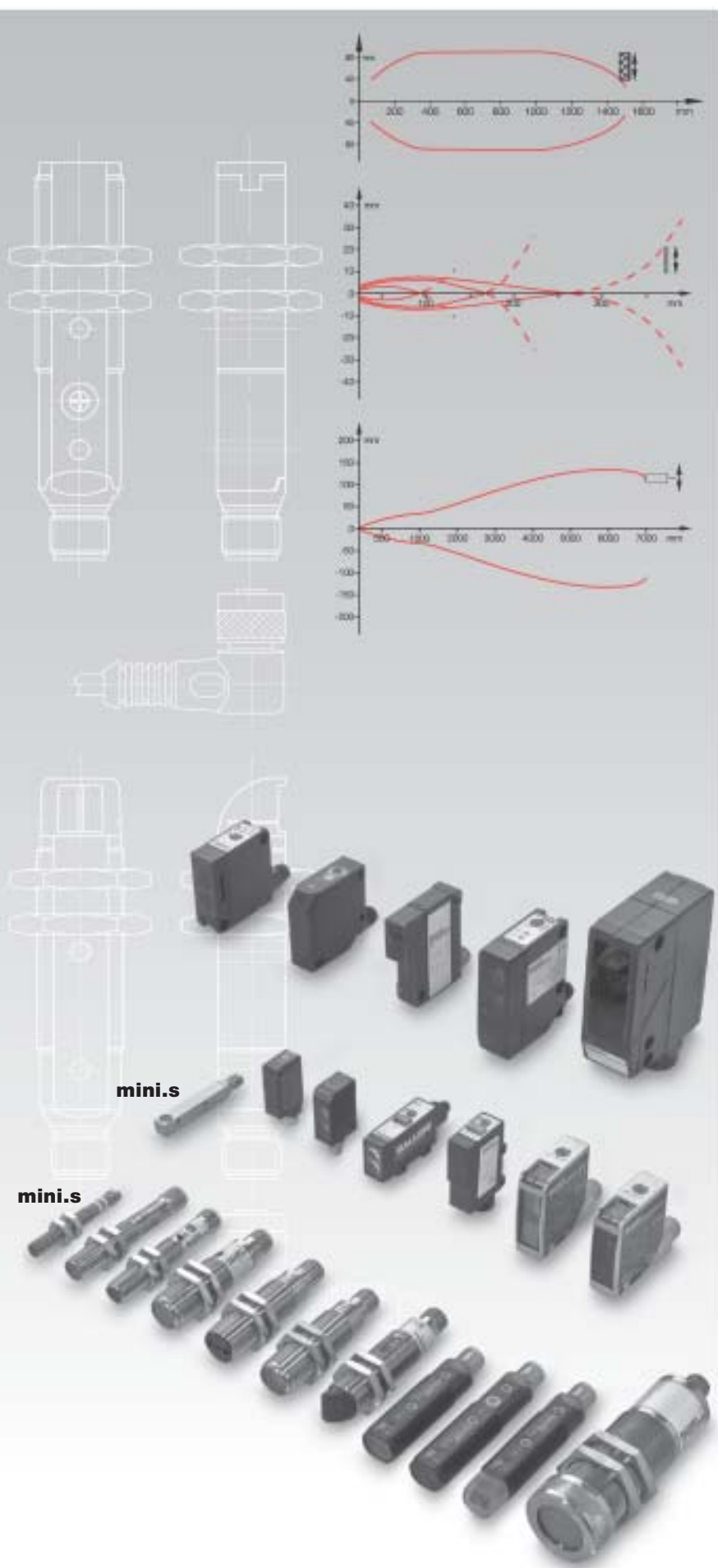


# Photoelectric Sensors - Standard



**2.1.2 Tubular BOS 08M**  
M8 metal

**2.1.6 Tubular BOS 12M**  
M12 metal

**2.1.14 Tubular BOS 18M**  
M18 metal with potentiometer  
Rugged with teach-in  
Laser with AC voltage with angle head

**2.1.36 Tubular BOS 18E**  
M18 stainless steel

**2.1.42 Tubular BOS 18KF**  
M18 plastic Laser

**2.1.54 Tubular BOS 18KW**  
M18 plastic with angle head  
Laser

**2.1.66 Tubular BOS 30M**  
M30 metal

**2.1.70 Block style BOS Q08M**  
mini.s

**2.1.74 Block style BOS 5K**  
mini.s with potentiometer

**2.1.82 Block style BOS 6K**  
mini.s with teach-in  
Laser

**2.1.90 Block style BOS 15K**  
**2.1.96 Block style BOS 21M**  
Laser

**2.1.108 Block style BOS 25K**  
**2.1.114 Block style BOS 26K**  
Laser

**2.1.122 Block style BOS 35K**  
**2.1.128 Block style BOS 36K**  
**2.1.134 Block style BOS 65K**

**The new dimension from Balluff – small package, big performance**

Miniaturization in the Balluff produce line continues. The new Opto-mini.s BOS 08M sensors stand out with ease of handling and fixed detection ranges.

The family includes diffuse in tubular M8 housing, retro-reflective and through-beam models.

These small photoelectric sensors solve problems in highly dynamic applications

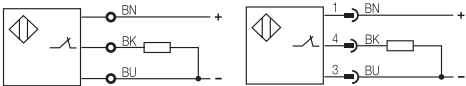
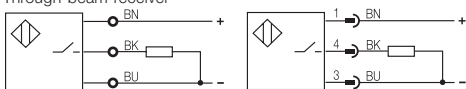
such as robot gripper arms, where components with light weight, low space requirements and yet the highest switching precision are demanded.

In short: the new BOS 08M are small, rugged, flexible and economical.

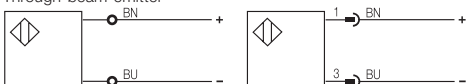


**Wiring diagrams**

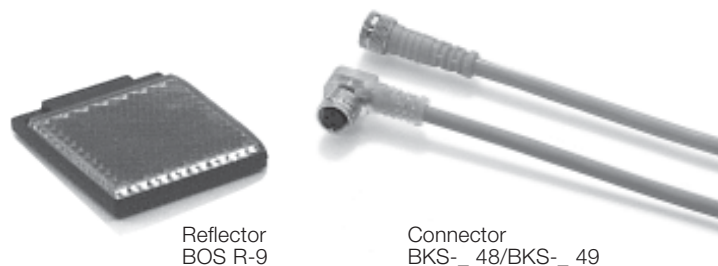
Diffuse, Retroreflective, Through-beam receiver



Through-beam emitter






**Recommended accessories**  
please order separately



Reflector  
BOS R-9

Connector  
BKS-\_ 48/BKS-\_ 49

| Type   | Range       | Light type |          | Output         |                | Switching type |         | Switching frequency | U <sub>B</sub> | Connec-tion  |                     | Special features | Page  |
|--|-------------|------------|----------|----------------|----------------|----------------|---------|---------------------|----------------|--------------|---------------------|------------------|-------|
|  |             | Red light  | Infrared | PNP-Transistor | NPN-Transistor | Light-on       | Dark-on |                     |                | 10...30 V DC | M8 connector, 3-pin |                  |       |
|  <b>Diffuse</b>         | 0...55 mm   |            |          |                |                |                |         |                     |                |              |                     |                  |       |
| BOS 08M-PS-RD10-S49  | 0...55 mm   | ■          |          | ■              |                | ■              |         | 500 Hz              | ■              | ■            |                     |                  | 2.1.4 |
| BOS 08M-PO-RD10-S49  | 0...55 mm   | ■          |          | ■              |                |                | ■       | 500 Hz              | ■              | ■            |                     |                  | 2.1.4 |
| BOS 08M-PS-RD10-03   | 0...55 mm   | ■          |          | ■              |                | ■              |         | 500 Hz              | ■              |              | ■                   |                  | 2.1.4 |
| BOS 08M-PO-RD10-03   |             | ■          |          | ■              |                |                | ■       | 500 Hz              | ■              |              | ■                   |                  | 2.1.4 |
|  <b>Retroreflective</b> | 25...550 mm |            |          |                |                |                |         |                     |                |              |                     |                  |       |
| BOS 08M-PS-PR10-S49  | 25...550 mm | ■          |          | ■              |                |                | ■       | 500 Hz              | ■              | ■            |                     | ■                | 2.1.4 |
| BOS 08M-PO-PR10-S49  | 25...550 mm | ■          |          | ■              |                | ■              |         | 500 Hz              | ■              | ■            |                     | ■                | 2.1.4 |
| BOS 08M-PS-PR10-03   | 25...550 mm | ■          |          | ■              |                |                | ■       | 500 Hz              | ■              |              | ■                   | ■                | 2.1.5 |
| BOS 08M-PO-PR10-03   |             | ■          |          | ■              |                | ■              |         | 500 Hz              | ■              |              | ■                   | ■                | 2.1.5 |
|  <b>Through-beam</b>  | 0...1.1 m   |            |          |                |                |                |         |                     |                |              |                     |                  |       |
| BOS 08M-PS-RE10-S49  | 0...1.1 m   | ■          |          | ■              |                |                | ■       | 500 Hz              | ■              | ■            |                     |                  | 2.1.5 |
| BOS 08M-PO-RE10-S49  | 0...1.1 m   | ■          |          | ■              |                | ■              |         | 500 Hz              | ■              | ■            |                     |                  | 2.1.5 |
| BOS 08M-PS-RE10-03   | 0...1.1 m   | ■          |          | ■              |                |                | ■       | 500 Hz              | ■              |              | ■                   |                  | 2.1.5 |
| BOS 08M-PO-RE10-03   |             | ■          |          | ■              |                | ■              |         | 500 Hz              | ■              |              | ■                   |                  | 2.1.5 |
|  | 0...1.1 m   |            |          |                |                |                |         |                     |                |              |                     |                  |       |
| BOS 08M-X-RS10-S49   | 0...1.1 m   | ■          |          |                |                |                |         |                     | ■              | ■            |                     |                  | 2.1.5 |
| BOS 08M-X-RS10-03  |             | ■          |          |                |                |                |         |                     | ■              |              | ■                   |                  | 2.1.5 |

2.1

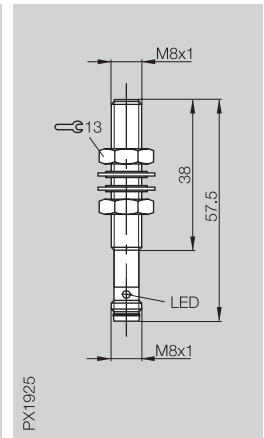
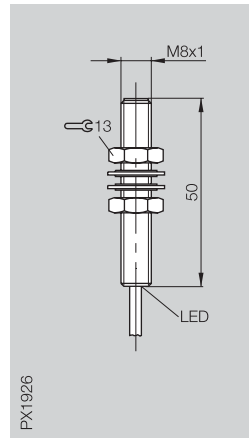
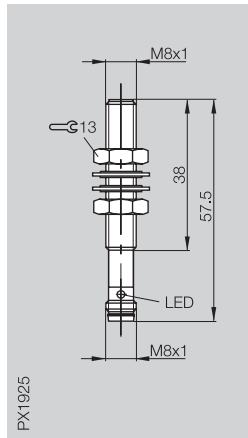
2.3

Photoelectric sensors accessories page 2.3.2 ...

6

Connectors page 6.2 ...

|                 |       |                  |                  |                    |
|-----------------|-------|------------------|------------------|--------------------|
| Diffuse         | Range | <b>0...55 mm</b> | <b>0...55 mm</b> |                    |
| Retroreflective | Range |                  |                  | <b>25...550 mm</b> |
| Through-beam    | Range |                  |                  |                    |



|  |                        |        |                   |                     |                    |                     |  |
|--|------------------------|--------|-------------------|---------------------|--------------------|---------------------|--|
|  | <b>Diffuse</b>         |        |                   |                     |                    |                     |  |
|  | PNP, NO                | 55 mm  |                   | BOS 08M-PS-RD10-S49 | BOS 08M-PS-RD10-03 |                     |  |
|  | PNP, NC                | 55 mm  |                   | BOS 08M-PO-RD10-S49 | BOS 08M-PO-RD10-03 |                     |  |
|  | <b>Retroreflective</b> |        |                   |                     |                    |                     |  |
|  | PNP, NO                | 550 mm | Polarizing filter |                     |                    | BOS 08M-PS-PR10-S49 |  |
|  | PNP, NC                | 550 mm | Polarizing filter |                     |                    | BOS 08M-PO-PR10-S49 |  |
|  | <b>Through-beam</b>    |        |                   |                     |                    |                     |  |
|  | PNP, NO                | 1.1 m  | Receiver          |                     |                    |                     |  |
|  | PNP, NC                | 1.1 m  | Receiver          |                     |                    |                     |  |
|  |                        | 1.1 m  | Emitter           |                     |                    |                     |  |

|                                     |                     |  |                        |  |                     |  |  |
|-------------------------------------|---------------------|--|------------------------|--|---------------------|--|--|
| <b>Electrical data</b>              |                     |  |                        |  |                     |  |  |
| Supply voltage $U_B$                | 10...30 V DC        |  | 10...30 V DC           |  | 10...30 V DC        |  |  |
| Ripple                              | 10 %                |  | 10 %                   |  | 10 %                |  |  |
| No-load supply current $I_0$ max.   | 20 mA               |  | 20 mA                  |  | 20 mA               |  |  |
| Switching output                    | PNP-Transistor      |  | PNP-Transistor         |  | PNP-Transistor      |  |  |
| Output current                      | 100 mA              |  | 100 mA                 |  | 100 mA              |  |  |
| Switching type                      | Light- or dark-on   |  | Light- or dark-on      |  | Light- or dark-on   |  |  |
| Voltage drop $U_d$ at $I_0$         | $\leq 2$ V          |  | $\leq 2$ V             |  | $\leq 2$ V          |  |  |
| Settings                            | fixed               |  | fixed                  |  | fixed               |  |  |
| <b>Optical data</b>                 |                     |  |                        |  |                     |  |  |
| Recommended range                   | 0...50 mm           |  | 0...50 mm              |  | 25...550 mm         |  |  |
| Emitter, light type                 | LED, red light      |  | LED, red light         |  | LED, red light      |  |  |
| Wavelength                          | 640 nm              |  | 640 nm                 |  | 640 nm              |  |  |
| <b>Indicator</b>                    |                     |  |                        |  |                     |  |  |
| Output function indicator           | LED red             |  | LED red                |  | LED red             |  |  |
| <b>Time specifications</b>          |                     |  |                        |  |                     |  |  |
| Response time                       | 1 ms                |  | 1 ms                   |  | 1 ms                |  |  |
| Frequency of operating cycles $f$   | 500 Hz              |  | 500 Hz                 |  | 500 Hz              |  |  |
| <b>Mechanical data</b>              |                     |  |                        |  |                     |  |  |
| Dimensions                          | M8x57.5 mm          |  | M8x50 mm               |  | M8x57.5 mm          |  |  |
| Connection                          | M8 connector, 3-pin |  | 3 m cable, PUR         |  | M8 connector, 3-pin |  |  |
| No. of wires $\times$ cross-section |                     |  | 3x0.14 mm <sup>2</sup> |  |                     |  |  |
| Housing material                    | Nickel plated brass |  | Nickel plated brass    |  | Nickel plated brass |  |  |
| Optical surface                     | PMMA                |  | PMMA                   |  | PMMA                |  |  |
| Weight                              | 13 g                |  | 47 g                   |  | 13 g                |  |  |
| <b>Ambient data</b>                 |                     |  |                        |  |                     |  |  |
| Degree of protection per IEC 60529  | IP 67               |  | IP 67                  |  | IP 67               |  |  |
| Polarity reversal protected         | yes                 |  | yes                    |  | yes                 |  |  |
| Short circuit protected             | yes                 |  | yes                    |  | yes                 |  |  |
| Ambient temperature range $T_a$     | -10...+60 °C        |  | -10...+60 °C           |  | -10...+60 °C        |  |  |
| Ambient light rejection per         | EN 60947-5-2        |  | EN 60947-5-2           |  | EN 60947-5-2        |  |  |

Diffuse values referenced to Kodak gray card 90% reflective.  
Retroreflective values referenced to reflector R9.

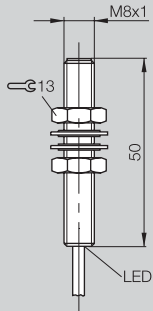
25...550 mm

0...1.1 m

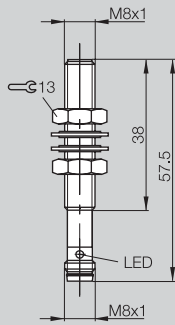
0...1.1 m

0...1.1 m

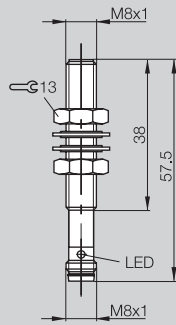
0...1.1 m



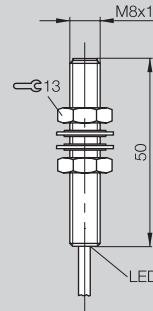
PX1926



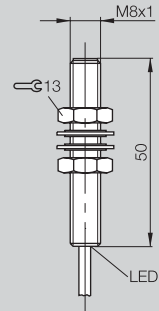
PX1925



PX1925



PX1926



PX1926

BOS 08M-PS-PR10-03  
BOS 08M-PO-PR10-03

BOS 08M-PS-RE10-S49  
BOS 08M-PO-RE10-S49

BOS 08M-X-RS10-S49

BOS 08M-PS-RE10-03  
BOS 08M-PO-RE10-03

BOS 08M-X-RS10-03

10...30 V DC

10...30 V DC

10...30 V DC

10...30 V DC

10...30 V DC

10 %

10 %

10 %

10 %

10 %

20 mA

15 mA

15 mA

15 mA

15 mA

PNP-Transistor

PNP-Transistor

PNP-Transistor

PNP-Transistor

100 mA

100 mA

100 mA

100 mA

Light- or dark-on

Light- or dark-on

Light- or dark-on

Light- or dark-on

≤ 2 V

≤ 2 V

≤ 2 V

≤ 2 V

fixed

fixed

fixed

fixed

fixed

25...500 mm  
LED, red light  
640 nm

0...1 m

0...1 m  
LED, red light  
640 nm

0...1 m

0...1 m  
LED, red light  
640 nm

LED red

LED red

LED red

1 ms

1 ms

1 ms

500 Hz

500 Hz

500 Hz

M8×50 mm

M8×57.5 mm

M8×57.5 mm

M8×50 mm

M8×50 mm

3 m cable, PUR

M8 connector, 3-pin

M8 connector, 3-pin

3 m cable, PUR

3 m cable, PUR

3×0.14 mm<sup>2</sup>

3×0.14 mm<sup>2</sup>

3×0.14 mm<sup>2</sup>

3×0.14 mm<sup>2</sup>

2×0.14 mm<sup>2</sup>

Nickel plated brass

Nickel plated brass

Nickel plated brass

Nickel plated brass

Nickel plated brass

PMMA

PMMA

PMMA

PMMA

PMMA

47 g

13 g

13 g

47 g

47 g

IP 67

IP 67

IP 67

IP 67

IP 67

yes

yes

yes

yes

yes

yes

yes

yes

yes

yes

-10...+60 °C  
EN 60947-5-2

-10...+60 °C  
EN 60947-5-2

-10...+60 °C  
EN 60947-5-2

-10...+60 °C  
EN 60947-5-2

-10...+60 °C  
EN 60947-5-2

2.1

2.3

Photoelectric sensors accessories page 2.3.2 ...

6

Connectors page 6.2 ...

One feature describes all the ingenious features: **simplicity.**

The **BOS 12M family** represents a radical simplification in sensor technology for the most common applications.

All sensors – diffuse, retroreflective or through-beams – are designed in the same housing as a typical inductive proximity switch (M12×1).

This means that **through-beams and inductive proximity switches are mechanically and electrically compatible!**

As far as assembly is concerned, there is no simpler concept for sensors than a drilled hole. And that is all the sensors from the BOS 12M compact series need to be installed.

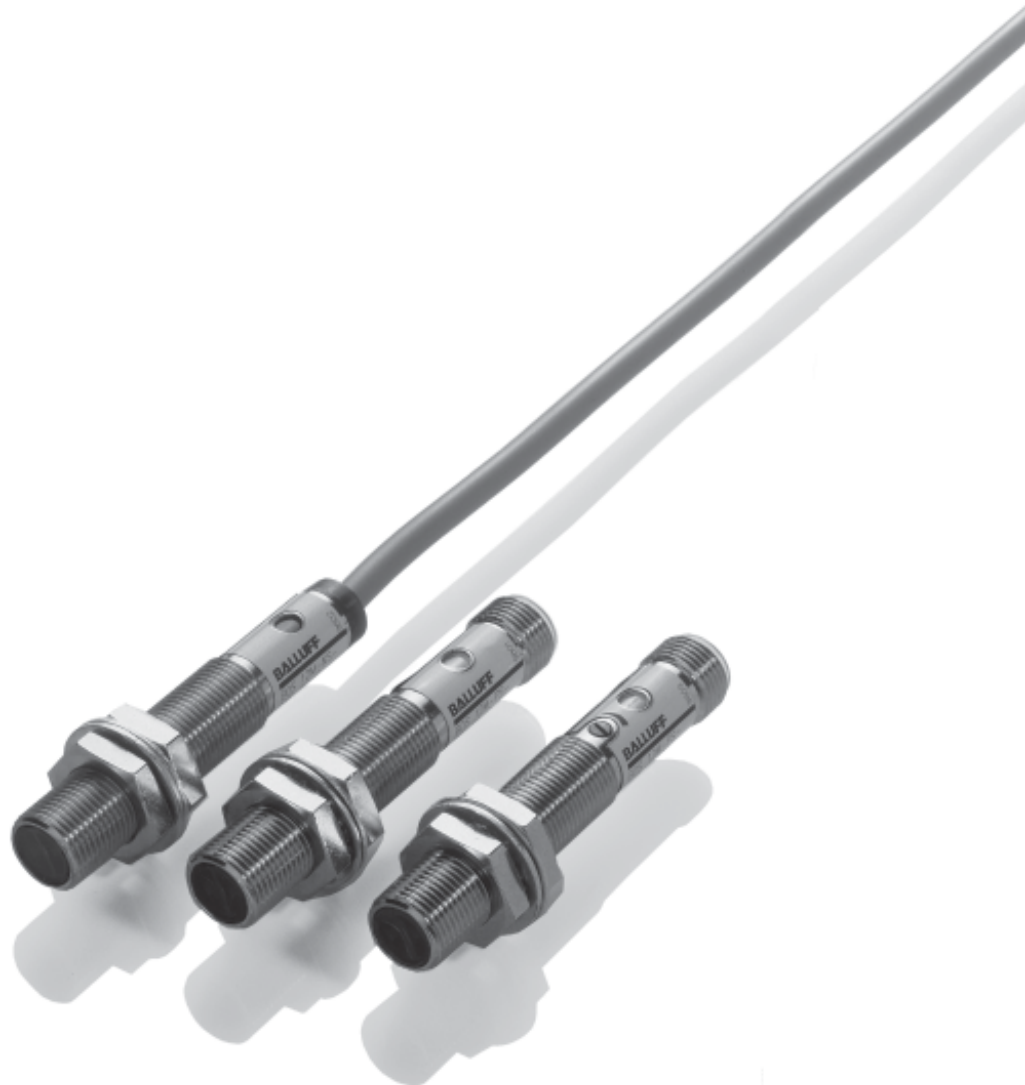
This brings simplification into the design of system or machine, makes converting sensor types easier, and reduces inventory through **multiple usage of accessories.** This in turn means **standardization and simplification** of your sensor needs. The BOS 12M series in their rugged metal housing is fully potted and provides IP 67 protection.





### Features

- Supply voltage 10...30 V DC, polarity reverse protected
- Output 200 mA, short protected
- Output function indicator
- IP 67
- Standard housing (M12×1) of metal
- Red and infrared light versions
- Fixed and adjustable sensitivity
- PNP or NPN, light-on or dark-on
- Cable and connector versions (M12 connector)

### Applications

- General automation tasks
- Assembly and handling
- Machine building
- Packaging machinery
- Robots
- Machine tools



| Type   | Range      | Light type |          | Output         |                | Switching type |         | Switching frequency | U <sub>B</sub> | Connection   |                      | Special features |                   | Page   |
|--|------------|------------|----------|----------------|----------------|----------------|---------|---------------------|----------------|--------------|----------------------|------------------|-------------------|--------|
|  |            | Red light  | Infrared | PNP-Transistor | NPN-Transistor | Light-on       | Dark-on |                     |                | 10...30 V DC | M12 connector, 4-pin | Cable, 3 m       | Polarizing filter |        |
|  <b>Diffuse with HGA</b>  |            |            |          |                |                |                |         |                     |                |              |                      |                  |                   |        |
| BOS 12M-PS-1N1-S4-C  | 0...23 mm  | ■          |          | ■              |                | ■              |         | 1 kHz               | ■              | ■            |                      |                  |                   | 2.1.8  |
| BOS 12M-PU-1HA-S4-C  | 10...60 mm | ■          |          | ■              |                | ■              | ■       | 1 kHz               | ■              | ■            |                      |                  | ■                 | 2.1.8  |
|  <b>Diffuse</b>           |            |            |          |                |                |                |         |                     |                |              |                      |                  |                   |        |
| BOS 12M-PS-1YA-S4-C  | 0...100 mm | ■          |          | ■              |                | ■              |         | 200 Hz              | ■              | ■            |                      |                  |                   | 2.1.8  |
| BOS 12M-PO-1YA-S4-C  | 0...100 mm | ■          |          | ■              |                |                | ■       | 200 Hz              | ■              | ■            |                      |                  |                   | 2.1.8  |
| BOS 12M-PS-1YA-B0-C-03   | 0...100 mm | ■          |          | ■              |                | ■              |         | 200 Hz              | ■              |              | ■                    |                  |                   | 2.1.9  |
| BOS 12M-PO-1YA-B0-C-03   | 0...100 mm | ■          |          | ■              |                |                | ■       | 200 Hz              | ■              |              | ■                    |                  |                   | 2.1.9  |
| BOS 12M-PS-1YB-S4-C  | 0...200 mm | ■          |          | ■              |                | ■              |         | 200 Hz              | ■              | ■            |                      |                  |                   | 2.1.9  |
| BOS 12M-PO-1YB-S4-C  | 0...200 mm | ■          |          | ■              |                |                | ■       | 200 Hz              | ■              | ■            |                      |                  |                   | 2.1.9  |
| BOS 12M-PS-1YB-B0-C-03   | 0...200 mm | ■          |          | ■              |                | ■              |         | 200 Hz              | ■              |              | ■                    |                  |                   | 2.1.9  |
| BOS 12M-PO-1YB-B0-C-03   | 0...200 mm | ■          |          | ■              |                |                | ■       | 200 Hz              | ■              |              | ■                    |                  |                   | 2.1.9  |
| BOS 12M-PS-1PD-S4-C  | 0...400 mm |            | ■        | ■              |                | ■              |         | 200 Hz              | ■              | ■            |                      |                  |                   | 2.1.9  |
| BOS 12M-PO-1PD-S4-C  | 0...400 mm |            | ■        | ■              |                |                | ■       | 200 Hz              | ■              | ■            |                      |                  |                   | 2.1.9  |
| BOS 12M-PS-1PD-B0-C-03   | 0...400 mm |            | ■        | ■              |                | ■              |         | 200 Hz              | ■              |              | ■                    |                  |                   | 2.1.9  |
| BOS 12M-PO-1PD-B0-C-03   | 0...400 mm |            | ■        | ■              |                |                | ■       | 200 Hz              | ■              |              | ■                    |                  |                   | 2.1.9  |
|  <b>Retroreflective</b> |            |            |          |                |                |                |         |                     |                |              |                      |                  |                   |        |
| BOS 12M-PS-1QA-S4-C  | 0...1.5 m  | ■          |          | ■              |                |                | ■       | 200 Hz              | ■              | ■            |                      | ■                |                   | 2.1.10 |
| BOS 12M-PO-1QA-S4-C  | 0...1.5 m  | ■          |          | ■              |                | ■              |         | 200 Hz              | ■              | ■            |                      | ■                |                   | 2.1.10 |
| BOS 12M-PS-1QA-B0-C-03   | 0...1.5 m  | ■          |          | ■              |                |                | ■       | 200 Hz              | ■              |              | ■                    | ■                |                   | 2.1.10 |
| BOS 12M-PO-1QA-B0-C-03   | 0...1.5 m  | ■          |          | ■              |                | ■              |         | 200 Hz              | ■              |              | ■                    | ■                |                   | 2.1.10 |
|  <b>Through-beam</b>    |            |            |          |                |                |                |         |                     |                |              |                      |                  |                   |        |
| BLE 12M-PA-1PD-S4-C  | 0...5 m    | ■          |          | ■              |                | ■              | ■       | 500 Hz              | ■              | ■            |                      |                  |                   | 2.1.11 |
| BLE 12M-PA-1PD-B0-C-03   | 0...5 m    | ■          |          | ■              |                | ■              | ■       | 500 Hz              | ■              |              | ■                    |                  |                   | 2.1.11 |
| BLS 12M-XX-1RD-S4-L  | 0...5 m    | ■          |          |                |                |                |         | 500 Hz              | ■              | ■            |                      |                  |                   | 2.1.11 |
| BLS 12M-XX-1RD-B0-L-03   | 0...5 m    | ■          |          |                |                |                |         | 500 Hz              | ■              |              | ■                    |                  |                   | 2.1.11 |

2.1

2.3

Photoelectric  
sensors  
accessories  
page 2.3.2 ...

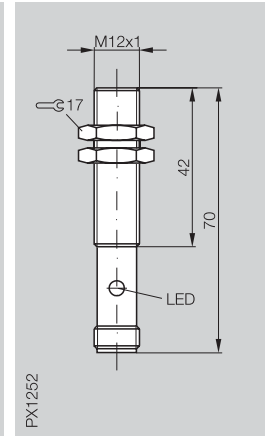
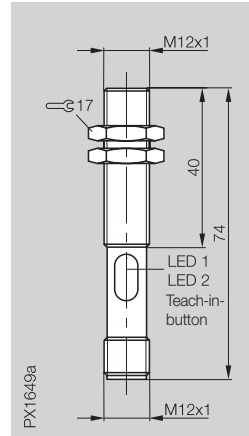
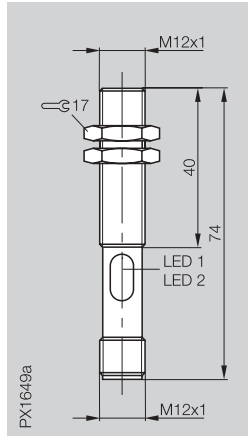
6

Connectors  
page 6.2 ...

# Photoelectric Sensors

BOS 12M  
Range 23 mm,  
60 mm, 100 mm

|                                     |       |                  |                   |                   |
|-------------------------------------|-------|------------------|-------------------|-------------------|
| Diffuse with background suppression | Range | <b>0...23 mm</b> | <b>10...60 mm</b> |                   |
| Diffuse                             | Range |                  |                   | <b>1...100 mm</b> |



| Diffuse                            |                      |                             |                      |                      |
|------------------------------------|----------------------|-----------------------------|----------------------|----------------------|
| PNP 23 mm HGA                      | BOS 12M-PS-1N11-S4-C |                             |                      |                      |
| PNP 10...60 mm HGA, Teach-in       |                      | BOS 12M-PU-1HA-S 4-C        |                      |                      |
| PNP 100 mm                         |                      |                             |                      | BOS 12M-PS-1YA-S 4-C |
| PNP 100 mm                         |                      |                             |                      | BOS 12M-PO-1YA-S 4-C |
| PNP 200 mm                         |                      |                             |                      |                      |
| PNP 200 mm                         |                      |                             |                      |                      |
| PNP 400 mm                         |                      |                             |                      |                      |
| PNP 400 mm                         |                      |                             |                      |                      |
| <b>Electrical data</b>             |                      |                             |                      |                      |
| Supply voltage $U_B$               | 10...30 V DC         | 10...30 V DC                | 10...30 V DC         |                      |
| Ripple                             | 10 %                 | 10 %                        | 10 %                 |                      |
| No-load supply current $I_0$ max.  | ≤ 25 mA              | ≤ 25 mA                     | ≤ 20 mA              |                      |
| Switching output*                  | PNP-Transistor       | PNP-Transistor              | PNP-Transistor       |                      |
| Output current                     | 100 mA               | 100 mA                      | ≤ 200 mA             |                      |
| Switching type                     | Light-on             | Light-/dark-on (selectable) | Light- or dark-on    |                      |
| Voltage drop $U_d$ at $I_0$        | ≤ 2.4 V              | ≤ 2.4 V                     | ≤ 2.5 V              |                      |
| Settings                           | fixed                | teach-in                    | fixed                |                      |
| <b>Optical data</b>                |                      |                             |                      |                      |
| Emitter, light type                | LED, red light       | LED, red light              | LED, red light       |                      |
| Wavelength                         | 660 nm               | 660 nm                      | 660 nm               |                      |
| Light spot diameter                | 5x5 mm               | 5x5 mm at 50 mm             |                      |                      |
| Distance hysteresis (18 %/18 %)    | ≤ 5 %                | ≤ 5 %                       |                      |                      |
| Gray value shift (90 %/18 %)       | ≤ 5 %                | ≤ 10 %                      |                      |                      |
| <b>Indicator</b>                   |                      |                             |                      |                      |
| Output function indicator          | LED yellow           | LED yellow                  | LED yellow           |                      |
| Stability indicator                | LED green            | LED green                   |                      |                      |
| <b>Time specifications</b>         |                      |                             |                      |                      |
| Response time                      | 0.5 ms               | 0.5 ms                      | 2.5 ms               |                      |
| Frequency of operating cycles f    | 1 kHz                | 1 kHz                       | 200 Hz               |                      |
| <b>Mechanical data</b>             |                      |                             |                      |                      |
| Dimensions                         | M12x74 mm            | M12x74 mm                   | M12x70 mm            |                      |
| Connection                         | M12 connector, 4-pin | M12 connector, 4-pin        | M12 connector, 4-pin |                      |
| No. of wires x cross-section       |                      |                             |                      |                      |
| Housing material                   | Nickel plated brass  | Nickel plated brass         | Nickel plated brass  |                      |
| Optical surface                    | PMMA                 | PMMA                        | PMMA                 |                      |
| Weight                             | 30 g                 | 30 g                        | 30 g                 |                      |
| <b>Ambient data</b>                |                      |                             |                      |                      |
| Degree of protection per IEC 60529 | IP 67                | IP 67                       | IP 67                |                      |
| Polarity reversal protected        | yes                  | yes                         | yes                  |                      |
| Short circuit protected            | yes                  | yes                         | yes                  |                      |
| Ambient temperature range $T_a$    | -20...+60 °C         | -20...+60 °C                | -15...+55 °C         |                      |
| Ambient light rejection            | 5 kLux               | 5 kLux                      | 5 kLux               |                      |

Diffuse values referenced to Kodak gray card 90% reflective.

Wiring diagrams, characteristics and accessories see page 2.1.12 and 2.1.13.



# M12 metal

## Photoelectric Sensors

BOS 12M  
Range 100 mm,  
200 mm, 400 mm

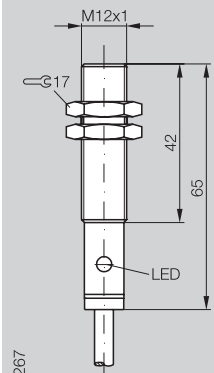
1...100 mm

1...200 mm

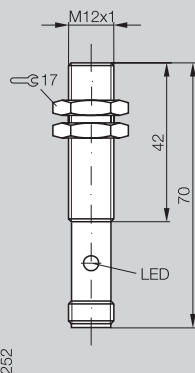
1...200 mm

1...400 mm

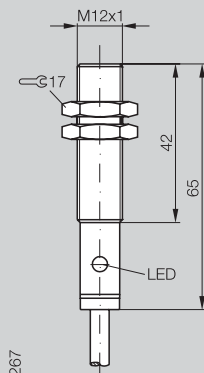
1...400 mm



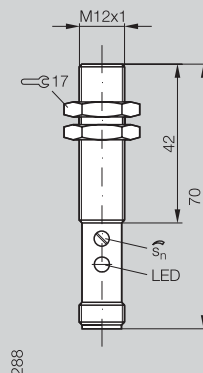
PX1267



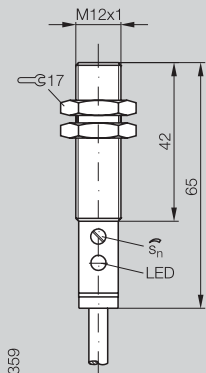
PX1252



PX1267



PX1288



PX1359

BOS 12M-PS-1YA-B0-C-03  
BOS 12M-PO-1YA-B0-C-03

BOS 12M-PS-1YB-S 4-C  
BOS 12M-PO-1YB-S 4-C

BOS 12M-PS-1YB-B0-C-03  
BOS 12M-PO-1YB-B0-C-03

BOS 12M-PS-1PD-S 4-C  
BOS 12M-PO-1PD-S 4-C

BOS 12M-PS-1PD-B0-C-03  
BOS 12M-PO-1PD-B0-C-03

10...30 V DC

10...30 V DC

10...30 V DC

10...30 V DC

10...30 V DC

10 %

10 %

10 %

10 %

10 %

≤ 20 mA

≤ 20 mA

≤ 20 mA

≤ 20 mA

≤ 20 mA

PNP-Transistor

PNP-Transistor

PNP-Transistor

PNP-Transistor

PNP-Transistor

≤ 200 mA

≤ 200 mA

≤ 200 mA

≤ 200 mA

≤ 200 mA

light- or dark-on

light- or dark-on

light- or dark-on

light- or dark-on

light- or dark-on

≤ 2.5 V

≤ 2.5 V

≤ 2.5 V

≤ 2.5 V

≤ 2.5 V

fixed

fixed

fixed

Potentiometer 270°

Potentiometer 270°

LED, red light  
660 nm

LED, red light  
660 nm

LED, red light  
660 nm

LED, infrared light  
880 nm

LED, infrared light  
880 nm

LED yellow

LED yellow

LED yellow

LED yellow

LED yellow

2.5 ms

2.5 ms

2.5 ms

2.5 ms

2.5 ms

200 Hz

200 Hz

200 Hz

200 Hz

200 Hz

M12×65 mm  
3 m cable, PVC  
3×0.34 mm<sup>2</sup>

M12×70 mm  
M12 connector, 4-pin

M12×65 mm  
3 m cable, PVC  
3×0.34 mm<sup>2</sup>

M12×70 mm  
M12 connector, 4-pin

M12×65 mm  
3 m cable, PVC  
3×0.34 mm<sup>2</sup>

Nickel plated brass  
PMMA  
136 g

Nickel plated brass  
PMMA  
30 g

Nickel plated brass  
PMMA  
136 g

Nickel plated brass  
PMMA  
30 g

Nickel plated brass  
PMMA  
136 g

IP 67

IP 67

IP 67

IP 67

IP 67

yes

yes

yes

yes

yes

yes

yes

yes

yes

yes

-15...+55 °C

-15...+55 °C

-15...+55 °C

-15...+55 °C

-15...+55 °C

5 kLux

5 kLux

5 kLux

5 kLux

5 kLux

\*Ordering example for NPN transistor:

**BOS 12M- -1YA-S 4-C**

Output

**NS** NPN NO  
**NO** NPN NC

2.1

2.3

Photoelectric sensors  
accessories  
page 2.3.2 ...

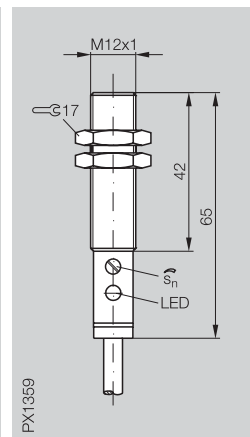
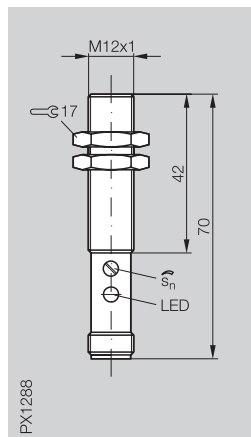
6

Connectors  
page 6.2 ...

|  |       |
|--|-------|
| Retroreflective with Polarizing filter | Range |
| Through-beam                           | Range |

**0...1.5 m**

**0...1.5 m**



**Retroreflective**



|     |       |                   |
|-----|-------|-------------------|
| PNP | 1.5 m | Polarizing filter |
| PNP | 1.5 m | Polarizing filter |

|                      |
|----------------------|
| BOS 12M-PS-1QA-S 4-C |
| BOS 12M-PO-1QA-S 4-C |

|                        |
|------------------------|
| BOS 12M-PS-1QA-B0-C-03 |
| BOS 12M-PO-1QA-B0-C-03 |

**Through-beam**



|     |     |          |
|-----|-----|----------|
| PNP | 5 m | Receiver |
|     | 5 m | Emitter  |

**Electrical data**

Supply voltage  $U_B$

10...30 V DC

10...30 V DC

Ripple

10 %

10 %

No-load supply current  $I_0$  max.

≤ 20 mA

≤ 20 mA

Switching output

PNP-Transistor

PNP-Transistor

Output current

≤ 200 mA

≤ 200 mA

Switching type

Light- or dark-on

Light- or dark-on

Voltage drop  $U_d$  at  $I_e$

≤ 2.5 V

≤ 2.5 V

Settings

Potentiometer 270°

Potentiometer 270°

**Optical data**

Emitter, light type

LED, red light

LED, red light

Wavelength

660 nm

660 nm

**Indicator**

Power-on indicator

LED yellow

LED yellow

Output function indicator

**Time specifications**

Response time

2.5 ms

2.5 ms

Frequency of operating cycles  $f$

200 Hz

200 Hz

**Mechanical data**

Dimensions

M12×70 mm

M12×65 mm

Connection

M12 connector, 4-pin

3 m cable, PVC

No. of wires × cross-section

3×0.34 mm<sup>2</sup>

Housing material

Nickel plated brass

Nickel plated brass

Optical surface

PMMA

PMMA

Weight

30 g

136 g

**Ambient data**

Degree of protection per IEC 60529

IP 67

IP 67

Polarity reversal protected

yes

yes

Short circuit protected

yes

yes

Ambient temperature range  $T_a$

-15...+55 °C

-15...+55 °C

Ambient light rejection

5 kLux

5 kLux

Retroreflective values referenced to reflector R1.

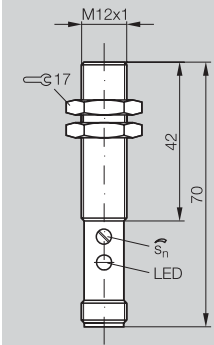
Wiring diagrams, characteristics and accessories see page 2.1.12 and 2.1.13.

0...5 m

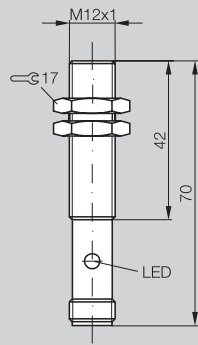
0...5 m

0...5 m

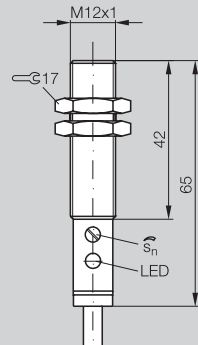
0...5 m



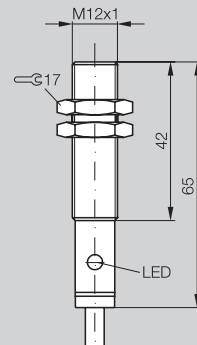
PX1288



PX1252



PX1359



PX1267

BLE 12M-PA-1PD-S 4-C

BLS 12M-XX-1RD-S 4-L

BLE 12M-PA-1PD-B0-C-03

BLS 12M-XX-1RD-B0-L-03

10...30 V DC

10...30 V DC

10...30 V DC

10...30 V DC

10 %

10 %

10 %

10 %

≤ 20 mA

≤ 20 mA

≤ 20 mA

≤ 20 mA

PNP-Transistor

PNP-Transistor

≤ 200 mA

≤ 200 mA

Light- and dark-on

Light- and dark-on

≤ 2.5 V

≤ 2.5 V

Potentiometer 270°

Potentiometer 270°

LED, red light  
660 nm

LED, red light  
660 nm

LED, red light  
660 nm

LED, red light  
660 nm

LED yellow

LED green

LED yellow

LED green

1 ms

1 ms

500 Hz

500 Hz

M12×70 mm

M12×70 mm

M12×65 mm

M12×65 mm

M12 connector, 4-pin

M12 connector, 4-pin

3 m cable, PVC

3 m cable, PVC

3×0.34 mm<sup>2</sup>

3×0.34 mm<sup>2</sup>

Nickel plated brass

Nickel plated brass

Nickel plated brass

Nickel plated brass

PMMA

PMMA

PMMA

PMMA

30 g

30 g

136 g

136 g

IP 67

IP 67

IP 67

IP 67

yes

yes

yes

yes

yes

yes

yes

yes

-15...+55 °C

-15...+55 °C

-15...+55 °C

-15...+55 °C

5 kLux

5 kLux

5 kLux

5 kLux

\*Ordering example for NPN transistor:

**BOS 12M-\_\_-1YA-S 4-C**

**Output**

**NS** NPN NO

**NO** NPN NC

2.1

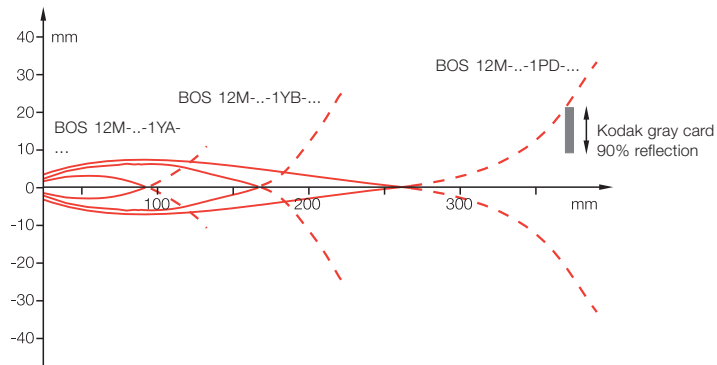
2.3

Photoelectric sensors accessories page 2.3.2 ...

6

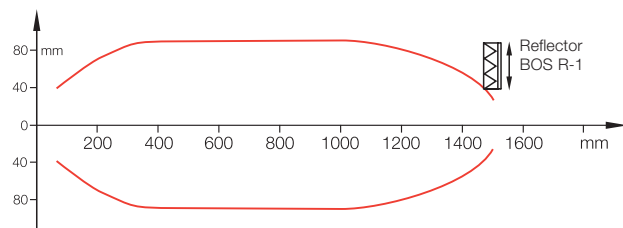
Connectors page 6.2 ...

**Diffuse BOS 12M...-1YA/1YB/1PD...**



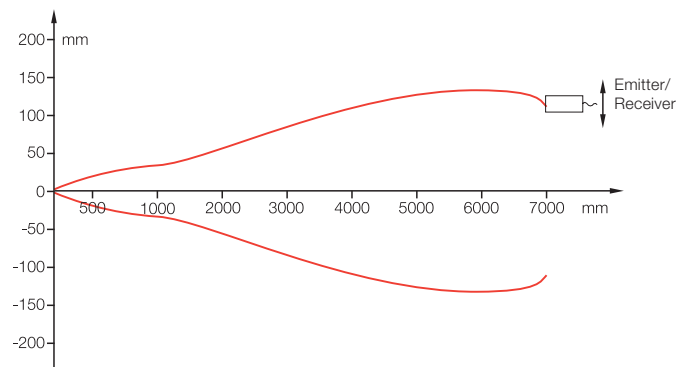
Range measured using side approach with Kodak gray card.

**Retroreflective BOS 12M...-1QA...**



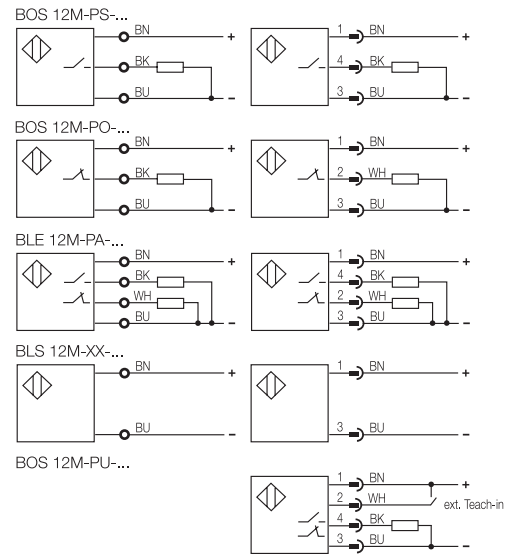
Range measured using side approach with reflector.

**Through-beam BLE/BLS 12M...**



With the through-beam the maximum possible offset between emitter and receiver is measured.

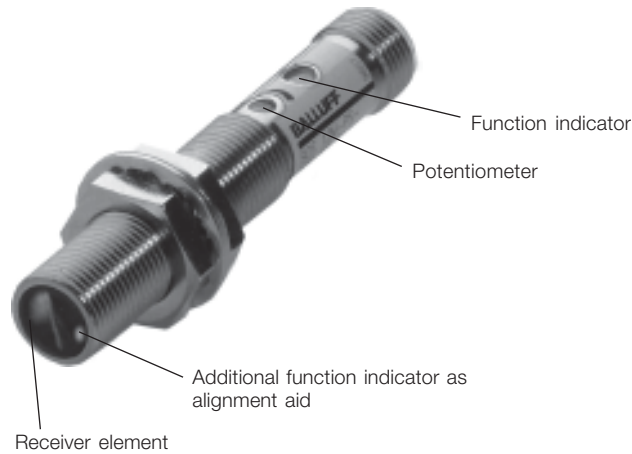
**Wiring diagrams**



### Alignment aid

The additional function indicator on the through-beam receiver allows you to quickly align the emitter and receiver.

First install the receiver and then the emitter. As soon as the emitter is in the active range of the receiver, the function indicator in the front of the sensor goes out. This indicator signals an optical connection between emitter and receiver. It is also well visible for flush mounting.



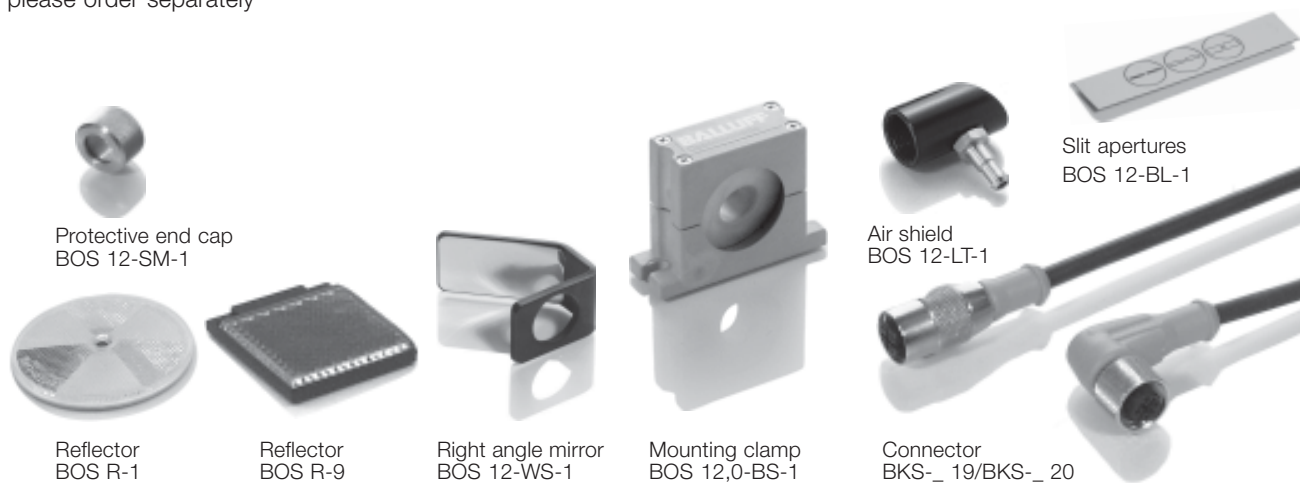
## 2.1

## 2.3

Photoelectric sensors accessories page 2.3.2 ...

### Recommended accessories

please order separately



Protective end cap  
BOS 12-SM-1

Reflector  
BOS R-1

Reflector  
BOS R-9

Right angle mirror  
BOS 12-WS-1

Mounting clamp  
BOS 12,0-BS-1

Air shield  
BOS 12-LT-1

Connector  
BKS-\_ 19/BKS-\_ 20

Slit apertures  
BOS 12-BL-1

## 6

Connectors page 6.2 ...