

## Fork light barriers S00F

**FESTO**



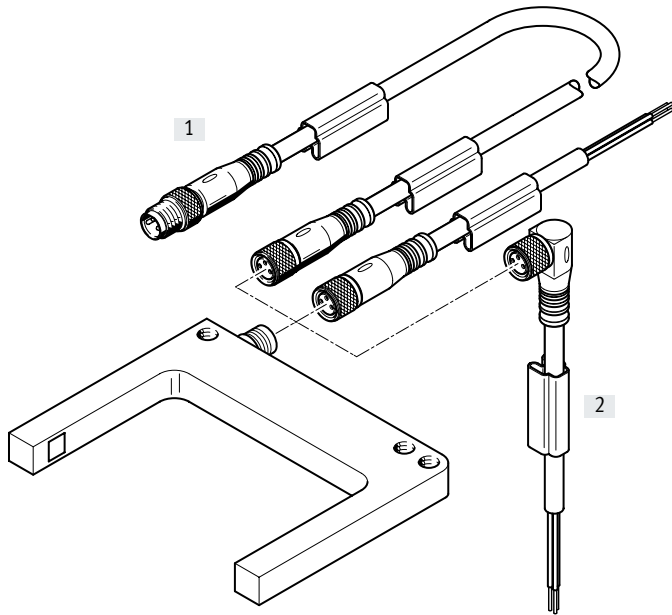
Product range overview

| Measuring method   |                 | Size<br>[mm] | Min. object diameter<br>(default mode) <sup>1)</sup><br>[mm] | Max. switching<br>frequency<br>(default mode) <sup>1)</sup><br>[Hz] | Switching output<br>(push-pull =<br>factory setting) <sup>1)</sup> | Type of light | → Page/<br>Internet |
|--------------------|-----------------|--------------|--|---|--|---------------|---------------------|
| <b>Metal</b>       |                 |              |  |   |  |               |                     |
| Fork light barrier | S00F-M-...-C30  | Fork 30x35   | 0.3  | 5000  | Push-pull, PNP, NPN  | Red           | 5                   |
|                    | S00F-M-...-C50  | Fork 50x55   | 0.3  | 5000  | Push-pull, PNP, NPN  |               |                     |
|                    | S00F-M-...-C80  | Fork 80x55   | 0.3  | 5000  | Push-pull, PNP, NPN  |               |                     |
|                    | S00F-M-...-C120 | Fork 120x60  | 0.5  | 5000  | Push-pull, PNP, NPN  |               |                     |
| <b>Polymer</b>     |                 |              |  |   |  |               |                     |
| Fork light barrier | S00F-P-...-C30  | Fork 30x35   | 0.5  | 2000  | PNP  | Red           | 5                   |
|                    |                 |              |  |   | NPN  |               |                     |
|                    | S00F-P-...-C50  | Fork 50x55   | 0.3  | 2000  | PNP  |               |                     |
|                    |                 |              |  |   | NPN  |               |                     |
|                    | S00F-P-...-C80  | Fork 80x55   | 0.5  | 2000  | PNP  |               |                     |
|                    |                 |              |  |   | NPN  |               |                     |
|                    | S00F-P-...-C120 | Fork 120x60  | 0.4  | 2000  | PNP  |               |                     |
|                    |                 |              |  |   | NPN  |               |                     |

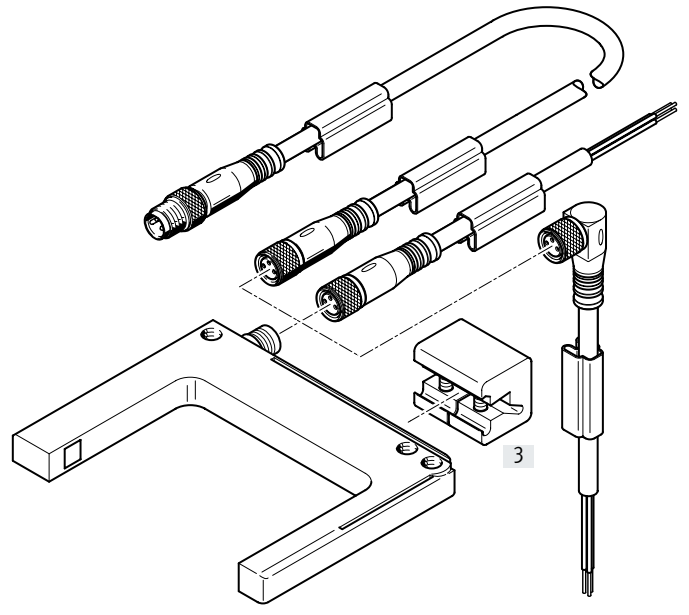
1) Only S00F-M-... (variant metal)

Peripherals overview

Metal



Polymer



| Accessories |   | → Page/Internet |
|-------------|---|-----------------|
| [1]         | Connecting cable M8x1 NEBU                                    | 11              |
| [2]         | Inscription label holder (included in scope of delivery NEBU) | -               |
| Accessories |   | → Page/Internet |
| [3]         | Mounting SAMH   | 11              |

## Type codes

|             |                       |  |
|-------------|-----------------------|--|
| 001         | Series                |  |
| <b>SOOF</b> | Optoelectronic sensor |  |

|          |                 |  |
|----------|-----------------|--|
| 002      | Product version |  |
| <b>M</b> | Mainly metal    |  |
| <b>P</b> | Mainly polymer  |  |

|           |                    |  |
|-----------|--------------------|--|
| 003       | Sensor function    |  |
| <b>FL</b> | Fork light barrier |  |

|          |                           |  |
|----------|---------------------------|--|
| 004      | Sensor characteristic     |  |
| <b>S</b> | Adjustable switching type |  |

|          |                 |  |
|----------|-----------------|--|
| 005      | Setting options |  |
| <b>M</b> | Potentiometer   |  |
| <b>T</b> | Teach-in        |  |

|             |             |  |
|-------------|-------------|--|
| 006         | Design      |  |
| <b>C30</b>  | Fork 30 mm  |  |
| <b>C50</b>  | Fork 50 mm  |  |
| <b>C80</b>  | Fork 80 mm  |  |
| <b>C120</b> | Fork 120 mm |  |

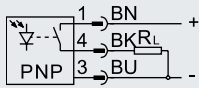
|          |                        |  |
|----------|------------------------|--|
| 007      | Switching input/output |  |
| <b>P</b> | PNP                    |  |
| <b>N</b> | NPN                    |  |

 **Note**

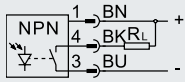
SOOF-M- ... -P with IO-Link:  
Push-pull, PNP, NPN

## Data sheet

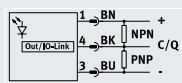
Function  
PNP, switchable



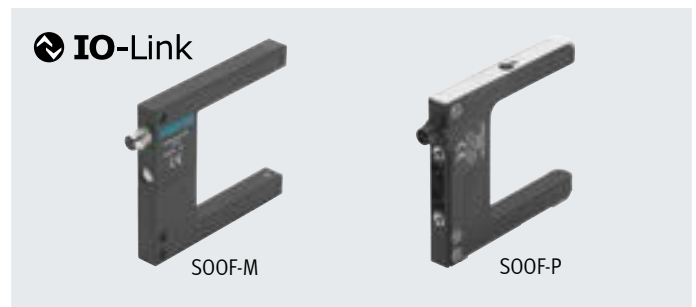
NPN, switchable



SOOF-M, with IO-Link  
push-pull, PNP, NPN



- Transmitter and receiver in one compact housing
- Minimum installation effort
- Sturdy housing: high shock and vibration resistance



| General technical data       |      | Metal                  |               |               |             | Polymer              |               |               |             |
|------------------------------|------|------------------------|---------------|---------------|-------------|----------------------|---------------|---------------|-------------|
| Design                       |      |                        |               |               |             |                      |               |               |             |
| Fork gap                     | [mm] | 30                     | 50            | 80            | 120         | 30                   | 50            | 80            | 120         |
| Measurement method           |      | Fork light barrier     |               |               |             | Fork light barrier   |               |               |             |
| Measuring principle          |      | Optoelectronic         |               |               |             |                      |               |               |             |
| Measured variable            |      | Position               |               |               |             |                      |               |               |             |
| Size                         | [mm] | Fork<br>30x35          | Fork<br>50x55 | Fork<br>80x55 | Fork 120x60 | Fork<br>30x35        | Fork<br>50x55 | Fork<br>80x55 | Fork 120x60 |
| Minimum object diameter      | [mm] | 0.3                    | 0.3           | 0.3           | 0.5         | 0.5                  | 0.3           | 0.5           | 0.4         |
| Note on min. object diameter |      |                        |               |               |             |                      |               |               |             |
| Standard mode                | [mm] | 0.3                    |               |               | 0.5         | -                    |               |               |             |
| High resolution mode         | [mm] | 0.2                    |               |               | 0.3         |                      |               |               |             |
| Power mode                   | [mm] | 1.0                    |               |               | 1.5         |                      |               |               |             |
| Speed mode                   | [mm] | 0.3                    |               |               | 0.5         |                      |               |               |             |
| Repetition accuracy          | [mm] | 0.02                   |               |               |             | 0.03                 |               |               |             |
| Hysteresis                   | [mm] | ≤ 0.1                  |               |               |             | ≤ 0.25               |               |               |             |
| Type of light                |      | Red                    |               |               |             | Red                  |               |               |             |
| Setting options              |      | IO-Link, potentiometer |               |               |             | Teach-in             |               |               |             |
| Switching status indication  |      | Yellow LED             |               |               |             | Yellow LED           |               |               |             |
| Max. tightening torque       | [Nm] | -                      |               |               |             | 1 with female thread |               |               |             |
|                              |      | -                      |               |               |             | 4 with through-hole  |               |               |             |
|                              |      | -                      |               |               |             | 3 with accessories   |               |               |             |
| Max. tightening torque, plug | [Nm] | -                      |               |               |             | 0.3                  |               |               |             |
| Product weight               | [g]  | 68                     | 96            | 118           | 244         | 20                   | 30            | 35            | 40          |

## Data sheet

| Electrical data              |        | Metal                          |    |    |     | Polymer                           |    |    |     |
|------------------------------|--------|--------------------------------|----|----|-----|-----------------------------------|----|----|-----|
| Design                       |        | 30                             | 50 | 80 | 120 | 30                                | 50 | 80 | 120 |
| Fork gap                     | [mm]   | 30                             | 50 | 80 | 120 | 30                                | 50 | 80 | 120 |
| Max. switching frequency     | [Hz]   | 5000                           |    |    |     | 2000                              |    |    |     |
| Note on switching frequency  | [Hz]   | 5000 with standard mode        |    |    |     | -                                 |    |    |     |
|                              |        | 1500 with high resolution mode |    |    |     |                                   |    |    |     |
|                              |        | 250 with power mode            |    |    |     |                                   |    |    |     |
|                              |        | 8000 with speed mode           |    |    |     |                                   |    |    |     |
| Operating voltage range      | [V DC] | 10 ... 30                      |    |    |     |                                   |    |    |     |
| Residual ripple              | [%]    | ±5                             |    |    |     | 10                                |    |    |     |
| Max. output current          | [mA]   | 100                            |    |    |     |                                   |    |    |     |
| No-load supply current       | [mA]   | 30                             |    |    |     |                                   |    |    |     |
| Electrical connection        |        | Plug M8x1, 3-pin               |    |    |     | Plug M8x1, 3-pin                  |    |    |     |
| Switching element function   |        | Switchable                     |    |    |     | Switchable                        |    |    |     |
| Short circuit current rating |        | Pulsed                         |    |    |     | Pulsed                            |    |    |     |
| Reverse polarity protection  |        | For all electrical connections |    |    |     | For operating voltage connections |    |    |     |
| Surge resistance             | [kV]   | 0.8                            |    |    |     | 0.8                               |    |    |     |
| Insulation voltage           | [V]    | 500                            |    |    |     | 500                               |    |    |     |
| Degree of protection         |        | IP67                           |    |    |     | IP67                              |    |    |     |

| IO-Link device to IEC 61131-9 |  | Metal                        |  |  |  | Polymer |  |  |  |
|-------------------------------|--|------------------------------|--|--|--|---------|--|--|--|
| Timer function                |  | Via IO-Link                  |  |  |  | -       |  |  |  |
| Protocol                      |  | IO-Link                      |  |  |  |         |  |  |  |
| Protocol version              |  | Device V 1.1                 |  |  |  |         |  |  |  |
| Profile                       |  | Smart sensor profile         |  |  |  |         |  |  |  |
| Function classes              |  | Binary data channel (BDC)    |  |  |  |         |  |  |  |
|                               |  | Process data variable (PDV)  |  |  |  |         |  |  |  |
|                               |  | Identification               |  |  |  |         |  |  |  |
|                               |  | Diagnostics                  |  |  |  |         |  |  |  |
|                               |  | Teach channel                |  |  |  |         |  |  |  |
| Communication mode            |  | COM2 (38.4 kBd)              |  |  |  |         |  |  |  |
| SIO mode support              |  | Yes                          |  |  |  |         |  |  |  |
| Port class                    |  | A                            |  |  |  |         |  |  |  |
| Process data width OUT        |  | 0 bytes                      |  |  |  |         |  |  |  |
| Process data width IN         |  | 2 bytes                      |  |  |  |         |  |  |  |
| Process data content IN       |  | 1 bit BDC (switching signal) |  |  |  |         |  |  |  |
|                               |  | 1 bit BDC (stability)        |  |  |  |         |  |  |  |
|                               |  | 12 bit PDV (signal level)    |  |  |  |         |  |  |  |
| Service data content IN       |  | 32 bit switching counter     |  |  |  |         |  |  |  |
|                               |  | 16 bit temperature           |  |  |  |         |  |  |  |
|                               |  | 8 bit teach-in quality       |  |  |  |         |  |  |  |
|                               |  | 16 bit minimum signal level  |  |  |  |         |  |  |  |
|                               |  | 16 bit maximum signal level  |  |  |  |         |  |  |  |
| Minimum cycle time            |  | 2.3 ms                       |  |  |  |         |  |  |  |
| Data memory required          |  | 73 bytes                     |  |  |  |         |  |  |  |

## Data sheet

| Operating and environmental conditions          |                                   |             |
|---|-----------------------------------|-------------|
| Design  | Metal                             | Polymer     |
| Ambient temperature [°C]                        | -25 ... +60                       | -10 ... +60 |
| Pollution degree                                | 3                                 |             |
| CE marking<br>(see declaration of conformity)   | To EU EMC Directive <sup>1)</sup> |             |
|   | To EU RoHS Directive              |             |
| UKCA marking<br>(see declaration of conformity) | To UK instructions for EMC        |             |
|   | To UK RoHS instructions           |             |
| Certification                                   | c UL us listed (OL)               |             |
|   | RCM                               |             |
| PWIS conformity                                 | VDMA24364 zone III                |             |

- 1) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/catalogue/SOOF](http://www.festo.com/catalogue/SOOF) → Support/Downloads.  
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

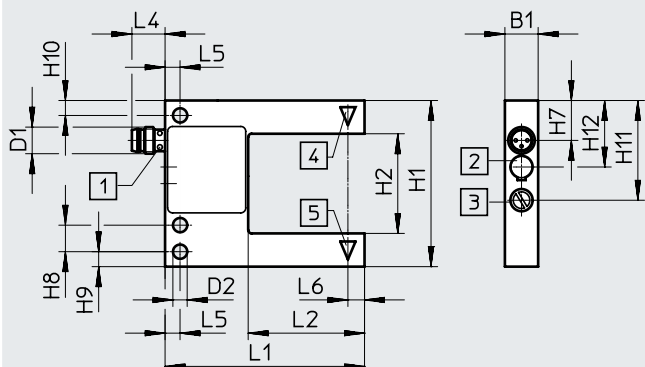
| Materials         |                         |                |
|-------------------|-------------------------|----------------|
| Design            | Metal                   | Polymer        |
| Housing           | Die-cast zinc, coated   | PC             |
| Note on materials | Free of copper and PTFE | -              |
|                   | RoHS-compliant          | RoHS-compliant |

Data sheet

Dimensions – Metal

Download CAD data → [www.festo.com](http://www.festo.com)

Fork gap 30 ... 80



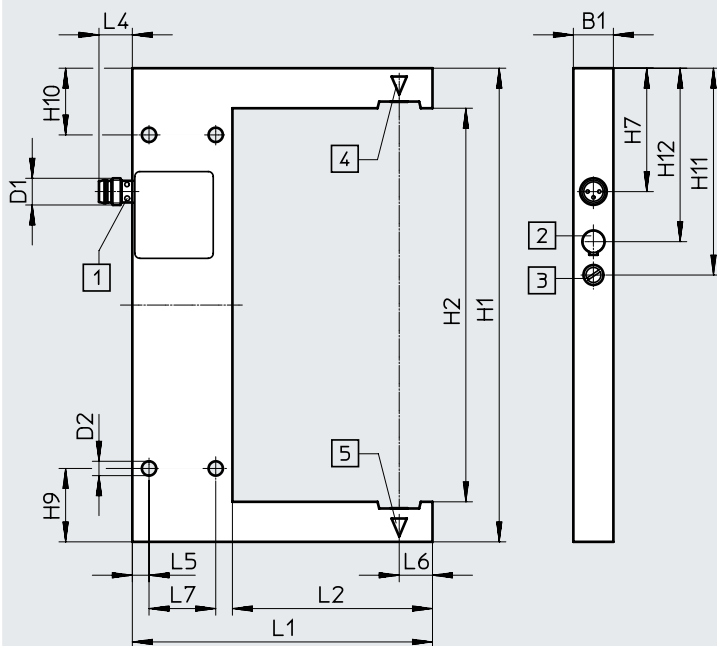
- [1] Switching status indication, yellow LED
- [2] N/O or N/C, switchable
- [3] Potentiometer
- [4] Transmitter
- [5] Receiver

| Type               | B1 | D1   | D2<br>∅ | H1  | H2<br>Fork gap | H7 | H8 | H9  | H10 | H11 | H12 | L1 | L2 | L4 | L5  | L6 |
|--------------------|----|------|---------|-----|----------------|----|----|-----|-----|-----|-----|----|----|----|-----|----|
| SOOF-M-FL-SM-C30-P | 10 | M8x1 | 4.3     | 50  | 30             | 12 | 8  | 4.5 | 4.5 | 30  | 20  | 60 | 35 | 10 | 4.5 | 5  |
| SOOF-M-FL-SM-C50-P | 10 | M8x1 | 4.3     | 70  | 50             | 12 | 8  | 4.5 | 4.5 | 30  | 20  | 80 | 55 | 10 | 4.5 | 5  |
| SOOF-M-FL-SM-C80-P | 10 | M8x1 | 4.3     | 100 | 80             | 12 | 8  | 4.5 | 4.5 | 30  | 20  | 80 | 55 | 10 | 4.5 | 5  |

Dimensions – Metal

Download CAD data → [www.festo.com](http://www.festo.com)

Fork gap 120



- [1] Switching status indication, yellow LED
- [2] N/O or N/C, switchable
- [3] Potentiometer
- [4] Transmitter
- [5] Receiver

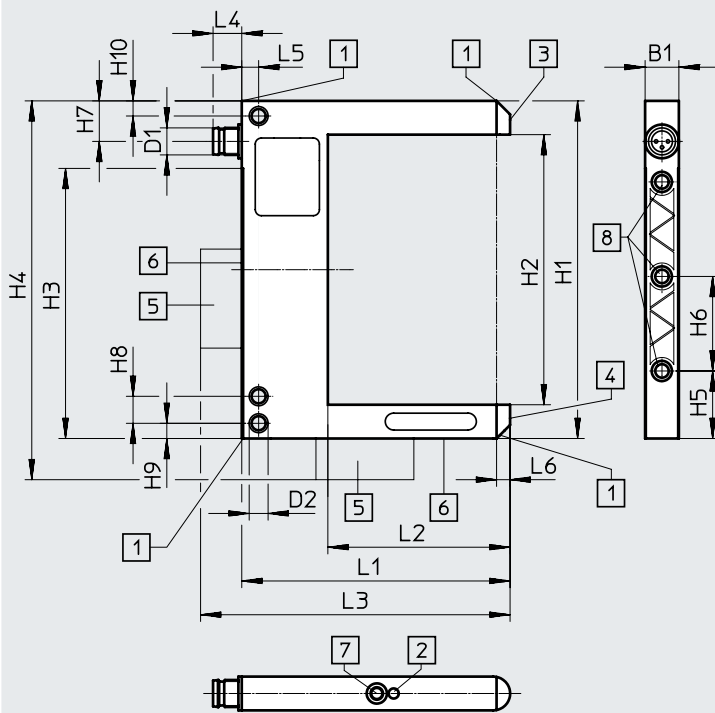
| Type                | B1 | D1   | D2<br>∅ | H1  | H2<br>Fork gap | H7 | H9 | H10 | H11 | H12 | L1 | L2 | L4 | L5 | L6 | L7 |
|---------------------|----|------|---------|-----|----------------|----|----|-----|-----|-----|----|----|----|----|----|----|
| SOOF-M-FL-SM-C120-P | 12 | M8x1 | 4.3     | 144 | 120            | 37 | 22 | 22  | 62  | 54  | 90 | 60 | 10 | 5  | 10 | 20 |



Data sheet

Dimensions – Polymer

Download CAD data → [www.festo.com](http://www.festo.com)



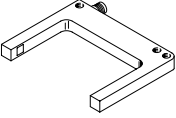
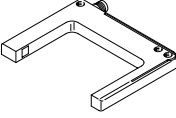
- [1] Switching status indication, yellow LED
- [2] Ready status indication, green LED
- [3] Receiver
- [4] Transmitter
- [5] Mounting SAMH must be ordered separately as an accessory → 11
- [6] Dovetail for mounting SAMH
- [7] Teach-in button
- [8] Threaded insert M4, max. screw-in depth 6 mm

| Type                | B1 | D1   | D2<br>ø | H1  | H2<br>Fork gap | H3  | H4    | H5 | H6   | H7 |
|---------------------|----|------|---------|-----|----------------|-----|-------|----|------|----|
| SOOF-P-FL-ST-C30-P  | 10 | M8x1 | 4.2     | 50  | 30             | 30  | 62.2  | 20 | -    | 12 |
| SOOF-P-FL-ST-C30-N  |    |      |         | 70  | 50             | 50  | 82.2  | 20 | 28   | 12 |
| SOOF-P-FL-ST-C50-P  | 10 | M8x1 | 4.2     | 100 | 80             | 80  | 112.2 | 20 | 2x28 | 12 |
| SOOF-P-FL-ST-C50-N  |    |      |         | 140 | 120            | 120 | 152.2 | 20 | 3x28 | 12 |
| SOOF-P-FL-ST-C80-P  | 10 | M8x1 | 4.2     | 140 | 120            | 120 | 152.2 | 20 | 3x28 | 12 |
| SOOF-P-FL-ST-C80-N  |    |      |         |     |                |     |       |    |      |    |
| SOOF-P-FL-ST-C120-P | 10 | M8x1 | 4.2     | 140 | 120            | 120 | 152.2 | 20 | 3x28 | 12 |
| SOOF-P-FL-ST-C120-N |    |      |         |     |                |     |       |    |      |    |

| Type                | H8 | H9  | H10 | L1   | L2 | L3   | L4  | L5 | L6 |
|---------------------|----|-----|-----|------|----|------|-----|----|----|
| SOOF-P-FL-ST-C30-P  | 8  | 4.5 | 4.5 | 59.5 | 34 | 71.7 | 8.5 | 5  | 4  |
| SOOF-P-FL-ST-C30-N  |    |     |     | 79.5 | 54 | 91.7 | 8.5 | 5  | 4  |
| SOOF-P-FL-ST-C50-P  | 8  | 4.5 | 4.5 | 79.5 | 54 | 91.7 | 8.5 | 5  | 4  |
| SOOF-P-FL-ST-C50-N  |    |     |     | 79.5 | 54 | 91.7 | 8.5 | 5  | 4  |
| SOOF-P-FL-ST-C80-P  | 8  | 4.5 | 4.5 | 79.5 | 54 | 91.7 | 8.5 | 5  | 4  |
| SOOF-P-FL-ST-C80-N  |    |     |     | 79.5 | 54 | 91.7 | 8.5 | 5  | 4  |
| SOOF-P-FL-ST-C120-P | 8  | 4.5 | 4.5 | 79.5 | 54 | 91.7 | 8.5 | 5  | 4  |
| SOOF-P-FL-ST-C120-N |    |     |     |      |    |      |     |    |    |



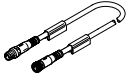
1) With mounting SAMH.


Data sheet

| Ordering data  |               |  |          |                     |
|--|---------------|--|----------|---------------------|
| Design   | Fork gap [mm] | Switching output (push-pull = factory setting) <sup>1)</sup> | Part no. | Type                |
| <b>Metal</b>   |               |  |          |                     |
|  | 30            | Push-pull, PNP, NPN  | 553553   | SOOF-M-FL-SM-C30-P  |
|  | 50            | Push-pull, PNP, NPN  | 553555   | SOOF-M-FL-SM-C50-P  |
|  | 80            | Push-pull, PNP, NPN  | 553557   | SOOF-M-FL-SM-C80-P  |
|  | 120           | Push-pull, PNP, NPN  | 553559   | SOOF-M-FL-SM-C120-P |
| <b>Polymer</b>   |               |  |          |                     |
|  | 30            | PNP  | 553561   | SOOF-P-FL-ST-C30-P  |
|  |               | NPN  | 553562   | SOOF-P-FL-ST-C30-N  |
|  | 50            | PNP  | 553563   | SOOF-P-FL-ST-C50-P  |
|  |               | NPN  | 553564   | SOOF-P-FL-ST-C50-N  |
|  | 80            | PNP  | 553565   | SOOF-P-FL-ST-C80-P  |
|  |               | NPN  | 553566   | SOOF-P-FL-ST-C80-N  |
|  | 120           | PNP  | 553567   | SOOF-P-FL-ST-C120-P |
|  |               | NPN  | 553568   | SOOF-P-FL-ST-C120-N |

1) Only SOOF-M-... (variant metal)

## Accessories

| Ordering data – Connecting cables   |                              |                              |                  | Data sheets → Internet: nebu |                      |
|---|------------------------------|------------------------------|------------------|------------------------------|----------------------|
|   | Electrical connection, left  | Electrical connection, right | Cable length [m] | Part no.                     | Type                 |
|  | Straight socket, M8x1, 3-pin | Cable, open end, 3-wire      | 2.5              | 541333                       | NEBU-M8G3-K-2.5-LE3  |
|   |                              |                              | 5                | 541334                       | NEBU-M8G3-K-5-LE3    |
|  | Angled socket, M8x1, 3-pin   | Cable, open end, 3-wire      | 2.5              | 541338                       | NEBU-M8W3-K-2.5-LE3  |
|   |                              |                              | 5                | 541341                       | NEBU-M8W3-K-5-LE3    |
|  | Straight socket, M8x1, 3-pin | Straight plug M8x1, 3-pin    | 0.5              | 541346                       | NEBU-M8G3-K-0.5-M8G3 |
|   |                              |                              | 1                | 541347                       | NEBU-M8G3-K-1-M8G3   |
|   |                              |                              | 2.5              | 541348                       | NEBU-M8G3-K-2.5-M8G3 |
|   |                              |                              | 5                | 541349                       | NEBU-M8G3-K-5-M8G3   |

| Ordering data   |          | Part no. | Type      |
|---|----------|----------|-----------|
|  | Mounting | 553569   | SAMH-G3-Q |