

# W 260 Series Standard Photoelectric Switches for a Wide Range of Applications



- Low voltage 10 to 30 V DC with PNP or NPN transistor-switch output and test input
- Multiple voltage 12 to 24 V DC and 24 to 240 V AC with potential-free relay contact and adjustable time phases.

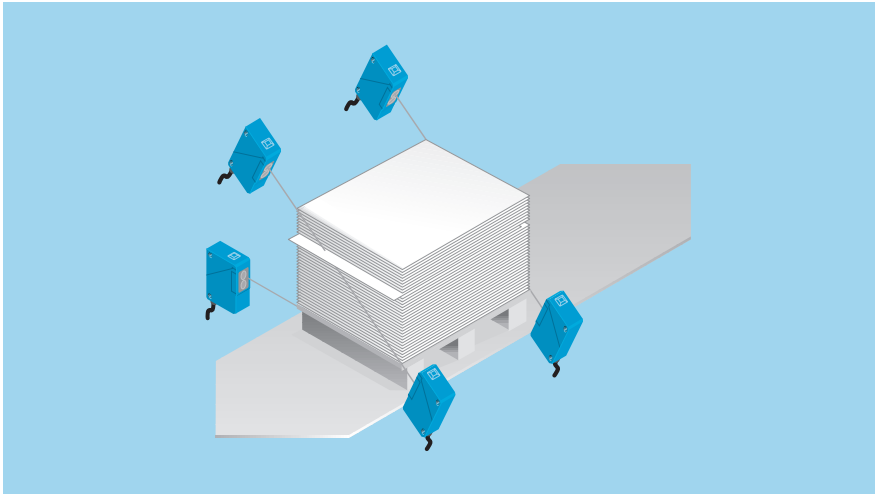
User-friendly details such as visible red transmission light for alignment, simple and flexible connection technology, glass and stainless steel jacketed fiber-optic cable types for difficult conditions and variable additional functions widen its range of possible uses well beyond storage and conveyor systems, packaging systems or wood processing. All types have UL and CSA approval.

Another highlight of the W 260 is its compliance with the standard EN 500081-1 (interference radiation) This makes it the ideal sensor solution for door and gate control systems in basement garages and entries to residential blocks or hotels.

The W 260 series with its powerful range and attractive features was designed with the widest possible spectrum of applications. All basic optical functions are available. In general, the especially excellent features are the large scanning ranges and the photoelectric proximity switch with 2 m scanning distance, background suppression and Teach-in. They are designed to be compact in sturdy plastic housing. They are simple and user-friendly to handle. Two different supply voltages are available:

	<b>Photoelectric proximity switches, HGA</b>
	<b>Photoelectric proximity switches, energetic</b>
	<b>Photoelectric reflex switch</b>
	<b>Through-beam photoelectric switches</b>
	<b>Photoelectric fiber-optic switches (proximity)</b>
	<b>Photoelectric fiber-optic switches (through-beam)</b>

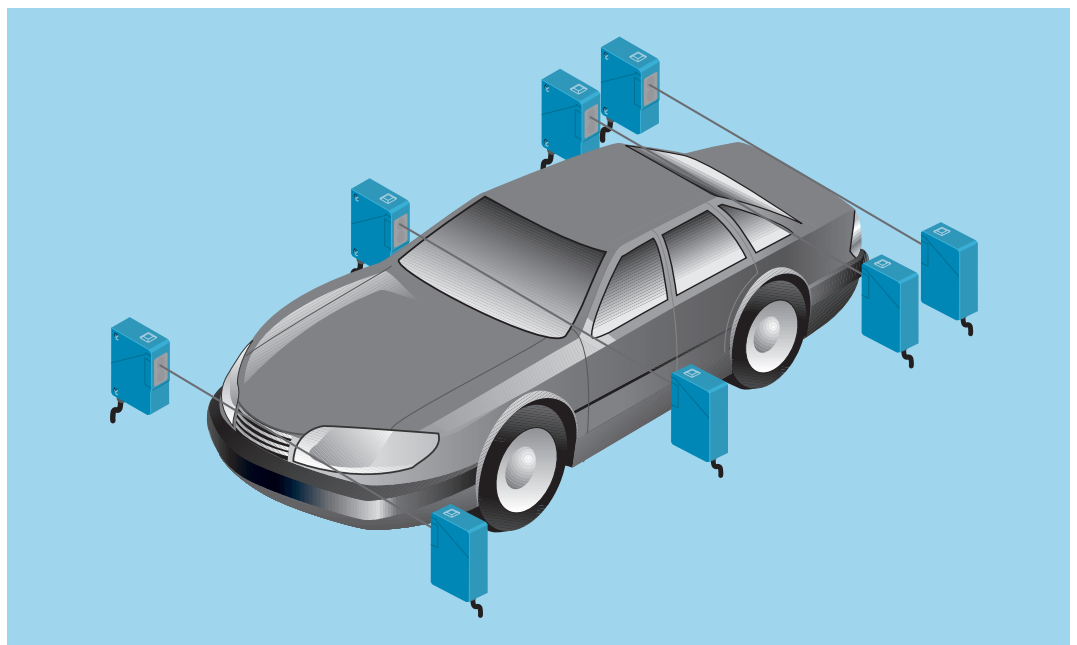
► WS/WE 260 through-beam photoelectric switches and WT 260 photoelectric proximity switches used for monitoring contours in palletisation systems to ensure that no problems are encountered during packaging.



▼ A WT 260 photoelectric proximity switch controlling a commissioning system used in the wood-working industry.

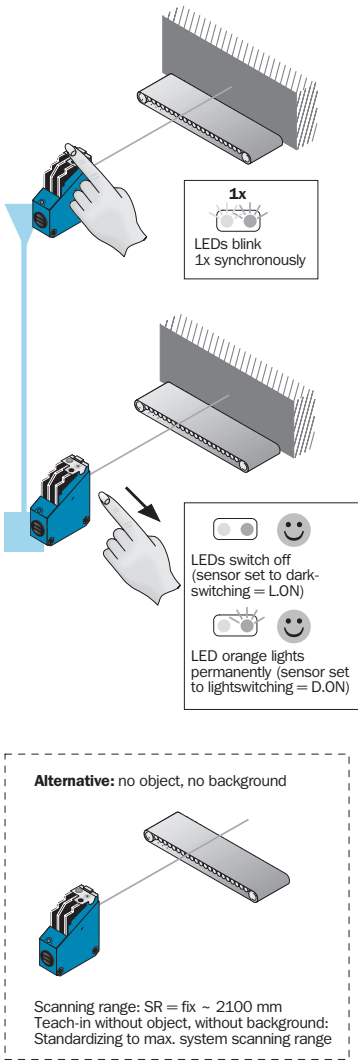


▲ CE conformity to EN 50081-1 and, therefore, the right choice for residential and commercial applications: the WL 260 photoelectric reflex switch used to monitor the closing edges in automatic door and gate systems.

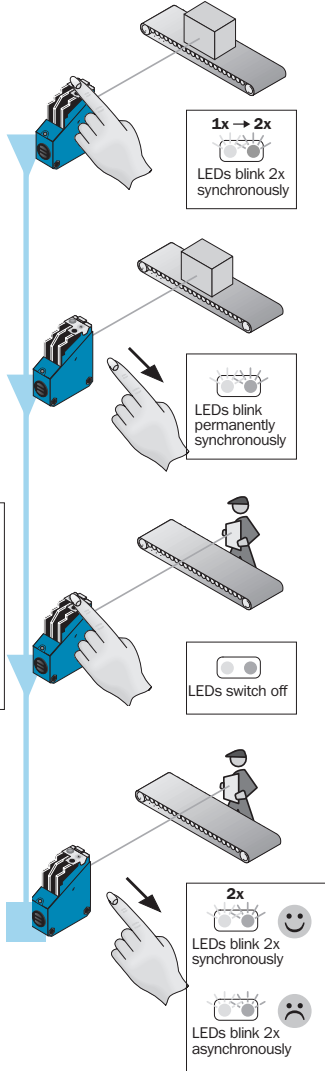


▲ WS/WE 260 through-beam photoelectric switches used for detecting the outline of vehicle bodies on assembly lines in the automotive industry.

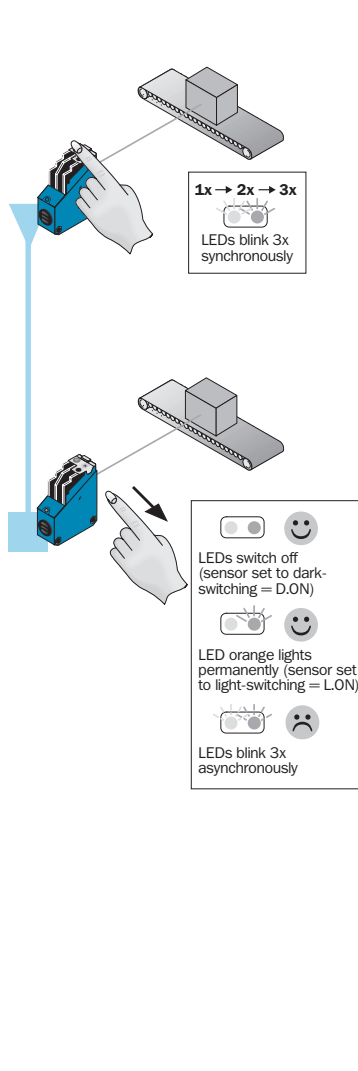
**Small transition area (1-Point Teach-in)**



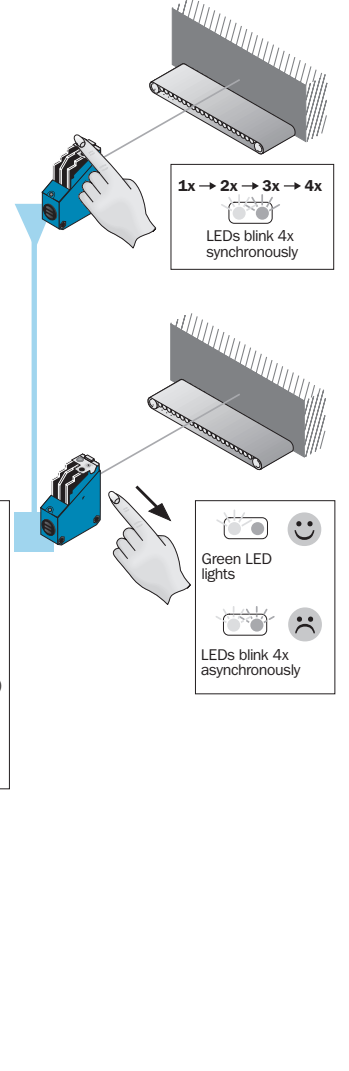
**Large function reserve (2-Point Teach-in)**



**Precise positioning (position Teach-in)**



**Foreground suppression Teach-in**



$SR = \sim 95\% \text{ of } A = C$

Background is suppressed

- No influence due to objects in background
- Scanning range setting only with background
- Distance scanning range to background very small
- Ideal for standard applications

$SR = C + \frac{1}{2} (A - C)$

The scanning range SR aligns to the middle between the two Teach-in points, e.g., C = object surface and A = background

- Maximum operating reliability
- Ideal if object and background are available for Teach-in
- Largest function reserve

$SR = C$

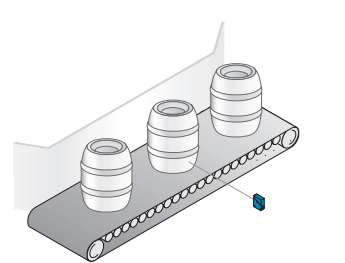
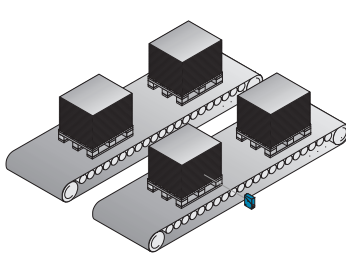
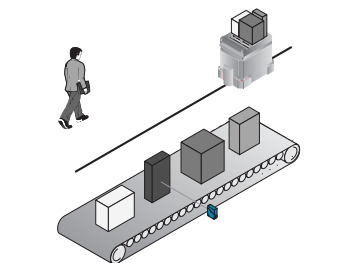
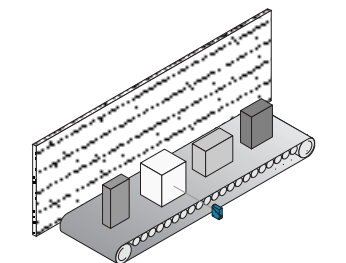
Object is detected *precisely*


- No influence from remote objects
- Scanning range setting only with object
- Scanning range exact, i.e., objects are detected in the taught-in position
- Ideal for positioning tasks and queries or when background is unknown

$SR = C$   
Detection range = A

Condition: With "dark-switching" setting "D.ON" WT 260T. Teached background is permanently stored

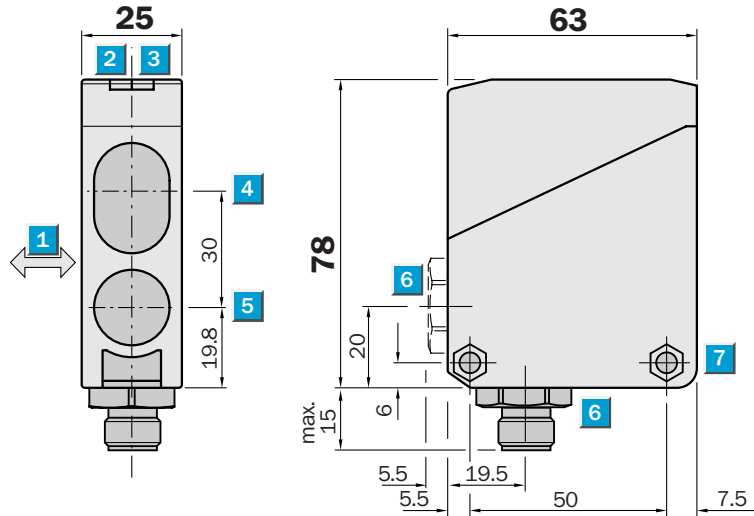
- Sensor is precisely aligned to background ± tolerance
- Consequently, shiny/structured (problem) surfaces are not "detected"
- Ideal if shiny, reflecting or extrem dark objects are well detected




**Scanning distance**  
 0.07...2.1 m  
**Photoelectric proximity switch**

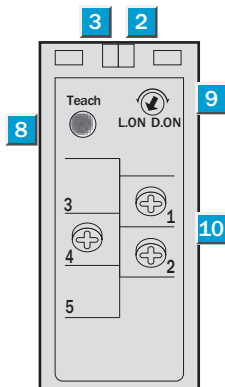
- Scanning distance setting per Teach-in button
- Background suppression: Reliable detection of dark objects even against light backgrounds
- Terminal chamber or M 12 plug, 4 pin
- LED signal indicator green: Operating reserve/Pre-failure display

**Dimension illustration**



**Setting options**

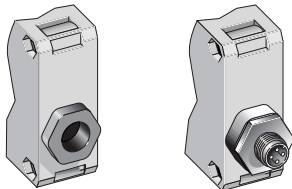
WT 260T-P 290
WT 260T-P 490
WT 260T-N 290
WT 260T-N 490



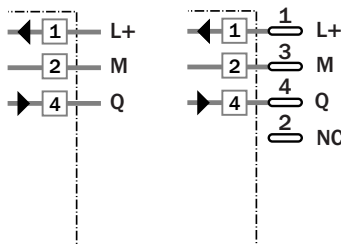
- 1 Standard direction of material being scanned
- 2 LED signal indicator orange, switching output active
- 3 LED signal indicator green, operating reserve
- 4 Middle of optic axis, receiver
- 5 Middle of optic axis, sender
- 6 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug bottom (4 pin)
- 7 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 8 Teach-in button (scanning distance setting/ background suppression)
- 9 Light/dark-switching (L.ON = light-switching, D.ON = dark-switching)
- 10 Terminals

**Connection type**

WT 260T-P 290	WT 260T-P 490
WT 260T-N 290	WT 260T-N 490



Terminals 4 pin, M 12

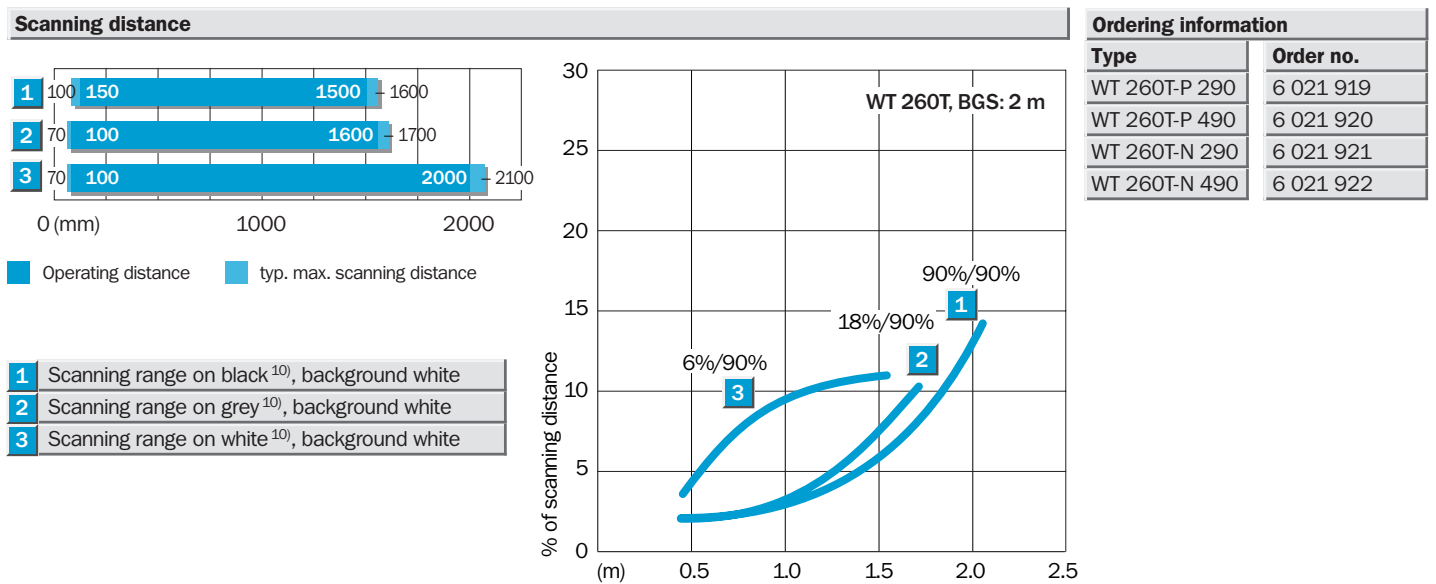



**Accessories**

- Mounting bracket, included
- M 12 cable receptacle

Technical data		WT 260T-	P 290	P 490	N 290	N 490						
<b>Scanning distance, typ. max.</b>	70 mm ... 2100 mm <sup>1)</sup>											
Recommended operating scanning dist.	100 mm ... 2000 mm <sup>1)</sup>											
Scanning distance setting	automatic, per Teach-in button											
<b>Light source</b> <sup>2)</sup>	LED, infrared											
Light spot diameter	Approx. 200 mm at a distance of 2000 mm											
Aperture angle sender	Approx. 6°											
<b>Supply voltage V<sub>s</sub></b>	10 ... 30 V DC <sup>3)</sup>											
Ripple <sup>4)</sup>	≤ 10 % <sup>4)</sup>											
Current consumption <sup>5)</sup>	≤ 55 mA											
<b>Switching outputs</b>	PNP, open collector: Q NPN, open collector: Q											
Output current I <sub>A</sub> max.	100 mA											
Light receiver, switching mode	Light/dark-switching by rotary switch											
Response time <sup>6)</sup>	≤ 5 ms											
Switching frequency max. <sup>7)</sup>	100/s											
<b>Type of connection</b>	Terminal chamber M 12 equipment plug, 4 pin											
<b>VDE protection class</b> <sup>8)</sup>	□											
<b>Circuit protection</b> <sup>9)</sup>	A, B, C, D											
<b>Enclosure rating</b>	IP 67											
<b>Ambient temperature</b>	Operating - 25 °C ... + 55 °C Storage - 40 °C ... + 70 °C											
<b>Weight</b>	Approx. 120 g											
<b>Material</b>	Housing: ABS; Optics: PMMA											

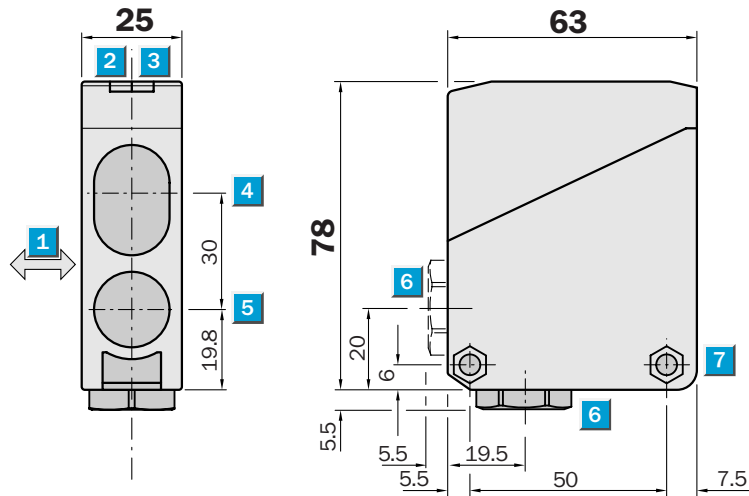
1) Object with 90% reflectance (referred to standard white DIN 5033)  
 2) Average service life 100 000 h at T<sub>U</sub> = +25 °C  
 3) Limit values  
 4) Must be within V<sub>s</sub> tolerances  
 5) Without load  
 6) With resistive load  
 7) With light/dark ratio 1:1  
 8) Withstand voltage 50 V DC  
 9) A = V<sub>s</sub> connections reverse-polarity protected  
 B = Outputs Q and Q̄ reverse-polarity protected  
 C = Interference suppression  
 D = Outputs overcurrent and short-circuit protected  
 10) Black = 6 % reflectance  
 Grey = 18 % reflectance  
 White = 90 % reflectance




**Scanning distance**  
**0.07...2.1 m**  
 Photoelectric proximity switch

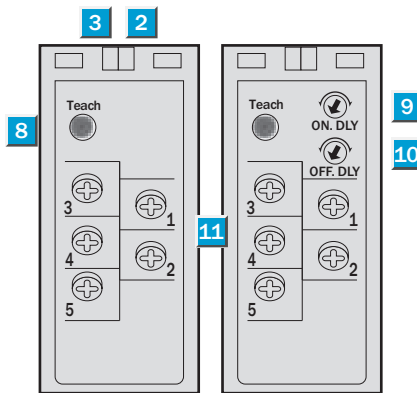
- Scanning distance setting per Teach-in button
- Background suppression: Reliable detection of dark objects even against light backgrounds
- Terminal chamber
- Universal voltage supply, relay output, SP, timer optional,  $t_{ON}$  and  $t_{OFF}$  can be connected separately

**Dimension illustration**



**Setting options**

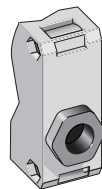
WT 260T-S 290    WT 260T-R 290



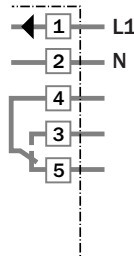
- 1 Standard direction of material being scanned
- 2 LED signal indicator orange, switching output active
- 3 LED signal indicator green, operating reserve
- 4 Middle of optic axis, receiver
- 5 Middle of optic axis, sender
- 6 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear;
- 7 Through hole  $\varnothing$  5.2 mm on both sides for M 5 hex nut
- 8 Teach-in button (scanning distance setting/background suppression)
- 9 Time control ON delay  $t_{ON}$
- 10 Time control OFF delay  $t_{OFF}$
- 11 Terminals

**Connection type**

WT 260T-S 290  
WT 260T-R 290

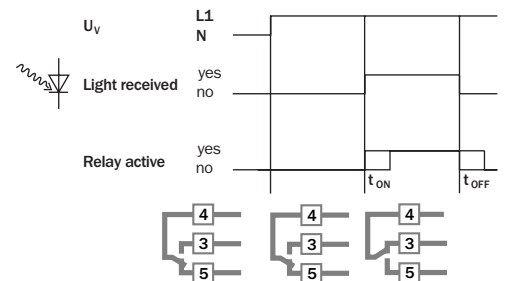


**Terminals**



**Time delay**

$t = 0.1-10 \text{ s}$

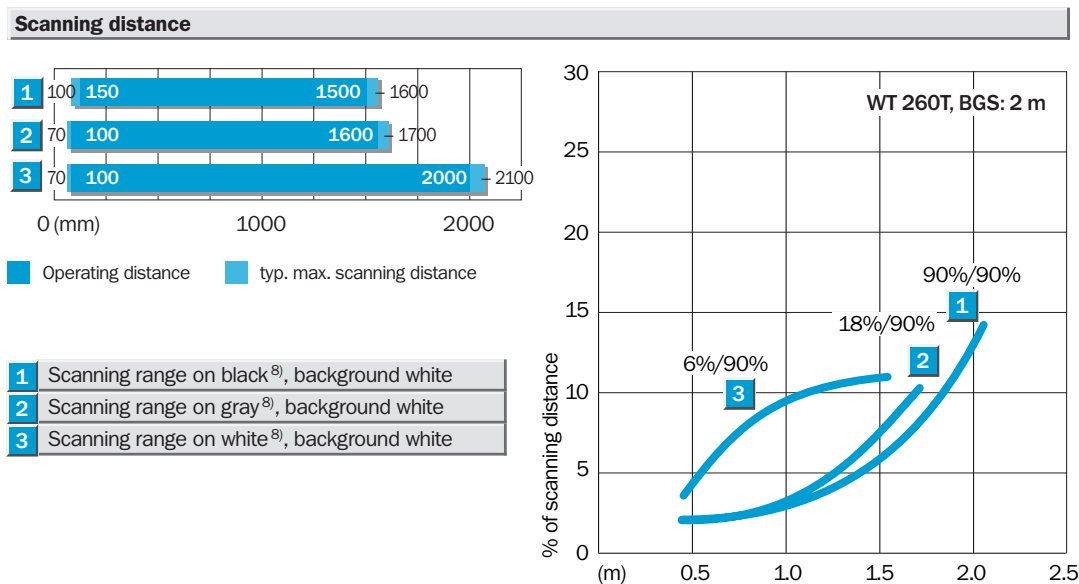


**Accessories**

Mounting bracket, included  
M 12 cable receptacle


Technical data		WT 260T-	S 290	R 290								
<b>Scanning distance , typ. max.</b>	70 mm ... 2100 mm <sup>1)</sup>											
Recommended operating scanning dist.	100 mm ... 2000 mm <sup>1)</sup>											
Scanning distance	automatic, per Teach-in button											
<b>Light source<sup>2)</sup></b>	LED, infrared											
Light spot diameter	Approx. 200 mm at a distance of 2000 mm											
Aperture angle sender	Approx. 6°											
<b>Supply voltage V<sub>s</sub><sup>3)</sup></b>	12 to 240 V DC											
	24 to 240 V UC											
Power consumption	≤ 5 VA											
<b>Switching outputs</b>	Relay, SP, electrically isolated											
Switching current I max. <sup>4)</sup>	3 A/240 V AC; 3 A/30 V DC											
Light receiver, switching mode	light-switching											
Response time	≤ 20 ms; 25/s											
Switching frequency max. <sup>5)</sup>	25/s											
<b>Time delay</b>												
ON delay t <sub>ON</sub>	0.1 ... 10 s, can be connected separately											
OFF delay t <sub>OFF</sub>	0.1 ... 10 s, can be connected separately											
<b>Type of connection</b>	Terminal chamber											
<b>VDE protection class<sup>6)</sup></b>	<input type="checkbox"/>											
<b>Circuit protectio<sup>7)</sup></b>	A, C											
<b>Enclosure rating</b>	IP 67											
<b>Ambient temperature</b>	Operation -25 °C to +55 °C											
	Storage -40 °C to +70 °C											
<b>Weight</b>	Approx. 120 g											
<b>Material</b>	Housing: ABS; Optics: PMMA											

<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)  
<sup>2)</sup> Average service life 100.000 h at T<sub>U</sub> = +25 °C  
<sup>3)</sup> ± 10 %  
<sup>4)</sup> Provide suitable spark suppression for inductive or capacitive loads  
<sup>5)</sup> With light/dark ratio 1:1  
<sup>6)</sup> Withstand voltage 250 V UC  
<sup>7)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
 C = Interference suppression  
<sup>8)</sup> Black = 6 % reflectance  
 Grey = 18 % reflectance  
 White = 90 % reflectance



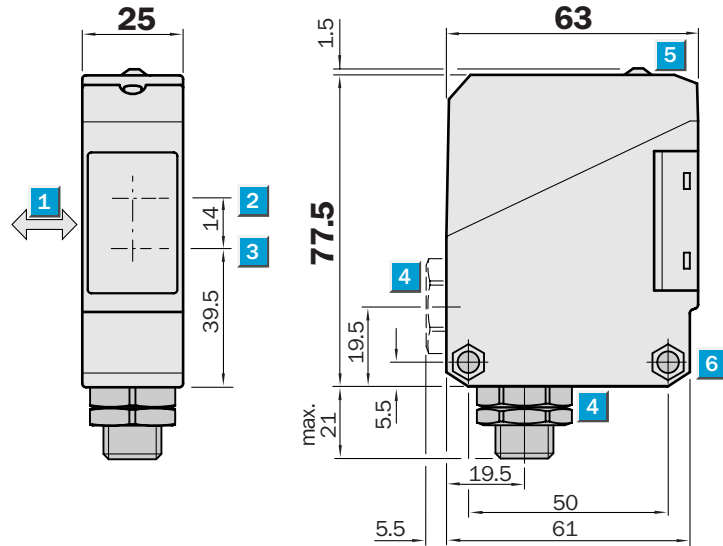
### Ordering information

Type	Order no.
WT 260T-S 290	6 021 923
WT 260T-R 290	6 021 924


**Scanning distance**  
**0...380 mm**  
 Photoelectric proximity switch

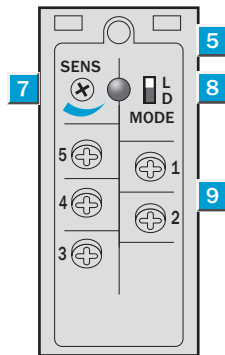
- Reliable detection of dark objects even against light backgrounds
- Scanning distance steplessly adjustable
- Terminal chamber or M 12 plug, 4 pin or 5 pin
- Test input
- VMA contamination signaling output

**Dimension illustration**



**Setting options**

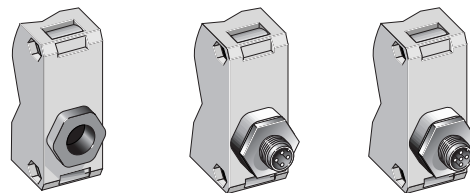
- WT 260-P 260
- WT 260-P 460
- WT 260-P 560
- WT 260-N 260



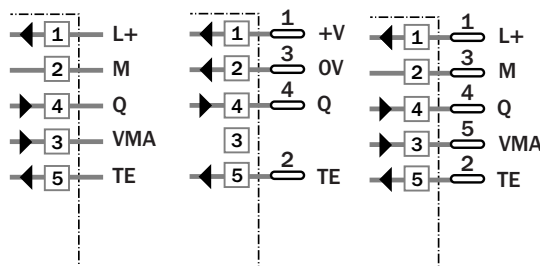
- 1 Standard direction of material being scanned
- 2 Middle optic axis, receiver
- 3 Middle optic axis, sender
- 4 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
- 5 LED signal strength indicator, red
- 6 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 7 Scanning distance control
- 8 Light/dark rotary switch  
L.ON = light-switching, D.ON = dark-switching
- 9 Terminals

**Connection type**

- WT 260-P 260
- WT 260-P 460
- WT 260-P 560
- WT 260-N 260



- Terminals
- 4 pin, M 12
- 5 pin, M 12



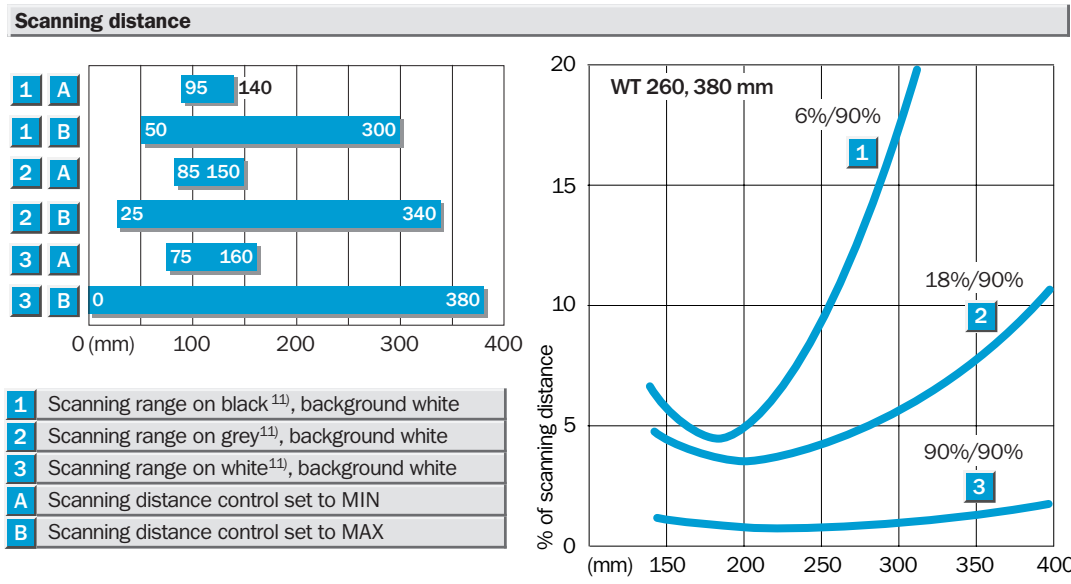
**Accessories**

- Mounting bracket, included
- M 12 cable receptacle



Technische Daten		WT 260-	P 260	P 460	P 560	N 260					
<b>Scanning distance</b>	Max.: 0 ... 380 mm, adjustable <sup>1)</sup>										
	Min.: 75 ... 160 mm, adjustable <sup>1)</sup>										
Sensitivity	Adjustable, potentiometer 270°										
<b>Light source <sup>2)</sup></b>	LED, infrared										
Light spot diameter	Approx. 17 mm at a distance of 300 mm										
Aperture angle sender	Approx. 1,5°										
<b>Supply voltage V<sub>s</sub></b>	10 to 30 VDC <sup>3)</sup>										
Ripple <sup>4)</sup>	≤ 5 V <sub>PP</sub>										
Current consumption <sup>5)</sup>	≤ 35 mA										
<b>Switching outputs</b>	PNP, open collector: Q										
	NPN, open collector: Q										
Output current I <sub>A</sub> max.	100 mA										
Light receiver, switching mode	Light/dark-switching by rotary switch										
Response time <sup>6)</sup>	≤ 2 ms										
Switching frequency max. <sup>7)</sup>	100/s										
Contamination signaling output VMA <sup>8)</sup>	100 mA, static										
<b>Test input »TE« sender off</b>	PNP: TE to + V <sub>s</sub>										
	NPN: TE to 0 V										
<b>Type of connection</b>	Terminal chamber										
	M 12 equipment plug, 4 pin										
	M 12 equipment plug, 5 pin										
<b>VDE protection class <sup>9)</sup></b>	□										
<b>Circuit protection <sup>10)</sup></b>	A, B, C, D										
<b>Enclosure rating</b>	IP 66										
<b>Ambient temperature</b>	Operating -25 °C to +55 °C										
	Storage -40 °C to +70 °C										
<b>Weight</b>	Approx. 120 g										
<b>Material</b>	Housing: ABS; Optic: PC										


- <sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)
- <sup>2)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C
- <sup>3)</sup> Limit values
- <sup>4)</sup> Must be within V<sub>s</sub> tolerances
- <sup>5)</sup> Without load
- <sup>6)</sup> With resistive load
- <sup>7)</sup> With light/dark ratio 1:1
- <sup>8)</sup> Operating reserve < 50 %
- <sup>9)</sup> Withstand voltage 50 V DC
- <sup>10)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
 B = Inputs/outputs reverse-polarity protected  
 C = Interference suppression  
 D = Outputs overcurrent and short-circuit protected
- <sup>11)</sup> Black = 6 % reflectance  
 Grey = 18 % reflectance  
 White = 90 % reflectance



**Ordering information**

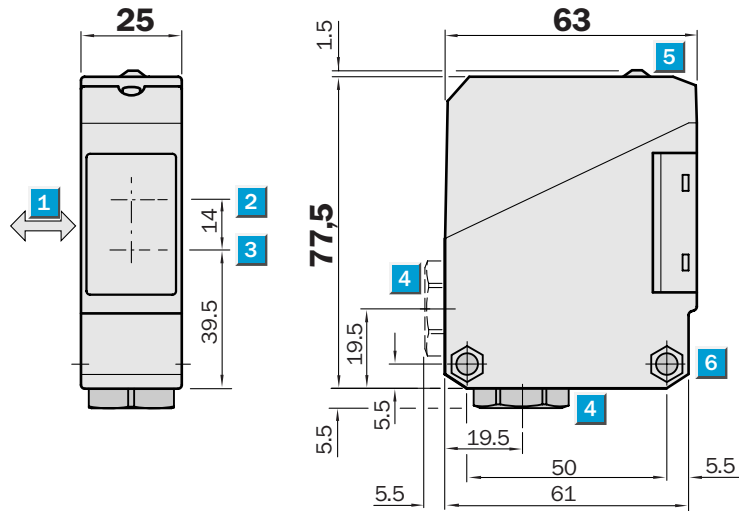
Type	Order no.
WT 260-P 260	6 009 471
WT 260-P 460	1 011 540
WT 260-P 560	1 011 541
WT 260-N 260	6 009 470

- 1 Scanning range on black <sup>11)</sup>, background white
- 2 Scanning range on grey <sup>11)</sup>, background white
- 3 Scanning range on white <sup>11)</sup>, background white
- A Scanning distance control set to MIN
- B Scanning distance control set to MAX


**Scanning distance**  
 0...380 mm  
 Photoelectric proximity switch

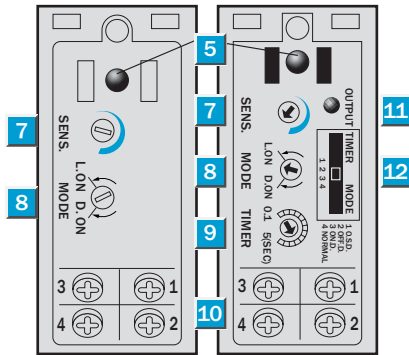
- Reliable detection of dark objects even against light backgrounds
- Scanning distance steplessly adjustable
- Terminal chamber
- Universal voltage supply, relay output 1 x a, Timer optional

**Dimension illustration**



**Setting options**

WT 260-S 260      WT 260-R 260

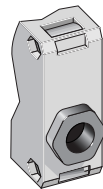


- 1 Standard direction of material being scanned
- 2 Middle of optic axis, receiver
- 3 Middle of optic axis, sender
- 4 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear;
- 5 LED signal strength indicator, red
- 6 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 7 Scanning distance control
- 8 Light/dark rotary switch  
L.ON = light-switching, D.ON = dark-switching
- 9 Time range control
- 10 Terminals
- 11 Red LED status indicator; switching output active
- 12 Time delay selector switch  
O.S.D. = One Shot  
OFF.D. = OFF delay  
ON.D. = ON delay  
Normal = No delay

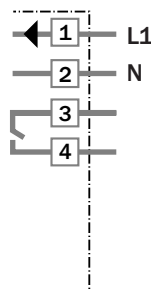


**Connection type**

WT 260-S 260  
WT 260-R 260

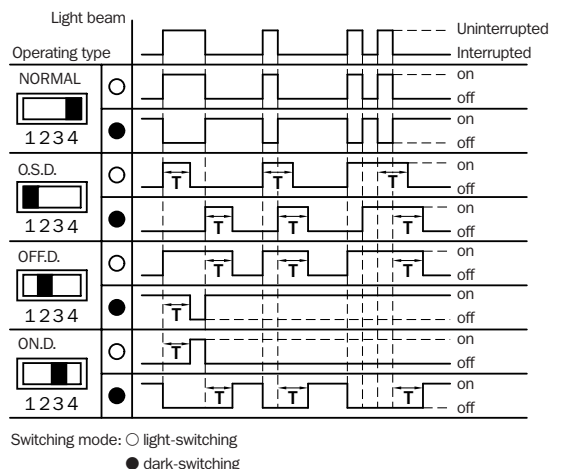


**Terminals**



**Time delays**

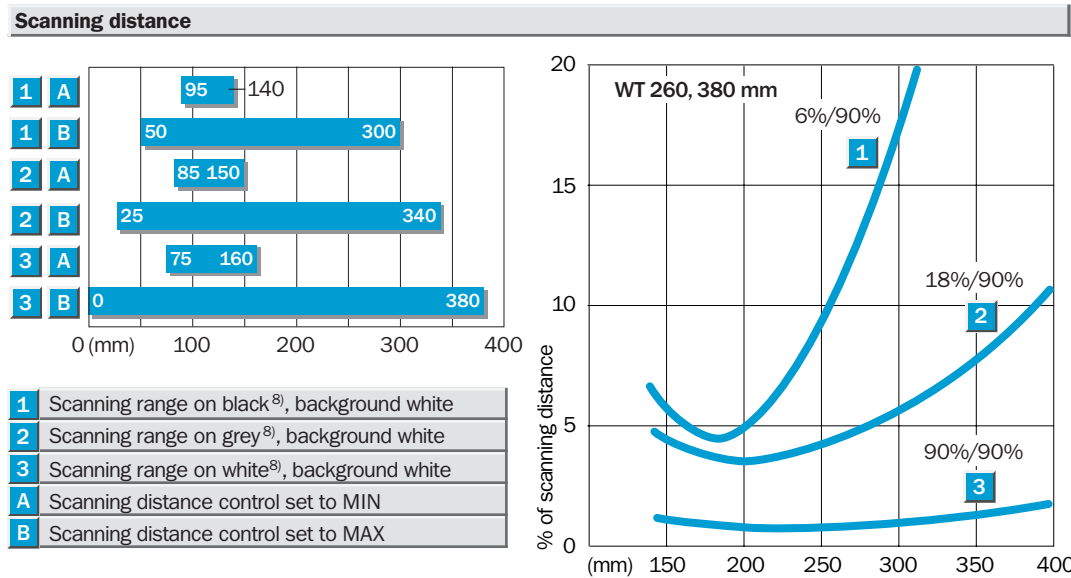
t = 0.1–5 s



**Accessoires**  
 Mounting bracket, included  
 M 12 cable receptacle


Technical data		WT 260-	S 260	R 260								
<b>Scanning distance</b>	max.: 0 ... 380 mm, adjustable <sup>1)</sup>											
	min.: 75 ... 160 mm, adjustable <sup>1)</sup>											
Sensitivity	Adjustable, potentiometer 270°											
<b>Light source<sup>2)</sup></b>	LED, infrared											
Light spot diameter	Approx. 17 mm at a distance of 300 mm											
Aperture angle sender	Approx. 1,5°											
<b>Supply voltage V<sub>s</sub><sup>3)</sup></b>	12 to 240 V DC											
	24 to 240 V UC											
Current consumption	≤ 5 VA											
<b>Switching outputs</b>	Relay, SP, electrically isolated											
Output current I <sub>A</sub> max. <sup>4)</sup>	3 A/240 V AC; 3 A/30 V DC											
Light receiver, switching mode	Light/dark-switching by rotary switch											
Response time	≤ 20 ms											
Switching frequency max. <sup>5)</sup>	25/s											
<b>Time delay</b>	With LED display: switching output active											
Switch position:	"1 O.S.D." "One shot"											
	"2 OFF.D." OFF delay											
	"3 ON.D." ON delay											
	"4 Normal" No delay											
<b>Delay</b>	Adjustable, 0.1 to 5 s; potentiometer 270°											
<b>Type of connection</b>	Terminal chamber											
<b>VDE protection class<sup>6)</sup></b>	<input type="checkbox"/>											
<b>Circuit protection<sup>7)</sup></b>	A, C											
<b>Enclosure rating</b>	IP 66											
<b>Ambient temperature</b>	Operating -25 °C to +55 °C											
	Storage -40 °C to +70 °C											
<b>Weight</b>	Approx. 120 g											
<b>Material</b>	Housing: ABS; Optic: PC											

<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)  
<sup>2)</sup> Average service life 100000 h at T<sub>U</sub> = +25 °C  
<sup>3)</sup> ± 10 %  
<sup>4)</sup> Provide suitable spark suppression for inductive or capacitive loads  
<sup>5)</sup> With light/dark ratio 1:1  
<sup>6)</sup> Withstand voltage 250 V UC  
<sup>7)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
 C = Interference suppression  
<sup>8)</sup> Black = 6 % reflectance  
 Grey = 18 % reflectance  
 White = 90 % reflectance



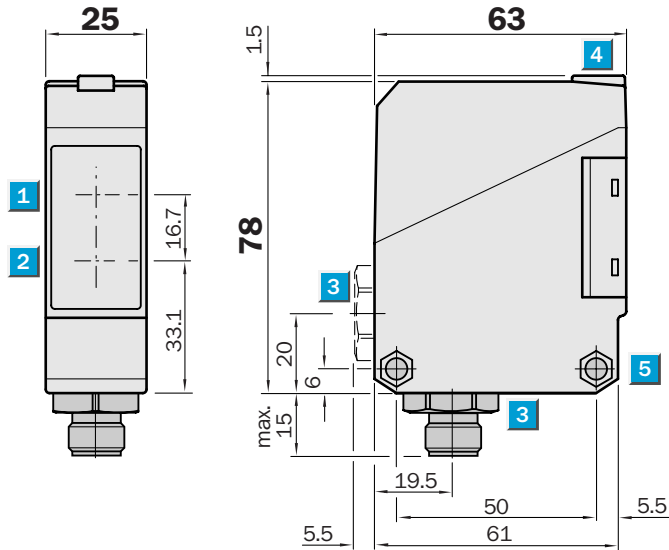
**Ordering information**

Type	Order no.
WT 260-S 260	6 009 473
WT 260-R 260	6 009 472


**Scanning distance**  
**10...3200 mm**  
 Photoelectric proximity switch

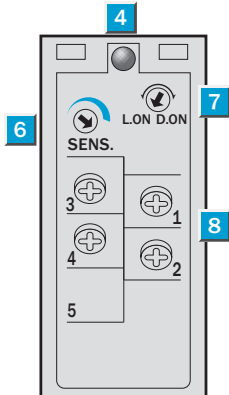
- Adjustable sensitivity
- Terminal chamber or plug  
M 12, 4 pin
- Test input

**Dimension illustration**



**Setting options**

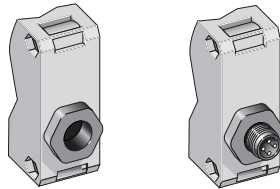
WT 260-F 280
WT 260-F 480
WT 260-E 280
WT 260-E 480



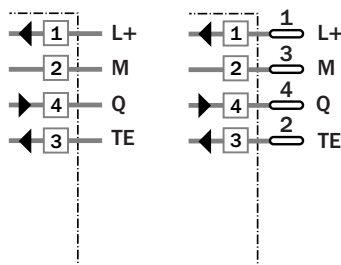
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
- 4 LED signal strength indicator, yellow, switching output active
- 5 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Light/dark rotary switch  
L.ON = light-switching, D.ON = dark-switching
- 8 Terminals

**Connection Type**

WT 260-F 280	WT 260-F 480
WT 260-E 280	WT 260-E 480



Terminals 4 pin, M 12



**Accessories**

- Mounting bracket, included
- M 12 cable receptacle

Technical data		WT 260-	F 280	F 480	E 280	E 480						
Scanning distance, typ. max.	10 to 3200 mm, adjustable <sup>1)</sup>											
Operating distance	15 to 2500 mm, adjustable <sup>1)</sup>											
Sensitivity	Adjustable, potentiometer 270°											
Light source <sup>2)</sup>	LED, infrared											
Light spot diameter	Approx. 80 mm at a distance of 2500 mm											
Aperture angle sender	Approx. 1.8°											
Supply voltage V <sub>s</sub>	10 to 30 VDC <sup>3)</sup>											
Ripple <sup>4)</sup>	≤ 5 V <sub>PP</sub>											
Current consumption <sup>5)</sup>	≤ 35 mA											
Switching outputs	PNP, open collector: Q NPN, open collector: Q											
Output current I <sub>A</sub> max.	100 mA											
Light receiver, switching mode	Light/dark-switching by rotary switch											
Response time <sup>6)</sup>	≤ 5.0 ms											
Switching frequency max. <sup>7)</sup>	100/s											
Test input »TE« sender off	PNP: TE to + V <sub>s</sub> NPN: TE to 0 V											
Type of connection	Terminal chamber M 12 equipment plug, 4 pin											
VDE protection class <sup>8)</sup>	□											
Circuit protection <sup>9)</sup>	A, B, C, D											
Enclosure rating	IP 67											
Ambient temperature	Operating -25 °C to +55 °C Storage -40 °C to +70 °C											
Weight	Approx. 120 g											
Material	Housing: ABS; Optic: PC											

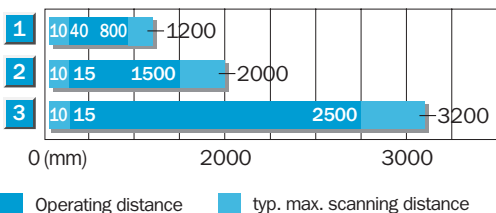
<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)  
<sup>2)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C

<sup>3)</sup> Limit values  
<sup>4)</sup> Must be within V<sub>s</sub> tolerances  
<sup>5)</sup> Without load

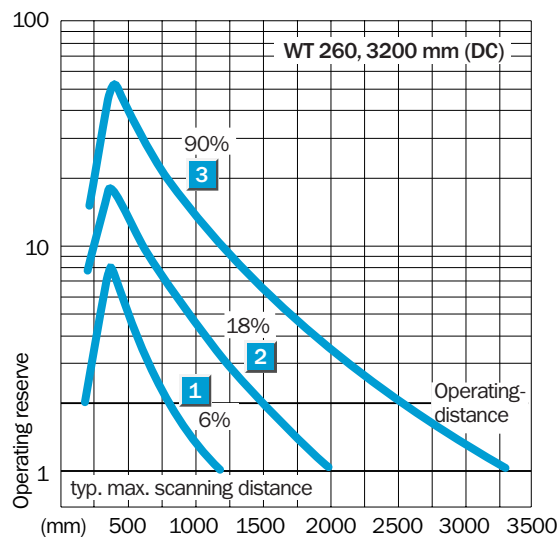
<sup>6)</sup> With resistive load  
<sup>7)</sup> With light/dark ratio 1:1  
<sup>8)</sup> Withstand voltage 50 V DC

<sup>9)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
B = Inputs/outputs reverse-polarity protected  
C = Interference suppression  
D = Outputs overcurrent and short-circuit protected

**Scanning distance**



- 1 Scanning range on black, 6% reflectance
- 2 Scanning range on grey, 18% reflectance
- 3 Scanning range on white, 90% reflectance



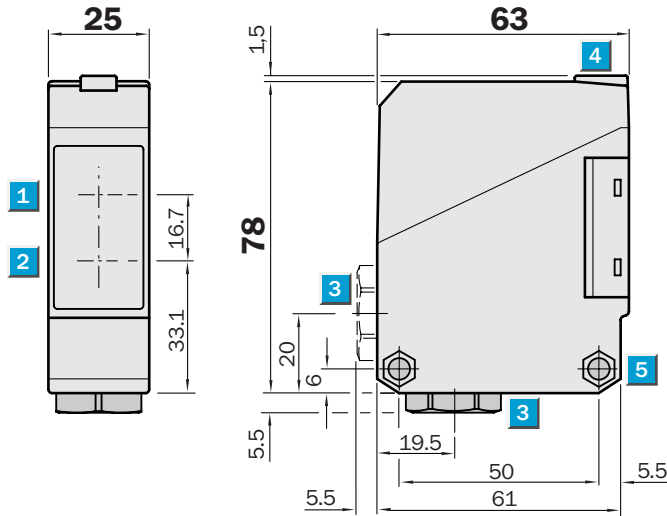
**Ordering information**

Type	Order no.
WT 260-F 280	6 020 982
WT 260-F 480	6 020 983
WT 260-E 280	6 020 984
WT 260-E 480	6 021 816

**Scanning distance**  
**10...3500 mm**  
 Photoelectric proximity switch

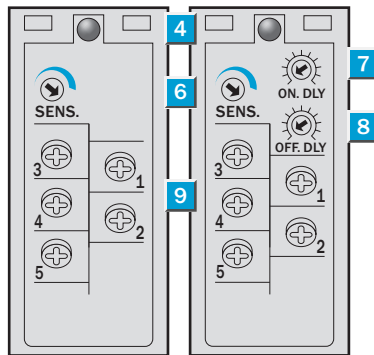
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional,  $t_{ON}$  and  $t_{OFF}$  can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

**Dimension illustration**



**Setting options**

WT 260-S 280      WT 260-R 280



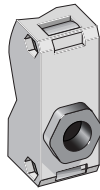
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 4 LED signal strength indicator, red
- 5 Through hole  $\varnothing$  5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Time control ON delay  $t_{ON}$
- 8 Time control OFF delay  $t_{OFF}$
- 9 Terminals

**Connection type**

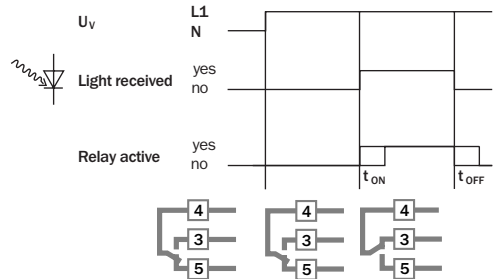
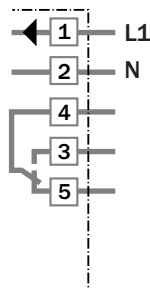
WT 260-S 280  
WT 260-R 280

**Time delays**

$t = 0.1-10 \text{ s}$



**Terminals**



**Accessories**

- Mounting bracket, included
- M 12 cable receptacle

Technical data		WT 260-	S 280	R 280								
<b>Scanning distance, typ. max.</b>	10 to 3500 mm, adjustable <sup>1)</sup>											
<b>Operating distance</b>	20 to 3000 mm, adjustable <sup>4)</sup>											
Sensitivity	Adjustable, potentiometer 270°											
<b>Light source<sup>2)</sup></b>	LED, infrared light											
Light spot diameter	Approx. 95 mm at a distance of 3000 mm											
Aperture angle sender	Approx. 1.7°											
<b>Supply voltage V<sub>s</sub><sup>3)</sup></b>	12 to 240 V DC											
	24 to 240 V AC											
Power consumption	≤ 5 VA											
<b>Switching output</b>	Relay, SPDT, electrically isolated											
Switching current I max <sup>4)</sup>	3 A/240 VAC; 3 A/30 VDC											
Light receiver, switching mode	Light-switching											
Response time	≤ 20 ms											
Switching frequency max. <sup>5)</sup>	25/s											
<b>Time delays</b>												
ON delay t <sub>ON</sub>	0.1 to 10 s, can be connected separately											
OFF delay t <sub>OFF</sub>	0.1 to 10 s, can be connected separately											
<b>Type of connection</b>	Terminal chamber											
<b>CE noise radiation</b>	Level EN 50081-1 ("Household standard")											
<b>VDE protection class<sup>6)</sup></b>	□											
<b>Circuit protection<sup>7)</sup></b>	A, C											
<b>Enclosure rating</b>	IP 67											
<b>Ambient temperature</b>	Operation -25 °C to +55 °C											
	Storage -40 °C to +70 °C											
<b>Weight</b>	Approx. 120 g											
<b>Material</b>	Housing: ABS; Optics: PC											

<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)

<sup>2)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C

<sup>3)</sup> ± 10 %

<sup>4)</sup> Provide suitable spark suppression for inductive or capacitive loads

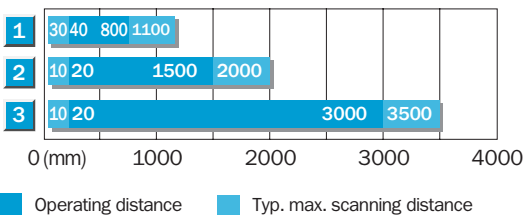
<sup>5)</sup> With light/dark ratio 1:1

<sup>6)</sup> Withstand voltage 250 V UC

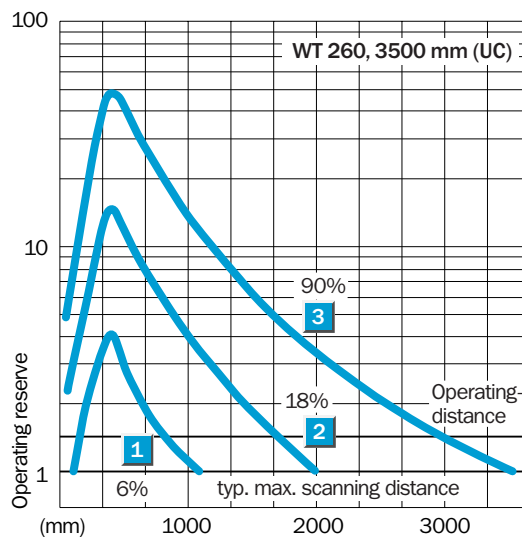
<sup>7)</sup> A = V<sub>s</sub> connections reverse-polarity protected

C = Interference suppression

**Scanning distance**




- 1 Scanning range on black, 6% reflectance
- 2 Scanning range on grey, 18% reflectance
- 3 Scanning range on white, 90% reflectance



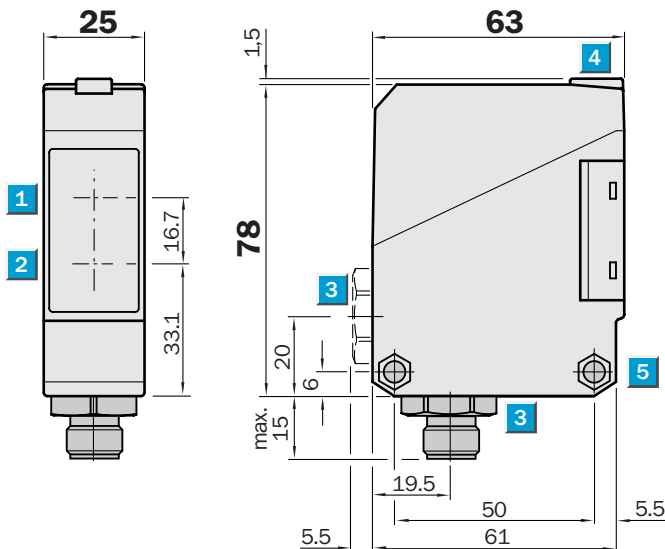
**Ordering information**

Type	Order no.
WT 260-S 280	6 020 771
WT 260-R 280	6 020 772


**Scanning distance**  
 5...1500 mm  
**Photoelectric proximity switch**

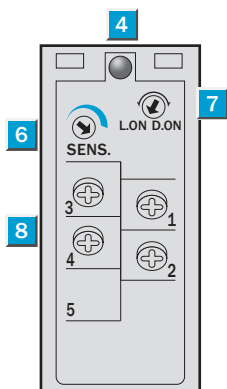
- Sensitivity, adjustable
- Terminal chamber or plug  
M 12, 4 pin
- Test input

**Dimension illustration**



**Setting options**

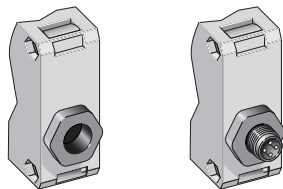
WT 260-F 270
WT 260-F 470
WT 260-E 270
WT 260-E 470



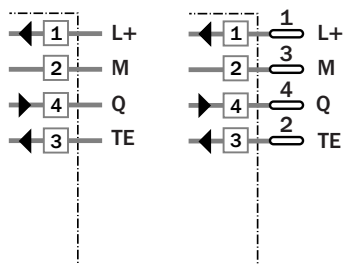
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
- 4 LED signal strength indicator, yellow, switching output active
- 5 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Light/dark rotary switch  
L.ON = light-switching, D.ON = dark-switching
- 8 Terminals

**Connection type**

WT 260-F 270	WT 260-F 470
WT 260-E 270	WT 260-E 470



Terminals 4 pin, M 12



**Accessories**

- Mounting bracket, included
- M 12 cable receptacle



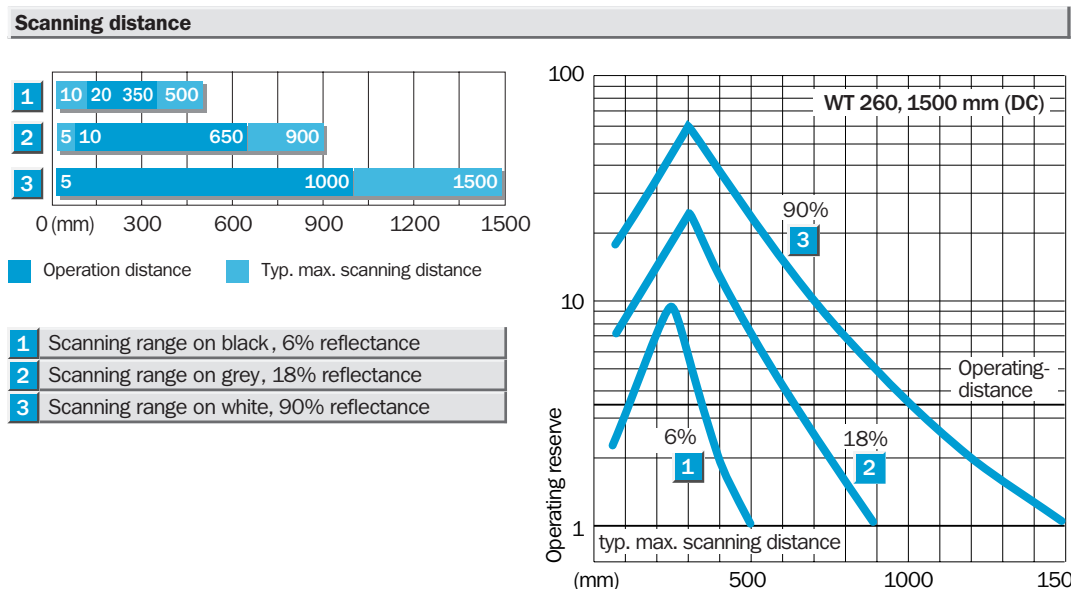
Technical data		WT 260-	F 270	F 470	E 270	E 470						
<b>Scanning distance, typ. max.</b>	15 to 1500 mm, adjustable <sup>1)</sup>											
<b>Operating distance</b>	5 to 1000 mm, adjustable <sup>4)</sup>											
Sensitivity	Adjustable, potentiometer 270°											
<b>Light source<sup>2)</sup></b>	LED, visible red light											
Light spot diameter	Approx. 45 mm at a distance of 1000 mm											
Aperture angle sender	Approx. 2.5°											
<b>Supply voltage V<sub>s</sub></b>	10 to 30 V DC <sup>3)</sup>											
Ripple <sup>4)</sup>	≤ 5 V <sub>PP</sub>											
Current consumption <sup>5)</sup>	≤ 35 mA											
<b>Switching outputs</b>	PNP, open collector: Q NPN, open collector: Q											
Output current I <sub>A</sub> max.	100 mA											
Light receiver, switching mode	Light/dark-switching by rotary switch											
Response time <sup>6)</sup>	≤ 1.5 ms											
Switching frequency max. <sup>7)</sup>	333/s											
<b>Test input »TE« sender off</b>	PNP: TE to + V <sub>s</sub> NPN: TE to 0 V											
<b>Type of connection</b>	Terminal chamber M 12 equipment plug, 4 pin											
<b>VDE protection class<sup>8)</sup></b>	□											
<b>Circuit protection<sup>9)</sup></b>	A, B, C, D											
<b>Enclosure rating</b>	IP 67											
<b>Ambient temperature</b>	Operation -25 °C to +55 °C Storage -40 °C to +70 °C											
<b>Weight</b>	Approx. 120 g											
<b>Material</b>	Housing: ABS; Optics: PC											


<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)  
<sup>2)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C

<sup>3)</sup> Limit values  
<sup>4)</sup> Must be within V<sub>s</sub> tolerances  
<sup>5)</sup> Without load

<sup>6)</sup> With resistive load  
<sup>7)</sup> With light/dark ratio 1:1  
<sup>8)</sup> Withstand voltage 50 V DC

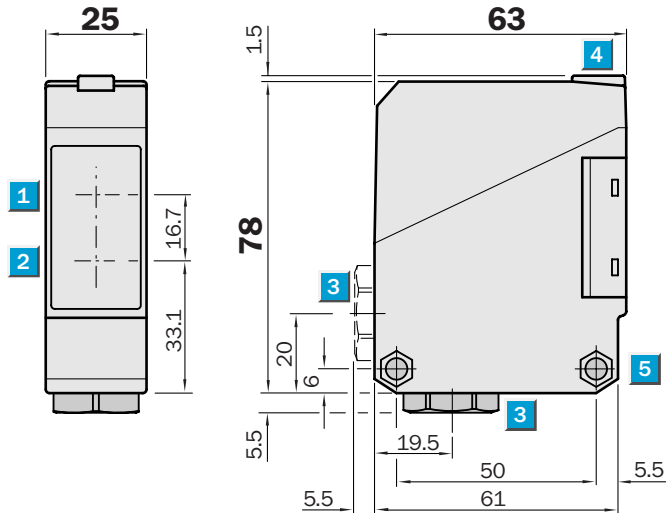
<sup>9)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
B = Inputs/outputs reverse-polarity protected  
C = Interference suppression  
D = Outputs overcurrent and short-circuit protected




**Scanning distance**  
 5...1700 mm  
**Photoelectric proximity switch**

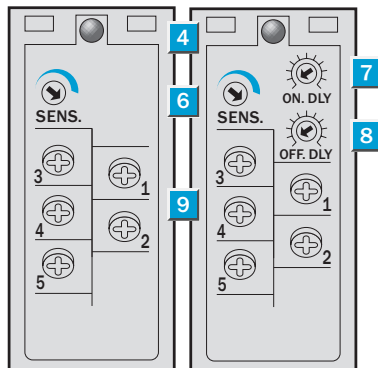
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional,  $t_{ON}$  and  $t_{OFF}$  can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

**Dimension illustration**



**Setting options**

WT 260-S 270      WT 260-R 270



- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 4 LED signal strength indicator, red
- 5 Through hole  $\varnothing$  5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Time control ON delay  $t_{ON}$
- 8 Time control OFF delay  $t_{OFF}$
- 9 Terminals

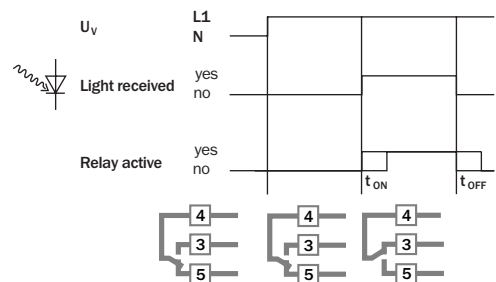
**Connection type**

WT 260-S 270

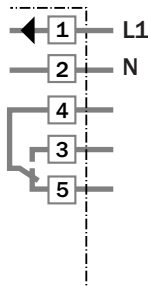
WT 260-R 270

**Time delays**

$t = 0.1-10 \text{ s}$



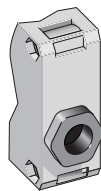
**Terminals**



**Accessories**

Mounting bracket, included

M 12 cable receptacle



Technical data		WT 260-	S 270	R 270							
<b>Scanning distance, typ. max.</b>	5 to 1700 mm, adjustable <sup>4)</sup>										
<b>Operating distance</b>	5 to 1300 mm, adjustable <sup>4)</sup>										
Sensitivity	Adjustable, potentiometer 270°										
<b>Light source<sup>2)</sup></b>	LED, visible red light										
Light spot diameter	Approx. 60 mm at a distance of 1300 mm										
Aperture angle sender	Approx. 1.8°										
<b>Supply voltage V<sub>s</sub><sup>3)</sup></b>	12 to 240 V DC										
	24 to 240 V AC										
Power consumption	≤ 5 VA										
<b>Switching output</b>	Relay, SPDT, electrically isolated										
Switching current I max. <sup>4)</sup>	3 A/240 V AC; 3 A/30 V DC										
Light receiver, switching mode	Light-switching										
Response time	≤ 20 ms										
Switching frequency max. <sup>5)</sup>	25/s										
<b>Time delay</b>											
ON delay t <sub>ON</sub>	0.1 to 10 s, can be connected separately										
OFF delay t <sub>OFF</sub>	0.1 to 10 s, can be connected separately										
<b>Type of connection</b>	Terminal chamber										
<b>CE noise radiation</b>	Level EN 50081-1 ("Household standard")										
<b>VDE protection class<sup>6)</sup></b>	□										
<b>Circuit protection<sup>7)</sup></b>	A, C										
<b>Enclosure rating</b>	IP 67										
<b>Ambient temperature</b>	Operation -25 °C to +55 °C										
	Storage -40 °C to +70 °C										
<b>Weight</b>	Approx. 120 g										
<b>Material</b>	Housing: ABS; Optics: PC										

<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)

<sup>2)</sup> Mittlere Lebensdauer 100.000 h bei T<sub>U</sub> = + 25 °C

<sup>3)</sup> ± 10 %

<sup>4)</sup> Provide suitable spark suppression for inductive or capacitive loads

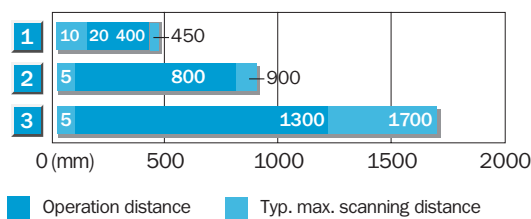
<sup>5)</sup> With light/dark ratio 1:1

<sup>6)</sup> Withstand voltage 250 V UC

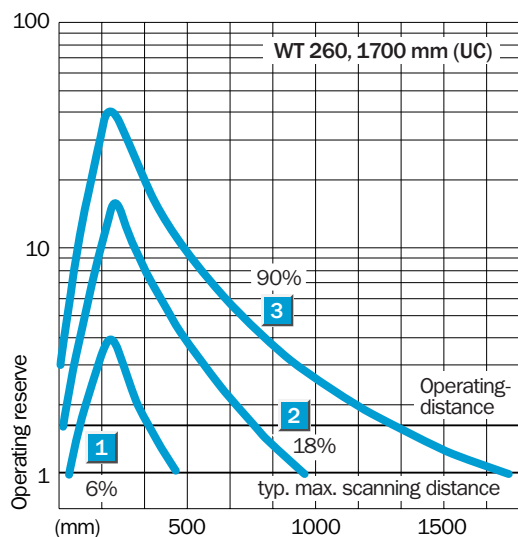
<sup>7)</sup> A = V<sub>s</sub> connections reverse-polarity protected

C = Interference suppression

**Scanning distance**




- 1 Scanning range on black, 6% reflectance
- 2 Scanning range on grey, 18% reflectance
- 3 Scanning range on white, 90% reflectance



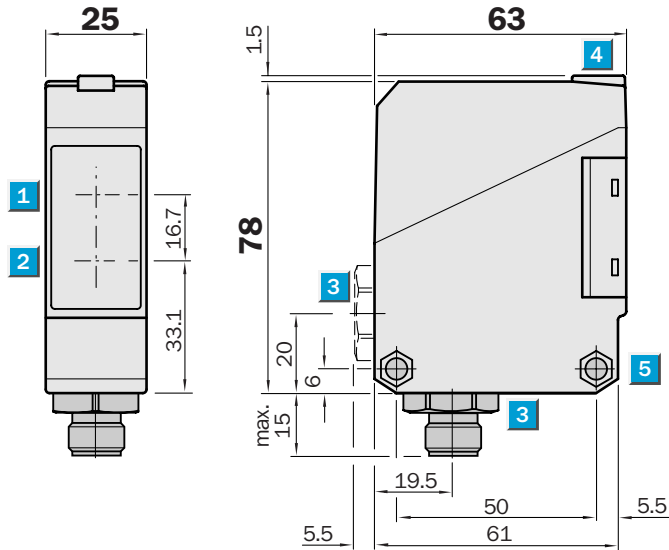
**Ordering information**

Type	Order no.
WT 260-S 270	6 020 769
WT 260-R 270	6 020 770

	<b>Scanning range</b> 0,01...14 m
<b>Photoelectric reflex switch</b>	

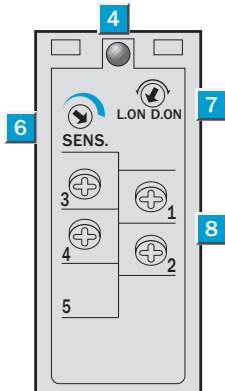
- Polarizing filter providing reliable detection even of objects with shiny surfaces
- Sensitivity, adjustable
- Terminal chamber or plug  
M 12, 4 pin
- Test input

**Dimension illustration**



**Setting options**

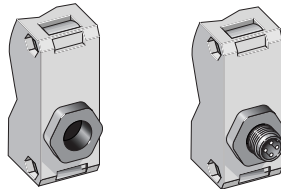
WL 260-F 270
WL 260-F 470
WL 260-E 270
WL 260-E 470



- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear;
- 4 LED signal strength indicator, yellow, switching output active
- 5 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Light/dark rotary switch  
L.ON = light-switching, D.ON = dark-switching
- 8 Terminals

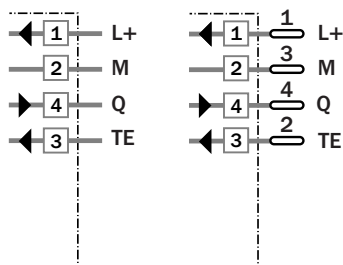
**Connection type**

WL 260-F 270	WL 260-F 470
WL 260-E 270	WL 260-E 470



**Terminals**

4 pin, M 12



**Accessories**

Mounting bracket, included
P 250 reflector, included
M 12 cable receptacle

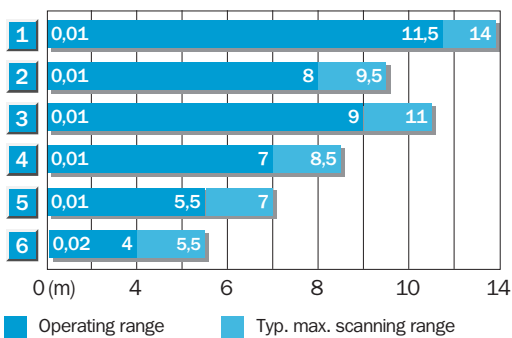
Technical data		WT 260-	F 270	F 470	E 270	E 470
<b>Scanning range</b> , typ. max./on reflector	0.01 to 14 m / PL 80 A					
	0.01 to 9.5 m / P 250 (included)					
<b>Operating range</b>	0.01 to 8 m / P 250					
Sensitivity	Adjustable, potentiometer 270°					
<b>Light source</b> <sup>4)</sup>	LED, visible red light					
	With polarizing filter					
Light spot diameter	Approx. 240 mm at a distance of 8 m					
Aperture angle sender	Approx. 1.7°					
<b>Supply voltage</b> $V_s$	10 to 30 V DC <sup>2)</sup>					
Ripple <sup>3)</sup>	≤ 5 V <sub>pp</sub>					
Current consumption <sup>4)</sup>	≤ 35 mA					
<b>Switching outputs</b>	PNP, open collector: Q					
	NPN, open collector: Q					
Output current $I_A$ max.	100 mA					
Light receiver, switching mode	Light / dark-switching by rotary switch					
Response time <sup>5)</sup>	≤ 1.5 ms					
Switching frequency max. <sup>6)</sup>	333/s					
<b>Test input »TE«</b> sender off	PNP: TE to + $V_s$					
	NPN: TE to 0 V					
<b>Type of connection</b>	Terminal chamber					
	M 12 equipment plug, 4 pin					
<b>VDE protection class</b> <sup>7)</sup>	□					
<b>Circuit protection</b> <sup>8)</sup>	A, B, C, D					
<b>Enclosure rating</b>	IP 67					
<b>Ambient temperature</b>	Operation -25 °C to +55 °C					
	Storage -40 °C to +70 °C					
<b>Weight</b>	Approx. 120 g					
<b>Material</b>	Housing: ABS; Optics: PMMA					

1) Average service life 100 000 h at  $T_U = +25 °C$   
 2) Limit values  
 3) Must be within  $V_s$  tolerances  
 4) Without load

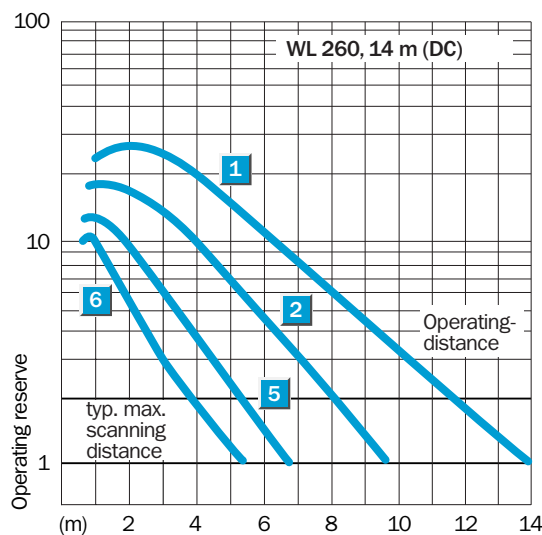
5) With resistive load  
 6) With light/dark ratio 1:1  
 7) Withstand voltage 50 V DC

8) A =  $V_s$  connections reverse-polarity protected  
 B = Inputs/outputs reverse-polarity protected  
 C = Interference suppression  
 D = Outputs overcurrent and short-circuit protecte

**Scanning range and operating reserve**



Reflector Type	Operating range
1 PL 80 A	0,01 ... 11,5 m
2 P 250	0,01 ... 8 m
3 PL 50 A oder PL 40 A	0,01 ... 9 m
4 PL 30 A oder PL 31 A	0,01 ... 7 m
5 PL 20 A	0,01 ... 5,5 m
6 Reflective tape Diamond Grade	0,02 ... 4 m



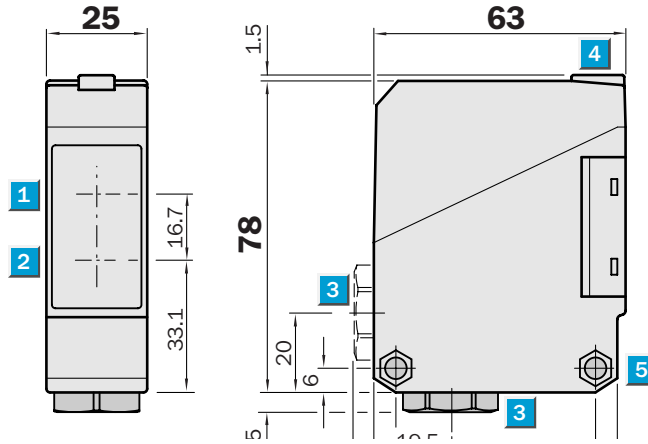
**Ordering information**

Type	Order no.
WL 260-F 270	6 020 976
WL 260-F 470	6 020 977
WL 260-E 270	6 020 978
WL 260-E 470	6 021 814

	<b>Scanning range</b> 0,01...15 m
<b>Photoelectric reflex switch</b>	

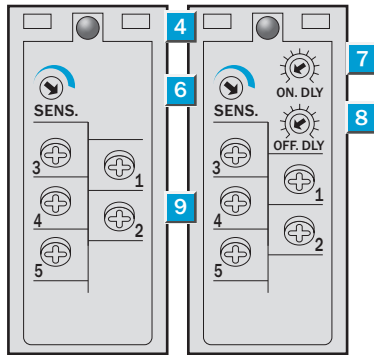
- Polarizing filter providing reliable detection even of objects with shiny surfaces
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional,  $t_{ON}$  and  $t_{OFF}$  can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

**Dimension illustration**



**Setting options**

WL 260-S 270	WL 260-R 270
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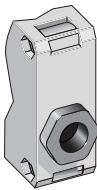
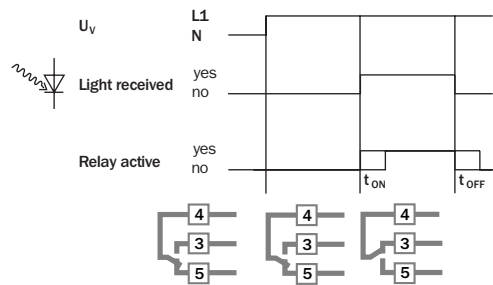
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 4 LED signal strength indicator, red
- 5 Through hole  $\varnothing$  5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Time control ON delay  $t_{ON}$
- 8 Time control OFF delay  $t_{OFF}$
- 9 Terminals

**Connection type**

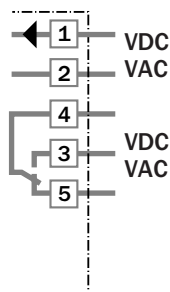
WL 260-S 270
WL 260-R 270

**Time delays**

$t = 0.1-10\text{ s}$



**Terminals**



**Accessories**

- Mounting bracket, included
- P 250 reflector, included



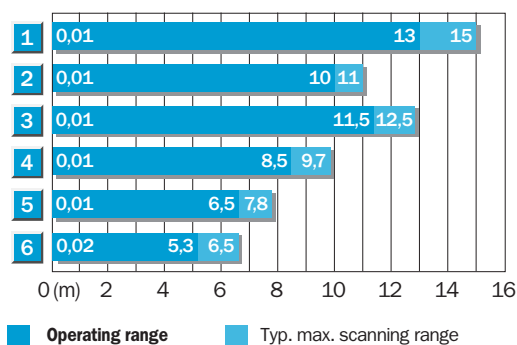
Technical data		WT 260-	S 270	R 270							
<b>Scanning range</b> , typ. max./on reflector	0.01 to 15 m / PL 80 A										
	typ. max./on reflector	0.01 to 11 m / P 250 (included)									
<b>Operating range</b>	0.01 to 10 m / P 250										
Sensitivity	Adjustable, potentiometer 270°										
<b>Light source</b> <sup>1)</sup>	LED, visible red light										
	With polarizing filter										
Light spot diameter	Approx. 300 mm at a distance of 10 m										
Aperture angle sender	Approx. 1.7°										
<b>Supply voltage</b> V <sub>s</sub> <sup>2)</sup>	12 to 240 V DC										
	24 to 240 V AC										
Power consumption	≤ 5 VA										
<b>Switching output</b>	Relay, SPDT, electrically isolated										
Switching current I max <sup>3)</sup>	3 A/240 V AC; 3 A/30 V DC										
Light receiver, switching mode	Light-switching										
Response time	≤ 20 ms										
Switching frequency max. <sup>4)</sup>	25/s										
<b>Time delays</b>											
ON delay t <sub>ON</sub>	0.1 to 10 s, can be connected separately										
OFF delay t <sub>OFF</sub>	0.1 to 10 s, can be connected separately										
<b>Type of connection</b>	Terminal chamber										
<b>CE noise radiation</b>	Level EN 50081-1 ("Household standard")										
<b>VDE protection class</b> <sup>5)</sup>	□										
<b>Circuit protection</b> <sup>6)</sup>	A, C										
<b>Enclosure rating</b>	IP 67										
<b>Ambient temperature</b>	Operation -25 °C to +55 °C										
	Storage -40 °C to +70 °C										
<b>Weight</b>	Approx. 120 g										
<b>Material</b>	Housing: ABS; Optics: PMMA										

<sup>1)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C  
<sup>2)</sup> ± 10 %

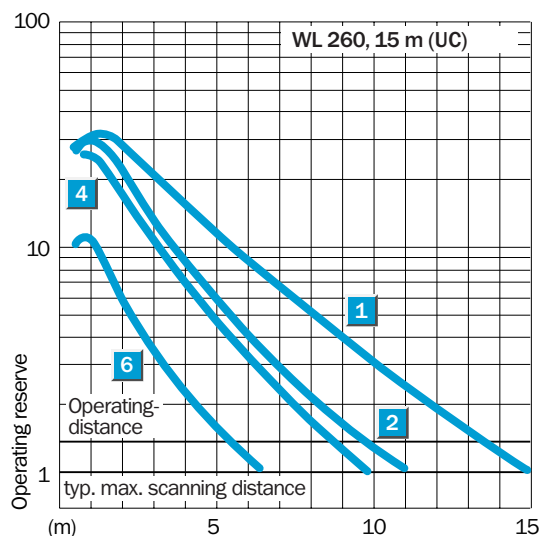
<sup>3)</sup> Provide suitable spark suppression for inductive or capacitive loads  
<sup>4)</sup> With light/dark ratio 1:1

<sup>5)</sup> Withstand voltage 250 V UC  
<sup>6)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
 C = Interference suppression

**Scanning range and operating reserve**



Reflector Type	Operating range
1 PL 80 A	0,01 ... 13,0 m
2 P 250	0,01 ... 10,0 m
3 PL 50 A oder PL 40 A	0,01 ... 11,5 m
4 PL 30 A oder PL 31 A	0,01 ... 8,5 m
5 PL 20 A	0,01 ... 6,5 m
6 Reflective tape Diamond Grade	0,02 ... 5,3 m



**Ordering information**

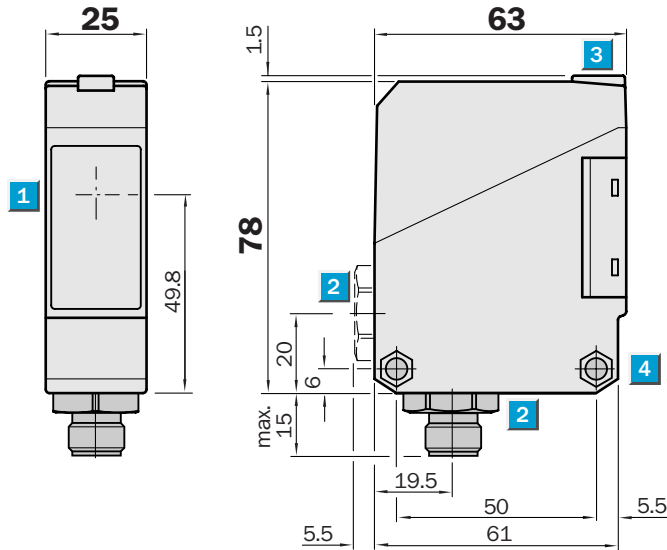
Type	Order no.
WL 260-S 270	6 020 767
WL 260-R 270	6 020 768

**Scanning range**  
35 m

Through-beam photoelectric switch

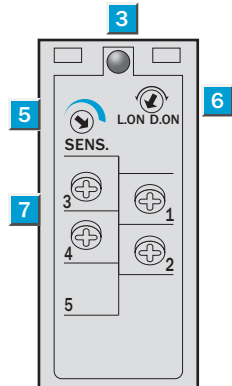
- Sensitivity, adjustable
- Terminal chamber or plug  
M 12, 4 pin
- Test input

**Dimension illustration**



**Setting options**

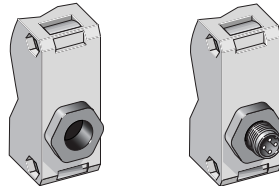
WS/WE 260-F 270
WS/WE 260-F 470
WS/WE 260-E 270
WS/WE 260-E 470



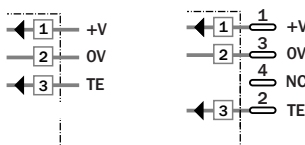
- 1 Middle of optic axis, sender/receiver
- 2 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
- 3 LED signal indicator orange  
WE 260: switching output active  
WS 260: sender active
- 4 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 5 Sensitivity control (WE 260)
- 6 Light/dark rotary switch (WE 260)  
L.ON = light-switching, D.ON = dark-switching
- 7 Terminals  
Terminal 3: WS 260 only  
Terminal 4: WE 260 only

**Connection type**

WS/WE 260-F 270	WS/WE 260-F 470
WS/WE 260-E 270	WS/WE 260-E 470



Terminals	4 pin, M 12
Sender	WS 260-G 270
	WS 260-G 470



Receiver	WE 260-E 270
	WE 260-F 470
	WE 260-E 470



**Accessories**

Mounting bracket, included
M 12 cable receptacle
Slotted masks BL-260-SK, 5 308 773



Technical data		WS/WE 260-	F 270	F 470	E 270	E 470
Scanning range, typ. max.	35 m					
Operating range	30 m					
Sensitivity	Adjustable, potentiometer 270°					
<b>Light source</b> <sup>4)</sup>	LED, visible red light					
Light spot diameter	Approx. 700 mm at a distance of 30 m					
Aperture angle sender	Approx. 1.4°					
Angle of reception receiver	Approx. 20°					
<b>Supply voltage V<sub>s</sub></b>	10 to 30 V DC <sup>2)</sup>					
Ripple <sup>3)</sup>	≤ 5 V <sub>pp</sub>					
Current consumption <sup>4)</sup>						
sender	≤ 20 mA					
receiver	≤ 35 mA					
<b>Switching outputs</b>	PNP, open collector: Q NPN, open collector: Q					
Output current I <sub>A</sub> max.	100 mA					
Light receiver, switching mode	Light/dark-switching by rotary switch					
Response time <sup>5)</sup>	≤ 1.5 ms					
Switching frequency max. <sup>6)</sup>	333/s					
<b>Test input »TE«</b> sender off	PNP, NPN: TE to 0 V					
<b>Type of connection</b>	Terminal chamber M 12 equipment plug, 4 pin					
<b>VDE protection class</b> <sup>7)</sup>	□					
<b>Circuit protection</b> <sup>8)</sup>						
sender	A, B					
receiver	A, B, C, D					
<b>Enclosure rating</b>	IP 67					
<b>Ambient temperature</b>	Operation -25 °C to +55 °C Storage -40 °C to +70 °C					
<b>Weight</b>	Approx. 120 g					
<b>Material</b>	Housing: ABS; Optics: PC					

<sup>1)</sup> Average service life 100 000 h at 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> Withstand voltage 50 V DC

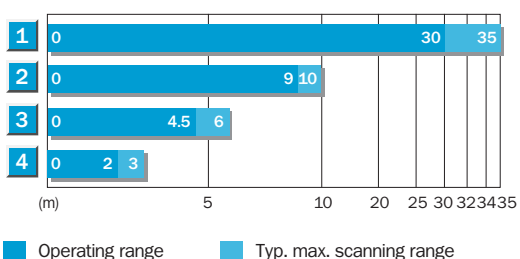
<sup>8)</sup> A = V<sub>s</sub> connections reverse-polarity protected

B = Inputs/outputs reverse-polarity protected

C = Interference suppression

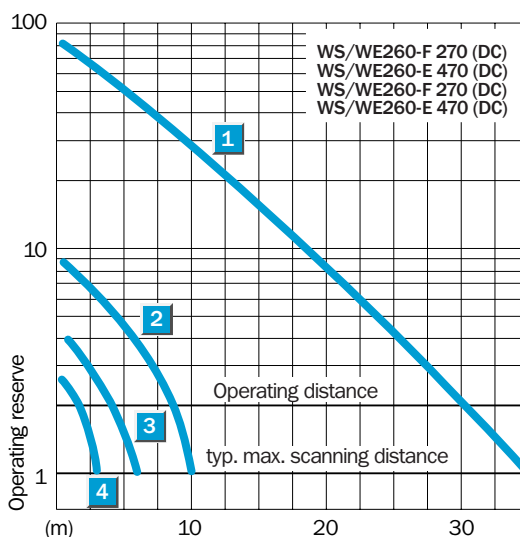
D = Outputs overcurrent and short-circuit protected

**Operating range and operating reserve**



**Scanning range reduction when using slotted masks**

1	Without slotted mask
2	Orifice width 5 mm
3	Orifice width 2 mm
4	Orifice width 1 mm



**Ordering information**

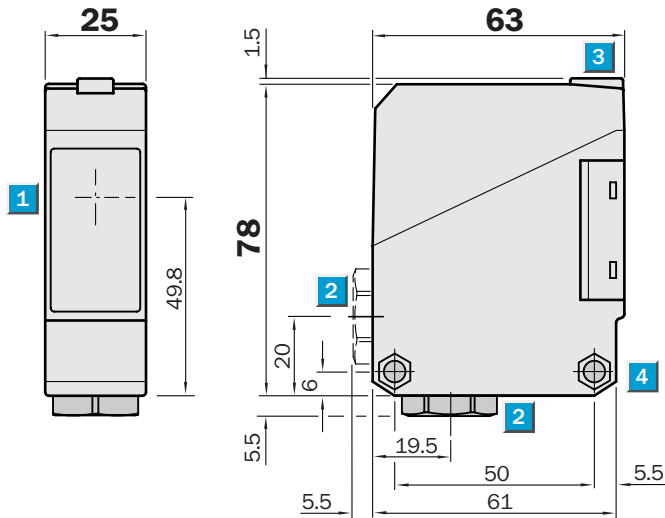
Type	Order no.
WS/WE 260-F 270	6 020 973
WS/WE 260-F 470	6 020 974
WS/WE 260-E 270	6 020 975
WS/WE 260-E 470	6 021 817

**Scanning range**  
45 m

Through-beam photoelectric switch

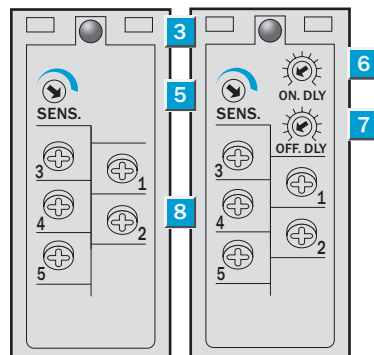
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional,  $t_{ON}$  and  $t_{OFF}$  can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

**Dimension illustration**



**Setting options**

WS/WE 260-S 270    WS/WE 260-R 270



- 1 Middle of optic axis, sender resp. receiver
- 2 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 3 LED signal indicator orange; WE 260: switching output active WS 260: sender active
- 4 Through hole  $\varnothing$  5.2 mm on both sides for M 5 hex nut
- 5 Sensitivity control (WE 260)
- 6 Time control ON delay  $t_{ON}$  (WE 260)
- 7 Time control OFF delay  $t_{OFF}$  (WE 260)
- 8 Terminals 3, 4, 5: WE 260 only

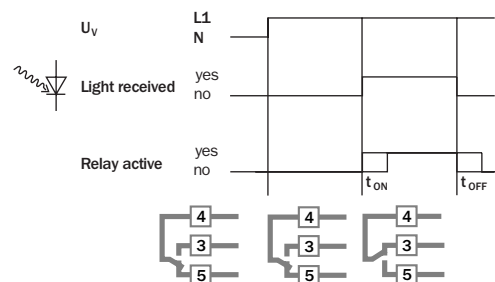
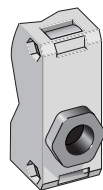


**Connection type**

WS/WE 260-S 270  
WS/WE 260-R 270

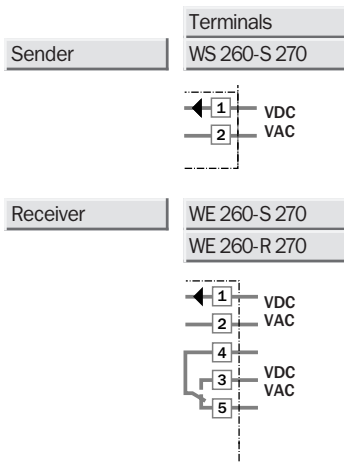
**Time delays**

$t = 0.1-10\text{ s}$



**Accessories**

- Mounting bracket, included
- cable receptacle
- Slotted masks, BL-260-SK, 5 308 773



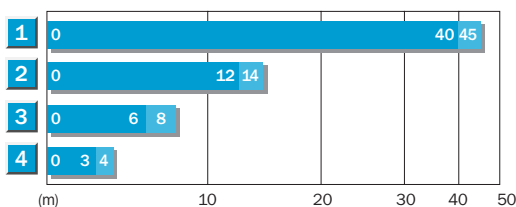
Technical data		WS/WE 260-	S 270	R 270							
<b>Scanning range</b> , typ. max.	45 m										
<b>Operating range</b>	40 m										
Sensitivity	Adjustable, potentiometer 270°										
<b>Light source</b> <sup>1)</sup>	LED, visible red light										
Light spot diameter	Approx. 700 mm at a distance of 40 m										
Aperture angle sender	Approx. 1°										
Angle of reception receiver	Approx. 20°										
<b>Supply voltage</b> V <sub>s</sub> <sup>2)</sup>	12 to 240 V DC 24 to 240 V AC										
Power consumption											
Sender	≤ 4 VA										
Receiver	≤ 5 VA										
<b>Switching output</b>	Relay, SPDT, electrically isolated										
Switching current I max. <sup>3)</sup>	3 A/240 V AC; 3 A/30 V DC										
Light receiver, switching mode	Light-switching										
Response time	≤ 20 ms										
Switching frequency max. <sup>4)</sup>	25/s										
<b>Time delays</b>											
ON delay t <sub>ON</sub>	0.1 to 10 s, can be connected separately										
OFF delay t <sub>OFF</sub>	0.1 to 10 s, can be connected separately										
<b>Type of connection</b>	Terminal chamber										
<b>CE noise radiation</b>	Level EN 50081-1 ("Household standard")										
<b>VDE protection class</b> <sup>5)</sup>	□										
<b>Circuit protection</b> <sup>6)</sup>	A, C										
<b>Enclosure rating</b>	IP 67										
<b>Ambient temperature</b>	Operation -25 °C to +55 °C Storage -40 °C to +70 °C										
<b>Weight</b>	Approx. 120 g										
<b>Material</b>	Housing: ABS; Optics: PC										

<sup>1)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C  
<sup>2)</sup> ± 10 %

<sup>3)</sup> Provide suitable spark suppression for inductive or capacitive loads  
<sup>4)</sup> With light/dark ratio 1:1

<sup>5)</sup> Withstand voltage 250 V UC  
<sup>6)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
C = Interference suppression

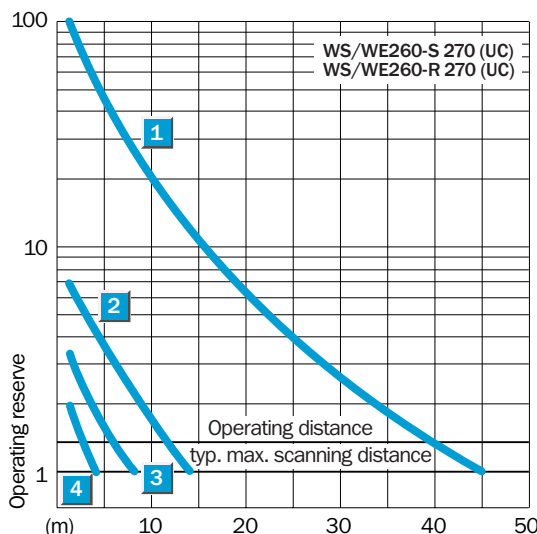
**Operating range and operating reserve**



■ Operating range    ■ Typ. max. scanning range



**Scanning range reduction when using slotted masks**

1	Without slotted mask
2	Slot width 5 mm
3	Slot width 2 mm
4	Slot width 1 mm



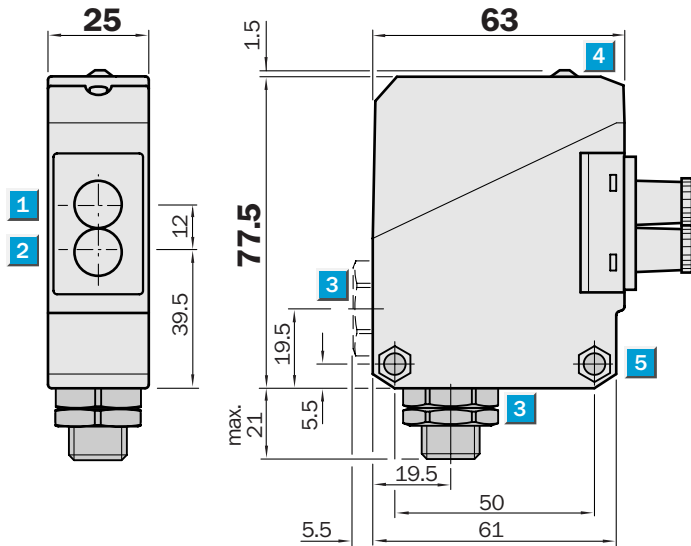
**Ordering information**

Type	Order no.
WS/WE 260-S 270	6 020 773
WS/WE 260-R 270	6 020 774

	<b>Scanning range</b> max. 800 mm
<b>Through-beam systems</b>	
	<b>Scanning distance</b> max. 65 (110) mm
<b>Proximity systems</b>	

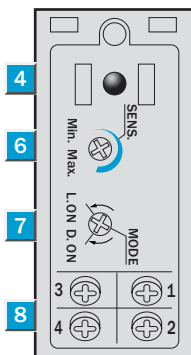
- Broad range of fiber-optic cables for through-beam and proximity applications
- Easy adaption of fiber-optic cable using cap nut
- Sensitivity, adjustable
- Terminal chamber, at bottom or rear
- Universal voltage supply, relay output, SP, timer optional

**Dimension illustration**



**Setting options**

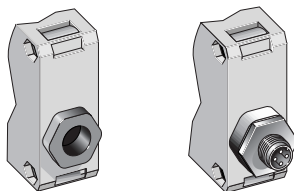
WLL 260-F 240
WLL 260-F 440
WLL 260-E 240



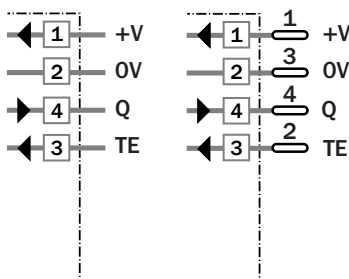
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
- 4 LED signal strength indicator, red
- 5 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Light/dark rotary switch  
L.ON = light-switching, D.ON = dark-switching
- 8 Terminals

**Connection type**

WLL 260-E 240	WLL 260-F 440
WLL 260-F 240	



Terminals 4 pin, M 12



**Accessories**

Fiber-optic cable
Mounting bracket, included
M 12 cable receptacle

Technical data		WLL 260-	F 240	F 440	E 240						
<b>Suitable fiber-optic cable</b>	Glas-fiber-optic cable series LIS .../LBS ...										
<b>Scanning distance/range</b>	Depends on the used fiber-optic cable										
<b>Through-beam system</b>											
Typ. max. scanning distance <sup>1)</sup>	0 to 65 mm										
	0 to 110 mm with special fiber-optic cable										
Operating distance <sup>1)</sup>	0 to 50 mm										
	0 to 90 mm with special fiber-optic cable										
<b>Proximity system</b>											
Typ. max. scanning range	0 to 800 mm										
Operating range	0 to 700 mm										
Sensitivity	Adjustable, potentiometer 270°										
<b>Light source<sup>2)</sup></b>											
Light source <sup>2)</sup>	LED, visible red light										
Light spot diameter	Depends on scanning range										
Aperture fiber-optic cable	Approx. 65°										
<b>Supply voltage V<sub>s</sub></b>											
Supply voltage V <sub>s</sub>	10 to 30 V DC <sup>3)</sup>										
Ripple <sup>4)</sup>	≤ 5 V <sub>pp</sub>										
Current consumption <sup>5)</sup>	≤ 35 mA										
<b>Switching outputs</b>											
Switching outputs	PNP, open collector: Q										
	NPN, open collector: Q										
Output current I <sub>A</sub> max.	100 mA										
Light receiver, switching mode	Light/dark-switching by rotary switch										
Response time <sup>6)</sup>	≤ 0.7 ms										
Switching frequency max. <sup>7)</sup>	700/s										
<b>Test input »TE« sender off</b>											
Test input »TE« sender off	PNP: TE following + U <sub>v</sub>										
	NPN: TE following 0 V										
<b>Type of connection</b>											
Type of connection	Terminal chamber										
	M 12 equipment plug, 4-polig										
<b>VDE protection class<sup>8)</sup></b>											
VDE protection class <sup>8)</sup>	□										
<b>Circuit protection<sup>9)</sup></b>											
Circuit protection <sup>9)</sup>	A, B, C, D										
<b>Enclosure rating</b>											
Enclosure rating	IP 66										
<b>Ambient temperature</b>											
Ambient temperature	Operation -25 °C to +55 °C										
	Storage -40 °C to +70 °C										
<b>Weight</b>											
Weight	Approx. 120 g										
<b>Material</b>											
Material	Housing: ABS										

<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)

<sup>2)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C

<sup>3)</sup> Limit values

<sup>4)</sup> Must be within V<sub>s</sub> tolerances

<sup>5)</sup> Without load

<sup>6)</sup> With resistive load

<sup>7)</sup> With light/dark ratio 1:1

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

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



B = Inputs/outputs reverse-polarity protected

C = Interference suppression

D = Outputs overcurrent and short-circuit protected

#### Ordering information

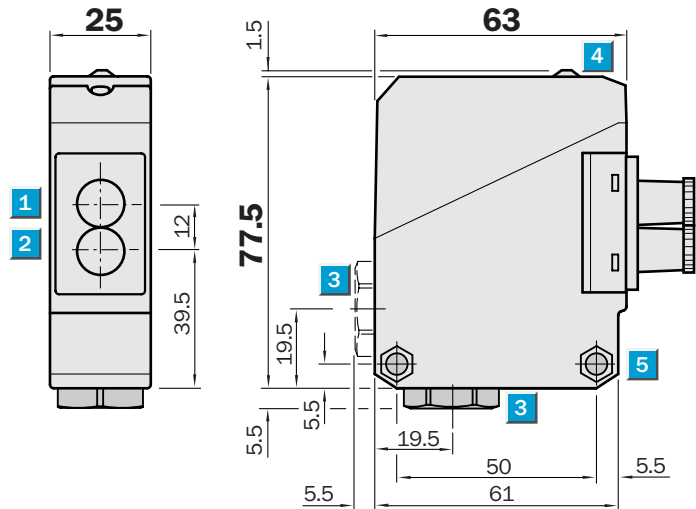
Type	Order no.
WLL 260-F 240	6 020 064
WLL 260-F 440	6 020 065
WLL 260-E 240	6 020 063

	<b>Scanning range</b> max. 800 mm
<b>Through-beam systems</b>	
	<b>Scanning distance</b> max. 65 (110) mm
<b>Proximity systems</b>	

- Broad range of fiber-optic cables for through-beam and proximity applications
- Easy adaption of fiber-optic cable using cap nut
- Sensitivity, adjustable
- Terminal chamber, at bottom or rear
- Universal voltage supply, relay output, SP, timer optional

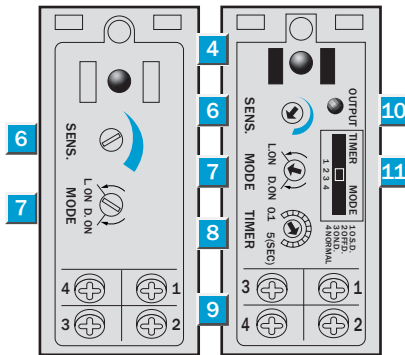


**Dimension illustration**



**Setting options**

WLL 260-S 240	WLL 260-R 240
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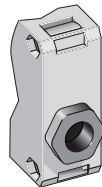
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 4 LED signal strength indicator, red
- 5 Through hole Ø 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Light/dark rotary switch  
L.ON = light-switching, D.ON = dark-switching
- 8 Time range control
- 9 Terminals
- 10 Red LED status indicator, switching output active
- 11 Time delay selector switch  
O.S.D. = One Shot  
OFF.D. = OFF delay  
ON.D. = ON delay  
Normal = No delay

**Connection type**

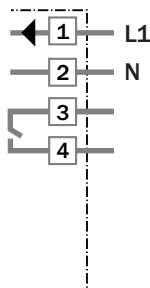
WLL 260-S 240
WLL 260-R 240

**Time delays**

t = 0.1–5 s

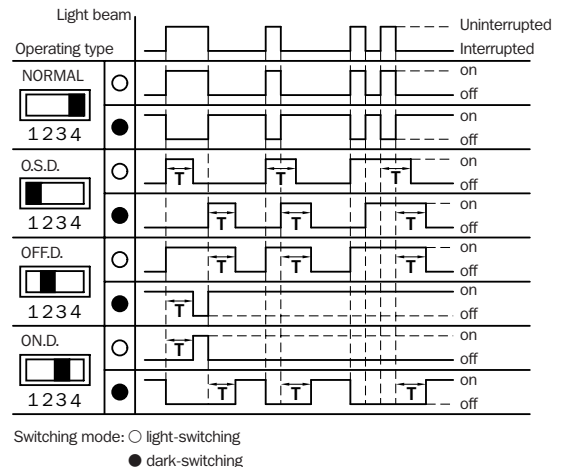


**Terminals**



**Accessories**

Fiber-optic cable
Mounting bracket, included
Cable receptacle



Technical data		WLL 260-	S 240	R 240							
<b>Suitable fiber-optic cable</b>	Glas-fiber-optic cable series LIS ../LBS ...										
<b>Scanning distance/range</b>	Depends on the used fiber-optic cable										
<b>Through-beam system</b>											
Typ. max. scanning distance <sup>1)</sup>	0 to 65 mm										
	0 to 110 mm with special fiber-optic cable										
Operating distance <sup>1)</sup>	0 to 50 mm										
	0 to 90 mm with special fiber-optic cable										
<b>Proximity system</b>											
Typ. max. scanning range	0 to 800 mm										
Operating range	0 to 700 mm										
Sensitivity	Adjustable, potentiometer 270°										
<b>Light source<sup>2)</sup></b>											
Light source	LED, visible red light										
Light spot diameter	Depends on scanning range										
Aperture fiber-optic cable	Approx. 65°										
<b>Supply voltage V<sub>s</sub><sup>3)</sup></b>											
	12 to 240 V DC										
	24 to 240 V AC										
Power consumption	≤ 5 VA										
<b>Switching output</b>											
Switching output	Relay, SP, electrically isolated										
Switching current I max. <sup>4)</sup>	3 A/240 V AC; 3 A/30 V DC										
Light receiver, switching mode	Light/dark-switching by rotary switch										
Response time	≤ 20 ms										
Switching frequency max. <sup>5)</sup>	25/s										
<b>Time delays</b>											
With indicator LED: Switching output active											
Switch position	"1 O.S.D." "One shot"										
	"2 OFF.D." OFF delay t <sub>OFF</sub>										
	"3 ON.D." ON delay t <sub>ON</sub>										
	"4 Normal" No delay										
<b>Time range</b>	Adjustable, 0.1 to 5 s; potentiometer 270°										
<b>Type of connection</b>											
Type of connection	Terminal chamber										
<b>VDE protection class<sup>6)</sup></b>											
VDE protection class <sup>6)</sup>	□										
<b>Circuit protection<sup>7)</sup></b>											
Circuit protection <sup>7)</sup>	A, C										
<b>Enclosure rating</b>											
Enclosure rating	IP 66										
<b>Ambient temperature</b>											
Operation	-25 °C to +55 °C										
Storage	-40 °C to +70 °C										
<b>Weight</b>											
Weight	Approx. 120 g										
<b>Material</b>											
Material	Housing: ABS										

<sup>1)</sup> Object with 90% reflectance (referred to standard white DIN 5033)

<sup>2)</sup> Average service life 100 000 h at T<sub>U</sub> = +25 °C

<sup>3)</sup> ± 10 %

<sup>4)</sup> Provide suitable spark suppression for inductive or capacitive loads

<sup>5)</sup> With light/dark ratio 1:1

<sup>6)</sup> Withstand voltage 50 V DC

<sup>7)</sup> A = V<sub>s</sub> connections reverse-polarity protected  
C = Interference suppression

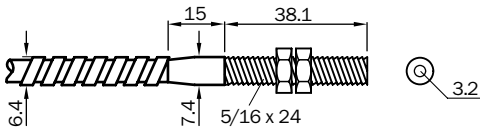
#### Ordering information

Type	Order no.
WLL 260-S 240	6 009 504
WLL 260-R 240	6 009 503

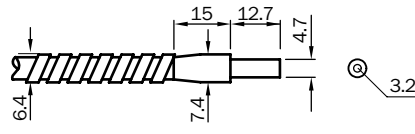
Dimensions illustration fiber-optic cable

- Glass fiber-optic cable with stainless steel jacket
- Sender and receiver fibers are freely combinable (proximity system)
- Ambient operating temperature  $-58$  to  $+315$  °C
- Fiber-optic cable length 900 mm
- Bending radius 19 mm

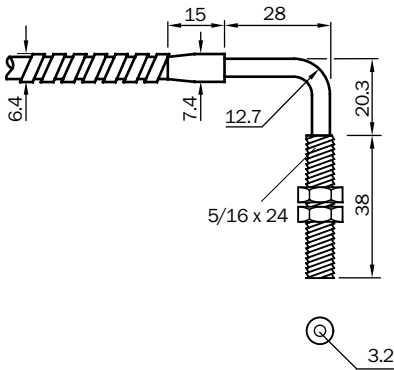
Fiber-optic cable LIS/LBS 32 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LIST 32 900	7 020 045	700 mm
Proximity	LBST 32 900	7 020 046	50 mm



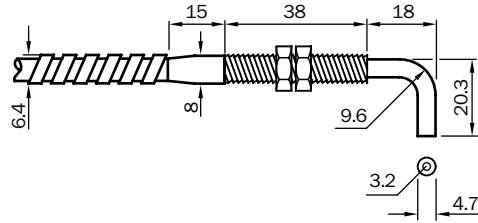
Fiber-optic cable LIS/LBS 32 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISF 32 900	7 020 037	700 mm
Proximity	LBSF 32 900	7 020 038	50 mm



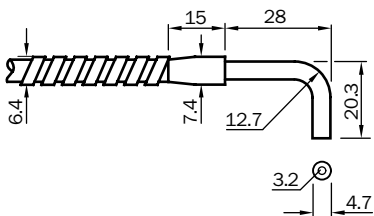
Fiber-optic cable LIS/LBS 32 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISAT 32 900	7 020 035	700 mm
Proximity	LBSAT 32 900	7 020 036	50 mm



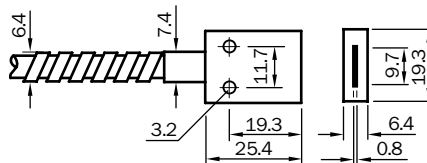
Fiber-optic cable LIS/LBS 32 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISTA 32 900	7 020 047	700 mm
Proximity	LBSTA 32 900	7 020 048	50 mm



Fiber-optic cable LIS/LBS 32 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISA 32 900	7 020 039	700 mm
Proximity	LBSA 32 900	7 020 040	50 mm



Fiber-optic cable LIS/LBS 32 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISR 32 900	7 020 041	700 mm
Proximity	LBSR 32 900	7 020 042	50 mm

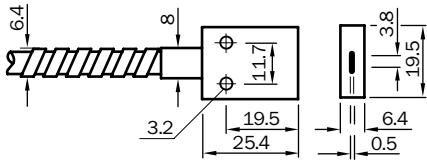


\* Operating range or operating scanning range  
Object with 90% reflectance (DIN 5033)  
Size of object = light spot diameter (aperture angle approx. 60°)

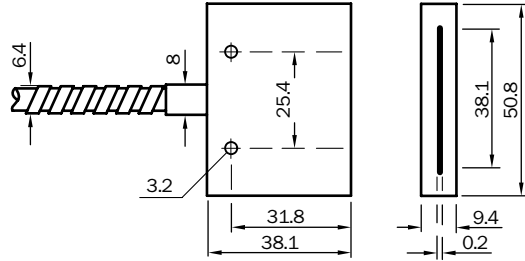
The order number includes a fiber-optic cable.  
Two fiber-optic cables are required for a through-beam system.



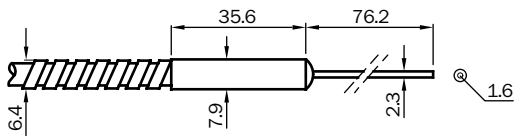
Fiber-optic cable LIS/LBS 16 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISR 16 900	7 020 049	220 mm
Proximity	LBSR 16 900	7 020 050	15 mm



Fiber-optic cable LIS/LBS 40 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISR 40 900	7 020 051	600 mm
Proximity	LBSR 40 900	7 020 052	90 mm

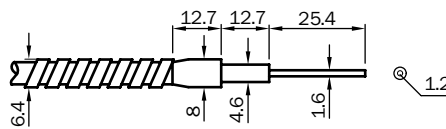


Fiber-optic cable LIS/LBS 16 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISP 16 900	7 020 043	100 mm
Proximity	LBSP 16 900	7 020 044	6 mm



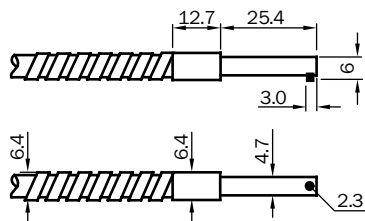
Bending radius of sleeve  $R_{min} = 12$  mm

Fiber-optic cable LIS/LBS 12 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISM 12 900	7 020 053	90 mm
Proximity	LBSM 12 900	7 020 054	6 mm



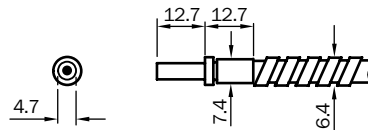
Bending radius of sleeve  $R_{min} = 6$  mm

Fiber-optic cable LIS/LBS 23 900			
System	Type	Order no.	Scanning dist. *
Through-beam	LISAA 23 900	7 020 102	240 mm
Proximity	LBSAA 23 900	7 020 103	30 mm

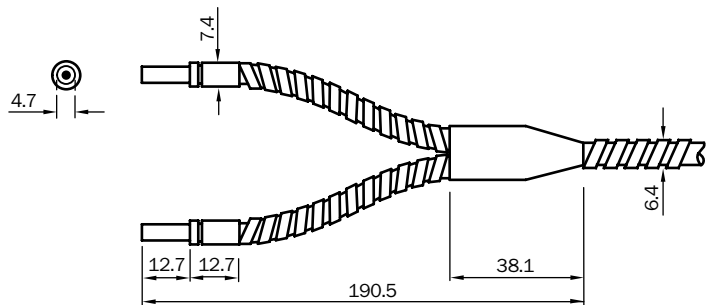


#### Adaption of fiber-optic cable

Through-beam system



Proximity system



\* Operating range or operating scanning range  
Object with 90% reflectance (DIN 5033)  
Size of object = light spot diameter (aperture angle approx. 60°)

The order number includes a fiber-optic cable.  
Two fiber-optic cables are required for a through-beam system.

Mounting materials:  
Cap nut included with WLL 260  
Snap ring, O-ring included with fiber-optic cable WLL 260

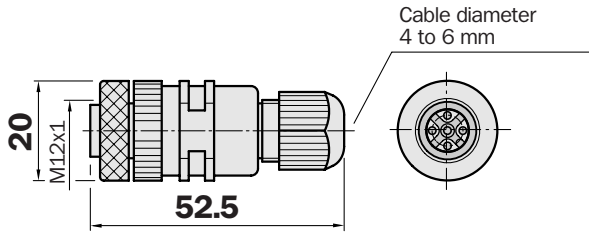
## Dimension illustration and order informations

- Pin assignment to EN 50044
- DC coding

### SENSICK circular screw system M 12, 4/5 pin, enclosure rating IP 67

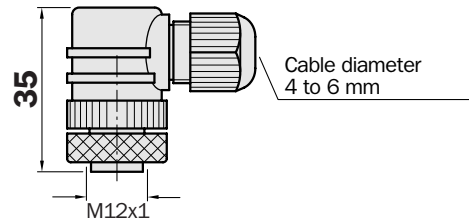
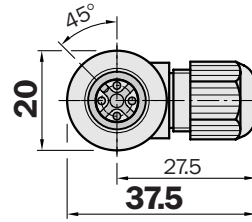
#### M12 cable receptacle, 4 pin or 5 pin, straight

Type	Order no.	Pins
DOS-1204-G	6 007 302	4
DOS-1205-G	6 007 719	5



#### M12 cable receptacle, 4 pin or 5 pin, angled

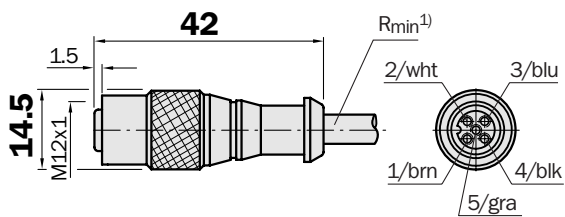
Type	Order no.	Pins
DOS-1204-W	6 007 303	4
DOS-1205-W	6 007 720	5



#### M12 cable receptacle, 4 pin or 5 pin, straight

Cable-Ø 5/6 mm, 4/5 x 0,25 mm<sup>2</sup>, sheath PVC

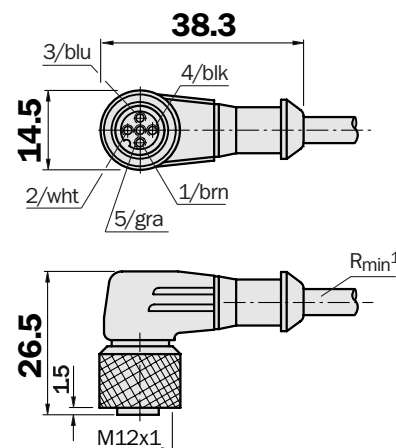
Type	Order no.	Pins	Cable length
DOL-1204-G02M	6 009 382	4	2 m
DOL-1204-G05M	6 009 866	4	5 m
DOL-1204-G10M	6 010 543	4	10 m
DOL-1205-G02M	6 008 899	5	2 m
DOL-1205-G05M	6 009 868	5	5 m
DOL-1205-G10M	6 010 544	5	10 m



#### M12 cable receptacle, 4 pin or 5 pin, angled

Cable-Ø 5/6 mm, 4/5 x 0,25 mm<sup>2</sup>, sheath PVC

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
DOL-1205-W02M	6 008 900	5	2 m
DOL-1205-W05M	6 009 869	5	5 m
DOL-1205-W10M	6 010 542	5	10 m

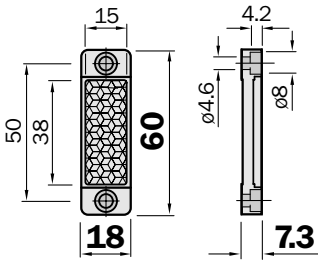


<sup>1)</sup> Minimum bending radius during dynamic use  
 $R_{min} = 20 \times \text{Cable-}\varnothing$

Plastic model for temperatures up to 65 °C

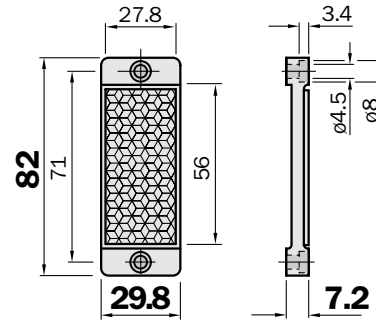
**Reflector 20 x 40 mm**

Type	Order no.
PL 20 A	1 012 719



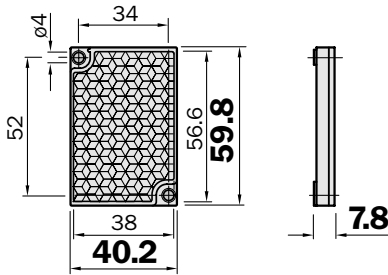
**Reflector 30 x 50 mm**

Type	Order no.
PL 30 A	1 002 314



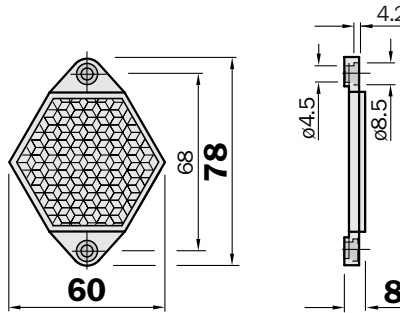
**Reflector 40 x 60 mm**

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



**Reflector, hexagonal**

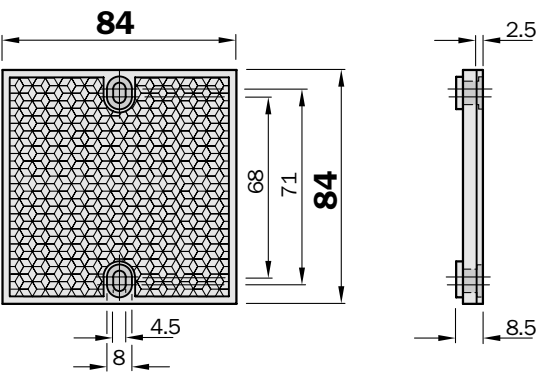
Opening width 48 mm	
Type	Order no.
PL 50 A	1 000 132



Also available in heatable model:  
 Permanent heating: PL 50HK,  
 Order no. 1 011 545  
 Controlled heating: PL 50HS  
 Order no. 1 009 871

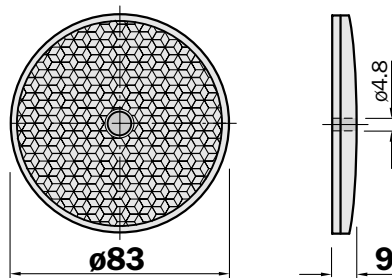
**Reflector 80 x 80 mm**

Type	Order no.
PL 80 A	1 003 865



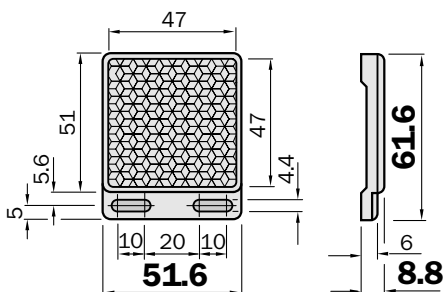
**Reflector ø 83 mm, Center hole mounting**

Type	Order no.
C 110	5 304 549



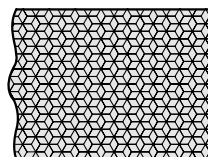
**Reflector 47 x 47 mm**

Type	Order no.
P 250	5 304 812



**Reflective tape**

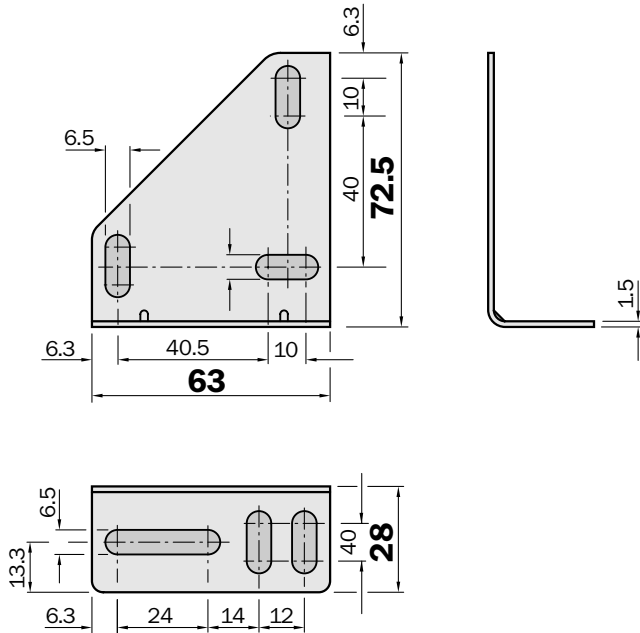
Type	Order no.	
REF-DG-K	4 019 634	Ready-made
REF-DG	5 304 334	Sheet 749 x 914 mm



Included with WL 260.

**Mounting bracket**

Type	Order no.
BEF-W260	5 304 819

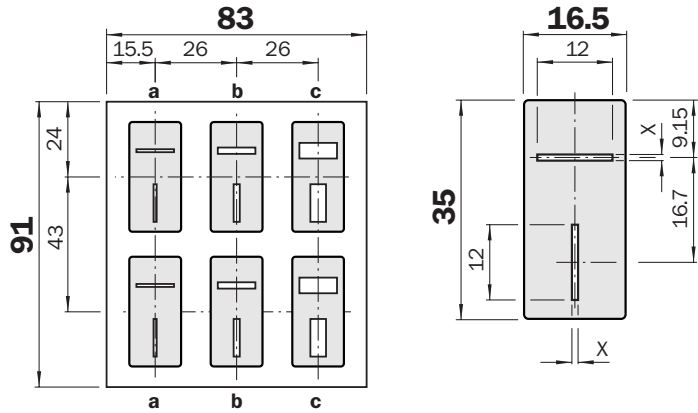


Included with W 260.

**Slotted masks for WS/WE\***

Type	Order no.
BL-260-SK	5 308 773

\* Two pieces each



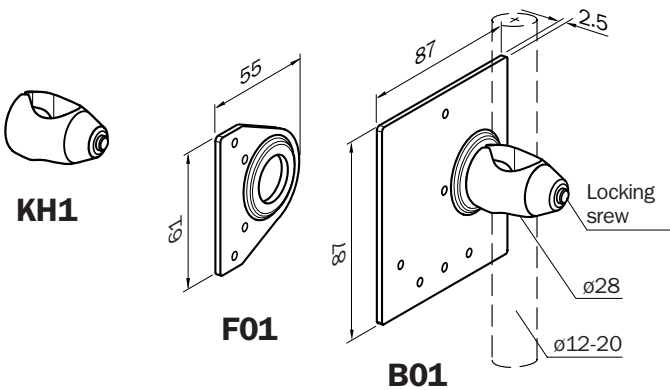
3 pairs with slot widths A, B and C are supplied with equipment.  
Mounting by self-adhesive back.

Stick mask on red optics body of WS 260 and WE 260.

For detecting smaller objects or increasing the switching accuracy.  
Only for WS/WE 260. Changed operating ranges.

Operating range	WS/WE 260-S/R 270	WS/WE 260-E/F x70
<b>A</b> Slot width 5,0 mm	SR = 12 m	SR = 9 m
<b>B</b> Slot width 2,0 mm	SR = 6 m	SR = 4,5 m
<b>C</b> Slot width 1,0 mm	SR = 3 m	SR = 2 m

**Universal bracket for rod mounting**



Mounting plates	Type	Order no. <sup>1)</sup>
<b>B01</b>	BEF-KHS-B01	2 022 459
<b>F01</b>	BEF-KHS-F01	2 022 463
<b>KH1</b>	BEF-KHS-KH1	2 022 726

Sensors/reflectors
P 250, PL 30 A, PL 40 A, PL 50 A, PL 80 A, C 110
W 260, PL 20 A, P 250
Clamp bracket rod mounting without attachment plate and mounting material

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

Dimension drawings and order information

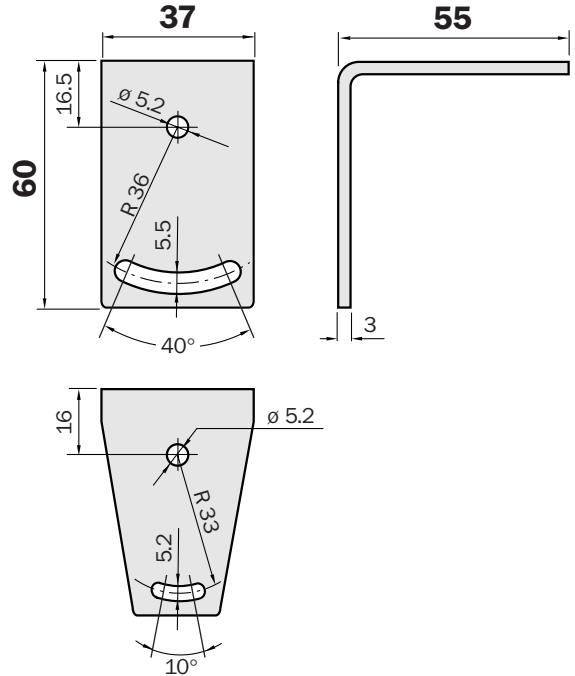
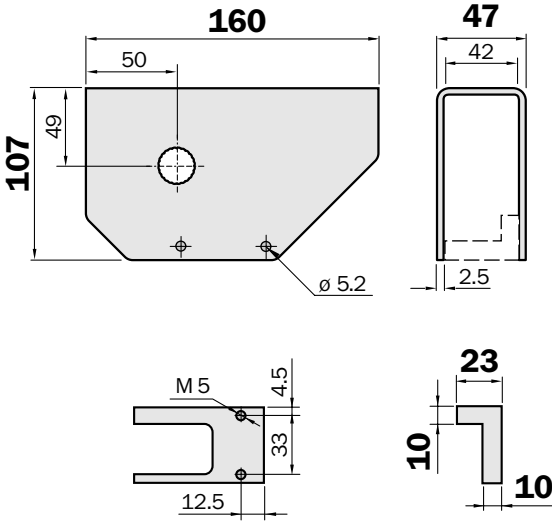
Special accessories

Weather protection hood for W 23, W 24-2, W 27-2, W 34, W 260 \*)

Type	Order no.
OBW-KHS-M01	2 023 240

Mounting bracket for weather protection hood OBW-KHS-M01

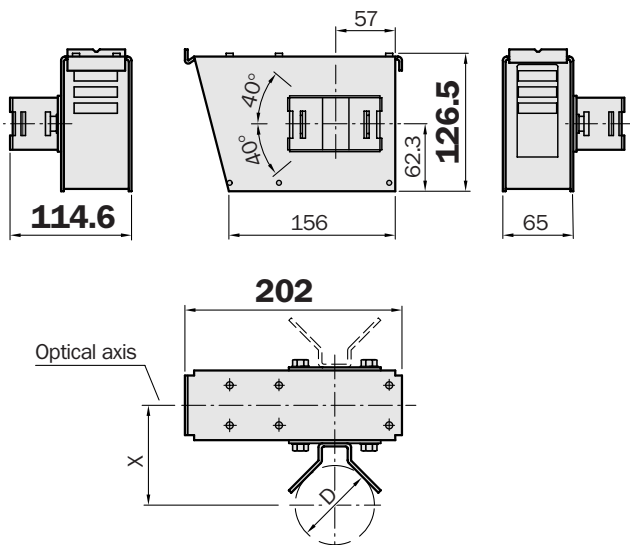
Type	Order no.
BEF-WN-OBW	2 023 251



\*) Can also be used as pole clamp in connection with separate clamp BEF-KHS-KH1 (Order no. 2 022 726), see page 36

Weather hood housing for W 24-2, W 30, W 32, W 34, W 36, DS 60

Type	Order no.
WSG1-01	1 018 470



Bar-Ø D	Distance X
48.0	74.2
60.3	82.9
76.1	94.1
88.9	103.1
108.0	116.6