copper (Cu) and/or zinc (Zn) as an additive element.

However, copper is used in some parts—the coils of solenoid valves, the circuit boards, connector pins, and lead wires of electrical equipment and auto switches, and the motors, cables, and drivers of electric actuators—whose materials cannot be easily changed to alternative materials.

In addition, some magnets (including the surface treatment) contain copper (Cu) and/or zinc (Zn). However, due to their magnetic characteristics, it is impossible to use alternative materials.

#### ■ Chemical environment

Refrain from using the products in such environments as exposed to chemicals. Otherwise, resin parts may deteriorate.

If you want SMC to test the products for the effects of chemicals attached to them, send the products back to SMC after thoroughly cleaning them.

Please contact your local sales representative for further details.

Model  
Selection

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)  
LEY  
LEYG

AC Servo Motor  
LEY  
LEYG

Environment  
25A-LEY  
LEY-X5  
LEY-X7

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)  
JXC□  
LECPA  
LECP1  
LEC-G  
LECA6  
JXC51/61

AC Servo Motor  
LECY□  
LECS□

Specific Product  
Precautions



# Controllers/Drivers

## JXC□/LEC□ Series



\* For details, refer to page 307 and onward.

Model  
Selection

### <Single Axis Controllers>

Step Data Input Type ..... p. 211

Step Motor  
(Servo/24 VDC)  
**JXC51/61 Series**

p. 211



Servo Motor  
(24 VDC)  
**LECA6 Series**

p. 218



Gateway Unit ..... p. 225

**LEC-G Series**



Programless Type ..... p. 229

Step Motor  
(Servo/24 VDC)  
**LECP1 Series**



Pulse Input Type ..... p. 235

Step Motor  
(Servo/24 VDC)  
**LECPA Series**



EtherCAT®/EtherNet/IP™/PROFINET™/DeviceNet™/IO-Link/CC-Link Direct Input Type ..... p. 241

**JXC□ Series**

**EtherCAT**

**EtherNet/IP**

**PROFINET**

**DeviceNet**

**IO-Link**

**CC-Link**



### <Multi-Axis Controllers>

EtherNet/IP™ Direct Input Type ... p. 247

For 3 axes

**JXC92 Series**



For 4 axes

**JXC73 Series**  
**JXC83 Series**



**JXC93 Series**  
**EtherNet/IP**



● Actuator Cable



Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

LEY

LEYG

AC Servo Motor

LEY

LEYG

Environment

LEY-X7

LEY-X5

25A-LEY

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC□

AC Servo Motor

LECS□

LECY□

Specific Product  
Precautions

# Controller (Step Data Input Type) JXC51/61 Series



\* For details, refer to page 307 and onward.



## How to Order

JXC 5 1 7 1 -  

①      ②      ③      ④

### ① Parallel I/O type

|   |     |
|---|-----|
| 5 | NPN |
| 6 | PNP |

### ② Mounting

|     |                |
|-----|----------------|
| 7   | Screw mounting |
| 8*1 | DIN rail       |

\*1 The DIN rail is not included.  
It must be ordered separately.

### ③ I/O cable length [m]

|     |      |
|-----|------|
| Nil | None |
| 1   | 1.5  |
| 3   | 3    |
| 5   | 5    |

### ④ Actuator part number

Without cable specifications and actuator options  
Example: Enter "LEY16B-100" for the  
LEY16B-100B-R1□□.

**BC** Blank controller\*1

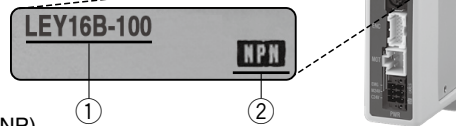
\*1 Requires dedicated software (JXC-BCW)

### The controller is sold as single unit after the compatible actuator is set.

Confirm that the combination of the controller and actuator is correct.

#### <Check the following before use.>

- ① Check the actuator label for the model number. This number should match that of the controller.
- ② Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the operation manual for using the products. Please download it via our website:  
<https://www.smcworld.com>

### Precautions for blank controllers (JXC□1□□-BC)

A blank controller is a controller to which the customer can write the data of the actuator it is to be combined and used with. Use the dedicated software (JXC-BCW) for data writing.

- Please download the dedicated software (JXC-BCW) via our website.
- Order the communication cable for controller setting (JXC-W2A-C) separately to use this software.

**SMC website**

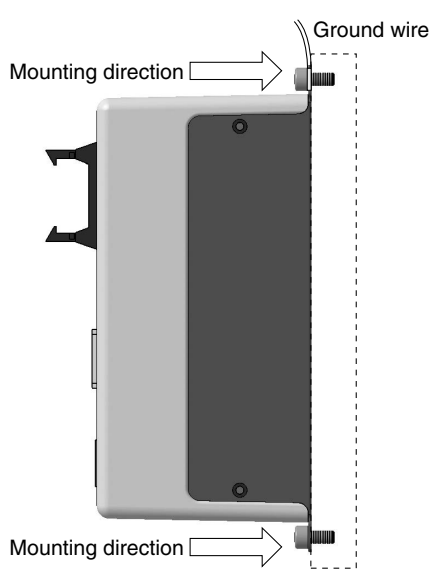
<https://www.smcworld.com>

## Specifications

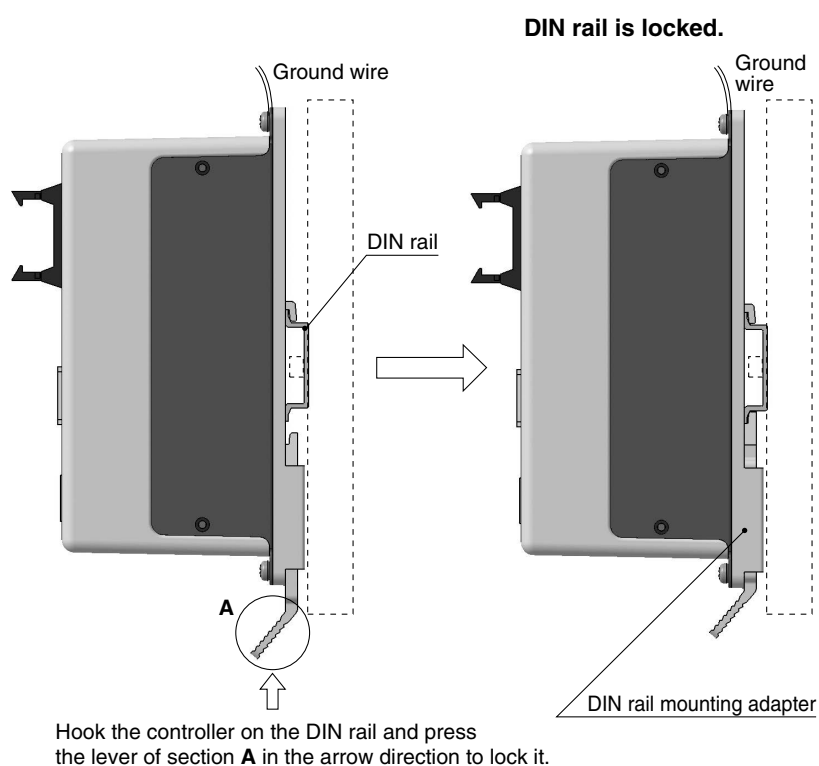
| Model                            | JXC51<br>JXC61                                            |
|----------------------------------|-----------------------------------------------------------|
| Compatible motor                 | Step motor (Servo/24 VDC)                                 |
| Power supply                     | Power voltage: 24 VDC ±10%                                |
| Current consumption (Controller) | 100 mA or less                                            |
| Compatible encoder               | Incremental                                               |
| Parallel input                   | 11 inputs (Photo-coupler isolation)                       |
| Parallel output                  | 13 outputs (Photo-coupler isolation)                      |
| Serial communication             | RS485 (Only for the LEC-T1 and JXC-W2)                    |
| Memory                           | EEPROM                                                    |
| LED indicator                    | PWR, ALM                                                  |
| Cable length [m]                 | Actuator cable: 20 or less                                |
| Cooling system                   | Natural air cooling                                       |
| Operating temperature range [°C] | 0 to 55°C (No freezing)                                   |
| Operating humidity range [%RH]   | 90 or less (No condensation)                              |
| Insulation resistance [MΩ]       | Between all external terminals and the case: 50 (500 VDC) |
| Weight [g]                       | 150 (Screw mounting), 170 (DIN rail mounting)             |

## How to Mount

### a) Screw mounting (JXC□17□-□) (Installation with two M4 screws)



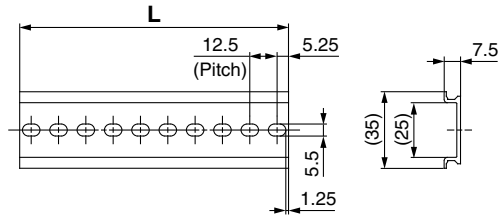
### b) DIN rail mounting (JXC□18□-□) (Installation with the DIN rail)



\* When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

### DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings on page 213 for the mounting dimensions.



#### L Dimensions [mm]

| No. | 1   | 2     | 3   | 4     | 5   | 6     | 7   | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 23  | 35.5  | 48  | 60.5  | 73  | 85.5  | 98  | 110.5 | 123 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 |
| No. | 21  | 22    | 23  | 24    | 25  | 26    | 27  | 28    | 29  | 30    | 31  | 32    | 33  | 34    | 35  | 36    | 37  | 38    | 39  | 40    |
| L   | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 348 | 360.5 | 373 | 385.5 | 398 | 410.5 | 423 | 435.5 | 448 | 460.5 | 473 | 485.5 | 498 | 510.5 |

### DIN rail mounting adapter LEC-D0 (with 2 mounting screws)

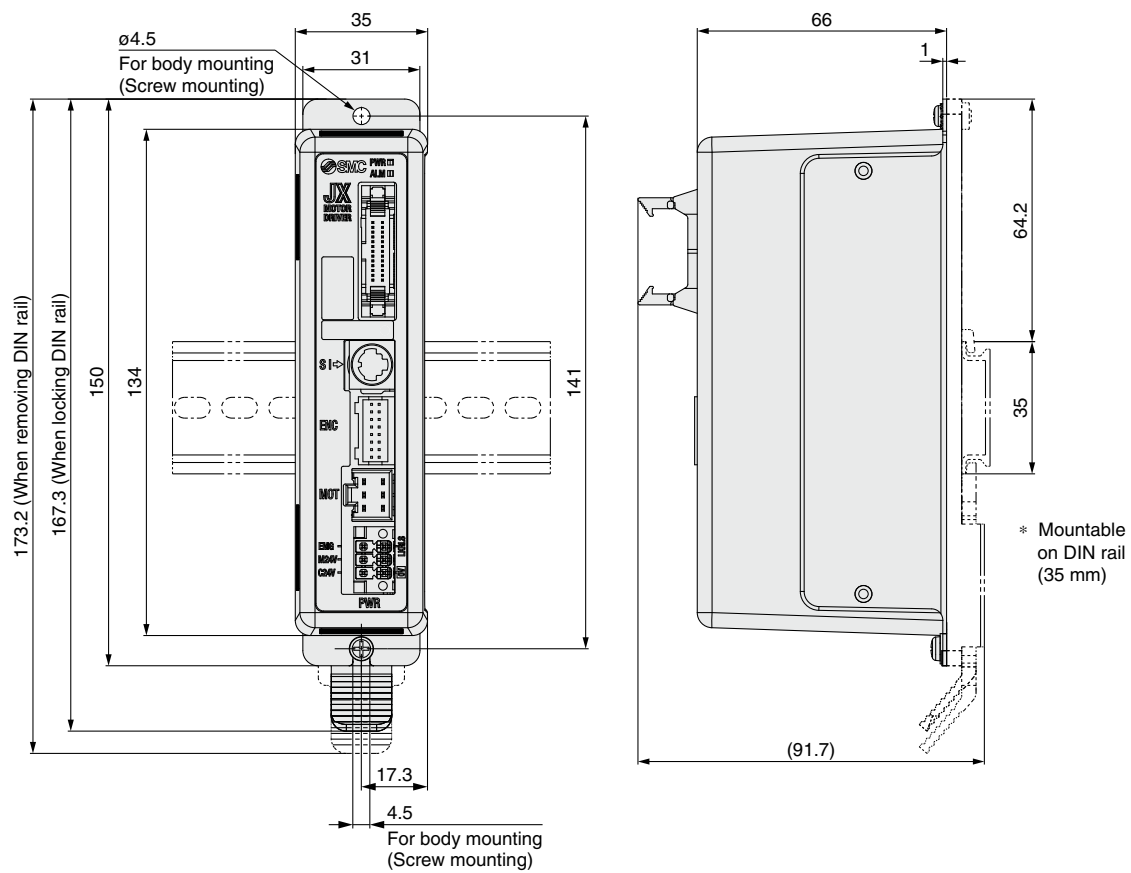
This should be used when the DIN rail mounting adapter is mounted onto a screw mounting type controller afterward.

|                              |                |       |                                                |       |       |       |                |          |                                                |                 |        |        |
|------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|----------------|----------|------------------------------------------------|-----------------|--------|--------|
| Specific Product Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       | AC Servo Motor |          | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) | Model Selection |        |        |
|                              | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6          | JXC51/61 | Environment                                    |                 |        |        |
|                              |                |       |                                                |       |       |       |                |          | 25A-LEY                                        |                 | LEY-X5 | LEY-X7 |



# JXC51/61 Series

## Dimensions



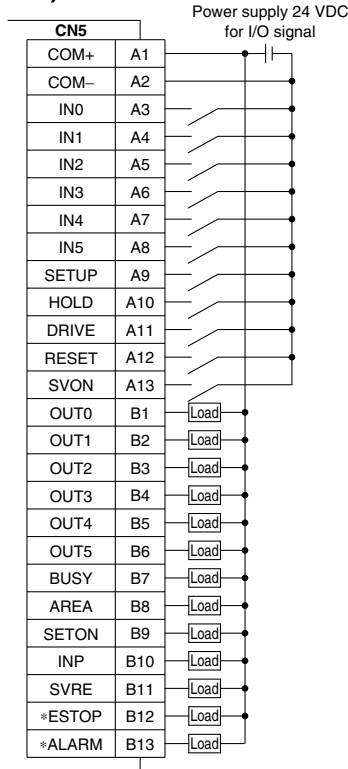
## Wiring Example 1

### Parallel I/O Connector

- \* When you connect a PLC to the parallel I/O connector, use the I/O cable (LEC-CN5-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### Wiring diagram

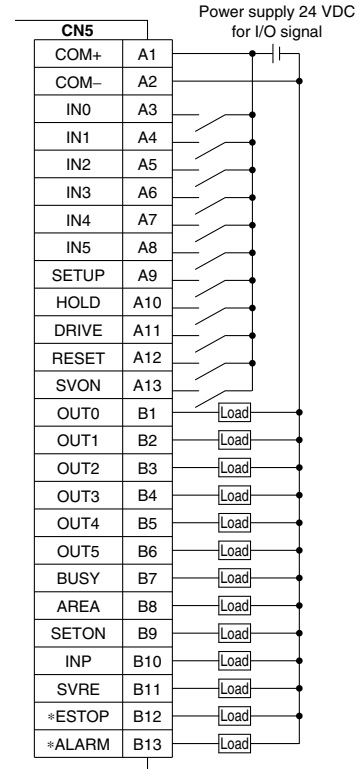
#### JXC51□□-□ (NPN)



### Input Signal

| Name       | Details                                                                     |
|------------|-----------------------------------------------------------------------------|
| COM+       | Connects the power supply 24 V for input/output signal                      |
| COM-       | Connects the power supply 0 V for input/output signal                       |
| IN0 to IN5 | Step data specified bit no.<br>(Input is instructed by combining IN0 to 5.) |
| SETUP      | Instruction to return to origin                                             |
| HOLD       | Temporarily stops operation                                                 |
| DRIVE      | Instruction to drive                                                        |
| RESET      | Resets alarm and interrupts operation                                       |
| SVON       | Servo ON instruction                                                        |

#### JXC61□□-□ (PNP)



### Output Signal

| Name         | Details                                                                                                             |
|--------------|---------------------------------------------------------------------------------------------------------------------|
| OUT0 to OUT5 | Outputs the step data no. during operation                                                                          |
| BUSY         | Outputs when the actuator is moving                                                                                 |
| AREA         | Outputs within the step data area output setting range                                                              |
| SETON        | Outputs when returning to origin                                                                                    |
| INP          | Outputs when target position or target force is reached<br>(Turns on when the positioning or pushing is completed.) |
| SVRE         | Outputs when servo is on                                                                                            |
| *ESTOP*1     | OFF when EMG stop is instructed                                                                                     |
| *ALARM*1     | OFF when alarm is generated                                                                                         |

\*1 Signal of negative-logic circuit (N.C.)

Model  
Selection

LEY

LEYG

LEY

LEY

LEYG

LEY-X7

LEY-X5

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC□

LECS□

LECY□

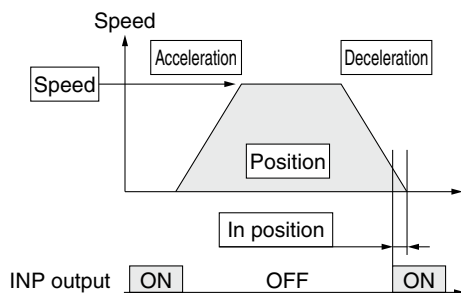
Specific Product  
Precautions

## Step Data Setting

### 1. Step data setting for positioning

In this setting, the actuator moves toward and stops at the target position.

The following diagram shows the setting items and operation. The setting items and set values for this operation are stated below.



◎ : Need to be set.  
○ : Need to be adjusted as required.  
— : Setting is not required.

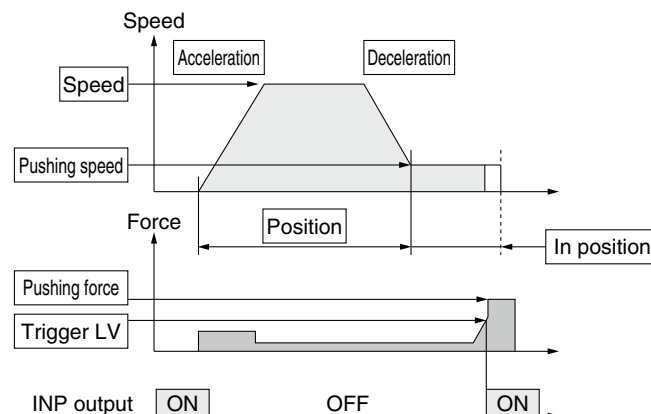
#### Step Data (Positioning)

| Necessity | Item           | Details                                                                                                                                                                                                                                                                                                    |
|-----------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ◎         | Movement MOD   | When the absolute position is required, set Absolute. When the relative position is required, set Relative.                                                                                                                                                                                                |
| ◎         | Speed          | Transfer speed to the target position                                                                                                                                                                                                                                                                      |
| ◎         | Position       | Target position                                                                                                                                                                                                                                                                                            |
| ○         | Acceleration   | Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.                                                                                                                                                                     |
| ○         | Deceleration   | Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.                                                                                                                                                                                            |
| ◎         | Pushing force  | Set 0.<br>(If values 1 to 100 are set, the operation will be changed to the pushing operation.)                                                                                                                                                                                                            |
| —         | Trigger LV     | Setting is not required.                                                                                                                                                                                                                                                                                   |
| —         | Pushing speed  | Setting is not required.                                                                                                                                                                                                                                                                                   |
| ○         | Moving force   | Max. torque during the positioning operation<br>(No specific change is required.)                                                                                                                                                                                                                          |
| ○         | Area 1, Area 2 | Condition that turns on the AREA output signal.                                                                                                                                                                                                                                                            |
| ○         | In position    | Condition that turns on the INP output signal. When the actuator enters the range of [in position], the INP output signal turns on. (It is unnecessary to change this from the initial value.) When it is necessary to output the arrival signal before the operation is completed, make the value larger. |

### 2. Step data setting for pushing

The actuator moves toward the pushing start position, and when it reaches that position, it starts pushing with the set force or less.

The following diagram shows the setting items and operation. The setting items and set values for this operation are stated below.



◎ : Need to be set.  
○ : Need to be adjusted as required.

#### Step Data (Pushing)

| Necessity | Item           | Details                                                                                                                                                                                                                                                   |
|-----------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ◎         | Movement MOD   | When the absolute position is required, set Absolute. When the relative position is required, set Relative.                                                                                                                                               |
| ◎         | Speed          | Transfer speed to the pushing start position                                                                                                                                                                                                              |
| ◎         | Position       | Pushing start position                                                                                                                                                                                                                                    |
| ○         | Acceleration   | Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.                                                                                                                    |
| ○         | Deceleration   | Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.                                                                                                                                           |
| ◎         | Pushing force  | Pushing force ratio is defined.<br>The setting range differs depending on the electric actuator type. Refer to the operation manual for the electric actuator.                                                                                            |
| ◎         | Trigger LV     | Condition that turns on the INP output signal. The INP output signal turns on when the generated force exceeds the value. Trigger level should be the pushing force or less.                                                                              |
| ○         | Pushing speed  | Pushing speed during pushing.<br>When the speed is set fast, the electric actuator and workpieces might be damaged due to the impact when they hit the end, so this set value should be smaller. Refer to the operation manual for the electric actuator. |
| ○         | Moving force   | Max. torque during the positioning operation<br>(No specific change is required.)                                                                                                                                                                         |
| ○         | Area 1, Area 2 | Condition that turns on the AREA output signal.                                                                                                                                                                                                           |
| ◎         | In position    | Transfer distance during pushing. If the transferred distance exceeds the setting, it stops even if it is not pushing. If the transfer distance is exceeded, the INP output signal will not turn on.                                                      |

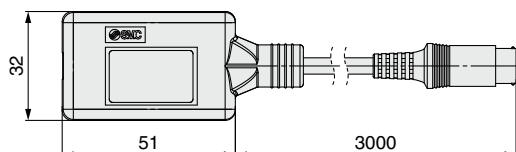


# JXC51/61 Series

## Options

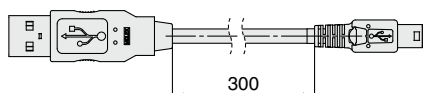
### ■ Communication cable for controller setting

#### ① Communication cable JXC-W2A-C



\* It can be connected to the controller directly.

#### ② USB cable LEC-W2-U



#### ③ Controller setting kit JXC-W2A

A set which includes a communication cable (JXC-W2A-C) and a USB cable (LEC-W2-U)

##### <Controller setting software/USB driver>

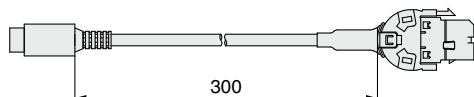
- Controller setting software
  - USB driver (For JXC-W2A-C)
- Download from SMC's website:  
<https://www.smcworld.com>

##### Hardware Requirements

|                         |                                    |
|-------------------------|------------------------------------|
| OS                      | Windows®7, Windows®8.1, Windows®10 |
| Communication interface | USB 1.1 or USB 2.0 ports           |
| Display                 | 1024 x 768 or more                 |

\* Windows®7, Windows®8.1, and Windows®10 are registered trademarks of Microsoft Corporation in the United States.

### ■ Conversion cable P5062-5 (Cable length: 300 mm)



\* To connect the teaching box (LEC-T1-3□G□) or controller setting kit (LEC-W2□) to the controller, a conversion cable is required.

### ■ I/O cable

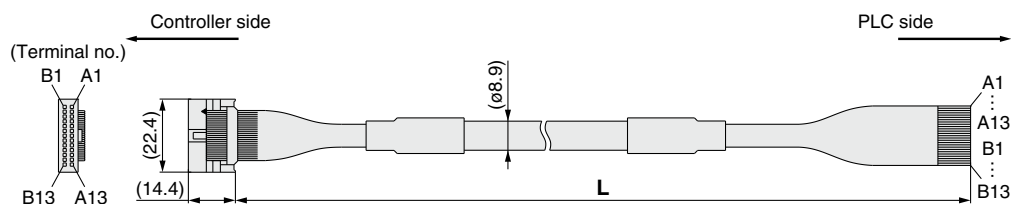
#### LEC-CN5-1

| Cable length (L) [m] |     |
|----------------------|-----|
| 1                    | 1.5 |
| 3                    | 3   |
| 5                    | 5   |

\* Conductor size: AWG28

##### Weight

| Product no. | Weight [g] |
|-------------|------------|
| LEC-CN5-1   | 170        |
| LEC-CN5-3   | 320        |
| LEC-CN5-5   | 520        |

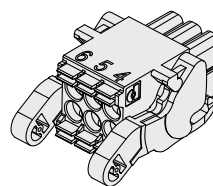


| Connector pin no. | Insulation color | Dot mark | Dot color |
|-------------------|------------------|----------|-----------|
| A1                | Light brown      | ■        | Black     |
| A2                | Light brown      | ■        | Red       |
| A3                | Yellow           | ■        | Black     |
| A4                | Yellow           | ■        | Red       |
| A5                | Light green      | ■        | Black     |
| A6                | Light green      | ■        | Red       |
| A7                | Gray             | ■        | Black     |
| A8                | Gray             | ■        | Red       |
| A9                | White            | ■        | Black     |
| A10               | White            | ■        | Red       |
| A11               | Light brown      | ■ ■      | Black     |
| A12               | Light brown      | ■ ■      | Red       |
| A13               | Yellow           | ■ ■      | Black     |

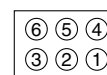
| Connector pin no. | Insulation color | Dot mark | Dot color |
|-------------------|------------------|----------|-----------|
| B1                | Yellow           | ■ ■      | Red       |
| B2                | Light green      | ■ ■      | Black     |
| B3                | Light green      | ■ ■      | Red       |
| B4                | Gray             | ■ ■      | Black     |
| B5                | Gray             | ■ ■      | Red       |
| B6                | White            | ■ ■      | Black     |
| B7                | White            | ■ ■      | Red       |
| B8                | Light brown      | ■ ■ ■    | Black     |
| B9                | Light brown      | ■ ■ ■    | Red       |
| B10               | Yellow           | ■ ■ ■    | Black     |
| B11               | Yellow           | ■ ■ ■    | Red       |
| B12               | Light green      | ■ ■ ■    | Black     |
| B13               | Light green      | ■ ■ ■    | Red       |
| —                 |                  |          | Shield    |

### ■ Power supply plug JXC-CPW

\* The power supply plug is an accessory.



<Applicable cable size> AWG20 (0.5 mm²), cover diameter 2.0 mm or less



- ① C24V    ④ 0V
- ② M24V   ⑤ N.C.
- ③ EMG    ⑥ LK RLS

#### Power supply plug

| Terminal name | Function                 | Details                                                                             |
|---------------|--------------------------|-------------------------------------------------------------------------------------|
| 0V            | Common supply (-)        | The M24V terminal, C24V terminal, EMG terminal, and LK RLS terminal are common (-). |
| M24V          | Motor power supply (+)   | Motor power supply (+) of the controller                                            |
| C24V          | Control power supply (+) | Control power supply (+) of the controller                                          |
| EMG           | Stop (+)                 | Connection terminal of the external stop circuit                                    |
| LK RLS        | Lock release (+)         | Connection terminal of the lock release switch                                      |

### ■ Teaching box

#### LEC-T1-3□J□G□

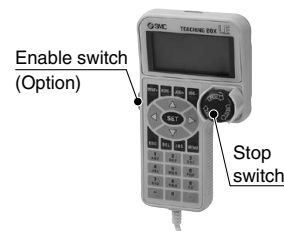
Teaching box

Cable length [m]  
 3    3

Initial language

|   |          |
|---|----------|
| J | Japanese |
| E | English  |

\* The displayed language can be changed to English or Japanese.



Enable switch

|     |                             |
|-----|-----------------------------|
| Nil | None                        |
| S   | Equipped with enable switch |

\* Interlock switch for jog and test function

Stop switch

|   |                           |
|---|---------------------------|
| G | Equipped with stop switch |
|---|---------------------------|

#### Specifications

| Item                             | Description                         |
|----------------------------------|-------------------------------------|
| Switch                           | Stop switch, Enable switch (Option) |
| Cable length [m]                 | 3                                   |
| Enclosure                        | IP64 (Except connector)             |
| Operating temperature range [°C] | 5 to 50                             |
| Operating humidity range [%RH]   | 90 or less (No condensation)        |
| Weight [g]                       | 350 (Except cable)                  |

# Controller (Step Data Input Type) Servo Motor (24 VDC)

## LECA6 Series



LECA6 Series



\* For details, refer to page 307 and onward.

### How to Order

#### ⚠ Caution

##### [CE-compliant products]

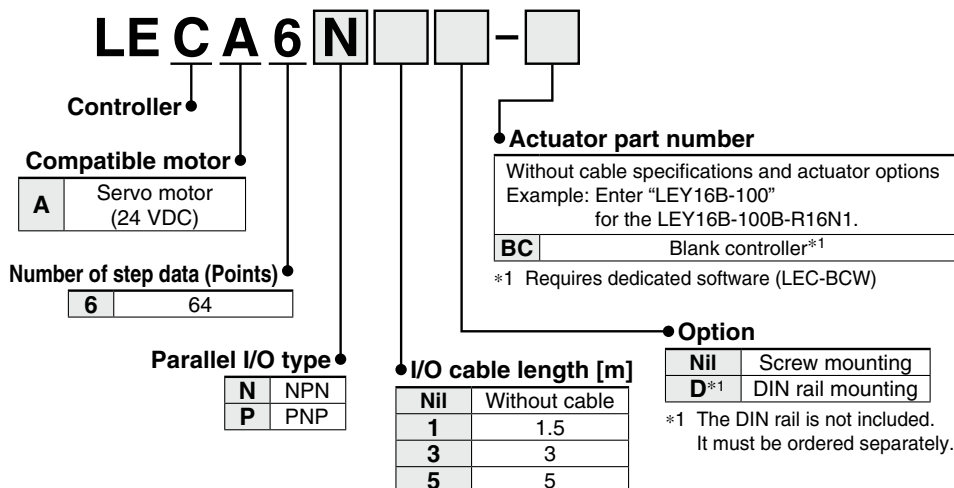
① EMC compliance was tested by combining the electric actuator LE series and the controller LEC series.

The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

② For the LECA6 series (servo motor controller), EMC compliance was tested by installing a noise filter set (LEC-NFA). Refer to page 224 for the noise filter set. Refer to the LECA Operation Manual for installation.

##### [UL-compliant products]

When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.



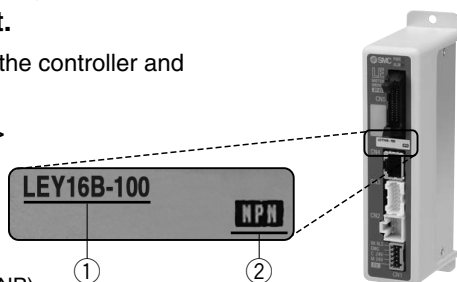
\* When controller equipped type is selected when ordering the LE series, you do not need to order this controller.

### The controller is sold as single unit after the compatible actuator is set.

Confirm that the combination of the controller and actuator is correct.

#### <Check the following before use.>

- ① Check the actuator label for the model number. This number should match that of the controller.
- ② Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the operation manual for using the products. Please download it via our website:  
<https://www.smcworld.com>

### Precautions for blank controllers (LEC□6□□-BC)

A blank controller is a controller to which the customer can write the data of the actuator it is to be combined and used with. Use the dedicated software (LEC-BCW) for data writing.

- Please download the dedicated software (LEC-BCW) via our website.
- Order the communication cable for controller setting (LEC-W2A-C) separately to use this software.

SMC website:  
<https://www.smcworld.com>

## Specifications

### Basic Specifications

| Item                                    | LECA6                                                                                                   |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Compatible motor</b>                 | Servo motor (24 VDC)                                                                                    |
| <b>Power supply</b> *1                  | Power voltage: 24 VDC $\pm 10\%$ *2<br>[Including motor drive power, control power, stop, lock release] |
| <b>Parallel input</b>                   | 11 inputs (Photo-coupler isolation)                                                                     |
| <b>Parallel output</b>                  | 13 outputs (Photo-coupler isolation)                                                                    |
| <b>Compatible encoder</b>               | Incremental                                                                                             |
| <b>Serial communication</b>             | RS485 (Modbus protocol compliant)                                                                       |
| <b>Memory</b>                           | EEPROM                                                                                                  |
| <b>LED indicator</b>                    | LED (Green/Red) one of each                                                                             |
| <b>Lock control</b>                     | Forced-lock release terminal*3                                                                          |
| <b>Cable length [m]</b>                 | I/O cable: 5 or less, Actuator cable: 20 or less                                                        |
| <b>Cooling system</b>                   | Natural air cooling                                                                                     |
| <b>Operating temperature range [°C]</b> | 0 to 40 (No freezing)                                                                                   |
| <b>Operating humidity range [%RH]</b>   | 90 or less (No condensation)                                                                            |
| <b>Storage temperature range [°C]</b>   | -10 to 60 (No freezing)                                                                                 |
| <b>Storage humidity range [%RH]</b>     | 90 or less (No condensation)                                                                            |
| <b>Insulation resistance [MΩ]</b>       | Between the housing and SG terminal: 50 (500 VDC)                                                       |
| <b>Weight [g]</b>                       | 150 (Screw mounting), 170 (DIN rail mounting)                                                           |

\*1 Do not use the power supply of "inrush current prevention type" for the controller power supply. When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

\*2 The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.

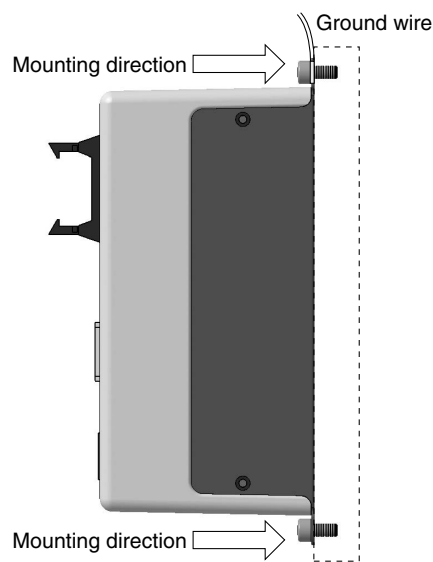
\*3 Applicable to non-magnetizing locks



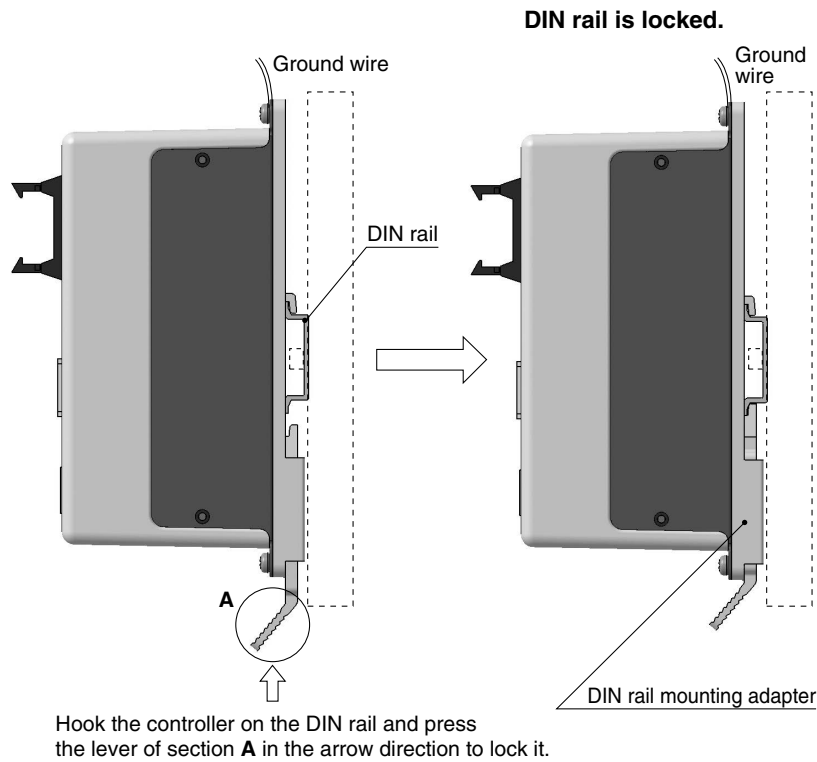
# LECA6 Series

## How to Mount

### a) Screw mounting (LECA6□□-□) (Installation with two M4 screws)



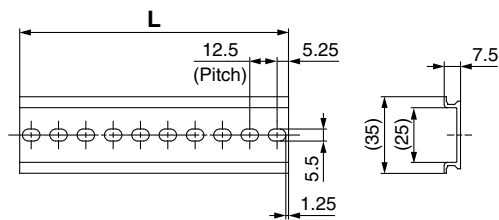
### b) DIN rail mounting (LECA6□□D-□) (Installation with the DIN rail)



\* When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

### DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings on page 220 for the mounting dimensions.



#### L Dimensions [mm]

| No. | 1  | 2    | 3  | 4    | 5  | 6    | 7  | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    |
|-----|----|------|----|------|----|------|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 23 | 35.5 | 48 | 60.5 | 73 | 85.5 | 98 | 110.5 | 123 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 |

| No. | 21  | 22    | 23  | 24    | 25  | 26    | 27  | 28    | 29  | 30    | 31  | 32    | 33  | 34    | 35  | 36    | 37  | 38    | 39  | 40    |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 348 | 360.5 | 373 | 385.5 | 398 | 410.5 | 423 | 435.5 | 448 | 460.5 | 473 | 485.5 | 498 | 510.5 |

### DIN rail mounting adapter LEC-D0 (with 2 mounting screws)

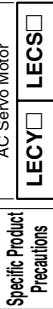
This should be used when the DIN rail mounting adapter is mounted onto a screw mounting type controller afterward.

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

AC Servo Motor



| Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |          |
|------------------------------------------------|-------|-------|-------|----------|
| JXC□                                           | LECPA | LECP1 | LEC-G | LECA6    |
|                                                |       |       |       | JXC51/61 |



# LECA6 Series

## Wiring Example 1

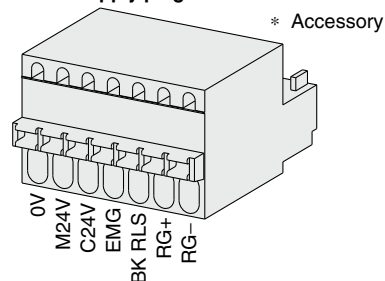
### Power Supply Connector: CN1

- \* The power supply plug is an accessory.
- <Applicable cable size> AWG20 (0.5 mm<sup>2</sup>), cover diameter 2.0 mm or less

### CN1 Power Supply Connector Terminal for LECA6 (PHOENIX CONTACT FK-MC0.5/7-ST-2.5)

| Terminal name | Function                 | Details                                                                                        |
|---------------|--------------------------|------------------------------------------------------------------------------------------------|
| 0V            | Common supply (-)        | The M24V terminal, C24V terminal, EMG terminal, and BK RLS terminal are common (-).            |
| M24V          | Motor power supply (+)   | Motor power supply (+) supplied to the controller                                              |
| C24V          | Control power supply (+) | Control power supply (+) supplied to the controller                                            |
| EMG           | Stop (+)                 | Input (+) for releasing the stop                                                               |
| BK RLS        | Lock release (+)         | Input (+) for releasing the lock                                                               |
| RG+           | Regenerative output 1    | Regenerative output terminals for external connection                                          |
| RG-           | Regenerative output 2    | (Not necessary to connect them in the combination with the LE series standard specifications.) |

### Power supply plug for LECA6: LEC-D-1-2



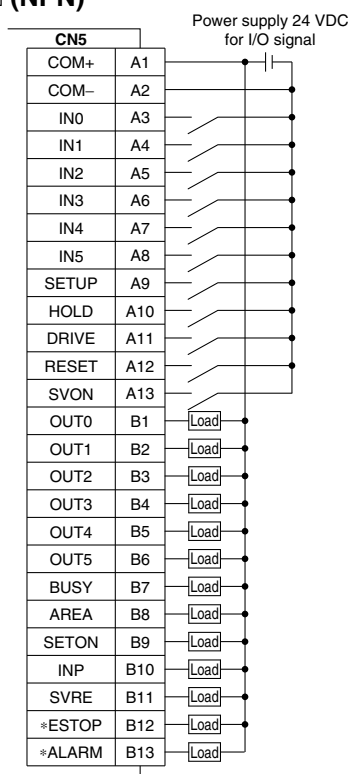
## Wiring Example 2

### Parallel I/O Connector: CN5

- \* When you connect a PLC to the CN5 parallel I/O connector, use the I/O cable (LEC-CN5-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### Wiring diagram

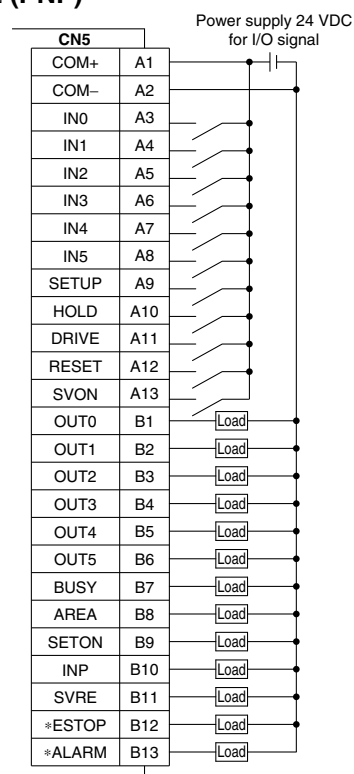
#### LECA6N□□-□ (NPN)



### Input Signal

| Name       | Details                                                                     |
|------------|-----------------------------------------------------------------------------|
| COM+       | Connects the power supply 24 V for input/output signal                      |
| COM-       | Connects the power supply 0 V for input/output signal                       |
| IN0 to IN5 | Step data specified bit no.<br>(Input is instructed by combining IN0 to 5.) |
| SETUP      | Instruction to return to origin                                             |
| HOLD       | Temporarily stops operation                                                 |
| DRIVE      | Instruction to drive                                                        |
| RESET      | Resets alarm and interrupts operation                                       |
| SVON       | Servo ON instruction                                                        |

#### LECA6P□□-□ (PNP)



### Output Signal

| Name         | Details                                                                                                             |
|--------------|---------------------------------------------------------------------------------------------------------------------|
| OUT0 to OUT5 | Outputs the step data no. during operation                                                                          |
| BUSY         | Outputs when the actuator is moving                                                                                 |
| AREA         | Outputs within the step data area output setting range                                                              |
| SETON        | Outputs when returning to origin                                                                                    |
| INP          | Outputs when target position or target force is reached<br>(Turns on when the positioning or pushing is completed.) |
| SVRE         | Outputs when servo is ON                                                                                            |
| *ESTOP*1     | OFF when EMG stop is instructed                                                                                     |
| *ALARM*1     | OFF when alarm is generated                                                                                         |

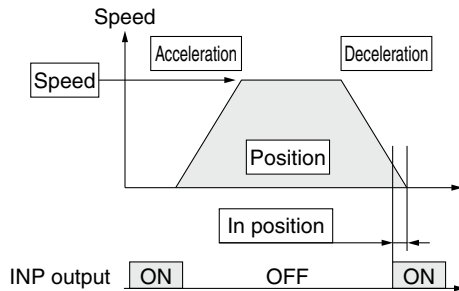
\*1 Negative-logic (N.C.) circuit signal

## Step Data Setting

### 1. Step data setting for positioning

In this setting, the actuator moves toward and stops at the target position.

The following diagram shows the setting items and operation. The setting items and set values for this operation are stated below.



◎ : Need to be set.  
○ : Need to be adjusted as required.  
— : Setting is not required.

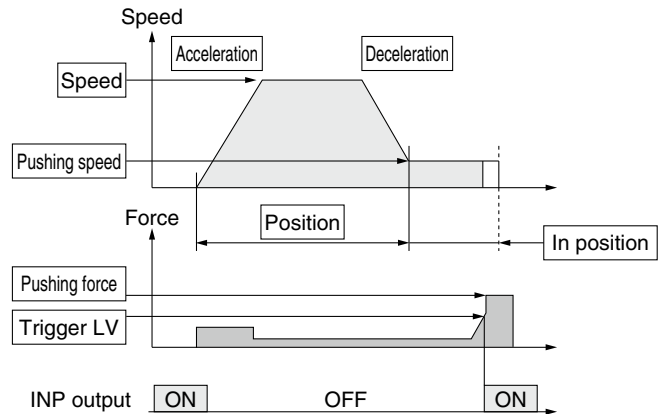
#### Step Data (Positioning)

| Necessity | Item           | Details                                                                                                                                                                                                                                                                                                    |
|-----------|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ◎         | Movement MOD   | When the absolute position is required, set Absolute. When the relative position is required, set Relative.                                                                                                                                                                                                |
| ◎         | Speed          | Transfer speed to the target position                                                                                                                                                                                                                                                                      |
| ◎         | Position       | Target position                                                                                                                                                                                                                                                                                            |
| ○         | Acceleration   | Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.                                                                                                                                                                     |
| ○         | Deceleration   | Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.                                                                                                                                                                                            |
| ◎         | Pushing force  | Set 0.<br>(If values 1 to 100 are set, the operation will be changed to the pushing operation.)                                                                                                                                                                                                            |
| —         | Trigger LV     | Setting is not required.                                                                                                                                                                                                                                                                                   |
| —         | Pushing speed  | Setting is not required.                                                                                                                                                                                                                                                                                   |
| ○         | Moving force   | Max. torque during the positioning operation<br>(No specific change is required.)                                                                                                                                                                                                                          |
| ○         | Area 1, Area 2 | Condition that turns on the AREA output signal.                                                                                                                                                                                                                                                            |
| ○         | In position    | Condition that turns on the INP output signal. When the actuator enters the range of [in position], the INP output signal turns on. (It is unnecessary to change this from the initial value.) When it is necessary to output the arrival signal before the operation is completed, make the value larger. |

### 2. Step data setting for pushing

The actuator moves toward the pushing start position, and when it reaches that position, it starts pushing with the set force or less.

The following diagram shows the setting items and operation. The setting items and set values for this operation are stated below.



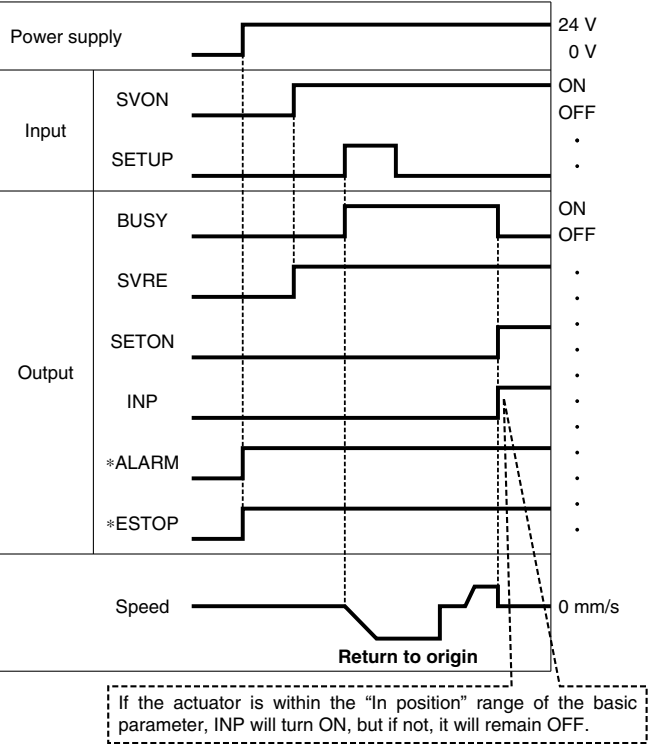
◎ : Need to be set.  
○ : Need to be adjusted as required.

#### Step Data (Pushing)

| Necessity | Item           | Details                                                                                                                                                                                                                                                   |
|-----------|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ◎         | Movement MOD   | When the absolute position is required, set Absolute. When the relative position is required, set Relative.                                                                                                                                               |
| ◎         | Speed          | Transfer speed to the pushing start position                                                                                                                                                                                                              |
| ◎         | Position       | Pushing start position                                                                                                                                                                                                                                    |
| ○         | Acceleration   | Parameter which defines how rapidly the actuator reaches the speed set. The higher the set value, the faster it reaches the speed set.                                                                                                                    |
| ○         | Deceleration   | Parameter which defines how rapidly the actuator comes to stop. The higher the set value, the quicker it stops.                                                                                                                                           |
| ◎         | Pushing force  | Pushing force ratio is defined.<br>The setting range differs depending on the electric actuator type. Refer to the operation manual for the electric actuator.                                                                                            |
| ◎         | Trigger LV     | Condition that turns on the INP output signal. The INP output signal turns on when the generated force exceeds the value. Trigger level should be the pushing force or less.                                                                              |
| ○         | Pushing speed  | Pushing speed during pushing.<br>When the speed is set fast, the electric actuator and workpieces might be damaged due to the impact when they hit the end, so this set value should be smaller. Refer to the operation manual for the electric actuator. |
| ○         | Moving force   | Max. torque during the positioning operation<br>(No specific change is required.)                                                                                                                                                                         |
| ○         | Area 1, Area 2 | Condition that turns on the AREA output signal.                                                                                                                                                                                                           |
| ◎         | In position    | Transfer distance during pushing. If the transferred distance exceeds the setting, it stops even if it is not pushing. If the transfer distance is exceeded, the INP output signal will not turn on.                                                      |

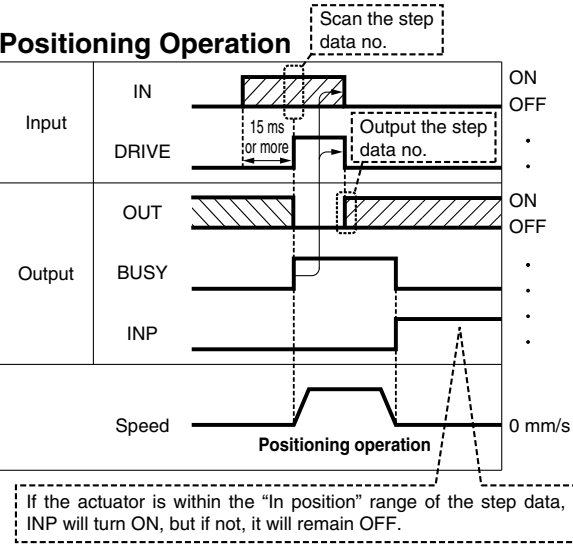
Signal Timing

Return to Origin



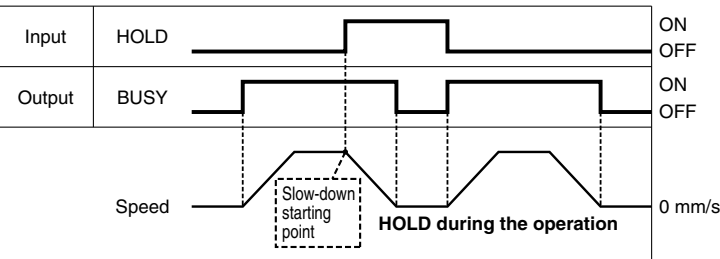
\* \*ALARM and \*ESTOP are expressed as negative-logic circuits.

Positioning Operation



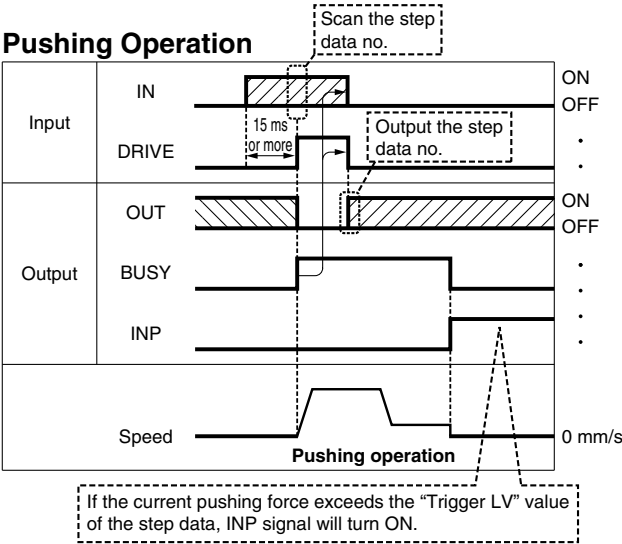
\* "OUT" is output when "DRIVE" is changed from ON to OFF. Refer to the operation manual for details on the controller for the LEM series. (When power supply is applied, "DRIVE" or "RESET" is turned ON or \*ESTOP is turned OFF, all of the "OUT" outputs are OFF.)

HOLD

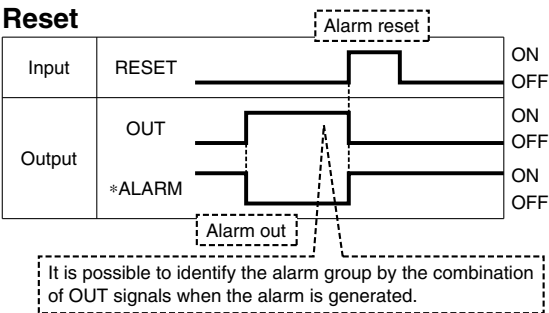


\* When the actuator is within the "In position" range in the pushing operation, it does not stop even if HOLD signal is input.

Pushing Operation



Reset



\* \*ALARM is expressed as a negative-logic circuit.

## Option: I/O Cable

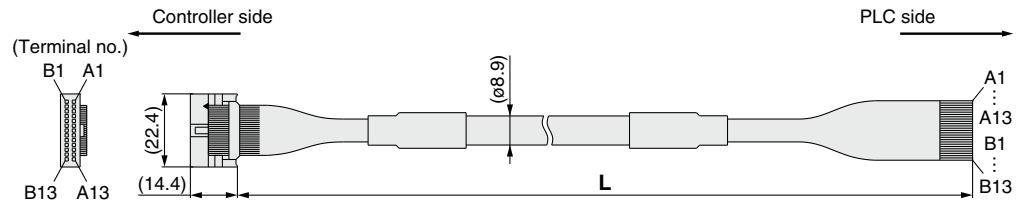
### LEC-CN5-1

| Cable length (L) [m] |     |
|----------------------|-----|
| 1                    | 1.5 |
| 3                    | 3   |
| 5                    | 5   |

\* Conductor size: AWG28

### Weight

| Product no. | Weight [g] |
|-------------|------------|
| LEC-CN5-1   | 170        |
| LEC-CN5-3   | 320        |
| LEC-CN5-5   | 520        |



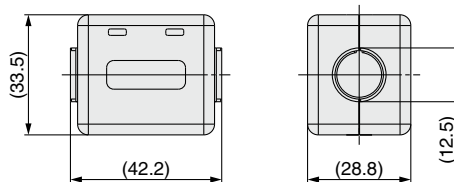
| Connector pin no. | Insulation color | Dot mark | Dot color |
|-------------------|------------------|----------|-----------|
| A1                | Light brown      | ■        | Black     |
| A2                | Light brown      | ■        | Red       |
| A3                | Yellow           | ■        | Black     |
| A4                | Yellow           | ■        | Red       |
| A5                | Light green      | ■        | Black     |
| A6                | Light green      | ■        | Red       |
| A7                | Gray             | ■        | Black     |
| A8                | Gray             | ■        | Red       |
| A9                | White            | ■        | Black     |
| A10               | White            | ■        | Red       |
| A11               | Light brown      | ■ ■      | Black     |
| A12               | Light brown      | ■ ■      | Red       |
| A13               | Yellow           | ■ ■      | Black     |

| Connector pin no. | Insulation color | Dot mark | Dot color |
|-------------------|------------------|----------|-----------|
| B1                | Yellow           | ■ ■      | Red       |
| B2                | Light green      | ■ ■      | Black     |
| B3                | Light green      | ■ ■      | Red       |
| B4                | Gray             | ■ ■      | Black     |
| B5                | Gray             | ■ ■      | Red       |
| B6                | White            | ■ ■      | Black     |
| B7                | White            | ■ ■      | Red       |
| B8                | Light brown      | ■ ■ ■    | Black     |
| B9                | Light brown      | ■ ■ ■    | Red       |
| B10               | Yellow           | ■ ■ ■    | Black     |
| B11               | Yellow           | ■ ■ ■    | Red       |
| B12               | Light green      | ■ ■ ■    | Black     |
| B13               | Light green      | ■ ■ ■    | Red       |
| —                 | Shield           |          |           |

## Option: Noise Filter Set for Servo Motor (24 VDC)

### LEC-NFA

Contents of the set: 2 noise filters (Manufactured by WURTH ELEKTRONIK: 74271222)



\* Refer to the LECA6 series Operation Manual for installation.

Model Selection

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

LEY

LEYG

LEY

LEY

LEY

LEYG

LEY

LEY

LEY-X7

LEY-X5

LEY-X3

LEY-X1

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0

LEY-X0



# Gateway Unit

## LEC-G Series



### How to Order

#### ⚠ Caution

##### [CE-compliant products]

EMC compliance was tested by combining the electric actuator LE series and the controller LEC series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

##### [UL-compliant products]

When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

### Gateway unit LEC-G MJ2

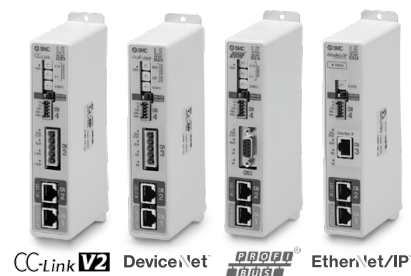
#### Applicable Fieldbus protocols

|            |                  |
|------------|------------------|
| <b>MJ2</b> | CC-Link Ver. 2.0 |
| <b>DN1</b> | DeviceNet™       |
| <b>PR1</b> | PROFIBUS DP      |
| <b>EN1</b> | EtherNet/IP™     |

#### Mounting

|            |                |
|------------|----------------|
| <b>Nil</b> | Screw mounting |
| <b>D*1</b> | DIN rail       |

\*1 The DIN rail is not included.  
It must be ordered separately.



### Cable

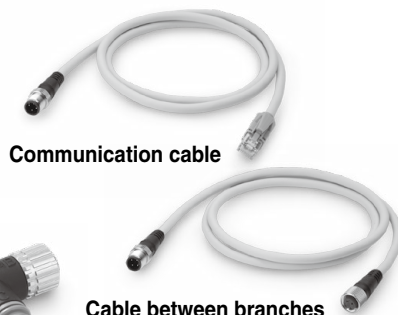
### LEC-CG 1-L

#### Cable type

|          |                        |
|----------|------------------------|
| <b>1</b> | Communication cable    |
| <b>2</b> | Cable between branches |

#### Cable length

|          |       |
|----------|-------|
| <b>K</b> | 0.3 m |
| <b>L</b> | 0.5 m |
| <b>1</b> | 1 m   |



### Branch connector LEC-CGD

#### Branch connector



### Terminating resistor LEC-CGR

### Specifications

| Model                            |                                          |                                   | LEC-GMJ2□                                       |                                                                 | LEC-GDN1□                           | LEC-GPR1□                                                             | LEC-GEN1□                           |
|----------------------------------|------------------------------------------|-----------------------------------|-------------------------------------------------|-----------------------------------------------------------------|-------------------------------------|-----------------------------------------------------------------------|-------------------------------------|
| Communication specifications     | Applicable system                        | Fieldbus Version*1                | CC-Link<br>Ver. 2.0                             |                                                                 | DeviceNet™<br>Release 2.0           | PROFIBUS DP<br>V1                                                     | EtherNet/IP™<br>Release 1.0         |
|                                  | Communication speed [bps]                |                                   | 156 k/625 k/2.5 M<br>/5 M/10 M                  |                                                                 | 125 k/250 k/500 k                   | 9.6 k/19.2 k/45.45 k/<br>93.75 k/187.5 k/500 k/<br>1.5 M/3 M/6 M/12 M | 10 M/100 M                          |
|                                  | Configuration file*2                     |                                   | —                                               |                                                                 | EDS file                            | GSD file                                                              | EDS file                            |
|                                  | I/O occupation area                      |                                   | 4 stations occupied<br>(8 times setting)        | Input 896 points<br>108 words<br>Output 896 points<br>108 words | Input 200 bytes<br>Output 200 bytes | Input 57 words<br>Output 57 words                                     | Input 256 bytes<br>Output 256 bytes |
|                                  | Power supply for communication           | Power supply voltage [V]*6        | —                                               |                                                                 | 11 to 25 VDC                        | —                                                                     | —                                   |
|                                  |                                          | Internal current consumption [mA] | —                                               |                                                                 | 100                                 | —                                                                     | —                                   |
|                                  | Communication connector specifications   |                                   | Connector (Accessory)                           |                                                                 | Connector (Accessory)               | D-sub                                                                 | RJ45                                |
|                                  | Terminating resistor                     |                                   | Not included                                    |                                                                 | Not included                        | Not included                                                          | Not included                        |
| Power supply voltage [V]*6       |                                          |                                   | 24 VDC ±10%                                     |                                                                 |                                     |                                                                       |                                     |
| Current consumption [mA]         | Not connected to teaching box            |                                   | 200                                             |                                                                 |                                     |                                                                       |                                     |
|                                  | Connected to teaching box                |                                   | 300                                             |                                                                 |                                     |                                                                       |                                     |
| EMG output terminal              |                                          |                                   | 30 VDC 1 A                                      |                                                                 |                                     |                                                                       |                                     |
| Controller specifications        | Applicable controllers                   |                                   | LECA6 Series                                    |                                                                 |                                     |                                                                       |                                     |
|                                  | Communication speed [bps]*3              |                                   | 115.2 k/230.4 k                                 |                                                                 |                                     |                                                                       |                                     |
|                                  | Max. number of connectable controllers*4 |                                   | 12                                              | 8*5                                                             |                                     | 5                                                                     | 12                                  |
| Accessories                      |                                          |                                   | Power supply connector, communication connector |                                                                 |                                     | Power supply connector                                                |                                     |
| Operating temperature range [°C] |                                          |                                   | 0 to 40 (No freezing)                           |                                                                 |                                     |                                                                       |                                     |
| Operating humidity range [%RH]   |                                          |                                   | 90 or less (No condensation)                    |                                                                 |                                     |                                                                       |                                     |
| Storage temperature range [°C]   |                                          |                                   | −10 to 60 (No freezing)                         |                                                                 |                                     |                                                                       |                                     |
| Storage humidity range [%RH]     |                                          |                                   | 90 or less (No condensation)                    |                                                                 |                                     |                                                                       |                                     |
| Weight [g]                       |                                          |                                   | 200 (Screw mounting), 220 (DIN rail mounting)   |                                                                 |                                     |                                                                       |                                     |

\*1 Please note that versions are subject to change.

\*2 Each file can be downloaded from the SMC website.

\*3 When using a teaching box (LEC-T1-□), set the communication speed to 115.2 kbps.

\*4 A communication response time for 1 controller is approximately 30 ms.

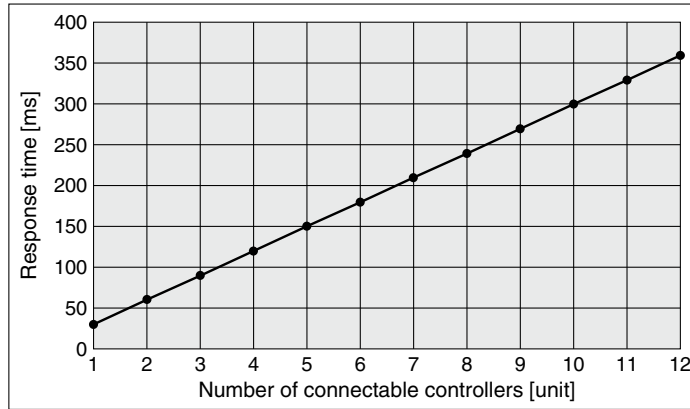
Refer to the "Communication Response Time Guideline" for response times when several controllers are connected.

\*5 For step data input, up to 12 controllers connectable.

\*6 When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

## Communication Response Time Guideline

Response time between gateway unit and controllers depends on the number of controllers connected to the gateway unit. For response time, refer to the graph below.

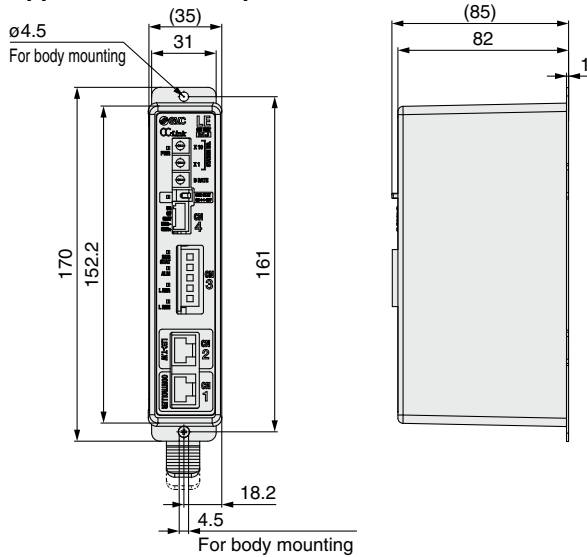


\* This graph shows delay times between gateway unit and controllers. Fieldbus network delay time is not included.

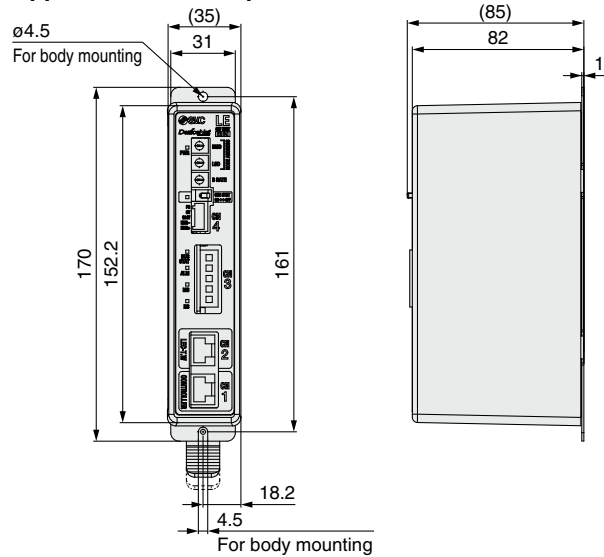
## Dimensions

### Screw mounting (LEC-G□□□□)

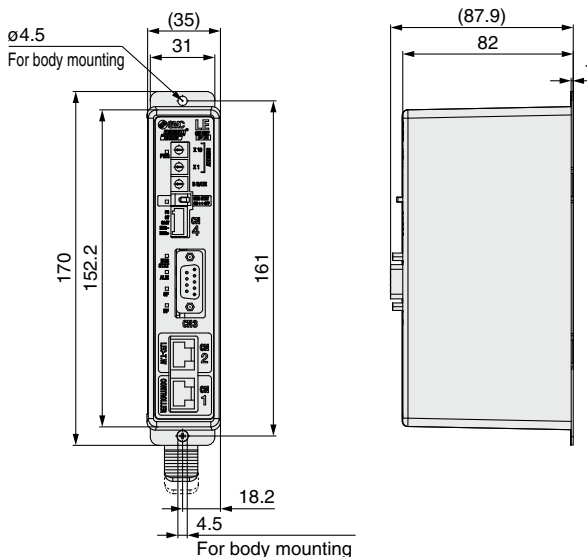
#### Applicable Fieldbus protocol: CC-Link Ver. 2.0



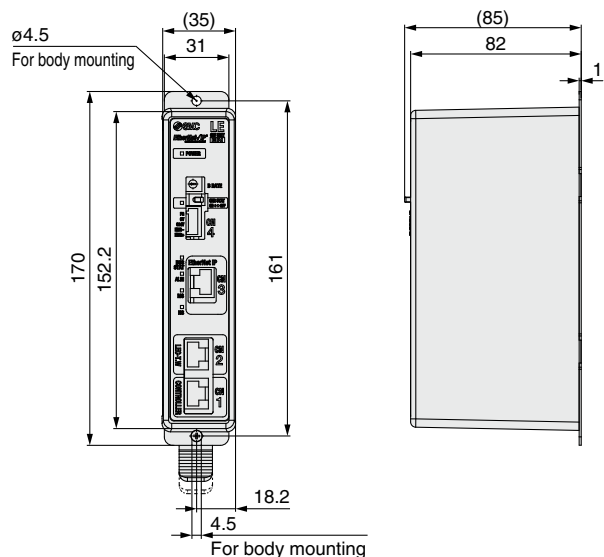
#### Applicable Fieldbus protocol: DeviceNet™



#### Applicable Fieldbus protocol: PROFIBUS DP



#### Applicable Fieldbus protocol: EtherNet/IP™



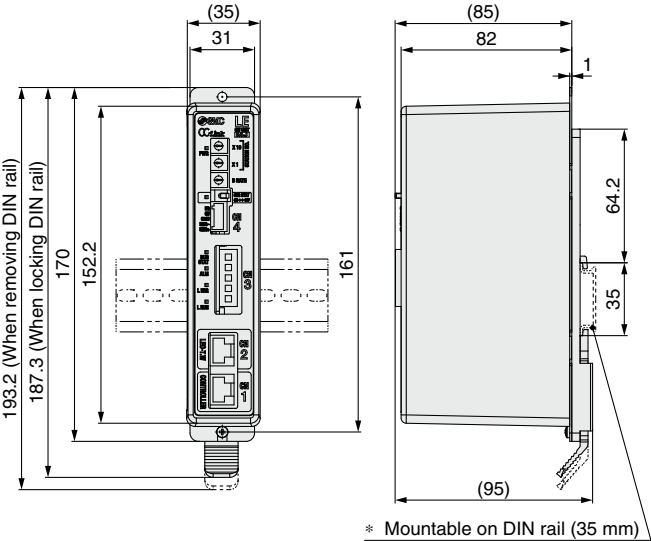
■ **Trademark** DeviceNet™ is a trademark of ODVA. EtherNet/IP™ is a trademark of ODVA.

# LEC-G Series

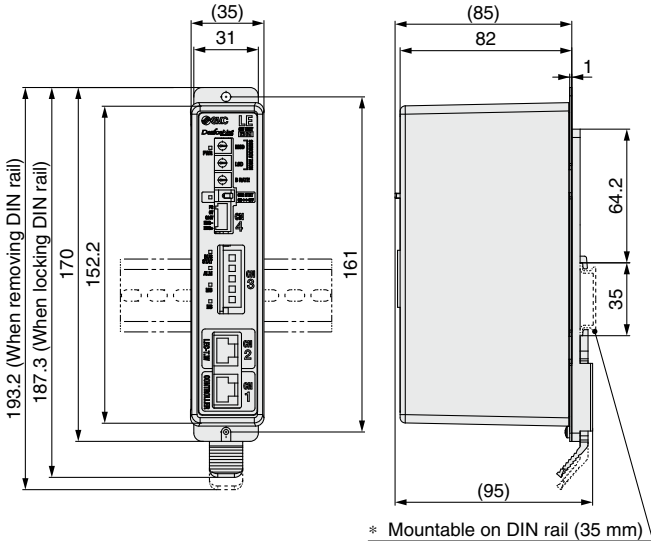
## Dimensions

### DIN rail mounting (LEC-G□□□D)

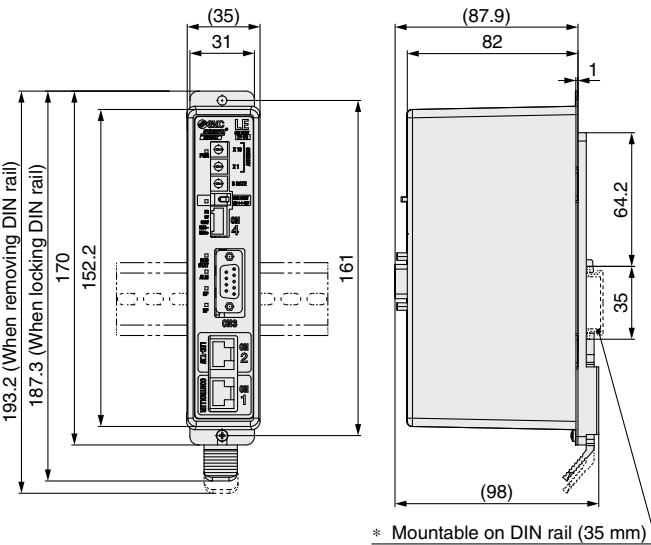
Applicable Fieldbus protocol: CC-Link Ver. 2.0



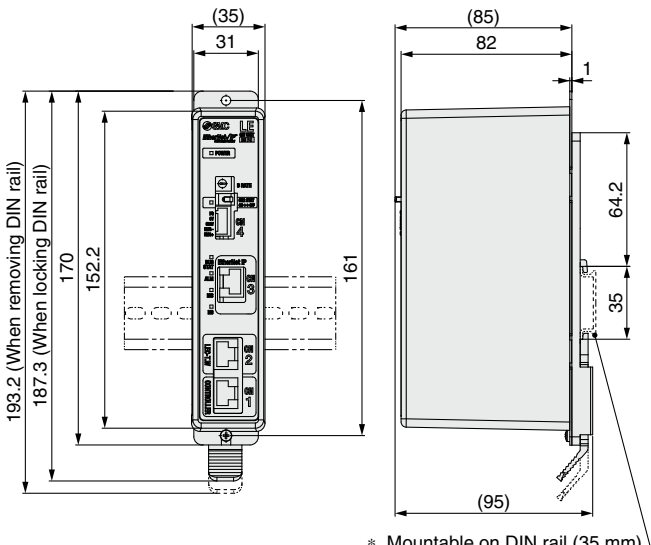
Applicable Fieldbus protocol: DeviceNet™



Applicable Fieldbus protocol: PROFIBUS DP

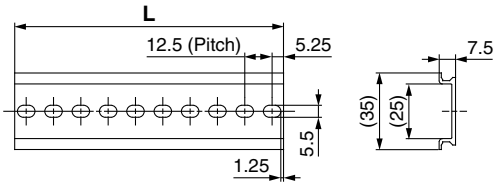


Applicable Fieldbus protocol: EtherNet/IP™



### DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings above for the mounting dimensions.



#### L Dimensions [mm]

| No. | 1  | 2    | 3  | 4    | 5  | 6    | 7  | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    |
|-----|----|------|----|------|----|------|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 23 | 35.5 | 48 | 60.5 | 73 | 85.5 | 98 | 110.5 | 123 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 |

| No. | 21  | 22    | 23  | 24    | 25  | 26    | 27  | 28    | 29  | 30    | 31  | 32    | 33  | 34    | 35  | 36    | 37  | 38    | 39  | 40    |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 348 | 360.5 | 373 | 385.5 | 398 | 410.5 | 423 | 435.5 | 448 | 460.5 | 473 | 485.5 | 498 | 510.5 |

■Trademark DeviceNet™ is a trademark of ODVA. EtherNet/IP™ is a trademark of ODVA.

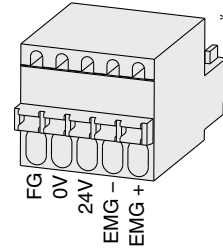
## Wiring Example

**Power Supply Connector: CN1** \* The power supply plug is an accessory.  
 <Applicable cable size> AWG20 (0.5 mm<sup>2</sup>), cover diameter 2.0 mm or less

### CN1 Power Supply Connector Terminal for LEC-G (PHOENIX CONTACT FK-MC0.5/5-ST-2.5)

| Terminal name | Function                | Details                                                                                              |
|---------------|-------------------------|------------------------------------------------------------------------------------------------------|
| EMG +         | EMG signal output +     | Output terminal of the emergency stop switch of the teaching box                                     |
| EMG -         | EMG signal output -     |                                                                                                      |
| 24V           | Power supply + terminal | Power supply terminal of the Gateway unit (Power to the teaching box is supplied from this terminal) |
| 0V            | Power supply - terminal |                                                                                                      |
| FG            | FG terminal             | Grounding terminal                                                                                   |

Power supply plug for LEC-G: LEC-D-1-1



Model  
Selection

LEY

LEYG

LEY

LEYG

LEY-X7

LEY-X5

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC□

LECS□

LECY□

Specific Product  
Precautions

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

AC Servo Motor

Environment

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

AC Servo Motor

# Programless Controller

## LECP1 Series



\* For details, refer to page 307 and onward.

### How to Order

**LECP1N1-LEY16B-100**

**Controller**

**Compatible motor**

|          |                           |
|----------|---------------------------|
| <b>P</b> | Step motor (Servo/24 VDC) |
|----------|---------------------------|

**Number of step data (Points)**

|          |                  |
|----------|------------------|
| <b>1</b> | 14 (Programless) |
|----------|------------------|

**Parallel I/O type**

|          |     |
|----------|-----|
| <b>N</b> | NPN |
| <b>P</b> | PNP |

**Option**

|            |                   |
|------------|-------------------|
| <b>Nil</b> | Screw mounting    |
| <b>D*1</b> | DIN rail mounting |

\*1 The DIN rail is not included. It must be ordered separately.

**I/O cable length [m]**

|            |               |
|------------|---------------|
| <b>Nil</b> | Without cable |
| <b>1</b>   | 1.5           |
| <b>3</b>   | 3             |
| <b>5</b>   | 5             |

**Actuator part number**

(Without cable specifications and actuator options)  
Example: Enter "LEY16B-100" for the LEY16B-100B-R16N1.

\* When controller equipped type is selected when ordering the LE series, you do not need to order this controller.

### Caution

#### [CE-compliant products]

EMC compliance was tested by combining the electric actuator LE series and the controller LEC series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

#### [UL-compliant products]

When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

**The controller is sold as single unit after the compatible actuator is set.**

Confirm that the combination of the controller and actuator is correct.

\* Refer to the operation manual for using the products. Please download it via our website: <https://www.smcworld.com>

## Specifications

### Basic Specifications

| Item                                    | LECP1                                                                                                                              |
|-----------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| <b>Compatible motor</b>                 | Step motor (Servo/24 VDC)                                                                                                          |
| <b>Power supply*1</b>                   | Power supply voltage: 24 VDC $\pm 10\%$ *2<br>[Including the motor drive power, control power supply, stop, lock release]          |
| <b>Parallel input</b>                   | 6 inputs (Photo-coupler isolation)                                                                                                 |
| <b>Parallel output</b>                  | 6 outputs (Photo-coupler isolation)                                                                                                |
| <b>Stop points</b>                      | 14 points (Position number 1 to 14(E))                                                                                             |
| <b>Compatible encoder</b>               | Incremental                                                                                                                        |
| <b>Memory</b>                           | EEPROM                                                                                                                             |
| <b>LED indicator</b>                    | LED (Green/Red) one of each                                                                                                        |
| <b>7-segment LED display*3</b>          | 1 digit, 7-segment display (Red) Figures are expressed in hexadecimal ("10" to "15" in decimal number are expressed as "A" to "F") |
| <b>Lock control</b>                     | Forced-lock release terminal*4                                                                                                     |
| <b>Cable length [m]</b>                 | I/O cable: 5 or less, Actuator cable: 20 or less                                                                                   |
| <b>Cooling system</b>                   | Natural air cooling                                                                                                                |
| <b>Operating temperature range [°C]</b> | 0 to 40 (No freezing)                                                                                                              |
| <b>Operating humidity range [%RH]</b>   | 90 or less (No condensation)                                                                                                       |
| <b>Storage temperature range [°C]</b>   | -10 to 60 (No freezing)                                                                                                            |
| <b>Storage humidity range [%RH]</b>     | 90 or less (No condensation)                                                                                                       |
| <b>Insulation resistance [MΩ]</b>       | Between the housing and SG terminal: 50 (500 VDC)                                                                                  |
| <b>Weight [g]</b>                       | 130 (Screw mounting), 150 (DIN rail mounting)                                                                                      |

\*1 Do not use the power supply of "inrush current prevention type" for the controller input power supply. When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

\*2 The power consumption changes depending on the actuator model. Refer to the each actuator's operation manual, etc., for details.

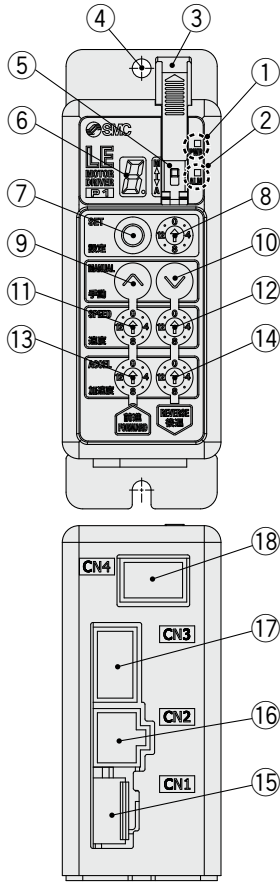
\*3 "10" to "15" in decimal number are displayed as follows in the 7-segment LED.



|                     |    |    |    |    |    |    |
|---------------------|----|----|----|----|----|----|
| Decimal display     | 10 | 11 | 12 | 13 | 14 | 15 |
| Hexadecimal display | A  | b  | c  | d  | E  | F  |

\*4 Applicable to non-magnetizing locks

## Controller Details



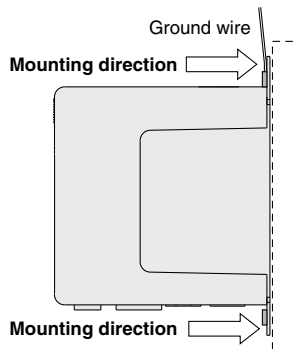
| No. | Display       | Description                 | Details                                                                                                 |
|-----|---------------|-----------------------------|---------------------------------------------------------------------------------------------------------|
| ①   | <b>PWR</b>    | Power supply LED            | Power supply ON/Servo ON : Green turns on<br>Power supply ON/Servo OFF: Green flashes                   |
| ②   | <b>ALM</b>    | Alarm LED                   | With alarm : Red turns on<br>Parameter setting : Red flashes                                            |
| ③   | —             | Cover                       | Change and protection of the mode switch<br>(Close the cover after changing switch)                     |
| ④   | —             | FG                          | Frame ground (Tighten the screw with the washer when mounting the controller. Connect the ground wire.) |
| ⑤   | —             | Mode switch                 | Switch the mode between manual and auto.                                                                |
| ⑥   | —             | 7-segment LED               | Stop position, the value set by ⑧ and alarm information are displayed.                                  |
| ⑦   | <b>SET</b>    | Set button                  | Decide the settings or drive operation in Manual mode.                                                  |
| ⑧   | —             | Position selecting switch   | Assign the position to drive (1 to 14), and the origin position (15).                                   |
| ⑨   | <b>MANUAL</b> | Manual forward button       | Perform forward jog and inching.                                                                        |
| ⑩   |               | Manual reverse button       | Perform reverse jog and inching.                                                                        |
| ⑪   | <b>SPEED</b>  | Forward speed switch        | 16 forward speeds are available.                                                                        |
| ⑫   |               | Reverse speed switch        | 16 reverse speeds are available.                                                                        |
| ⑬   | <b>ACCEL</b>  | Forward acceleration switch | 16 forward acceleration steps are available.                                                            |
| ⑭   |               | Reverse acceleration switch | 16 reverse acceleration steps are available.                                                            |
| ⑮   | <b>CN1</b>    | Power supply connector      | Connect the power supply cable.                                                                         |
| ⑯   | <b>CN2</b>    | Motor connector             | Connect the motor connector.                                                                            |
| ⑰   | <b>CN3</b>    | Encoder connector           | Connect the encoder connector.                                                                          |
| ⑱   | <b>CN4</b>    | I/O connector               | Connect I/O cable.                                                                                      |

## How to Mount

Controller mounting shown below.

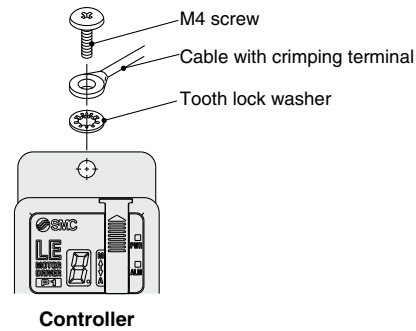
### 1. Mounting screw (LECP1□□-□)

(Installation with two M4 screws)



### 2. Grounding

Tighten the screw with the washer when mounting the ground wire as shown below.



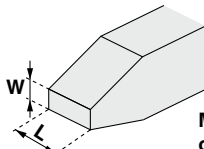
\* When size 25 or more of the LE series are used, the space between the controllers should be 10 mm or more.

### ⚠ Caution

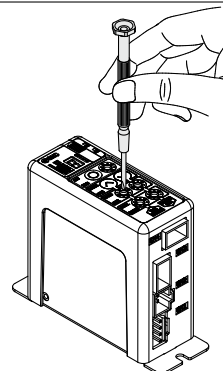
- M4 screws, cable with crimping terminal and tooth lock washer are not included. Be sure to carry out grounding earth in order to ensure the noise tolerance.
- Use a watchmaker's screwdriver of the size shown below when changing position switch ⑧ and the set value of the speed/acceleration switch ⑪ to ⑭.

#### Size

End width **L**: 2.0 to 2.4 [mm]  
End thickness **W**: 0.5 to 0.6 [mm]



Magnified view of the end of the screwdriver

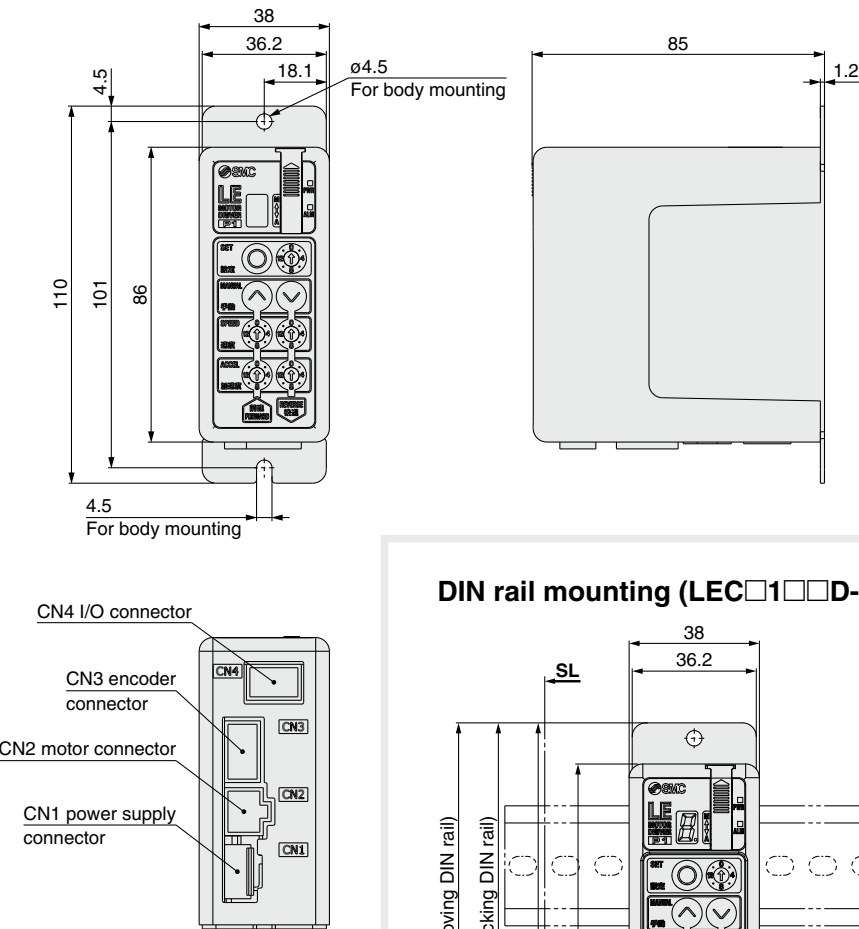




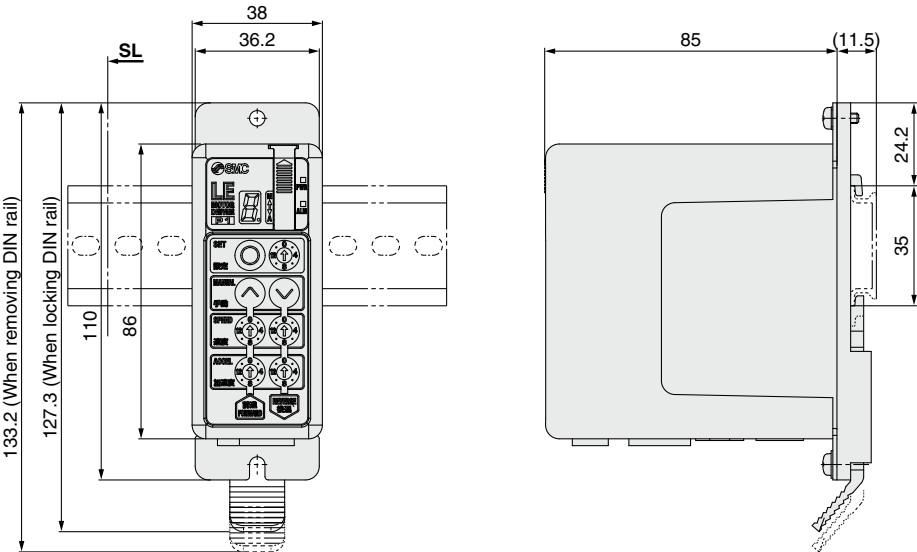
# LECP1 Series

## Dimensions

### Screw mounting (LEC□1□□-□)



### DIN rail mounting (LEC□1□□D-□)



### DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings above for the mounting dimensions.

#### L Dimensions [mm]

| No. | 1   | 2     | 3   | 4     | 5   | 6     | 7   | 8     | 9   | 10    | 11  | 12    | 13  | 14    |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 23  | 35.5  | 48  | 60.5  | 73  | 85.5  | 98  | 110.5 | 123 | 135.5 | 148 | 160.5 | 173 | 185.5 |
| No. | 15  | 16    | 17  | 18    | 19  | 20    | 21  | 22    | 23  | 24    | 25  | 26    | 27  | 28    |
| L   | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 348 | 360.5 |
| No. | 29  | 30    | 31  | 32    | 33  | 34    | 35  | 36    | 37  | 38    | 39  | 40    |     |       |
| L   | 373 | 385.5 | 398 | 410.5 | 423 | 435.5 | 448 | 460.5 | 473 | 485.5 | 498 | 510.5 |     |       |

### DIN rail mounting adapter LEC-1-D0 (with 2 mounting screws)

This should be used when the DIN rail mounting adapter is mounted onto a screw mounting type controller afterward.

## Wiring Example 1

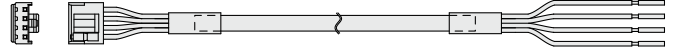
### Power Supply Connector: CN1

- \* When you connect a CN1 power supply connector, use the power supply cable (LEC-CK1-1).
- \* The power supply cable (LEC-CK1-1) is an accessory.

### CN1 Power Supply Connector Terminal for LECP1

| Terminal name | Cable color | Function                 | Details                                                               |
|---------------|-------------|--------------------------|-----------------------------------------------------------------------|
| 0V            | Blue        | Common supply (-)        | The M24V terminal, C24V terminal, and BK RLS terminal are common (-). |
| M24V          | White       | Motor power supply (+)   | Motor power supply (+) supplied to the controller                     |
| C24V          | Brown       | Control power supply (+) | Control power supply (+) supplied to the controller                   |
| BK RLS        | Black       | Lock release (+)         | Input (+) for releasing the lock                                      |

### Power supply cable for LECP1 (LEC-CK1-1)

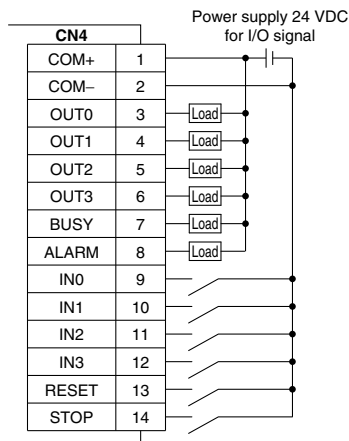


## Wiring Example 2

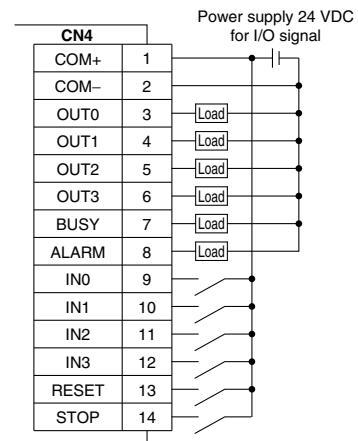
### Parallel I/O Connector: CN4

- \* When you connect a PLC to the CN4 parallel I/O connector, use the I/O cable (LEC-CK4-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

#### ■NPN



#### ■PNP



### Input Signal

| Name       | Details                                                                                                                                                                                    |     |     |     |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|-----|-----|
| COM+       | Connects the power supply 24 V for input/output signal                                                                                                                                     |     |     |     |
| COM-       | Connects the power supply 0 V for input/output signal                                                                                                                                      |     |     |     |
| IN0 to IN3 | <ul style="list-style-type: none"><li>• Instruction to drive (input as a combination of IN0 to IN3)</li><li>• Instruction to return to origin (IN0 to IN3 all ON simultaneously)</li></ul> |     |     |     |
|            | Example - (instruction to drive for position no. 5)                                                                                                                                        |     |     |     |
|            | IN3                                                                                                                                                                                        | IN2 | IN1 | IN0 |
|            | OFF                                                                                                                                                                                        | ON  | OFF | ON  |
| RESET      | Alarm reset and operation interruption<br>During operation: deceleration stop from position at which signal is input (servo ON maintained)<br>While alarm is generated: alarm reset        |     |     |     |
| STOP       | Instruction to stop (after max. deceleration stop, servo OFF)                                                                                                                              |     |     |     |

### Output Signal

| Name         | Details                                                                                                                                                                |
|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| OUT0 to OUT3 | Turns ON when the positioning or pushing is completed.<br>(Output is instructed in the combination of OUT0 to 3.)<br>Example - (operation complete for position no. 3) |
| BUSY         | Outputs when the actuator is moving                                                                                                                                    |
| *ALARM*1     | OFF when alarm is generated or servo OFF                                                                                                                               |

\*1 Negative-logic (N.C.) circuit signal

### Input Signal [IN0 - IN3] Position Number Chart

○: OFF ●: ON

| Position number  | IN3 | IN2 | IN1 | IN0 |
|------------------|-----|-----|-----|-----|
| 1                | ○   | ○   | ○   | ●   |
| 2                | ○   | ○   | ●   | ○   |
| 3                | ○   | ○   | ●   | ●   |
| 4                | ○   | ●   | ○   | ○   |
| 5                | ○   | ●   | ○   | ●   |
| 6                | ○   | ●   | ●   | ○   |
| 7                | ○   | ●   | ●   | ●   |
| 8                | ●   | ○   | ○   | ○   |
| 9                | ●   | ○   | ○   | ●   |
| 10 (A)           | ●   | ○   | ●   | ○   |
| 11 (B)           | ●   | ○   | ●   | ●   |
| 12 (C)           | ●   | ●   | ○   | ○   |
| 13 (D)           | ●   | ●   | ○   | ●   |
| 14 (E)           | ●   | ●   | ●   | ○   |
| Return to origin | ●   | ●   | ●   | ●   |

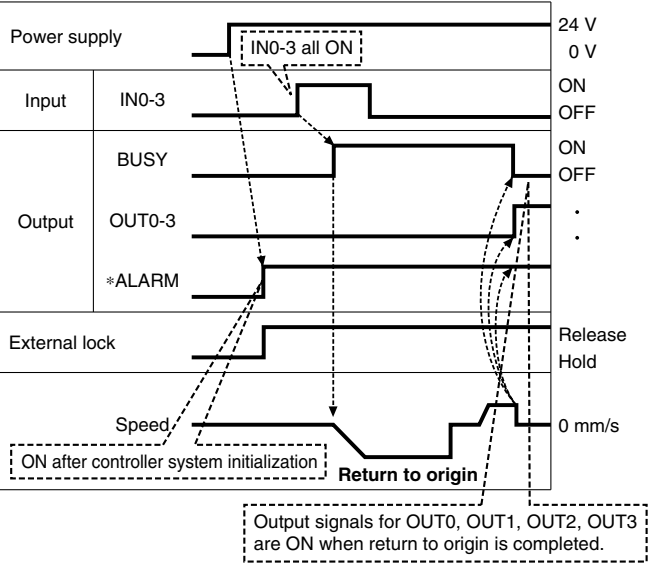
### Output Signal [OUT0 - OUT3] Position Number Chart

○: OFF ●: ON

| Position number  | OUT3 | OUT2 | OUT1 | OUT0 |
|------------------|------|------|------|------|
| 1                | ○    | ○    | ○    | ●    |
| 2                | ○    | ○    | ●    | ○    |
| 3                | ○    | ○    | ●    | ●    |
| 4                | ○    | ●    | ○    | ○    |
| 5                | ○    | ●    | ○    | ●    |
| 6                | ○    | ●    | ●    | ○    |
| 7                | ○    | ●    | ●    | ●    |
| 8                | ●    | ○    | ○    | ○    |
| 9                | ●    | ○    | ○    | ●    |
| 10 (A)           | ●    | ○    | ●    | ○    |
| 11 (B)           | ●    | ○    | ●    | ●    |
| 12 (C)           | ●    | ●    | ○    | ○    |
| 13 (D)           | ●    | ●    | ○    | ●    |
| 14 (E)           | ●    | ●    | ●    | ○    |
| Return to origin | ●    | ●    | ●    | ●    |

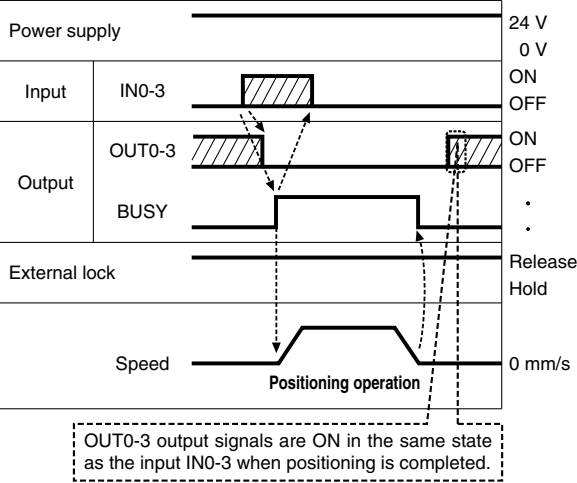
Signal Timing

(1) Return to Origin

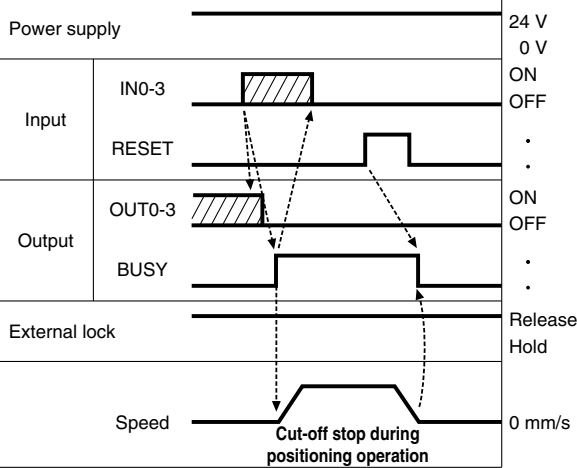


\* \*ALARM" is expressed as a negative-logic circuit.

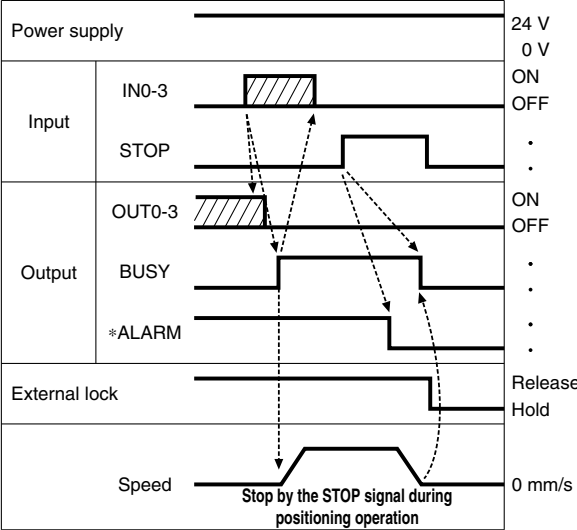
(2) Positioning Operation



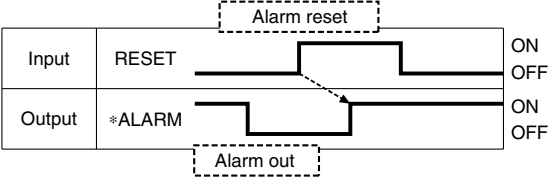
(3) Cut-off Stop (Reset Stop)



(4) Stop by the STOP Signal



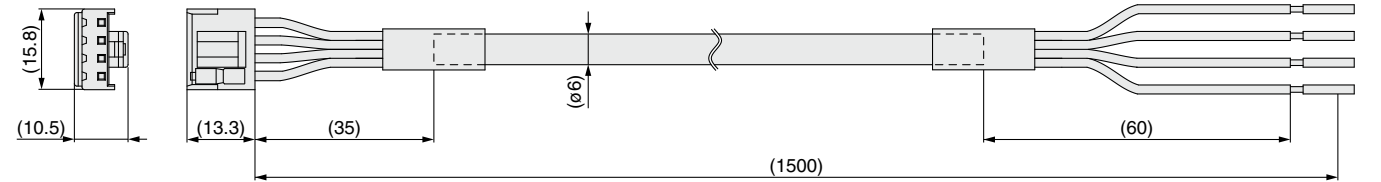
(5) Alarm Reset



**Options**

[Power supply cable]

**LEC-CK1-1**



| Terminal name | Covered color | Function                 |
|---------------|---------------|--------------------------|
| 0V            | Blue          | Common supply (-)        |
| M24V          | White         | Motor power supply (+)   |
| C24V          | Brown         | Control power supply (+) |
| BK RLS        | Black         | Lock release (+)         |

\* Conductor size: AWG20

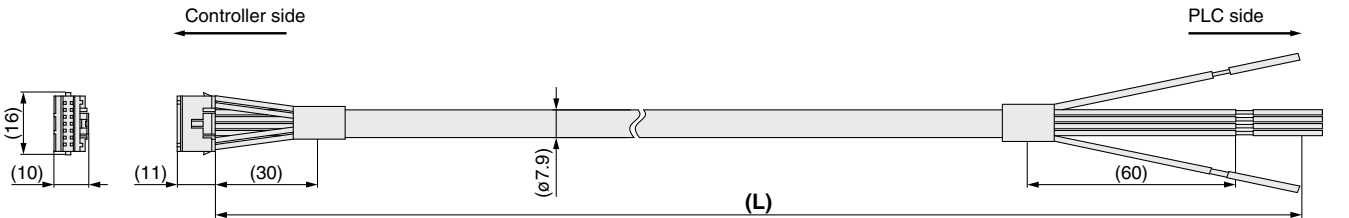
Weight: 90 g

[I/O cable]

**LEC-CK4-**

Cable length (L) [m]

|   |     |
|---|-----|
| 1 | 1.5 |
| 3 | 3   |
| 5 | 5   |



| Terminal no. | Insulation color | Dot mark | Dot color | Function |
|--------------|------------------|----------|-----------|----------|
| 1            | Light brown      | ■        | Black     | COM+     |
| 2            | Light brown      | ■        | Red       | COM-     |
| 3            | Yellow           | ■        | Black     | OUT0     |
| 4            | Yellow           | ■        | Red       | OUT1     |
| 5            | Light green      | ■        | Black     | OUT2     |
| 6            | Light green      | ■        | Red       | OUT3     |
| 7            | Gray             | ■        | Black     | BUSY     |
| 8            | Gray             | ■        | Red       | ALARM    |
| 9            | White            | ■        | Black     | IN0      |
| 10           | White            | ■        | Red       | IN1      |
| 11           | Light brown      | ■ ■      | Black     | IN2      |
| 12           | Light brown      | ■ ■      | Red       | IN3      |
| 13           | Yellow           | ■ ■      | Black     | RESET    |
| 14           | Yellow           | ■ ■      | Red       | STOP     |

\* Conductor size: AWG26

**Weight**

| Product no. | Weight [g] |
|-------------|------------|
| LEC-CK4-1   | 100        |
| LEC-CK4-3   | 200        |
| LEC-CK4-5   | 330        |

\* Parallel I/O signal is valid in auto mode. While the test function operates at manual mode, only the output is valid.

# Step Motor Driver

## LECPA Series



\* For details, refer to page 307 and onward.

RoHS

### How to Order

#### ⚠ Caution

##### [CE-compliant products]

① EMC compliance was tested by combining the electric actuator LE series and the LECPA series. The EMC depends on the configuration of the customer's control panel and the relationship with other electrical equipment and wiring. Therefore, compliance with the EMC directive cannot be certified for SMC components incorporated into the customer's equipment under actual operating conditions. As a result, it is necessary for the customer to verify compliance with the EMC directive for the machinery and equipment as a whole.

② For the LECPA series (step motor driver), EMC compliance was tested by installing a noise filter set (LEC-NFA).

Refer to page 240 for the noise filter set. Refer to the LECPA Operation Manual for installation.

##### [UL-compliant products]

When compliance with UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.

## LECP AN 1 - LEY16B-100

#### Driver type

|    |                        |
|----|------------------------|
| AN | Pulse input type (NPN) |
| AP | Pulse input type (PNP) |

#### I/O cable length [m]

|     |      |
|-----|------|
| Nil | None |
| 1   | 1.5  |
| 3   | 3*1  |
| 5   | 5*1  |

\*1 Pulse input usable only with differential. Only 1.5 m cables usable with open collector.

#### Driver mounting

|     |                |
|-----|----------------|
| Nil | Screw mounting |
| D*1 | DIN rail       |

\*1 The DIN rail is not included. It must be ordered separately.

#### Actuator part number

Without cable specifications and actuator options  
Example: Enter "LEY16B-100"  
for the LEY16B-100B-R16N1.

BC Blank controller\*1

\*1 Requires dedicated software (LEC-BCW)

- \* When controller equipped type is selected when ordering the LE series, you do not need to order this driver.
- \* When pulse signals are open collector, order the current limiting resistor (LEC-PA-R-□) separately.

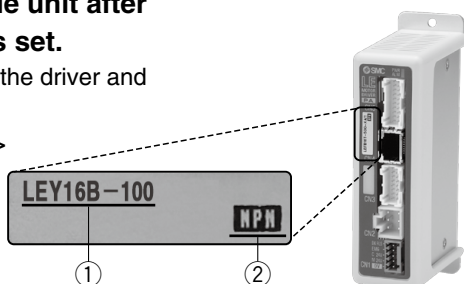
### The driver is sold as single unit after the compatible actuator is set.

Confirm that the combination of the driver and actuator is correct.

#### <Check the following before use.>

① Check the actuator label for the model number. This number should match that of the driver.

② Check that the Parallel I/O configuration matches (NPN or PNP).



\* Refer to the operation manual for using the products. Please download it via our website:  
<https://www.smcworld.com>

### Precautions for blank controllers (LECPA□□-BC)

A blank controller is a controller to which the customer can write the data of the actuator it is to be combined and used with. Use the dedicated software (LEC-BCW) for data writing.

- Please download the dedicated software (LEC-BCW) via our website.
- Order the communication cable for controller setting (LEC-W2A-C) separately to use this software.

SMC website:

<https://www.smcworld.com>

## Specifications

| Item                             | LECPA                                                                                                                                                                          |
|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Compatible motor                 | Step motor (Servo/24 VDC)                                                                                                                                                      |
| Power supply*1                   | Power voltage: 24 VDC $\pm 10\%$ *2<br>[Including motor drive power, control power, stop, lock release]                                                                        |
| Parallel input                   | 5 inputs (Except photo-coupler isolation, pulse input terminal, COM terminal)                                                                                                  |
| Parallel output                  | 9 outputs (Photo-coupler isolation)                                                                                                                                            |
| Pulse signal input               | Max. frequency: 60 kpps (Open collector), 200 kpps (Differential)<br>Input method: 1 pulse mode (Pulse input in direction), 2 pulse mode (Pulse input in differing directions) |
| Compatible encoder               | Incremental A/B phase (Encoder resolution: 800 pulse/rotation)                                                                                                                 |
| Serial communication             | RS485 (Modbus protocol compliant)                                                                                                                                              |
| Memory                           | EEPROM                                                                                                                                                                         |
| LED indicator                    | LED (Green/Red) one of each                                                                                                                                                    |
| Lock control                     | Forced-lock release terminal*3                                                                                                                                                 |
| Cable length [m]                 | I/O cable: 1.5 or less (Open collector), 5 or less (Differential), Actuator cable: 20 or less                                                                                  |
| Cooling system                   | Natural air cooling                                                                                                                                                            |
| Operating temperature range [°C] | 0 to 40 (No freezing)                                                                                                                                                          |
| Operating humidity range [%RH]   | 90 or less (No condensation)                                                                                                                                                   |
| Storage temperature range [°C]   | -10 to 60 (No freezing)                                                                                                                                                        |
| Storage humidity range [%RH]     | 90 or less (No condensation)                                                                                                                                                   |
| Insulation resistance [MΩ]       | Between the housing and SG terminal: 50 (500 VDC)                                                                                                                              |
| Weight [g]                       | 120 (Screw mounting), 140 (DIN rail mounting)                                                                                                                                  |

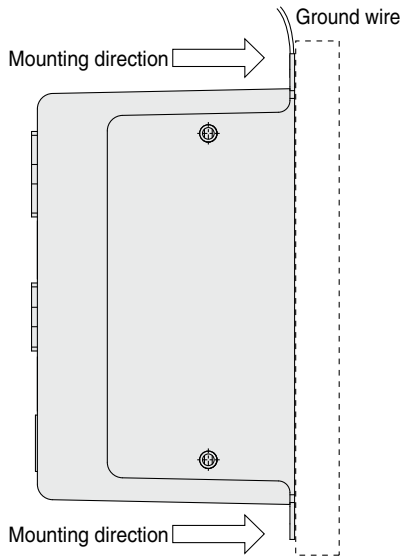
\*1 Do not use the power supply of "inrush current prevention type" for the driver power supply. When compliance with UL is required, the electric actuator and driver should be used with a UL1310 Class 2 power supply.

\*2 The power consumption changes depending on the actuator model. Refer to the specifications of actuator for more details.

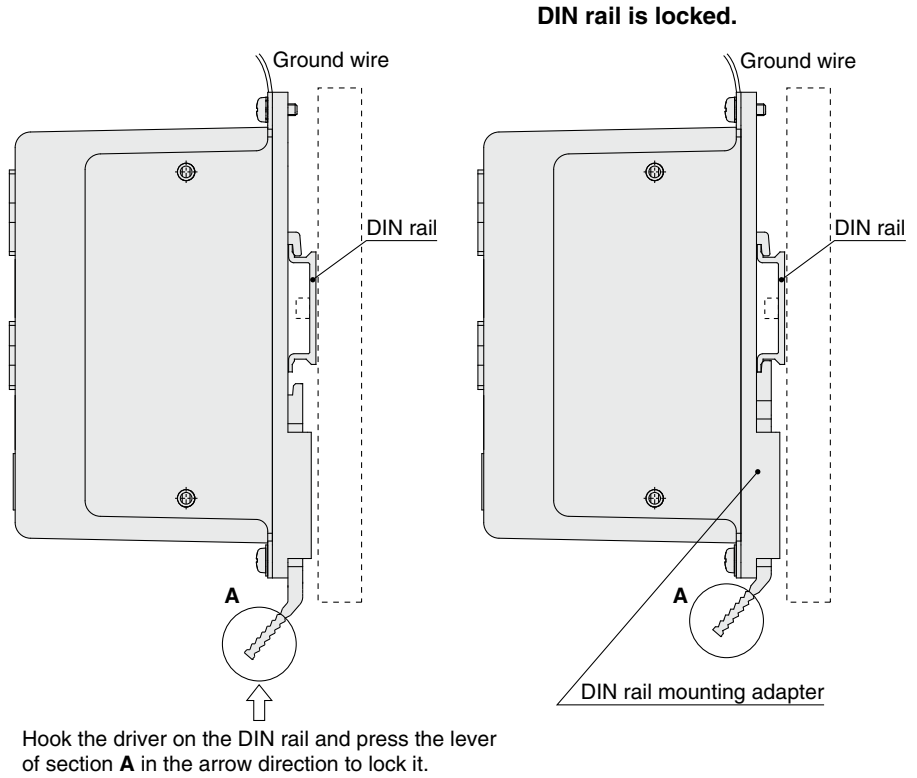
\*3 Applicable to non-magnetizing locks

## How to Mount

### a) Screw mounting (LECPA□□-□) (Installation with two M4 screws)



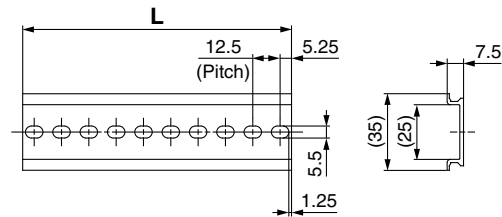
### b) DIN rail mounting (LECPA□□D-□) (Installation with the DIN rail)



\* The space between the drivers should be 10 mm or more.

## DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table below.  
Refer to the dimension drawings on page 237 for the mounting dimensions.



### L Dimensions [mm]

| No. | 1   | 2     | 3   | 4     | 5   | 6     | 7   | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 23  | 35.5  | 48  | 60.5  | 73  | 85.5  | 98  | 110.5 | 123 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 |
| No. | 21  | 22    | 23  | 24    | 25  | 26    | 27  | 28    | 29  | 30    | 31  | 32    | 33  | 34    | 35  | 36    | 37  | 38    | 39  | 40    |
| L   | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 348 | 360.5 | 373 | 385.5 | 398 | 410.5 | 423 | 435.5 | 448 | 460.5 | 473 | 485.5 | 498 | 510.5 |

## DIN rail mounting adapter LEC-2-D0 (with 2 mounting screws)

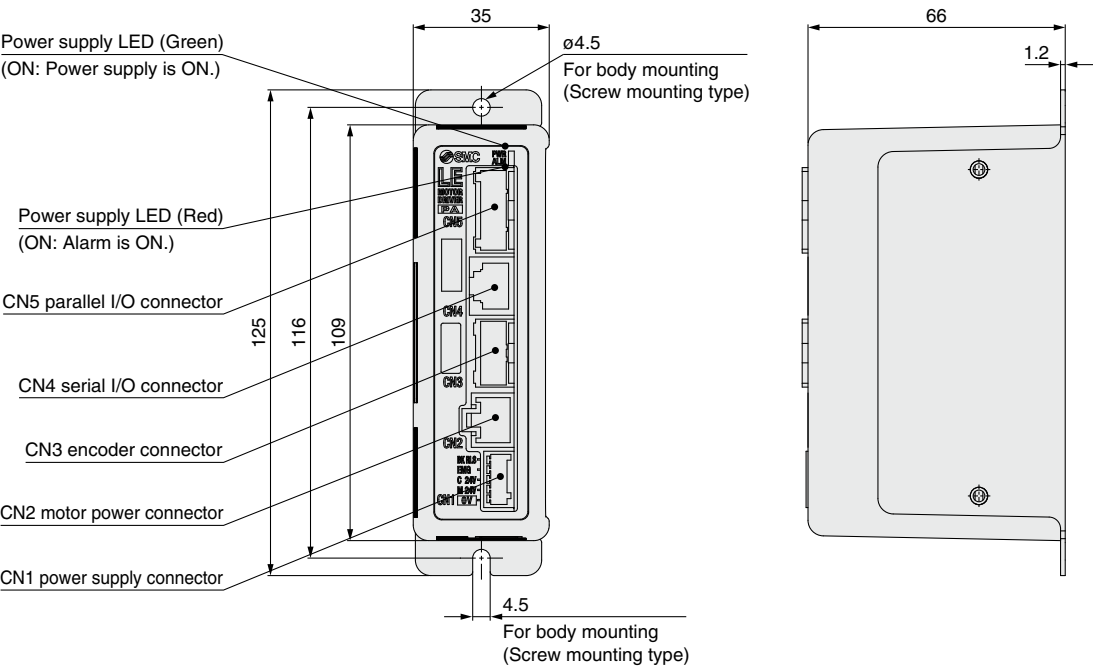
This should be used when the DIN rail mounting adapter is mounted onto a screw mounting type driver afterward.



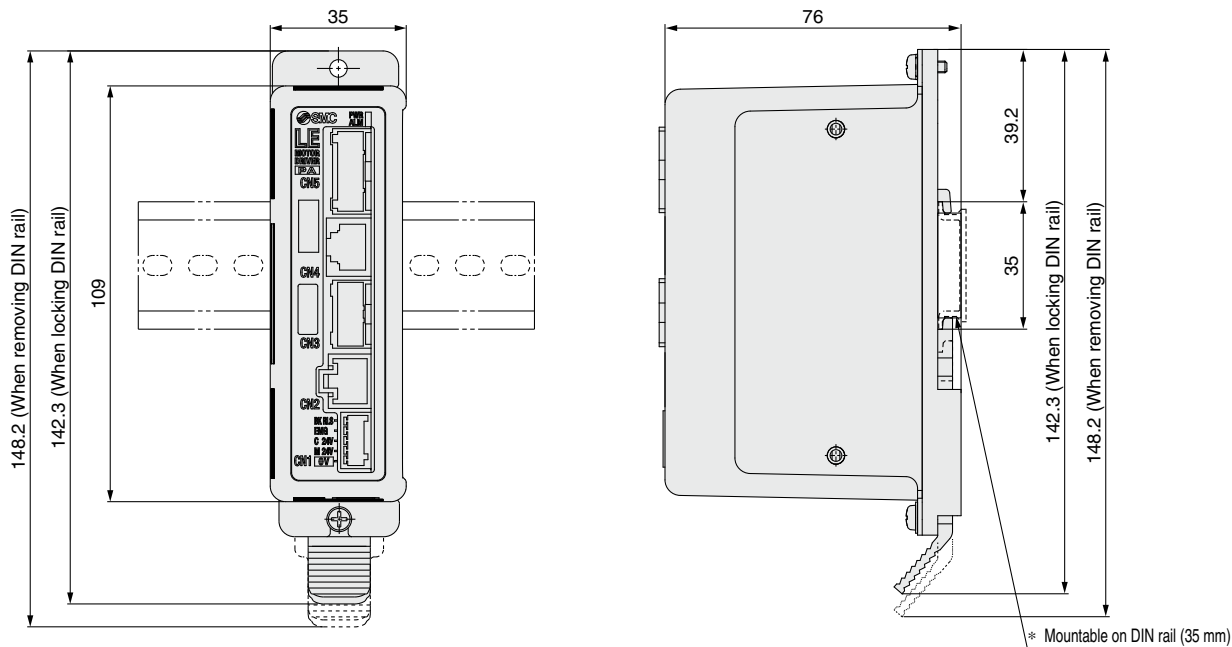
# LECPA Series

## Dimensions

### a) Screw mounting (LECPA□□-□)



### b) DIN rail mounting (LECPA□□D-□)



## Wiring Example 1

### Power Supply Connector: CN1

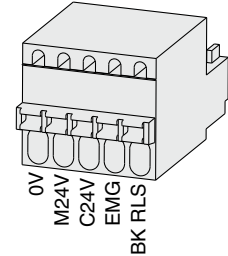
\* The power supply plug is an accessory.  
<Applicable cable size> AWG20 (0.5 mm<sup>2</sup>), cover diameter 2.0 mm or less

### CN1 Power Supply Connector Terminal for LECPA (PHOENIX CONTACT FK-MC0.5/5-ST-2.5)

| Terminal name | Function                 | Details                                                                             |
|---------------|--------------------------|-------------------------------------------------------------------------------------|
| 0V            | Common supply (-)        | The M24V terminal, C24V terminal, EMG terminal, and BK RLS terminal are common (-). |
| M24V          | Motor power supply (+)   | Motor power supply (+) supplied to the driver                                       |
| C24V          | Control power supply (+) | Control power supply (+) supplied to the driver                                     |
| EMG           | Stop (+)                 | Input (+) for releasing the stop                                                    |
| BK RLS        | Lock release (+)         | Input (+) for releasing the lock                                                    |

### Power supply plug for LECPA: LEC-D-1-1

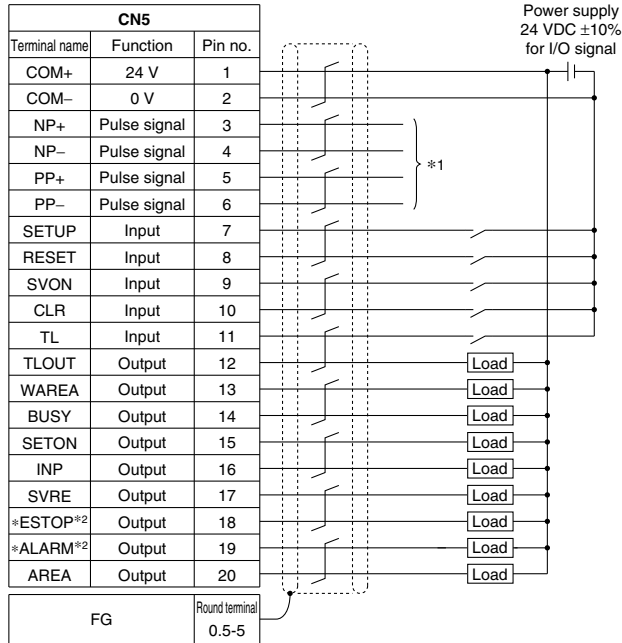
\* Accessory



## Wiring Example 2

**Parallel I/O Connector: CN5** \* When you connect a PLC to the CN5 parallel I/O connector, use the I/O cable (LEC-CL5-□).  
\* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### LECPAN□□-□ (NPN)

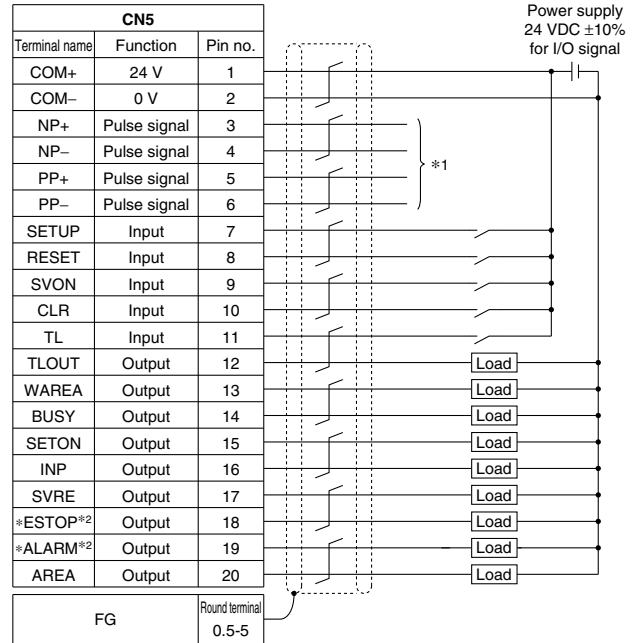


\*1 For pulse signal wiring method, refer to the "Pulse Signal Wiring Details."  
\*2 Output when the power supply of the driver is ON. (N.C.)

### Input Signal

| Name  | Details                                                |
|-------|--------------------------------------------------------|
| COM+  | Connects the power supply 24 V for input/output signal |
| COM-  | Connects the power supply 0 V for input/output signal  |
| SETUP | Instruction to return to origin                        |
| RESET | Alarm reset                                            |
| SVON  | Servo ON instruction                                   |
| CLR   | Deviation reset                                        |
| TL    | Instruction to pushing operation                       |

### LECPAP□□-□ (PNP)



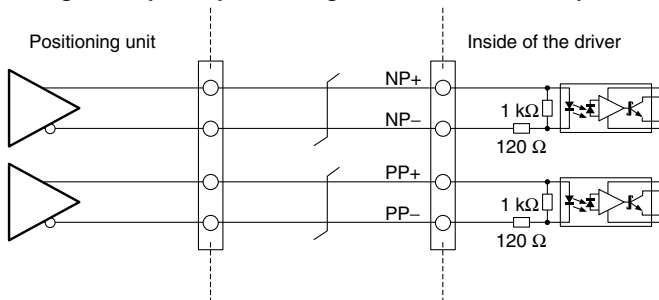
### Output Signal

| Name                 | Details                                      |
|----------------------|----------------------------------------------|
| BUSY                 | Outputs when the actuator is moving          |
| SETON                | Outputs when returning to origin             |
| INP                  | Outputs when target position is reached      |
| SVRE                 | Outputs when servo is ON                     |
| *ESTOP* <sup>3</sup> | OFF when EMG stop is instructed              |
| *ALARM* <sup>3</sup> | OFF when alarm is generated                  |
| AREA                 | Outputs within the area output setting range |
| WAREA                | Outputs within W-AREA output setting range   |
| TLOUT                | Outputs during pushing operation             |

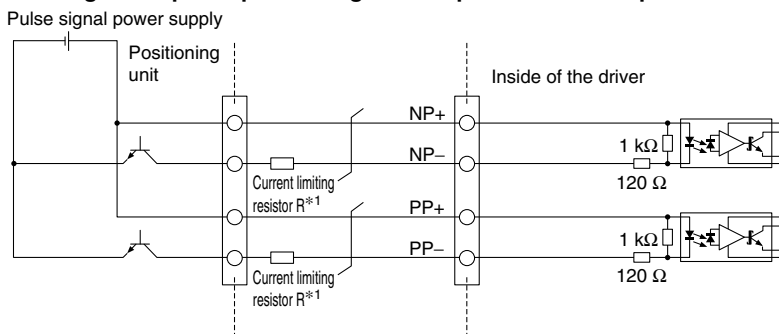
\*3 Negative-logic (N.C.) circuit signal

## Pulse Signal Wiring Details

### •Pulse signal output of positioning unit is differential output



### •Pulse signal output of positioning unit is open collector output

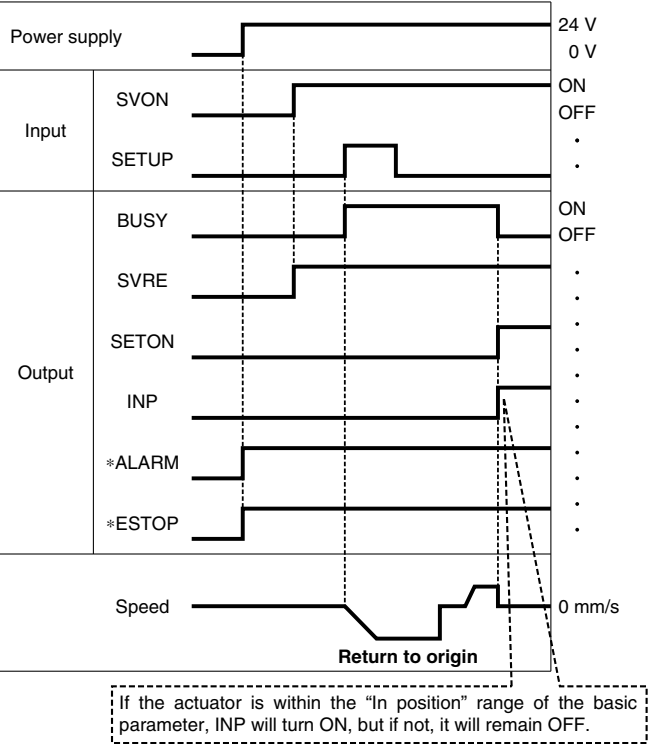


\*1 Connect the current limiting resistor R in series to correspond to the pulse signal voltage.

| Pulse signal power supply voltage | Current limiting resistor R specifications | Current limiting resistor part no. |
|-----------------------------------|--------------------------------------------|------------------------------------|
| 24 VDC ±10%                       | 3.3 kΩ ±5%<br>(0.5 W or more)              | LEC-PA-R-332                       |
| 5 VDC ±5%                         | 390 Ω ±5%<br>(0.1 W or more)               | LEC-PA-R-391                       |

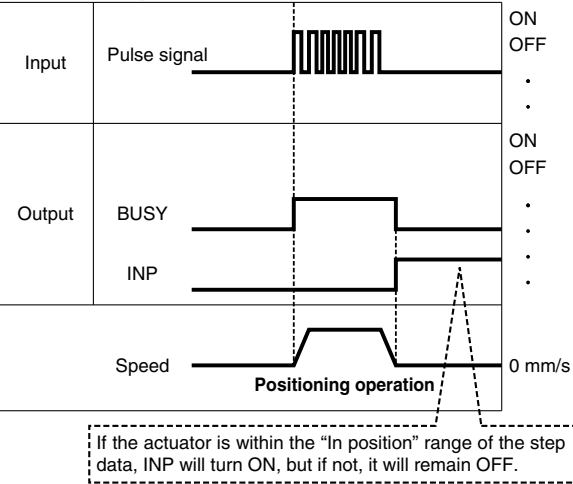
Signal Timing

Return to Origin

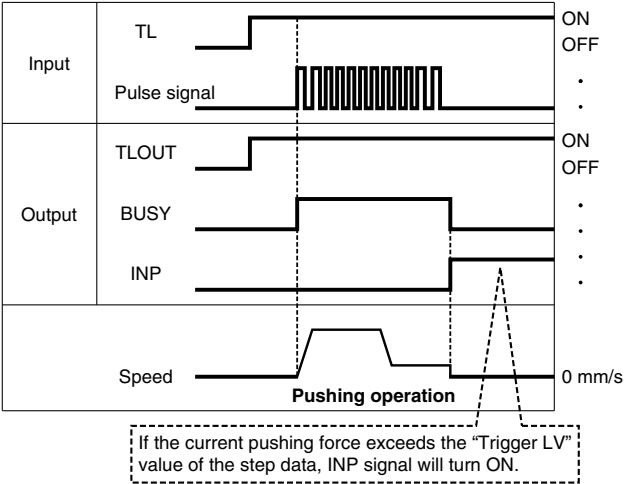


\* \*ALARM" and \*ESTOP" are expressed as negative-logic circuits.

Positioning Operation

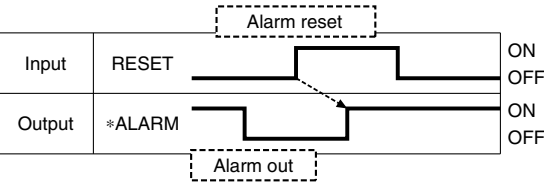


Pushing Operation



\* If pushing operation is stopped when there is no pulse deviation, the moving part of the actuator may pulsate.

Alarm Reset



\* \*ALARM" is expressed as a negative-logic circuit.

## Options

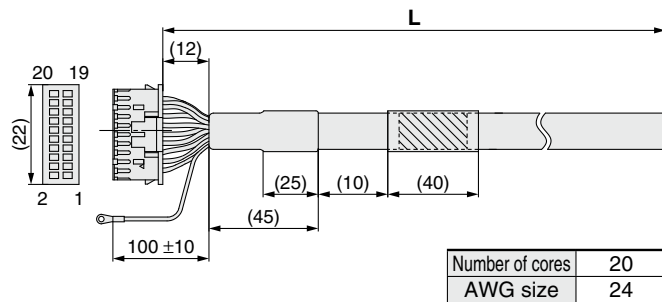
### [I/O cable]

## LEC-C L5-1

| I/O cable type |           |
|----------------|-----------|
| <b>L5</b>      | For LECPA |

| I/O cable length (L) |       |
|----------------------|-------|
| <b>1</b>             | 1.5 m |
| <b>3</b>             | 3 m*1 |
| <b>5</b>             | 5 m*1 |

\*1 Pulse input usable only with differential. Only 1.5 m cables usable with open collector



| Pin no. | Insulation color | Dot mark | Dot color |
|---------|------------------|----------|-----------|
| 1       | Light brown      | ■        | Black     |
| 2       | Light brown      | ■        | Red       |
| 3       | Yellow           | ■        | Black     |
| 4       | Yellow           | ■        | Red       |
| 5       | Light green      | ■        | Black     |
| 6       | Light green      | ■        | Red       |
| 7       | Gray             | ■        | Black     |
| 8       | Gray             | ■        | Red       |
| 9       | White            | ■        | Black     |
| 10      | White            | ■        | Red       |
| 11      | Light brown      | ■        | Black     |

| Pin no. | Insulation color | Dot mark | Dot color |
|---------|------------------|----------|-----------|
| 12      | Light brown      | ■        | Red       |
| 13      | Yellow           | ■        | Black     |
| 14      | Yellow           | ■        | Red       |
| 15      | Light green      | ■        | Black     |
| 16      | Light green      | ■        | Red       |
| 17      | Gray             | ■        | Black     |
| 18      | Gray             | ■        | Red       |
| 19      | White            | ■        | Black     |
| 20      | White            | ■        | Red       |

|                         |       |
|-------------------------|-------|
| Round terminal<br>0.5-5 | Green |
|-------------------------|-------|

### Weight

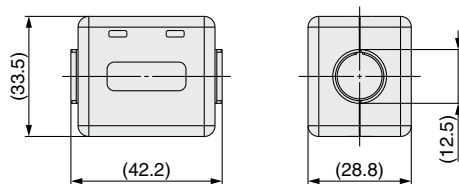
| Product no.      | Weight [g] |
|------------------|------------|
| <b>LEC-CL5-1</b> | 190        |
| <b>LEC-CL5-3</b> | 370        |
| <b>LEC-CL5-5</b> | 610        |

### [Noise filter set]

### Step Motor Driver (Pulse Input Type)

## LEC-NFA

Contents of the set: 2 noise filters  
(Manufactured by WURTH ELEKTRONIK: 74271222)



\* Refer to the LECPA series Operation Manual for installation.

### [Current limiting resistor]

This optional resistor (LEC-PA-R-□) is used when the pulse signal output of the positioning unit is open collector output.

## LEC-PA-R-□

### Current limiting resistor

| Symbol     | Resistance | Pulse signal power supply voltage |
|------------|------------|-----------------------------------|
| <b>332</b> | 3.3 kΩ ±5% | 24 VDC ±10%                       |
| <b>391</b> | 390 Ω ±5%  | 5 VDC ±5%                         |

- \* Select a current limiting resistor that corresponds to the pulse signal power supply voltage.
- \* For the LEC-PA-R-□, two pieces are shipped as a set.
- \* For pulse signal wiring details, refer to page 238.

# Step Motor Controller

**JXCE1/91/P1/D1/L1/M1 Series**



\* For details, refer to page 307 and onward.

## How to Order

**JXC D 1 7 T -**

### Communication protocol

|          |              |
|----------|--------------|
| <b>E</b> | EtherCAT®    |
| <b>9</b> | EtherNet/IP™ |
| <b>P</b> | PROFINET     |
| <b>D</b> | DeviceNet™   |
| <b>L</b> | IO-Link      |
| <b>M</b> | CC-Link      |

### For single axis

### Mounting

|             |                |
|-------------|----------------|
| <b>7</b>    | Screw mounting |
| <b>8</b> *1 | DIN rail       |

\*1 The DIN rail is not included. It must be ordered separately. (Refer to page 245.)

### Option

|            |                                       |
|------------|---------------------------------------|
| <b>Nil</b> | Without option                        |
| <b>S</b>   | With straight type communication plug |
| <b>T</b>   | With T-branch type communication plug |

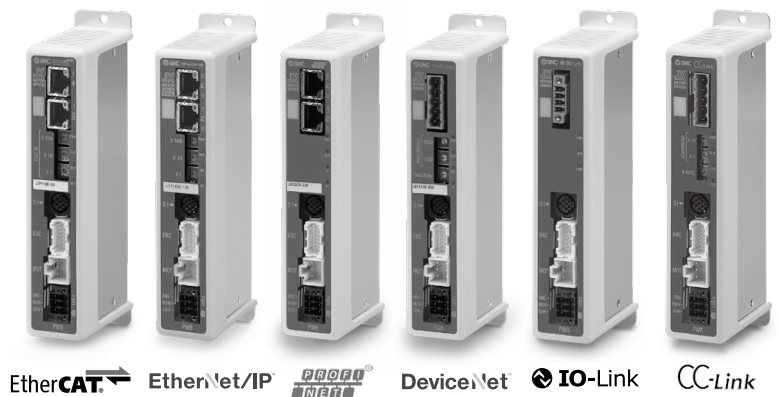
\* Select "Nil" for anything other than JXCD1 and JXCM1.

### Actuator part number

Without cable specifications and actuator options  
Example: Enter "**LEY16B-100**" for the LEY16B-100B-S1□□.

**BC** Blank controller\*1

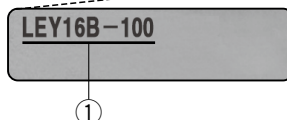
\*1 Requires dedicated software (JXC-BCW)



### The controller is sold as single unit after the compatible actuator is set.

Confirm that the combination of the controller and actuator is correct.

- ① Check the actuator label for the model number. This number should match that of the controller.



\* Refer to the operation manual for using the products. Please download it via our website: <https://www.smcworld.com>

### Precautions for blank controllers (JXC□1□□-BC)

A blank controller is a controller to which the customer can write the data of the actuator it is to be combined and used with. Use the dedicated software (JXC-BCW) for data writing.

- Please download the dedicated software (JXC-BCW) via our website.
- Order the communication cable for controller setting (JXC-W2A-C) and USB cable (LEC-W2-U) separately to use this software.

SMC website: <https://www.smcworld.com>

## Specifications

| Model                            |                      |           | JXCE1                                                     | JXC91                                              | JXCP1                                           | JXCD1                                               | JXCL1                                           | JXCM1                                           |
|----------------------------------|----------------------|-----------|-----------------------------------------------------------|----------------------------------------------------|-------------------------------------------------|-----------------------------------------------------|-------------------------------------------------|-------------------------------------------------|
| Network                          |                      |           | EtherCAT®                                                 | EtherNet/IP™                                       | PROFINET                                        | DeviceNet™                                          | IO-Link                                         | CC-Link                                         |
| Compatible motor                 |                      |           | Step motor (Servo/24 VDC)                                 |                                                    |                                                 |                                                     |                                                 |                                                 |
| Power supply                     |                      |           | Power voltage: 24 VDC ±10%                                |                                                    |                                                 |                                                     |                                                 |                                                 |
| Current consumption (Controller) |                      |           | 200 mA or less                                            | 130 mA or less                                     | 200 mA or less                                  | 100 mA or less                                      | 100 mA or less                                  | 100 mA or less                                  |
| Compatible encoder               |                      |           | Incremental                                               |                                                    |                                                 |                                                     |                                                 |                                                 |
| Communication specifications     | Applicable system    | Protocol  | EtherCAT®*2                                               | EtherNet/IP™*2                                     | PROFINET*2                                      | DeviceNet™                                          | IO-Link                                         | CC-Link                                         |
|                                  |                      | Version*1 | Conformance Test Record V.1.2.6                           | Volume 1 (Edition 3.14)<br>Volume 2 (Edition 1.15) | Specification Version 2.32                      | Volume 1 (Edition 3.14)<br>Volume 3 (Edition 1.13)  | Version 1.1 Port Class A                        | Ver. 1.10                                       |
|                                  | Communication speed  |           | 100 Mbps*2                                                | 10/100 Mbps*2<br>(Automatic negotiation)           | 100 Mbps*2                                      | 125/250/500 kbps                                    | 230.4 kbps (COM3)                               | 156 kbps, 625 kbps, 2.5 Mbps, 5 Mbps, 10 Mbps   |
|                                  | Configuration file*3 |           | ESI file                                                  | EDS file                                           | GSDML file                                      | EDS file                                            | IODD file                                       | CSP+ file                                       |
|                                  | I/O occupation area  |           | Input 20 bytes<br>Output 36 bytes                         | Input 36 bytes<br>Output 36 bytes                  | Input 36 bytes<br>Output 36 bytes               | Input 4, 10, 20 bytes<br>Output 4, 12, 20, 36 bytes | Input 14 bytes<br>Output 22 bytes               | 1 station, 2 stations, 4 stations               |
|                                  | Terminating resistor |           | Not included                                              |                                                    |                                                 |                                                     |                                                 |                                                 |
| Memory                           |                      |           | EEPROM                                                    |                                                    |                                                 |                                                     |                                                 |                                                 |
| LED indicator                    |                      |           | PWR, RUN, ALM, ERR                                        | PWR, ALM, MS, NS                                   | PWR, ALM, SF, BF                                | PWR, ALM, MS, NS                                    | PWR, ALM, COM                                   | PWR, ALM, L ERR, L RUN                          |
| Cable length [m]                 |                      |           | Actuator cable: 20 or less                                |                                                    |                                                 |                                                     |                                                 |                                                 |
| Cooling system                   |                      |           | Natural air cooling                                       |                                                    |                                                 |                                                     |                                                 |                                                 |
| Operating temperature range [°C] |                      |           | 0 to 55 (No freezing)*4                                   |                                                    |                                                 |                                                     |                                                 |                                                 |
| Operating humidity range [%RH]   |                      |           | 90 or less (No condensation)                              |                                                    |                                                 |                                                     |                                                 |                                                 |
| Insulation resistance [MΩ]       |                      |           | Between all external terminals and the case: 50 (500 VDC) |                                                    |                                                 |                                                     |                                                 |                                                 |
| Weight [g]                       |                      |           | 220 (Screw mounting)<br>240 (DIN rail mounting)           | 210 (Screw mounting)<br>230 (DIN rail mounting)    | 220 (Screw mounting)<br>240 (DIN rail mounting) | 210 (Screw mounting)<br>230 (DIN rail mounting)     | 190 (Screw mounting)<br>210 (DIN rail mounting) | 170 (Screw mounting)<br>190 (DIN rail mounting) |

\*1 Please note that versions are subject to change.

\*2 Use a shielded communication cable with CAT5 or higher for the PROFINET, EtherNet/IP™, and EtherCAT®.

\*3 The files can be downloaded from the SMC website.

\*4 The operating temperature range for both controller version 1 products and controller version 2 products is 0 to 40°C. Refer to page 246 for details on identifying controller version symbols.

### ■Trademark

EtherNet/IP™ is a trademark of ODVA.

DeviceNet™ is a trademark of ODVA.

EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

## Example of Operation Command

In addition to the step data input of 64 points max. in each communication protocol, the changing of each parameter can be performed in real time via numerical data defined operation.

\* Numerical values other than "Moving force," "Area 1," and "Area 2" can be used to perform operation under numerical instructions from JXCL1.

### <Application example> Movement between 2 points

| No. | Movement mode | Speed | Position | Acceleration | Deceleration | Pushing force | Trigger LV | Pushing speed | Moving force | Area 1 | Area 2 | In position |
|-----|---------------|-------|----------|--------------|--------------|---------------|------------|---------------|--------------|--------|--------|-------------|
| 0   | 1: Absolute   | 100   | 10       | 3000         | 3000         | 0             | 0          | 0             | 100          | 0      | 0      | 0.50        |
| 1   | 1: Absolute   | 100   | 100      | 3000         | 3000         | 0             | 0          | 0             | 100          | 0      | 0      | 0.50        |

### <Step no. defined operation>

Sequence 1: Servo ON instruction

Sequence 2: Instruction to return to origin

Sequence 3: Specify step data No. 0 to input the DRIVE signal.

Sequence 4: Specify step data No. 1 after the DRIVE signal has been temporarily turned OFF to input the DRIVE signal.

### <Numerical data defined operation>

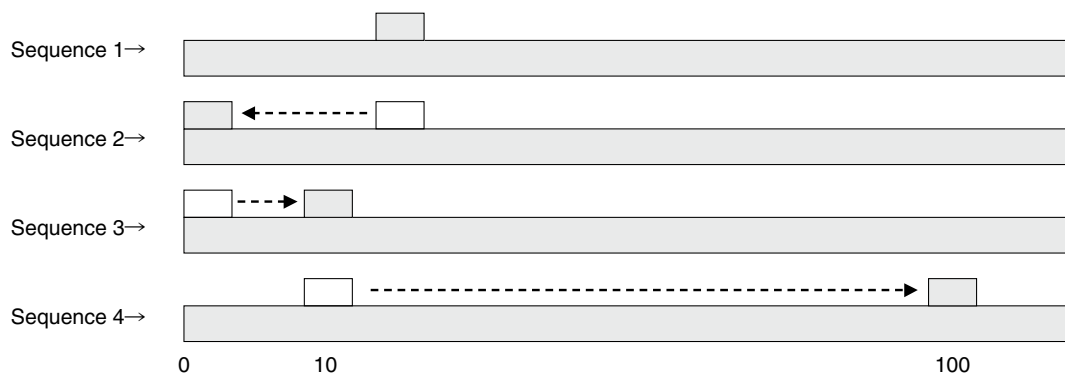
Sequence 1: Servo ON instruction

Sequence 2: Instruction to return to origin

Sequence 3: Specify step data No. 0 and turn ON the input instruction flag (position). Input 10 in the target position. Subsequently the start flag turns ON.

Sequence 4: Turn ON step data No. 0 and the input instruction flag (position) to change the target position to 100 while the start flag is ON.

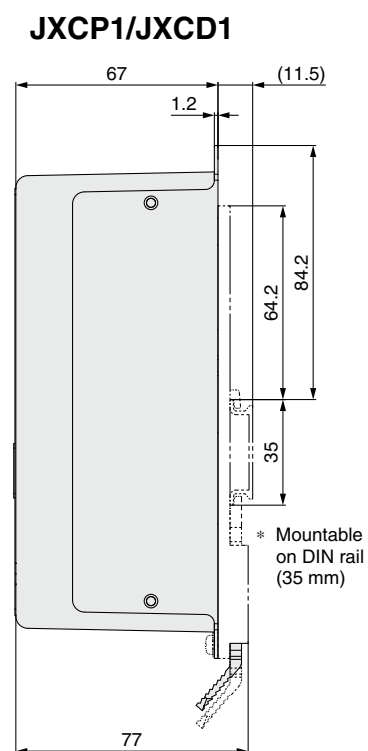
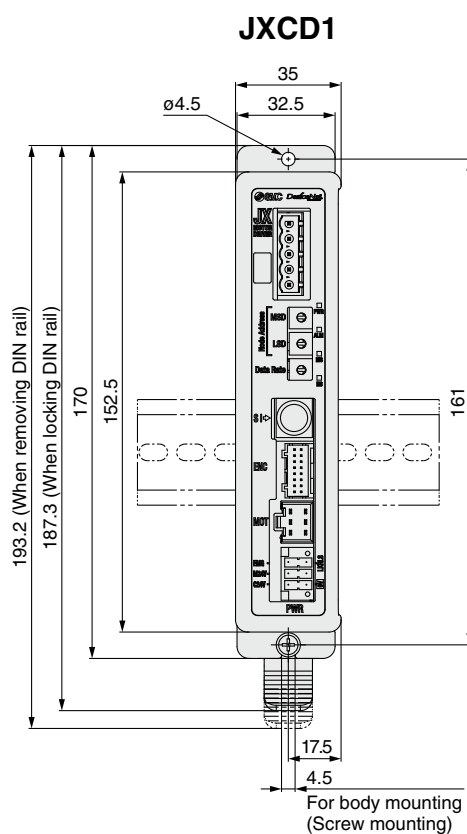
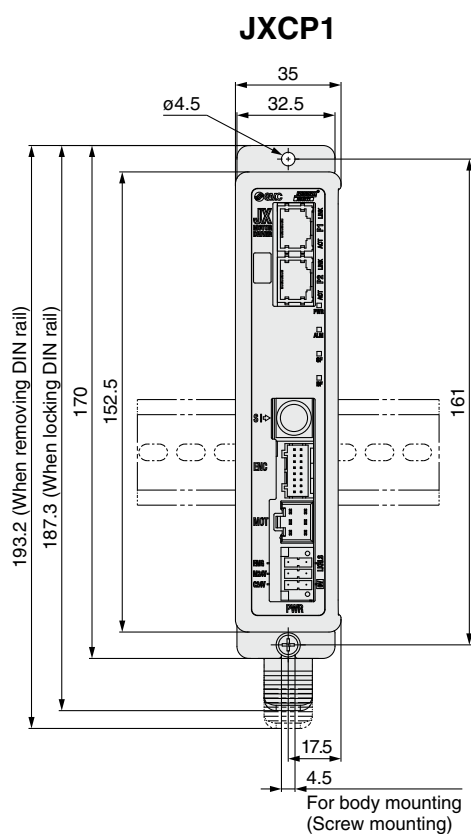
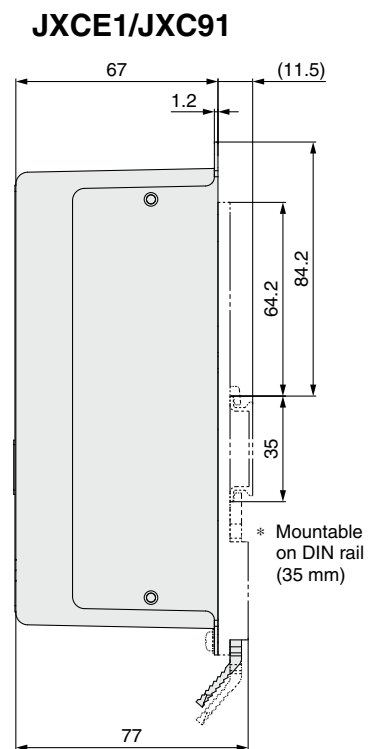
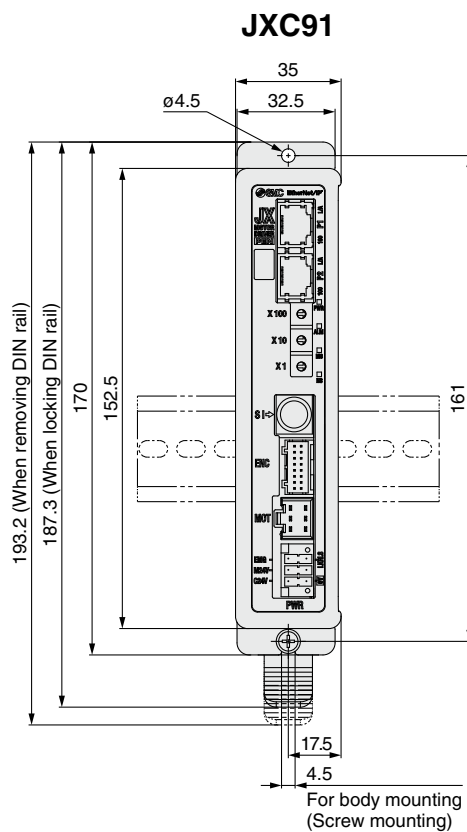
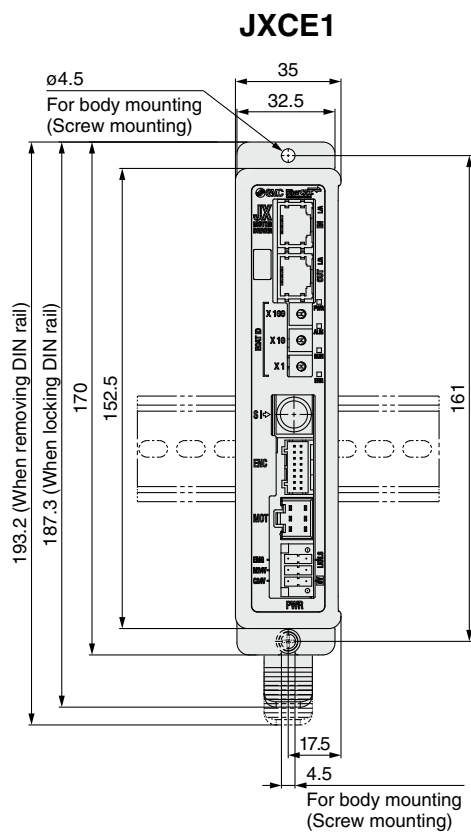
The same operation can be performed with any operation command.





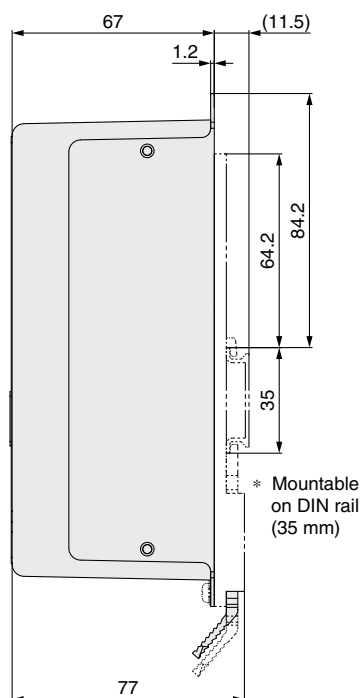
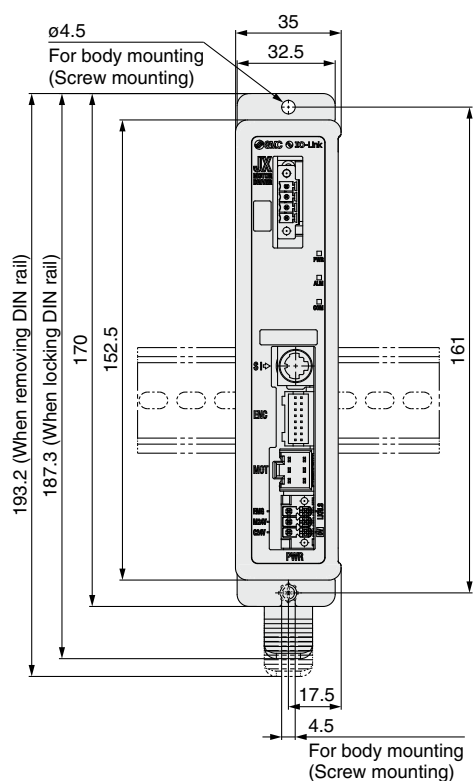
# JXCE1/91/P1/D1/L1/M1 Series

## Dimensions

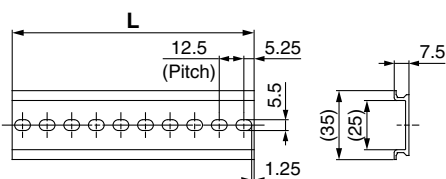
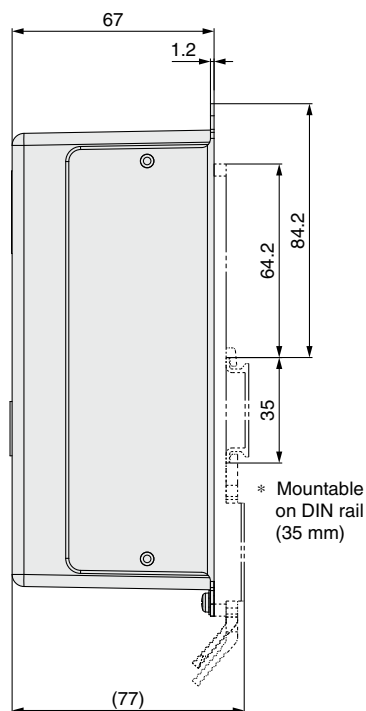
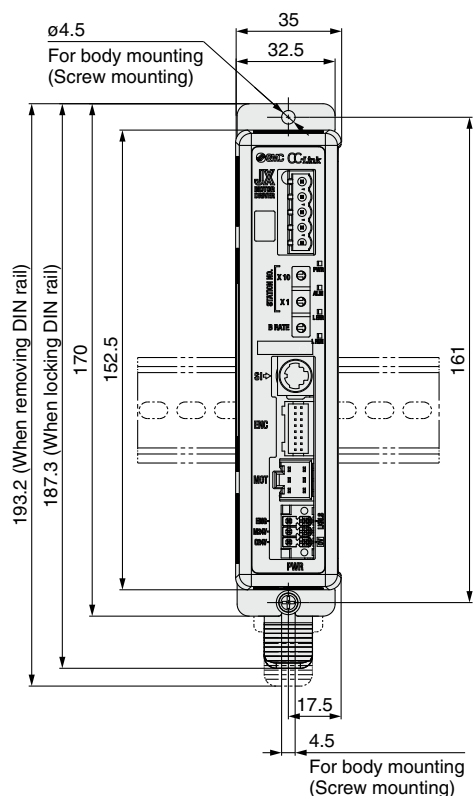


## Dimensions

# JXCL1



# JXCM1



### L Dimensions [mm]

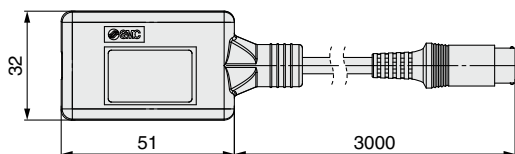
|     |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |     |       |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| No. | 1   | 2     | 3   | 4     | 5   | 6     | 7   | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    |
| L   | 23  | 35.5  | 48  | 60.5  | 73  | 85.5  | 98  | 110.5 | 123 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 |
| No. | 21  | 22    | 23  | 24    | 25  | 26    | 27  | 28    | 29  | 30    | 31  | 32    | 33  | 34    | 35  | 36    | 37  | 38    | 39  | 40    |
| L   | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 348 | 360.5 | 373 | 385.5 | 398 | 410.5 | 423 | 435.5 | 448 | 460.5 | 473 | 485.5 | 498 | 510.5 |

# JXCE1/91/P1/D1/L1/M1 Series

## Options

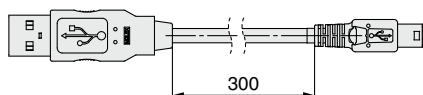
### ■ Communication cable for controller setting

#### ① Communication cable JXC-W2A-C



\* It can be connected to the controller directly.

#### ② USB cable LEC-W2-U



#### ③ Controller setting kit JXC-W2A

A set which includes a communication cable (JXC-W2A-C) and a USB cable (LEC-W2-U)

#### <Controller setting software/USB driver>

- Controller setting software
- USB driver (For JXC-W2A-C)

Download from SMC's website: <https://www.smcworld.com>

#### Hardware Requirements

|                         |                                    |
|-------------------------|------------------------------------|
| OS                      | Windows®7, Windows®8.1, Windows®10 |
| Communication interface | USB 1.1 or USB 2.0 ports           |
| Display                 | 1024 x 768 or more                 |

\* Windows®7, Windows®8.1 and Windows®10 are registered trademarks of Microsoft Corporation in the United States.

### ■ DIN rail mounting adapter LEC-3-D0

\* With 2 mounting screws

This should be used when the DIN rail mounting adapter is mounted onto a screw mounting type controller afterward.

### ■ DIN rail AXT100-DR-□

\* For □, enter a number from the No. line in the table on page 244. Refer to the dimension drawings on pages 243 and 244 for the mounting dimensions.

### ■ Teaching box

**LEC-T1-3JG□**

Teaching box

Cable length [m]

|   |   |
|---|---|
| 3 | 3 |
|---|---|

Initial language

|   |          |
|---|----------|
| J | Japanese |
| E | English  |

\* The displayed language can be changed to English or Japanese.

Enable switch (Option)

Stop switch

Enable switch

|     |                             |
|-----|-----------------------------|
| Nil | None                        |
| S   | Equipped with enable switch |

\* Interlock switch for jog and test function

Stop switch

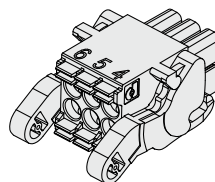
|   |                           |
|---|---------------------------|
| G | Equipped with stop switch |
|---|---------------------------|

#### Specifications

| Item                             | Description                         |
|----------------------------------|-------------------------------------|
| Switch                           | Stop switch, Enable switch (Option) |
| Cable length [m]                 | 3                                   |
| Enclosure                        | IP64 (Except connector)             |
| Operating temperature range [°C] | 5 to 50                             |
| Operating humidity range [%RH]   | 90 or less (No condensation)        |
| Weight [g]                       | 350 (Except cable)                  |

### ■ Power supply plug JXC-CPW

\* The power supply plug is an accessory.



|   |   |   |
|---|---|---|
| 6 | 5 | 4 |
| 3 | 2 | 1 |

- |        |          |
|--------|----------|
| ① C24V | ④ 0V     |
| ② M24V | ⑤ N.C.   |
| ③ EMG  | ⑥ LK RLS |

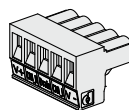
#### Power supply plug

| Terminal name | Function                 | Details                                                                             |
|---------------|--------------------------|-------------------------------------------------------------------------------------|
| 0V            | Common supply (-)        | The M24V terminal, C24V terminal, EMG terminal, and LK RLS terminal are common (-). |
| M24V          | Motor power supply (+)   | Motor power supply (+) of the controller                                            |
| C24V          | Control power supply (+) | Control power supply (+) of the controller                                          |
| EMG           | Stop (+)                 | Connection terminal of the external stop circuit                                    |
| LK RLS        | Lock release (+)         | Connection terminal of the lock release switch                                      |

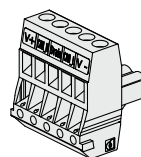
### ■ Communication plug connector

#### For DeviceNet™

##### Straight type JXC-CD-S



##### T-branch type JXC-CD-T

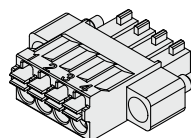


##### Communication plug connector for DeviceNet™

| Terminal name | Details                         |
|---------------|---------------------------------|
| V+            | Power supply (+) for DeviceNet™ |
| CAN_H         | Communication wire (High)       |
| Drain         | Grounding wire/Shielded wire    |
| CAN_L         | Communication wire (Low)        |
| V-            | Power supply (-) for DeviceNet™ |

#### For IO-Link

##### Straight type JXC-CL-S



##### Communication plug connector for IO-Link

| Terminal no. | Terminal name | Details        |
|--------------|---------------|----------------|
| 1            | L+            | +24 V          |
| 2            | NC            | N/A            |
| 3            | L-            | 0 V            |
| 4            | C/Q           | IO-Link signal |

#### For CC-Link

##### Straight type LEC-CMJ-S



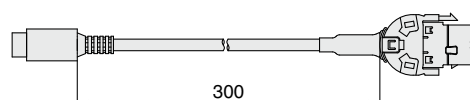
##### T-branch type LEC-CMJ-T



##### Communication plug connector for CC-Link

| Terminal name | Details                      |
|---------------|------------------------------|
| DA            | CC-Link communication line A |
| DB            | CC-Link communication line B |
| DG            | CC-Link ground line          |
| SLD           | CC-Link shield               |
| FG            | Frame ground                 |

### ■ Conversion cable P5062-5 (Cable length: 300 mm)



\* To connect the teaching box (LEC-T1-3□G□) or controller setting kit (LEC-W2□) to the controller, a conversion cable is required.



# JXC51/61/E1/91/P1/D1/L1/M1 Series

## Precautions Relating to Differences in Controller Versions

As the controller version of the JXC series differs, the internal parameters are not compatible.

- If using the JXC□1□-BC or JXC□1□-BC-E, please use the latest version of the JXC-BCW (parameter writing tool).
- There are currently 3 versions available: version 1 products (V1.□ or S1.□), version 2 products (V2.□ or S2.□), and version 3 products (V3.□ or S3.□). Keep in mind that in order to write a backup file (.bkp) to another controller with the JXC-BCW, it needs to be the same version as the controller that created the file. (For example, a backup file created by a version 1 product can only be written to another version 1 product, and so on.) A backup file for the electric actuator with battery-less absolute encoder can only be written between version 3.4 or higher product (the backup file of version 2 or earlier products cannot be written).

### Identifying Version Symbols

#### JXC□1 Series Version V3.□ or S3.□ Products



XR V3.0

##### Applicable models

JXC91□ Series

XR S3.0 T1.0

##### Applicable models

JXC51/61□ Series

JXCE1□ Series

JXCP1□ Series

JXCD1□ Series

JXCL1□ Series

JXCM1□ Series

#### JXC□1 Series Version V2.□ or S2.□ Products

WP V2.1

##### Applicable models

JXC91□ Series

WP S2.2 T1.1

##### Applicable models

JXCE1□ Series

JXCP1□ Series

JXCD1□ Series

JXCL1□ Series

#### JXC□1 Series Version V1.□ or S1.□ Products

XR V1.0

##### Applicable models

JXC91□ Series

XR S1.0 T1.0

##### Applicable models

JXCE1□ Series

JXCP1□ Series

JXCD1□ Series

JXCL1□ Series

#### ■ Trademark

EtherNet/IP™ is a trademark of ODVA.

DeviceNet™ is a trademark of ODVA.

EtherCAT® is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany.

|                                                |                |             |         |          |        |          |       |       |       |       |                              |       |                              |
|------------------------------------------------|----------------|-------------|---------|----------|--------|----------|-------|-------|-------|-------|------------------------------|-------|------------------------------|
| Model Selection                                | LEY            | LEYG        | LEY     | LEYG     | LEY-X7 | JXC51/61 | LECA6 | LEC-G | LECP1 | JXC□  | LECS□                        | LECY□ | Specific Product Precautions |
| Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) | AC Servo Motor | Environment | 25A-LEY | JXC51/61 | LECA6  | LEC-G    | LECP1 | JXC□  | LECS□ | LECY□ | Specific Product Precautions |       |                              |

# 3-Axis Step Motor Controller (EtherNet/IP™ Type)

## JXC92 Series



\* For details, refer to page 307 and onward.

### How to Order

#### ■ EtherNet/IP™ Type (JXC92)

#### Controller



**JXC 9 2 7**

EtherNet/IP™ type

3-axis type

• Mounting

| Symbol | Mounting       |
|--------|----------------|
| 7      | Screw mounting |
| 8      | DIN rail       |

\* Order the actuator separately, including the actuator cable.  
(Example: LEY16B-100B-S1)

\* For the "Speed-Work Load" graph of the actuator, refer to the LECPA section on the model selection page of the actuator to be connected.

### Specifications

For the setting of functions and operation methods, refer to the operation manual on the SMC website. (Documents/Download --> Instruction Manuals)

#### EtherNet/IP™ Type (JXC92)

| Item                        |                          | Specifications                                                                                                                                                                                      |
|-----------------------------|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Number of axes              |                          | Max. 3 axes                                                                                                                                                                                         |
| Compatible motor            |                          | Step motor (Servo/24 VDC)                                                                                                                                                                           |
| Compatible encoder          |                          | Incremental                                                                                                                                                                                         |
| Power supply*1              |                          | Control power supply Power voltage: 24 VDC ±10%<br>Max. current consumption: 500 mA<br>Motor power supply Power voltage: 24 VDC ±10%<br>Max. current consumption: Based on the connected actuator*2 |
| Communication               | Protocol                 | EtherNet/IP™*3                                                                                                                                                                                      |
|                             | Communication speed      | 10 Mbps/100 Mbps (automatic negotiation)                                                                                                                                                            |
|                             | Communication method     | Full duplex/Half duplex (automatic negotiation)                                                                                                                                                     |
|                             | Configuration file       | EDS file                                                                                                                                                                                            |
|                             | Occupied area            | Input 16 bytes/Output 16 bytes                                                                                                                                                                      |
|                             | IP address setting range | Manual setting by switches: From 192.168.1.1 to 254, Via DHCP server: Arbitrary address                                                                                                             |
|                             | Vendor ID                | 7 h (SMC Corporation)                                                                                                                                                                               |
|                             | Product type             | 2 Bh (Generic Device)                                                                                                                                                                               |
| Product code                |                          | DEh                                                                                                                                                                                                 |
| Serial communication        |                          | USB2.0 (Full Speed 12 Mbps)                                                                                                                                                                         |
| Memory                      |                          | Flash-ROM                                                                                                                                                                                           |
| LED indicator               |                          | PWR, RUN, USB, ALM, NS, MS, L/A, 100                                                                                                                                                                |
| Lock control                |                          | Forced-lock release terminal*4                                                                                                                                                                      |
| Cable length                |                          | Actuator cable: 20 m or less                                                                                                                                                                        |
| Cooling system              |                          | Natural air cooling                                                                                                                                                                                 |
| Operating temperature range |                          | 0°C to 40°C (No freezing)                                                                                                                                                                           |
| Operating humidity range    |                          | 90% RH or less (No condensation)                                                                                                                                                                    |
| Storage temperature range   |                          | -10°C to 60°C (No freezing)                                                                                                                                                                         |
| Storage humidity range      |                          | 90% RH or less (No condensation)                                                                                                                                                                    |
| Insulation resistance       |                          | Between all external terminals and the case: 50 MΩ (500 VDC)                                                                                                                                        |
| Weight                      |                          | 600 g (Screw mounting), 650 g (DIN rail mounting)                                                                                                                                                   |

\*1 Do not use a power supply with inrush current protection for the motor drive power supply.

\*2 Power consumption depends on the actuator connected. Refer to the actuator specifications for further details.

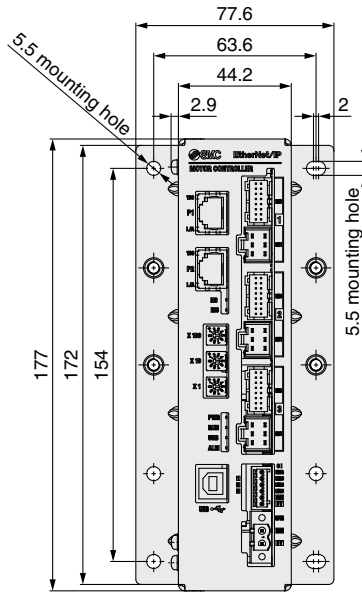
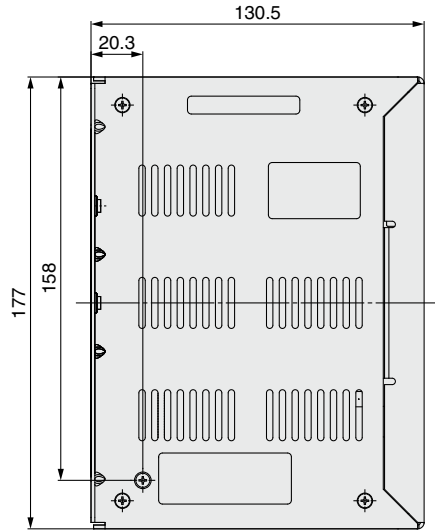
\*3 EtherNet/IP™ is a trademark of ODVA.

\*4 Applicable to non-magnetizing locks

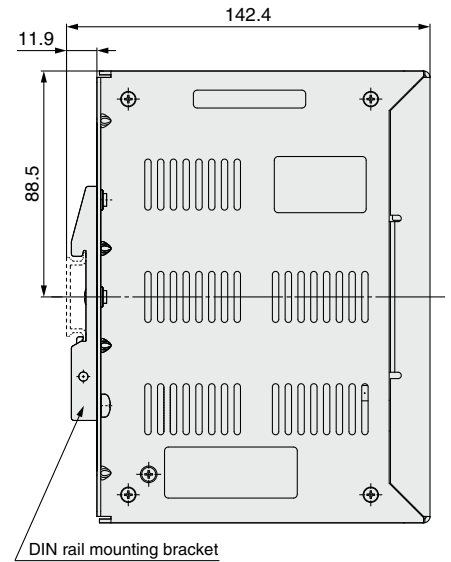
## Dimensions

### EtherNet/IP™ Type JXC92

#### Screw mounting

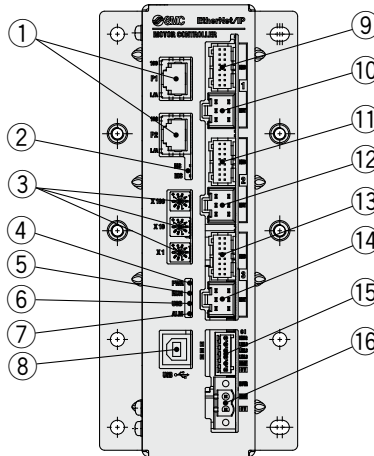


#### DIN rail mounting



## Controller Details

### EtherNet/IP™ Type JXC92



| No. | Name                       | Description                          | Details                                                                                                                            |
|-----|----------------------------|--------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|
| ①   | <b>P1, P2</b>              | EtherNet/IP™ communication connector | Connect Ethernet cable.                                                                                                            |
| ②   | <b>NS, MS</b>              | Communication status LED             | Displays the status of the EtherNet/IP™ communication                                                                              |
| ③   | <b>X100<br/>X10<br/>X1</b> | IP address setting switches          | Switch to set the 4th byte of the IP address by X1, X10 and X100.                                                                  |
| ④   | <b>PWR</b>                 | Power supply LED (Green)             | Power supply ON: Green turns on Power supply OFF: Green turns off                                                                  |
| ⑤   | <b>RUN</b>                 | Operation LED (Green)                | Running in EtherNet/IP™: Green turns on Running via USB communication: Green flashes Stopped: Green turns off                      |
| ⑥   | <b>USB</b>                 | USB connection LED (Green)           | USB connected: Green turns on USB not connected: Green turns off                                                                   |
| ⑦   | <b>ALM</b>                 | Alarm LED (Red)                      | With alarm: Red turns on Without alarm: Red turns off                                                                              |
| ⑧   | <b>USB</b>                 | Serial communication connector       | Connect to a PC via the USB cable.                                                                                                 |
| ⑨   | <b>ENC ①</b>               | Encoder connector (16 pins)          | Axis 1: Connect the actuator cable.                                                                                                |
| ⑩   | <b>MOT ①</b>               | Motor power connector (6 pins)       |                                                                                                                                    |
| ⑪   | <b>ENC ②</b>               | Encoder connector (16 pins)          | Axis 2: Connect the actuator cable.                                                                                                |
| ⑫   | <b>MOT ②</b>               | Motor power connector (6 pins)       |                                                                                                                                    |
| ⑬   | <b>ENC ③</b>               | Encoder connector (16 pins)          | Axis 3: Connect the actuator cable.                                                                                                |
| ⑭   | <b>MOT ③</b>               | Motor power connector (6 pins)       |                                                                                                                                    |
| ⑮   | <b>CI</b>                  | Control power supply connector*1     | Control power supply (+), All axes stop (+), Axis 1 lock release (+), Axis 2 lock release (+), Axis 3 lock release (+), Common (-) |
| ⑯   | <b>M PWR</b>               | Motor power supply connector*1       | Motor power supply (+), Motor power supply (-)                                                                                     |

\*1 Connectors are included. (Refer to page 253.)



# 4-Axis Step Motor Controller (Parallel I/O/EtherNet/IP™ Type)

## JXC73/83/93 Series



\* For details, refer to page 307 and onward.

### How to Order

#### ■ Parallel I/O (JXC73/83)

##### Controller



JXC **7** **3** **2**

I/O type

| Symbol | I/O type |
|--------|----------|
| 7      | NPN      |
| 8      | PNP      |

4-axis type

I/O cable, mounting

| Symbol | I/O cable | Mounting       |
|--------|-----------|----------------|
| 1      | 1.5 m     | Screw mounting |
| 2      | 1.5 m     | DIN rail       |
| 3      | 3 m       | Screw mounting |
| 4      | 3 m       | DIN rail       |
| 5      | 5 m       | Screw mounting |
| 6      | 5 m       | DIN rail       |
| 7      | None      | Screw mounting |
| 8      | None      | DIN rail       |

\* Two I/O cables are included.

#### ■ EtherNet/IP™ Type (JXC93)

##### Controller



JXC **9** **3** **7**

EtherNet/IP™ type

4-axis type

Mounting

| Symbol | Mounting       |
|--------|----------------|
| 7      | Screw mounting |
| 8      | DIN rail       |

\* Order the actuator separately, including the actuator cable.  
(Example: LEY16B-100B-S1)

\* For the "Speed-Work Load" graph of the actuator, refer to the LECPA section on the model selection page of the actuator to be connected.

(DC)

or (24 v)

LE

DC)/Ser

0/24 V[

or (Serv

LE

Ste

## 1

## KEY

Motor

ervo M

ACS  
G

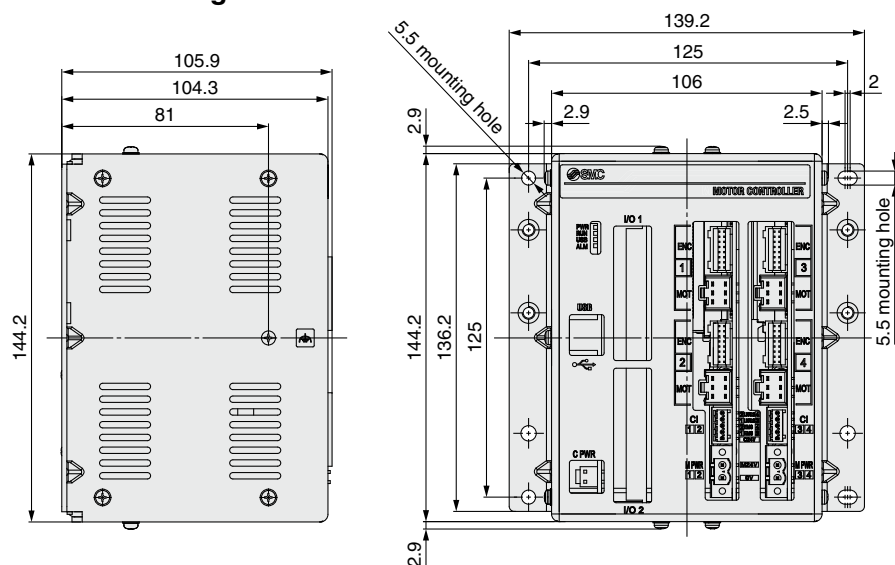
EY

# JXC73/83/93 Series

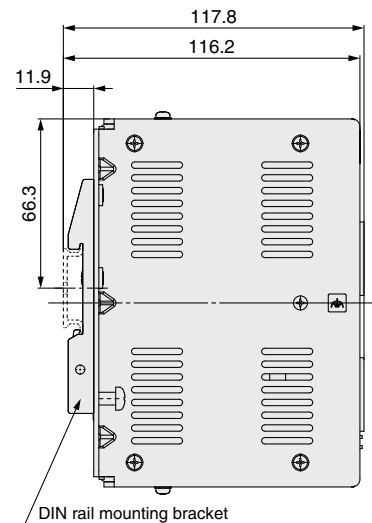
## Dimensions

### Parallel I/O JXC73/83

#### Screw mounting

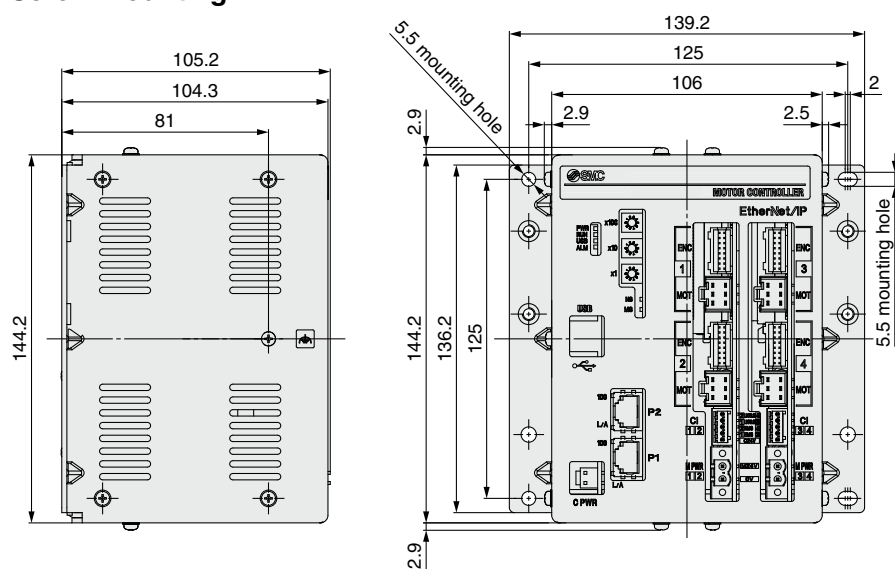


#### DIN rail mounting

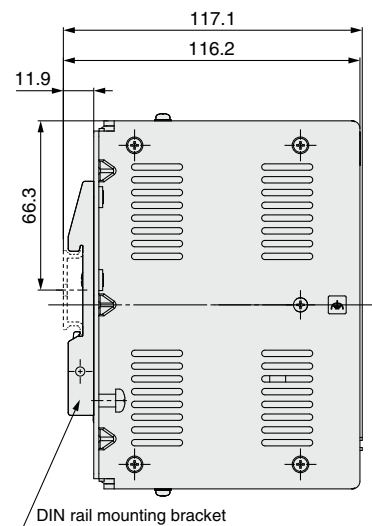


### EtherNet/IP™ Type JXC93

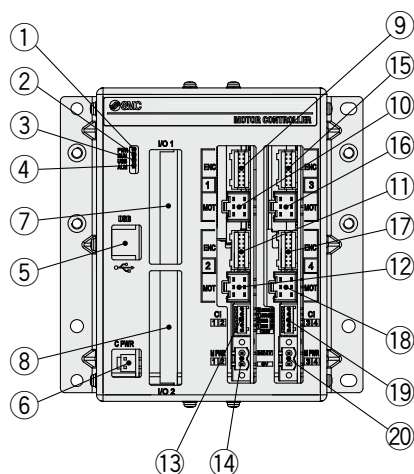
#### Screw mounting



#### DIN rail mounting



## Parallel I/O JXC73/83



| No. | Name             | Description                                    | Details                                                                                                            |
|-----|------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| ①   | <b>PWR</b>       | Power supply LED (Green)                       | Power supply ON: Green turns on Power supply OFF: Green turns off                                                  |
| ②   | <b>RUN</b>       | Operation LED (Green)                          | Running in parallel I/O: Green turns on Running via USB communication: Green flashes Stopped: Green turns off      |
| ③   | <b>USB</b>       | USB connection LED (Green)                     | USB connected: Green turns on USB not connected: Green turns off                                                   |
| ④   | <b>ALM</b>       | Alarm LED (Red)                                | With alarm: Red turns on Without alarm: Red turns off                                                              |
| ⑤   | <b>USB</b>       | Serial communication                           | Connect to a PC via the USB cable.                                                                                 |
| ⑥   | <b>C PWR</b>     | Main control power supply connector (2 pins)*1 | Main control power supply (+) (–)                                                                                  |
| ⑦   | <b>I/O 1</b>     | Parallel I/O connector (40 pins)               | Connect to a PLC via the I/O cable.                                                                                |
| ⑧   | <b>I/O 2</b>     | Parallel I/O connector (40 pins)               | Connect to a PLC via the I/O cable.                                                                                |
| ⑨   | <b>ENC ①</b>     | Encoder connector (16 pins)                    | Axis 1: Connect the actuator cable.                                                                                |
| ⑩   | <b>MOT ①</b>     | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑪   | <b>ENC ②</b>     | Encoder connector (16 pins)                    | Axis 2: Connect the actuator cable.                                                                                |
| ⑫   | <b>MOT ②</b>     | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑬   | <b>CI ① ②</b>    | Motor control power supply connector*1         | Motor control power supply (+), Axis 1 stop (+), Axis 1 lock release (+), Axis 2 stop (+), Axis 2 lock release (+) |
| ⑭   | <b>M PWR ① ②</b> | Motor power supply connector*1                 | For Axis 1, 2. Motor power supply (+), Common (–)                                                                  |
| ⑮   | <b>ENC ③</b>     | Encoder connector (16 pins)                    | Axis 3: Connect the actuator cable.                                                                                |
| ⑯   | <b>MOT ③</b>     | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑰   | <b>ENC ④</b>     | Encoder connector (16 pins)                    | Axis 4: Connect the actuator cable.                                                                                |
| ⑱   | <b>MOT ④</b>     | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑲   | <b>CI ③ ④</b>    | Motor control power supply connector*1         | Motor control power supply (+), Axis 3 stop (+), Axis 3 lock release (+), Axis 4 stop (+), Axis 4 lock release (+) |
| ⑳   | <b>M PWR ③ ④</b> | Motor power supply connector*1                 | For Axis 3, 4. Motor power supply (+), Common (–)                                                                  |

\*1 Connectors are included. (Refer to page 253.)

| No. | Name                       | Description                                    | Details                                                                                                            |
|-----|----------------------------|------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| ①   | <b>PWR</b>                 | Power supply LED (Green)                       | Power supply ON: Green turns on Power supply OFF: Green turns off                                                  |
| ②   | <b>RUN</b>                 | Operation LED (Green)                          | Running in EtherNet/IP™: Green turns on Running via USB communication: Green flashes Stopped: Green turns off      |
| ③   | <b>USB</b>                 | USB connection LED (Green)                     | USB connected: Green turns on USB not connected: Green turns off                                                   |
| ④   | <b>ALM</b>                 | Alarm LED (Red)                                | With alarm: Red turns on Without alarm: Red turns off                                                              |
| ⑤   | <b>USB</b>                 | Serial communication                           | Connect to a PC via the USB cable.                                                                                 |
| ⑥   | <b>C PWR</b>               | Main control power supply connector (2 pins)*1 | Main control power supply (+) (–)                                                                                  |
| ⑦   | <b>x100<br/>x10<br/>x1</b> | IP address setting switches                    | Switch to set the 4th byte of the IP address by X1, X10 and X100.                                                  |
| ⑧   | <b>MS, NS</b>              | Communication status LED                       | Displays the status of the EtherNet/IP™ communication                                                              |
| ⑨   | <b>ENC</b> ①               | Encoder connector (16 pins)                    | Axis 1: Connect the actuator cable.                                                                                |
| ⑩   | <b>MOT</b> ①               | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑪   | <b>ENC</b> ②               | Encoder connector (16 pins)                    | Axis 2: Connect the actuator cable.                                                                                |
| ⑫   | <b>MOT</b> ②               | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑬   | <b>CI</b> ① ②              | Motor control power supply connector*1         | Motor control power supply (+), Axis 1 stop (+), Axis 1 lock release (+), Axis 2 stop (+), Axis 2 lock release (+) |
| ⑭   | <b>M PWR</b> ① ②           | Motor power supply connector*1                 | For Axis 1, 2. Motor power supply (+), Common (–)                                                                  |
| ⑮   | <b>ENC</b> ③               | Encoder connector (16 pins)                    | Axis 3: Connect the actuator cable.                                                                                |
| ⑯   | <b>MOT</b> ③               | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑰   | <b>ENC</b> ④               | Encoder connector (16 pins)                    | Axis 4: Connect the actuator cable.                                                                                |
| ⑱   | <b>MOT</b> ④               | Motor power connector (6 pins)                 |                                                                                                                    |
| ⑲   | <b>CI</b> ③ ④              | Motor control power supply connector*1         | Motor control power supply (+), Axis 3 stop (+), Axis 3 lock release (+), Axis 4 stop (+), Axis 4 lock release (+) |
| ⑳   | <b>M PWR</b> ③ ④           | Motor power supply connector*1                 | For Axis 3, 4. Motor power supply (+), Common (–)                                                                  |
| ㉑   | <b>P1, P2</b>              | EtherNet/IP™ communication connector           | Connect Ethernet cable.                                                                                            |

\*1 Connectors are included. (Refer to page 253.)

# JXC73/83/92/93 Series

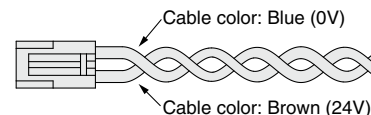
## Wiring Example 1

### Cable with Main Control Power Supply Connector (For 4 Axes)\*1: C PWR 1 pc. For 4 Axes JXC73/83/93

| Terminal name | Function                      | Details                                       |
|---------------|-------------------------------|-----------------------------------------------|
| +24V          | Main control power supply (+) | Power supply (+) supplied to the main control |
| 24-0V         | Main control power supply (-) | Power supply (-) supplied to the main control |

\*1 Part no.: JXC-C1 (Cable length: 1.5 m)

### Cable with main control power supply connector



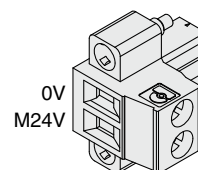
### Motor Power Supply Connector (For 3/4 Axes)\*2: M PWR 2 pcs. \*3 For 3 Axes JXC92 For 4 Axes JXC73/83/93

| Terminal name | Function               | Details                                                                            | Note                      |
|---------------|------------------------|------------------------------------------------------------------------------------|---------------------------|
| 0V            | Motor power supply (-) | Power supply (-) supplied to the motor power                                       | For 3 axes<br>JXC92       |
|               |                        | The M24V terminal, C24V terminal, EMG terminal, and LKRLS terminal are common (-). | For 4 axes<br>JXC73/83/93 |
| M24V          | Motor power supply (+) | Power supply (+) supplied to the motor power                                       |                           |

\*2 Manufactured by PHOENIX CONTACT (Part no.: MSTB2, 5/2-STF-5, 08)

\*3 1 pc. for 3 axes (JXC92)

### Motor power supply connector

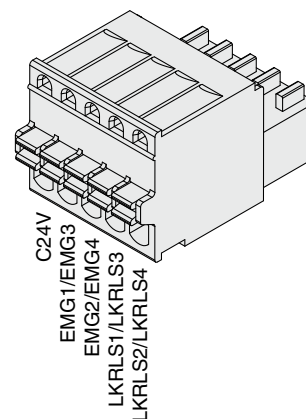


### Motor Control Power Supply Connector (For 4 Axes)\*4: CI 2 pcs. For 4 Axes JXC73/83/93

| Terminal name | Function                       | Details                                         |
|---------------|--------------------------------|-------------------------------------------------|
| C24V          | Motor control power supply (+) | Power supply (+) supplied to the motor control  |
| EMG1/EMG3     | Stop (+)                       | Axis 1/Axis 3: Input (+) for releasing the stop |
| EMG2/EMG4     | Stop (+)                       | Axis 2/Axis 4: Input (+) for releasing the stop |
| LKRLS1/LKRLS3 | Lock release (+)               | Axis 1/Axis 3: Input (+) for releasing the lock |
| LKRLS2/LKRLS4 | Lock release (+)               | Axis 2/Axis 4: Input (+) for releasing the lock |

\*4 Manufactured by PHOENIX CONTACT (Part no.: FK-MC0, 5/5-ST-2, 5)

### Motor control power supply connector

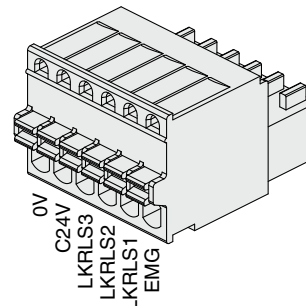


### Control Power Supply Connector (For 3 Axes)\*5: CI 1 pc. For 3 Axes JXC92

| Terminal name | Function                 | Details                                                             |
|---------------|--------------------------|---------------------------------------------------------------------|
| 0V            | Control power supply (-) | The C24V terminal, LKRLS terminal, and EMG terminal are common (-). |
| C24V          | Control power supply (+) | Power supply (+) supplied to the control                            |
| LKRLS3        | Lock release (+)         | Axis 3: Input (+) for releasing the lock                            |
| LKRLS2        | Lock release (+)         | Axis 2: Input (+) for releasing the lock                            |
| LKRLS1        | Lock release (+)         | Axis 1: Input (+) for releasing the lock                            |
| EMG           | Stop (+)                 | All axes: Input (+) for releasing the stop                          |

\*5 Manufactured by PHOENIX CONTACT (Part no.: FK-MC0, 5/6-ST-2, 5)

### Control power supply connector



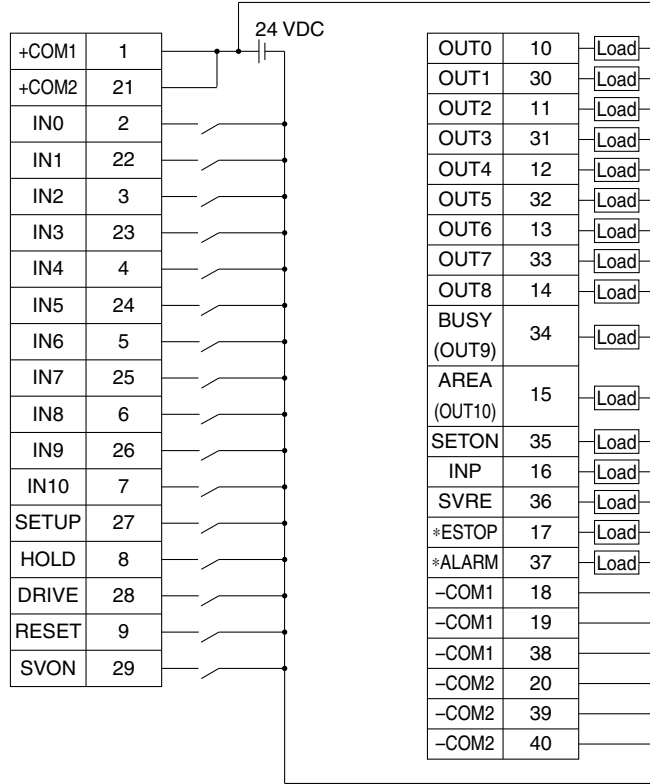
## Wiring Example 2

### Parallel I/O Connector

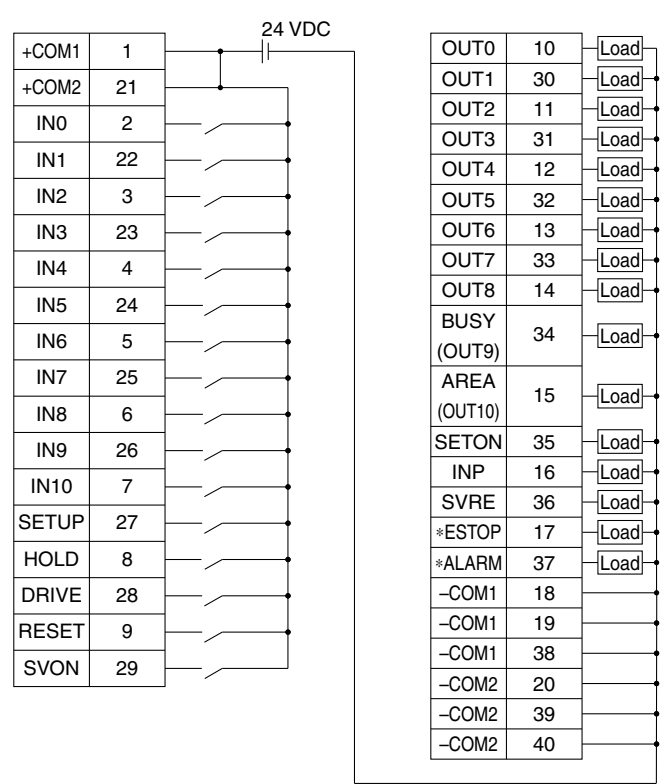
- \* When you connect a PLC to the I/O 1 or I/O 2 parallel I/O connector, use the I/O cable (JXC-C2-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### I/O 1 Wiring example

#### NPN JXC73



#### PNP JXC83



### I/O 1 Input Signal

| Name             | Details                                                                         |
|------------------|---------------------------------------------------------------------------------|
| +COM1<br>+COM2   | Connects the power supply 24 V for input/output signal                          |
| IN0<br>to<br>IN8 | Step data specified bit no.<br>(Standard: When 512 points are used)             |
| IN9<br>IN10      | Step data specified extension bit no.<br>(Extension: When 2048 points are used) |
| SETUP            | Instruction to return to origin                                                 |
| HOLD             | Temporarily stops operation                                                     |
| DRIVE            | Instruction to drive                                                            |
| RESET            | Resets alarm and interrupts operation                                           |
| SVON             | Servo ON instruction                                                            |

### I/O 1 Output Signal

| Name               | Details                                                               |
|--------------------|-----------------------------------------------------------------------|
| OUT0<br>to<br>OUT8 | Outputs the step data no. during operation                            |
| BUSY<br>(OUT9)     | Outputs when the operation of the actuator is in progress             |
| AREA<br>(OUT10)    | Outputs when all actuators are within the area output range           |
| SETON              | Outputs when the return to origin of all actuators is completed       |
| INP                | Outputs when the positioning or pushing of all actuators is completed |
| SVRE               | Outputs when servo is ON                                              |
| *ESTOP*1           | OFF when EMG stop is instructed                                       |
| *ALARM*1           | OFF when alarm is generated                                           |
| -COM1<br>-COM2     | Connects the power supply 0 V for input/output signal                 |

\*1 Negative-logic circuit signal



# JXC73/83/92/93 Series

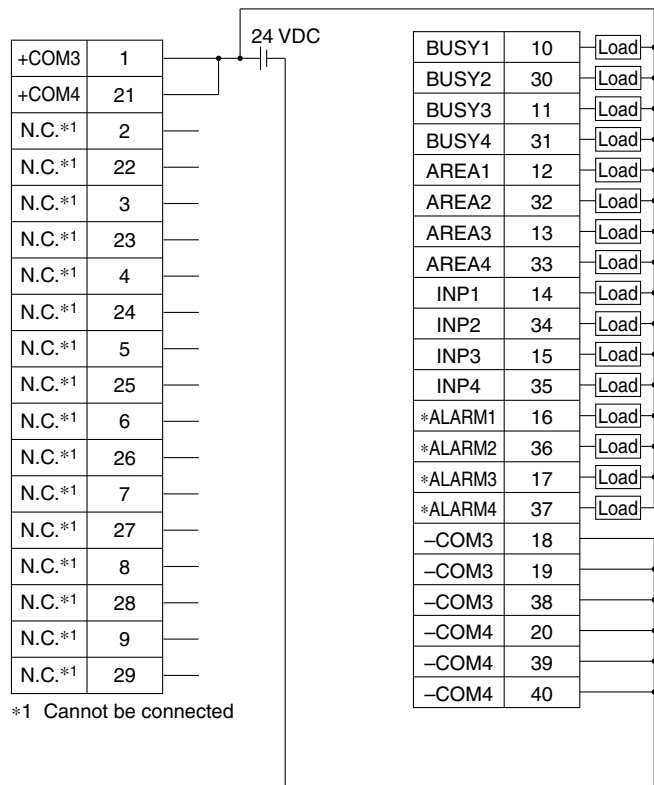
## Wiring Example 2

### Parallel I/O Connector

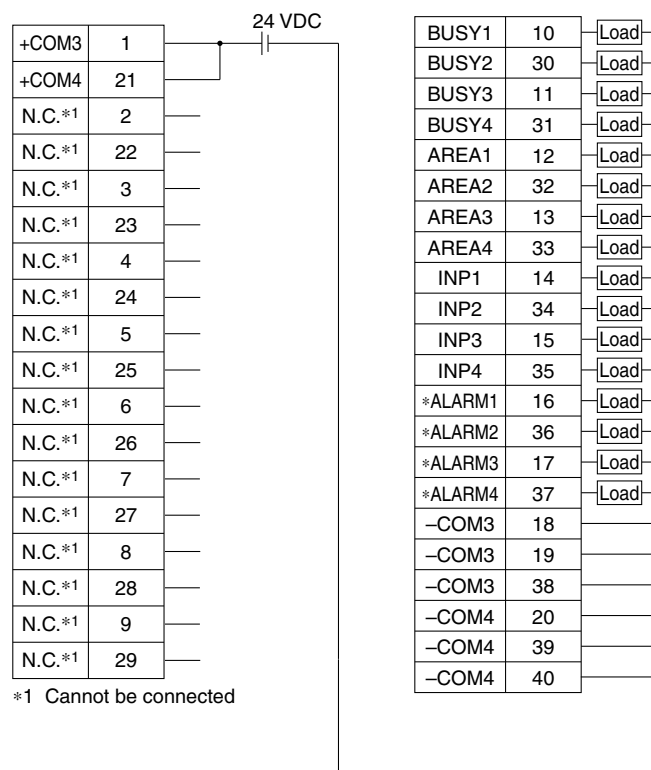
- \* When you connect a PLC to the I/O 1 or I/O 2 parallel I/O connector, use the I/O cable (JXC-C2-□).
- \* The wiring changes depending on the type of parallel I/O (NPN or PNP).

### I/O 2 Wiring example

#### NPN JXC73



#### PNP JXC83



### I/O 2 Input Signal

| Name           | Details                                                |
|----------------|--------------------------------------------------------|
| +COM3<br>+COM4 | Connects the power supply 24 V for input/output signal |
| N.C.           | Cannot be connected                                    |

### I/O 2 Output Signal

| Name           | Details                                               |
|----------------|-------------------------------------------------------|
| BUSY1          | Busy signal for axis 1                                |
| BUSY2          | Busy signal for axis 2                                |
| BUSY3          | Busy signal for axis 3                                |
| BUSY4          | Busy signal for axis 4                                |
| AREA1          | Area signal for axis 1                                |
| AREA2          | Area signal for axis 2                                |
| AREA3          | Area signal for axis 3                                |
| AREA4          | Area signal for axis 4                                |
| INP1           | Positioning or pushing completion signal for axis 1   |
| INP2           | Positioning or pushing completion signal for axis 2   |
| INP3           | Positioning or pushing completion signal for axis 3   |
| INP4           | Positioning or pushing completion signal for axis 4   |
| *ALARM1*2      | Alarm signal for axis 1                               |
| *ALARM2*2      | Alarm signal for axis 2                               |
| *ALARM3*2      | Alarm signal for axis 3                               |
| *ALARM4*2      | Alarm signal for axis 4                               |
| -COM3<br>-COM4 | Connects the power supply 0 V for input/output signal |

\*2 Negative-logic circuit signal

## Options

Cable with main control power supply connector

For 4 Axes  
JXC73/83/93

### JXC - C1

Cable length: 1.5 m (Accessory)

|                 |       |
|-----------------|-------|
| Number of cores | 2     |
| AWG size        | AWG20 |



I/O cable (1 pc.)

### JXC - C2 -

For 4 Axes  
JXC73/83

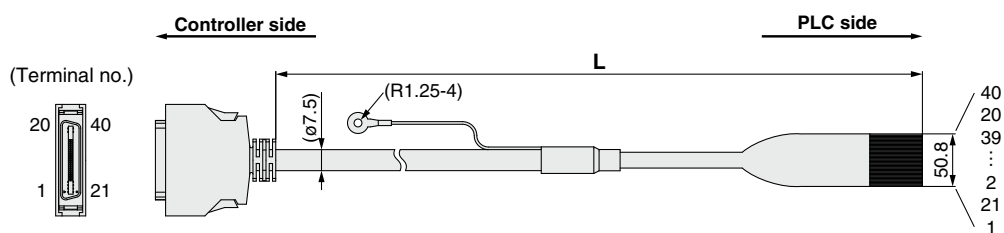
Cable length (L) [m]

|   |     |
|---|-----|
| 1 | 1.5 |
| 3 | 3   |
| 5 | 5   |

|                 |       |
|-----------------|-------|
| Number of cores | 40    |
| AWG size        | AWG28 |

#### Weight

| Product no. | Weight [g] |
|-------------|------------|
| JXC-C2-1    | 160        |
| JXC-C2-3    | 300        |
| JXC-C2-5    | 480        |



| Pin no. | Wire color       | Pin no. | Wire color       | Pin no. | Wire color       | Pin no. | Wire color       |
|---------|------------------|---------|------------------|---------|------------------|---------|------------------|
| 1       | Orange (Black 1) | 6       | Orange (Black 2) | 11      | Orange (Black 3) | 16      | Orange (Black 4) |
| 21      | Orange (Red 1)   | 26      | Orange (Red 2)   | 31      | Orange (Red 3)   | 36      | Orange (Red 4)   |
| 2       | Gray (Black 1)   | 7       | Gray (Black 2)   | 12      | Gray (Black 3)   | 17      | Gray (Black 4)   |
| 22      | Gray (Red 1)     | 27      | Gray (Red 2)     | 32      | Gray (Red 3)     | 37      | Gray (Red 4)     |
| 3       | White (Black 1)  | 8       | White (Black 2)  | 13      | White (Black 3)  | 18      | White (Black 4)  |
| 23      | White (Red 1)    | 28      | White (Red 2)    | 33      | White (Red 3)    | 38      | White (Red 4)    |
| 4       | Yellow (Black 1) | 9       | Yellow (Black 2) | 14      | Yellow (Black 3) | 19      | Yellow (Black 4) |
| 24      | Yellow (Red 1)   | 29      | Yellow (Red 2)   | 34      | Yellow (Red 3)   | 39      | Yellow (Red 4)   |
| 5       | Pink (Black 1)   | 10      | Pink (Black 2)   | 15      | Pink (Black 3)   | 20      | Pink (Black 4)   |
| 25      | Pink (Red 1)     | 30      | Pink (Red 2)     | 35      | Pink (Red 3)     | 40      | Pink (Red 4)     |

DIN rail

### AXT100 - DR -

For 3 Axes  
JXC92

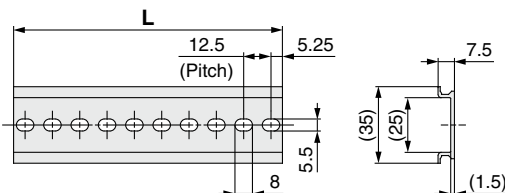
For 4 Axes  
JXC73/83/93

\* For ☐, enter a number from the No. line in the table below. Refer to the dimension drawings on pages 248 and 251 for the mounting dimensions.

#### L Dimensions

| No. | 1  | 2    | 3  | 4    | 5  | 6    | 7  | 8     | 9   | 10    | 11  | 12    | 13  | 14    | 15  | 16    | 17  | 18    | 19  | 20    |
|-----|----|------|----|------|----|------|----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 23 | 35.5 | 48 | 60.5 | 73 | 85.5 | 98 | 110.5 | 123 | 135.5 | 148 | 160.5 | 173 | 185.5 | 198 | 210.5 | 223 | 235.5 | 248 | 260.5 |

| No. | 21  | 22    | 23  | 24    | 25  | 26    | 27  | 28    | 29  | 30    | 31  | 32    | 33  | 34    | 35  | 36    | 37  | 38    | 39  | 40    |
|-----|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|-----|-------|
| L   | 273 | 285.5 | 298 | 310.5 | 323 | 335.5 | 348 | 360.5 | 373 | 385.5 | 398 | 410.5 | 423 | 435.5 | 448 | 460.5 | 473 | 485.5 | 498 | 510.5 |



DIN rail mounting bracket (with 6 mounting screws)

For 3 Axes  
JXC92

For 4 Axes  
JXC73/83/93

### JXC - Z1

This should be used when the DIN rail mounting bracket is mounted onto a screw mounting type controller afterward.

# JXC73/83/92/93 Series

## Options

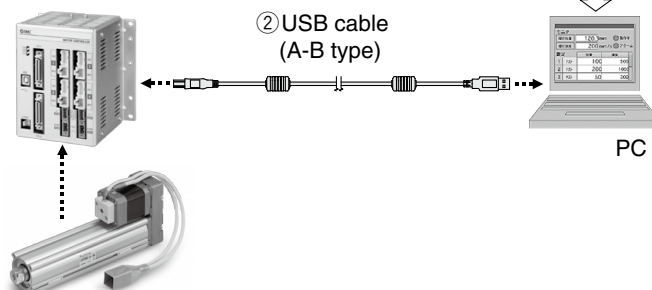
### Controller setting kit

#### JXC-W1

- Controller setting kit (Japanese and English are available.)

For 4 Axes  
JXC73/83/93

① Controller setting software



## Contents

- ① Controller setting software (CD-ROM)
- ② USB cable (Cable length: 3 m)

|   | Description                 | Model                                         |
|---|-----------------------------|-----------------------------------------------|
| ① | Controller setting software | JXC-W1-1                                      |
| ② | USB cable                   | JXC-W1-2<br>(The same cable as the JXC-MA1-2) |

\* Can be ordered separately

## Hardware Requirements

PC/AT compatible machine with Windows 7 or Windows 8.1 and USB1.1 or USB2.0 port

\* Windows® is a registered trademark of Microsoft Corporation in the United States.

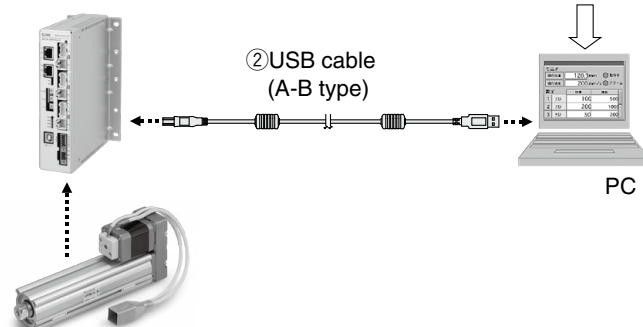
### Controller setting kit

#### JXC-MA1\*1

- Controller setting kit (Japanese and English are available.)

For 3 Axes  
JXC92

① Controller setting software\*1



## Contents

- ① Controller setting software (CD-ROM)\*1
- ② USB cable (Cable length: 3 m)

|   | Description                 | Model                                         |
|---|-----------------------------|-----------------------------------------------|
| ① | Controller setting software | JXC-MA1-1                                     |
| ② | USB cable                   | JXC-MA1-2<br>(The same cable as the JXC-W1-2) |

\* Can be ordered separately

## Hardware Requirements

PC/AT compatible machine with Windows 7 or Windows 8.1 and USB1.1 or USB2.0 port

\*1 The controller setting software also includes software dedicated for 4 axes.

\* Windows® is a registered trademark of Microsoft Corporation in the United States.

# Actuator Cable 1

[Robotic cable, standard cable for step motor (Servo/24 VDC)]

LE-CP-1-□

Cable length (L) [m]

|   |      |
|---|------|
| 1 | 1.5  |
| 3 | 3    |
| 5 | 5    |
| 8 | 8*1  |
| A | 10*1 |
| B | 15*1 |
| C | 20*1 |

\*1 Produced upon receipt of order (Robotic cable only)

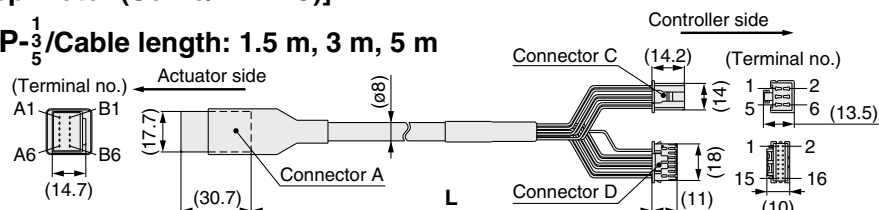
Cable type

|     |                                |
|-----|--------------------------------|
| Nil | Robotic cable (Flexible cable) |
| S   | Standard cable                 |

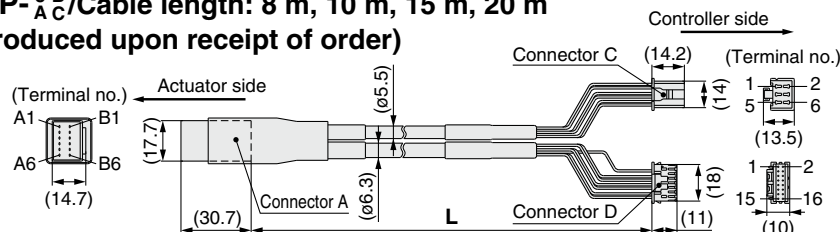
Weight

| Product no. | Weight [g] | Note           |
|-------------|------------|----------------|
| LE-CP-1-S   | 190        | Standard cable |
| LE-CP-3-S   | 280        |                |
| LE-CP-5-S   | 460        |                |
| LE-CP-1     | 140        | Robotic cable  |
| LE-CP-3     | 260        |                |
| LE-CP-5     | 420        |                |
| LE-CP-8     | 790        |                |
| LE-CP-A     | 980        |                |
| LE-CP-B     | 1460       |                |
| LE-CP-C     | 1940       |                |

LE-CP- $\frac{1}{5}$ /Cable length: 1.5 m, 3 m, 5 m



LE-CP- $\frac{8}{A}$ /Cable length: 8 m, 10 m, 15 m, 20 m  
(\*1 Produced upon receipt of order)



| Signal    | Connector A terminal no. | Cable color | Connector C terminal no. |
|-----------|--------------------------|-------------|--------------------------|
| A         | B-1                      | Brown       | 2                        |
| A         | A-1                      | Red         | 1                        |
| B         | B-2                      | Orange      | 6                        |
| B         | A-2                      | Yellow      | 5                        |
| COM-A/COM | B-3                      | Green       | 3                        |
| COM-B/-   | A-3                      | Blue        | 4                        |
| Signal    | Connector A terminal no. | Cable color | Connector D terminal no. |
| Vcc       | B-4                      | Brown       | 12                       |
| GND       | A-4                      | Black       | 13                       |
| A         | B-5                      | Red         | 7                        |
| A         | A-5                      | Black       | 6                        |
| B         | B-6                      | Orange      | 9                        |
| B         | A-6                      | Black       | 8                        |
|           |                          |             | 3                        |

[Robotic cable, standard cable with lock and sensor for step motor (Servo/24 VDC)]

LE-CP-1-B-□

Cable length (L) [m]

|   |      |
|---|------|
| 1 | 1.5  |
| 3 | 3    |
| 5 | 5    |
| 8 | 8*1  |
| A | 10*1 |
| B | 15*1 |
| C | 20*1 |

\*1 Produced upon receipt of order (Robotic cable only)

With lock and sensor

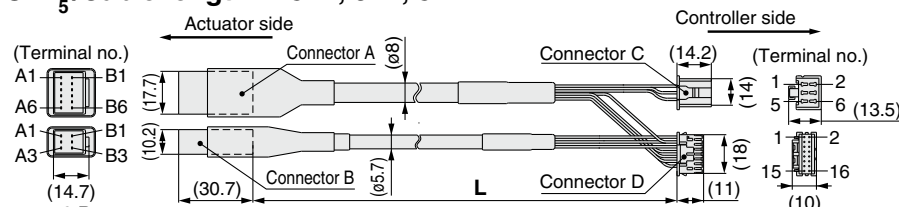
Cable type

|     |                                |
|-----|--------------------------------|
| Nil | Robotic cable (Flexible cable) |
| S   | Standard cable                 |

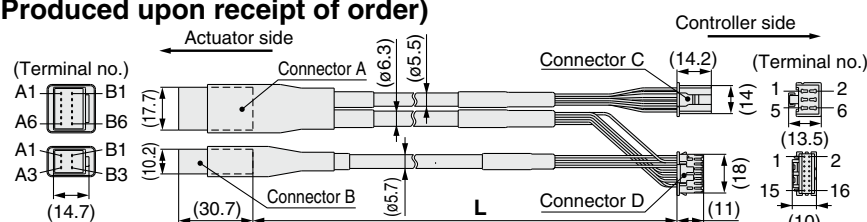
Weight

| Product no. | Weight [g] | Note           |
|-------------|------------|----------------|
| LE-CP-1-B-S | 240        | Standard cable |
| LE-CP-3-B-S | 380        |                |
| LE-CP-5-B-S | 630        |                |
| LE-CP-1-B   | 190        | Robotic cable  |
| LE-CP-3-B   | 360        |                |
| LE-CP-5-B   | 590        |                |
| LE-CP-8-B   | 1060       |                |
| LE-CP-A-B   | 1320       |                |
| LE-CP-B-B   | 1920       |                |
| LE-CP-C-B   | 2620       |                |

LE-CP- $\frac{1}{5}$ /Cable length: 1.5 m, 3 m, 5 m



LE-CP- $\frac{8}{A}$ /Cable length: 8 m, 10 m, 15 m, 20 m  
(\*1 Produced upon receipt of order)



| Signal     | Connector A terminal no. | Cable color | Connector C terminal no. |
|------------|--------------------------|-------------|--------------------------|
| A          | B-1                      | Brown       | 2                        |
| A          | A-1                      | Red         | 1                        |
| B          | B-2                      | Orange      | 6                        |
| B          | A-2                      | Yellow      | 5                        |
| COM-A/COM  | B-3                      | Green       | 3                        |
| COM-B/-    | A-3                      | Blue        | 4                        |
| Signal     | Connector A terminal no. | Cable color | Connector D terminal no. |
| Vcc        | B-4                      | Brown       | 12                       |
| GND        | A-4                      | Black       | 13                       |
| A          | B-5                      | Red         | 7                        |
| A          | A-5                      | Black       | 6                        |
| B          | B-6                      | Orange      | 9                        |
| B          | A-6                      | Black       | 8                        |
|            |                          |             | 3                        |
| Signal     | Connector B terminal no. | Cable color | Connector D terminal no. |
| Lock (+)   | B-1                      | Red         | 4                        |
| Lock (-)   | A-1                      | Black       | 5                        |
| Sensor (+) | B-3                      | Brown       | 1                        |
| Sensor (-) | A-3                      | Blue        | 2                        |

Compatible controller

LECA6

# Actuator Cable 2

[Robotic cable for servo motor (24 VDC)]

LE-CA-1

Cable length (L) [m]

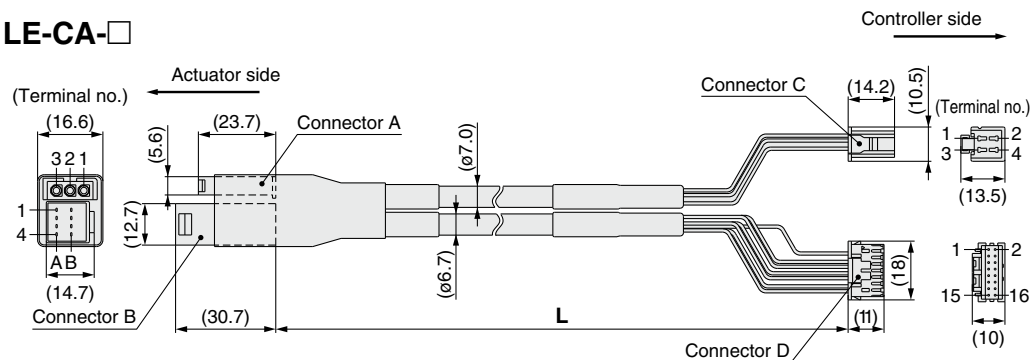
|   |      |
|---|------|
| 1 | 1.5  |
| 3 | 3    |
| 5 | 5    |
| 8 | 8*1  |
| A | 10*1 |
| B | 15*1 |
| C | 20*1 |

\*1 Produced upon receipt of order

Weight

| Product no. | Weight [g] |
|-------------|------------|
| LE-CA-1     | 220        |
| LE-CA-3     | 420        |
| LE-CA-5     | 700        |
| LE-CA-8     | 1100       |
| LE-CA-A     | 1370       |
| LE-CA-B     | 2050       |
| LE-CA-C     | 2720       |

LE-CA-



| Signal | Connector A terminal no. | Cable color | Connector C terminal no. |
|--------|--------------------------|-------------|--------------------------|
| U      | 1                        | Red         | 1                        |
| V      | 2                        | White       | 2                        |
| W      | 3                        | Black       | 3                        |

| Signal | Connector B terminal no. | Cable color | Connector D terminal no. |
|--------|--------------------------|-------------|--------------------------|
| Vcc    | B-1                      | Brown       | 12                       |
| GND    | A-1                      | Black       | 13                       |
| A      | B-2                      | Red         | 7                        |
| A      | A-2                      | Black       | 6                        |
| B      | B-3                      | Orange      | 9                        |
| B      | A-3                      | Black       | 8                        |
| Z      | B-4                      | Yellow      | 11                       |
| Z      | A-4                      | Black       | 10                       |
|        |                          | —           | 3                        |

Shield

Connection of shield material

[Robotic cable with lock and sensor for servo motor (24 VDC)]

LE-CA-1-B

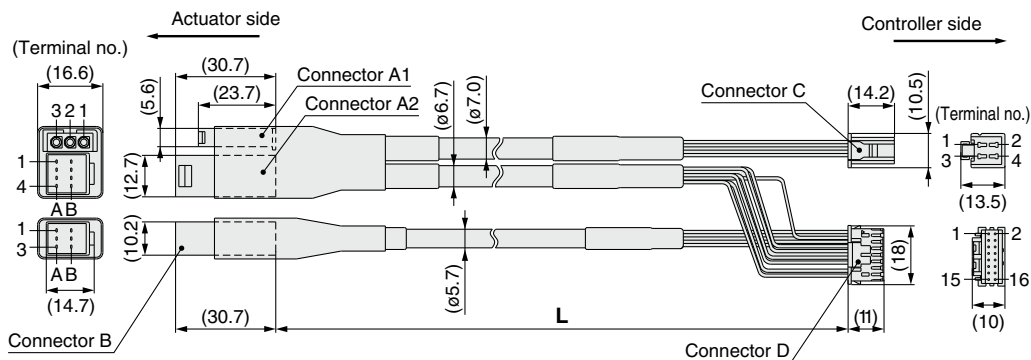
LE-CA-B

Cable length (L) [m]

|   |      |
|---|------|
| 1 | 1.5  |
| 3 | 3    |
| 5 | 5    |
| 8 | 8*1  |
| A | 10*1 |
| B | 15*1 |
| C | 20*1 |

\*1 Produced upon receipt of order

With lock and sensor



Weight

| Product no. | Weight [g] |
|-------------|------------|
| LE-CA-1-B   | 270        |
| LE-CA-3-B   | 520        |
| LE-CA-5-B   | 870        |
| LE-CA-8-B   | 1370       |
| LE-CA-A-B   | 1710       |
| LE-CA-B-B   | 2560       |
| LE-CA-C-B   | 3400       |

| Signal | Connector A1 terminal no. | Cable color | Connector C terminal no. |
|--------|---------------------------|-------------|--------------------------|
| U      | 1                         | Red         | 1                        |
| V      | 2                         | White       | 2                        |
| W      | 3                         | Black       | 3                        |

| Signal | Connector A2 terminal no. | Cable color | Connector D terminal no. |
|--------|---------------------------|-------------|--------------------------|
| Vcc    | B-1                       | Brown       | 12                       |
| GND    | A-1                       | Black       | 13                       |
| A      | B-2                       | Red         | 7                        |
| A      | A-2                       | Black       | 6                        |
| B      | B-3                       | Orange      | 9                        |
| B      | A-3                       | Black       | 8                        |
| Z      | B-4                       | Yellow      | 11                       |
| Z      | A-4                       | Black       | 10                       |
|        |                           | —           | 3                        |

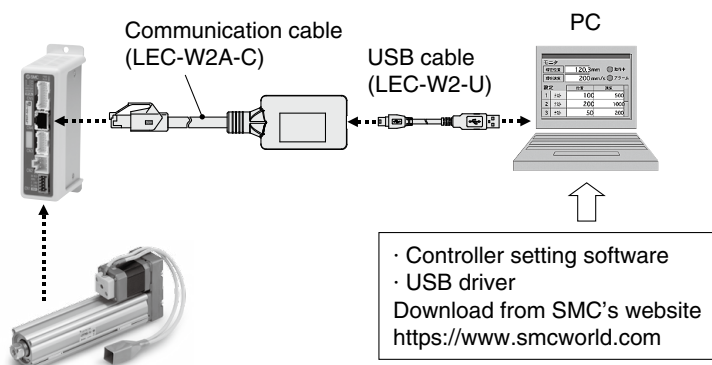
| Signal     | Connector B terminal no. | Cable color | Connector D terminal no. |
|------------|--------------------------|-------------|--------------------------|
| Lock (+)   | B-1                      | Red         | 4                        |
| Lock (-)   | A-1                      | Black       | 5                        |
| Sensor (+) | B-3                      | Brown       | 1                        |
| Sensor (-) | A-3                      | Black       | 2                        |

Shield

Connection of shield material

**LEC-W2A-**

## Communication Cable for Controller Setting



## How to Order

**LEC-W2A-C**

- **Communication cable**

# LEC-W2-U

- **USB cable**

## Compatible Controller/Driver

### Step data input type

## LECA6 Series

### Pulse input type

## LECPA Series

## Step Motor Controller

## JXCE1/91/P1/D1/L1/M1 Series

\* When connecting to a JXCE1/91/P1/D1/L1/M1 series product, use a conversion cable (P5062-5) as a relay.

Refer to page 245 for details on the communication cable for controller setting (JXC-W2A-C) which doesn't require a conversion cable.

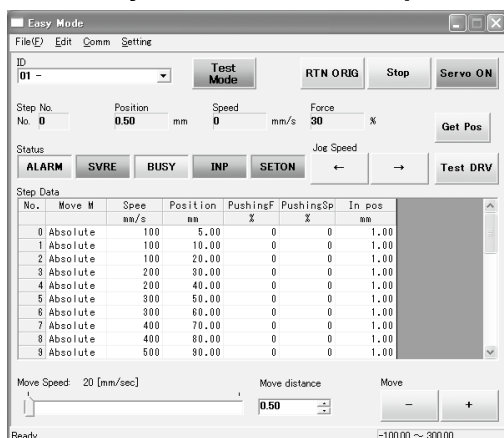
## Hardware Requirements

|                         |                                    |
|-------------------------|------------------------------------|
| OS                      | Windows®7, Windows®8.1, Windows®10 |
| Communication interface | USB 1.1 or USB 2.0 ports           |
| Display                 | 1024 x 768 or more                 |

\* Windows®7, Windows®8.1 and Windows®10 are registered trademarks of Microsoft Corporation in the United States.

### Screen Example

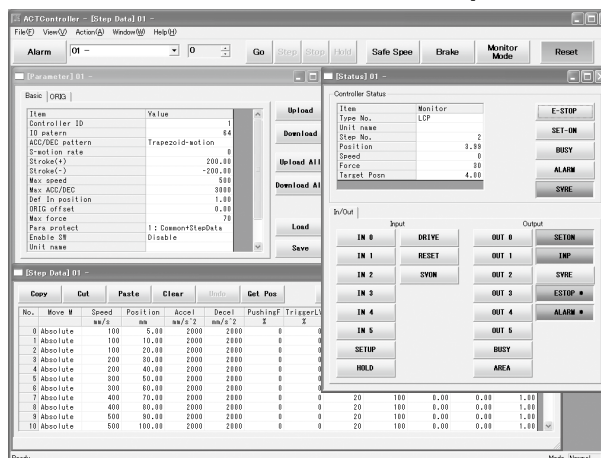
### Easy mode screen example



## Easy operation and simple setting

- Allowing to set and display actuator step data such as position, speed, force, etc.
- Setting of step data and test drive can be performed on the same page.
- Can be used to jog and move at a constant rate

### Normal mode screen example



### Detailed setting

- Step data can be set in detail.
- Signals and terminal status can be monitored.
- Parameters can be set.
- JOG and constant rate movement, return to origin, test drive and testing of forced output can be performed.



Compatible controllers

JXC□1 LECA6

LECPA

# LEC-T1 Teaching Box



RoHS



## How to Order

LEC-T1-3 J G □

Teaching box

Cable length [m]

3 3

Initial language

J Japanese  
E English

Enable switch

|     |                             |
|-----|-----------------------------|
| Nil | None                        |
| S   | Equipped with enable switch |

\* Interlock switch for jog and test function

Stop switch

G Equipped with stop switch

\* The displayed language can be changed to English or Japanese.

## Specifications

| Item                             | Description                         |
|----------------------------------|-------------------------------------|
| Switch                           | Stop switch, Enable switch (Option) |
| Cable length [m]                 | 3                                   |
| Enclosure                        | IP64 (Except connector)             |
| Operating temperature range [°C] | 5 to 50                             |
| Operating humidity range [%RH]   | 90 or less (No condensation)        |
| Weight [g]                       | 350 (Except cable)                  |

### [UL-compliant products]

When compliance with UL is required, the electric actuator and controller should be used with a UL1310 Class 2 power supply.

## Standard functions

- Chinese character display
- Stop switch is provided.

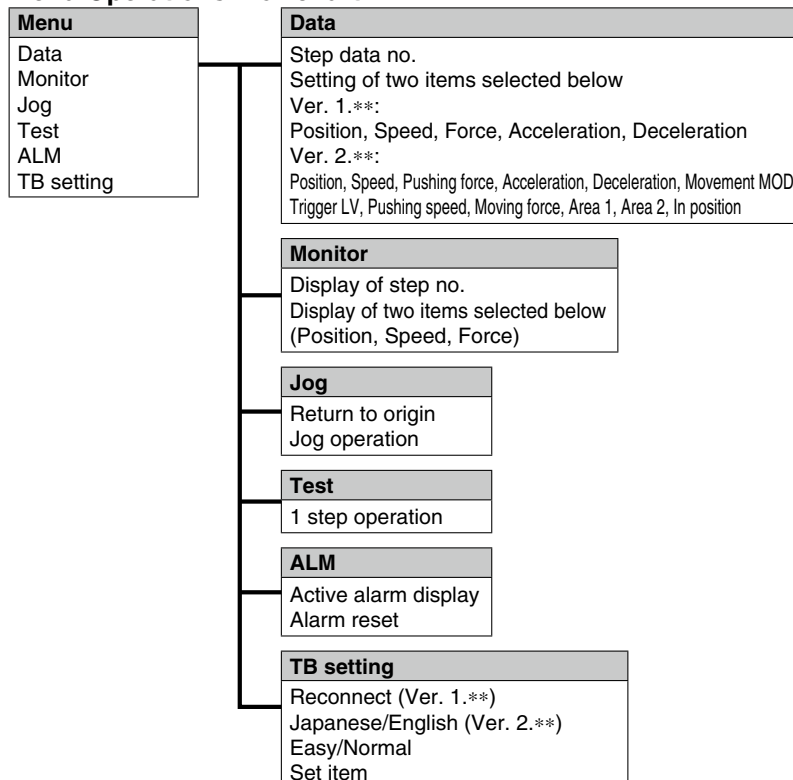
## Option

- Enable switch is provided.

## Easy Mode

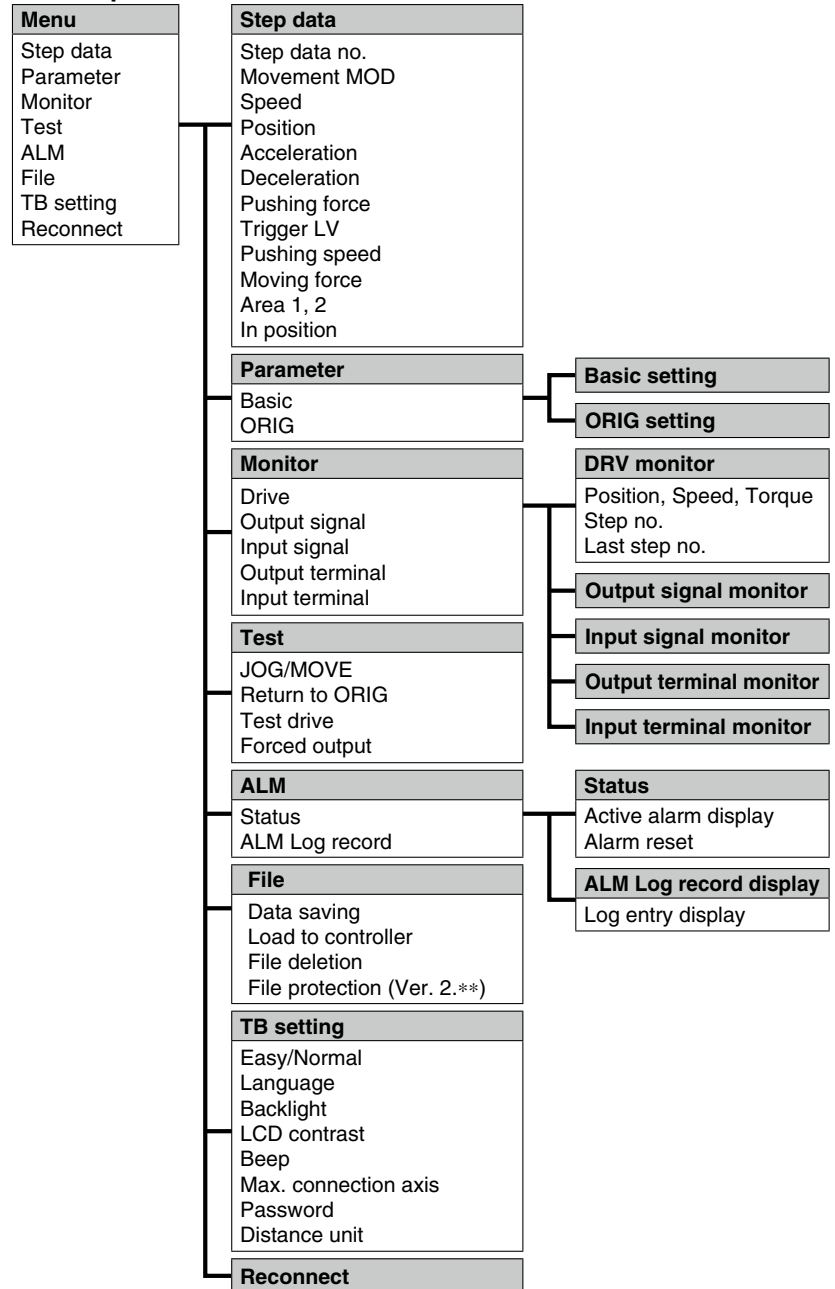
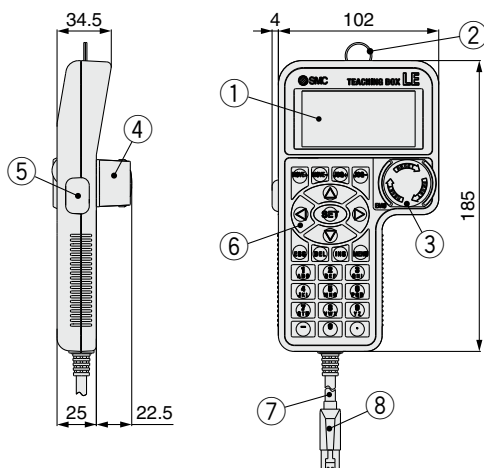
| Function   | Details                                                                                                                                                                              |
|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step data  | • Setting of step data                                                                                                                                                               |
| Jog        | • Jog operation<br>• Return to origin                                                                                                                                                |
| Test       | • 1 step operation<br>• Return to origin                                                                                                                                             |
| Monitor    | • Display of axis and step data no.<br>• Display of two items selected from Position, Speed, Force.                                                                                  |
| ALM        | • Active alarm display<br>• Alarm reset                                                                                                                                              |
| TB setting | • Reconnection of axis (Ver. 1.**)<br>• Displayed language setting (Ver. 2.**)<br>• Setting of easy/normal mode<br>• Setting step data and selection of items from easy mode monitor |

## Menu Operations Flowchart



**Normal Mode**

| Function   | Details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Step data  | • Step data setting                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Parameter  | • Parameters setting                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Test       | <ul style="list-style-type: none"> <li>• Jog operation/Constant rate movement</li> <li>• Return to origin</li> <li>• Test drive (Specify a max. of 5 step data and operate.)</li> <li>• Forced output (Forced signal output, Forced terminal output)</li> </ul>                                                                                                                                                                                                                        |
| Monitor    | <ul style="list-style-type: none"> <li>• Drive monitor</li> <li>• Output signal monitor</li> <li>• Input signal monitor</li> <li>• Output terminal monitor</li> <li>• Input terminal monitor</li> </ul>                                                                                                                                                                                                                                                                                |
| ALM        | <ul style="list-style-type: none"> <li>• Active alarm display (Alarm reset)</li> <li>• Alarm log record display</li> </ul>                                                                                                                                                                                                                                                                                                                                                             |
| File       | <ul style="list-style-type: none"> <li>• Data saving<br/>Save the step data and parameters of the controller which is being used for communication (it is possible to save four files, with one set of step data and parameters defined as one file).</li> <li>• Load to controller<br/>Loads the data which is saved in the teaching box to the controller which is being used for communication.</li> <li>• Delete the saved data.</li> <li>• File protection (Ver. 2.**)</li> </ul> |
| TB setting | <ul style="list-style-type: none"> <li>• Display setting (Easy/Normal mode)</li> <li>• Language setting (Japanese/English)</li> <li>• Backlight setting</li> <li>• LCD contrast setting</li> <li>• Beep sound setting</li> <li>• Max. connection axis</li> <li>• Distance unit (mm/inch)</li> </ul>                                                                                                                                                                                    |
| Reconnect  | • Reconnection of axis                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

**Menu Operations Flowchart****Dimensions**

| No. | Description            | Function                                                                                                                               |
|-----|------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| 1   | LCD                    | A screen of liquid crystal display (with backlight)                                                                                    |
| 2   | Ring                   | A ring for hanging the teaching box                                                                                                    |
| 3   | Stop switch            | When switch is pushed in, the switch locks and stops. The lock is released when it is turned to the right.                             |
| 4   | Stop switch guard      | A guard for the stop switch                                                                                                            |
| 5   | Enable switch (Option) | Prevents unintentional operation (unexpected operation) of the jog test function. Other functions such as data change are not covered. |
| 6   | Key switch             | Switch for each input                                                                                                                  |
| 7   | Cable                  | Length: 3 meters                                                                                                                       |
| 8   | Connector              | A connector connected to CN4 of the controller                                                                                         |



# AC Servo Motor Drivers

## LECS□/LECS□-T/LECY□ Series



RoHS

\* For details, refer to page 307 and onward.

The LECSB-S, LECSC-S, and LECSS-S electric actuator drivers are to be discontinued. Please select one of the substitute drivers ending with a "-T" instead: the LECSCB-T, LECSC-T, and LECSS-T.

### Pulse Input Type/ Positioning Type ..... p. 269

Incremental Type  
**LECSA Series**



### Pulse Input Type ..... p. 269

Absolute Type  
**LECSB Series**



### CC-Link Direct Input Type ... p. 269

Absolute Type  
**LECSC Series**

CC-Link



### SSCNET III Type ..... p. 269

Absolute Type  
**LECSS Series**



### Pulse Input Type/ Positioning Type ..... p. 269

Absolute Type  
**LECSB-T Series**



Safety function STO available

### CC-Link Direct Input Type ... p. 269

Absolute Type  
**LECSC-T Series**



### Network Card Type ..... p. 269

Absolute Type  
**LECSN-T Series**



Safety function STO available

### SSCNET III/H Type ..... p. 269

Absolute Type  
**LECSS-T Series**



Safety function STO available

### MECHATROLINK-II Type ... p. 295

Absolute Type  
**LECYM Series**



Safety function STO available

### MECHATROLINK-III Type ... p. 295

Absolute Type  
**LECYU Series**



Safety function STO available

Model  
Selection

LEY

LEYG

LEY

LEYG

LEY-X7

LEY-X5

25A-LEY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC□

LECS□

LECY□

Specific Product  
Precautions

AC Servo Motor

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

# AC Servo Motor Driver

**LECS□ Series**

**Power supply voltage** 100 to 120 VAC  
200 to 230 VAC

**Motor capacity** 100/200/400 W

## Incremental Type

### LECSA Series (Pulse input type/Positioning type)



- Up to 7 positioning points by point table
- Input type: Pulse input
- Control encoder: Incremental 17-bit encoder (Resolution: 131072 p/rev)
- Parallel input: 6 inputs  
output: 4 outputs

### LECSB Series (Pulse input type)



- Input type: Pulse input
- Control encoder: Absolute 18-bit encoder (Resolution: 262144 p/rev)
- Parallel input: 10 inputs  
output: 6 outputs

### LECS C Series (CC-Link direct input type)



- Position data/speed data setting and operation start/stop
- Positioning by up to 255 point tables (when 2 stations are occupied)
- Up to 32 drivers can be connected (when 2 stations are occupied) with CC-Link communication.
- Applicable Fieldbus protocol: CC-Link (Ver. 1.10, Max. communication speed: 10 Mbps)
- Control encoder: Absolute 18-bit encoder (Resolution: 262144 p/rev)

**CC-Link**

## Absolute Type

### LECSS Series (SSCNET III type)



- Compatible with Mitsubishi Electric's servo system controller network
- Reduced wiring and SSCNET III optical cable for one-touch connection
- The SSCNET III optical cable provides enhanced noise resistance.
- Up to 16 drivers can be connected with SSCNET III communication.
- Applicable Fieldbus protocol: SSCNET III  
(High-speed optical communication, Max. bidirectional communication speed: 50 Mbps)
- Control encoder: Absolute 18-bit encoder (Resolution: 262144 p/rev)

**SSCNET III**  
SERVO SYSTEM CONTROLLER NETWORK

## LECS□-T Series

|                             |                                                          |
|-----------------------------|----------------------------------------------------------|
| <b>Power supply voltage</b> | <b>200 to 240 VAC</b><br>(LECS-T Series: 200 to 230 VAC) |
| <b>Motor capacity</b>       | <b>100/200/400/750 W</b>                                 |

|                                 |                |       |                                                |       |             |       |                |       |                                                |       |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------------|-------|----------------|-------|------------------------------------------------|-------|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       | Environment |       | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECP1 | LECG        | LECA6 | JXC51/61       | LECP1 | LECG                                           | LECA6 |                    |
|                                 |                |       |                                                |       |             |       |                |       |                                                |       |                    |
|                                 |                |       |                                                |       |             |       |                |       |                                                |       |                    |
|                                 |                |       |                                                |       |             |       |                |       |                                                |       |                    |
|                                 |                |       |                                                |       |             |       |                |       |                                                |       |                    |
|                                 |                |       |                                                |       |             |       |                |       |                                                |       |                    |
|                                 |                |       |                                                |       |             |       |                |       |                                                |       |                    |

### LECSB-T Series (Pulse input type/Positioning type)



- **Positioning by up to 255 point tables**
- **Input type:** Pulse input (Sink (NPN) type interface/Source (PNP) type interface)
- **Control encoder:** Absolute 22-bit encoder (Resolution: 4194304 p/rev)
- **STO (Safe Torque Off) safety function available**
- **Parallel input:** 10 inputs  
**output:** 6 outputs

### LECSC-T Series (CC-Link direct input type)



- **Position data/speed data setting and operation start/stop**
- **Positioning by up to 255 point tables (when 2 stations are occupied)**
- **Up to 32 drivers can be connected (when 2 stations are occupied) with CC-Link communication.**
- **Applicable Fieldbus protocol:** CC-Link (Ver. 1.10, Max. communication speed: 10 Mbps)
- **Control encoder:** Absolute 18-bit encoder (Resolution: 262144 p/rev)

CC-Link

### LECSN-T Series (Network card type)



- Supports EtherCAT<sup>®</sup>, EtherNet/IP<sup>™</sup>, and PROFINET<sup>®</sup>
- Supports 3 types of network card (EtherCAT<sup>®</sup>, EtherNet/IP<sup>™</sup>, and PROFINET)
- STO (Safe Torque Off) safety function available
- **Control encoder:** Absolute 22-bit encoder (Resolution: 4194304 p/rev)

## LECSS-T Series (SSCNET III/H type)



- **Applicable Fieldbus protocol:**  (High-speed optical communication, max. bidirectional communication speed: 150 Mbps)
  - **Bidirectional communication speed:** 3 times
  - **SSCNET III/H and SSCNET III products are compatible.**
  - **Improved noise resistance**
  - **STO (Safe Torque Off) safety function available**
  - **Control encoder:** Absolute 22-bit encoder (Resolution: 4194304 p/rev)



**SSCNET III/H**  
SERVO SYSTEM CONTROLLER NETWORK



# AC Servo Motor Driver

**LECY**□ *Series*

|                      |                |
|----------------------|----------------|
| Power supply voltage | 200 to 230 VAC |
|----------------------|----------------|

|                |               |
|----------------|---------------|
| Motor capacity | 100/200/400 W |
|----------------|---------------|

Absolute Type

## **LECYM Series** (MECHATROLINK-II type)



 **MECHATROLINK-II**

- **Applicable Fieldbus protocol:**  MECHATROLINK-II
- **Number of connectable drivers:** 30 units (Transmission distance: Max. 50 m in total)
- **Max. transmission speed:** 10 Mbps
- **Min. transmission cycle:** 250  $\mu$ s
- **Control encoder:** Absolute 20-bit encoder (Resolution: 1048576 p/rev)
- **STO (Safe Torque Off) safety function available**
- **Compliant with the SEMI F47 Standard (Torque limit for low DC power supply voltage for main circuit)**

## **LECYU Series** (MECHATROLINK-III type)



 **MECHATROLINK-III**

- **Applicable Fieldbus protocol:**  MECHATROLINK-III
- **Number of connectable drivers:** 62 units (Transmission distance: Max. 75 m between stations)
- **Max. transmission speed:** 100 Mbps
- **Min. transmission cycle:** 125  $\mu$ s
- **Control encoder:** Absolute 20-bit encoder (Resolution: 1048576 p/rev)
- **STO (Safe Torque Off) safety function available**
- **Compliant with the SEMI F47 Standard (Torque limit for low DC power supply voltage for main circuit)**

|                                 |                |       |                                                |       |       |       |       |             |         |        |                |      |                                                |      |                    |
|---------------------------------|----------------|-------|------------------------------------------------|-------|-------|-------|-------|-------------|---------|--------|----------------|------|------------------------------------------------|------|--------------------|
| Specific Product<br>Precautions | AC Servo Motor |       | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |       |       | Environment |         |        | AC Servo Motor |      | Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |      | Model<br>Selection |
|                                 | LECY□          | LECS□ | JXC□                                           | LECPA | LECP1 | LEC-G | LECA6 | JXC51/61    | 25A-LEY | LEY-X5 | LEY-X7         | LEYG | LEY                                            | LEYG | LEY                |

# AC Servo Motor Driver Incremental Type

**LECSA Series** (Pulse Input Type/Positioning Type)

## Absolute Type

**LECSB** (Pulse Input Type)/**LECSC** (CC-Link Direct Input Type)/**LECSS** (SSCNET III Type)

**LECSB-T** (Pulse Input Type/Positioning Type)/**LECSC-T** (CC-Link Direct Input Type)

**LECSN-T** (Network Card Type)/**LECSS-T** (SSCNET III/H Type) **Series**



Compatible actuators

LEF LEJ LEY

### How to Order

#### For LECSA/LECSB/LECSC/LECSS

**LECS A 1 - S1**

Driver type

|   |                                                                |
|---|----------------------------------------------------------------|
| A | Pulse input type/Positioning type<br>(For incremental encoder) |
| B | Pulse input type<br>(For absolute encoder)                     |
| C | CC-Link direct input type<br>(For absolute encoder)            |
| S | SSCNET III type<br>(For absolute encoder)                      |

Power supply voltage

|   |                          |
|---|--------------------------|
| 1 | 100 to 120 VAC, 50/60 Hz |
| 2 | 200 to 230 VAC, 50/60 Hz |

The LECSB-S, LECSC-S, and LECSS-S electric actuator drivers are to be discontinued. Please select one of the substitute drivers ending with a "-T" instead: the LECSB-T, LECSC-T, and LECSS-T.



- \* If an I/O connector is required, order the part number "LE-CSN□" separately.
- \* If an I/O cable is required, order the part number "LEC-CSN□-1" separately.  
(Since the electric actuator will not operate without emergency stop (EMG) wiring for the LECSB, an I/O connector or an I/O cable is required.)

Compatible motor type

| Symbol | Type                    | Capacity | Encoder     |
|--------|-------------------------|----------|-------------|
| S1     | AC servo motor (S2*1)   | 100 W    | Incremental |
| S3     | AC servo motor (S3*1)   | 200 W    |             |
| S4     | AC servo motor (S4*1)*2 | 400 W    |             |
| S5     | AC servo motor (S6*1)   | 100 W    | Absolute    |
| S7     | AC servo motor (S7*1)   | 200 W    |             |
| S8     | AC servo motor (S8*1)*2 | 400 W    |             |

\*1 The symbol shows the motor type (actuator).

\*2 Only available for power supply voltage "200 to 230 VAC"

#### For LECSB-T/LECSC-T/LECSS-T

**LECS B 2 - T5**

Driver type

|   |                                                             |
|---|-------------------------------------------------------------|
| B | Pulse input type/Positioning type<br>(For absolute encoder) |
| C | CC-Link direct input type<br>(For absolute encoder)         |
| S | SSCNET III/H type<br>(For absolute encoder)                 |

Power supply voltage

|   |                                                                                                   |
|---|---------------------------------------------------------------------------------------------------|
| 2 | 200 to 240 VAC, 50/60 Hz<br>(For LECSB2-T/LECSS2-T)<br>200 to 230 VAC, 50/60 Hz<br>(For LECSC2-T) |
|---|---------------------------------------------------------------------------------------------------|



- \* If an I/O connector is required, order the part number "LE-CSN□" separately.
- \* If an I/O cable is required, order the part number "LEC-CSN□-1" separately.  
(Since the electric actuator will not operate without forced stop (EM2) wiring when using the LECSB-T in any mode other than positioning mode, an I/O connector or an I/O cable is required.)

Compatible motor type

| Symbol | Type                  | Capacity | Encoder  |
|--------|-----------------------|----------|----------|
| T5     | AC servo motor (T6*1) | 100 W    | Absolute |
| T7     | AC servo motor (T7*1) | 200 W    |          |
| T8     | AC servo motor (T8*1) | 400 W    |          |
| T9     | AC servo motor (T9*1) | 750 W    |          |

\*1 The symbol shows the motor type (actuator).

#### For LECSN-T

**LECS N 2 - T5 - 9**

Driver type

|   |                                             |
|---|---------------------------------------------|
| N | Network card type<br>(For absolute encoder) |
|---|---------------------------------------------|

Power supply voltage

|   |                          |
|---|--------------------------|
| 2 | 200 to 240 VAC, 50/60 Hz |
|---|--------------------------|

Compatible motor type

| Symbol | Type                  | Capacity | Encoder  |
|--------|-----------------------|----------|----------|
| T5     | AC servo motor (T6*1) | 100 W    | Absolute |
| T7     | AC servo motor (T7*1) | 200 W    |          |
| T8     | AC servo motor (T8*1) | 400 W    |          |
| T9     | AC servo motor (T9*1) | 750 W    |          |

\*1 The symbol shows the motor type (actuator).

Network card type\*1

|     |                      |
|-----|----------------------|
| Nil | Without network card |
| E   | EtherCAT®            |
| 9   | EtherNet/IP™         |
| P   | PROFINET             |

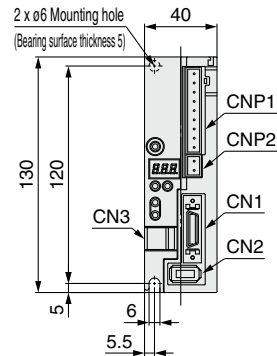
\*1 Only the "Without network card" option is UL compliant.



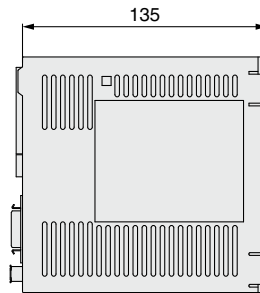
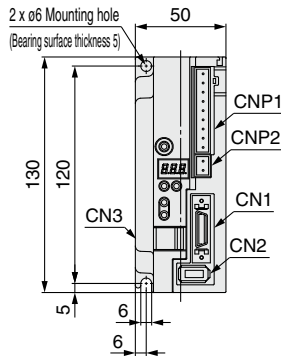
## Dimensions

### LECSA□

For LECSA□-S1, S3

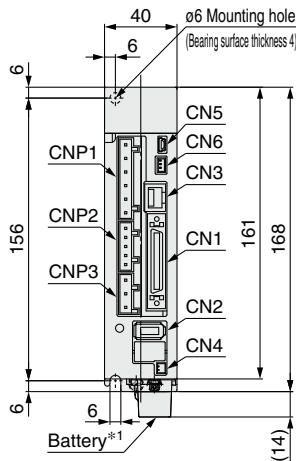


For LECSA□-S4

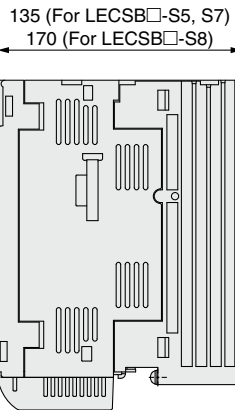


| Connector name | Description                            |
|----------------|----------------------------------------|
| <b>CN1</b>     | I/O signal connector                   |
| <b>CN2</b>     | Encoder connector                      |
| <b>CN3</b>     | USB communication connector            |
| <b>CNP1</b>    | Main circuit power supply connector    |
| <b>CNP2</b>    | Control circuit power supply connector |

### LECSB□

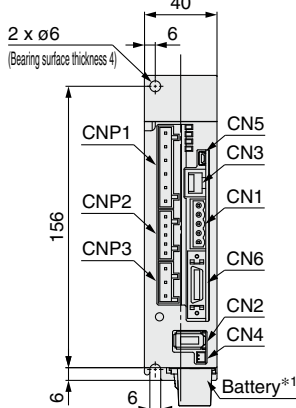


\*1 Battery included

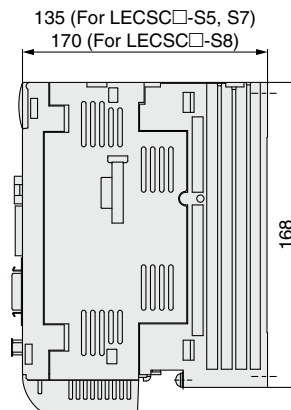


| Connector name | Description                            |
|----------------|----------------------------------------|
| <b>CN1</b>     | I/O signal connector                   |
| <b>CN2</b>     | Encoder connector                      |
| <b>CN3</b>     | RS-422 communication connector         |
| <b>CN4</b>     | Battery connector                      |
| <b>CN5</b>     | USB communication connector            |
| <b>CN6</b>     | Analog monitor connector               |
| <b>CNP1</b>    | Main circuit power supply connector    |
| <b>CNP2</b>    | Control circuit power supply connector |
| <b>CNP3</b>    | Servo motor power connector            |

### LECS□

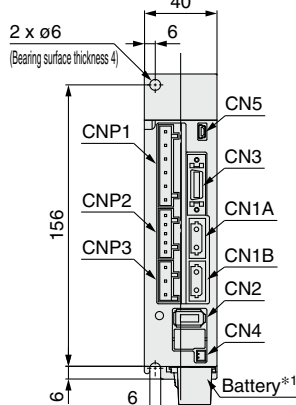


\*1 Battery included

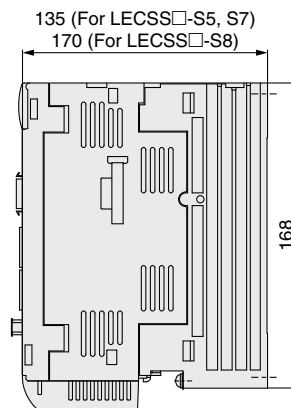


| Connector name | Description                            |
|----------------|----------------------------------------|
| <b>CN1</b>     | CC-Link connector                      |
| <b>CN2</b>     | Encoder connector                      |
| <b>CN3</b>     | RS-422 communication connector         |
| <b>CN4</b>     | Battery connector                      |
| <b>CN5</b>     | USB communication connector            |
| <b>CN6</b>     | I/O signal connector                   |
| <b>CNP1</b>    | Main circuit power supply connector    |
| <b>CNP2</b>    | Control circuit power supply connector |
| <b>CNP3</b>    | Servo motor power connector            |

### LECSS□



\*1 Battery included

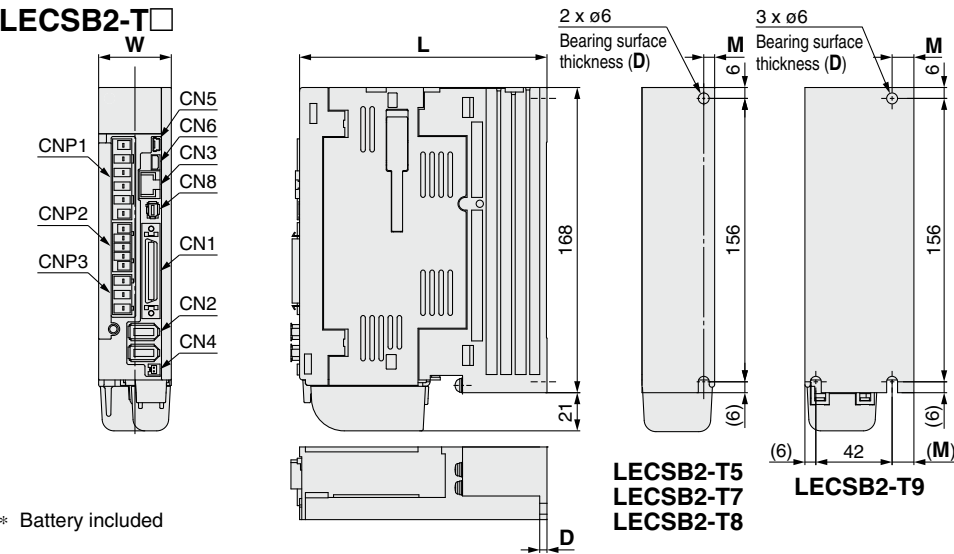


| Connector name | Description                                       |
|----------------|---------------------------------------------------|
| <b>CN1A</b>    | Front axis connector for SSCNET III optical cable |
| <b>CN1B</b>    | Rear axis connector for SSCNET III optical cable  |
| <b>CN2</b>     | Encoder connector                                 |
| <b>CN3</b>     | I/O signal connector                              |
| <b>CN4</b>     | Battery connector                                 |
| <b>CN5</b>     | USB communication connector                       |
| <b>CNP1</b>    | Main circuit power supply connector               |
| <b>CNP2</b>    | Control circuit power supply connector            |
| <b>CNP3</b>    | Servo motor power connector                       |

# LECS□/LECS□-T Series

## Dimensions

### LECSB2-T□

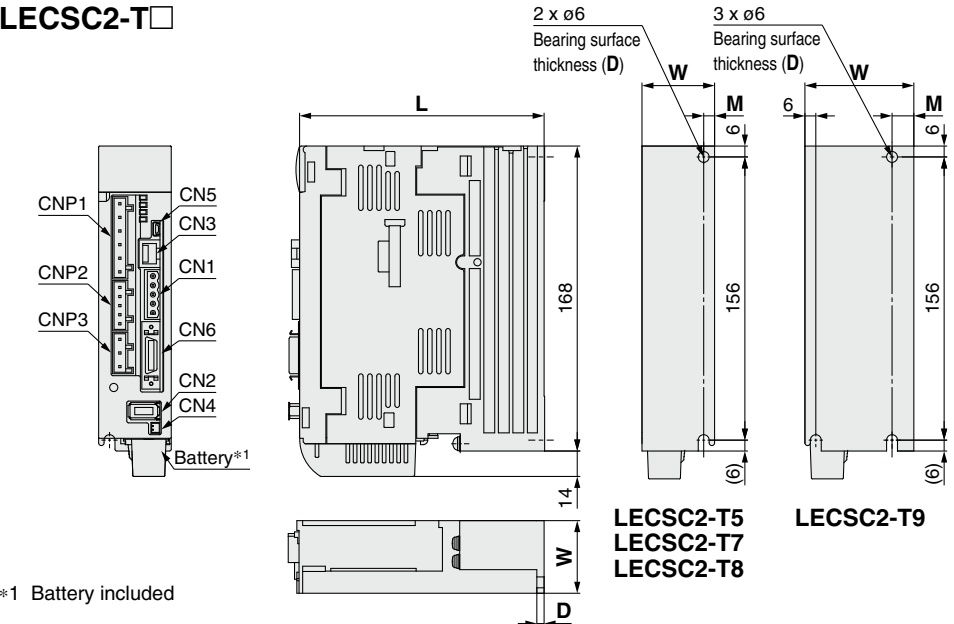


\* Battery included

| Connector name | Description                            |
|----------------|----------------------------------------|
| CN1            | I/O signal connector                   |
| CN2            | Encoder connector                      |
| CN3            | RS-422 communication connector         |
| CN4            | Battery connector                      |
| CN5            | USB communication connector            |
| CN6            | Analog monitor connector               |
| CN8            | STO input signal connector             |
| CNP1           | Main circuit power supply connector    |
| CNP2           | Control circuit power supply connector |
| CNP3           | Servo motor power connector            |

| Dimensions [mm] |    |     |   |    |
|-----------------|----|-----|---|----|
| Model           | W  | L   | D | M  |
| LECSB2-T5       | 40 | 135 | 4 | 6  |
| LECSB2-T7       |    | 170 | 5 |    |
| LECSB2-T8       | 60 | 185 | 6 | 12 |
| LECSB2-T9       |    | 185 | 6 |    |

### LECSC2-T□

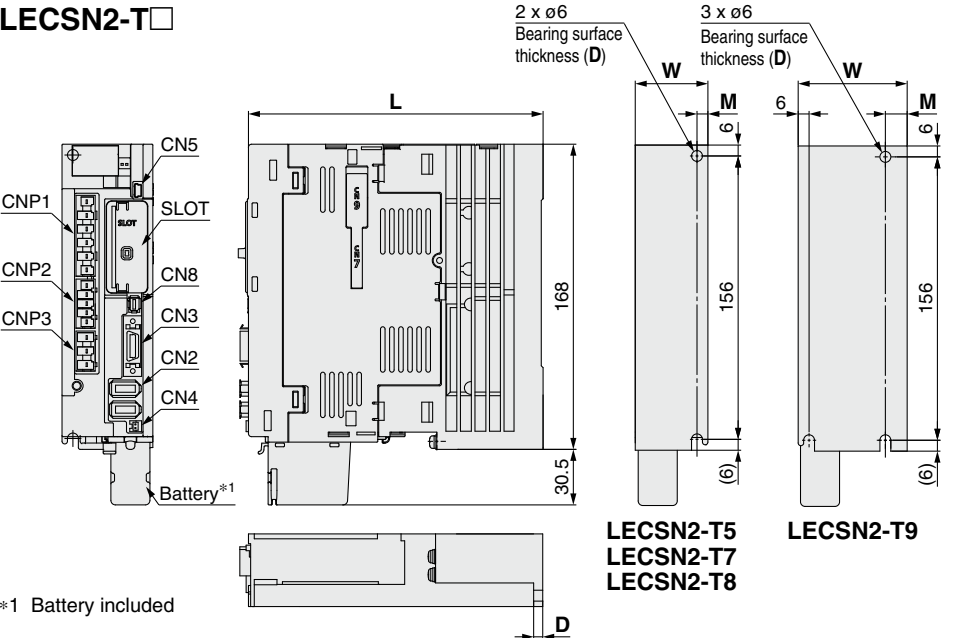


\*1 Battery included

| Connector name | Description                            |
|----------------|----------------------------------------|
| CN1            | CC-Link connector                      |
| CN2            | Encoder connector                      |
| CN3            | RS-422 communication connector         |
| CN4            | Battery connector                      |
| CN5            | USB communication connector            |
| CN6            | I/O signal connector                   |
| CNP1           | Main circuit power supply connector    |
| CNP2           | Control circuit power supply connector |
| CNP3           | Servo motor power connector            |

| Dimensions [mm] |    |     |   |    |
|-----------------|----|-----|---|----|
| Model           | W  | L   | D | M  |
| LECSC2-T5       | 40 | 135 | 4 | 6  |
| LECSC2-T7       |    | 170 | 5 |    |
| LECSC2-T8       | 60 | 185 | 6 | 12 |
| LECSC2-T9       |    | 185 | 6 |    |

### LECSN2-T□

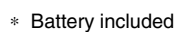


\*1 Battery included

| Connector name | Description                            |
|----------------|----------------------------------------|
| CN3            | I/O signal connector                   |
| CN2            | Encoder connector                      |
| CN4            | Battery connector                      |
| CN5            | USB communication connector            |
| CN8            | STO input signal connector             |
| CNP1           | Main circuit power supply connector    |
| CNP2           | Control circuit power supply connector |
| CNP3           | Servo motor power connector            |
| SLOT           | Network card slot                      |

| Dimensions [mm] |    |     |   |    |
|-----------------|----|-----|---|----|
| Model           | W  | L   | D | M  |
| LECSN2-T5       | 50 | 161 | 5 | 6  |
| LECSN2-T7       |    | 161 | 5 |    |
| LECSN2-T8       | 60 | 191 | 6 | 12 |
| LECSN2-T9       |    | 191 | 6 |    |

## LECSS2-T□

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)AC Servo Motor

AC  
**LEYG**

|        |  |
|--------|--|
| LEY-X7 |  |
|--------|--|

|             |         |        |
|-------------|---------|--------|
| Environment | 25A-LEY | LEY-X5 |
|-------------|---------|--------|

|                                                |       |       |          |
|------------------------------------------------|-------|-------|----------|
| Step Motor (Servo/24 VDC)/Servo Motor (24 VDC) |       |       |          |
| LECPA                                          | LECP1 | LEC-G | JXC51/61 |

JXC ☐

|                              |                               |
|------------------------------|-------------------------------|
| AC Servo Motor               |                               |
| ECY <input type="checkbox"/> | LECS <input type="checkbox"/> |

**Specific Product Precautions**



# LECS□/LECS□-T Series

## Specifications

### LECSA Series

| Model                            |                                   | LECSA1-S1                                                     | LECSA1-S3 | LECSA2-S1                              | LECSA2-S3 | LECSA2-S4 |
|----------------------------------|-----------------------------------|---------------------------------------------------------------|-----------|----------------------------------------|-----------|-----------|
| Compatible motor capacity [W]    |                                   | 100                                                           | 200       | 100                                    | 200       | 400       |
| Compatible encoder               |                                   | Incremental 17-bit encoder (Resolution: 131072 p/rev)         |           |                                        |           |           |
| Main power supply                | Power voltage [V]                 | Single phase 100 to 120 VAC (50/60 Hz)                        |           | Single phase 200 to 230 VAC (50/60 Hz) |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 85 to 132 VAC                                    |           | Single phase 170 to 253 VAC            |           |           |
|                                  | Rated current [A]                 | 3.0                                                           | 5.0       | 1.5                                    | 2.4       | 4.5       |
| Control power supply             | Control power supply voltage [V]  | 24 VDC                                                        |           |                                        |           |           |
|                                  | Allowable voltage fluctuation [V] | 21.6 to 26.4 VDC                                              |           |                                        |           |           |
|                                  | Rated current [A]                 | 0.5                                                           |           |                                        |           |           |
| Parallel input                   |                                   | 6 inputs                                                      |           |                                        |           |           |
| Parallel output                  |                                   | 4 outputs                                                     |           |                                        |           |           |
| Max. input pulse frequency [pps] |                                   | 1 M (for differential receiver), 200 k (for open collector)*2 |           |                                        |           |           |
| Function                         | In-position range setting [pulse] | 0 to ±65535 (Command pulse unit)                              |           |                                        |           |           |
|                                  | Error excessive                   | ±3 rotations                                                  |           |                                        |           |           |
|                                  | Torque limit                      | Parameter setting                                             |           |                                        |           |           |
|                                  | Communication                     | USB communication                                             |           |                                        |           |           |
|                                  | Point table                       | Up to 7 points                                                |           |                                        |           |           |
| Operating temperature range [°C] |                                   | 0 to 55 (No freezing)                                         |           |                                        |           |           |
| Operating humidity range [%RH]   |                                   | 90 or less (No condensation)                                  |           |                                        |           |           |
| Storage temperature range [°C]   |                                   | -20 to 65 (No freezing)                                       |           |                                        |           |           |
| Storage humidity range [%RH]     |                                   | 90 or less (No condensation)                                  |           |                                        |           |           |
| Insulation resistance [MΩ]       |                                   | Between the housing and SG: 10 (500 VDC)                      |           |                                        |           |           |
| Weight [g]                       |                                   | 600                                                           |           |                                        |           | 700       |

### LECSB Series

| Model                            |                                   | LECSB1-S5                                                        | LECSB1-S7 | LECSB2-S5                                                                       | LECSB2-S7 | LECSB2-S8 |
|----------------------------------|-----------------------------------|------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|-----------|-----------|
| Compatible motor capacity [W]    |                                   | 100                                                              | 200       | 100                                                                             | 200       | 400       |
| Compatible encoder               |                                   | Absolute 18-bit encoder (Resolution: 262144 p/rev)               |           |                                                                                 |           |           |
| Main power supply                | Power voltage [V]                 | Single phase 100 to 120 VAC (50/60 Hz)                           |           | Three phase 200 to 230 VAC (50/60 Hz)<br>Single phase 200 to 230 VAC (50/60 Hz) |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 85 to 132 VAC                                       |           | Three phase 170 to 253 VAC<br>Single phase 170 to 253 VAC                       |           |           |
|                                  | Rated current [A]                 | 3.0                                                              | 5.0       | 0.9                                                                             | 1.5       | 2.6       |
| Control power supply             | Control power supply voltage [V]  | Single phase 100 to 120 VAC (50/60 Hz)                           |           | Single phase 200 to 230 VAC (50/60 Hz)                                          |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 85 to 132 VAC                                       |           | Single phase 170 to 253 VAC                                                     |           |           |
|                                  | Rated current [A]                 | 0.4                                                              |           | 0.2                                                                             |           |           |
| Parallel input                   |                                   | 10 inputs                                                        |           |                                                                                 |           |           |
| Parallel output                  |                                   | 6 outputs                                                        |           |                                                                                 |           |           |
| Max. input pulse frequency [pps] |                                   | 1 M (for differential receiver), 200 k (for open collector)*2    |           |                                                                                 |           |           |
| Function                         | In-position range setting [pulse] | 0 to ±10000 (Command pulse unit)                                 |           |                                                                                 |           |           |
|                                  | Error excessive                   | ±3 rotations                                                     |           |                                                                                 |           |           |
|                                  | Torque limit                      | Parameter setting or external analog input setting (0 to 10 VDC) |           |                                                                                 |           |           |
|                                  | Communication                     | USB communication, RS422 communication*1                         |           |                                                                                 |           |           |
| Operating temperature range [°C] |                                   | 0 to 55 (No freezing)                                            |           |                                                                                 |           |           |
| Operating humidity range [%RH]   |                                   | 90 or less (No condensation)                                     |           |                                                                                 |           |           |
| Storage temperature range [°C]   |                                   | -20 to 65 (No freezing)                                          |           |                                                                                 |           |           |
| Storage humidity range [%RH]     |                                   | 90 or less (No condensation)                                     |           |                                                                                 |           |           |
| Insulation resistance [MΩ]       |                                   | Between the housing and SG: 10 (500 VDC)                         |           |                                                                                 |           |           |
| Weight [g]                       |                                   | 800                                                              |           |                                                                                 |           | 1000      |

\*1 USB communication and RS422 communication cannot be performed at the same time.

\*2 If the command pulse input is open collector method, it supports only the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

## Specifications

### LECSC Series

| Model                            |                                        |                                                             | LECSC1-S5                                                                                                                                                                                                        | LECSC1-S7 | LECSC2-S5                                                                       | LECSC2-S7 | LECSC2-S8 |
|----------------------------------|----------------------------------------|-------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|---------------------------------------------------------------------------------|-----------|-----------|
| Compatible motor capacity [W]    |                                        |                                                             | 100                                                                                                                                                                                                              | 200       | 100                                                                             | 200       | 400       |
| Compatible encoder               |                                        |                                                             | Absolute 18-bit encoder (Resolution: 262144 p/rev)                                                                                                                                                               |           |                                                                                 |           |           |
| Main power supply                | Power voltage [V]                      |                                                             | Single phase 100 to 120 VAC (50/60 Hz)                                                                                                                                                                           |           | Three phase 200 to 230 VAC (50/60 Hz)<br>Single phase 200 to 230 VAC (50/60 Hz) |           |           |
|                                  | Allowable voltage fluctuation [V]      |                                                             | Single phase 85 to 132 VAC                                                                                                                                                                                       |           | Three phase 170 to 253 VAC<br>Single phase 170 to 253 VAC                       |           |           |
|                                  | Rated current [A]                      |                                                             | 3.0                                                                                                                                                                                                              | 5.0       | 0.9                                                                             | 1.5       | 2.6       |
| Control power supply             | Control power supply voltage [V]       |                                                             | Single phase 100 to 120 VAC (50/60 Hz)                                                                                                                                                                           |           | Single phase 200 to 230 VAC (50/60 Hz)                                          |           |           |
|                                  | Allowable voltage fluctuation [V]      |                                                             | Single phase 85 to 132 VAC                                                                                                                                                                                       |           | Single phase 170 to 253 VAC                                                     |           |           |
|                                  | Rated current [A]                      |                                                             | 0.4                                                                                                                                                                                                              |           | 0.2                                                                             |           |           |
| Communication specifications     | Applicable Fieldbus protocol (Version) |                                                             | CC-Link communication (Ver. 1.10)                                                                                                                                                                                |           |                                                                                 |           |           |
|                                  | Connection cable                       |                                                             | CC-Link Ver. 1.10 compliant cable (Shielded 3-core twisted pair cable)*1                                                                                                                                         |           |                                                                                 |           |           |
|                                  | Remote station number                  |                                                             | 1 to 64                                                                                                                                                                                                          |           |                                                                                 |           |           |
|                                  | Cable length                           | Communication speed [bps]/<br>Max. overall cable length [m] | 16 k/1200, 625 k/900, 2.5 M/400, 5 M/160, 10 M/100                                                                                                                                                               |           |                                                                                 |           |           |
|                                  |                                        | Cable length between stations [m]                           | 0.2 or more                                                                                                                                                                                                      |           |                                                                                 |           |           |
|                                  | I/O occupation area (Inputs/Outputs)   |                                                             | 1 station occupied (Remote I/O 32 points/32 points)/(Remote register 4 words/4 words)<br>2 stations occupied (Remote I/O 64 points/64 points)/(Remote register 8 words/8 words)                                  |           |                                                                                 |           |           |
|                                  | Number of connectable drivers          |                                                             | Up to 42 (when 1 station is occupied by 1 driver), Up to 32 (when 2 stations are occupied by 1 driver), when there are only remote device stations.                                                              |           |                                                                                 |           |           |
| Command method                   | Remote register input                  |                                                             | Available with CC-Link communication (2 stations occupied)                                                                                                                                                       |           |                                                                                 |           |           |
|                                  | Point table No. input                  |                                                             | Available with CC-Link communication, RS422 communication<br>CC-Link communication (1 station occupied): 31 points<br>CC-Link communication (2 stations occupied): 255 points<br>RS422 communication: 255 points |           |                                                                                 |           |           |
|                                  | Indexer positioning input              |                                                             | Available with CC-Link communication<br>CC-Link communication (1 station occupied): 31 points<br>CC-Link communication (2 stations occupied): 255 points                                                         |           |                                                                                 |           |           |
| Communication function           |                                        |                                                             | USB communication, RS-422 communication*2                                                                                                                                                                        |           |                                                                                 |           |           |
| Operating temperature range [°C] |                                        |                                                             | 0 to 55 (No freezing)                                                                                                                                                                                            |           |                                                                                 |           |           |
| Operating humidity range [%RH]   |                                        |                                                             | 90 or less (No condensation)                                                                                                                                                                                     |           |                                                                                 |           |           |
| Storage temperature range [°C]   |                                        |                                                             | -20 to 65 (No freezing)                                                                                                                                                                                          |           |                                                                                 |           |           |
| Storage humidity range [%RH]     |                                        |                                                             | 90 or less (No condensation)                                                                                                                                                                                     |           |                                                                                 |           |           |
| Insulation resistance [MΩ]       |                                        |                                                             | Between the housing and SG: 10 (500 VDC)                                                                                                                                                                         |           |                                                                                 |           |           |
| Weight [g]                       |                                        |                                                             | 800                                                                                                                                                                                                              |           |                                                                                 |           | 1000      |

\*1 If the system comprises of both CC-Link Ver. 1.00 and Ver. 1.10 compliant cables, Ver. 1.00 specifications are applied to the overall cable length and the cable length between stations.

\*2 USB communication and RS422 communication cannot be performed at the same time.

### LECSS Series

| Model                            |                                   | LECSS1-S5                                          | LECSS1-S7 | LECSS2-S5                                                                       | LECSS2-S7 | LECSS2-S8 |
|----------------------------------|-----------------------------------|----------------------------------------------------|-----------|---------------------------------------------------------------------------------|-----------|-----------|
| Compatible motor capacity [W]    |                                   | 100                                                | 200       | 100                                                                             | 200       | 400       |
| Compatible encoder               |                                   | Absolute 18-bit encoder (Resolution: 262144 p/rev) |           |                                                                                 |           |           |
| Main power supply                | Power voltage [V]                 | Single phase 100 to 120 VAC (50/60 Hz)             |           | Three phase 200 to 230 VAC (50/60 Hz)<br>Single phase 200 to 230 VAC (50/60 Hz) |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 85 to 132 VAC                         |           | Three phase 170 to 253 VAC<br>Single phase 170 to 253 VAC                       |           |           |
|                                  | Rated current [A]                 | 3.0                                                | 5.0       | 0.9                                                                             | 1.5       | 2.6       |
| Control power supply             | Control power supply voltage [V]  | Single phase 100 to 120 VAC (50/60 Hz)             |           | Single phase 200 to 230 VAC (50/60 Hz)                                          |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 85 to 132 VAC                         |           | Single phase 170 to 253 VAC                                                     |           |           |
|                                  | Rated current [A]                 | 0.4                                                |           | 0.2                                                                             |           |           |
| Applicable Fieldbus protocol     |                                   | SSCNET Ⅲ (High-speed optical communication)        |           |                                                                                 |           |           |
| Communication function           |                                   | USB communication                                  |           |                                                                                 |           |           |
| Operating temperature range [°C] |                                   | 0 to 55 (No freezing)                              |           |                                                                                 |           |           |
| Operating humidity range [%RH]   |                                   | 90 or less (No condensation)                       |           |                                                                                 |           |           |
| Storage temperature range [°C]   |                                   | -20 to 65 (No freezing)                            |           |                                                                                 |           |           |
| Storage humidity range [%RH]     |                                   | 90 or less (No condensation)                       |           |                                                                                 |           |           |
| Insulation resistance [MΩ]       |                                   | Between the housing and SG: 10 (500 VDC)           |           |                                                                                 |           |           |
| Weight [g]                       |                                   | 800                                                |           |                                                                                 |           | 1000      |

# LECS□/LECS□-T Series

## Specifications

### LECSB-T Series

| Model                            |                                   | LECSB2-T5                                                                       | LECSB2-T7 | LECSB2-T8 | LECSB2-T9 |
|----------------------------------|-----------------------------------|---------------------------------------------------------------------------------|-----------|-----------|-----------|
| Compatible motor capacity [W]    |                                   | 100                                                                             | 200       | 400       | 750       |
| Compatible encoder               |                                   | Absolute 22-bit encoder (Resolution: 4194304 p/rev)                             |           |           |           |
| Main power supply                | Power voltage [V]                 | Three phase 200 to 240 VAC (50/60 Hz), Single phase 200 to 240 VAC (50/60 Hz)   |           |           |           |
|                                  | Allowable voltage fluctuation [V] | Three phase 170 to 264 VAC (50/60 Hz), Single phase 170 to 264 VAC (50/60 Hz)   |           |           |           |
|                                  | Rated current [A]                 | 0.9                                                                             | 1.5       | 2.6       | 3.8       |
| Control power supply             | Control power supply voltage [V]  | Single phase 200 to 240 VAC (50/60 Hz)                                          |           |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 170 to 264 VAC                                                     |           |           |           |
|                                  | Rated current [A]                 | 0.2                                                                             |           |           |           |
| Parallel input                   |                                   | 10 inputs                                                                       |           |           |           |
| Parallel output                  |                                   | 6 outputs                                                                       |           |           |           |
| Max. input pulse frequency [pps] |                                   | 4 M (for differential receiver), 200 k (for open collector)                     |           |           |           |
| Function                         | In-position range setting [pulse] | 0 to ±65535 (Command pulse unit)                                                |           |           |           |
|                                  | Error excessive                   | ±3 rotations                                                                    |           |           |           |
|                                  | Torque limit                      | Parameter setting or external analog input setting (0 to 10 VDC)                |           |           |           |
|                                  | Communication                     | USB communication, RS422 communication*1                                        |           |           |           |
|                                  | Point table                       | Up to 255 points                                                                |           |           |           |
|                                  | Pushing operation                 | Point table no. input method, Up to 127 points                                  |           |           |           |
| Operating temperature range [°C] |                                   | 0 to 55 (No freezing)                                                           |           |           |           |
| Operating humidity range [%RH]   |                                   | 90 or less (No condensation)                                                    |           |           |           |
| Storage temperature range [°C]   |                                   | -20 to 65 (No freezing)                                                         |           |           |           |
| Storage humidity range [%RH]     |                                   | 90 or less (No condensation)                                                    |           |           |           |
| Insulation resistance [MΩ]       |                                   | Between the housing and SG: 10 (500 VDC)                                        |           |           |           |
| Safety function                  |                                   | STO (IEC/EN 61800-5-2)                                                          |           |           |           |
| Safety standards*2               |                                   | EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, EN 61800-5-2 |           |           |           |
| Weight [g]                       |                                   | 800                                                                             | 1000      | 1400      |           |

\*1 USB communication and RS422 communication cannot be performed at the same time.

\*2 The safety level depends on the set value of the driver parameter [Pr. PF18 STO diagnosis error detection time] and whether STO input diagnosis by TOFB output is performed or not. Refer to the LECSB-T operation manual for details.

### LECSC-T Series

| Model                            |                                        |                                                             | LECSC2-T5                                                                                                                                                                                                      | LECSC2-T7 | LECSC2-T8 | LECSC2-T9 |
|----------------------------------|----------------------------------------|-------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|-----------|
| Compatible motor capacity [W]    |                                        |                                                             | 100                                                                                                                                                                                                            | 200       | 400       | 750       |
| Compatible encoder               |                                        |                                                             | Absolute 18-bit encoder (Resolution: 262144 p/rev)                                                                                                                                                             |           |           |           |
| Main power supply                | Power voltage [V]                      |                                                             | Three phase 200 to 230 VAC (50/60 Hz), Single phase 200 to 230 VAC (50/60 Hz)                                                                                                                                  |           |           |           |
|                                  | Allowable voltage fluctuation [V]      |                                                             | Three phase 170 to 253 VAC, Single phase 170 to 253 VAC                                                                                                                                                        |           |           |           |
|                                  | Rated current [A]                      |                                                             | 0.9                                                                                                                                                                                                            | 1.5       | 2.6       | 3.8       |
| Control power supply             | Control power supply voltage [V]       |                                                             | Single phase 200 to 230 VAC (50/60 Hz)                                                                                                                                                                         |           |           |           |
|                                  | Allowable voltage fluctuation [V]      |                                                             | Single phase 170 to 253 VAC                                                                                                                                                                                    |           |           |           |
|                                  | Rated current [A]                      |                                                             | 0.2                                                                                                                                                                                                            |           |           |           |
| Communication specifications     | Applicable Fieldbus protocol (Version) |                                                             | CC-Link communication (Ver. 1.10)                                                                                                                                                                              |           |           |           |
|                                  | Connection cable                       |                                                             | CC-Link Ver. 1.10 compliant cable (Shielded 3-core twisted pair cable)* <sup>1</sup>                                                                                                                           |           |           |           |
|                                  | Remote station number                  |                                                             | 1 to 64                                                                                                                                                                                                        |           |           |           |
|                                  | Cable length                           | Communication speed [bps]/<br>Max. overall cable length [m] | 16 k/1200, 625 k/900, 2.5 M/400, 5 M/160, 10 M/100                                                                                                                                                             |           |           |           |
|                                  |                                        | Cable length between stations [m]                           | 0.2 or more                                                                                                                                                                                                    |           |           |           |
|                                  | I/O occupation area (Inputs/Outputs)   |                                                             | 1 station occupied (Remote I/O 32 points/32 points)/(Remote register 4 words/4 words)<br>2 stations occupied (Remote I/O 64 points/64 points)/(Remote register 8 words/8 words)                                |           |           |           |
|                                  | Number of connectable drivers          |                                                             | Up to 42 (when 1 station is occupied by 1 driver), Up to 32 (when 2 stations are occupied by 1 driver), when there are only remote device stations.                                                            |           |           |           |
| Command method                   | Remote register input                  |                                                             | Available with CC-Link communication (2 stations occupied)                                                                                                                                                     |           |           |           |
|                                  | Point table No. input                  |                                                             | Available with CC-Link communication, RS422 communication<br>CC-Link communication (1 station occupied): 31 points, CC-Link communication (2 stations occupied): 255 points<br>RS422 communication: 255 points |           |           |           |
|                                  | Indexer positioning input              |                                                             | Available with CC-Link communication<br>CC-Link communication (1 station occupied): 31 points, CC-Link communication (2 stations occupied): 255 points                                                         |           |           |           |
| Communication function           |                                        |                                                             | USB communication, RS-422 communication* <sup>2</sup>                                                                                                                                                          |           |           |           |
| Operating temperature range [°C] |                                        |                                                             | 0 to 55 (No freezing)                                                                                                                                                                                          |           |           |           |
| Operating humidity range [%RH]   |                                        |                                                             | 90 or less (No condensation)                                                                                                                                                                                   |           |           |           |
| Storage temperature range [°C]   |                                        |                                                             | -20 to 65 (No freezing)                                                                                                                                                                                        |           |           |           |
| Storage humidity range [%RH]     |                                        |                                                             | 90 or less (No condensation)                                                                                                                                                                                   |           |           |           |
| Insulation resistance [MΩ]       |                                        |                                                             | Between the housing and SG: 10 (500 VDC)                                                                                                                                                                       |           |           |           |
| Weight [g]                       |                                        |                                                             | 800                                                                                                                                                                                                            |           | 1000      | 1400      |

\*1 If the system comprises of both CC-Link Ver. 1.00 and Ver. 1.10 compliant cables, Ver. 1.00 specifications are applied to the overall cable length and the cable length between stations.

\*2 USB communication and RS422 communication cannot be performed at the same time.

## Specifications

### LECSN-T Series

| Model                            |                                   | LECSN2-T5                                                                       | LECSN2-T7 | LECSN2-T8 | LECSN2-T9 |
|----------------------------------|-----------------------------------|---------------------------------------------------------------------------------|-----------|-----------|-----------|
| Compatible motor capacity [W]    |                                   | 100                                                                             | 200       | 400       | 750       |
| Compatible encoder               |                                   | Absolute 22-bit encoder (Resolution: 4194304 p/rev)                             |           |           |           |
| Main power supply                | Power voltage [V]                 | Three phase 200 to 240 VAC (50/60 Hz), Single phase 200 to 240 VAC (50/60 Hz)   |           |           |           |
|                                  | Allowable voltage fluctuation [V] | Three phase 170 to 264 VAC (50/60 Hz), Single phase 170 to 264 VAC (50/60 Hz)   |           |           |           |
|                                  | Rated current [A]                 | 0.9                                                                             | 1.5       | 2.6       | 3.8       |
| Control power supply             | Control power supply voltage [V]  | Single phase 200 to 240 VAC (50/60 Hz)                                          |           |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 170 to 264 VAC                                                     |           |           |           |
|                                  | Rated current [A]                 | 0.2                                                                             |           |           |           |
| Applicable Fieldbus protocol     |                                   | PROFINET, EtherCAT®, EtherNet/IP™                                               |           |           |           |
| Function                         | Communication                     | USB communication                                                               |           |           |           |
|                                  | Point table*1                     | Up to 255 points                                                                |           |           |           |
| Operating temperature range [°C] |                                   | 0 to 55 (No freezing)                                                           |           |           |           |
| Operating humidity range [%RH]   |                                   | 90 or less (No condensation)                                                    |           |           |           |
| Storage temperature range [°C]   |                                   | -20 to 65 (No freezing)                                                         |           |           |           |
| Storage humidity range [%RH]     |                                   | 90 or less (No condensation)                                                    |           |           |           |
| Insulation resistance [MΩ]       |                                   | Between the housing and SG: 10 (500 VDC)                                        |           |           |           |
| Safety function                  |                                   | STO (IEC/EN 61800-5-2)                                                          |           |           |           |
| Safety standards*2               |                                   | EN ISO 13849-1 Category 3 PL e, IEC 61508 SIL 3, EN 62061 SIL CL3, EN 61800-5-2 |           |           |           |
| Weight [g]                       |                                   | 1000                                                                            |           |           | 1400      |

\*1 Only supports PROFINET and EtherCAT®

\*2 The safety level depends on the set value of the driver parameter [Pr. PF18 STO diagnosis error detection time] and whether STO input diagnosis by TOFB output is performed or not. Refer to the LECSN-T operation manual for details.

### LECSS-T Series

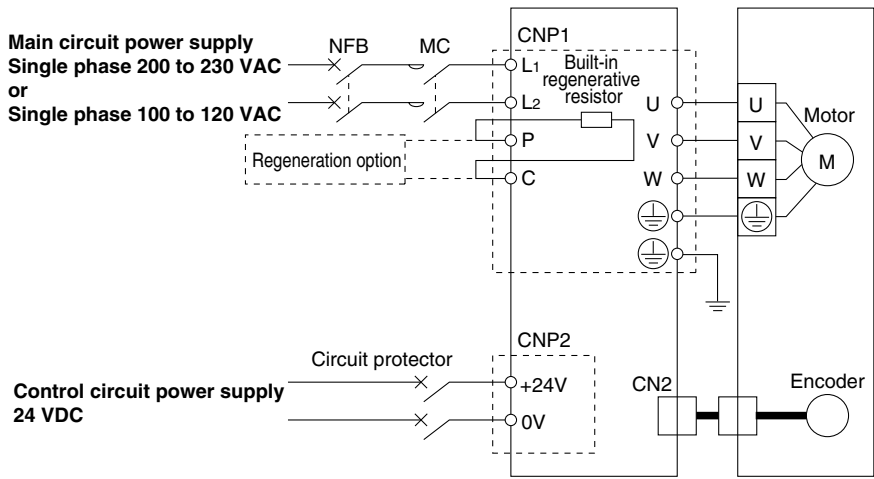
| Model                            |                                   | LECSS2-T5                                                                      | LECSS2-T7 | LECSS2-T8 | LECSS2-T9 |
|----------------------------------|-----------------------------------|--------------------------------------------------------------------------------|-----------|-----------|-----------|
| Compatible motor capacity [W]    |                                   | 100                                                                            | 200       | 400       | 750       |
| Compatible encoder               |                                   | Absolute 22-bit encoder (Resolution: 4194304 p/rev)                            |           |           |           |
| Main power supply                | Power voltage [V]                 | Three phase 200 to 240 VAC (50/60 Hz), Single phase 200 to 240 VAC (50/60 Hz)  |           |           |           |
|                                  | Allowable voltage fluctuation [V] | Three phase 170 to 264 VAC (50/60 Hz), Single phase 170 to 264 VAC (50/60 Hz)  |           |           |           |
|                                  | Rated current [A]                 | 0.9                                                                            | 1.5       | 2.6       | 3.8       |
| Control power supply             | Control power supply voltage [V]  | Single phase 200 to 240 VAC (50/60 Hz)                                         |           |           |           |
|                                  | Allowable voltage fluctuation [V] | Single phase 170 to 264 VAC                                                    |           |           |           |
|                                  | Rated current [A]                 | 0.2                                                                            |           |           |           |
| Applicable Fieldbus protocol     |                                   | SSCNET III/H (High-speed optical communication)                                |           |           |           |
| Communication function           |                                   | USB communication                                                              |           |           |           |
| Operating temperature range [°C] |                                   | 0 to 55 (No freezing)                                                          |           |           |           |
| Operating humidity range [%RH]   |                                   | 90 or less (No condensation)                                                   |           |           |           |
| Storage temperature range [°C]   |                                   | -20 to 65 (No freezing)                                                        |           |           |           |
| Storage humidity range [%RH]     |                                   | 90 or less (No condensation)                                                   |           |           |           |
| Insulation resistance [MΩ]       |                                   | Between the housing and SG: 10 (500 VDC)                                       |           |           |           |
| Safety function                  |                                   | STO (IEC/EN 61800-5-2)                                                         |           |           |           |
| Safety standards*1               |                                   | EN ISO 13849-1 Category 3 PL d, EN 61508 SIL 2, EN 62061 SIL CL2, EN 61800-5-2 |           |           |           |
| Weight [g]                       |                                   | 800                                                                            |           | 1000      | 1400      |

\*1 Refer to the LECSS-T operation manual for details.

# LECS□/LECS□-T Series

## Power Supply Wiring Example: LECSA

LECSA□-□

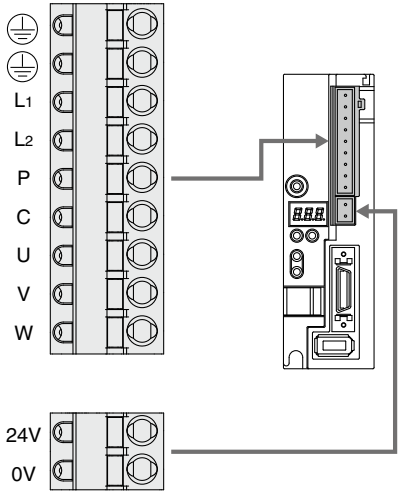


### Main Circuit Power Supply Connector: CNP1 \* Accessory

| Terminal name | Function                  | Details                                                                                                                                                                                                                          |
|---------------|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|               | Protective earth (PE)     | Should be grounded by connecting the servo motor's earth terminal and the control panel's protective earth (PE)                                                                                                                  |
| L1            | Main circuit power supply | Connect the main circuit power supply.<br>LECSA1: Single phase 100 to 120 VAC, 50/60 Hz<br>LECSA2: Single phase 200 to 230 VAC, 50/60 Hz                                                                                         |
| L2            |                           |                                                                                                                                                                                                                                  |
| P             | Regeneration option       | Terminal to connect regeneration option<br>LECSA□-S1: Not connected at time of shipping<br>LECSA□-S3, S4: Connected at time of shipping<br>* If regeneration option is required for "Model Selection," connect to this terminal. |
| C             |                           |                                                                                                                                                                                                                                  |
| U             | Servo motor power (U)     | Connect to motor cable (U, V, W).                                                                                                                                                                                                |
| V             | Servo motor power (V)     |                                                                                                                                                                                                                                  |
| W             | Servo motor power (W)     |                                                                                                                                                                                                                                  |

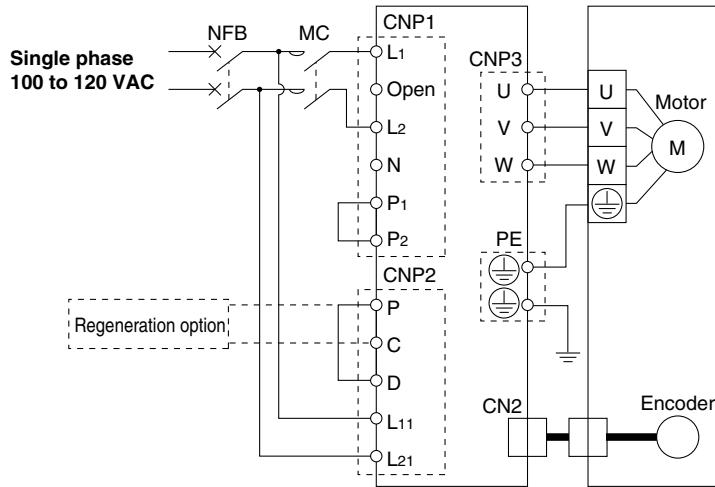
### Control Circuit Power Supply Connector: CNP2 \* Accessory

| Terminal name | Function                            | Details                                                                       |
|---------------|-------------------------------------|-------------------------------------------------------------------------------|
| 24V           | Control circuit power supply (24 V) | 24 V side of the control circuit power supply (24 VDC) supplied to the driver |
| 0V            | Control circuit power supply (0 V)  | 0 V side of the control circuit power supply (24 VDC) supplied to the driver  |



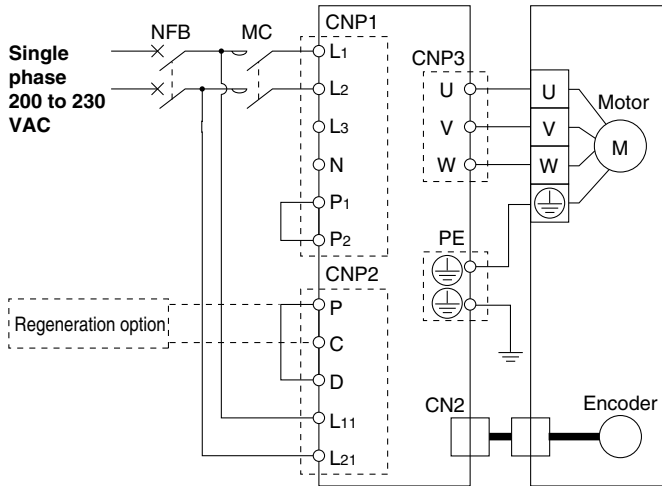
## Power Supply Wiring Example: LECSB, LECS□, LECS□-T Series

LECSB1-□  
LECS□1-□  
LECS□1-□

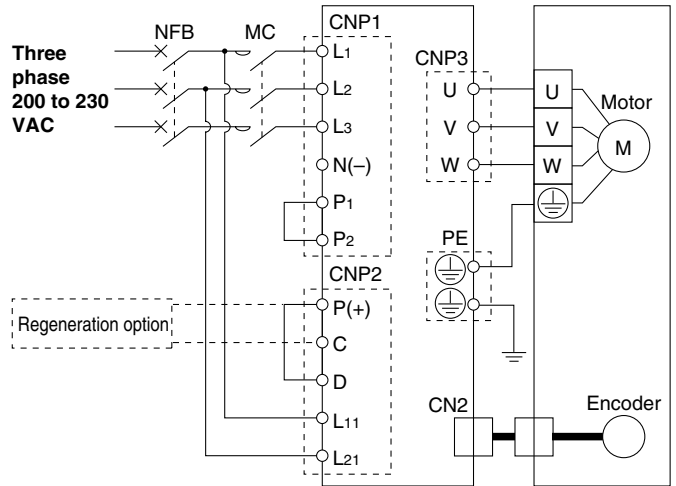


LECSB2-□  
LECS□2-□  
LECS□2-□

For single phase 200 VAC



For three phase 200 VAC



\* For single phase 200 to 230 VAC, power supply should be connected to L1 and L2 terminals, with nothing connected to L3.

### Main Circuit Power Supply Connector: CNP1 \* Accessory

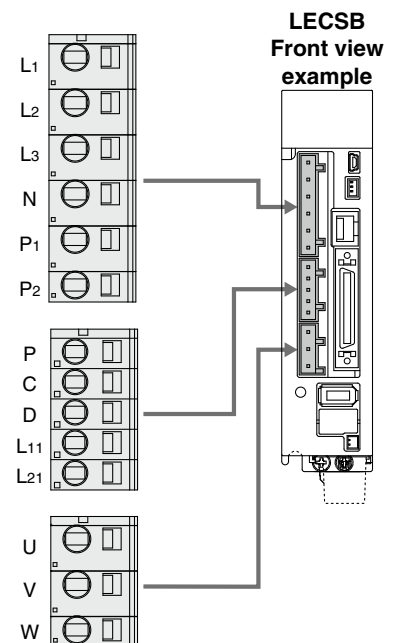
| Terminal name | Function                  | Details                                                                                                                                                                                                                                                                                              |
|---------------|---------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L1            | Main circuit power supply | Connect the main circuit power supply.<br>LECSB1/LECS□1/LECS□1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L1, L2<br>LECSB2/LECS□2/LECS□2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2<br>Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2, L3 |
| L2            |                           |                                                                                                                                                                                                                                                                                                      |
| L3            |                           |                                                                                                                                                                                                                                                                                                      |
| N             |                           | Do not connect.                                                                                                                                                                                                                                                                                      |
| P1            |                           | Connect between P1 and P2. (Connected at time of shipping)                                                                                                                                                                                                                                           |
| P2            |                           |                                                                                                                                                                                                                                                                                                      |

### Control Circuit Power Supply Connector: CNP2 \* Accessory

| Terminal name | Function                     | Details                                                                                                                                                                                                                             |
|---------------|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| P             | Regeneration option          | Connect between P and D. (Connected at time of shipping)<br>* If regeneration option is required for "Model Selection," connect to this terminal.                                                                                   |
| C             |                              |                                                                                                                                                                                                                                     |
| D             |                              |                                                                                                                                                                                                                                     |
| L11           | Control circuit power supply | Connect the control circuit power supply.<br>LECSB1/LECS□1/LECS□1: Single phase 100 to 120 VAC, 50/60 Hz Connection terminal: L11, L21<br>LECSB2/LECS□2/LECS□2: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L11, L21 |
| L21           |                              |                                                                                                                                                                                                                                     |

### Motor Connector: CNP3 \* Accessory

| Terminal name | Function              | Details                           |
|---------------|-----------------------|-----------------------------------|
| U             | Servo motor power (U) | Connect to motor cable (U, V, W). |
| V             | Servo motor power (V) |                                   |
| W             | Servo motor power (W) |                                   |

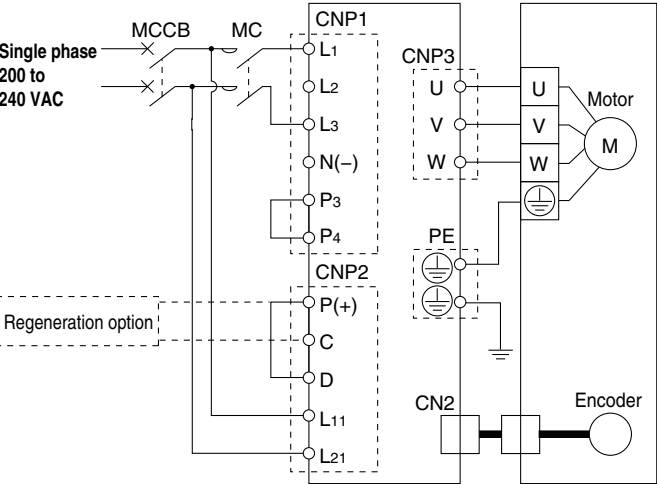




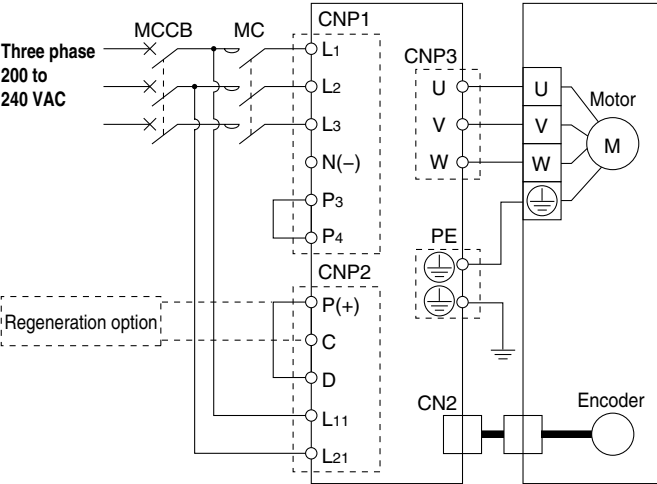
# LECS□/LECS□-T Series

## Power Supply Wiring Example: LECSB2-T□, LECSS2-T□, LECSN2-T□

For single phase 200 VAC



For three phase 200 VAC



\* For single phase 200 to 240 VAC, power supply should be connected to L1 and L3 terminals, with nothing connected to L2.  
Please note that the wiring locations differ from the LECS□.

### Main Circuit Power Supply Connector: CNP1 \* Accessory

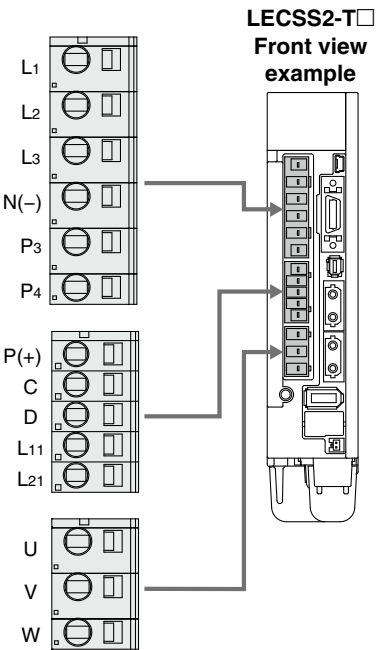
| Terminal name | Function                  | Details                                                                                                                                                                                                            |
|---------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L1            | Main circuit power supply | Connect the main circuit power supply.<br>LECSB2-T/LECSS2-T/LECSN2-T:<br>Single phase 200 to 240 VAC, 50/60 Hz Connection terminal: L1, L3<br>Three phase 200 to 240 VAC, 50/60 Hz Connection terminal: L1, L2, L3 |
| L2            |                           |                                                                                                                                                                                                                    |
| L3            |                           |                                                                                                                                                                                                                    |
| N(-)          |                           | Do not connect.                                                                                                                                                                                                    |
| P3            |                           | Connect between P3 and P4. (Connected at time of shipping)                                                                                                                                                         |
| P4            |                           |                                                                                                                                                                                                                    |

### Control Circuit Power Supply Connector: CNP2 \* Accessory

| Terminal name | Function                     | Details                                                                                                                                              |
|---------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| P(+)          | Regeneration option          | Connect between P(+) and D. (Connected at time of shipping)<br>* If regeneration option is required for "Model Selection," connect to this terminal. |
| C             |                              |                                                                                                                                                      |
| D             |                              |                                                                                                                                                      |
| L11           | Control circuit power supply | Connect the control circuit power supply.<br>LECSB2-T/LECSS2-T/LECSN2-T:<br>Single phase 200 to 240 VAC, 50/60 Hz Connection terminal: L11, L21      |
| L21           |                              |                                                                                                                                                      |

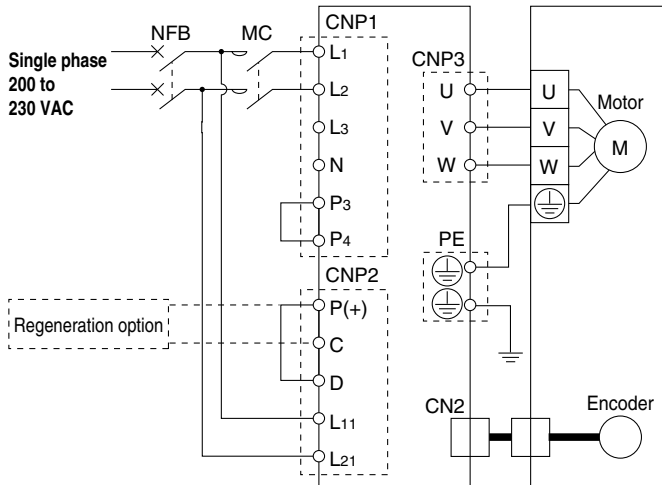
### Motor Connector: CNP3 \* Accessory

| Terminal name | Function              | Details                           |
|---------------|-----------------------|-----------------------------------|
| U             | Servo motor power (U) | Connect to motor cable (U, V, W). |
| V             | Servo motor power (V) |                                   |
| W             | Servo motor power (W) |                                   |

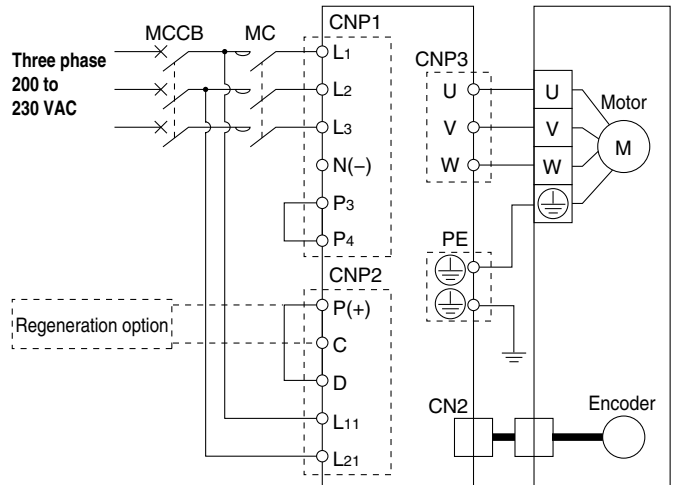


## Power Supply Wiring Example: LECSC2-T□

For single phase 200 VAC



For three phase 200 VAC



\* For single phase 200 to 230 VAC, power supply should be connected to L1 and L2 terminals, with nothing connected to L3.

### Main Circuit Power Supply Connector: CNP1 \* Accessory

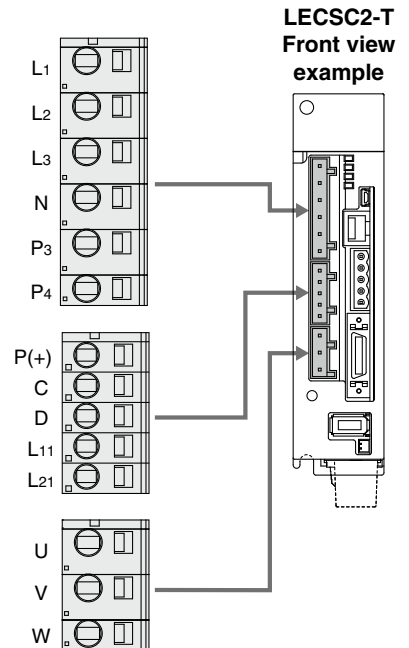
| Terminal name | Function                  | Details                                                                                                                                                                                       |
|---------------|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L1            | Main circuit power supply | Connect the main circuit power supply.<br>LECSC2-T: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2<br>Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2, L3 |
| L2            |                           |                                                                                                                                                                                               |
| L3            |                           |                                                                                                                                                                                               |
| N             |                           | Do not connect.                                                                                                                                                                               |
| P3            |                           | Connect between P3 and P4. (Connected at time of shipping)                                                                                                                                    |
| P4            |                           |                                                                                                                                                                                               |

### Control Circuit Power Supply Connector: CNP2 \* Accessory

| Terminal name | Function                     | Details                                                                                                                                           |
|---------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| P(+)          | Regeneration option          | Connect between P and D. (Connected at time of shipping)<br>* If regeneration option is required for "Model Selection," connect to this terminal. |
| C             |                              |                                                                                                                                                   |
| D             |                              |                                                                                                                                                   |
| L11           | Control circuit power supply | Connect the control circuit power supply.<br>LECSC2-T: Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L11, L21                        |
| L21           |                              |                                                                                                                                                   |

### Motor Connector: CNP3 \* Accessory

| Terminal name | Function              | Details                           |
|---------------|-----------------------|-----------------------------------|
| U             | Servo motor power (U) | Connect to motor cable (U, V, W). |
| V             | Servo motor power (V) |                                   |
| W             | Servo motor power (W) |                                   |





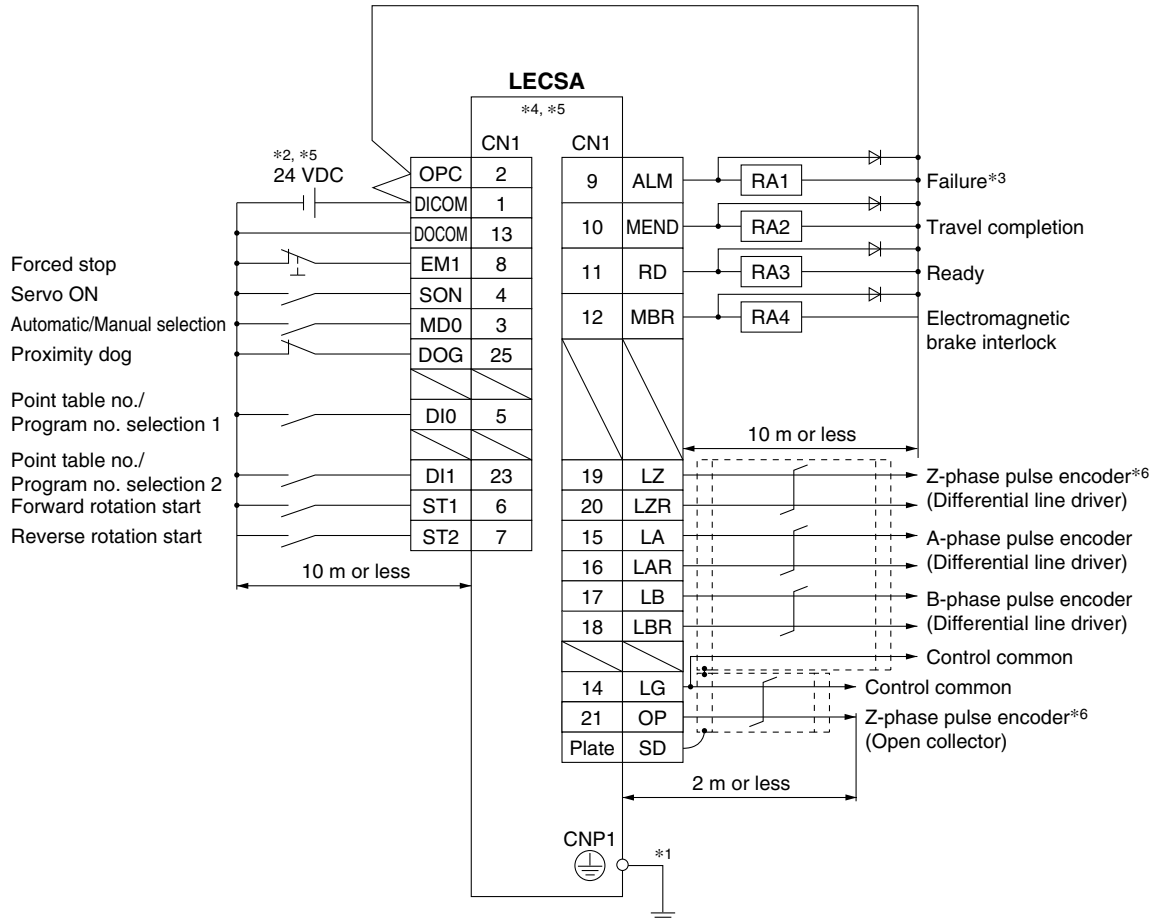
## Control Signal Wiring Example: LECSA

In this wiring example, the device of the CN1-10 pin in the initial status has been changed to the device shown below. For details on the device and changing method, refer to the LECSA series Operation Manual.

CN1-10: MEND (Travel completion)

### Positioning mode (Point table method)

For sink (NPN) I/O interface

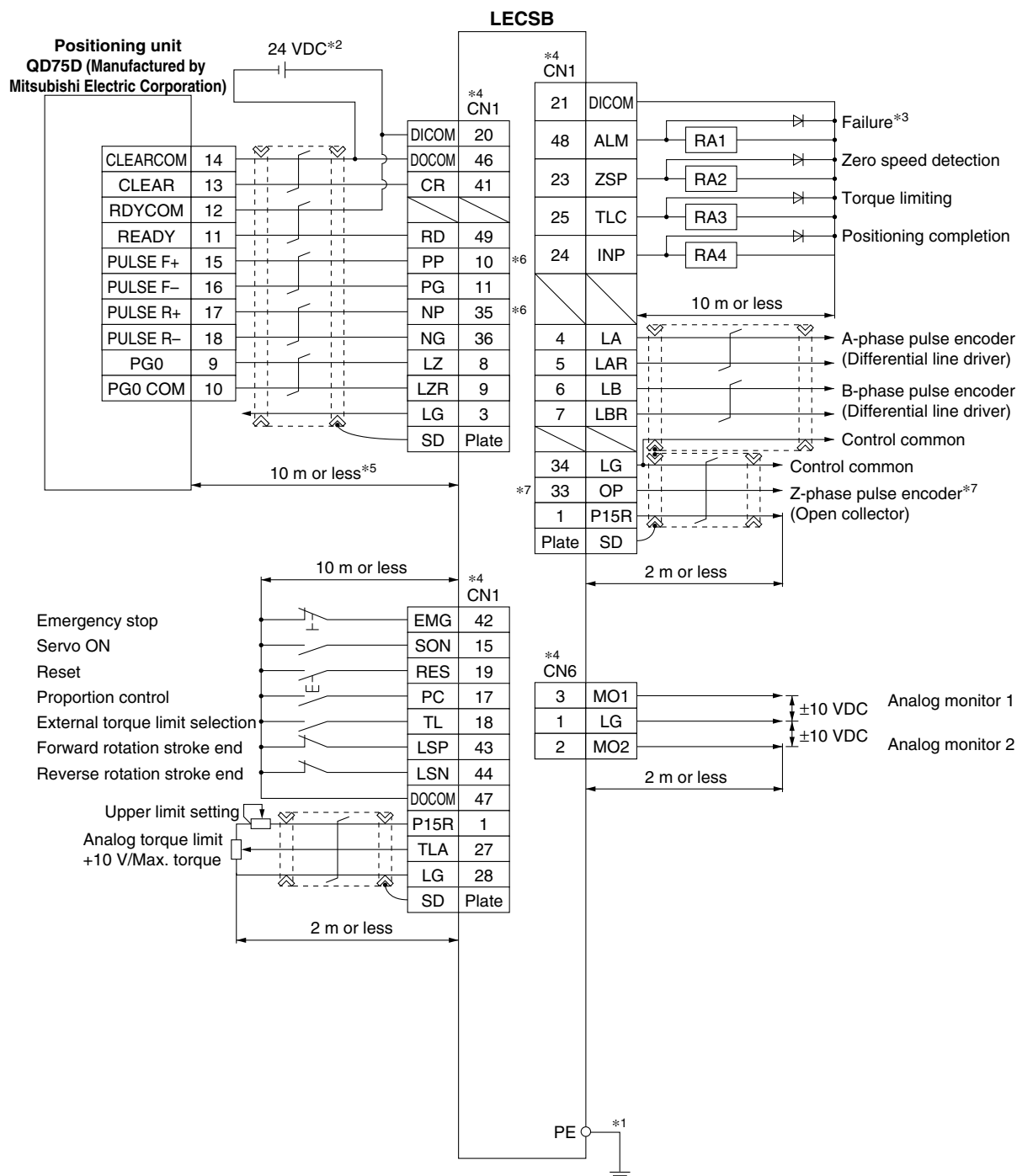


- \*1 For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked  $\oplus$ ) to the control panel's protective earth (PE).
- \*2 For interface use, supply 24 VDC  $\pm 10\%$  200 mA using an external source. 200 mA is the value when all I/O command signals are being used. In addition, reducing the number of inputs/outputs can decrease the current capacity.
- \*3 The failure (ALM) is normally ON.
- \*4 Signals of the same name are connected inside the driver.
- \*5 The wiring example is for the sink (NPN) type interface. Refer to the LECSA series Operation Manual for the source (PNP) type interface. Note that the 23 pin and 25 pin cannot be used for the source type interface.
- \*6 The Z-phase pulse encoder corresponds to the differential line driver method and the open collector method. If the Z-phase pulse encoder is using the open collector method, it supports only the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

## LECS□/LECS□-T Series

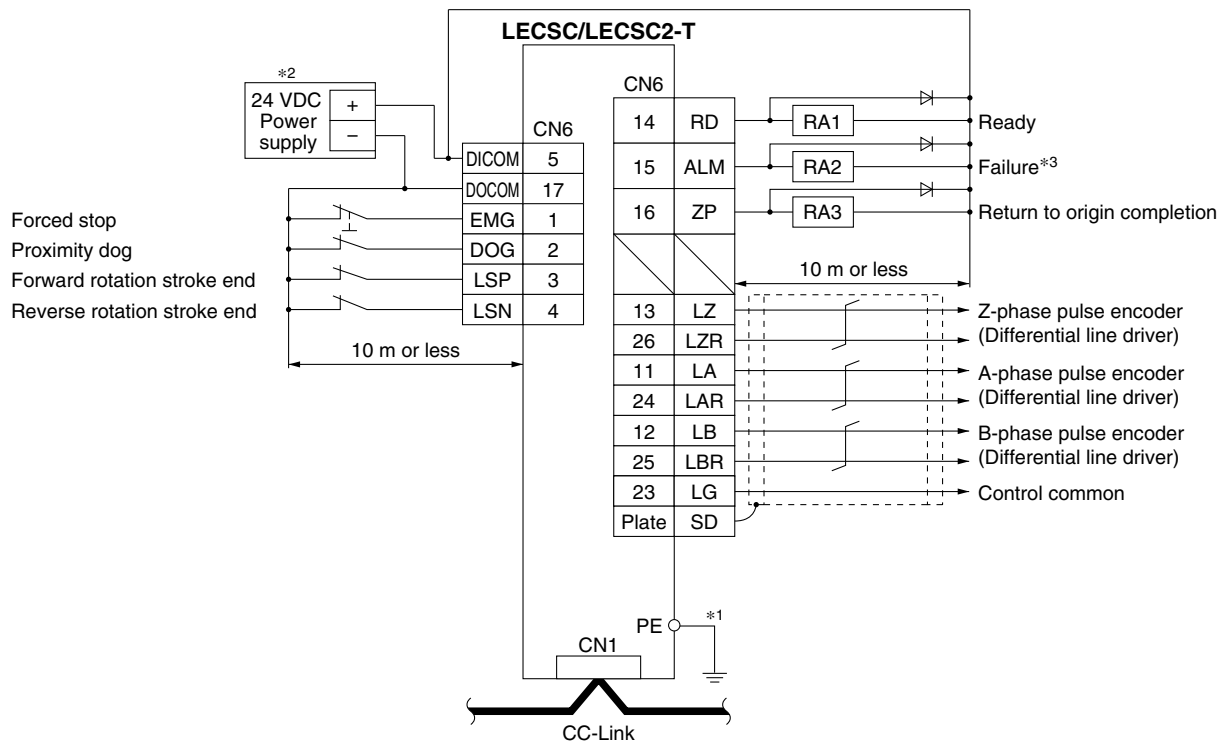
## Control Signal Wiring Example: LECSB

This wiring example shows connection with a positioning unit (QD75D) manufactured by Mitsubishi Electric Corporation as when used in position control mode. Refer to the LECSB series Operation Manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.



- \*1 For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked  $\oplus$ ) to the control panel's protective earth (PE).
- \*2 For interface use, supply 24 VDC  $\pm 10\%$  300 mA using an external source.
- \*3 The failure (ALM) is normally ON. When it is OFF (alarm occurs), stop the PLC signal using the sequence program.
- \*4 Signals of the same name are connected inside the driver.
- \*5 For command pulse input with a differential line driver method. For open collector method, it is 2 m or less.
- \*6 If the command pulse input is open collector method, it supports only the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.
- \*7 The Z-phase pulse encoder corresponds to the differential line driver method and the open collector method. If the Z-phase pulse encoder is using the open collector method, it supports only the sink (NPN) type interface. It does not correspond to the source (PNP) type interface.

## Control Signal Wiring Example: LECS□, LECS□-T□



\*1 For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked  $\oplus$ ) to the control panel's protective earth (PE).

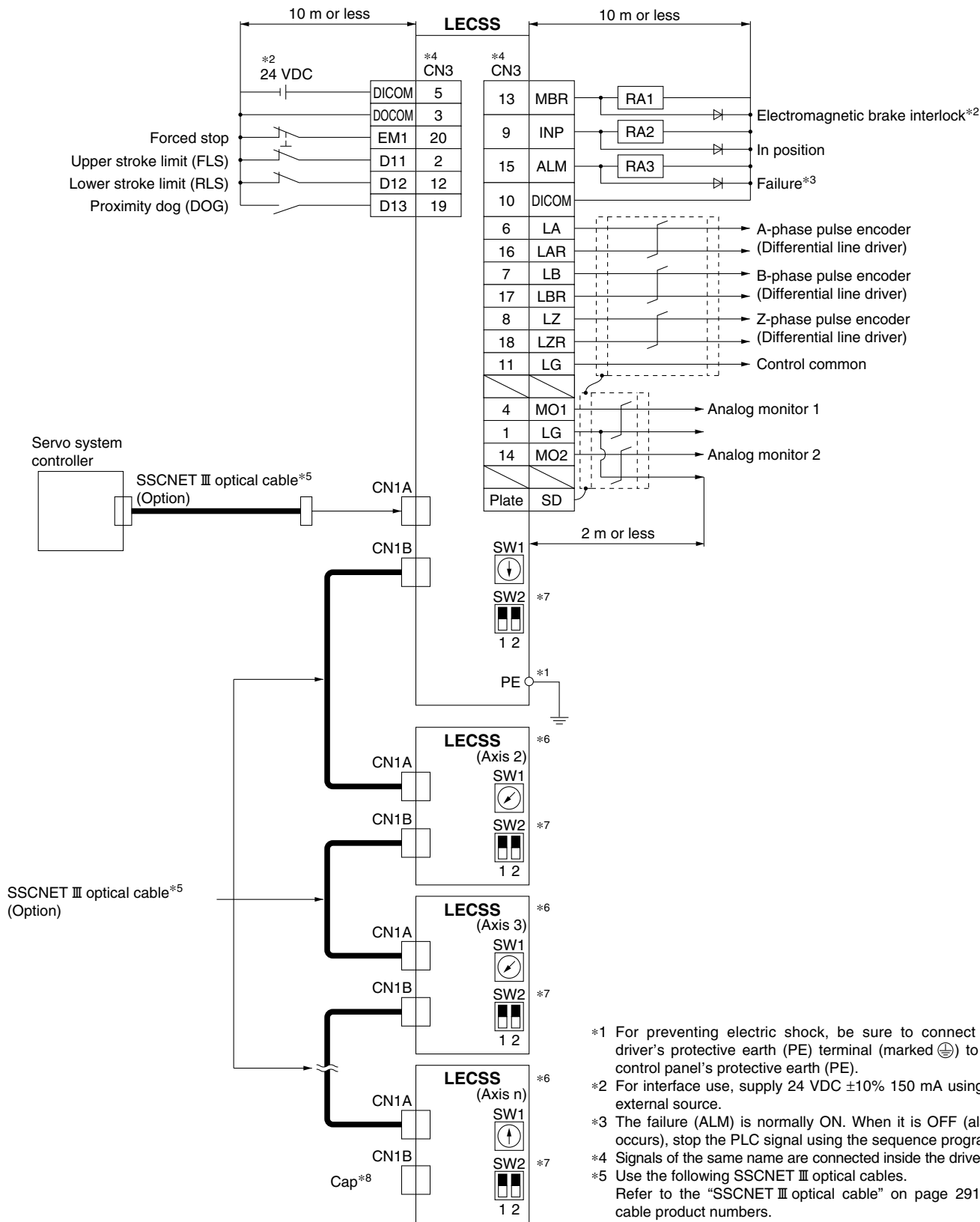
\*2 For interface use, supply 24 VDC  $\pm 10\%$  150 mA using an external source.

\*3 The failure (ALM) is normally ON. When it is OFF (alarm occurs), stop the PLC signal using the sequence program.



# LECS□/LECS□-T Series

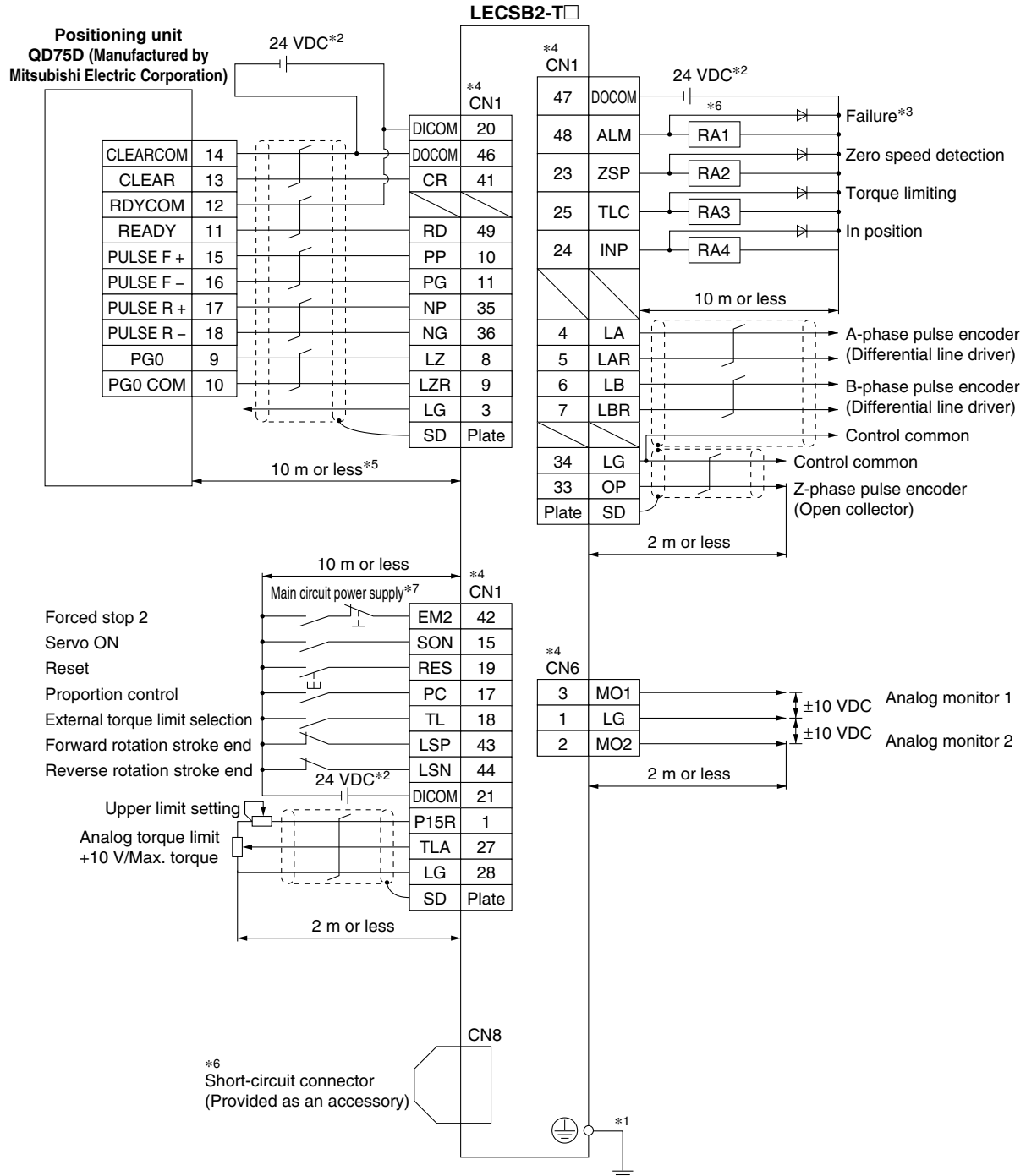
## Control Signal Wiring Example: LECSS



## Control Signal Wiring Example: LECSB2-T□

This wiring example shows connection with a positioning unit (QD75D) manufactured by Mitsubishi Electric Corporation as when used in position control mode. Refer to the LECSB2-T series Operation Manual and any technical literature or operation manuals for your PLC and positioning unit before connecting to another PLC or positioning unit.

### Position control mode For sink (NPN) I/O interface



- \*1 For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked  $\oplus$ ) to the control panel's protective earth (PE).
- \*2 For interface use, supply 24 VDC  $\pm 10\%$  using an external source. Set the total current capacity to 500 mA. 500 mA is the value when all I/O command signals are being used. In addition, reducing the number of inputs/outputs can decrease the current capacity.
- \*3 The failure (ALM) is normally ON. When it is OFF (alarm occurs), stop the PLC signal using the sequence program.
- \*4 Signals of the same name are connected inside the driver.
- \*5 For command pulse input with a differential line driver method. For open collector method, it is 2 m or less.
- \*6 When not using the STO function, use the driver with the short-circuit connector (provided as an accessory) inserted.
- \*7 Configure a circuit to turn off EM2 when the main circuit power is turned off to prevent any unexpected restarts of the driver.

# LECS□/LECS□-T Series

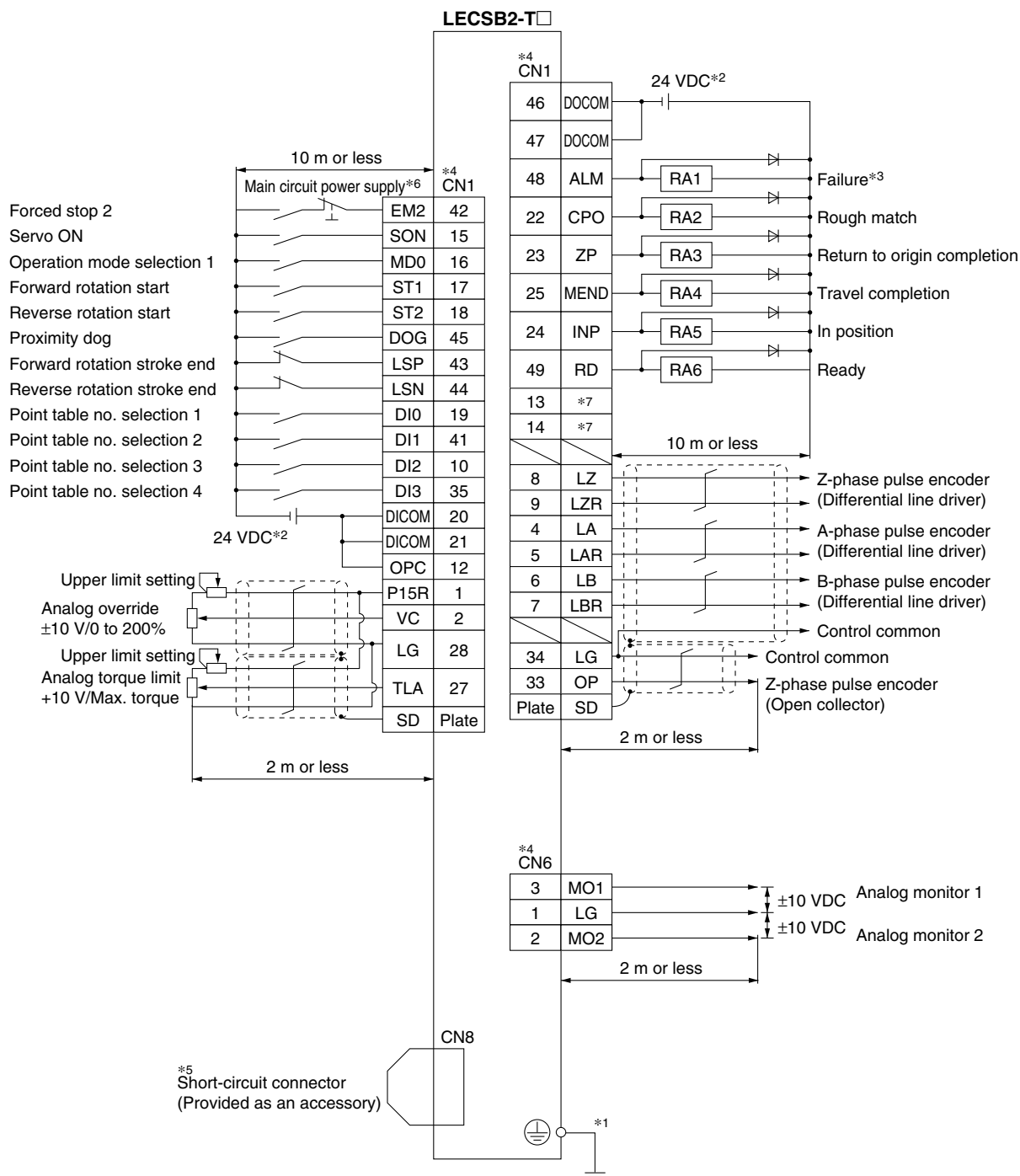
## Control Signal Wiring Example: LECSB2-T□

In this wiring example, the devices of the CN1-22 pin, CN1-23 pin, and CN1-25 pin in the initial status have been changed to the devices shown below. For details on the devices and changing method, refer to the LECSB2-T series Operation Manual.

CN1-22: CPO (Rough match)/CN1-23: ZP (Return to origin completion)/CN1-25: MEND (Travel completion)

### Positioning mode (Point table method)

#### For sink (NPN) I/O interface



\*1 For preventing electric shock, be sure to connect the servo amplifier's protective earth (PE) terminal (marked ⚡) to the control panel's protective earth (PE).

\*2 For interface use, supply 24 VDC  $\pm 10\%$  using an external source. Set the total current capacity to 500 mA. 500 mA is the value when all I/O command signals are being used. In addition, reducing the number of inputs/outputs can decrease the current capacity.

\*3 The ALM (Failure) is normally ON. (Normally closed contact)

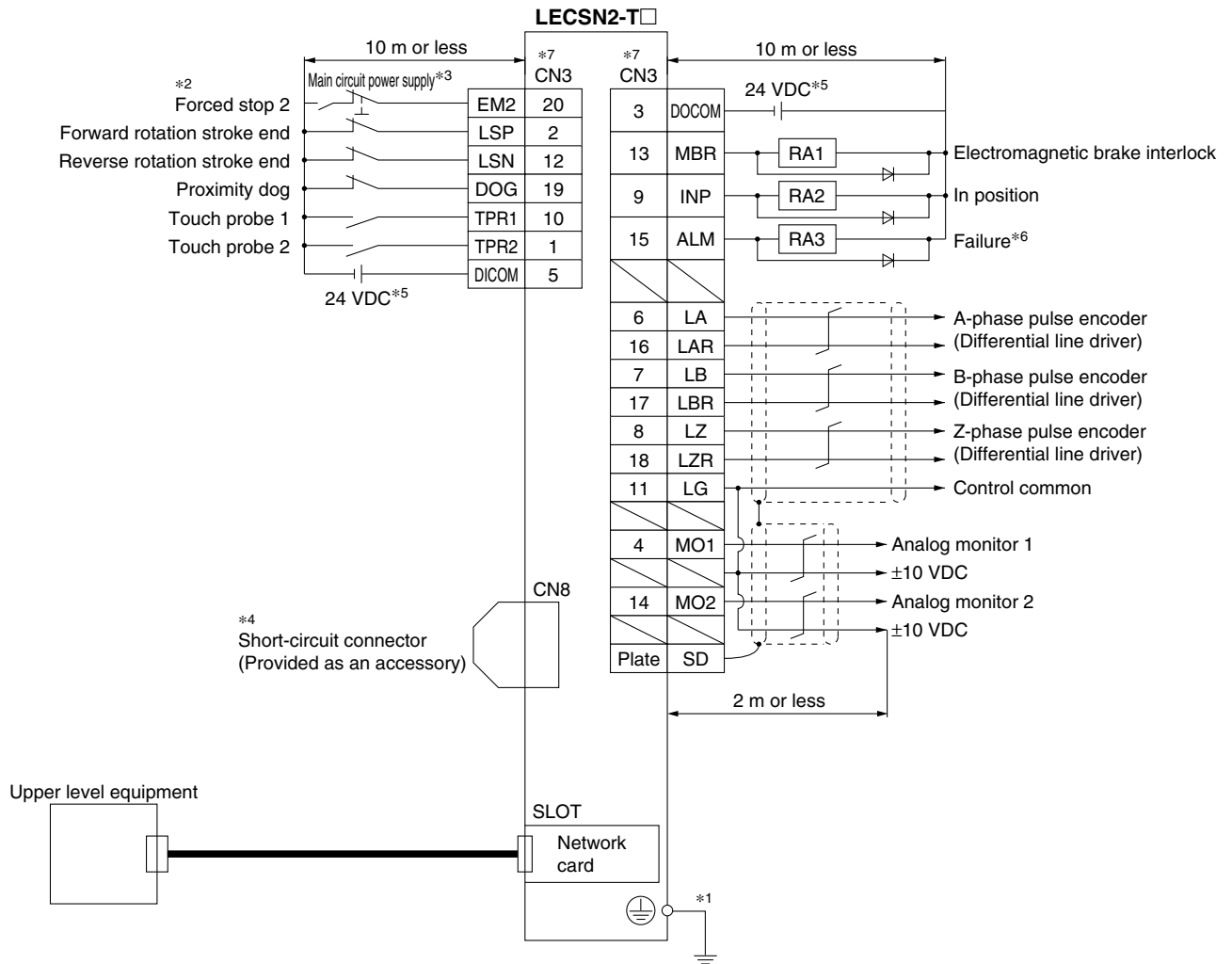
\*4 Signals of the same name are connected inside the servo amplifier.

\*5 When not using the STO function, use the servo amplifier with the short-circuit connector (provided as an accessory) inserted.

\*6 Configure a circuit to turn off EM2 when the main circuit power is turned off to prevent any unexpected restarts of the driver.

\*7 Output devices are not assigned in the initial status. Assign the output devices as necessary.

## Control Signal Wiring Example: LECSN2-T□

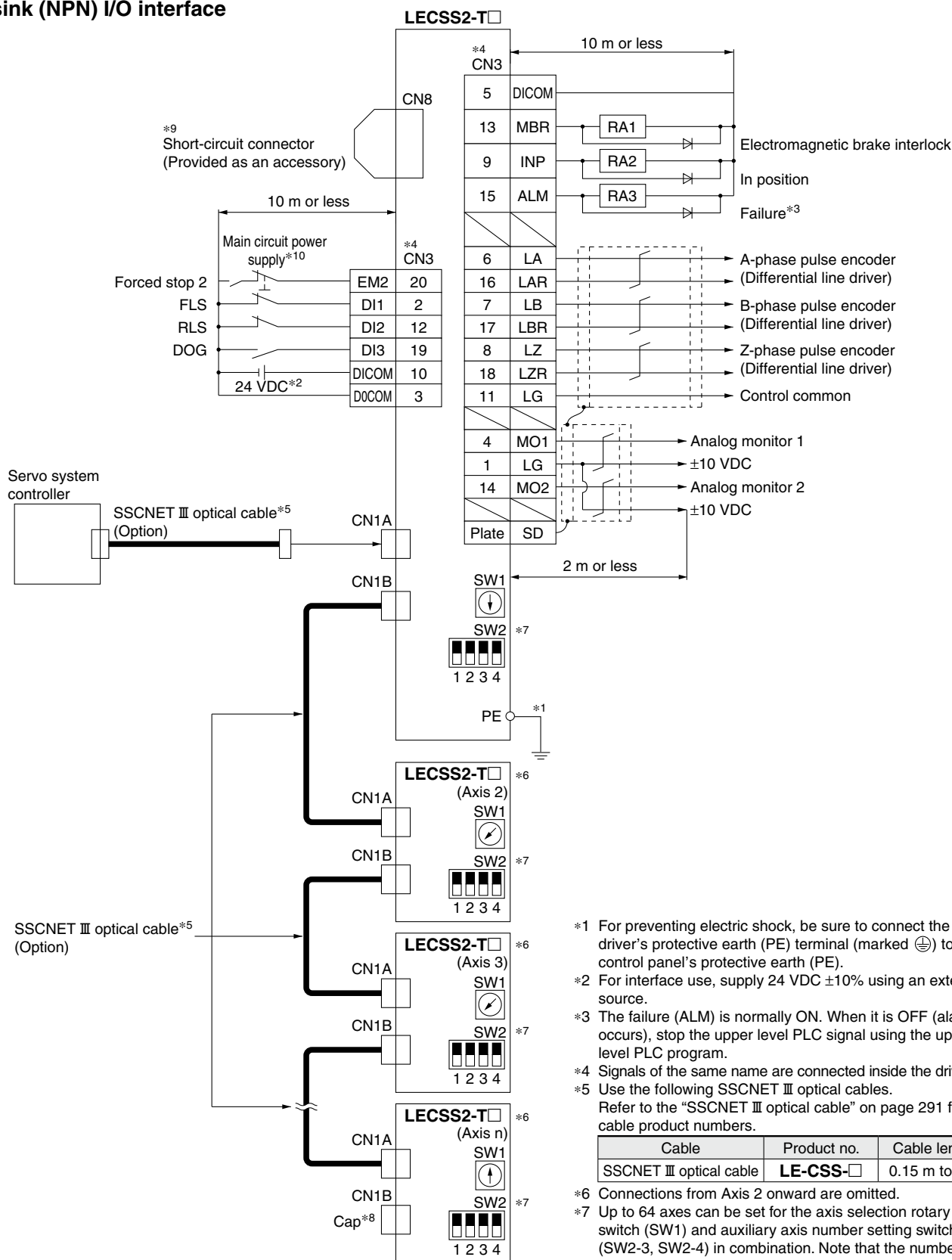


- \*1 For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ) to the control panel's protective earth (PE).
- \*2 If upper level equipment does not have forced stop function, always install the forced stop 2 switch (normally closed contact).
- \*3 Configure a circuit to turn off EM2 when the main circuit power is turned off to prevent any unexpected restarts of the driver.
- \*4 When not using the STO function, use the driver with the short-circuit connector (provided as an accessory) inserted.
- \*5 For interface use, supply 24 VDC  $\pm 10\%$  using an external source. Set the total current capacity to 300 mA. 300 mA is the value when all I/O command signals are being used. In addition, reducing the number of inputs/outputs can decrease the current capacity.
- \*6 The ALM (Failure) is normally ON. (Normally closed contact)
- \*7 Signals of the same name are connected inside the driver.

## LECS□/LECS□-T Series

## Control Signal Wiring Example: LECSS2-T□

### For sink (NPN) I/O interface



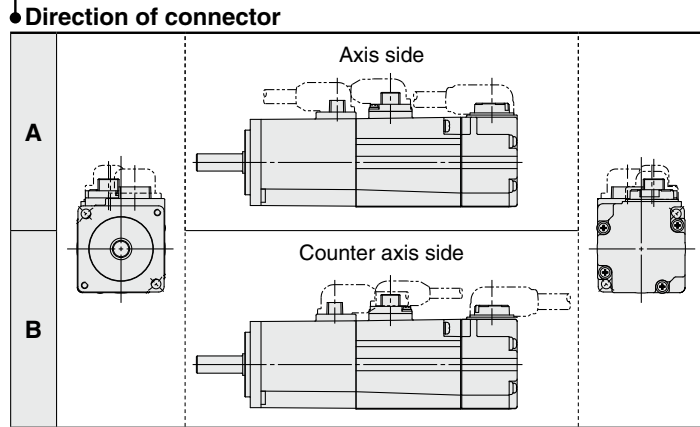
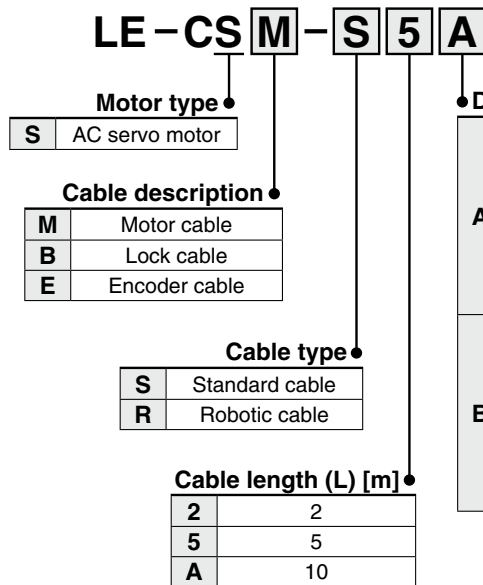
- \*1 For preventing electric shock, be sure to connect the driver's protective earth (PE) terminal (marked ) to the control panel's protective earth (PE).
- \*2 For interface use, supply 24 VDC  $\pm 10\%$  using an external source.
- \*3 The failure (ALM) is normally ON. When it is OFF (alarm occurs), stop the upper level PLC signal using the upper level PLC program.
- \*4 Signals of the same name are connected inside the driver.
- \*5 Use the following SSCNET III optical cables.  
Refer to the "SSCNET III optical cable" on page 291 for cable product numbers.

| Cable                    | Product no.                             | Cable length  |
|--------------------------|-----------------------------------------|---------------|
| SSCNET III optical cable | <b>LE-CSS-</b> <input type="checkbox"/> | 0.15 m to 3 m |

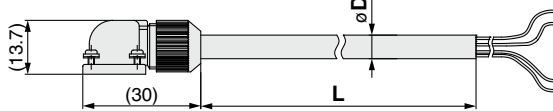
- \*6 Connections from Axis 2 onward are omitted.
- \*7 Up to 64 axes can be set for the axis selection rotary switch (SW1) and auxiliary axis number setting switches (SW2-3, SW2-4) in combination. Note that the number of connection axes depends on the specifications of the upper level PLC.
- \*8 Be sure to place a cap on unused CN1A/CN1B.
- \*9 When not using the STO function, use the driver with the short-circuit connector (provided as an accessory) inserted.
- \*10 Configure a circuit to turn off EM2 when the main circuit power is turned off to prevent any unexpected restarts of the driver.

## Options

Motor cable, Lock cable, Encoder cable (LECS□, LECS□-T common)



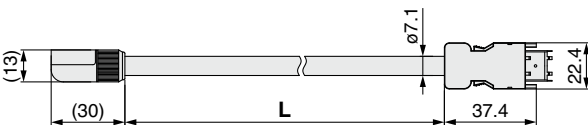
### LE-CSM-□□: Motor cable



### LE-CSB-□□: Lock cable\*1



### LE-CSE-□□: Encoder cable



\*1 If using an actuator with a lock, a lock cable is required.

| Product no. | øD  |
|-------------|-----|
| LE-CSM-S□A  | 6.2 |
| LE-CSM-S□B  | 6.2 |
| LE-CSM-R□A  | 5.7 |
| LE-CSM-R□B  | 5.7 |

| Product no. | øD  |
|-------------|-----|
| LE-CSB-S□A  | 4.7 |
| LE-CSB-S□B  | 4.7 |
| LE-CSB-R□A  | 4.5 |
| LE-CSB-R□B  | 4.5 |

#### Weight

| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LE-CSM-S2□  | 2          | 180        |
| LE-CSM-S5□  | 5          | 400        |
| LE-CSM-SA□  | 10         | 800        |
| LE-CSM-R2□  | 2          | 180        |
| LE-CSM-R5□  | 5          | 400        |
| LE-CSM-RA□  | 10         | 800        |

#### Weight

| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LE-CSB-S2□  | 2          | 80         |
| LE-CSB-S5□  | 5          | 200        |
| LE-CSB-SA□  | 10         | 400        |
| LE-CSB-R2□  | 2          | 80         |
| LE-CSB-R5□  | 5          | 200        |
| LE-CSB-RA□  | 10         | 400        |

#### Weight

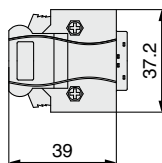
| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LE-CSE-S2□  | 2          | 220        |
| LE-CSE-S5□  | 5          | 600        |
| LE-CSE-SA□  | 10         | 1200       |
| LE-CSE-R2□  | 2          | 220        |
| LE-CSE-R5□  | 5          | 600        |
| LE-CSE-RA□  | 10         | 1200       |

## I/O connector (Without cable, Connector only)

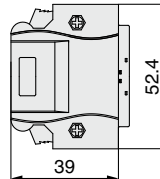
### LE - CSN A

| Driver type |                                   |
|-------------|-----------------------------------|
| A           | LECSA□, LECSC□-S□/<br>LECS2-T□    |
| B           | LECSB□-S□/LECSB2-T□               |
| S           | LECSN2-T□,<br>LECSS□-S□/LECSS2-T□ |

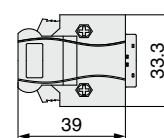
### LE-CSNA



### LE-CSNB



### LE-CSNS



#### Weight

| Product no. | Weight [g] |
|-------------|------------|
| LE-CSNA     | 25         |
| LE-CSNB     | 30         |
| LE-CSNS     | 16         |

\* LE-CSNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent  
 LE-CSNB: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent  
 LE-CSNS: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent

\* Applicable conductor size: AWG24 to 30

\* If using the LECSB, emergency stop (EMG) wiring is required in all cases.  
 If using the LECSB-T in any mode other than positioning mode, forced stop (EM2) wiring is required in all cases. (The electric actuator will not operate without the wiring.)

Prepare an I/O connector or an I/O cable in advance.



# LECS□/LECS□-T Series

## Options

SSCNET III optical cable (LECSS□-S□, LECS2-T□)

| LE - CSS - 1      |                          |
|-------------------|--------------------------|
| Motor type        | ●                        |
| <b>S</b>          | AC servo motor           |
| Cable description | ●                        |
| <b>S</b>          | SSCNET III optical cable |
| Cable length      | ●                        |
| <b>L</b>          | 0.15 m                   |
| <b>K</b>          | 0.3 m                    |
| <b>J</b>          | 0.5 m                    |
| <b>1</b>          | 1 m                      |
| <b>3</b>          | 3 m                      |

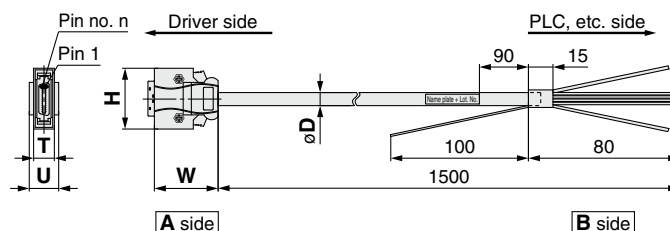
\* LE-CSS-□ is MR-J3BUS□M manufactured by Mitsubishi Electric Corporation.

### Weight

| Product no.     | Length [m] | Weight [g] |
|-----------------|------------|------------|
| <b>LE-CSS-L</b> | 0.15       | 100        |
| <b>LE-CSS-K</b> | 0.3        | 100        |
| <b>LE-CSS-J</b> | 0.5        | 200        |
| <b>LE-CSS-1</b> | 1          | 200        |
| <b>LE-CSS-3</b> | 3          | 200        |

I/O cable

| LEC - CSN A - 1      |                                |
|----------------------|--------------------------------|
| Driver type          | ●                              |
| <b>A</b>             | For LECSA□, LECSC□-S□/LECS2-T□ |
| <b>B</b>             | For LECSB□-S□/LECSB2-T□        |
| <b>S</b>             | LECSN2-T□, LECSS□-S□/LECS2-T□  |
| Cable length (L) [m] | ●                              |
| <b>1</b>             | 1.5                            |
| Weight               | ●                              |
| Product no.          | Weight [g]                     |
| <b>LEC-CSNA-1</b>    | 303                            |
| <b>LEC-CSNB-1</b>    | 472                            |
| <b>LEC-CSNS-1</b>    | 221                            |



- \* LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- \* LEC-CSNB-1: 10150-3000PE (connector)/10350-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- \* LEC-CSNS-1: 10120-3000PE (connector)/10320-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- \* Conductor size: AWG24
- \* If using the LECSB, emergency stop (EMG) wiring is required in all cases. If using the LECSB-T in any mode other than positioning mode, forced stop (EM2) wiring is required in all cases. (The electric actuator will not operate without the wiring.)
- \* Prepare an I/O connector or an I/O cable in advance.

### Cable O.D.

| Product no.       | øD   |
|-------------------|------|
| <b>LEC-CSNA-1</b> | 11.1 |
| <b>LEC-CSNB-1</b> | 13.8 |
| <b>LEC-CSNS-1</b> | 9.1  |

### Dimensions/Pin Nos.

| Product no.       | W  | H    | T    | U  | Pin no. n |
|-------------------|----|------|------|----|-----------|
| <b>LEC-CSNA-1</b> | 39 | 37.2 | 12.7 | 14 | 14        |
| <b>LEC-CSNB-1</b> |    | 52.4 |      | 18 | 26        |
| <b>LEC-CSNS-1</b> |    | 33.3 |      | 14 | 21        |
|                   |    |      |      |    |           |

## Wiring

LEC-CSNA-1: Pin nos. 1 to 26

LEC-CSNB-1: Pin nos. 1 to 50

LEC-CSNS-1: Pin nos. 1 to 20

| Connector pin no. | Pair no. of wire | Insulation color | Dot mark   | Dot color |
|-------------------|------------------|------------------|------------|-----------|
| <b>A side</b>     | 1                | 1                | Orange     | Red       |
|                   | 2                | 1                | Orange     | Black     |
|                   | 3                | 2                | Light gray | Red       |
|                   | 4                | 2                | Light gray | Black     |
|                   | 5                | 3                | White      | Red       |
|                   | 6                | 3                | White      | Black     |
|                   | 7                | 4                | Yellow     | Red       |
|                   | 8                | 4                | Yellow     | Black     |
|                   | 9                | 5                | Pink       | Red       |
|                   | 10               | 5                | Pink       | Black     |
|                   | 11               | 6                | Orange     | Red       |
|                   | 12               | 6                | Orange     | Black     |
|                   | 13               | 7                | Light gray | Red       |
|                   | 14               | 7                | Light gray | Black     |
|                   | 15               | 8                | White      | Red       |
|                   | 16               | 8                | White      | Black     |
|                   | 17               | 9                | Yellow     | Red       |
|                   | 18               | 9                | Yellow     | Black     |

| Connector pin no. | Pair no. of wire | Insulation color | Dot mark   | Dot color |
|-------------------|------------------|------------------|------------|-----------|
| <b>A side</b>     | 19               | 10               | Pink       | Red       |
|                   | 20               | 10               | Pink       | Black     |
|                   | 21               | 11               | Orange     | Red       |
|                   | 22               | 11               | Orange     | Black     |
|                   | 23               | 12               | Light gray | Red       |
|                   | 24               | 12               | Light gray | Black     |
|                   | 25               | 13               | White      | Red       |
|                   | 26               | 13               | White      | Black     |
|                   | 27               | 14               | Yellow     | Red       |
|                   | 28               | 14               | Yellow     | Black     |
|                   | 29               | 15               | Pink       | Red       |
|                   | 30               | 15               | Pink       | Black     |
|                   | 31               | 16               | Orange     | Red       |
|                   | 32               | 16               | Orange     | Black     |
|                   | 33               | 17               | Light gray | Red       |
|                   | 34               | 17               | Light gray | Black     |

| Connector pin no. | Pair no. of wire | Insulation color | Dot mark   | Dot color |
|-------------------|------------------|------------------|------------|-----------|
| <b>A side</b>     | 35               | 18               | White      | Red       |
|                   | 36               | 18               | White      | Black     |
|                   | 37               | 19               | Yellow     | Red       |
|                   | 38               | 19               | Yellow     | Black     |
|                   | 39               | 20               | Pink       | Red       |
|                   | 40               | 20               | Pink       | Black     |
|                   | 41               | 21               | Orange     | Red       |
|                   | 42               | 21               | Orange     | Black     |
|                   | 43               | 22               | Light gray | Red       |
|                   | 44               | 22               | Light gray | Black     |
|                   | 45               | 23               | White      | Red       |
|                   | 46               | 23               | White      | Black     |
|                   | 47               | 24               | Yellow     | Red       |
|                   | 48               | 24               | Yellow     | Black     |
|                   | 49               | 25               | Pink       | Red       |
|                   | 50               | 25               | Pink       | Black     |

## Options

### Regeneration option (LECS□ common)

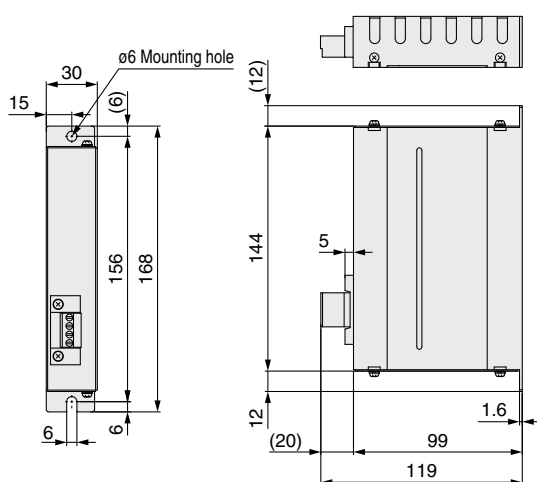
#### LEC-MR-RB-12

##### Regeneration option type

|            |                                    |
|------------|------------------------------------|
| <b>032</b> | Allowable regenerative power 30 W  |
| <b>12</b>  | Allowable regenerative power 100 W |

\* Confirm regeneration option to be used in "Model Selection."

#### LEC-MR-RB-032

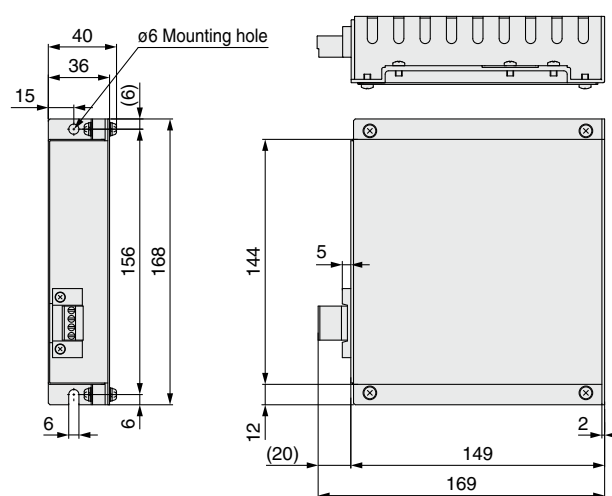


##### Weight

| Product no.          | Weight [kg] |
|----------------------|-------------|
| <b>LEC-MR-RB-032</b> | 0.5         |

\* MR-RB032 manufactured by Mitsubishi Electric Corporation

#### LEC-MR-RB-12



##### Weight

| Product no.         | Weight [kg] |
|---------------------|-------------|
| <b>LEC-MR-RB-12</b> | 1.1         |

\* MR-RB12 manufactured by Mitsubishi Electric Corporation

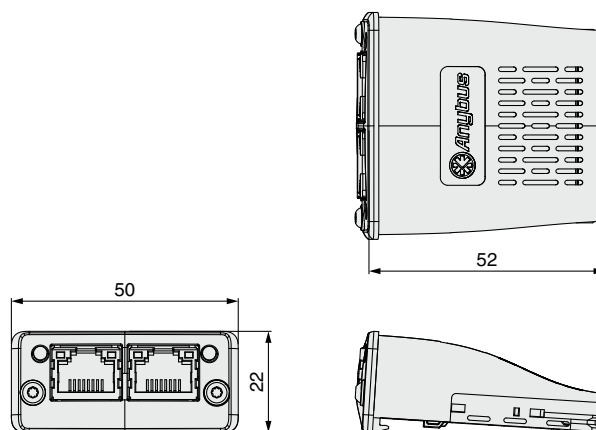
### Network card (LECSN2-T□)

#### LEC-S-NE

##### Network card type

|           |              |
|-----------|--------------|
| <b>NE</b> | EtherCAT®    |
| <b>N9</b> | EtherNet/IP™ |
| <b>NP</b> | PROFINET     |

#### LEC-S-□ common



##### Weight

| Product no.    | Weight [g] |
|----------------|------------|
| <b>LEC-S-□</b> | 30         |

# LECS□/LECS□-T Series

## Options



Setup software (MR Configurator2™) (LECSA, LECSB, LECSC, LECSS, LECSB2-T□, LECSC2-T□, LECSS-T, LECNS2-T□ common)

### LEC-MRC2□

#### Display language

|     |                  |
|-----|------------------|
| Nil | Japanese version |
| E   | English version  |
| C   | Chinese version  |

\* SW1DNC-MRC2□ manufactured by Mitsubishi Electric Corporation  
Refer to Mitsubishi Electric Corporation's website for operating environment and version upgrade information.  
MR Configurator2™ is a registered trademark or trademark of Mitsubishi Electric Corporation.

Adjustment, waveform display, diagnostics, parameter read/write, and test operation can be performed upon a PC.

### Compatible PC

When using setup software (MR Configurator2™), use an IBM PC/AT compatible PC that meets the following operating conditions.

### Hardware Requirements

| Equipment                            |                         | Setup software (MR Configurator2™)<br>LEC-MRC2□                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|--------------------------------------|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| *1, 2, 3, 4, 5, 6, 7, 8, 9, 10<br>PC | OS                      | Microsoft® Windows® 10 Edition<br>Microsoft® Windows® 10 Enterprise<br>Microsoft® Windows® 10 Pro<br>Microsoft® Windows® 10 Home<br>Microsoft® Windows® 8.1 Enterprise<br>Microsoft® Windows® 8.1 Pro<br>Microsoft® Windows® 8.1<br>Microsoft® Windows® 8 Enterprise<br>Microsoft® Windows® 8 Pro<br>Microsoft® Windows® 8<br>Microsoft® Windows® 7 Ultimate<br>Microsoft® Windows® 7 Enterprise<br>Microsoft® Windows® 7 Professional<br>Microsoft® Windows® 7 Home Premium<br>Microsoft® Windows® 7 Starter<br>Microsoft® Windows Vista® Ultimate<br>Microsoft® Windows Vista® Enterprise<br>Microsoft® Windows Vista® Business<br>Microsoft® Windows Vista® Home Premium<br>Microsoft® Windows Vista® Home Basic<br>Microsoft® Windows® XP Professional, Service Pack 3 or later<br>Microsoft® Windows® XP Home Edition, Service Pack 3 or later |
|                                      | Hard disk               | 1 GB or more of free space                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|                                      | Communication interface | Use USB port.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Display                              |                         | Resolution 1024 x 768 or more<br>Must be capable of high color (16-bit) display.<br>Connectable with the PC above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Keyboard                             |                         | Connectable with the PC above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Mouse                                |                         | Connectable with the PC above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Printer                              |                         | Connectable with the PC above                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| USB cable*11                         |                         | LEC-MR-J3USB                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

- \*1 Before using a PC for setting LECSA point table method/program operation method, upgrade to version 1.18U (Japanese version)/version 1.19V (English version) or later. Refer to Mitsubishi Electric Corporation's website for version upgrade information.
- \*2 Windows® and Windows Vista® are registered trademarks of Microsoft Corporation in the United States and other countries.
- \*3 On some PCs, setup software (MR Configurator2™) may not run properly.
- \*4 The following functions cannot be used. If any of the following functions is used, this product may not operate normally.
  - Start of application in Windows® compatible mode
  - Fast User Switching
  - Remote Desktop
  - Windows XP Mode
  - Windows Touch or Touch
  - Modern UI
  - Client Hyper-V
  - Tablet Mode
  - Virtual desktop
  - 64-bit OSs are not supported, except for Microsoft® Windows®7 or later.
- \*5 Multi-display is set, the screen of this product may not operate normally.
- \*6 The size of the text or other items on the screen is not changed to the specified value (96 DPI, 100%, 9 pt, etc.), the screen of this product may not operate normally.
- \*7 Changed the resolution of the screen during operating, the screen of this product may not operate normally.
- \*8 Please use by "Standard User," "Administrator" in Windows Vista® or later.
- \*9 Using a PC for setting Windows®10, upgrade to version 1.52E or later.  
Using a PC for setting Windows®8.1, upgrade to version 1.25B or later.  
Using a PC for setting Windows®8, upgrade to version 1.20W or later.  
Refer to Mitsubishi Electric Corporation's website for version upgrade information.
- \*10 If .NET Framework 3.5 (including .NET 2.0 and 3.0) have been disabled in Windows®7 or later, it is necessary to enable it.
- \*11 Order USB cable separately.
  - This cable is compatible with the setup software (MR Configurator2™: LEC-MR-SETUP221□).

### Setup Software Compatible Drivers

| Compatible driver | Setup software                        |                                |
|-------------------|---------------------------------------|--------------------------------|
|                   | MR Configurator2™<br>LEC-MR-SETUP221□ | MR Configurator2™<br>LEC-MRC2□ |
| LECSA             | ○                                     | ○                              |
| LECSB□-S□         | ○                                     | ○                              |
| LECSC□-S□         | ○                                     | ○                              |
| LECSS□-S□         | ○                                     | ○                              |
| LECSB2-T□         | —                                     | ○                              |
| LECSC2-T□         | —                                     | ○                              |
| LECSS2-T□         | —                                     | ○                              |
| LECSN2-T□         | —                                     | ○                              |

## Options

### USB cable (3 m)

(LECSA, LECSB, LECSA, LECSB, LECSB-T, LECSA-T, LECSN-T, LECSA-T common)

### LEC-MR-J3USB

\* MR-J3USBCBL3M manufactured by Mitsubishi Electric Corporation

Weight: 140 g

Cable for connecting PC and driver when using the setup software (MR Configurator2™)

Do not use any cable other than this cable.

### STO cable (3 m)

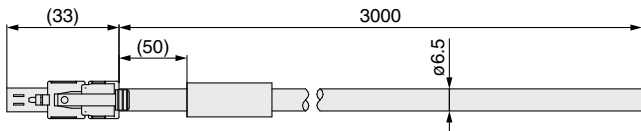
(Only for LECSB2-T□, LECSN2-T□, and LECSA2-T□)

### LEC-MR-D05UDL3M

\* MR-D05UDL3M manufactured by Mitsubishi Electric Corporation

Cable for connecting the driver and device, when using the safety function

Do not use any cable other than this cable.



Weight: 500 g

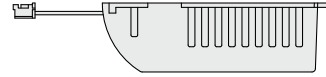
## Battery

### LEC-MR-J3BAT

\* MR-J3BAT manufactured by Mitsubishi Electric Corporation

Battery for replacement

Absolute position data is maintained by installing the battery to the driver.



Weight: 30 g

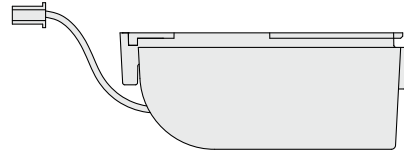
\* The LEC-MR-J3BAT is a single battery that uses lithium metal battery ER6V. When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

### LEC-MR-BAT6V1SET

\* MR-BAT6V1SET manufactured by Mitsubishi Electric Corporation

Battery for replacement

Absolute position data is maintained by installing the battery to the driver.



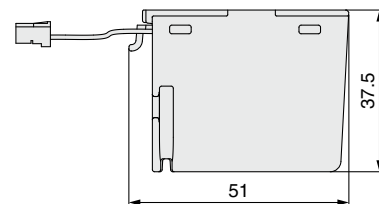
Weight: 60 g

### LEC-MR-BAT6V1SET-A

\* MR-BAT6V1SET-A manufactured by Mitsubishi Electric Corporation

Battery for replacement

Absolute position data is maintained by installing the battery to the driver.



Weight: 60 g

\* The LEC-MR-BAT6V1SET and LEC-MR-BAT6V1SET-A are assembled batteries that use lithium metal battery 2CR17335A. When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

## Battery Types and Compatible Drivers

| Compatible driver | Battery type |                  |                    |
|-------------------|--------------|------------------|--------------------|
|                   | LEC-MR-J3BAT | LEC-MR-BAT6V1SET | LEC-MR-BAT6V1SET-A |
| LECSB□-S□         | ○            | —                | —                  |
| LECSA□-S□         | ○            | —                | —                  |
| LECSN□-S□         | ○            | —                | —                  |
| LECSB□-T□         | —            | ○                | —                  |
| LECSA□-T□         | ○            | —                | —                  |
| LECSN□-T□         | —            | ○                | —                  |
| LECSN□-T□         | —            | —                | ○                  |

# AC Servo Motor Driver Absolute Type

## LECYM/LECYU Series

(MECHATROLINK-II Type)

(MECHATROLINK-III Type)



\* For details, refer to page 307 and onward.

### How to Order

#### Driver

LECY M 2 -

#### Driver type

|   |                                                 |
|---|-------------------------------------------------|
| M | MECHATROLINK-II type<br>(For absolute encoder)  |
| U | MECHATROLINK-III type<br>(For absolute encoder) |

#### Power supply voltage

|   |                          |
|---|--------------------------|
| 2 | 200 to 230 VAC, 50/60 Hz |
|---|--------------------------|

- \* If an I/O connector (CN1) is required, order the part number "LE-CYNA" separately.
- \* If an I/O cable (CN1) is required, order the part number "LEC-CSNA-1" separately.

#### Compatible motor type

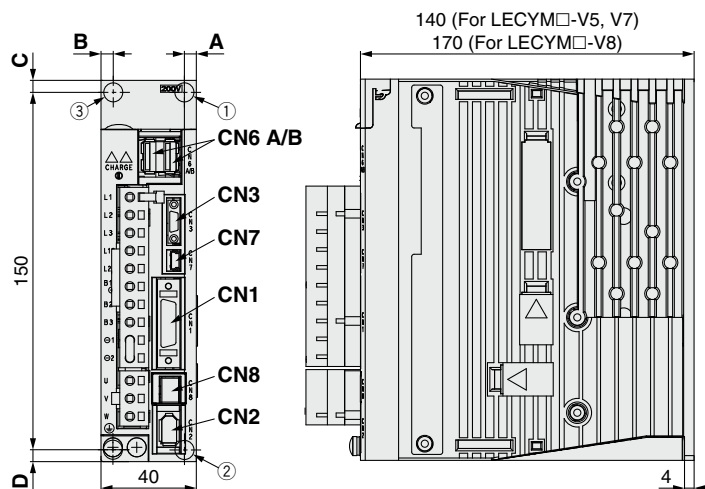
| Symbol | Type                  | Capacity | Encoder  |
|--------|-----------------------|----------|----------|
| V5     | AC servo motor (V6*1) | 100 W    | Absolute |
| V7     | AC servo motor (V7*1) | 200 W    |          |
| V8     | AC servo motor (V8*1) | 400 W    |          |

\*1 The symbol shows the motor type (actuator).

### Dimensions

MECHATROLINK-II type

LECYM2-V□



| Connector name | Description                             |
|----------------|-----------------------------------------|
| CN1            | I/O signal connector                    |
| CN2            | Encoder connector                       |
| CN3*1          | Digital operator connector              |
| CN6A           | MECHATROLINK-II communication connector |
| CN6B           | MECHATROLINK-II communication connector |
| CN7            | PC connector                            |
| CN8            | Safety connector                        |

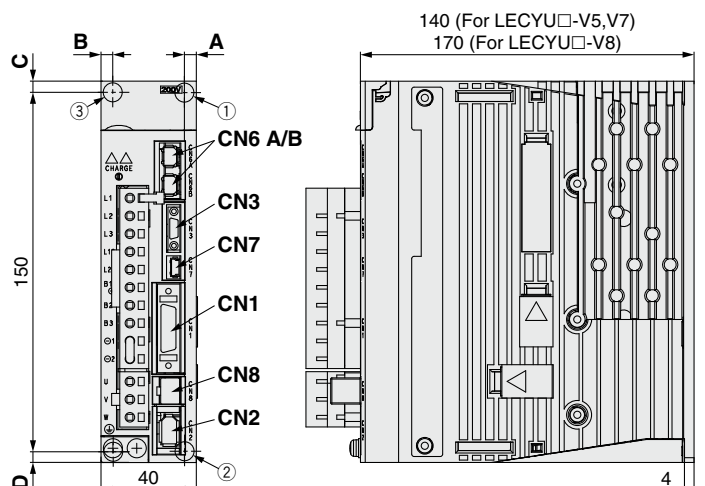
\*1 Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

| Motor capacity | Hole position | Mounting dimensions | Mounting hole |
|----------------|---------------|---------------------|---------------|
|                |               | A B C D             |               |
| V5 (100 W)     | ①②            | 5 — 5 5             | ø5            |
| V7 (200 W)     | ①②            | 5 — 5 5             |               |
| V8 (400 W)     | ②③            | 5 5 5 5             |               |

\* The mounting hole position varies depending on the motor capacity.

MECHATROLINK-III type

LECYU2-V□



| Connector name | Description                              |
|----------------|------------------------------------------|
| CN1            | I/O signal connector                     |
| CN2            | Encoder connector                        |
| CN3*1          | Digital operator connector               |
| CN6A           | MECHATROLINK-III communication connector |
| CN6B           | MECHATROLINK-III communication connector |
| CN7            | PC connector                             |
| CN8            | Safety connector                         |

\*1 Digital operator is JUSP-OP05A-1-E manufactured by YASKAWA Electric Corporation. When using the digital operator, it should be provided by the customer.

| Motor capacity | Hole position | Mounting dimensions | Mounting hole |
|----------------|---------------|---------------------|---------------|
|                |               | A B C D             |               |
| V5 (100 W)     | ①②            | 5 — 5 5             | ø5            |
| V7 (200 W)     | ①②            | 5 — 5 5             |               |
| V8 (400 W)     | ②③            | 5 5 5 5             |               |

\* The mounting hole position varies depending on the motor capacity.

## Specifications

### MECHATROLINK- II Type

| Model                                       |                                   |           | LECYM2-V5                                                                                                                                                                                                                                                                                                                                                                                                                                | LECYM2-V7 | LECYM2-V8 |
|---------------------------------------------|-----------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|
| Compatible motor capacity [W]               |                                   |           | 100                                                                                                                                                                                                                                                                                                                                                                                                                                      | 200       | 400       |
| Compatible encoder                          |                                   |           | Absolute 20-bit encoder (Resolution: 1048576 p/rev)                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
| Main circuit power supply                   | Power voltage [V]                 |           | Three phase 200 to 230 VAC (50/60 Hz)                                                                                                                                                                                                                                                                                                                                                                                                    |           |           |
|                                             | Allowable voltage fluctuation [V] |           | Three phase 170 to 253 VAC                                                                                                                                                                                                                                                                                                                                                                                                               |           |           |
| Control power supply                        | Power voltage [V]                 |           | Single phase 200 to 230 VAC (50/60 Hz)                                                                                                                                                                                                                                                                                                                                                                                                   |           |           |
|                                             | Allowable voltage fluctuation [V] |           | Single phase 170 to 253 VAC                                                                                                                                                                                                                                                                                                                                                                                                              |           |           |
| Power supply capacity (at rated output) [A] |                                   |           | 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.6       | 2.8       |
| Input circuit                               |                                   |           | NPN (Sink circuit)/PNP (Source circuit)                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
| Parallel input (7 inputs)                   | Number of optional allocations    | 7 inputs  | [Initial allocation]<br>· Homing deceleration switch (/DEC)<br>· External latch (/EXT 1 to 3)<br>· Forward run prohibited (P-OT), reverse run prohibited (N-OT)<br><br>[Can be allocated by setting the parameters]<br>· Forward external torque limit (/P-CL), reverse external torque limit (/N-CL)<br><br>Signal allocations can be performed, and positive and negative logic can be changed.                                        |           |           |
| Parallel output (4 outputs)                 | Number of fixed allocations       | 1 output  | · Servo alarm (ALM)                                                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
|                                             | Number of optional allocations    | 3 outputs | [Initial allocation]<br>· Lock (/BK)<br><br>[Can be allocated by setting the parameters]<br>· Positioning completion (/COIN)<br>· Speed limit detection (/VLT)<br>· Speed coincidence detection (/V-CMP)<br>· Rotation detection (/TGON)<br>· Warning (/WARN)<br>· Servo ready (/S-RDY)<br>· Near (/NEAR)<br>· Torque limit detection (/CLT)<br><br>Signal allocations can be performed, and positive and negative logic can be changed. |           |           |
| MECHATROLINK communication                  | Communication protocol            |           | MECHATROLINK- II                                                                                                                                                                                                                                                                                                                                                                                                                         |           |           |
|                                             | Station address                   |           | 41H to 5FH                                                                                                                                                                                                                                                                                                                                                                                                                               |           |           |
|                                             | Transmission speed                |           | 10 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
|                                             | Transmission cycle                |           | 250 μs, 0.5 ms to 4 ms (Multiples of 0.5 ms)                                                                                                                                                                                                                                                                                                                                                                                             |           |           |
|                                             | Number of transmission bytes      |           | 17 bytes, 32 bytes                                                                                                                                                                                                                                                                                                                                                                                                                       |           |           |
|                                             | Max. number of stations           |           | 30                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |           |
|                                             | Cable length                      |           | Overall cable length: 50 m or less, Cable length between the stations: 0.5 m or more                                                                                                                                                                                                                                                                                                                                                     |           |           |
| Command method                              | Control method                    |           | Position, speed, or torque control with MECHATROLINK- II communication                                                                                                                                                                                                                                                                                                                                                                   |           |           |
|                                             | Command input                     |           | MECHATROLINK- II command (Motion, data setting, monitoring, or adjustment)                                                                                                                                                                                                                                                                                                                                                               |           |           |
| Function                                    | Gain adjustment                   |           | Tuning-less/Advanced auto tuning/One-parameter tuning                                                                                                                                                                                                                                                                                                                                                                                    |           |           |
|                                             | Communication setting             |           | USB communication, RS-422 communication                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
|                                             | Torque limit                      |           | Internal torque limit, external torque limit, and torque limit by analog command                                                                                                                                                                                                                                                                                                                                                         |           |           |
|                                             | Encoder output                    |           | Phase A, B, Z: Line driver output                                                                                                                                                                                                                                                                                                                                                                                                        |           |           |
|                                             | Emergency stop                    |           | CN8 Safety function                                                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
|                                             | Overtravel                        |           | Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT                                                                                                                                                                                                                                                                                                                                                        |           |           |
|                                             | Alarm                             |           | Alarm signal, MECHATROLINK- II command                                                                                                                                                                                                                                                                                                                                                                                                   |           |           |
| Operating temperature range [°C]            |                                   |           | 0 to 55 (No freezing)                                                                                                                                                                                                                                                                                                                                                                                                                    |           |           |
| Operating humidity range [%RH]              |                                   |           | 90 or less (No condensation)                                                                                                                                                                                                                                                                                                                                                                                                             |           |           |
| Storage temperature range [°C]              |                                   |           | −20 to 85 (No freezing)                                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
| Storage humidity range [%RH]                |                                   |           | 90 or less (No condensation)                                                                                                                                                                                                                                                                                                                                                                                                             |           |           |
| Insulation resistance [MΩ]                  |                                   |           | 10 MΩ (500 VDC)                                                                                                                                                                                                                                                                                                                                                                                                                          |           |           |
| Safety function                             |                                   |           | STO (IEC 61800-5-2)                                                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
| Safety standards*1                          |                                   |           | EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL2, IEC 62061 SIL CL2, IEC 61800-5-2                                                                                                                                                                                                                                                                                                                                                         |           |           |
| Weight [g]                                  |                                   |           | 900                                                                                                                                                                                                                                                                                                                                                                                                                                      |           | 1000      |

\*1 Refer to the LECYM operation manual for details.



## Specifications

### MECHATROLINK-III Type

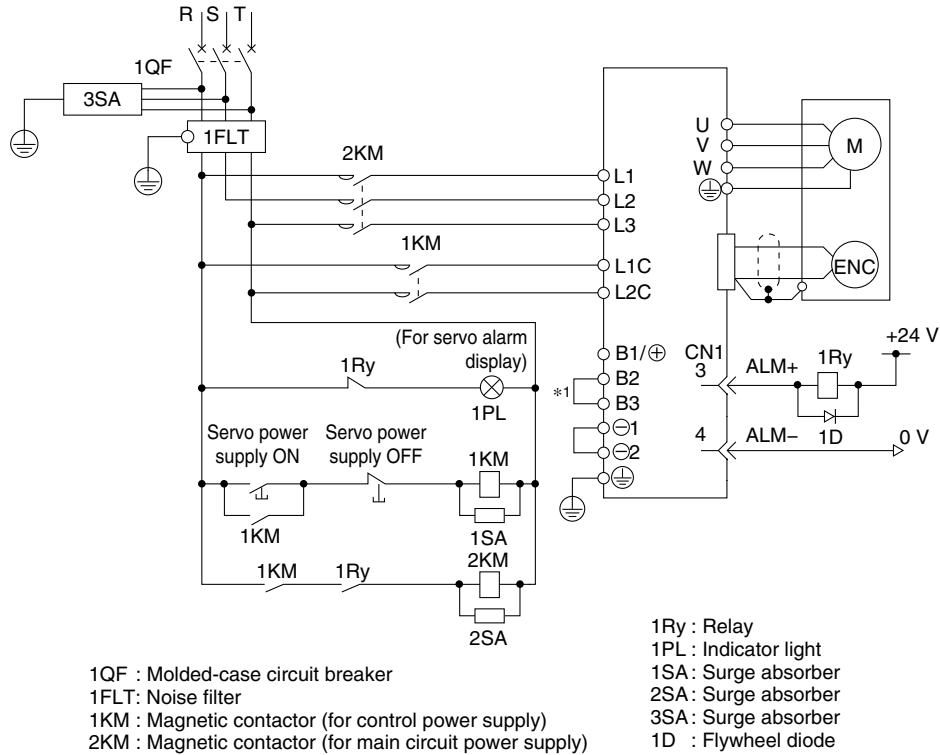
| Model                                       |                                   |           | LECYU2-V5                                                                                                                                                                                                                                                                                                                                                                                                                                | LECYU2-V7 | LECYU2-V8 |
|---------------------------------------------|-----------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------|
| Compatible motor capacity [W]               |                                   |           | 100                                                                                                                                                                                                                                                                                                                                                                                                                                      | 200       | 400       |
| Compatible encoder                          |                                   |           | Absolute 20-bit encoder (Resolution: 1048576 p/rev)                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
| Main circuit power supply                   | Power voltage [V]                 |           | Three phase 200 to 230 VAC (50/60 Hz)                                                                                                                                                                                                                                                                                                                                                                                                    |           |           |
|                                             | Allowable voltage fluctuation [V] |           | Three phase 170 to 253 VAC                                                                                                                                                                                                                                                                                                                                                                                                               |           |           |
| Control power supply                        | Power voltage [V]                 |           | Single phase 200 to 230 VAC (50/60 Hz)                                                                                                                                                                                                                                                                                                                                                                                                   |           |           |
|                                             | Allowable voltage fluctuation [V] |           | Single phase 170 to 253 VAC                                                                                                                                                                                                                                                                                                                                                                                                              |           |           |
| Power supply capacity (at rated output) [A] |                                   |           | 0.91                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1.6       | 2.8       |
| Input circuit                               |                                   |           | NPN (Sink circuit)/PNP (Source circuit)                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
| Parallel input (7 inputs)                   | Number of optional allocations    | 7 inputs  | [Initial allocation]<br>· Homing deceleration switch (/DEC)<br>· External latch (/EXT 1 to 3)<br>· Forward run prohibited (P-OT), reverse run prohibited (N-OT)<br><br>[Can be allocated by setting the parameters]<br>· Forward external torque limit (/P-CL), reverse external torque limit (/N-CL)<br><br>Signal allocations can be performed, and positive and negative logic can be changed.                                        |           |           |
| Parallel output (4 outputs)                 | Number of fixed allocations       | 1 output  | · Servo alarm (ALM)                                                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
|                                             | Number of optional allocations    | 3 outputs | [Initial allocation]<br>· Lock (/BK)<br><br>[Can be allocated by setting the parameters]<br>· Positioning completion (/COIN)<br>· Speed limit detection (/VLT)<br>· Speed coincidence detection (/V-CMP)<br>· Rotation detection (/TGON)<br>· Warning (/WARN)<br>· Servo ready (/S-RDY)<br>· Near (/NEAR)<br>· Torque limit detection (/CLT)<br><br>Signal allocations can be performed, and positive and negative logic can be changed. |           |           |
| MECHATROLINK communication                  | Communication protocol            |           | MECHATROLINK-Ⅲ                                                                                                                                                                                                                                                                                                                                                                                                                           |           |           |
|                                             | Station address                   |           | 03H to EFH                                                                                                                                                                                                                                                                                                                                                                                                                               |           |           |
|                                             | Transmission speed                |           | 100 Mbps                                                                                                                                                                                                                                                                                                                                                                                                                                 |           |           |
|                                             | Transmission cycle                |           | 125 μs, 250 μs, 500 μs, 750 μs, 1 ms to 4 ms (Multiples of 0.5 ms)                                                                                                                                                                                                                                                                                                                                                                       |           |           |
|                                             | Number of transmission bytes      |           | 16 bytes, 32 bytes, 48 bytes                                                                                                                                                                                                                                                                                                                                                                                                             |           |           |
|                                             | Max. number of stations           |           | 62                                                                                                                                                                                                                                                                                                                                                                                                                                       |           |           |
|                                             | Cable length                      |           | Cable length between the stations: 0.5 m or more, 75 m or less                                                                                                                                                                                                                                                                                                                                                                           |           |           |
| Command method                              | Control method                    |           | Position, speed, or torque control with MECHATROLINK-Ⅲ communication                                                                                                                                                                                                                                                                                                                                                                     |           |           |
|                                             | Command input                     |           | MECHATROLINK-Ⅲ command (Motion, data setting, monitoring, or adjustment)                                                                                                                                                                                                                                                                                                                                                                 |           |           |
| Function                                    | Gain adjustment                   |           | Tuning-less/Advanced auto tuning/One-parameter tuning                                                                                                                                                                                                                                                                                                                                                                                    |           |           |
|                                             | Communication setting             |           | USB communication, RS-422 communication                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
|                                             | Torque limit                      |           | Internal torque limit, external torque limit, and torque limit by analog command                                                                                                                                                                                                                                                                                                                                                         |           |           |
|                                             | Encoder output                    |           | Phase A, B, Z: Line driver output                                                                                                                                                                                                                                                                                                                                                                                                        |           |           |
|                                             | Emergency stop                    |           | CN8 Safety function                                                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
|                                             | Overtravel                        |           | Dynamic brake stop, deceleration to a stop, or free run to a stop at P-OT or N-OT                                                                                                                                                                                                                                                                                                                                                        |           |           |
|                                             | Alarm                             |           | Alarm signal, MECHATROLINK-Ⅲ command                                                                                                                                                                                                                                                                                                                                                                                                     |           |           |
| Operating temperature range [°C]            |                                   |           | 0 to 55 (No freezing)                                                                                                                                                                                                                                                                                                                                                                                                                    |           |           |
| Operating humidity range [%RH]              |                                   |           | 90 or less (No condensation)                                                                                                                                                                                                                                                                                                                                                                                                             |           |           |
| Storage temperature range [°C]              |                                   |           | -20 to 85 (No freezing)                                                                                                                                                                                                                                                                                                                                                                                                                  |           |           |
| Storage humidity range [%RH]                |                                   |           | 90 or less (No condensation)                                                                                                                                                                                                                                                                                                                                                                                                             |           |           |
| Insulation resistance [MΩ]                  |                                   |           | 10 MΩ (500 VDC)                                                                                                                                                                                                                                                                                                                                                                                                                          |           |           |
| Safety function                             |                                   |           | STO (IEC 61800-5-2)                                                                                                                                                                                                                                                                                                                                                                                                                      |           |           |
| Safety standards*1                          |                                   |           | EN ISO 13849-1 Category 3 PL d, IEC 61508 SIL2, IEC 62061 SIL CL2, IEC 61800-5-2                                                                                                                                                                                                                                                                                                                                                         |           |           |
| Weight [g]                                  |                                   |           | 900                                                                                                                                                                                                                                                                                                                                                                                                                                      |           | 1000      |

\*1 Refer to the LECYU operation manual for details.



## Power Supply Wiring Example: LECY□

■ Three phase 200 V    **LECYM2-□**  
**LECYU2-□**



\*1 For the LECY□2-V5, LECY□2-V7, and LECY□2-V8, terminals B2 and B3 are not short-circuited.  
 Do not short-circuit these terminals.

### Main Circuit Power Supply Connector \* Accessory

| Terminal name | Function                                           | Details                                                                                                                                                                             |
|---------------|----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| L1            | Main circuit power supply                          | Connect the main circuit power supply.<br>Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2<br>Three phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1, L2, L3 |
| L2            |                                                    |                                                                                                                                                                                     |
| L3            |                                                    |                                                                                                                                                                                     |
| L1C           | Control power supply                               | Connect the control power supply.<br>Single phase 200 to 230 VAC, 50/60 Hz Connection terminal: L1C, L2C                                                                            |
| L2C           |                                                    |                                                                                                                                                                                     |
| B1/⊕          | External regenerative resistor connection terminal | When the regenerative resistor is required, connect it between terminals B1/⊕ and B2.                                                                                               |
| B2            |                                                    |                                                                                                                                                                                     |
| ⊖1            | Main circuit negative terminal                     | ⊖1 and ⊖2 are connected at shipment.                                                                                                                                                |
| ⊖2            |                                                    |                                                                                                                                                                                     |

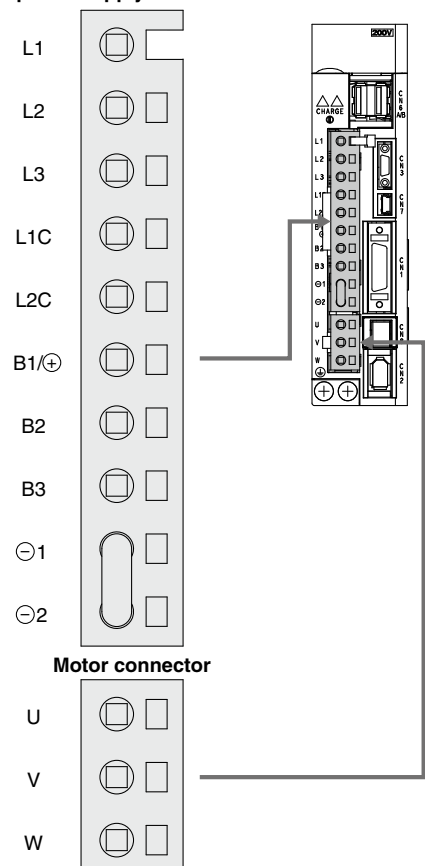
### Motor Connector \* Accessory

| Terminal name | Function              | Details                           |
|---------------|-----------------------|-----------------------------------|
| U             | Servo motor power (U) | Connect to motor cable (U, V, W). |
| V             | Servo motor power (V) |                                   |
| W             | Servo motor power (W) |                                   |

### Power Supply Wire Specifications

| Item                 | Specifications                                                                  |
|----------------------|---------------------------------------------------------------------------------|
| Applicable wire size | L1, L2, L3, L1C, L2C<br>Single wire, Twisted wire, AWG14 (2.0 mm <sup>2</sup> ) |
| Stripped wire length | 8 to 9 mm                                                                       |

### Main circuit power supply connector



Model Selection

Step Motor (Servo24 VDC)/Servo Motor (24 VDC)

LECY

LEYG

LECY

LEYG

LECY-X7

LECY-X5

25A-LECY

JXC51/61

LECA6

LEC-G

LECP1

LECPA

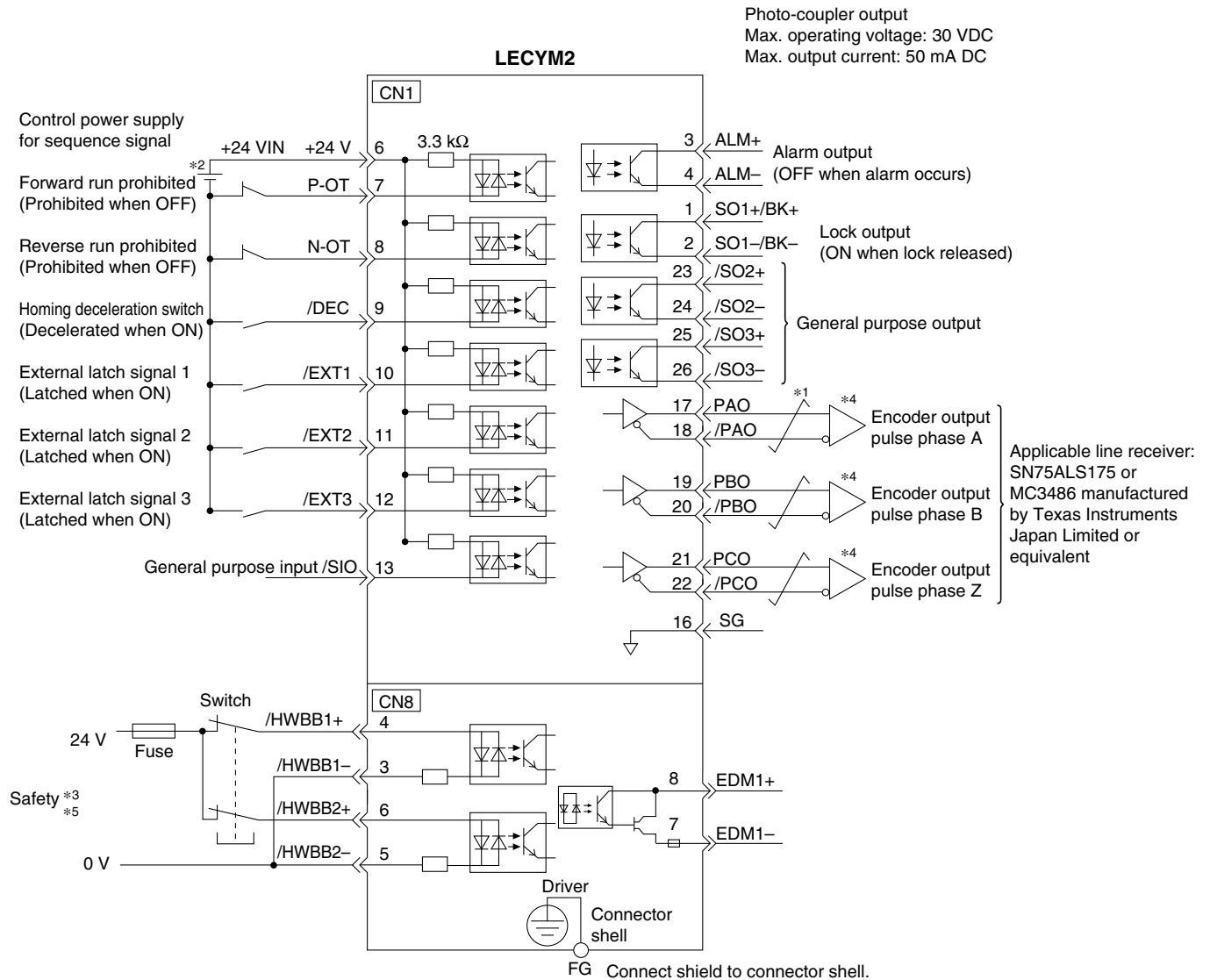
JXC□

LECS□

LECY□

Specific Product Precautions

## Control Signal Wiring Example: LECYM



\*1  $\nabla$  shows twisted-pair wires.

\*2 The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

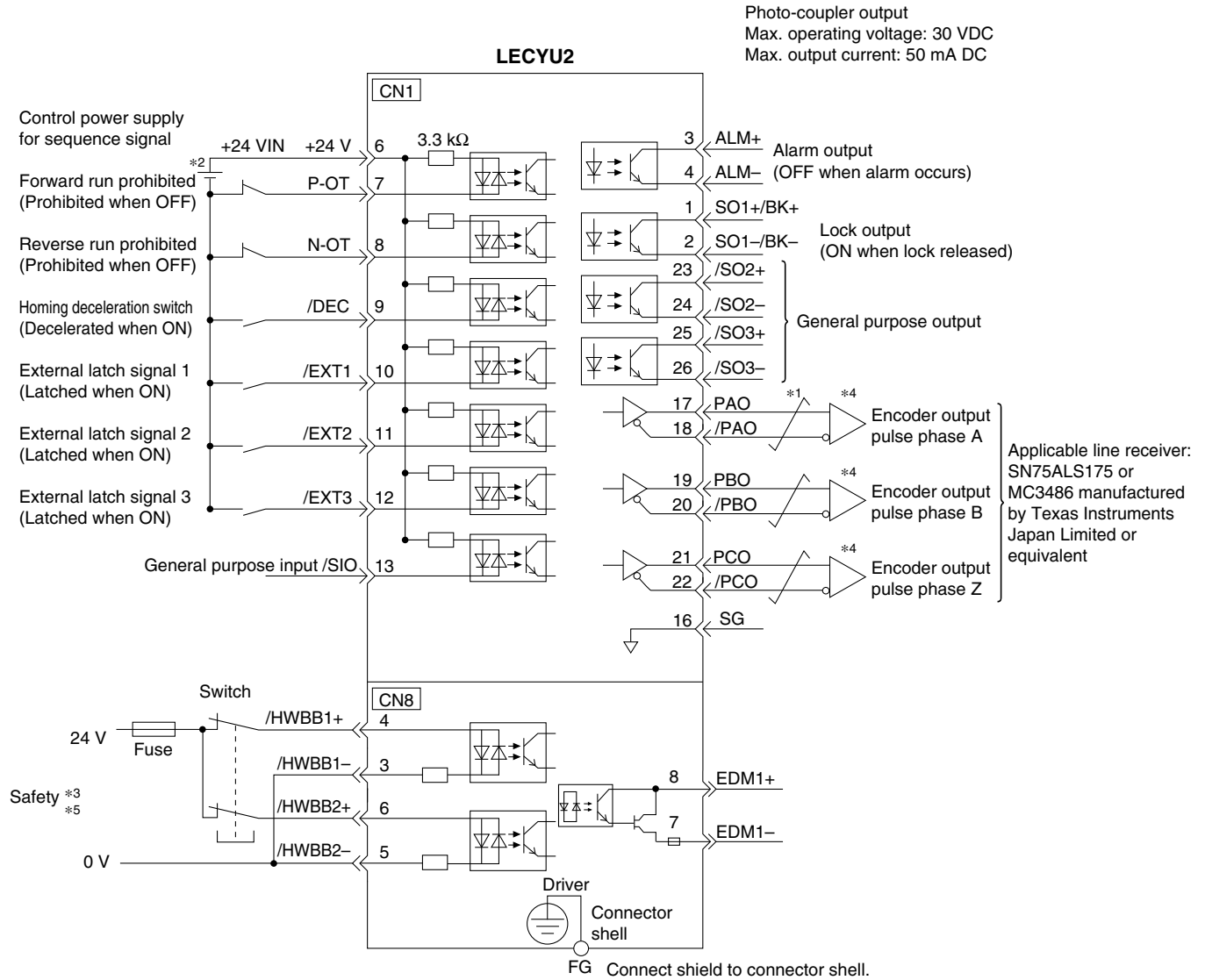
\*3 When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

\*4 Always use line receivers to receive the output signals.

\* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2, and /EXT3, and the output signals /SO1, /SO2, and /SO3 can be changed by setting the parameters.

\*5 It is a safety function equivalent to the STO function (IEC 61800-5-2) using the hard wire base block function (HWBB).

## Control Signal Wiring Example: LECYU



\*1  $\times$  shows twisted-pair wires.

\*2 The 24 VDC power supply is not included. Use a 24 VDC power supply with double insulation or reinforced insulation.

\*3 When using the safety function, a safety function device must be connected to the wiring that is necessary to activate the safety function. Otherwise, the servo motor is not turned ON. When not using the safety function, use the driver with the Safety Jumper Connector (provided as an accessory) inserted into the CN8.

\*4 Always use line receivers to receive the output signals.

\*\* The functions allocated to the input signals /DEC, P-OT, N-OT, /EXT1, /EXT2, and /EXT3, and the output signals /SO1, /SO2, and /SO3 can be changed by setting the parameters.

\*5 It is a safety function equivalent to the STO function (IEC 61800-5-2) using the hard wire base block function (HWBB).

Options

Motor cable, Motor cable for lock option, Encoder cable (LECYM/LECYU common)

LE-CY

M

-

S

5

A

-

5

Motor type

Y

AC servo motor

Cable description

M

Motor cable

B

Motor cable for lock option

E

Encoder cable  
(With battery case)

Cable type

S

Standard cable

R

Robotic cable

Cable length (L) [m]

3

3

5

5

A

10

C

20

Motor capacity

5

100 W

7

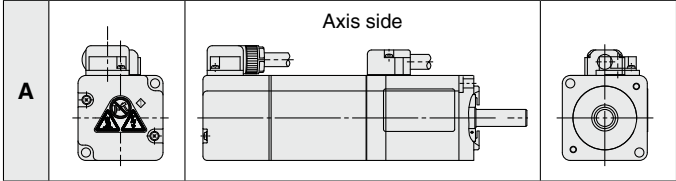
200/400 W

\* For encoder cable, the suffix "□" (Motor capacity) is not necessary.

Direction of connector

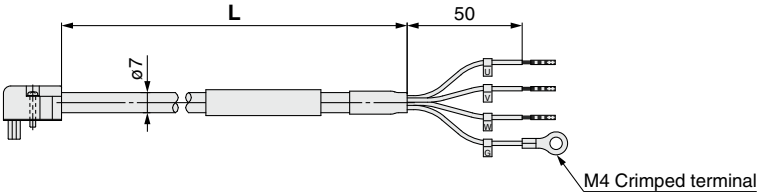
A

Axis side

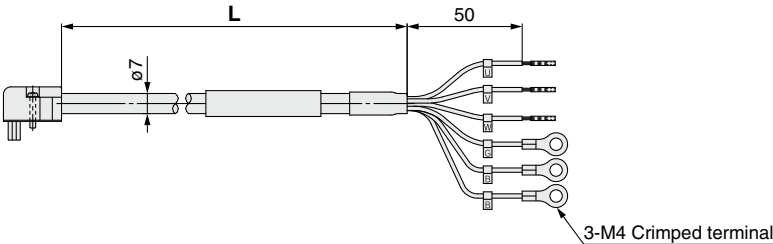


\* The cable entry direction is axis side only.

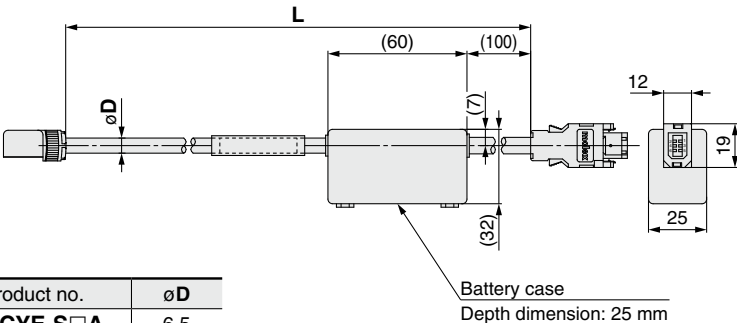
LE-CYM-□□A-□: Motor cable



LE-CYB-□□A-□: Motor cable for lock option



LE-CYE-□□A: Encoder cable



| Product no. | øD  |
|-------------|-----|
| LE-CYE-S□A  | 6.5 |
| LE-CYE-R□A  | 6.8 |

| Product no.  | Length [m] | Weight [g] | Note          |
|--------------|------------|------------|---------------|
| LE-CYM-S3A-5 | 3          | 250        | 100 W         |
| LE-CYM-S5A-5 | 5          | 390        |               |
| LE-CYM-SAA-5 | 10         | 750        |               |
| LE-CYM-SCA-5 | 20         | 1500       |               |
| LE-CYM-S3A-7 | 3          | 250        | 200/<br>400 W |
| LE-CYM-S5A-7 | 5          | 390        |               |
| LE-CYM-SAA-7 | 10         | 750        |               |
| LE-CYM-SCA-7 | 20         | 1500       |               |
| LE-CYM-R3A-5 | 3          | 220        | 100 W         |
| LE-CYM-R5A-5 | 5          | 350        |               |
| LE-CYM-RAA-5 | 10         | 670        |               |
| LE-CYM-RCA-5 | 20         | 1300       |               |
| LE-CYM-R3A-7 | 3          | 220        | 200/<br>400 W |
| LE-CYM-R5A-7 | 5          | 350        |               |
| LE-CYM-RAA-7 | 10         | 670        |               |
| LE-CYM-RCA-7 | 20         | 1300       |               |

| Product no.  | Length [m] | Weight [g] | Note          |
|--------------|------------|------------|---------------|
| LE-CYB-S3A-5 | 3          | 240        | 100 W         |
| LE-CYB-S5A-5 | 5          | 390        |               |
| LE-CYB-SAA-5 | 10         | 750        |               |
| LE-CYB-SCA-5 | 20         | 1490       |               |
| LE-CYB-S3A-7 | 3          | 240        | 200/<br>400 W |
| LE-CYB-S5A-7 | 5          | 390        |               |
| LE-CYB-SAA-7 | 10         | 750        |               |
| LE-CYB-SCA-7 | 20         | 1490       |               |
| LE-CYB-R3A-5 | 3          | 220        | 100 W         |
| LE-CYB-R5A-5 | 5          | 350        |               |
| LE-CYB-RAA-5 | 10         | 670        |               |
| LE-CYB-RCA-5 | 20         | 1300       |               |
| LE-CYB-R3A-7 | 3          | 220        | 200/<br>400 W |
| LE-CYB-R5A-7 | 5          | 350        |               |
| LE-CYB-RAA-7 | 10         | 670        |               |
| LE-CYB-RCA-7 | 20         | 1300       |               |

| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LE-CYE-S3A  | 3          | 230        |
| LE-CYE-S5A  | 5          | 360        |
| LE-CYE-SAA  | 10         | 680        |
| LE-CYE-SCA  | 20         | 1250       |
| LE-CYE-R3A  | 3          | 220        |
| LE-CYE-R5A  | 5          | 330        |
| LE-CYE-RAA  | 10         | 660        |
| LE-CYE-RCA  | 20         | 1240       |

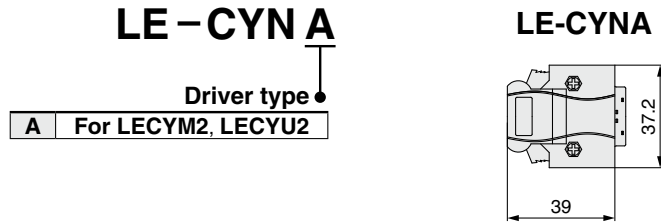
\* LE-CYM-S□A-□ is JZSP-CSM0□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.  
LE-CYB-S□A-□ is JZSP-CSM1□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.  
LE-CYE-S□A is JZSP-CSP05-□□-E manufactured by YASKAWA CONTROLS CO., LTD.  
LE-CYM-R□A-□ is JZSP-CSM2□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.  
LE-CYB-R□A-□ is JZSP-CSM3□-□□-E manufactured by YASKAWA CONTROLS CO., LTD.  
LE-CYE-R□A is JZSP-CSP25-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

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## Options

### I/O connector (Without cable, Connector only)

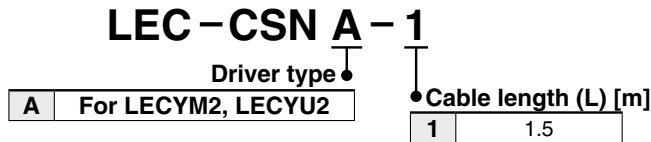


#### Weight

| Product no.    | Weight [g] |
|----------------|------------|
| <b>LE-CYNA</b> | 25         |

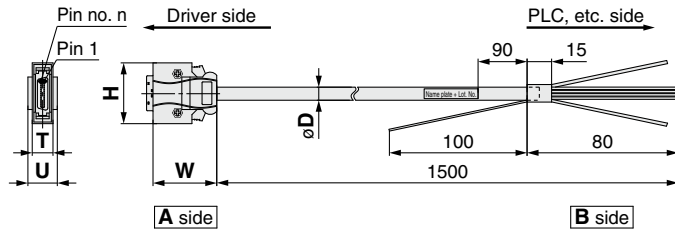
- \* LE-CYNA: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- \* Conductor size: AWG24 to 30

### I/O cable



#### Weight

| Product no.       | Weight [g] |
|-------------------|------------|
| <b>LEC-CSNA-1</b> | 303        |



- \* LEC-CSNA-1: 10126-3000PE (connector)/10326-52F0-008 (shell kit) manufactured by 3M Japan Limited or equivalent
- \* Conductor size: AWG24

### Wiring

LEC-CSNA-1: Pin nos. 1 to 26

| Connector pin no. |    | Pair no. of wire | Insulation color | Dot mark | Dot color | Connector pin no. |    | Pair no. of wire | Insulation color | Dot mark   | Dot color | Connector pin no. |       | Pair no. of wire | Insulation color | Dot mark   | Dot color |       |
|-------------------|----|------------------|------------------|----------|-----------|-------------------|----|------------------|------------------|------------|-----------|-------------------|-------|------------------|------------------|------------|-----------|-------|
| A side            | 1  | 1                | Orange           | ■        | Red       | A side            | 11 | 6                | Orange           | ■ ■        | Red       | A side            | 21    | 11               | Orange           | ■ ■ ■ ■    | Red       |       |
|                   | 2  |                  |                  | ■        | Black     |                   | 12 |                  |                  | ■ ■        | Black     |                   | 22    |                  |                  | ■ ■ ■ ■    | Black     |       |
|                   | 3  | 2                | Light gray       | ■        | Red       |                   |    | 13               | 7                | Light gray | ■ ■       |                   | Red   | 23               | 12               | Light gray | ■ ■ ■ ■   | Red   |
|                   | 4  |                  |                  | ■        | Black     |                   | 14 |                  |                  |            | ■ ■       |                   | Black | 24               |                  |            | ■ ■ ■ ■   | Black |
|                   | 5  | 3                | White            | ■        | Red       |                   |    | 15               | 8                | White      | ■ ■       |                   | Red   | 25               | 13               | White      | ■ ■ ■ ■   | Red   |
|                   | 6  |                  |                  | ■        | Black     |                   | 16 |                  |                  |            | ■ ■       |                   | Black | 26               |                  |            | ■ ■ ■ ■   | Black |
|                   | 7  | 4                | Yellow           | ■        | Red       |                   |    | 17               | 9                | Yellow     | ■ ■       | Red               |       |                  |                  |            |           |       |
|                   | 8  |                  |                  | ■        | Black     |                   | 18 |                  |                  |            | ■ ■       | Black             |       |                  |                  |            |           |       |
|                   | 9  | 5                | Pink             | ■        | Red       |                   |    | 19               | 10               | Pink       | ■ ■       | Red               |       |                  |                  |            |           |       |
|                   | 10 |                  |                  | ■        | Black     |                   | 20 |                  |                  |            | ■ ■       | Black             |       |                  |                  |            |           |       |

#### Cable O.D.

| Product no.       | øD   |
|-------------------|------|
| <b>LEC-CSNA-1</b> | 11.1 |

#### Dimensions/Pin No.

| Product no.       | W  | H    | T    | U  | Pin no. n |
|-------------------|----|------|------|----|-----------|
| <b>LEC-CSNA-1</b> | 39 | 37.2 | 12.7 | 14 | 14        |

# LECY<sup>M</sup><sub>U</sub> Series

## Options

### MECHATROLINK cable type

LEC-CY

M

-

1

Motor type

Y AC servo motor

Cable description

M MECHATROLINK-Ⅱ cable

U MECHATROLINK-Ⅲ cable

Cable length (L)

L\*1 0.2 m

J 0.5 m

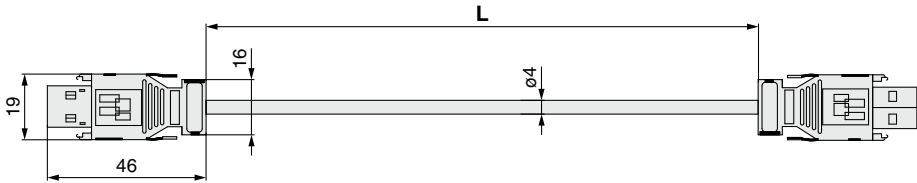
1 1 m

3 3 m

\*1 Not available for the MECHATROLINK-Ⅱ cable

\* LEC-CYM-□ is JEPMC-W6002-□□-E manufactured by YASKAWA CONTROLS CO., LTD.  
\* LEC-CYU-□ is JEPMC-W6012-□□-E manufactured by YASKAWA CONTROLS CO., LTD.

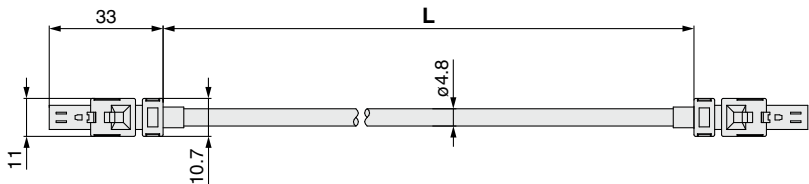
### MECHATROLINK-Ⅱ cable



#### Weight

| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LEC-CYM-J   | 0.5        | 50         |
| LEC-CYM-1   | 1          | 80         |
| LEC-CYM-3   | 3          | 200        |

### MECHATROLINK-Ⅲ cable



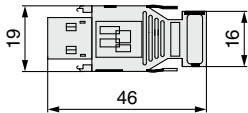
#### Weight

| Product no. | Length [m] | Weight [g] |
|-------------|------------|------------|
| LEC-CYU-L   | 0.2        | 21         |
| LEC-CYU-J   | 0.5        | 41         |
| LEC-CYU-1   | 1          | 75         |
| LEC-CYU-3   | 3          | 205        |

### Terminating connector for MECHATROLINK-Ⅱ

## LEC-CYRM

\* LEC-CYRM is JEPMC-W6022-E manufactured by YASKAWA CONTROLS CO., LTD.



Weight: 10 g

## Options



**LECYM2 LECYU2**  
Drivers



USB cable



PC

## Setup software (SigmaWin+™) (LECYM/LECYU common)

- \* Please download the SigmaWin+™ via our website.
- SigmaWin+™ is a registered trademark or trademark of YASKAWA Electric Corporation.

**Adjustment, waveform display, parameter read/write, and test operation can be performed upon a PC.**

## Compatible PC

When using setup software (SigmaWin+™), use an IBM PC/AT compatible PC that meets the following operating conditions.

## Hardware Requirements

| Equipment         |                         | Setup software (SigmaWin+™)                                                                                                                              |
|-------------------|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------|
| *1, 2, 3, 4<br>PC | OS                      | Windows® XP*5, Windows Vista®, Windows® 7 (32-bit/64-bit)                                                                                                |
|                   | Available HD space      | 350 MB or more (When the software is installed, 400 MB or more is recommended.)                                                                          |
|                   | Communication interface | Use USB port.                                                                                                                                            |
| Display           |                         | XVGA monitor (1024 x 768 or more, "The small font is used.")<br>256 color or more (65536 color or more is recommended.)<br>Connectable with the PC above |
| Keyboard          |                         | Connectable with the PC above                                                                                                                            |
| Mouse             |                         | Connectable with the PC above                                                                                                                            |
| Printer           |                         | Connectable with the PC above                                                                                                                            |
| USB cable         |                         | LEC-JZ-CVUSB*6                                                                                                                                           |
| Other             |                         | Adobe Reader Ver. 5.0 or higher (* Except Ver. 6.0)                                                                                                      |

- \*1 Windows, Windows Vista®, Windows® 7 are registered trademarks of Microsoft Corporation in the United States and/or other countries.
- \*2 On some PCs, this software may not run properly.
- \*3 Not compatible with 64-bit Windows® XP and 64-bit Windows Vista®
- \*4 For Windows® XP, please use it by the administrator authority (When installing and using it.).
- \*5 In PC that uses the program to correct the problem of HotfixQ328310, it is likely to fail in the installation. In that case, please use the program to correct the problem of HotfixQ329623.
- \*6 Order USB cable separately.

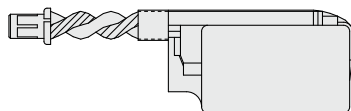
## Battery (LECYM/LECYU common)

### LEC-JZ-CVBAT

- \* JZSP-BA01 manufactured by YASKAWA CONTROLS CO., LTD.

Battery for replacement

Absolute position data is maintained by installing the battery to the battery case of the encoder cable.



Weight: 10 g

- \* The LEC-JZ-CVBAT is a single battery that uses lithium metal battery ER3V.

When transporting lithium metal batteries and devices with built-in lithium metal batteries by a method subject to UN regulations, it is necessary to apply measures according to the regulations stipulated in the United Nations Recommendations on the Transport of Dangerous Goods, the Technical Instructions (ICAO-TI) of the International Civil Aviation Organization (ICAO), and the International Maritime Dangerous Goods Code (IMDG CODE) of the International Maritime Organization (IMO). If a customer is transporting products such as shown above, it is necessary to confirm the latest regulations, or the laws and regulations of the country of transport on your own, in order to apply the proper measures. Please contact SMC sales representative for details.

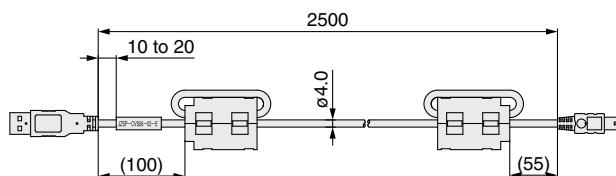
## USB cable (2.5 m)

### LEC-JZ-CVUSB

- \* JZSP-CVS06-02-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting PC and driver when using the setup software (SigmaWin+™)

Do not use any cable other than this cable.



Weight: 150 g

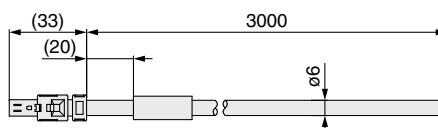
## Cable for safety function device (3 m)

### LEC-JZ-CVSAF

- \* JZSP-CVH03-03-E manufactured by YASKAWA CONTROLS CO., LTD.

Cable for connecting the driver and device when using the safety function

Do not use any cable other than this cable.



Weight: 160 g





# LECS□/LECS□-T/LECY□ Series

## Specific Product Precautions 1

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

### Design / Selection

#### ⚠ Warning

**1. Be sure to apply the specified voltage.**

Otherwise, malfunction or breakage may occur. If the applied voltage is lower than the specified voltage, it is possible that the load will not be able to be moved due to an internal voltage drop of the driver. Please check the operating voltage before use.

**2. Do not operate the product beyond the specifications.**

Otherwise, a fire, malfunction, or actuator damage may result. Please check the specifications before use.

**3. Install an emergency stop circuit.**

Please install an emergency stop outside of the enclosure so that the system operation can be stopped immediately and the power supply can be intercepted.

**4. In order to prevent any damage caused by the breakdown or malfunction of the driver and its peripheral devices, a backup system should be established in advance by giving a multiple-layered structure or a fail-safe design to the equipment, etc.**

**5. If the danger of human injury is expected due to abnormal heat generation, smoking, ignition, etc., of the driver and its peripheral devices, cut off the power supply of the product and the system immediately.**

**6. The parameters of the driver are set to initial values. Please change the parameters according to the specifications of the customer's equipment before use. Refer to the operation manual for parameter details.**

### Handling

#### ⚠ Warning

**1. Do not touch the inside of the driver and its peripheral devices.**

Doing so may cause an electric shock or damage to the driver.

**2. Do not perform the operation or setting of the product with wet hands.**

Doing so may cause an electric shock.

**3. Products with damage or those missing any components should not be used.**

An electric shock, fire, or injury may result.

**4. Use only the specified combination between the electric actuator and the driver.**

Failure to do so may cause damage to the actuator or the driver.

**5. Be careful not to be hit by workpieces while the actuator is moving.**

It may cause an injury.

**6. Do not connect the power supply or power on the product before confirming the area to which the workpiece moves is safe.**

The movement of the workpiece may cause an accident.

**7. Do not touch the product when it is energized and for some time after the power has been disconnected, as it is very hot.**

Doing so may lead to a burn due to the high temperature.

**8. Before installation, wiring, and maintenance, the voltage should be checked with a tester 5 minutes after the power supply has been turned off.**

Otherwise, an electric shock, fire, or injury may result.

### Handling

#### ⚠ Warning

**9. Static electricity may cause a malfunction or break the driver. Do not touch the driver while power is supplied.**

When touching the driver for maintenance, take sufficient measures to eliminate static electricity.

**10. Do not use the product in an area where dust, powder dust, water, chemicals, or oil is in the air.**

It will cause failure or malfunction.

**11. Do not use the product in an area where a magnetic field is generated.**

It will cause failure or malfunction.

**12. Do not install the product in an environment containing flammable gas, explosive gas, or corrosive gas.**

It could lead to fire, explosion, or corrosion.

**13. Radiant heat from strong heat sources, such as a furnace, direct sunlight, etc., should not be applied to the product.**

It will cause failure of the driver or its peripheral devices.

**14. Do not use the product in an environment subject to a temperature cycle.**

It will cause failure of the driver or its peripheral devices.

**15. Do not use the product in a place where surges are generated.**

When there are units that generate a large amount of surge around the product (e.g. solenoid type lifters, high-frequency induction furnaces, motors, etc.), this may cause deterioration or damage to the product's internal circuit. Avoid sources of surge generation and crossed lines.

**16. Do not install the product in an environment under the effect of vibrations and impacts.**

It will cause failure or malfunction.

**17. When a surge-generating load, such as a relay or solenoid valve, is driven directly, use a product that incorporates a surge absorption element.**

### Installation

#### ⚠ Warning

**1. Install the driver and its peripheral devices on a fire-proof material.**

Direct installation on or near a flammable material may cause a fire.

**2. Do not install the product in a place subject to vibrations and impacts.**

It will cause failure or malfunction.

**3. The driver should be mounted on a vertical wall in a vertical direction. Also, be sure not to cover the driver's suction/exhaust ports.**

**4. Install the driver and its peripheral devices on a flat surface.**

If the mounting surface is distorted or uneven, an unacceptable force may be added to the housing, etc., causing problems.



# LECS□/LECS□-T/LECY□ Series Specific Product Precautions 2

Be sure to read this before handling the products. Refer to the back cover for safety instructions. For electric actuator precautions, refer to the “Handling Precautions for SMC Products” and the “Operation Manual” on the SMC website: <https://www.smcworld.com>

## Power Supply

### ⚠ Caution

1. Use a power supply that has low noise between lines and between the power and ground.  
In cases where noise is high, an isolation transformer should be used.
2. To prevent lightning surges, appropriate measures should be taken. Ground the surge absorber for lightning separately from the grounding of the driver and its peripheral devices.

## Wiring

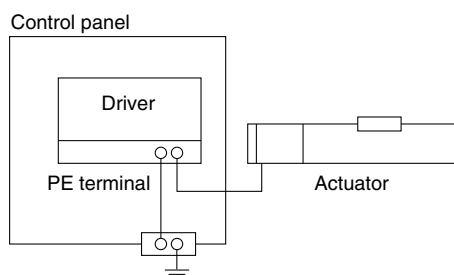
### ⚠ Warning

1. The driver will be damaged if a commercial power supply (100/200 V) is added to the driver's servo motor power (U, V, and W). Be sure to check wiring for mistakes when the power supply is turned on.
2. Connect the ends of the U, V, and W wires of the motor cable correctly to the phases (U, V, and W) of the servo motor power. If these wires do not match up, the servo motor cannot be controlled.

## Grounding

### ⚠ Warning

1. For grounding the actuator, connect the copper wire of the actuator to the driver's protective earth (PE) terminal and connect the copper wire of the driver to the earth via the control panel's protective earth (PE) terminal. Do not connect them directly to the control panel's protective earth (PE) terminal.



2. In the unlikely event that a malfunction is caused by the ground, please disconnect it.

## Maintenance

### ⚠ Warning

1. Perform a maintenance and inspection periodically.  
Confirm wiring and screws are not loose.  
Loose screws or wires may cause unintentional malfunction.
2. Conduct an appropriate functional inspection after completing the maintenance and inspection.  
At times where the equipment or machinery does not operate properly, conduct an emergency stop of the system. Otherwise, an unexpected malfunction may occur and it will become impossible to ensure safety. Conduct a test of the emergency stop in order to confirm the safety of the equipment.
3. Do not disassemble, modify, or repair the driver and its peripheral devices.
4. Do not put anything conductive or flammable inside the driver.  
It may cause a fire.
5. Do not conduct an insulation resistance test or withstand voltage test on this product.
6. Ensure sufficient space for maintenance activities.  
Design the system allowing the required space for maintenance and inspection.

Model  
Selection

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

LEY

LEYG

AC Servo Motor

LEY

LEYG

Environment

LEY-X7

LEY-X5

25A-LEY

Step Motor (Servo/24 VDC)/Servo Motor (24 VDC)

JXC51/61

LECA6

LEC-G

LECP1

LECPA

JXC□

AC Servo Motor

LECS□

LECY□

Specific Product  
Precautions

# CE/UL-compliance List

\* For CE/UL-compliant products, refer to the tables below and the following pages.

## ■ Controllers “○”: Compliant “x”: Not compliant

As of September 2021

| Compatible motor                           | Series   | CE         |                              | UL         |                              |
|--------------------------------------------|----------|------------|------------------------------|------------|------------------------------|
|                                            |          | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) |
| Step motor<br>(Incremental)                | JXCE1    | ○          | ○                            | E480340    |                              |
|                                            | JXC91    | ○          | ○                            | E480340    |                              |
|                                            | JXCP1    | ○          | ○                            | E480340    |                              |
|                                            | JXCD1    | ○          | ○                            | E480340    |                              |
|                                            | JXCL1    | ○          | ○                            | E480340    |                              |
|                                            | LECP1    | ○          | ○                            | E339743    |                              |
|                                            | LECP2    | ○          | ○                            | E339743    |                              |
|                                            | LECPA    | ○          | ○                            | E339743    |                              |
| Step motor<br>(Battery-less absolute)      | JXC51/61 | ○          | ○                            | E480340    |                              |
|                                            | JXCE1    | ○          | ○                            | E480340    |                              |
|                                            | JXC91    | ○          | ○                            | E480340    |                              |
|                                            | JXCP1    | ○          | ○                            | E480340    |                              |
|                                            | JXCD1    | ○          | ○                            | E480340    |                              |
|                                            | JXCL1    | ○          | ○                            | E480340    |                              |
|                                            | JXCM1    | ○          | ○                            | E480340    |                              |
|                                            | JXC5H/6H | ○          | ○                            | E480340    |                              |
| High performance<br>step motor<br>(24 VDC) | JXCEH    | ○          | ○                            | E480340    |                              |
|                                            | JXC9H    | ○          | ○                            | E480340    |                              |
|                                            | JXCPH    | ○          | ○                            | E480340    |                              |
| Servo motor<br>(24 VDC)                    | LECA6    | ○          | ○                            | E339743    |                              |
| Multi-axis step motor<br>controller        | JXC73    | ○          | x                            | —          |                              |
|                                            | JXC83    | ○          | x                            | —          |                              |
|                                            | JXC93    | ○          | x                            | —          |                              |
|                                            | JXC92    | ○          | x                            | —          |                              |

| Compatible motor | Series  | CE         |                              | UL         |                              |
|------------------|---------|------------|------------------------------|------------|------------------------------|
|                  |         | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) |
| AC servo motor   | LECSA   | ○          | ○                            | E466261    |                              |
|                  | LECSB   | ○          | x                            | —          |                              |
|                  | LECSB   | ○          | x                            | —          |                              |
|                  | LECSS   | ○          | x                            | —          |                              |
|                  | LECSB-T | ○          | ○                            | E466261    |                              |
|                  | LECSB-T | ○          | ○                            | E466261    |                              |
|                  | LECSN-T | ○          | ○*1                          | E466261    |                              |
|                  | LECSS-T | ○          | ○                            | E466261    |                              |
|                  | LECYM   | ○          | x                            | —          |                              |
|                  | LECYU   | ○          | x                            | —          |                              |

\*1 Only the “Without network card” option is UL compliant.

## ■ Actuators “○”: Compliant “x”: Not compliant

As of September 2021

| Compatible motor                        | Series      | CE         |                              | UL         |                              |
|-----------------------------------------|-------------|------------|------------------------------|------------|------------------------------|
|                                         |             | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) |
| Step motor<br>(Incremental)             | LEFS        | ○          | x                            | —          |                              |
|                                         | 11-LEFS     | ○          | x                            | —          |                              |
|                                         | 25A-LEFS    | ○          | x                            | —          |                              |
|                                         | LEFB        | ○          | x                            | —          |                              |
|                                         | LEL         | ○          | x                            | —          |                              |
|                                         | LEM         | ○          | x                            | —          |                              |
|                                         | LEY         | ○          | x                            | —          |                              |
|                                         | 25A-LEY     | ○          | x                            | —          |                              |
|                                         | LEY-X5/X7   | ○          | x                            | —          |                              |
|                                         | LEYG        | ○          | x                            | —          |                              |
|                                         | LES         | ○          | x                            | —          |                              |
|                                         | LESH        | ○          | x                            | —          |                              |
|                                         | LEPY        | ○          | x                            | —          |                              |
|                                         | LEPS        | ○          | x                            | —          |                              |
|                                         | LER         | ○          | x                            | —          |                              |
|                                         | LEHZ        | ○          | x                            | —          |                              |
|                                         | LEHZJ       | ○          | x                            | —          |                              |
|                                         | LEHF        | ○          | x                            | —          |                              |
| Step motor<br>(Battery-less absolute)   | LEFS        | ○          | x                            | —          |                              |
|                                         | LEFB        | ○          | x                            | —          |                              |
|                                         | LEKFS       | ○          | x                            | —          |                              |
|                                         | LEY         | ○          | x                            | —          |                              |
|                                         | LEY-X8      | ○          | x                            | —          |                              |
|                                         | LEYG        | ○          | x                            | —          |                              |
|                                         | LES         | ○          | x                            | —          |                              |
|                                         | LESH        | ○          | x                            | —          |                              |
|                                         | LESYH       | ○          | x                            | —          |                              |
|                                         | LER         | ○          | x                            | —          |                              |
|                                         | LEHF        | ○          | x                            | —          |                              |
| High performance<br>step motor (24 VDC) | LEFS        | ○          | x                            | —          |                              |
|                                         | 11-LEFS     | ○          | x                            | —          |                              |
|                                         | 25A-LEFS    | ○          | x                            | —          |                              |
|                                         | LEFB        | ○          | x                            | —          |                              |
|                                         | LEY         | ○          | x                            | —          |                              |
|                                         | LEY-X5/X7   | ○          | x                            | —          |                              |
|                                         | LEYG        | ○          | x                            | —          |                              |
|                                         | LES         | ○          | x                            | —          |                              |
|                                         | LESH        | ○          | x                            | —          |                              |
|                                         | LEPY        | ○          | x                            | —          |                              |
|                                         | LEPS        | ○          | x                            | —          |                              |
| Servo motor<br>(24 VDC)                 | LEFS        | ○          | x                            | —          |                              |
|                                         | 11-LEFS     | ○          | x                            | —          |                              |
|                                         | 25A-LEFS    | ○          | x                            | —          |                              |
|                                         | LEFB        | ○          | x                            | —          |                              |
|                                         | LEY         | ○          | x                            | —          |                              |
|                                         | LEY-X5/X7   | ○          | x                            | —          |                              |
|                                         | LEYG        | ○          | x                            | —          |                              |
|                                         | LES         | ○          | x                            | —          |                              |
|                                         | LESH        | ○          | x                            | —          |                              |
|                                         | LEPY        | ○          | x                            | —          |                              |
|                                         | LEPS        | ○          | x                            | —          |                              |
| AC servo motor                          | LEFS        | ○          | x                            | —          |                              |
|                                         | 11-LEFS     | ○          | x                            | —          |                              |
|                                         | 25A-LEFS    | ○          | x                            | —          |                              |
|                                         | LEFB        | ○          | x                            | —          |                              |
|                                         | LEJS        | ○          | x                            | —          |                              |
|                                         | 11-LEJS     | ○          | x                            | —          |                              |
|                                         | 25A-LEJS    | ○          | x                            | —          |                              |
|                                         | LEJB        | ○          | x                            | —          |                              |
|                                         | LEY25/32/63 | ○          | x                            | —          |                              |
|                                         | LEY100      | ○          | x                            | —          |                              |
|                                         | LEYG        | ○          | x                            | —          |                              |
|                                         | LESYH       | ○          | x                            | —          |                              |

\* Actuators ordered as single units are not UL compliant.

## ■ Actuators (When ordered with a controller) “○”: Compliant “x”: Not compliant “—”: Not applicable As of September 2021

| Compatible motor            | Series    | JXC51/61   |                              |         | JXCE1      |                              |         | JXC91      |                              |         | JXCP1      |                              |         | JXCD1      |                              |         |
|-----------------------------|-----------|------------|------------------------------|---------|------------|------------------------------|---------|------------|------------------------------|---------|------------|------------------------------|---------|------------|------------------------------|---------|
|                             |           | CE         | UL                           |         | CE         | UL                           |         | CE         | UL                           |         | CE         | UL                           |         | CE         | UL                           |         |
|                             |           | Compliance | Certification No. (File No.) |         | Compliance | Certification No. (File No.) |         | Compliance | Certification No. (File No.) |         | Compliance | Certification No. (File No.) |         | Compliance | Certification No. (File No.) |         |
| Step motor<br>(Incremental) | LEFS      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | 11-LEFS   | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | 25A-LEFS  | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEFB      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEL       | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEM       | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEY       | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | 25A-LEY   | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEY-X5/X7 | ○          | x                            | —       | ○          | x                            | —       | ○          | x                            | —       | ○          | x                            | —       | ○          | x                            | —       |
|                             | LEYG      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LES       | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LESH      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEPY      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEPS      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LER       | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEHZ      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEHZJ     | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
|                             | LEHF      | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 | ○          | ○                            | E339743 |
| LEHS                        | ○         | ○          | E339743                      | ○       | ○          | E339743                      | ○       | ○          | E339743                      | ○       | ○          | E339743                      | ○       | ○          | E339743                      |         |

| Compatible motor            | Series    | JXCL1 |    | JXCM1   |    | LECP1 |         | LECP2 |    | LECPA   |    |            |                              |            |                              |            |
|-----------------------------|-----------|-------|----|---------|----|-------|---------|-------|----|---------|----|------------|------------------------------|------------|------------------------------|------------|
|                             |           | CE    | UL | CE      | UL | CE    | UL      | CE    | UL | CE      | UL |            |                              |            |                              |            |
|                             |           |       |    |         |    |       |         |       |    |         |    | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance |
| Step motor<br>(Incremental) | LEFS      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | 11-LEFS   | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | 25A-LEFS  | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEFB      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEL       | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEM       | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | ○  | ○          | E339743                      | ○          | ○                            | E339743    |
|                             | LEY       | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | 25A-LEY   | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEY-X5/X7 | ○     | x  | —       | ○  | x     | —       | ○     | x  | —       | x  | x          | —                            | ○          | x                            | —          |
|                             | LEYG      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LES       | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LESH      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEPY      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEPS      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LER       | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEHZ      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEHZJ     | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEHF      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |
|                             | LEHS      | ○     | ○  | E339743 | ○  | ○     | E339743 | ○     | ○  | E339743 | x  | x          | —                            | ○          | ○                            | E339743    |

| Compatible motor                      | Series | JXC51/61   |                              | JXCE1      |                              | JXC91      |                              | JXCP1      |                              | JXCD1      |                              |   |   |
|---------------------------------------|--------|------------|------------------------------|------------|------------------------------|------------|------------------------------|------------|------------------------------|------------|------------------------------|---|---|
|                                       |        | CE         | UL                           | CE         | UL                           | CE         | UL                           | CE         | UL                           | CE         | UL                           |   |   |
|                                       |        | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) | Compliance | Certification No. (File No.) |   |   |
| Step motor<br>(Battery-less absolute) | LEFS   | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LEFB   | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LEKFS  | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LEY    | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LEY-X8 | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LEYG   | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LES    | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LESH   | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LESYH  | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
|                                       | LER    | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | —          | ○                            | x | — |
| LEHF                                  | ○      | x          | —                            | ○          | x                            | —          | ○                            | x          | —                            | ○          | x                            | — |   |

| Compatible motor                      | Series | JXCL1      |                                                                                                             | JXCM1      |                                                                                                             |   |   |
|---------------------------------------|--------|------------|-------------------------------------------------------------------------------------------------------------|------------|-------------------------------------------------------------------------------------------------------------|---|---|
|                                       |        | CE         | UL <sup>®</sup><br>c  US | CE         | UL <sup>®</sup><br>c  US |   |   |
|                                       |        | Compliance | Certification No. (File No.)                                                                                | Compliance | Certification No. (File No.)                                                                                |   |   |
| Step motor<br>(Battery-less absolute) | LEFS   | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LEFB   | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LEKFS  | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LEY    | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LEY-X8 | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LEYG   | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LES    | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LESH   | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
|                                       | LESYH  | ○          | x                                                                                                           | —          | ○                                                                                                           | x | — |
| LER                                   | ○      | x          | —                                                                                                           | ○          | x                                                                                                           | — |   |
| LEHF                                  | ○      | x          | —                                                                                                           | ○          | x                                                                                                           | — |   |

# CE/UL-compliance List

## ■ Actuators (When ordered with a controller) “○”: Compliant “x”: Not compliant “—”: Not applicable As of September 2021

| Compatible motor                     | Series | JXC5H/6H |    |         | JXCEH |    |         | JXC9H |    |         | JXCPH |    |         |
|--------------------------------------|--------|----------|----|---------|-------|----|---------|-------|----|---------|-------|----|---------|
|                                      |        | CE       | UL | US      | CE    | UL | US      | CE    | UL | US      | CE    | UL | US      |
| High performance step motor (24 VDC) | LEF    | ○        | ○  | E339743 | ○     | ○  | E339743 | ○     | ○  | E339743 | ○     | ○  | E339743 |

| Compatible motor     | Series   | LECA6 |    |         |
|----------------------|----------|-------|----|---------|
|                      |          | CE    | UL | US      |
| Servo motor (24 VDC) | LEFS     | ○     | ○  | E339743 |
|                      | 11-LEFS  | ○     | ○  | E339743 |
|                      | 25A-LEFS | ○     | ○  | E339743 |
|                      | LEFB     | ○     | ○  | E339743 |
|                      | LEY      | ○     | ○  | E339743 |
|                      | LEY-X7   | ○     | x  | —       |
|                      | LEYG     | ○     | ○  | E339743 |
|                      | LES      | ○     | ○  | E339743 |
|                      | LESH     | ○     | ○  | E339743 |

| Compatible motor | Series      | LECSA*1 |    |         | LECSB |    |    | LECSA |    |    | LECSS |    |    | LECSB-T*1 |    |    |
|------------------|-------------|---------|----|---------|-------|----|----|-------|----|----|-------|----|----|-----------|----|----|
|                  |             | CE      | UL | US      | CE    | UL | US | CE    | UL | US | CE    | UL | US | CE        | UL | US |
| AC servo motor   | LEFS        | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | 11-LEFS     | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | 25A-LEFS    | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | LEFB        | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | LEJS        | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | 11-LEJS     | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | 25A-LEJS    | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | LEJB        | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | LEY25/32/63 | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | LEY100      | —       | —  | —       | —     | —  | —  | —     | —  | —  | —     | —  | —  | ○         | x  | —  |
|                  | LEYG        | ○       | ○  | E339743 | ○     | x  | —  | ○     | x  | —  | ○     | x  | —  | ○         | x  | —  |
|                  | LESYH       | ○       | x  | —       | —     | —  | —  | —     | —  | —  | —     | —  | —  | ○         | x  | —  |

| Compatible motor | Series      | LECSA-T*1 |    |    | LECSN-T*1 |    |    | LECSS-T*1 |    |         |
|------------------|-------------|-----------|----|----|-----------|----|----|-----------|----|---------|
|                  |             | CE        | UL | US | CE        | UL | US | CE        | UL | US      |
| AC servo motor   | LEFS        | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | 11-LEFS     | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | 25A-LEFS    | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | LEFB        | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | LEJS        | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | 11-LEJS     | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | 25A-LEJS    | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | LEJB        | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | LEY25/32/63 | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | LEY100      | ○         | x  | —  | ○         | x  | —  | ○         | x  | —       |
|                  | LEYG        | ○         | x  | —  | ○         | x  | —  | ○         | ○  | E339743 |
|                  | LESYH       | ○         | x  | —  | ○         | x  | —  | ○         | x  | —       |

\*1 There is a “UL Listed” mark on the AC servo motor driver body.

## Revision History

|                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |    |
|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|
| <b>Edition C</b> | <ul style="list-style-type: none"> <li>* The in-line motor type LEY□□D series has been added.</li> <li>* The guide rod type LEYG series has been added.</li> <li>* The guide rod type/in-line motor type LEYG□□D series has been added.</li> <li>* The LECP1 series programless controller has been added.</li> <li>* A standard cable has been added to the actuator cable types.</li> <li>* The AC servo motor (100/200 W) type LEY□□S series has been added.</li> <li>* The LECSA/LECSB series AC servo motor driver has been added.</li> <li>* Number of pages has been increased from 40 to 96.</li> </ul>                                                                                                                                                                | PY |
| <b>Edition D</b> | <ul style="list-style-type: none"> <li>* Size 40 has been added to the LEY/LEYG series step motor (servo/24 VDC).</li> <li>* Size 63 has been added to the AC servo motor rod type LEY series.</li> <li>* The dust-tight/water-jet-proof specification has been added to the rod type.</li> <li>* Sizes 25 and 32 have been added to the AC servo motor guide rod type LEYG series.</li> <li>* The LECPA series step motor driver has been added.</li> <li>* The LEC-G series gateway unit has been added.</li> <li>* The LECSA/LECSB series AC servo motor driver has been added.</li> <li>* UL-compliant products have been added.</li> <li>* The controller setting kit (LEC-W2) has been changed.</li> <li>* Number of pages has been increased from 96 to 160.</li> </ul> | RP |
| <b>Edition E</b> | <ul style="list-style-type: none"> <li>* Intermediate strokes have been added to the LEY63.</li> <li>* Normally-closed solid state auto switches have been added.</li> <li>* The JXC series step motor controller has been added.</li> <li>* The controller setting kit has been changed to the communication cable for controller setting (LEC-W2A).</li> <li>* Errors in text have been corrected.</li> <li>* Number of pages has been increased from 160 to 292.</li> </ul>                                                                                                                                                                                                                                                                                                 | YR |
| <b>Edition F</b> | <ul style="list-style-type: none"> <li>* A 750 W specification has been added to the LEY100 series.</li> <li>* A network card type AC servo motor driver has been added to the LECSN-T series.</li> <li>* A dust-tight/water-jet-proof specification (IP65 equivalent/IP67 equivalent) has been added to the LEY-X7 series.</li> <li>* Discontinued products (LECP6 and LECPMJ) have been removed.</li> <li>* Step data input type JXC51/61 series controllers have been added.</li> <li>* A CE/UL-compliance list has been added.</li> <li>* Number of pages has been increased from 292 to 312.</li> </ul>                                                                                                                                                                   | AP |

## Safety Instructions

These safety instructions are intended to prevent hazardous situations and/or equipment damage. These instructions indicate the level of potential hazard with the labels of “**Caution**,” “**Warning**” or “**Danger**.” They are all important notes for safety and must be followed in addition to International Standards (ISO/IEC)\*1), and other safety regulations.

 **Caution:** **Caution** indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

 **Warning:** **Warning** indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.

 **Danger :** **Danger** indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.

\*1) ISO 4414: Pneumatic fluid power – General rules relating to systems.  
ISO 4413: Hydraulic fluid power – General rules relating to systems.  
IEC 60204-1: Safety of machinery – Electrical equipment of machines.  
(Part 1: General requirements)  
ISO 10218-1: Manipulating industrial robots – Safety.  
etc.

### Warning

#### 1. The compatibility of the product is the responsibility of the person who designs the equipment or decides its specifications.

Since the product specified here is used under various operating conditions, its compatibility with specific equipment must be decided by the person who designs the equipment or decides its specifications based on necessary analysis and test results. The expected performance and safety assurance of the equipment will be the responsibility of the person who has determined its compatibility with the product. This person should also continuously review all specifications of the product referring to its latest catalog information, with a view to giving due consideration to any possibility of equipment failure when configuring the equipment.

#### 2. Only personnel with appropriate training should operate machinery and equipment.

The product specified here may become unsafe if handled incorrectly. The assembly, operation and maintenance of machines or equipment including our products must be performed by an operator who is appropriately trained and experienced.

#### 3. Do not service or attempt to remove product and machinery/equipment until safety is confirmed.

1. The inspection and maintenance of machinery/equipment should only be performed after measures to prevent falling or runaway of the driven objects have been confirmed.
2. When the product is to be removed, confirm that the safety measures as mentioned above are implemented and the power from any appropriate source is cut, and read and understand the specific product precautions of all relevant products carefully.
3. Before machinery/equipment is restarted, take measures to prevent unexpected operation and malfunction.

#### 4. Contact SMC beforehand and take special consideration of safety measures if the product is to be used in any of the following conditions.

1. Conditions and environments outside of the given specifications, or use outdoors or in a place exposed to direct sunlight.
2. Installation on equipment in conjunction with atomic energy, railways, air navigation, space, shipping, vehicles, military, medical treatment, combustion and recreation, or equipment in contact with food and beverages, emergency stop circuits, clutch and brake circuits in press applications, safety equipment or other applications unsuitable for the standard specifications described in the product catalog.
3. An application which could have negative effects on people, property, or animals requiring special safety analysis.
4. Use in an interlock circuit, which requires the provision of double interlock for possible failure by using a mechanical protective function, and periodical checks to confirm proper operation.

### Caution

#### 1. The product is provided for use in manufacturing industries.

The product herein described is basically provided for peaceful use in manufacturing industries.  
If considering using the product in other industries, consult SMC beforehand and exchange specifications or a contract if necessary.  
If anything is unclear, contact your nearest sales branch.

## Limited warranty and Disclaimer/ Compliance Requirements

The product used is subject to the following “Limited warranty and Disclaimer” and “Compliance Requirements”.

Read and accept them before using the product.

### Limited warranty and Disclaimer

1. The warranty period of the product is 1 year in service or 1.5 years after the product is delivered, whichever is first.\*2)  
Also, the product may have specified durability, running distance or replacement parts. Please consult your nearest sales branch.
2. For any failure or damage reported within the warranty period which is clearly our responsibility, a replacement product or necessary parts will be provided.  
This limited warranty applies only to our product independently, and not to any other damage incurred due to the failure of the product.
3. Prior to using SMC products, please read and understand the warranty terms and disclaimers noted in the specified catalog for the particular products.

#### \*2) Vacuum pads are excluded from this 1 year warranty.

A vacuum pad is a consumable part, so it is warranted for a year after it is delivered.  
Also, even within the warranty period, the wear of a product due to the use of the vacuum pad or failure due to the deterioration of rubber material are not covered by the limited warranty.

### Compliance Requirements

1. The use of SMC products with production equipment for the manufacture of weapons of mass destruction (WMD) or any other weapon is strictly prohibited.
2. The exports of SMC products or technology from one country to another are governed by the relevant security laws and regulations of the countries involved in the transaction. Prior to the shipment of a SMC product to another country, assure that all local rules governing that export are known and followed.

### Caution

#### SMC products are not intended for use as instruments for legal metrology.

Measurement instruments that SMC manufactures or sells have not been qualified by type approval tests relevant to the metrology (measurement) laws of each country. Therefore, SMC products cannot be used for business or certification ordained by the metrology (measurement) laws of each country.

 **Safety Instructions** Be sure to read the “Handling Precautions for SMC Products” (M-E03-3) and “Operation Manual” before use.

## SMC Corporation

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Specifications are subject to change without prior notice  
and any obligation on the part of the manufacturer.

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