

W 27-3 Ex: Standard-compliant: sensor + protective housing for Ex areas

| | |
|--|---|
| | BGS Photoelectric proximity switch |
| | Photoelectric reflex switch |
| | Through-beam photoelectric switch |



norm by eliminating the need for additional mechanical protection. Testing for mechanical protection is one important criterion in the Ex standard.

Overview of W 27-3 Ex:

- Category 3D/3G
- Standard-compliant: sensor + protective housing
- With highly visible red light for easier alignment
- Pre-finished solutions for Ex areas

Typical uses:

- Chemical and pharmaceutical industry
- Grain mills
- Woodworking machinery

The W 27-3 Ex series conforms to categories 3G and 3D, based on the 94/9/EC (ATEX) directive, permitting use of the devices in „Zone 2 (Gas)“ and „Zone 22 (non-conductive dusts)“ explosive areas.

Three types of devices cover applications in Ex areas:

- Photoelectric proximity switch with high-precision background suppression
- Photoelectric reflex switch with new highly visible red light for easier alignment to the reflector
- Through-beam photoelectric switch with red light

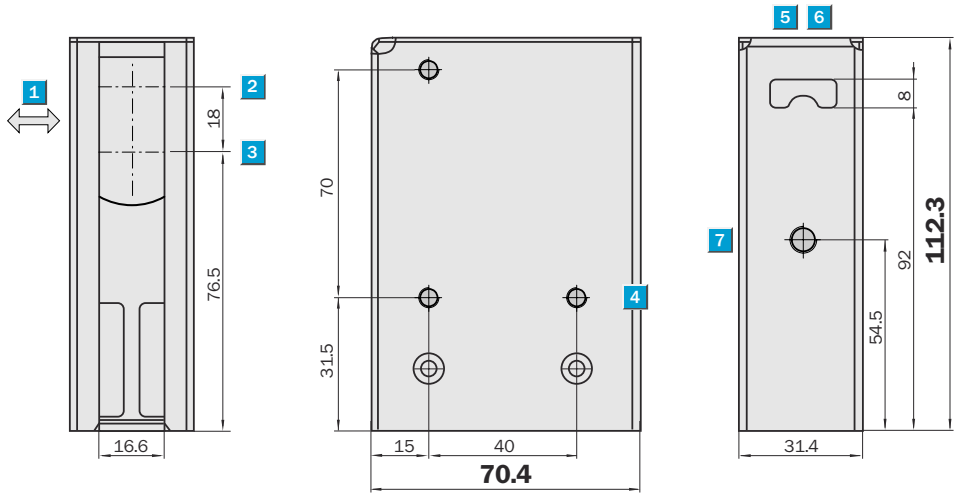
The standard-compliant "sensor + stable protective housing" system makes it easier for the user to ensure the sensor's total compliance to the

Scanning distance
30 ... 1,600 mm

Photoelectric proximity switch

- Category 3D and 3G (ATEX)
- Standard-compliant:
sensor + protective housing
- Infrared light,
very long scanning distance
- Reliable in industrial
environments; secure against the
effects of ambient light, unwanted
optical reflections and other
sensors mounted adjacently

Dimensional drawing



Adjustments possible

WTB27X-3P1811

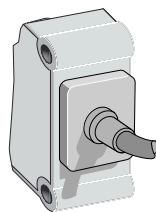


- 1 Standard direction of the material being scanned
- 2 Optical axis sender
- 3 Optical axis receiver
- 4 Mounting hole \varnothing 5.2 mm
- 5 LED indicator green; power on
- 6 LED indicator yellow; status of received light beam
- 7 Adjustment of operating distance: Poti

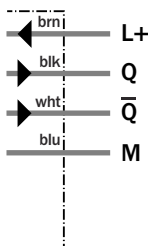


Connection type

WTB27X-3P1811

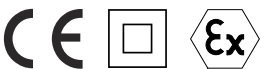


4 x 0.25 mm²



Accessories

Mounting systems



WTB27X-3

P1811

| | |
|--------------------------------------|--|
| Scanning distance typ. max. | 30 ... 1,600 mm ¹⁾ |
| Operating distance | 100 ... 1,600 mm ¹⁾ |
| Adjustment of operating distance | Potentiometer |
| Light source, light type | LED, Infrared light, 880 nm ²⁾ |
| Light spot diameter | Approx. 25 mm at 800 mm distance |
| Supply voltage V_s | DC 10 ... 30 V ³⁾ |
| Ripple | ≤ 5 V _{SS} ⁴⁾ |
| Power consumption | ≤ 35 mA ⁵⁾ |
| Switching outputs | PNP antivalent |
| Signal voltage PNP HIGH / LOW | > V _s - 2.5 V / approx. 0 V |
| Output current I _a max | 100 mA |
| Response time | ≤ 1.5 ms ⁶⁾ |
| Switching frequency | 350 Hz ⁷⁾ |
| Connection type | Cable, PVC, 10 m ⁸⁾ |
| Ex marking (ATEX) | EX II 3D IP67 T70 °C EX II 3G EEx nA II T4 X ⁹⁾ |
| VDE protection class | □ ¹⁰⁾ |
| Circuit protection | V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference pulse suppression |
| Enclosure rating | IP 67 |
| Ambient temperature operation | -20 °C ... +50 °C |
| Ambient temperature storage | -40 °C ... +75 °C |
| Weight | Ca. 750 g |
| Housing material | ABS / stainless steel 1.4301, PMMA |

¹⁾ Object with 90% remission (based on standard white to DIN 5033)

²⁾ Average service life 100,000 h at T_a = +25 °C

³⁾ Limit values, operation in short-circuit protected network max. 8 A

⁴⁾ May not exceed or fall short of V_s tolerances

⁵⁾ Without load

⁶⁾ Signal transit time with resistive load

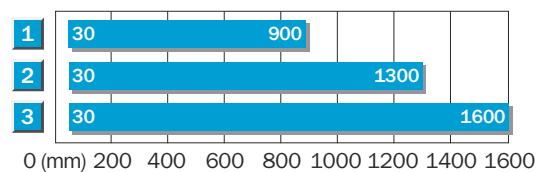
⁷⁾ With light/dark ratio 1:1

⁸⁾ Do not bend below 0 °C

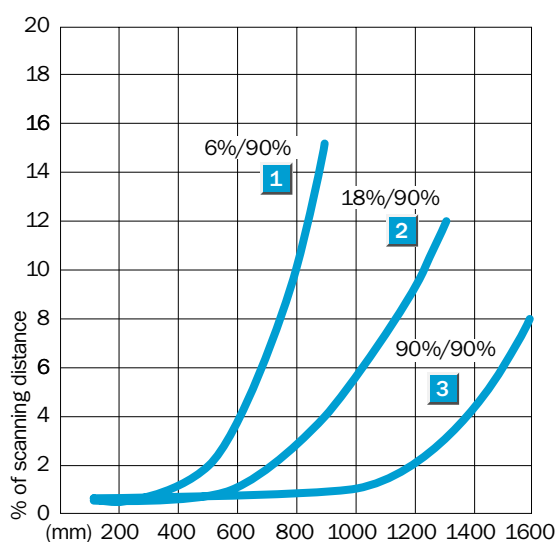
⁹⁾ Directive relevant conformity explosion prevention: Directive 94/9/EC

¹⁰⁾ Reference voltage 50 V DC

Scanning distance




- 1 Scanning distance on black, 6% remission
- 2 Scanning distance on grey, 18% remission
- 3 Scanning distance on white, 90% remission



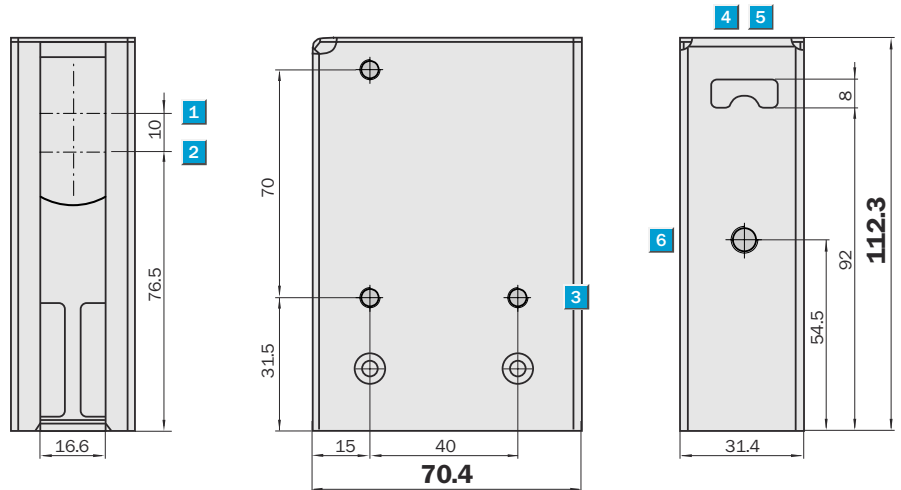
Ordering information

| Type | Order No. |
|---------------|-----------|
| WTB27X-3P1811 | 1 027 988 |


Scanning range
0.1 ... 15 m
Photoelectric reflex switch

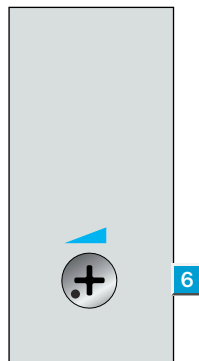
- Category 3D and 3G (ATEX)
- Standard-compliant:
sensor + protective housing
- Red light
for easier alignment
- Long range,
high operating reserve

Dimensional drawing



Adjustments possible

WL27X-3P1831

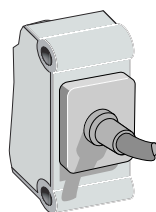


- 1 Optical axis sender
- 2 Optical axis receiver
- 3 Mounting hole \varnothing 5.2 mm
- 4 LED indicator green; power on
- 5 LED indicator yellow; status of received light beam
- 6 Sensitivity adjustment: Poti

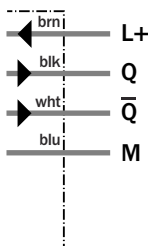


Connection type

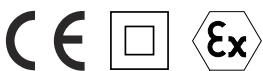
WL27X-3P1831



4 x 0.25 mm²



| Accessories |
|------------------|
| Mounting systems |
| Reflectors |



WL27X-3

P1831

| | |
|--------------------------------------|--|
| Scanning range max. typ. | 0.1 ... 15 m |
| Operating range, recommended | 0.1 ... 11 m |
| Relating to | Reflector PL 80 A |
| Sensitivity adjustment | Potentiometer |
| Light source, light type | LED, Red light, 660 nm ¹⁾ |
| Light spot diameter | Approx. 220 mm at 10 m distance |
| Angle of dispersion | Ca. 1.5 ° |
| Polarisation filter | ✓ |
| Supply voltage V_s | DC 10 ... 30 V ²⁾ |
| Ripple | ≤ 5 V _{SS} ³⁾ |
| Power consumption | ≤ 30 mA ⁴⁾ |
| Switching outputs | PNP antivalent |
| Signal voltage PNP HIGH / LOW | > V _s - 2.5 V / approx. 0 V |
| Output current I _a max | 100 mA |
| Response time | ≤ 500 μs ⁵⁾ |
| Switching frequency | 1,000 Hz ⁶⁾ |
| Connection type | Cable, PVC, 10 m ⁷⁾ |
| Ex marking (ATEX) | EX II 3D IP67 T70 °C EX II 3G EEx nA II T4 X ⁸⁾ |
| VDE protection class | □ ⁹⁾ |
| Circuit protection | V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference pulse suppression |
| Enclosure rating | IP 67 |
| Ambient temperature operation | -20 °C ... +50 °C |
| Ambient temperature storage | -40 °C ... +75 °C |
| Weight | Ca. 750 g |
| Housing material | ABS / stainless steel 1.4301, PMMA |

¹⁾ Average service life 100,000 h at T_a = +25 °C

²⁾ Limit values, operation in short-circuit

protected network max. 8 A

³⁾ May not exceed or fall short of V_s tolerances

⁴⁾ Without load

⁵⁾ Signal transit time with resistive load

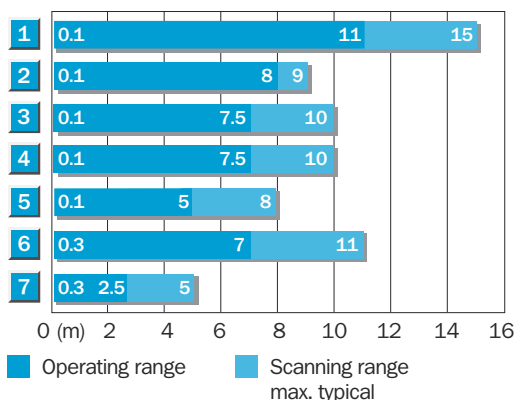
⁶⁾ With light/dark ratio 1:1

⁷⁾ Do not bend below 0 °C

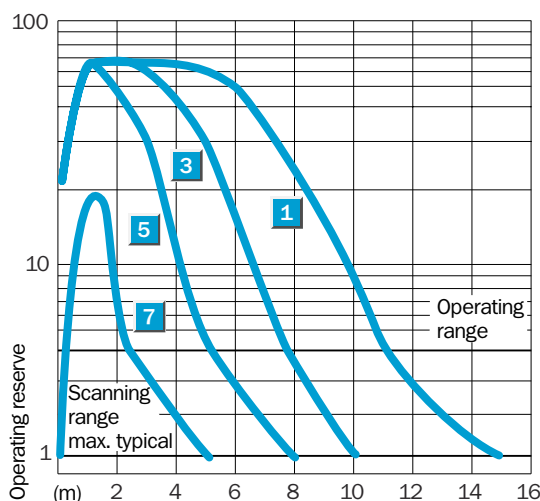
⁸⁾ Directive relevant conformity explosion prevention: Directive 94/9/EC

⁹⁾ Reference voltage 50 V DC

Scanning range and operating reserve



| Reflector type | Operating range |
|----------------|-------------------------------|
| 1 | PL 80 A |
| 2 | PL 50 A |
| 3 | PL 40 A |
| 4 | PL 30 A |
| 5 | PL 20 A |
| 6 | C 110 |
| 7 | Reflective tape Diamond Grade |



Ordering information

| Type | Order No. |
|--------------|-----------|
| WL27X-3P1831 | 1 027 989 |

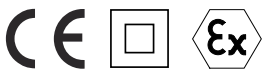
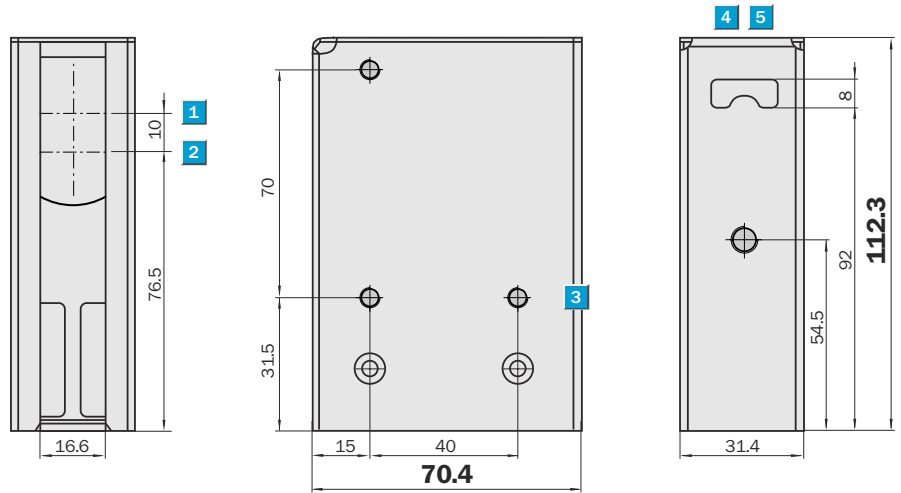
Through-beam photoelectric switch, WSE 27-3 Ex, red light - DC

Scanning range
0 ... 35 m

Through-beam photoelectric

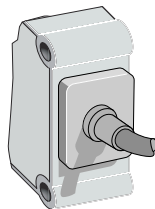
- Category 3D and 3G (ATEX)
- Standard-compliant: sensor + protective housing
- High intensity red light for easier alignment
- Long range, high operating reserve

Dimensional drawing

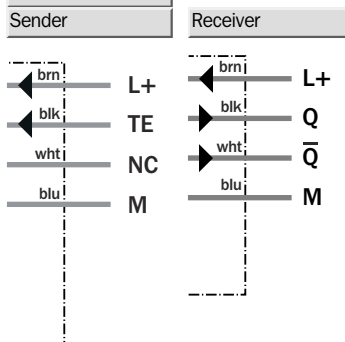


Connection type

WSE27X-3P1830



4 x 0.25 mm²



Accessories

Mounting systems

WSE27X-3

P1830

| | |
|--------------------------------------|--|
| Scanning range max. typ. | 0 ... 35 m |
| Operating range, recommended | 0 ... 25 m |
| Light source, light type | LED, Red light, 645 nm ¹⁾ |
| Light spot diameter | Approx. 600 mm at 25 m distance |
| Angle of dispersion | Ca. 1.5 ° |
| Angle of reception | Ca. 3 ° |
| Supply voltage V_s | DC 10 ... 30 V ²⁾ |
| Ripple | ≤ 5 V _{SS} ³⁾ |
| Current consumption, sender | ≤ 35 mA ⁴⁾ |
| Current consumption, receiver | ≤ 20 mA ⁴⁾ |
| Switching outputs | PNP antivalent |
| Signal voltage PNP HIGH / LOW | > V _s - 2.5 V / approx. 0 V |
| Output current I _a max | 100 mA |
| Response time | ≤ 500 μs ⁵⁾ |
| Switching frequency | 1,000 Hz ⁶⁾ |
| Test input sender off | TE to 0 V |
| Connection type | Cable, PVC, 10 m ⁷⁾ |
| Ex marking (ATEX) | EX II 3D IP67 T70 °C EX II 3G EEx nA II T4 X ⁸⁾ |
| VDE protection class | □ ⁹⁾ |
| Circuit protection | V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference pulse suppression |
| Enclosure rating | IP 67 |
| Ambient temperature operation | -20 °C ... +50 °C |
| Ambient temperature storage | -40 °C ... +75 °C |
| Weight | Ca. 1,500 g |
| Housing material | ABS / stainless steel 1.4301, PMMA |

¹⁾ Average service life 100,000 h at
T_a = +25 °C

²⁾ Limit values, operation in short-circuit

protected network max. 8 A

³⁾ May not exceed or fall short of V_s
tolerances

⁴⁾ Without load

⁵⁾ Signal transit time with resistive load

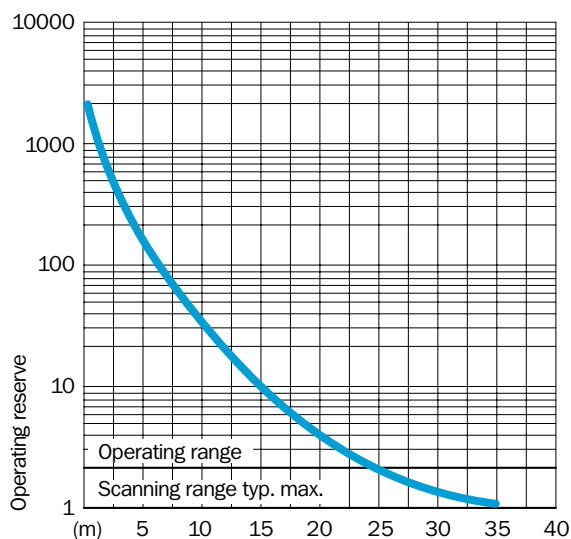
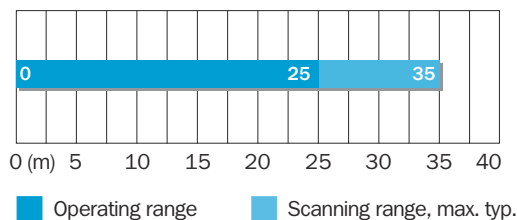
⁶⁾ With light/dark ratio 1:1

⁷⁾ Do not bend below 0 °C

⁸⁾ Directive relevant conformity explosion
prevention: Directive 94/9/EC

⁹⁾ Reference voltage 50 V DC

Scanning range and operating reserve



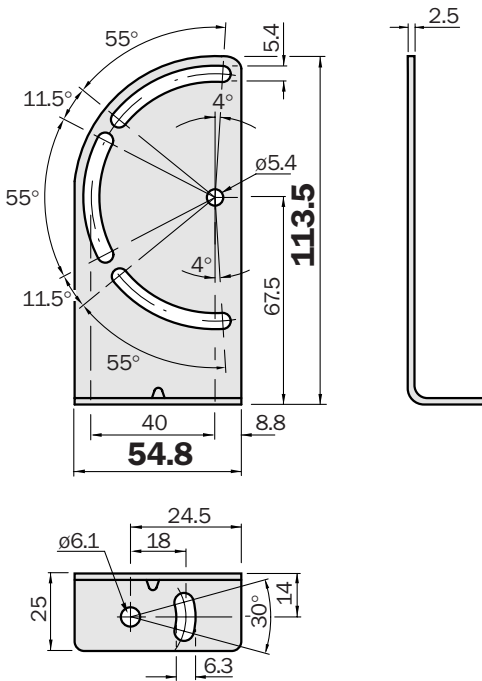
Ordering information

| Type | Order No. |
|---------------|-----------|
| WSE27X-3P1830 | 1 027 991 |

Dimensional drawings and order information

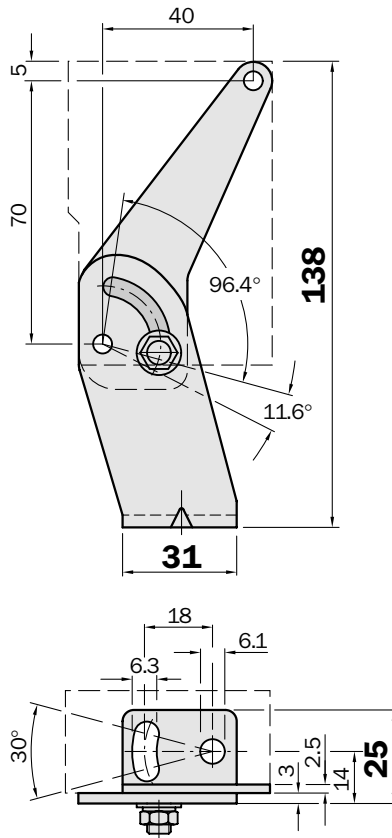
Mounting bracket for W 27-3 Ex

| Type | Order no. |
|------------|-----------|
| BEF-WN-W23 | 2 019 085 |

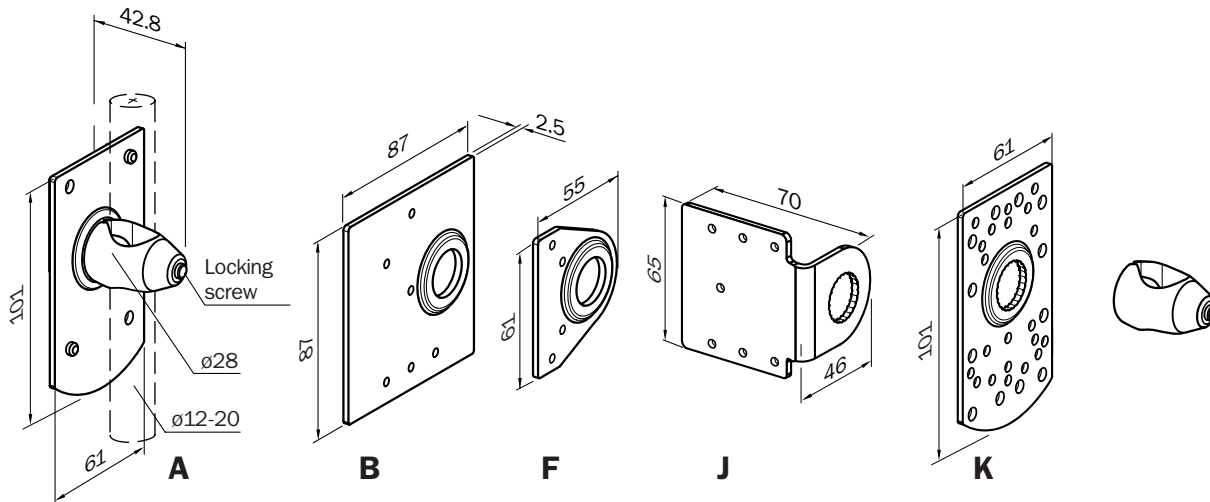


Mounting bracket for W 27-3 Ex

| Type | Order no. |
|------------|-----------|
| BEF-WN-W27 | 2 009 122 |



Universal bar clamps for sensors and reflectors



| Mounting plates | Type | Order no. | for device/reflector type |
|-----------------|-------------|---------------------------|--|
| A | BEF-KHS-A01 | 2 022 458 ¹⁾²⁾ | W 27-3 Ex |
| B | BEF-KHS-B01 | 2 022 459 ¹⁾²⁾ | P 250, PL 30 A, PL 40 A, PL 50 A, PL 80 A, C 110 |
| F | BEF-KHS-F01 | 2 022 463 ¹⁾²⁾ | W 260, PL 20 A, P 250 |
| J | BEF-KHS-J01 | 2 022 719 ¹⁾²⁾ | PL 20 A, PL 40 A, PL 50 A, P 250, C 110 |
| K | BEF-KHS-K01 | 2 022 718 ¹⁾ | W 11, W 12-2, W 12L-2, W 14-2, W 18-3, W 23-2, W 24-2, W 27-3 Ex, W 30, W 32, W 34, W 36, KT 2, KT 5, KT 10, CS, LUT 3, DS 60, PL 20 A, PL 30 A, PL 40 A, PL 50 A, PL 80 A, P 250, C 110 |
| | BEF-KHS-KH1 | 2 022 726 | Clamp bracket rod mounting without attachment plate and mounting material |

¹⁾ Order no. includes bar support and mounting material.

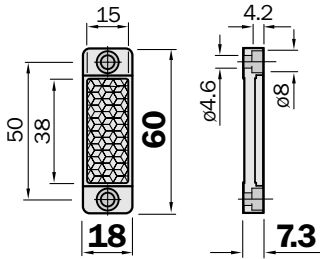
²⁾ Mounting plate does not contain threads; the sensor/reflector is mounted from the sensor-/reflector side with self-cutting screws.

Dimensional drawings and order information

Plastic design for temperatures up to 65 °C

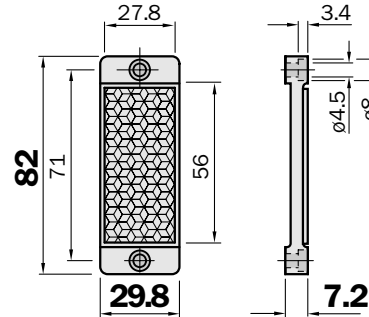
Reflector 20 x 40 mm²

| Type | Order no. |
|---------|-----------|
| PL 20 A | 1 012 719 |



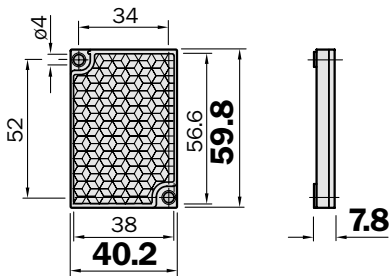
Reflector 30 x 50 mm²

| Type | Order no. |
|---------|-----------|
| PL 30 A | 1 002 314 |



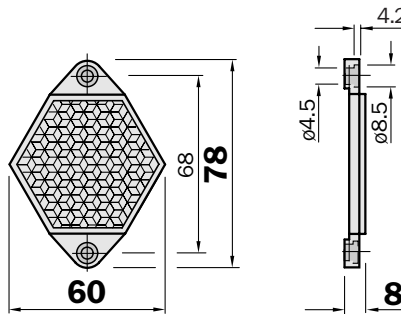
Reflector 40 x 60 mm²

| self-adhesive | |
|---------------|-----------|
| Type | Order no. |
| PL 40 A | 1 012 720 |



Reflector, 6-sided

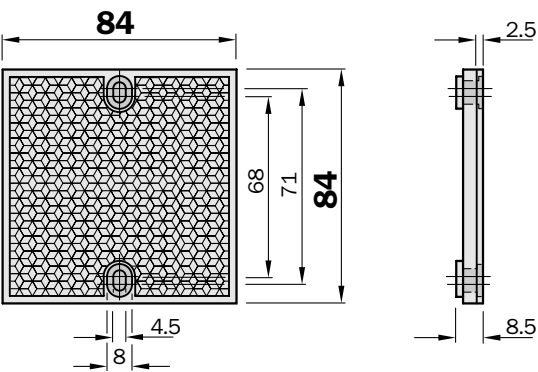
| width across flats 48 mm | |
|--------------------------|-----------|
| Type | Order no. |
| PL 50 A | 1 000 132 |



Also available with heating:
 Continuous heating: PL 50 HK,
 order no. 1 011 545
 Regulated heating: PL 50 HS,
 order no. 1 009 871

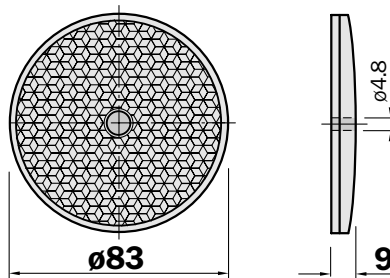
Reflector 80 x 80 mm²

| Type | Order no. |
|---------|-----------|
| PL 80 A | 1 003 865 |



Reflector ø 83 mm, centre hole mounting

| Type | Order no. |
|-------|-----------|
| C 110 | 5 304 549 |



Reflective tape „Diamond Grade“

| Type | Order no. | |
|----------|-----------|---------------------------------|
| REF-DG-K | 4 019 634 | Cut to size |
| REF-DG | 5 304 334 | Sheet 749 x 914 mm ² |



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