

# W 11: Economic and Reliable



Overview of the W 11 performance range:

- WL 11: The scanning range is 7 m,
- WT 11: With background suppression and a maximum scanning distance of 250 mm,
- WT 11 energetic: Maximum scanning distance of 1000 mm.

All W 11-2 models have red light transmitter diodes as a standard feature. The sensors can be aligned quickly and effectively on the object using the visible light spot. The 4-pin M 12 equipment plug or the 2 m cable are standard equipment in the same way as the 800 Hz switching frequency and the short-circuit protected switching outputs.

Typical uses include the packaging industry and the foodstuffs and semi-luxury goods industry, but the W 11 series is also very useful in the electronics and textile industries thanks to their reliability.

**T**


The essential market requirements for a sensor in standard applications are economy and reliability.

We are fulfilling these requirements with the W 11 series. The series are available for multifaceted jobs with the WL 11 photoelectric reflex switch, the WT 11 photoelectric proximity switch with adjustable background suppression, and the WT 11 energetic.

	<b>Photoelectric proximity switch HGA</b>
	<b>Photoelectric proximity switch ener.</b>
	<b>Photoelectric reflex switch</b>

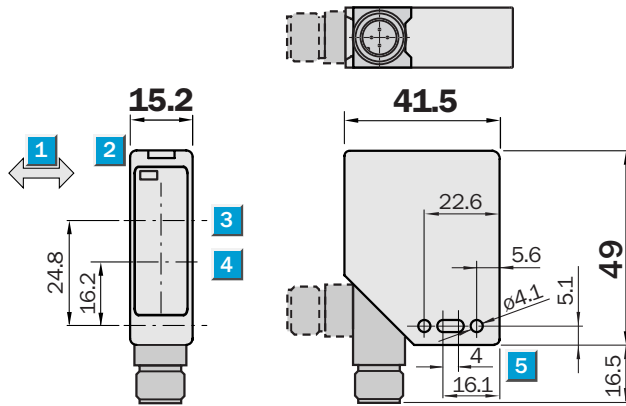


# WT 11 Photoelectric Proximity Switch, Background Suppression, Red Light – DC


**Scanning distance**  
 20 ... 250 mm  
 Photoelectric proximity switch

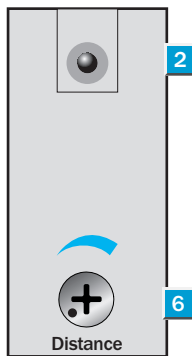
- Red light
- Insensitive to ambient light sources
- M 12 plug rotatable by 90° or 2 m cable
- Adjustable background suppression

## Dimension illustration



### Setting options

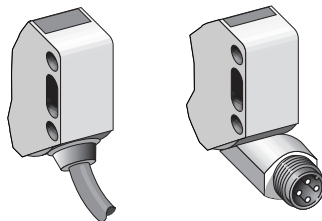
WT 11-P 430	WT 11-N 430
WT 11-P 130	WT 11-N 130



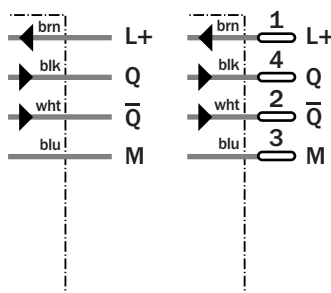
- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optic axis, receiver
- 4 Optic axis, sender
- 5 Mounting holes  $\varnothing$  4.1 mm
- 6 Scanning distance adjuster

### Connection type

WT 11-P 130	WT 11-N 430
WT 11-N 130	WT 11-P 430



4 x 0.25 mm<sup>2</sup>      4 pin, M 12



### Accessories

- Connectors
- Mounting systems

Technical data		WT 11-	P 430	P 130	N 430	N 130
<b>Scanning distance</b>	20 ... 250 mm, adjustable					
<b>Light source</b> <sup>1)</sup>	LED, red light					
Light spot diameter	10 mm at distance of 200 mm					
<b>Supply voltage</b> V <sub>S</sub>	DC 10 ... 30 V <sup>2)</sup>					
Ripple <sup>3)</sup>	≤ 5 V <sub>PP</sub>					
Current consumption <sup>4)</sup>	≤ 30 mA					
	≤ 40 mA					
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$					
	NPN, Q and $\bar{Q}$					
Output current I <sub>A</sub> max.	≤ 100 mA					
Response time <sup>5)</sup>	≤ 625 μs					
Switching frequency, max. <sup>6)</sup>	800/s					
<b>Connection type</b>	Cable <sup>7)</sup>					
	M 12 plug, 4 pin					
<b>VDE protection class</b> <sup>8)</sup>	□					
<b>Protection circuits</b> <sup>9)</sup>	A, B, C					
<b>Enclosure rating</b>	IP 65					
<b>Ambient temperature</b>	Operation - 20 °C ... + 60 °C					
	Storage - 20 °C ... + 75 °C					
<b>Weight</b>	With plug: 120 g					
	With cable: 200 g					
<b>Housing material</b>	Plastic, ABS					

<sup>1)</sup> Average service life 100.000 h where T<sub>U</sub> = + 25 °C

<sup>2)</sup> Limit values

<sup>3)</sup> Must be within V<sub>S</sub> tolerances

<sup>4)</sup> Without load

<sup>5)</sup> With resistive load

<sup>6)</sup> With light/dark ratio 1:1

<sup>7)</sup> 2 m long, PVC, 5 mm Ø, do not distort cable below 0 °C

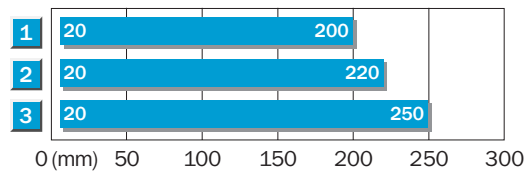
<sup>8)</sup> Withstand voltage 50 V

<sup>9)</sup> A = V<sub>S</sub>-connections reverse-polarity protected

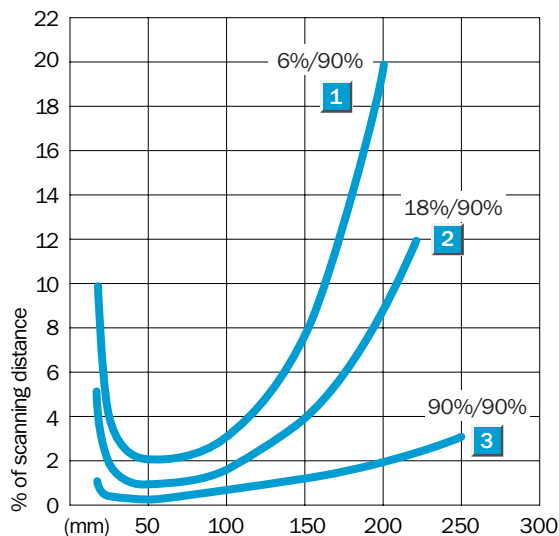
B = Output Q and  $\bar{Q}$  short-circuit protected

C = Interference pulse suppression

**Scanning distance**



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



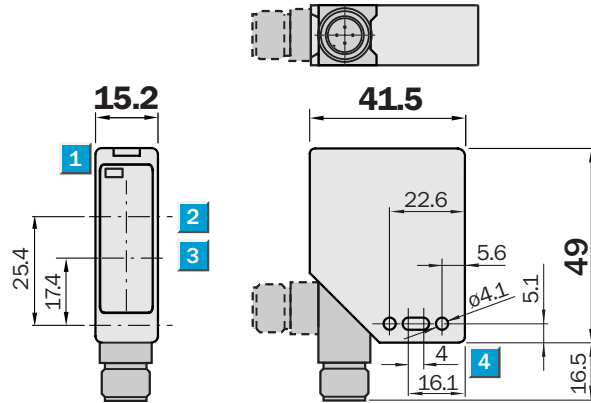
**Ordering information**

Type	Order no.
WT 11-P 430	1 018 511
WT 11-P 130	1 018 683
WT 11-N 430	1 018 685
WT 11-N 130	1 018 684

**Scanning distance**  
**80 ... 1000 mm**  
 Photoelectric proximity switch

- Red light
- Insensitive to ambient light sources
- M 12 plug rotatable by 90° or 2 m cable
- Energetic proximity switch, adjustable

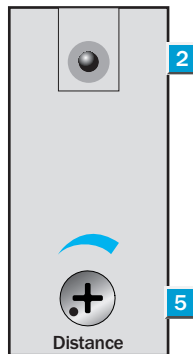
### Dimension illustration



### Setting options

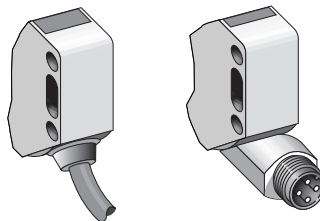
WT 11-P 450	WT 11-N 450
WT 11-P 150	WT 11-N 150

- 1 LED signal strength indicator
- 2 Optic axis, receiver
- 3 Optic axis, sender
- 4 Mounting holes  $\varnothing$  4.1 mm
- 5 Sensitivity control

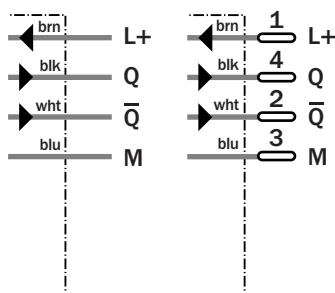


### Connection type

WT 11-P 150	WT 11-P 450
WT 11-N 150	WT 11-N 450



4 x 0.25 mm <sup>2</sup>	4 pin, M 12
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### Accessories

- Connectors
- Mounting systems

Technical data		WT 11-	P 450	P 150	N 450	N 150
<b>Scanning distance</b>	80 ... 1000 mm, adjustable					
<b>Light source</b> <sup>1)</sup>	LED, red light					
Light spot diameter	30 mm at distance of 600 mm					
<b>Supply voltage</b> $V_S$	10 ... 30 V DC <sup>2)</sup>					
Ripple <sup>3)</sup>	$\leq 5 V_{PP}$					
Current consumption <sup>4)</sup>	$\leq 30$ mA					
	$\leq 40$ mA					
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$					
	NPN, Q and $\bar{Q}$					
Output current $I_A$ max.	$\leq 100$ mA					
Response time <sup>5)</sup>	$\leq 625 \mu s$					
Switching frequency, max. <sup>6)</sup>	800/s					
<b>Connection type</b>	Cable <sup>7)</sup>					
	M 12 plug, 4 pin					
<b>VDE protection class</b> <sup>8)</sup>	<input type="checkbox"/>					
<b>Protection circuits</b> <sup>9)</sup>	A, B, C					
<b>Enclosure rating</b>	IP 65					
<b>Ambient temperature</b>	Operation $-20 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$					
	Storage $-20 \text{ }^\circ\text{C} \dots +75 \text{ }^\circ\text{C}$					
<b>Weight</b>	With plug 120 g					
	With cable 200 g					
<b>Housing material</b>	Plastic, ABS					

<sup>1)</sup> Average service life 100.000 h where  $T_U = +25 \text{ }^\circ\text{C}$

<sup>2)</sup> Limit values

<sup>3)</sup> Must be within  $V_S$  tolerances

<sup>4)</sup> Without load

<sup>5)</sup> With resistive load

<sup>6)</sup> With light/dark ratio 1:1

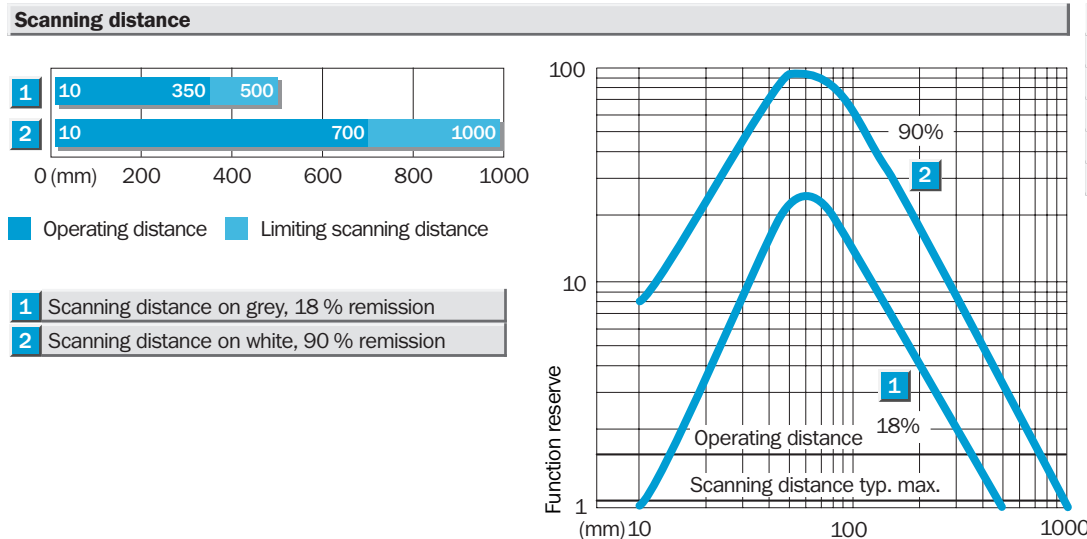
<sup>7)</sup> 2 m long, PVC, 5 mm  $\varnothing$ , do not distort cable below  $0 \text{ }^\circ\text{C}$

<sup>8)</sup> Withstand voltage 50 V

<sup>9)</sup> A =  $V_S$ -connections reverse-polarity protected


B = Output Q and  $\bar{Q}$  short-circuit protected

C = Interference pulse suppression



**Ordering information**

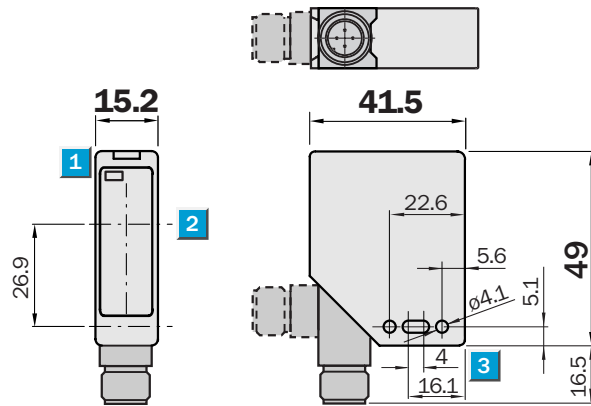
Type	Order no.
WT 11-P 450	1 018 687
WT 11-P 150	1 018 686
WT 11-N 450	1 018 689
WT 11-N 150	1 018 688


**Scanning range**  
**7 m**

Photoelectric reflex switch

- Red light
- Insensitive to ambient light sources
- M 12 plug rotatable by 90° or 2 m cable
- Energetic proximity switch, adjustable

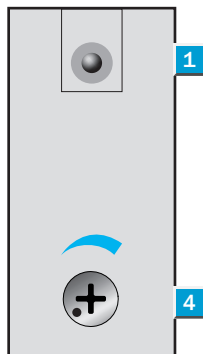
### Dimension illustration



### Setting options

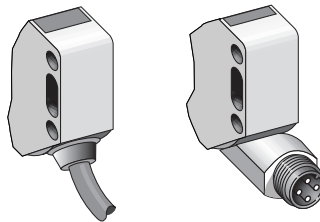
WL 11-P 430	WL 11-N 430
WL 11-P 130	WL 11-N 130
WL 11-P 420	WL 11-N 420
WL 11-P 120	WL 11-N 120

- 1 LED signal strength indicator
- 2 Middle of optic axis
- 3 Mounting holes  $\varnothing$  4.1 mm
- 4 Sensitivity control



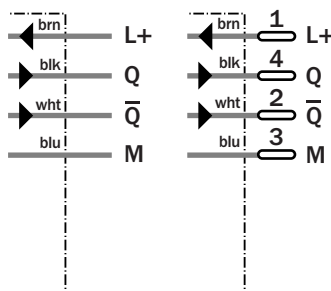
### Connection type

WL 11-P 130	WL 11-P 430
WL 11-N 130	WL 11-N 430



4 x 0.25 mm<sup>2</sup>

4 pin, M 12



### Accessories

- Connectors
- Mounting systems
- Reflectors

<b>Technical data</b>	WL 11-	P 430	P 130	N 430	N 130						
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**Scanning range**

typ. max./on Reflector, $f = \infty$	7 m/PL 80 A				
Sensitivity	Adjustable				
<b>Light source</b> <sup>1)</sup>	LED, red light				
Light spot diameter	80 mm at distance of 3 m				
<b>Supply voltage</b> $V_s$	10 ... 30 V DC <sup>2)</sup>				
Ripple <sup>3)</sup>	$\leq 5 V_{PP}$				
Current consumption <sup>4)</sup>	$\leq 30$ mA				
	$\leq 40$ mA				
<b>Switching outputs</b>	PNP, Q and $\bar{Q}$				
	NPN, Q and $\bar{Q}$				
Output current $I_A$ max.	100 mA				
Response time <sup>5)</sup>	$\leq 625 \mu s$				
Switching frequency, max. <sup>6)</sup>	800/s				
<b>Connection type</b>	Cable <sup>7)</sup>				
	M 12 plug, 4 pin				
<b>VDE protection class</b> <sup>8)</sup>	<input type="checkbox"/>				
<b>Protection circuits</b> <sup>9)</sup>	A, B, C				
<b>Enclosure rating</b>	IP 65				
<b>Ambient temperature</b>	Operation $-20 \text{ }^\circ\text{C} \dots +60 \text{ }^\circ\text{C}$				
	Storage $-20 \text{ }^\circ\text{C} \dots +75 \text{ }^\circ\text{C}$				
<b>Weight</b>	With plug 120 g				
	With cable 200 g				
<b>Polarising filter</b>					
<b>Housing material</b>	Plastic, ABS				

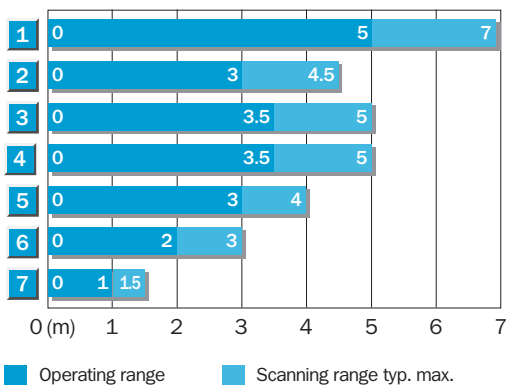
<sup>1)</sup> Average service life 100.000 h where  $T_U = +25 \text{ }^\circ\text{C}$   
<sup>2)</sup> Limit values  
<sup>3)</sup> Must be within  $V_s$  tolerances

<sup>4)</sup> Without load  
<sup>5)</sup> With resistive load  
<sup>6)</sup> With light/dark ratio 1:1

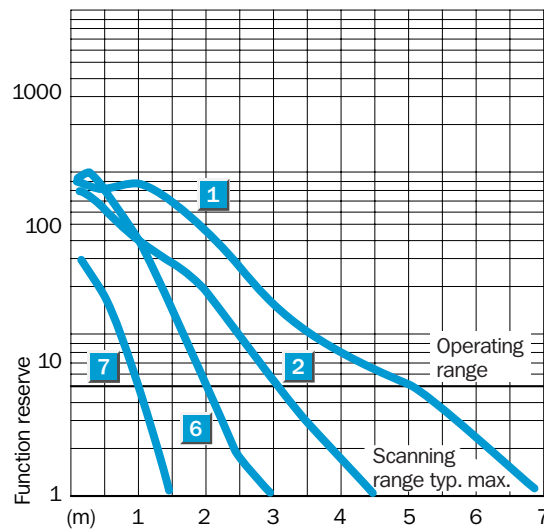
<sup>7)</sup> 2 m long, PVC, 5 mm  $\varnothing$ , do not distort cable below  $0 \text{ }^\circ\text{C}$   
<sup>8)</sup> Withstand voltage 50 V

<sup>9)</sup> A =  $V_s$ -connections reverse-polarity protected  
 B = Output Q and  $\bar{Q}$  short-circuit protected  
 C = Interference pulse suppression

**Operating range and function reserve**



Reflector type	Operating range
1 PL 80 A	0 – 5.0 m
2 C 110	0 – 3.0 m
3 PL 50 A	0 – 3.5 m
4 PL 40 A	0 – 3.5 m
5 PL 30 A	0 – 3.0 m
6 PL 20 A	0 – 2.0 m
7 Reflective tape	0 – 1.0 m



**Ordering information**

Type	Order no.
WL 11-P 430	1 018 510
WL 11-P 130	1 018 680
WL 11-N 430	1 018 682
WL 11-N 130	1 018 681

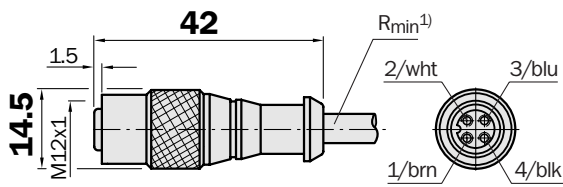
## Dimension illustrations and ordering information

### SENSICK circular screwing system M 12, 4 pin, enclosure rating IP 67

#### M 12 cable receptacles, 4 pin, straight

Cable diameter 5 mm, 4 x 0.25 mm<sup>2</sup>, PVC coating

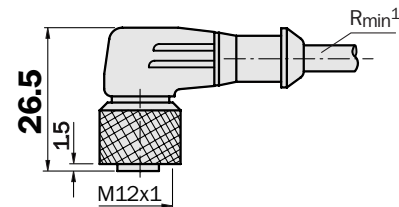
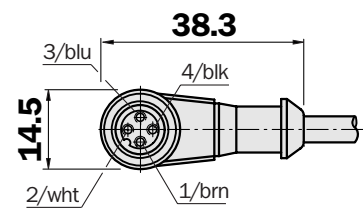
Type	Order no.	Pins	Cable length
DOL-1204-G02M	6 009 382	4	2 m
DOL-1204-G05M	6 009 866	4	5 m
DOL-1204-G10M	6 010 543	4	10 m
DOL-1204-G15M	6 010 753	4	15 m



#### M 12 cable receptacles, 4 pin, angled

Cable diameter 5 mm, 4 x 0.25 mm<sup>2</sup>, PVC coating

Type	Order no.	Pins	Cable length
DOL-1204-W02M	6 009 383	4	2 m
DOL-1204-W05M	6 009 867	4	5 m
DOL-1204-W10M	6 010 541	4	10 m

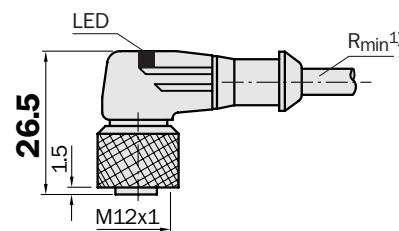
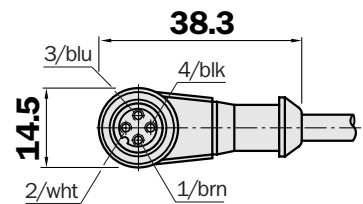


#### M 12 cable receptacles, 4 pin, angled

Cable diameter 5 mm, 4 x 0.34 mm<sup>2</sup>, PUR/PVC coating

With LED for power and status indicators, PNP complementary<sup>2)</sup>

Type	Order no.	Pins	Cable length
DOL-1204-W05ME	6 020 398	4	5 m



<sup>1)</sup> Minimum bending radius with dynamic use  
 $R_{min} = 20 \times \text{cable diameter}$

<sup>2)</sup> Remark: Not suitable for sender in through-beam systems



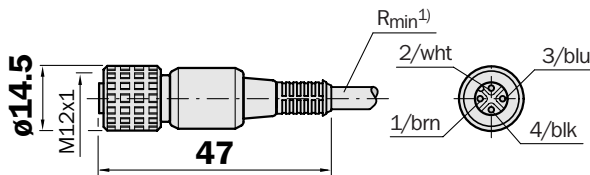
Dimension illustrations and ordering information

SENSICK circular screwing system M 12, 4 pin, enclosure rating IP 67

M 12 cable receptacles, 4 pin, straight

Cable diameter 4.5 mm, 4 x 0.34 mm<sup>2</sup>, PUR coating

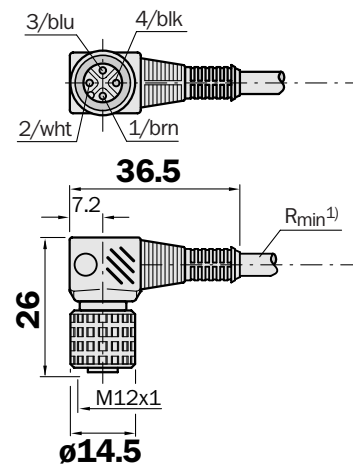
Type	Order no.	Cable length
DOL-1204-G05MB	7 902 084	5 m



M 12 cable receptacles, 4 pin, angled

Cable diameter 4.5 mm, 4 x 0.34 mm<sup>2</sup>, PUR coating

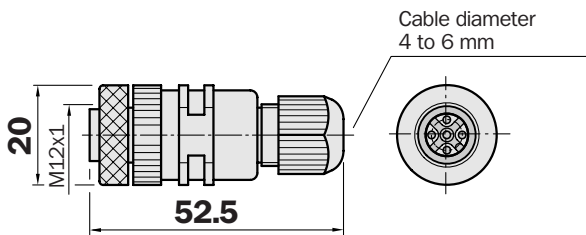
Type	Order no.	Cable length
DOL-1204-W05MB	7 902 085	5 m



<sup>1)</sup> Minimum bending radius with dynamic use  
 $R_{min} = 20 \times \text{cable diameter}$

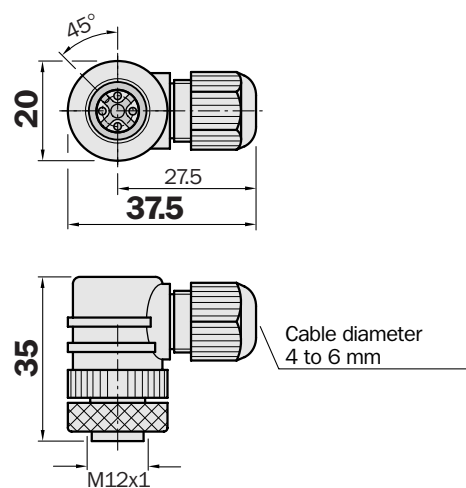
M 12 cable receptacles, 4 pin, straight

Type	Order no.	Pins
DOS-1204-G	6 007 302	4



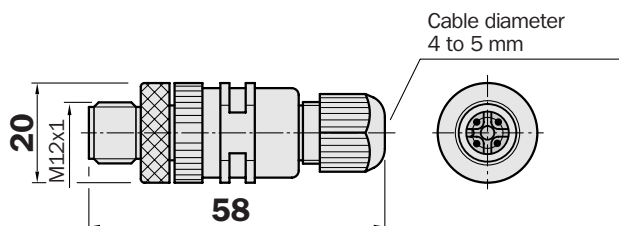
M 12 cable receptacles, 4 pin, angled

Type	Order no.	Pins
DOS-1204-W	6 007 303	4



M 12 cable plug, 4 pin, straight

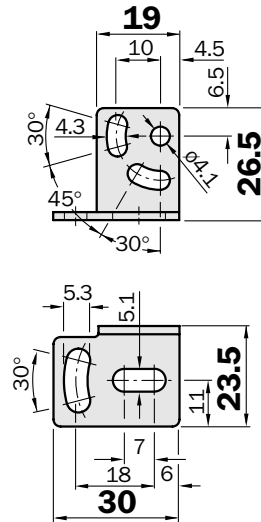
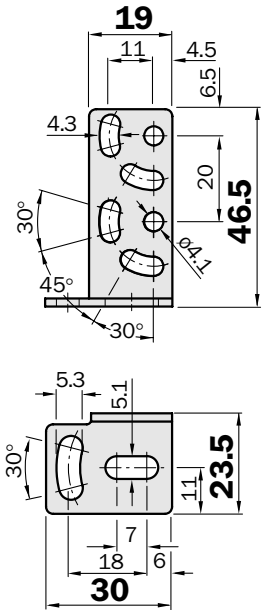
Type	Order no.
STE-1204-G	6 009 932



## Dimension illustrations and ordering information

Mounting brackets, big		
Type	Order no.	For equipment type
BEF-WG-W12	2 013 942	W 11, W 12-2, W 12L-2, KT 2

Mounting brackets, small		
Type	Order no.	For equipment type
BEF-WK-W12	2 012 938	W 11, W 12-2, W 12L-2, KT 2



## Universal bracket for rod mounting

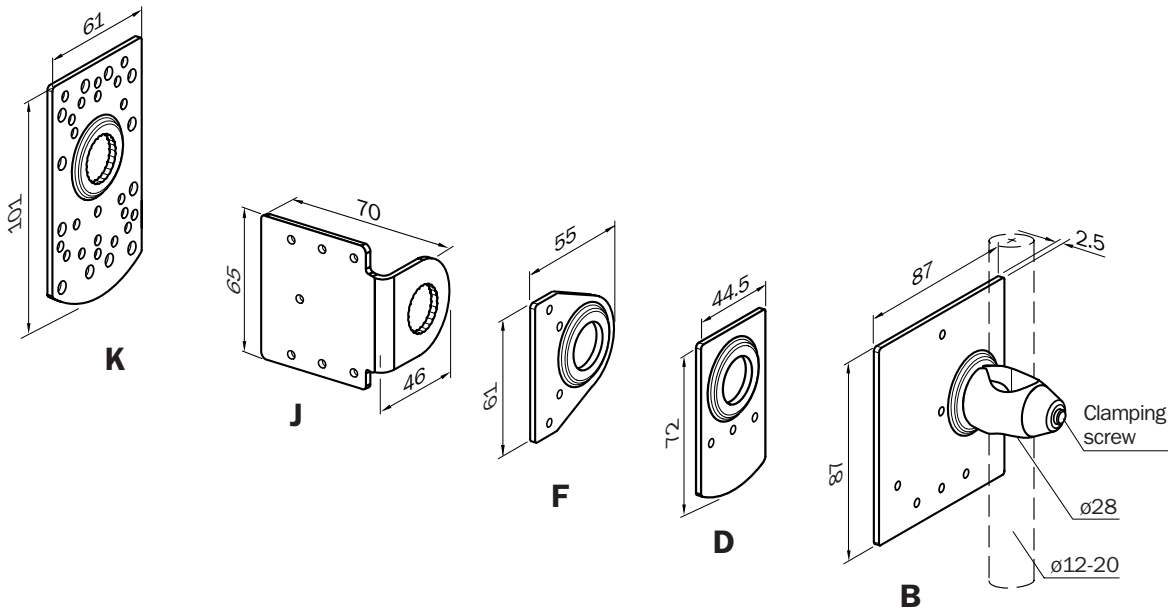


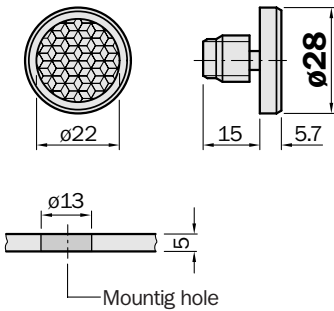
Plate	Type	Order no. <sup>1)</sup>	Sensors/reflectors
B	BEF-KHS-B01	2 022 459	P 250, PL 30 A, PL 40 A, PL 50 A, PL 80 A, C 110
D	BEF-KHS-D01	2 022 461	W 11, W 12-2, W 12L-2, KT 2
F	BEF-KHS-F01	2 022 463	W 260, PL 20 A, P 250
J	BEF-KHS-J01	2 022 719	PL 20 A, PL 40 A, PL 50 A, P 250, C 110
K	BEF-KHS-K01	2 022 718	W 11, W 12-2, W 12L-2, W 14, W 18-2, W 23, W 24-2, W 27-2, 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

<sup>1)</sup> Universal bracket and mounting screws included

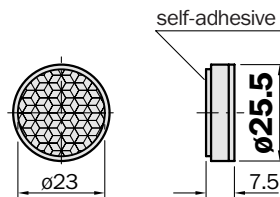
Dimension illustrations and ordering information

Plastic model for temperatures up to 65 °C

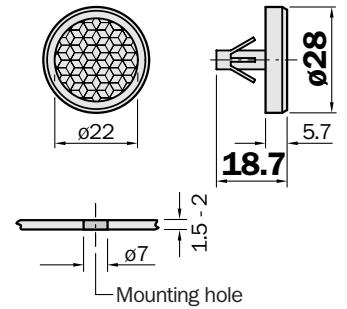
Reflector, $\phi$ 22 mm, pluggable	
Type	Order no.
PL 22-1	1 003 546



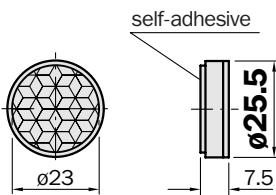
Reflector, $\phi$ 23 mm, self-adhesive	
Type	Order no.
PL 22-2	1 003 621



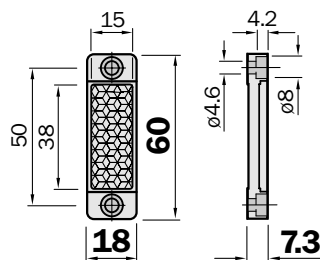
Reflector, $\phi$ 22 mm Pluggable for orifice	
Type	Order no.
PL 22-3	1 004 488



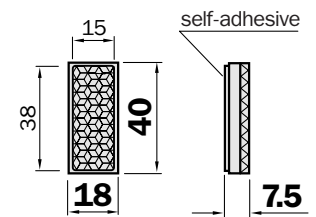
Reflector, $\phi$ 23 mm, self-adhesive	
Type	Order no.
PL 26	1 001 440



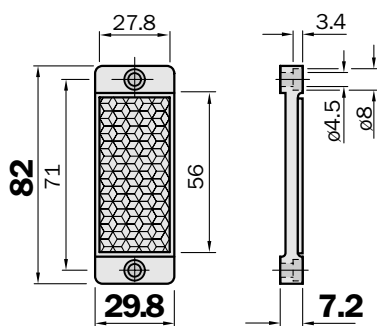
Reflector 20 x 40 mm	
Type	Order no.
PL 20 A	1 012 719



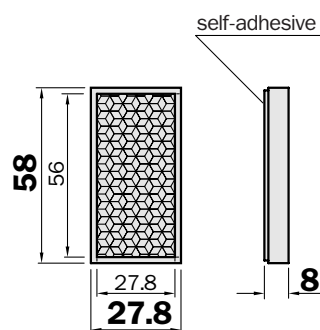
Reflector 20 x 40 mm self-adhesive	
Type	Order no.
PL 21 A	1 015 172



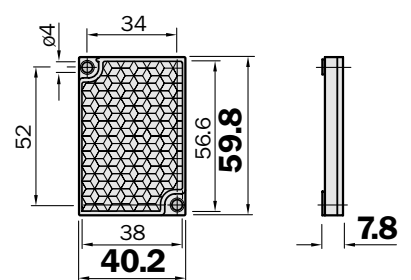
Reflector 30 x 50 mm	
Type	Order no.
PL 30 A	1 002 314



Reflector 30 x 50 mm self-adhesive	
Type	Order no.
PL 31 A	1 002 315



Reflector 40 x 60 mm self-adhesive	
Type	Order no.
PL 40 A	1 012 720



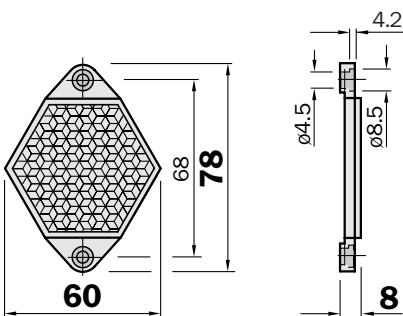
Dimension illustrations and ordering information

Plastic model for temperatures up to 65 °C

Reflector, hexagonal

Opening width 48 mm

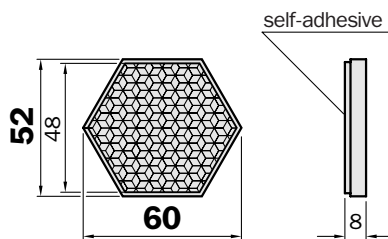
Type	Order no.
PL 50 A	1 000 132



Reflector, hexagonal, self-adhesive

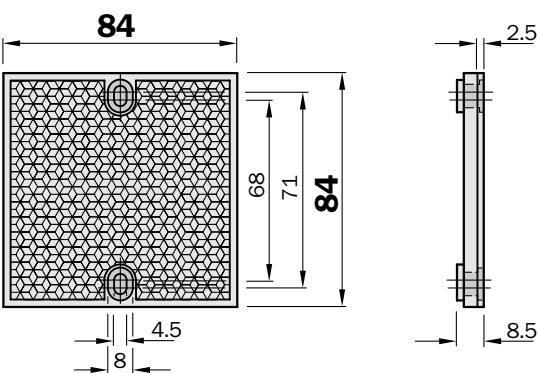
Opening width 48 mm

Type	Order no.
PL 51 A	1 001 628



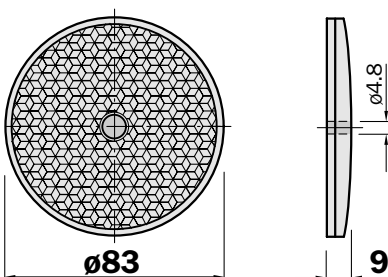
Reflector 80 x 80

Type	Order no.
PL 80 A	1 003 865



Reflector, ø 83 mm, center hole mounting

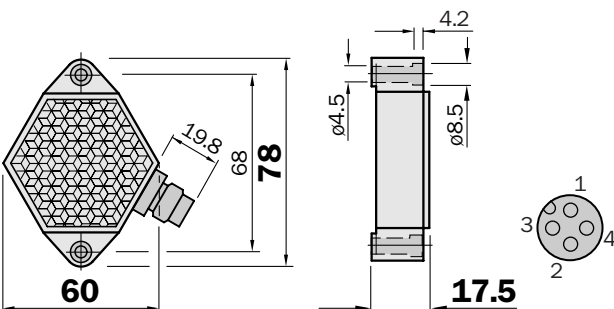
Type	Order no.
C 110	5 304 549



Heatable reflectors, 24 V UC; 1.4 W

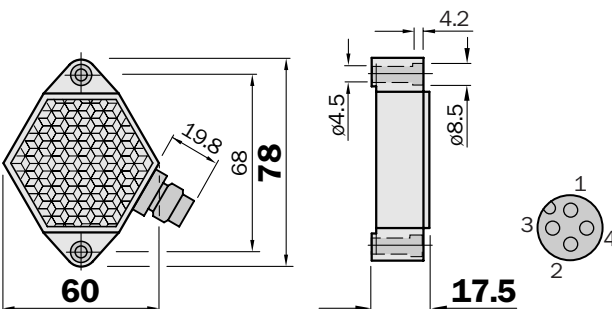
Reflector, hexagonal, opening width 48 mm, permanent heating

Type	Order no.
PL 50 HK	1 011 545



Reflector, hexagonal, opening width 48 mm, controlled heating

Type	Order no.
PL 50 HS	1 009 871



Dimension illustrations and ordering information

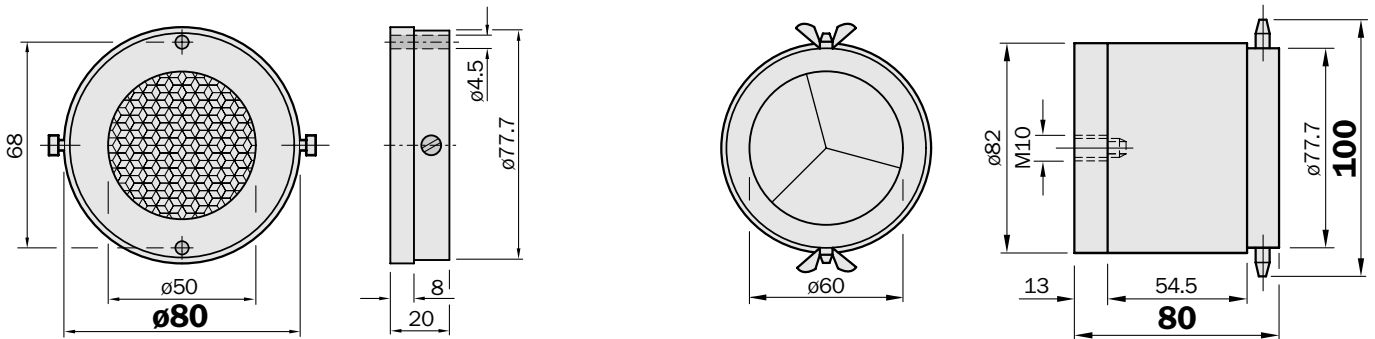
Reflectors with triple glass for temperatures up to 300 °C

Reflector,  $\phi$  50 mm

Type	Order no.
SW 50	1 000 131

Reflector/triple glass,  $\phi$  60 mm, high-temperature resistant sealings

Type	Order no.
OP 61- $\infty$	1 002 627



Self-adhesive reflective tape for photoelectric switches with polarizing filter

Reflective tape APM

Arc 225 x 225 mm

Type	Order no.
REF-APM	4 025 097

Reflective tape

Arc 749 x 914 mm

Type	Order no.
REF-DG	5 304 334

Reflective tape REF-DG

Ready-made

Type	Order no.
REF-DG-K	4 019 634



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**SICK**