

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.

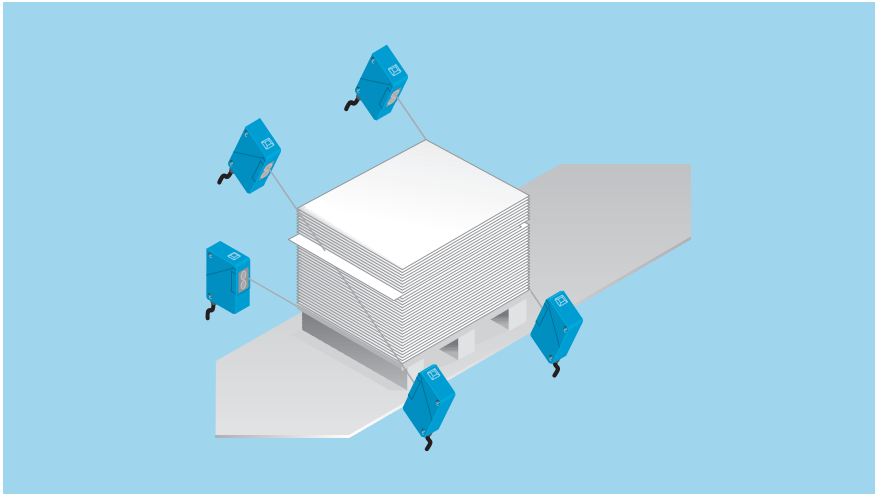
User-friendly details such as visible red transmission light for alignment, simple and flexible connection technology, glass and stainless steel jacketed fibre-optic cable types for difficult conditions and variable additional functions widen its range of possible uses well beyond storage and conveyor 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:

	Photoelectric proximity switches, BGS
	Photoelectric proximity switches, energetic
	Photoelectric reflex switch
	Through-beam photoelectric switches
	Photoelectric fibre-optic switches (proximity)
	Photoelectric fibre-optic switches (through-beam)

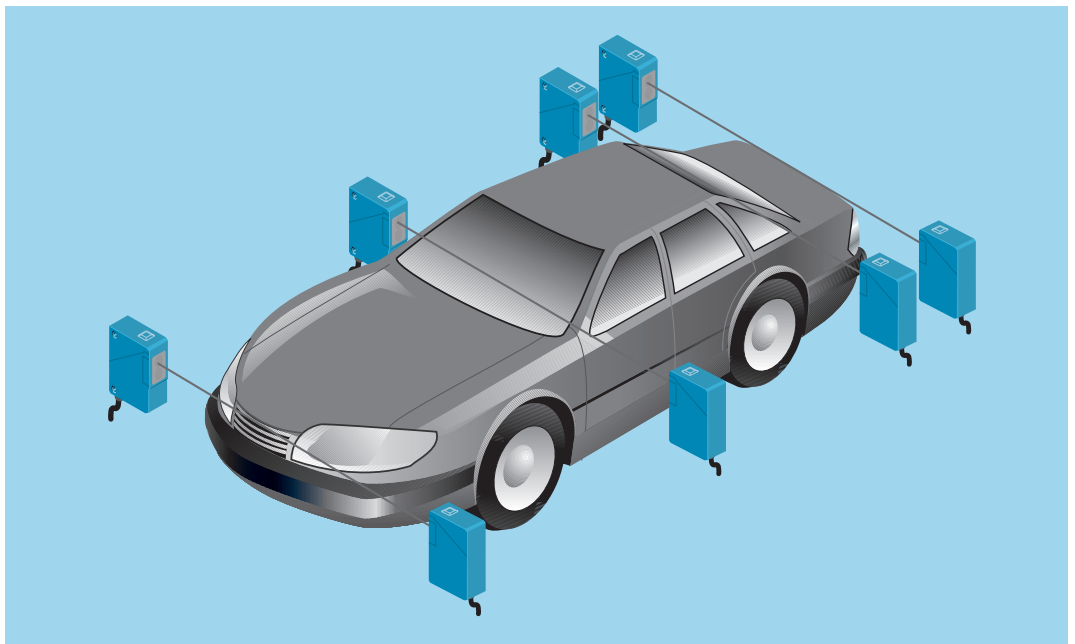
► WS/WE 260 through-beam photoelectric switches and WT 260 photoelectric proximity switches used for monitoring contours in palletisation systems to ensure that no problems are encountered during packaging.



▼ 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)

1x
LEDs blink 1x synchronously

LEDs switch off (sensor set to dark-switching = D.ON)
LED orange lights permanently (sensor set to light-switching = L.ON)

Alternative: no object, no background

Scanning range: SR = fix ~ 2100 mm
Teach-in without object, without background:
Standardizing to max. system scanning range

Large function reserve (2-Point Teach-in)

1x → 2x
LEDs blink 2x synchronously

LEDs blink permanently synchronously

LEDs switch off

2x
LEDs blink 2x synchronously
LEDs blink 2x asynchronously

Precise positioning (position Teach-in)

1x → 2x → 3x
LEDs blink 3x synchronously

LEDs switch off (sensor set to dark-switching = D.ON)
LED orange lights permanently (sensor set to light-switching = L.ON)
LEDs blink 3x asynchronously

Foreground suppression Teach-in

1x → 2x → 3x → 4x
LEDs blink 4x synchronously

Green LED lights
LEDs blink 4x asynchronously

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

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

$SR = C$

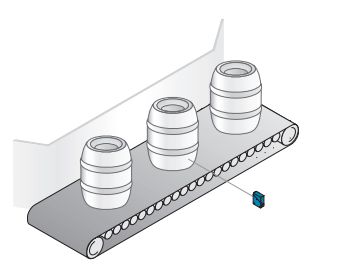
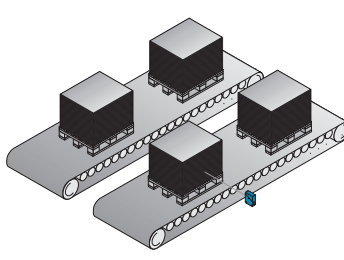
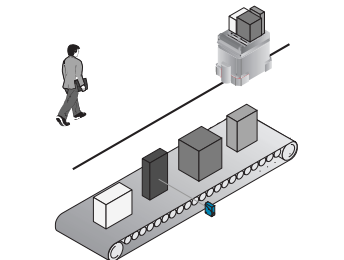
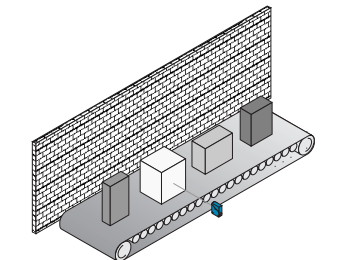
Object is detected *precisely*

- 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. Taught background is permanently stored

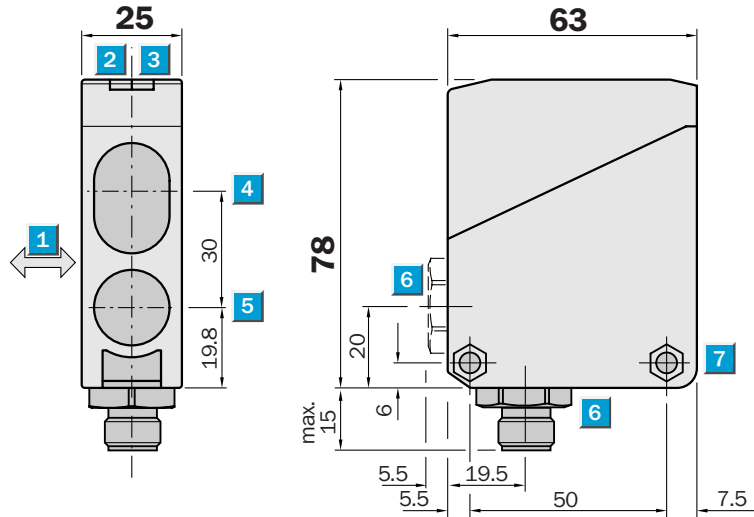
- Sensor is precisely aligned to background ± tolerance
- Consequently, shiny/structured (problem) surfaces are not "detected"
- Ideal if shiny, reflecting or extrem dark objects are well detected



	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

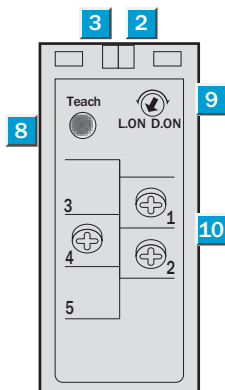
Dimensional drawing



Adjustments possible

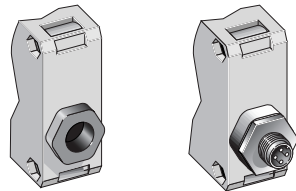
WT 260T-P 290
WT 260T-P 490
WT 260T-N 290
WT 260T-N 490

- 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



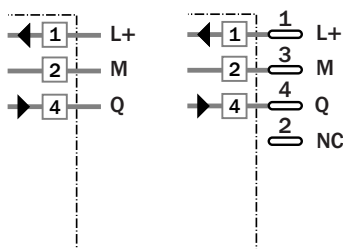
Connection types

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



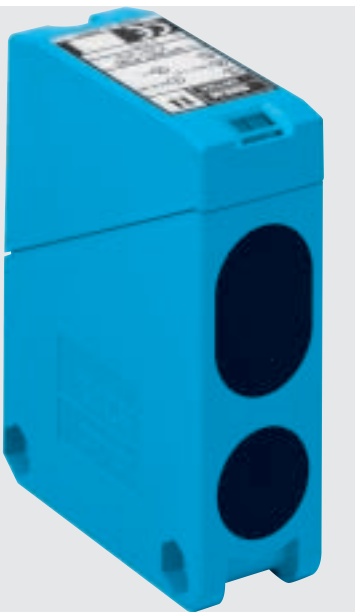
Terminals

4-pin, M 12



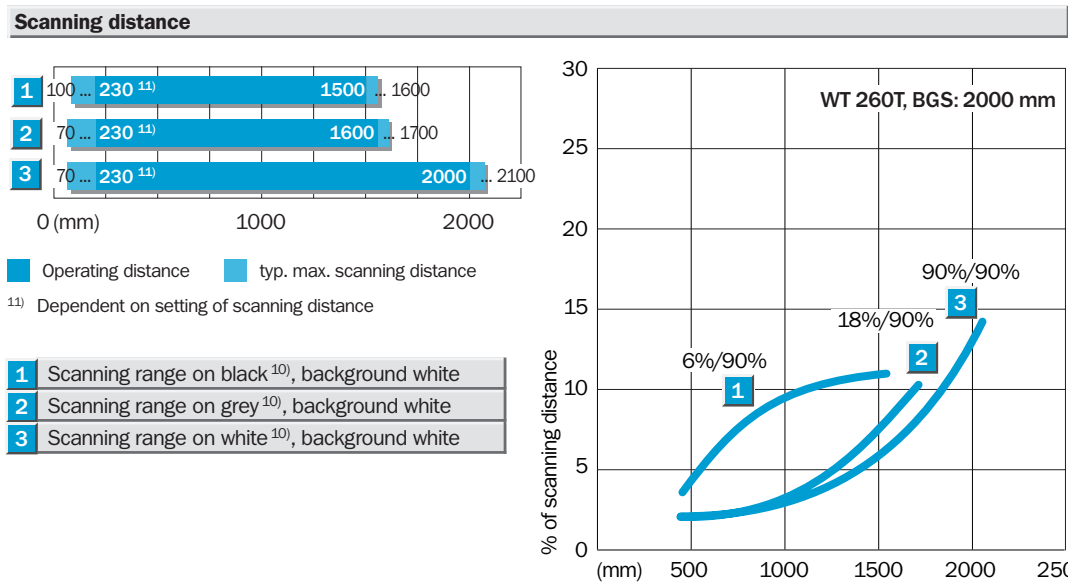
Accessories

- Mounting bracket, included
- M 12 cable receptacle




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

- 1) Object with 90 % remission (based on standard white DIN 5033)
- 2) Average service life 100,000 h at T_A = +25 °C
- 3) Limit values
- 4) Must be within V_s tolerances
- 5) Without load
- 6) With resistive load
- 7) With light/dark ratio 1:1
- 8) Reference voltage 50 V DC
- 9) A = V_s 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 % remission
Grey = 18 % remission
White = 90 % remission



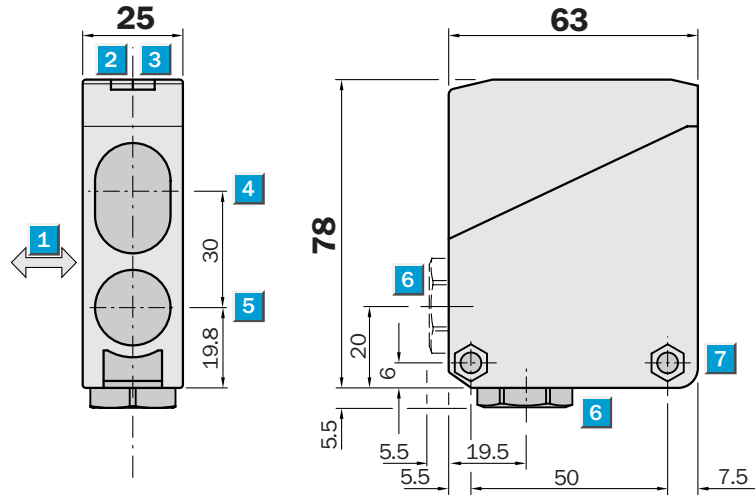
Order information

Type	Part no.
WT 260T-P 290	6 021 919
WT 260T-P 490	6 021 920
WT 260T-N 290	6 021 921
WT 260T-N 490	6 021 922


Scanning distance
 0.07...2.1 m
 Photoelectric proximity switch

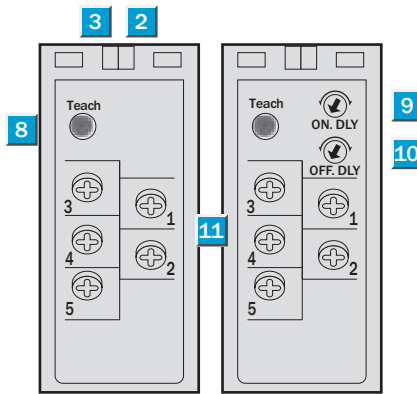
- Scanning distance setting per Teach-in button
- Background suppression: Reliable detection of dark objects even against light backgrounds
- Terminal chamber
- Universal voltage supply, relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately

Dimensional drawing



Adjustments possible

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

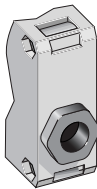


- 1 Standard direction of material being scanned
- 2 LED signal indicator orange, switching output active
- 3 LED signal indicator green, operating reserve
- 4 Middle of optic axis, receiver
- 5 Middle of optic axis, sender
- 6 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally 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

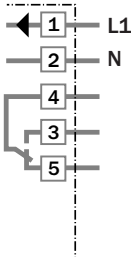
Connection types

WT 260T-S 290

WT 260T-R 290



Terminals



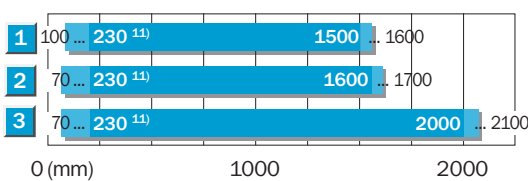
Accessories

Mounting bracket, included

Technical data		WT 260T-	S 290	R 290								
Scanning distance, typ. max.	70 mm ... 2100 mm ¹⁾											
Recommended operating scanning dist.	100 mm ... 2000 mm ¹⁾											
Scanning distance setting	Automatic, per Teach-in button											
Light source²⁾	LED, infrared											
Light spot diameter	Approx. 200 mm at 2000 mm											
Aperture angle sender	Approx. 6°											
Supply voltage V_s³⁾	12 to 240 V DC											
	24 to 240 V UC											
Power consumption	≤ 5 VA											
Switching outputs	Relay, SP, electrically isolated											
Switching current I max. ⁴⁾	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. ⁵⁾	25/s											
Time delay												
ON delay t _{ON}	0.1 ... 10 s, can be connected separately											
OFF delay t _{OFF}	0.1 ... 10 s, can be connected separately											
Connection type	Terminal chamber											
VDE protection class⁶⁾	<input type="checkbox"/>											
Circuit protection⁷⁾	A, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation - 25 °C to + 55 °C											
	Storage - 40 °C to + 70 °C											
Weight	Approx. 120 g											
Material	Housing: ABS; Optics: PMMA											

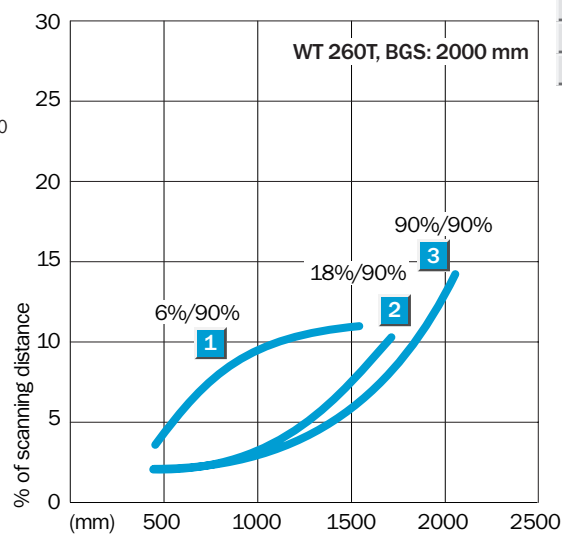
1) Object with 90 % remission (based on standard white DIN 5033)
 2) Average service life 100,000 h at T_A = + 25 °C
 3) ± 10 %
 4) Provide suitable spark suppression for inductive or capacitive loads
 5) With light/dark ratio 1:1
 6) Reference voltage 250 V UC
 7) A = V_s connections reverse-polarity protected
 C = Interference suppression
 8) Black = 6 % remission
 Grey = 18 % remission
 White = 90 % remission

Scanning distance




¹¹⁾ Dependent on setting of scanning distance

- 1 Scanning range on black⁸⁾, background white
- 2 Scanning range on gray⁸⁾, background white
- 3 Scanning range on white⁸⁾, background white



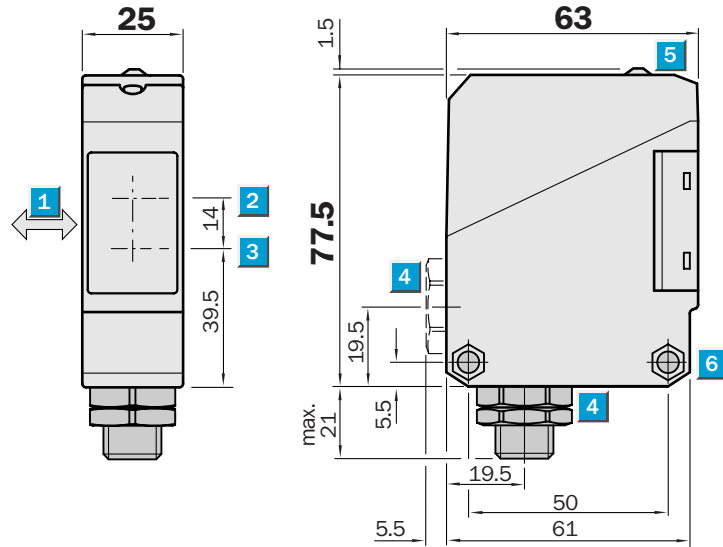
Order information

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


Scanning distance
 0...380 mm
 Photoelectric proximity switch

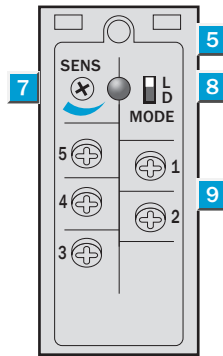
- Reliable detection of dark objects even against light backgrounds
- Scanning distance steplessly adjustable
- Terminal chamber or M 12 plug, 4-pin or 5-pin
- Test input
- VMA contamination signaling output

Dimensional drawing



Adjustments possible

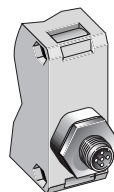
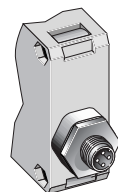
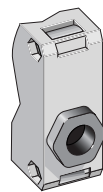
- WT 260-P 260
- WT 260-P 460
- WT 260-P 560



- 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 \varnothing 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 types

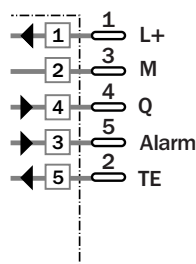
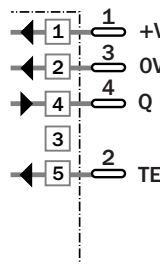
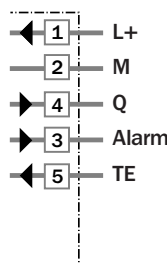
- WT 260-P 260
- WT 260-P 460
- WT 260-P 560



Terminals

4-pin, M 12

5-pin, M 12



Accessories

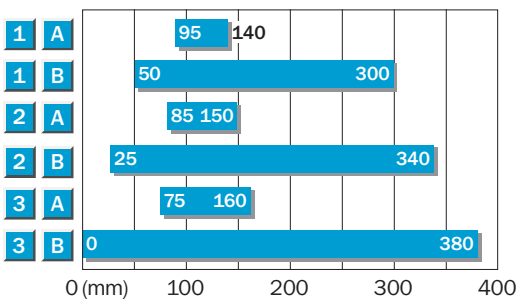
- Mounting bracket, included
- M 12 cable receptacle



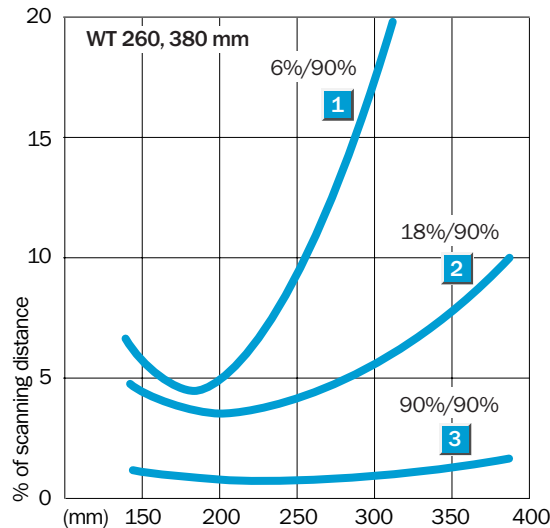
Technical data		WT 260-	P 260	P 460 ¹⁾	P 560 ¹⁾
Scanning distance	Max.: 0 ... 380 mm, adjustable ²⁾				
	Min.: 75 ... 160 mm, adjustable ²⁾				
Scanning distance setting	per potentiometer 270°				
Light source³⁾	LED, infrared				
Light spot diameter	Approx. 17 mm at 300 mm				
Aperture angle sender	Approx. 1,5°				
Supply voltage V_s	10 to 30 VDC ⁴⁾				
Ripple ⁵⁾	≤ 5 V _{PP}				
Current consumption ⁶⁾	≤ 35 mA				
Switching outputs	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 ⁷⁾	≤ 2 ms				
Switching frequency max. ⁸⁾	100/s				
Contamination signaling output VMA ⁹⁾	Alarm 100 mA, static				
Test input »TE« sender off	PNP: TE to + V _s				
Connection types	Terminal chamber Plug M 12, 4-pin Plug M 12, 5-pin				
VDE protection class¹⁰⁾	□				
Circuit protection¹¹⁾	A, B, C, D				
Enclosure rating	IP 66				
Ambient temperature T_A	Operation -25 °C ... +55 °C Storage -40 °C ... +70 °C				
Weight	Approx. 120 g				
Material	Housing: ABS; Optic: PC				

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

Scanning distance




- 1 Scanning range on black¹²⁾, background white
- 2 Scanning range on grey¹²⁾, background white
- 3 Scanning range on white¹²⁾, background white
- A Scanning distance control set to MIN
- B Scanning distance control set to MAX



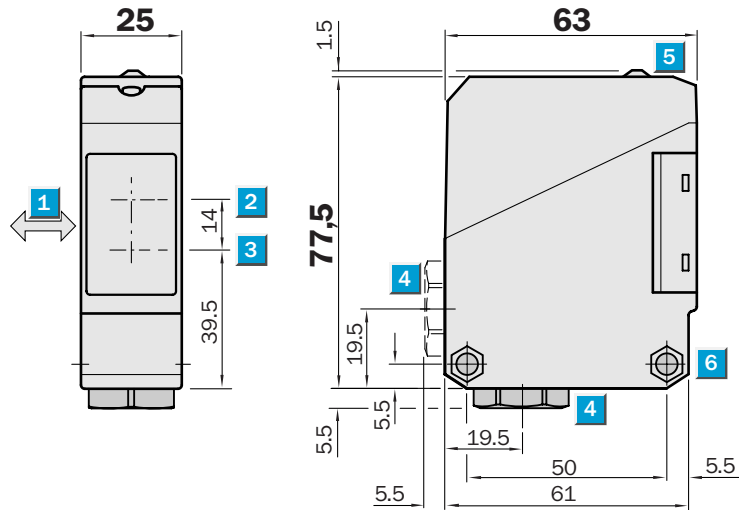
Order information

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


Scanning distance
 0...380 mm
 Photoelectric proximity switch

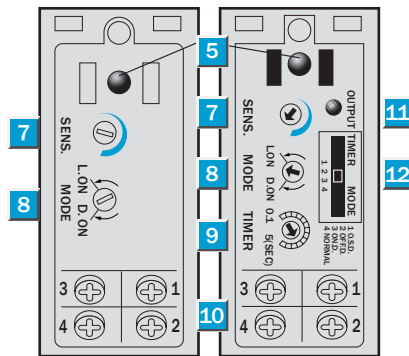
- Reliable detection of dark objects even against light backgrounds
- Scanning distance steplessly adjustable
- Terminal chamber
- Universal voltage supply, relay output SPST, Timer optional

Dimensional drawing



Adjustments possible

WT 260-S 260 WT 260-R 260

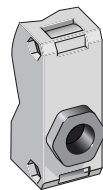


- 1 Standard direction of material being scanned
- 2 Middle of optic axis, receiver
- 3 Middle of optic axis, sender
- 4 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear;
- 5 LED signal strength indicator, red
- 6 Through hole Ø 5.2 mm on both sides for 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

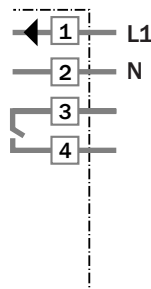


Connection types

WT 260-S 260
WT 260-R 260

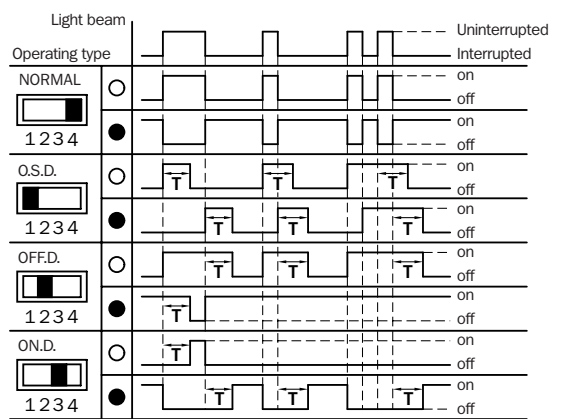


Terminals



Time delays

t = 0.1–5 s



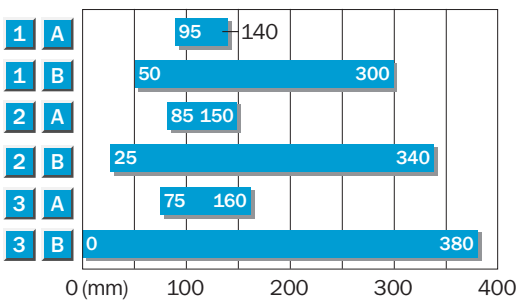
Accessoires

Mounting bracket, included

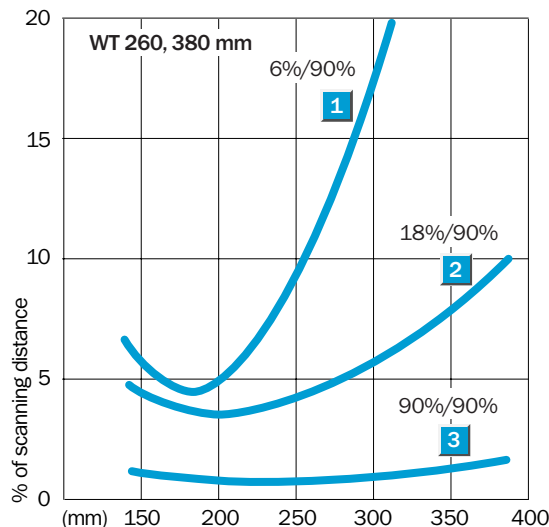
Technical data		WT 260-	S 260	R 260							
Scanning distance	max.: 0 ... 380 mm, adjustable ¹⁾										
	min.: 75 ... 160 mm, adjustable ¹⁾										
Scanning distance setting	per potentiometer 270°										
Light source²⁾	LED, infrared										
Light spot diameter	Approx. 17 mm at 300 mm										
Aperture angle sender	Approx. 1,5°										
Supply voltage V_s³⁾	12 to 240 V DC										
	24 to 240 V UC										
Current consumption	≤ 5 VA										
Switching outputs	Relay, SP, electrically isolated										
Output current I _A max. ⁴⁾	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. ⁵⁾	25/s										
Time delay	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									
Delay	Adjustable, 0.1 to 5 s; potentiometer 270°										
Connection type	Terminal chamber										
VDE protection class⁶⁾	<input type="checkbox"/>										
Circuit protection⁷⁾	A, C										
Enclosure rating	IP 66										
Ambient temperature T_A	Operation	-25 °C ... +55 °C									
	Storage	-40 °C ... +70 °C									
Weight	Approx. 120 g										
Material	Housing: ABS; Optic: PC										

¹⁾ Object with 90 % remission (based on standard white DIN 5033)
 ²⁾ Average service life 100,000 h at T_A = +25 °C
 ³⁾ ± 10 %
 ⁴⁾ Provide suitable spark suppression for inductive or capacitive loads
 ⁵⁾ With light/dark ratio 1:1
⁶⁾ Reference voltage 250 V UC
 ⁷⁾ A = V_s connections reverse-polarity protected
 C = Interference suppression
⁸⁾ Black = 6 % remission
 Grey = 18 % remission
 White = 90 % remission

Scanning distance




- 1 Scanning range on black⁸⁾, background white
- 2 Scanning range on grey⁸⁾, background white
- 3 Scanning range on white⁸⁾, background white
- A Scanning distance control set to MIN
- B Scanning distance control set to MAX



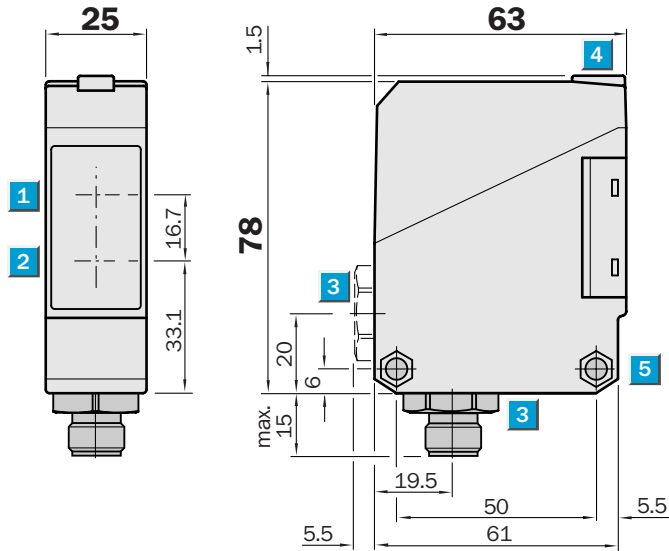
Order information

Type	Part 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

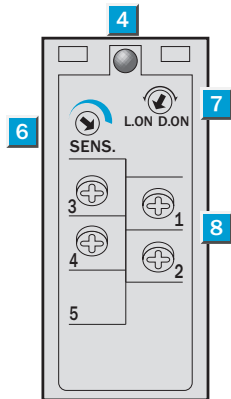
Dimensional drawing



Adjustments possible

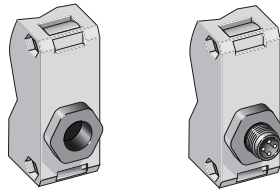
WT 260-F 280
WT 260-F 480
WT 260-E 280
WT 260-E 480

- 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 \varnothing 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 Types

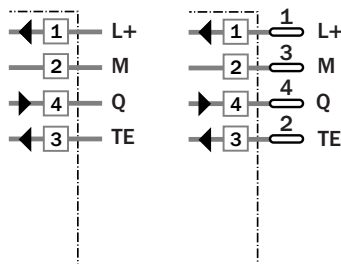
WT 260-F 280	WT 260-F 480
WT 260-E 280	WT 260-E 480



Accessories

- Mounting bracket, included
- M 12 cable receptacle

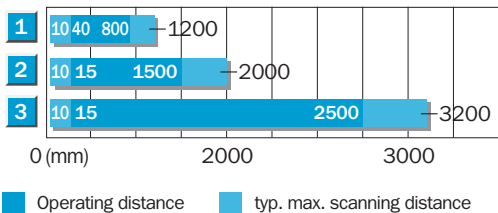
Terminals 4-pin, M 12



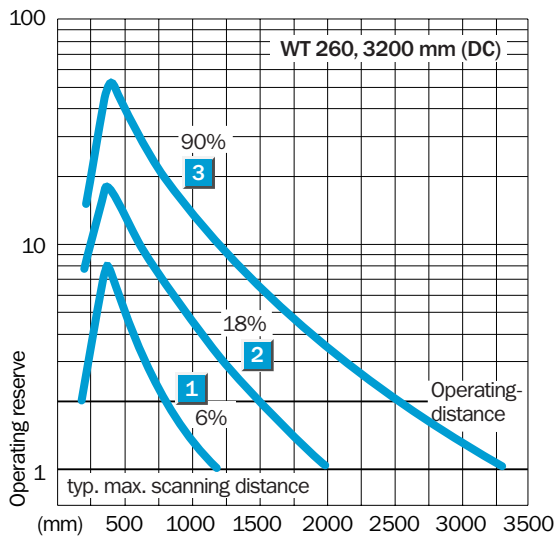
Technical data		WT 260-	F 280	F 480	E 280	E 480						
Scanning distance, typ. max.	10 to 3200 mm, adjustable ¹⁾											
Operating distance	15 to 2500 mm, adjustable ¹⁾											
Scanning distance setting	per potentiometer 270°											
Light source ²⁾	LED, infrared											
Light spot diameter	Approx. 80 mm at 2500 mm											
Aperture angle sender	Approx. 1.8°											
Supply voltage V_s	10 to 30 VDC ³⁾											
Ripple ⁴⁾	≤ 5 V _{PP}											
Current consumption ⁵⁾	≤ 35 mA											
Switching outputs	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 ⁶⁾	≤ 5.0 ms											
Switching frequency max. ⁷⁾	100/s											
Test input »TE« sender off	PNP: TE to + V _s NPN: TE to 0 V											
Connection types	Terminal chamber Plug M 12, 4-pin											
VDE protection class ⁸⁾	<input type="checkbox"/>											
Circuit protection ⁹⁾	A, B, C, D											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation -25 °C ... +55 °C Storage -40 °C ... +70 °C											
Weight	Approx. 120 g											
Material	Housing: ABS; Optic: PC											

¹⁾ Object with 90 % remission (based on standard white DIN 5033) ³⁾ Limit values
²⁾ Average service life 100,000 h at T_A = +25 °C ⁴⁾ Must be within V_s tolerances
⁵⁾ Without load ⁶⁾ With resistive load
⁷⁾ With light/dark ratio 1:1 ⁸⁾ Reference voltage 50 V DC
⁹⁾ A = V_s 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 % remission
- 2 Scanning range on grey, 18 % remission
- 3 Scanning range on white, 90 % remission



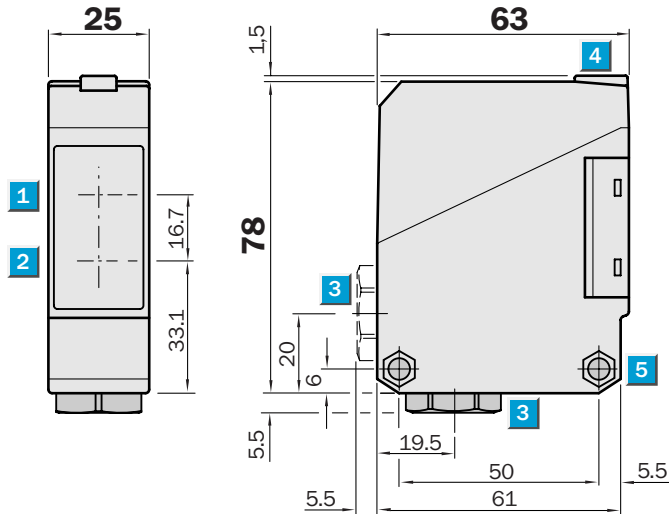
Order information

Type	Part 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	

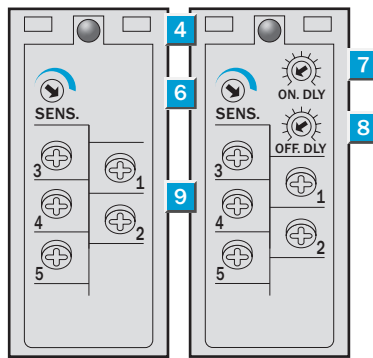
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

Dimensional drawing



Adjustments possible

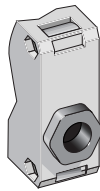
WT 260-S 280	WT 260-R 280
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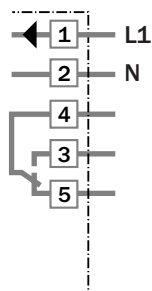
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 4 LED signal strength indicator, red
- 5 Through hole \varnothing 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
- 7 Time control ON delay t_{ON}
- 8 Time control OFF delay t_{OFF}
- 9 Terminals

Connection types

WT 260-S 280
WT 260-R 280



Terminals

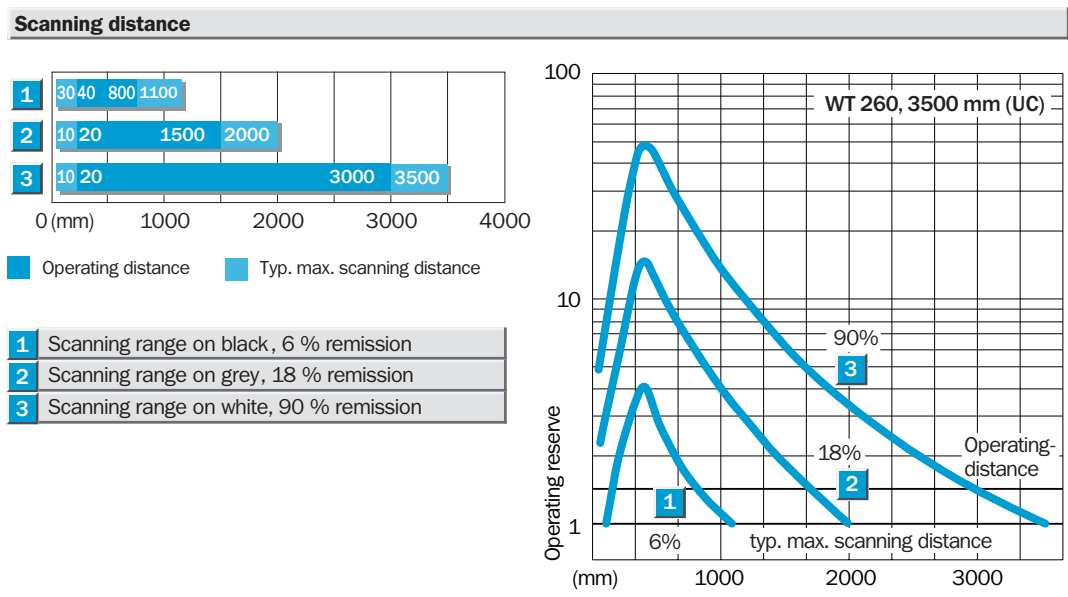


Accessories


Mounting bracket, included

Technical data		WT 260-	S 280	R 280								
Scanning distance, typ. max.	10 to 3500 mm, adjustable ⁴⁾											
Operating distance	20 to 3000 mm, adjustable ⁴⁾											
Scanning distance setting	per potentiometer 270°											
Light source²⁾	LED, infrared light											
Light spot diameter	Approx. 95 mm at 3000 mm											
Aperture angle sender	Approx. 1.7°											
Supply voltage V_s³⁾	12 to 240 V DC											
	24 to 240 V AC											
Power consumption	≤ 5 VA											
Switching output	Relay, SPDT, electrically isolated											
Switching current I max ⁴⁾	3 A/240 V AC; 3 A/30 V DC											
Light receiver, switching mode	Light-switching											
Response time	≤ 20 ms											
Switching frequency max. ⁵⁾	25/s											
Time delays												
ON delay t _{ON}	0.1 to 10 s, can be connected separately											
OFF delay t _{OFF}	0.1 to 10 s, can be connected separately											
Connection type	Terminal chamber											
CE noise radiation	Level EN 50081-1 ("Household standard")											
VDE protection class⁶⁾	□											
Circuit protection⁷⁾	A, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation -25 °C ... +55 °C											
	Storage -40 °C ... +70 °C											
Weight	Approx. 120 g											
Material	Housing: ABS; Optics: PC											

¹⁾ Object with 90 % remission (based on standard white DIN 5033) ³⁾ ± 10 % ⁶⁾ Reference voltage 250 V UC
²⁾ Average service life 100,000 h at T_A = + 25 °C ⁴⁾ Provide suitable spark suppression for inductive or capacitive loads ⁷⁾ A = V_s connections reverse-polarity protected
⁵⁾ With light/dark ratio 1:1 C = Interference suppression

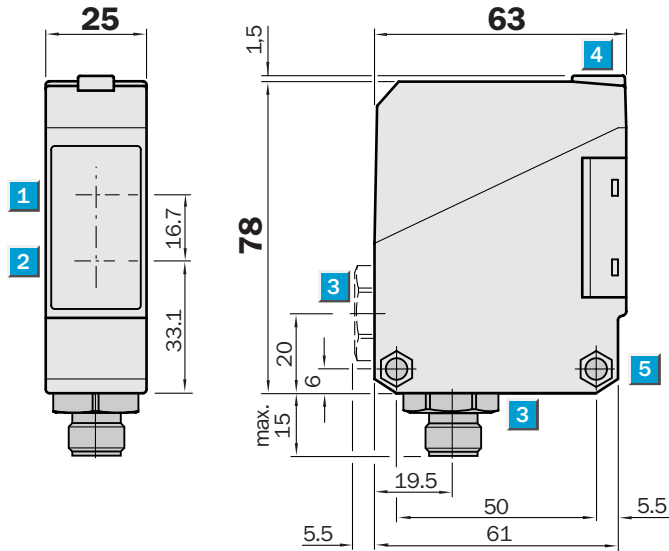


Order information	
Type	Part no.
WT 260-S 280	6 020 771
WT 260-R 280	6 020 772


Scanning distance
 5...1500 mm
 Photoelectric proximity switch

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

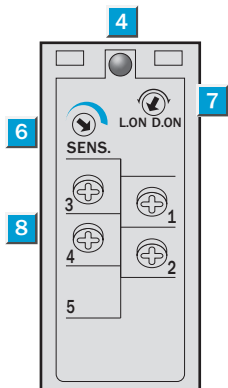
Dimensional drawing



Adjustments possible

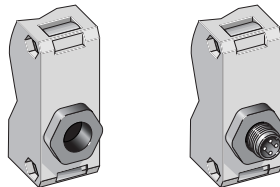
WT 260-F 270
WT 260-F 470
WT 260-E 270
WT 260-E 470

- 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 \varnothing 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

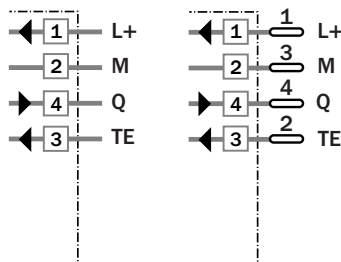


Connection types

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



Terminals	4-pin, M 12
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Accessories
Mounting bracket, included
M 12 cable receptacle

Technical data		WT 260-	F 270	F 470	E 270	E 470
Scanning distance, typ. max.	15 to 1500 mm, adjustable ¹⁾					
Operating distance	5 to 1000 mm, adjustable ¹⁾					
Scanning distance setting	per potentiometer 270°					
Light source²⁾	LED, visible red light					
Light spot diameter	Approx. 45 mm at 1000 mm					
Aperture angle sender	Approx. 2.5°					
Supply voltage V_s	10 to 30 V DC ³⁾					
Ripple ⁴⁾	≤ 5 V _{pp}					
Current consumption ⁵⁾	≤ 35 mA					
Switching outputs	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 ⁶⁾	≤ 0.5 ms					
Switching frequency max. ⁷⁾	1000/s					
Test input »TE« sender off	PNP: TE to + V _s NPN: TE to 0 V					
Connection types	Terminal chamber Plug M 12, 4-pin					
VDE protection class⁸⁾	□					
Circuit protection⁹⁾	A, B, C, D					
Enclosure rating	IP 67					
Ambient temperature T_A	Operation -25 °C ... +55 °C Storage -40 °C ... +70 °C					
Weight	Approx. 120 g					
Material	Housing: ABS; Optics: PC					

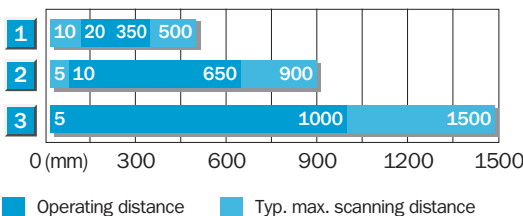
¹⁾ Object with 90 % remission (based on standard white DIN 5033)
²⁾ Average service life 100,000 h at T_A = +25 °C

³⁾ Limit values
⁴⁾ Must be within V_s tolerances
⁵⁾ Without load

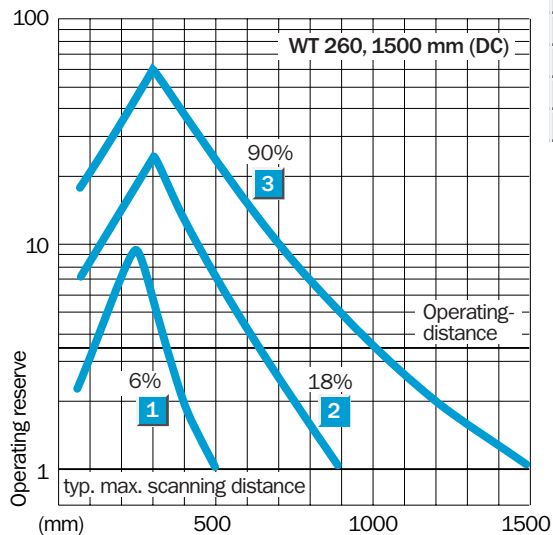
⁶⁾ With resistive load
⁷⁾ With light/dark ratio 1:1
⁸⁾ Reference voltage 50 V DC

⁹⁾ A = V_s 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 % remission
- 2** Scanning range on grey, 18 % remission
- 3** Scanning range on white, 90 % remission



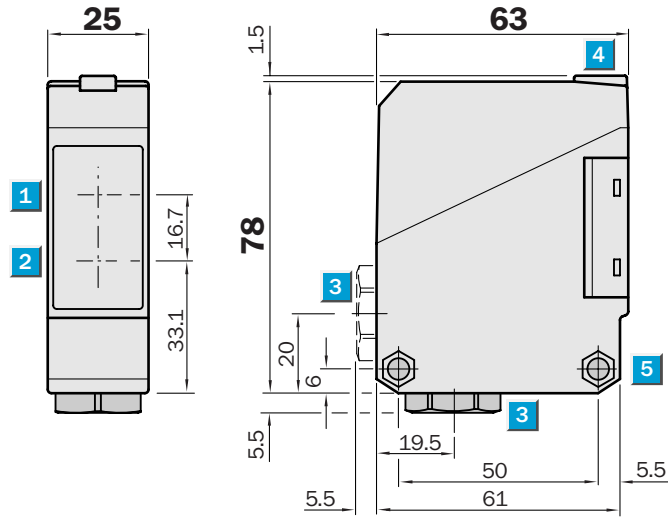
Order information

Type	Part no.
WT 260-F 270	6 020 979
WT 260-F 470	6 020 980
WT 260-E 270	6 020 981
WT 260-E 470	6 021 815


Scanning distance
 5...1700 mm
Photoelectric proximity switch

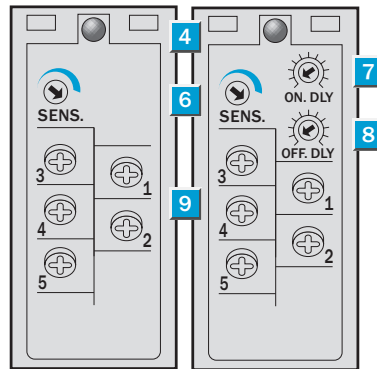
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 ("Household standard")

Dimensional drawing



Adjustments possible

WT 260-S 270 WT 260-R 270

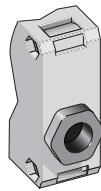


- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 4 LED signal strength indicator, red
- 5 Through hole \varnothing 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
-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

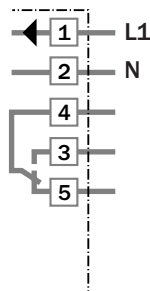
Connection types

WT 260-S 270

WT 260-R 270



Terminals



Accessories

Mounting bracket, included



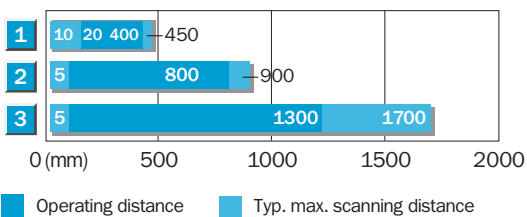
Technical data		WT 260-	S 270	R 270								
Scanning distance, typ. max.	5 to 1700 mm, adjustable ¹⁾											
Operating distance	5 to 1300 mm, adjustable ¹⁾											
Scanning distance setting	per potentiometer 270°											
Light source²⁾	LED, visible red light											
Light spot diameter	Approx. 60 mm at 1300 mm											
Aperture angle sender	Approx. 1.8°											
Supply voltage V_s³⁾	12 to 240 V DC											
	24 to 240 V AC											
Power consumption	≤ 5 VA											
Switching output	Relay, SPDT, electrically isolated											
Switching current I max. ⁴⁾	3 A/240 V AC; 3 A/30 V DC											
Light receiver, switching mode	Light-switching											
Response time	≤ 20 ms											
Switching frequency max. ⁵⁾	25/s											
Time delay												
ON delay t _{ON}	0.1 to 10 s, can be connected separately											
OFF delay t _{OFF}	0.1 to 10 s, can be connected separately											
Connection type												
	Terminal chamber											
CE noise radiation												
	Level EN 50081-1 ("Household standard")											
VDE protection class⁶⁾												
	<input type="checkbox"/>											
Circuit protection⁷⁾												
	A, C											
Enclosure rating												
	IP 67											
Ambient temperature T_A												
	Operation - 25 °C ... + 55 °C											
	Storage - 40 °C ... + 70 °C											
Weight												
	Approx. 120 g											
Material												
	Housing: ABS; Optics: PC											

¹⁾ Object with 90% remission (based on standard white DIN 5033)
²⁾ Average service life 100,000 h at T_A = + 25 °C

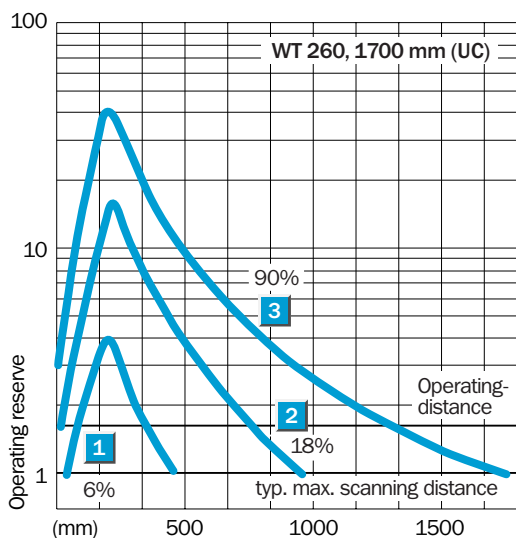
³⁾ ± 10 %
⁴⁾ Provide suitable spark suppression for inductive or capacitive loads
⁵⁾ With light/dark ratio 1:1

⁶⁾ Reference voltage 250 V UC
⁷⁾ A = V_s connections reverse-polarity protected
 C = Interference suppression

Scanning distance




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



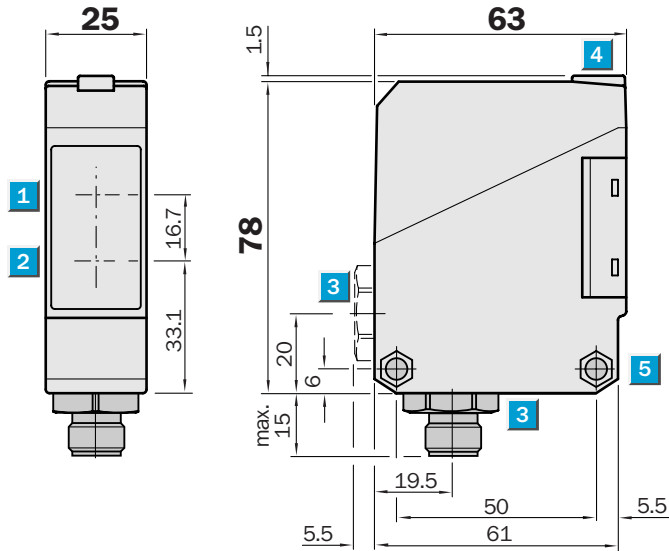
Order information

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

	Scanning range 0.01...14 m
Photoelectric reflex switch	

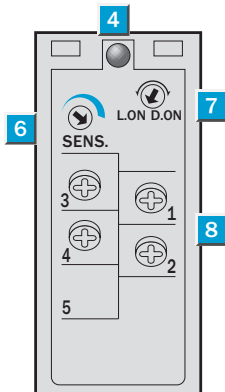
- Polarizing filter providing reliable detection even of objects with shiny surfaces
- Sensitivity, adjustable
- Terminal chamber or plug M 12, 4-pin
- Test input

Dimensional drawing



Adjustments possible

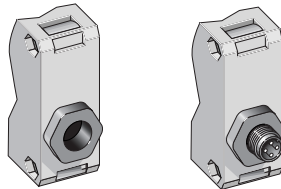
WL 260-F 270
WL 260-F 470
WL 260-E 270
WL 260-E 470



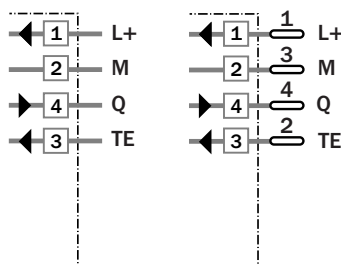
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
- 4 LED signal strength indicator, yellow, switching output active
- 5 Through hole Ø 5.2 mm on both 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 types

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



Terminals	4-pin, M 12
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Accessories
Mounting bracket, included
P 250 reflector, included
M 12 cable receptacle

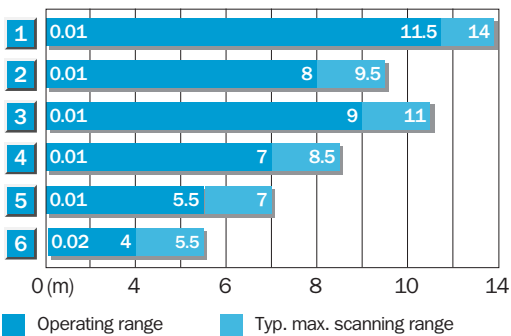
Technical data		WL 260-	F 270	F 470	E 270	E 470
Scanning range , typ. max/on reflector	0.01 to 14 m/PL 80 A					
	typ. max/on reflector	0.01 to 9.5 m/P 250 (included)				
Operating range		0.01 to 8 m/P 250				
Sensitivity		Adjustable, potentiometer 270°				
Light source⁴⁾		LED, visible red light				
		With polarizing filter				
Light spot diameter		Approx. 240 mm at 8 m				
Aperture angle sender		Approx. 1.7°				
Supply voltage V_s		10 to 30 V DC ²⁾				
Ripple ³⁾		≤ 5 V _{PP}				
Current consumption ⁴⁾		≤ 35 mA				
Switching outputs		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 ⁵⁾		≤ 0.5 ms				
Switching frequency max. ⁶⁾		1000/s				
Test input »TE« sender off		PNP: TE to + V_s				
		NPN: TE to 0 V				
Connection types		Terminal chamber				
		Plug M 12, 4-pin				
VDE protection class⁷⁾		□				
Circuit protection⁸⁾		A, B, C, D				
Enclosure rating		IP 67				
Ambient temperature T_A		Operation -25 °C ... +55 °C				
		Storage -40 °C ... +70 °C				
Weight		Approx. 120 g				
Material		Housing: ABS; Optics: PMMA				

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

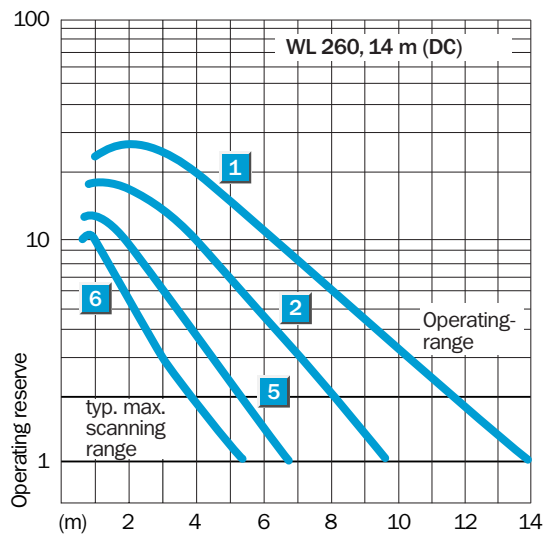
⁵⁾ With resistive load
⁶⁾ With light/dark ratio 1:1
⁷⁾ Reference voltage 50 V DC

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

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 or PL 40 A	0.01 ... 9 m
4 PL 30 A or 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



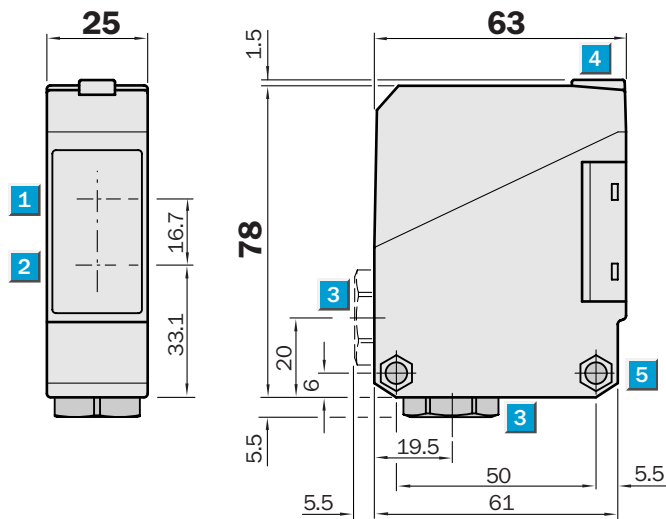
Order information

Type	Part 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

	Scanning range 0.01...15 m
Photoelectric reflex switch	

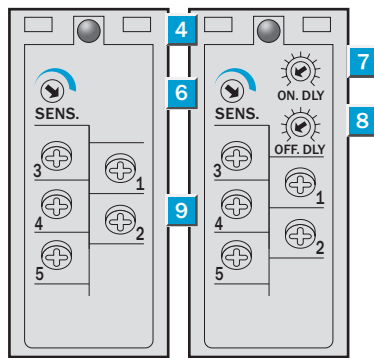
- Polarizing filter providing reliable detection even of objects with shiny surfaces
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

Dimensional drawing



Adjustments possible

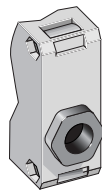
WL 260-S 270	WL 260-R 270
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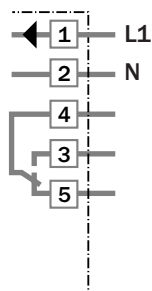
- 1 Middle of optic axis, receiver
- 2 Middle of optic axis, sender
- 3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
- 4 LED signal strength indicator, red
- 5 Through hole \varnothing 5.2 mm on both sides for M 5 hex nut
- 6 Sensitivity control
-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

Connection types

WL 260-S 270
WL 260-R 270



Terminals



Accessories

Mounting bracket, included
P 250 reflector, included



Technical data		WL 260-	S 270	R 270								
Scanning range , typ. max./on reflector	0.01 to 15 m/PL 80 A											
	0.01 to 11 m/P 250 (included)											
Operating range	0.01 to 10 m/P 250											
Sensitivity	Adjustable, potentiometer 270°											
Light source⁴⁾	LED, visible red light											
	With polarizing filter											
Light spot diameter	Approx. 300 mm at 10 m											
Aperture angle sender	Approx. 1.7°											
Supply voltage V_S²⁾	12 to 240 V DC											
	24 to 240 V AC											
Power consumption	≤ 5 VA											
Switching output	Relay, SPDT, electrically isolated											
Switching current I max ³⁾	3 A/240 V AC; 3 A/30 V DC											
Light receiver, switching mode	Light-switching											
Response time	≤ 20 ms											
Switching frequency max. ⁴⁾	25/s											
Time delays												
ON delay t _{ON}	0.1 to 10 s, can be connected separately											
OFF delay t _{OFF}	0.1 to 10 s, can be connected separately											
Connection type	Terminal chamber											
CE noise radiation	Level EN 50081-1 ("Household standard")											
VDE protection class⁵⁾	□											
Circuit protection⁶⁾	A, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation -25 °C ... +55 °C											
	Storage -40 °C ... +70 °C											
Weight	Approx. 120 g											
Material	Housing: ABS; Optics: PMMA											

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

²⁾ ± 10 %

³⁾ Provide suitable spark suppression for inductive or capacitive loads

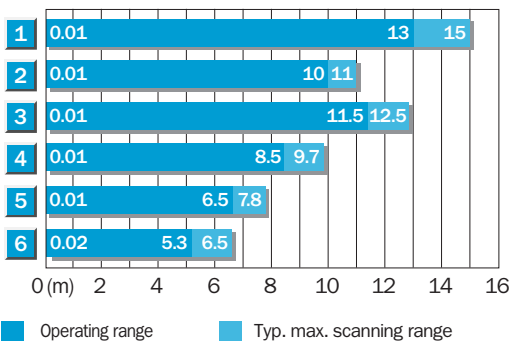
⁴⁾ With light/dark ratio 1:1

⁵⁾ Reference voltage 250 V UC

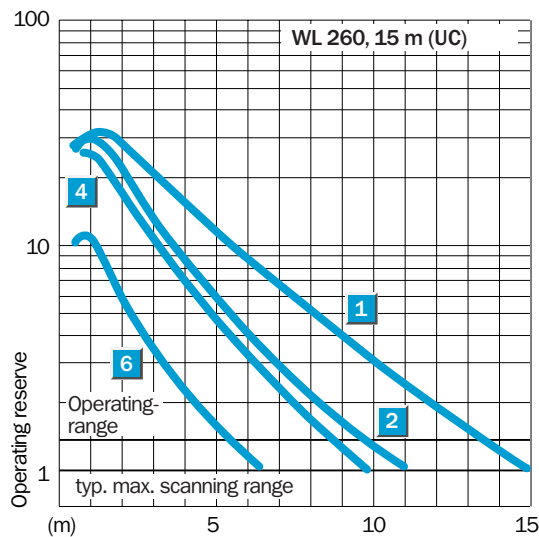
⁶⁾ A = V_S connections reverse-polarity protected

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 or PL 40 A	0.01 ... 11.5 m
4 PL 30 A or 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



Order information

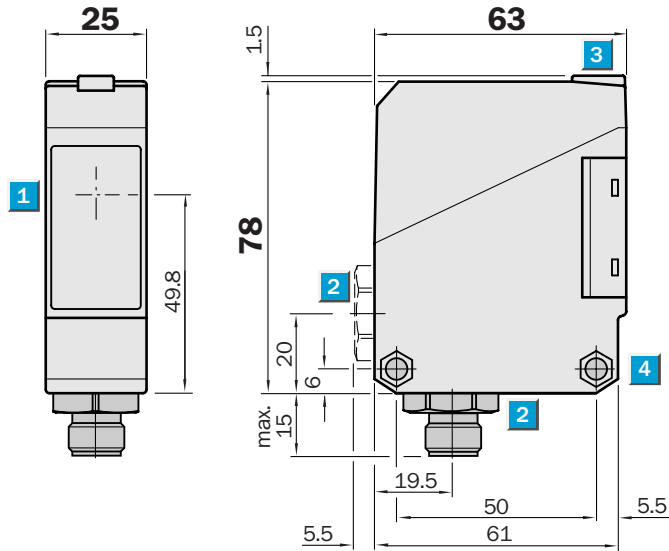
Type	Part no.
WL 260-S 270	6 020 767
WL 260-R 270	6 020 768

Scanning range
35 m

Through-beam photoelectric switch

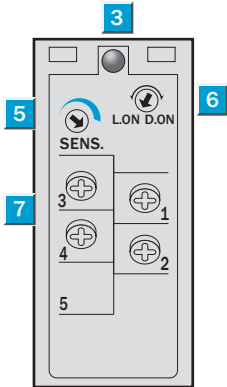
- Sensitivity, adjustable
- Terminal chamber or plug
M 12, 4-pin
- Test input

Dimensional drawing



Adjustments possible

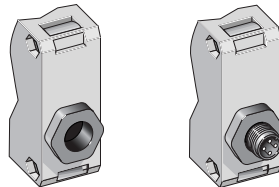
- WS/WE 260-F 270
- WS/WE 260-F 470
- WS/WE 260-E 270
- WS/WE 260-E 470



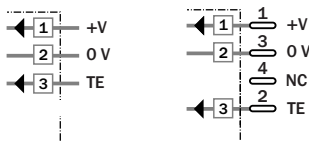
- 1** Middle of optic axis, sender/receiver
- 2** Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
- 3** LED signal indicator orange
WE 260: switching output active
WS 260: sender active
- 4** Through hole Ø 5.2 mm on both 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 types

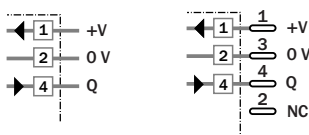
- WS/WE 260-F 270
- WS/WE 260-F 470
- WS/WE 260-E 270
- WS/WE 260-E 470



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



Sender	Receiver
WE 260-E 270	WE 260-F 470
WE 260-F 270	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°											
Light source⁴⁾	LED, visible red light											
Light spot diameter	Approx. 700 mm at 30 m											
Aperture angle sender	Approx. 1.4°											
Angle of reception receiver	Approx. 20°											
Supply voltage V_s	10 to 30 V DC ²⁾											
Ripple ³⁾	≤ 5 V _{pp}											
Current consumption ⁴⁾												
sender	≤ 20 mA											
receiver	≤ 35 mA											
Switching outputs	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 ⁵⁾	≤ 1.5 ms											
Switching frequency max. ⁶⁾	333/s											
Test input »TE« sender off	PNP, NPN: TE to 0 V											
Connection types	Terminal chamber Plug M 12, 4-pin											
VDE protection class⁷⁾	□											
Circuit protection⁸⁾												
sender	A, B											
receiver	A, B, C, D											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation -25 °C ... +55 °C Storage -40 °C ... +70 °C											
Weight	Approx. 120 g											
Material	Housing: ABS; Optics: PC											

¹⁾ Average service life 100,000 h at T_A = +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⁾ Reference voltage 50 V DC

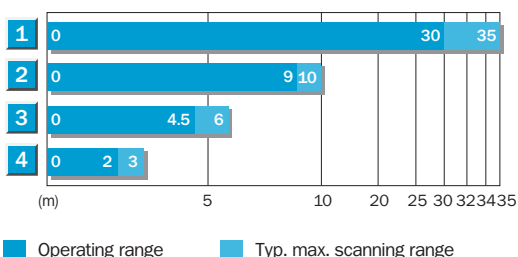
⁸⁾ A = V_s connections reverse-polarity protected

B = Inputs/outputs reverse-polarity protected

C = Interference suppression

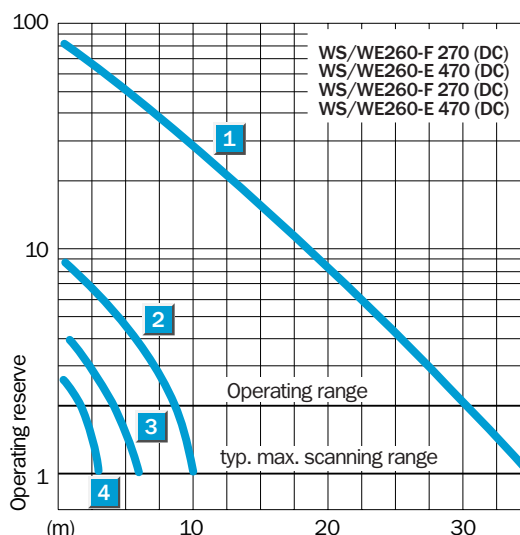
D = Outputs overcurrent and short-circuit protected

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



Order information

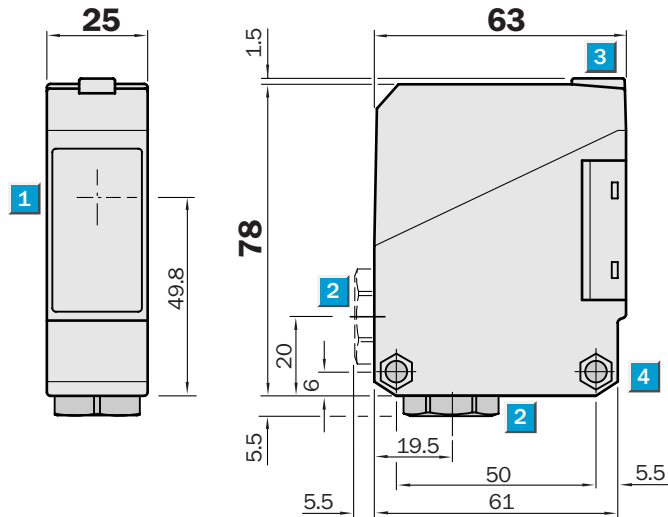
Type	Part no.
WS/WE 260-F 270	6 020 973
WS/WE 260-F 470	6 020 974
WS/WE 260-E 270	6 020 975
WS/WE 260-E 470	6 021 817

 **Scanning range**
45 m

Through-beam photoelectric switch

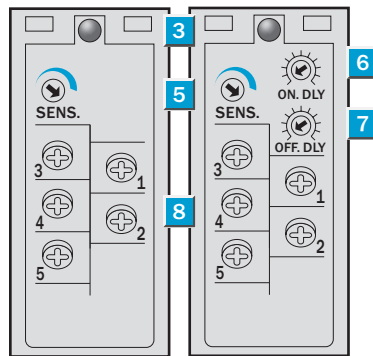
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

Dimensional drawing



Adjustments possible

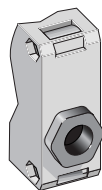
WS/WE 260-S 270 WS/WE 260-R 270



- 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

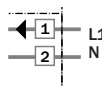
Connection types

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

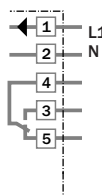


Accessories
Mounting bracket, included
Slotted masks, BL-260-SK, 5 308 773

Sender Terminals
WS 260-S 270



Receiver WE 260-S 270
WE 260-R 270



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

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

²⁾ ± 10 %

³⁾ Provide suitable spark suppression for inductive or capacitive loads

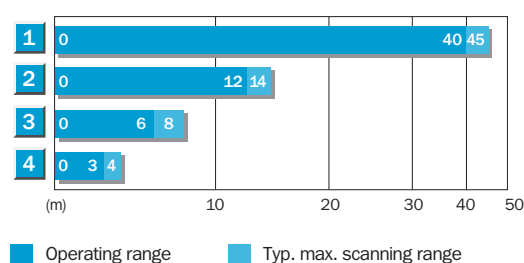
⁴⁾ With light/dark ratio 1:1

⁵⁾ Reference voltage 250 V UC

⁶⁾ A = V_S connections reverse-polarity protected

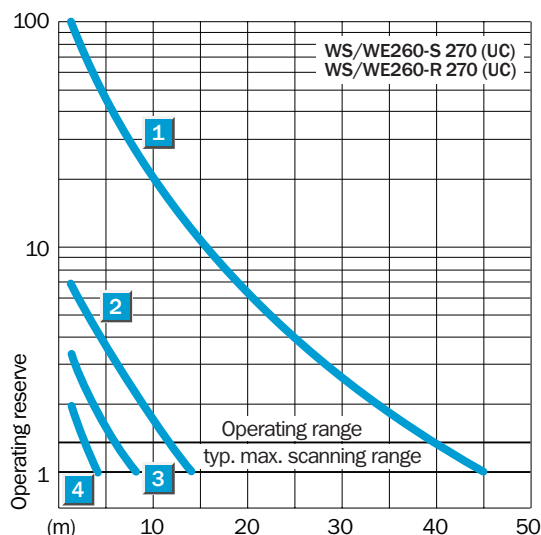
C = Interference suppression

Operating range and operating reserve





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



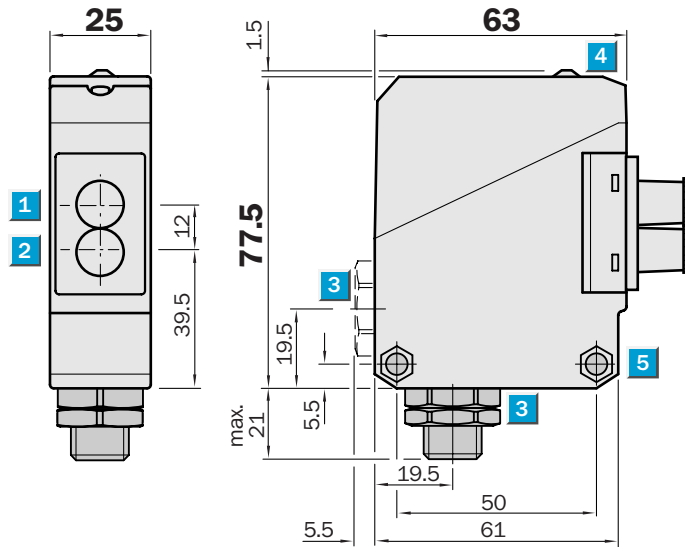
Order information

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

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

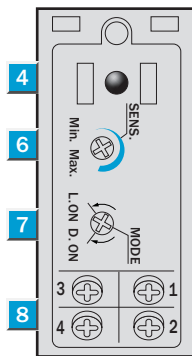
- Broad range of fibre-optic cables for through-beam and proximity applications
- Easy adaption of fibre-optic cable using cap nut
- Sensitivity, adjustable
- Terminal chamber, at bottom or rear
- Universal voltage supply, relay output, SP, timer optional

Dimensional drawing



Adjustments possible

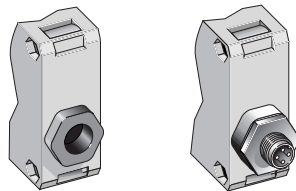
WLL 260-F 240
WLL 260-F 440
WLL 260-E 240



- 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

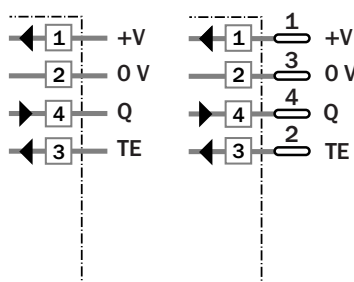
Connection types

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



Terminals

4-pin, M 12



Accessories

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

Technical data		WLL 260-	F 240	F 440	E 240						
Suitable fibre-optic cable	Fibre-optic cable series LIS/LBS s. p. 32										
Scanning distance/range	Depends on the fibre-optic cable used										
Proximity system											
Typ. max. scanning distance ⁴⁾	0 to 65 mm										
	0 to 110 mm with special fibre-optic cable										
Operating distance ¹⁾	0 to 50 mm										
	0 to 90 mm with special fibre-optic cable										
Through-beam system											
Typ. max. scanning range	0 to 800 mm										
Operating range	0 to 700 mm										
Sensitivity	Adjustable, potentiometer 270°										
Light source²⁾											
Light spot diameter	LED, visible red light										
Aperture fibre-optic cable	Depends on scanning range										
	Approx. 65°										
Supply voltage V_S											
Ripple ⁴⁾	10 to 30 V DC ³⁾										
Current consumption ⁵⁾	≤ 5 V _{PP}										
	≤ 35 mA										
Switching outputs											
Output current I _A max.	PNP, open collector: Q										
	NPN, open collector: Q										
Light receiver, switching mode	100 mA										
Response time ⁶⁾	Light-/dark-switching by rotary switch										
Switching frequency max. ⁷⁾	≤ 0.7 ms										
	700/s										
Test input »TE« sender off											
	PNP: TE following + V _S										
	NPN: TE following 0 V										
Connection types											
	Terminal chamber										
	Plug M 12, 4-pin										
VDE protection class⁸⁾											
	□										
Circuit protection⁹⁾											
	A, B, C, D										
Enclosure rating											
	IP 66										
Ambient temperature T_A											
	Operation - 25 °C ... + 55 °C										
	Storage - 40 °C ... + 70 °C										
Weight											
	Approx. 120 g										
Material											
	Housing: ABS										

¹⁾ Object with 90 % remission (based on standard white DIN 5033)
²⁾ Average service life 100,000 h at T_A = + 25 °C
³⁾ Limit values

⁴⁾ Must be within V_S tolerances
⁵⁾ Without load
⁶⁾ With resistive load
⁷⁾ With light/dark ratio 1:1
⁸⁾ Reference voltage 50 V DC

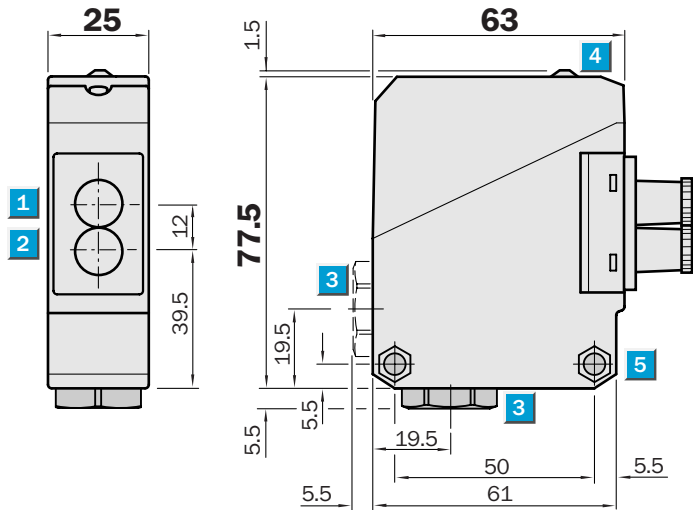
⁹⁾ A = V_S connections reverse-polarity protected
 B = Inputs/outputs reverse-polarity protected
 C = Interference suppression
 D = Outputs overcurrent and short-circuit protected

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

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

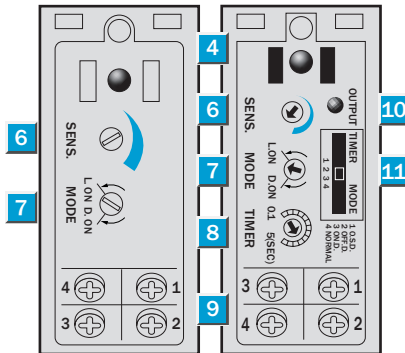
- Broad range of fibre-optic cables for through-beam and proximity applications
- Easy adaption of fibre-optic cable using cap nut
- Sensitivity, adjustable
- Terminal chamber, at bottom or rear
- Universal voltage supply, relay output, SPST, timer optional

Dimensional drawing



Adjustments possible

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

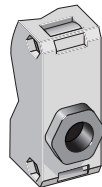


Connection types

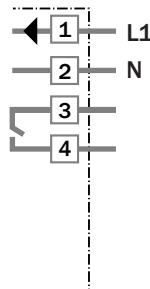
WLL 260-S 240
WLL 260-R 240

Time delays

t = 0.1–5 s

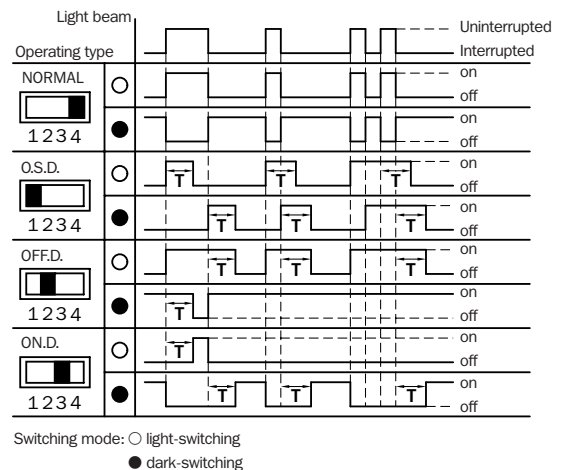


Terminals



Accessories

Fibre-optic cable
Mounting bracket, included



Technical data		WLL 260-	S 240	R 240							
Suitable fibre-optic cable	Fibre-optic cable series LIS/LBS s. p. 32										
Scanning distance/range	Depends on the fibre-optic cable used										
Proximity system											
Typ. max. scanning distance ⁴⁾	0 to 65 mm										
	0 to 110 mm with special fibre-optic cable										
Operating distance ¹⁾	0 to 50 mm										
	0 to 90 mm with special fibre-optic cable										
Through-beam system											
Typ. max. scanning range	0 to 800 mm										
Operating range	0 to 700 mm										
Sensitivity	Adjustable, potentiometer 270°										
Light source²⁾	LED, visible red light										
Light spot diameter	Depends on scanning range										
Aperture fibre-optic cable	Approx. 65°										
Supply voltage V_s³⁾	12 to 240 V DC										
	24 to 240 V AC										
Power consumption	≤ 5 VA										
Switching output	Relay, SP, electrically isolated										
Switching current I max. ⁴⁾	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. ⁵⁾	25/s										
Time delays	With indicator LED: Switching output active										
Switch position "1 O.S.D."	"One shot"										
"2 OFF.D."	OFF delay t _{OFF}										
"3 ON.D."	ON delay t _{ON}										
"4 Normal"	No delay										
Time range	Adjustable, 0.1 to 5 s; potentiometer 270°										
Connection type	Terminal chamber										
VDE protection class⁶⁾	<input type="checkbox"/>										
Circuit protection⁷⁾	A, C										
Enclosure rating	IP 66										
Ambient temperature T_A	Operation - 25 °C ... + 55 °C										
	Storage - 40 °C ... + 70 °C										
Weight	Approx. 120 g										
Material	Housing: ABS										

¹⁾ Object with 90 % remission (based on standard white DIN 5033)
²⁾ Average service life 100,000 h at T_A = + 25 °C

³⁾ ± 10 %
⁴⁾ Provide suitable spark suppression for inductive or capacitive loads
⁵⁾ With light/dark ratio 1:1

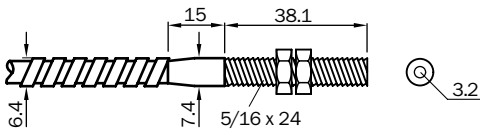
⁶⁾ Reference voltage 50 V DC
⁷⁾ A = V_s connections reverse-polarity protected
 C = Interference suppression

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

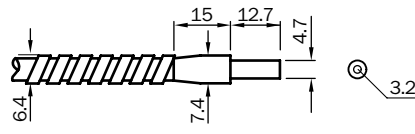
Dimensional drawings and order information

- Glass-fibre cable with stainless steel sheath
- Sender and receiver fibres are randomly mixed (proximity system)
- Operating temperature – 58 to + 315 °C
- Length of fibre-optic cable 900 mm
- Bend radius 19 mm

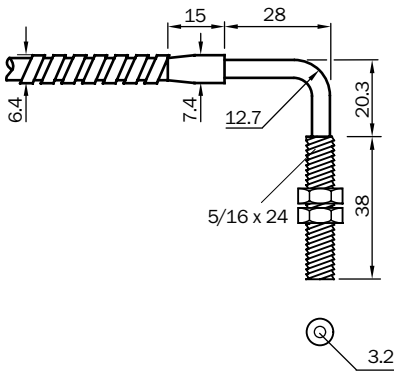
LIS/LBS 32 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LIST 32 900	7 020 045	700 mm
Proximity system	LBST 32 900	7 020 046	50 mm



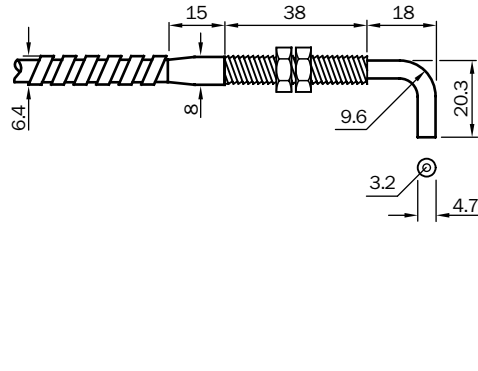
LIS/LBS 32 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISF 32 900	7 020 037	700 mm
Proximity system	LBSF 32 900	7 020 038	50 mm



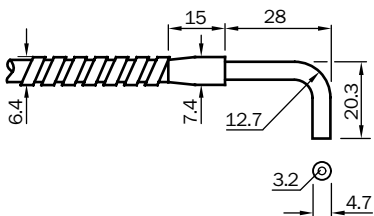
LIS/LBS 32 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISAT 32 900	7 020 035	700 mm
Proximity system	LBSAT 32 900	7 020 036	50 mm



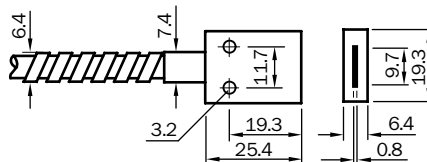
LIS/LBS 32 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISTA 32 900	7 020 047	700 mm
Proximity system	LBSTA 32 900	7 020 048	50 mm



LIS/LBS 32 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISA 32 900	7 020 039	700 mm
Proximity system	LBSA 32 900	7 020 040	50 mm



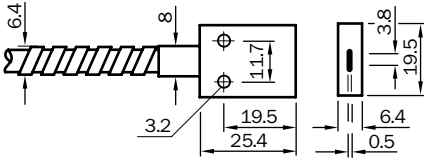
LIS/LBS 32 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISR 32 900	7 020 041	600 mm
Proximity system	LBSR 32 900	7 020 042	50 mm



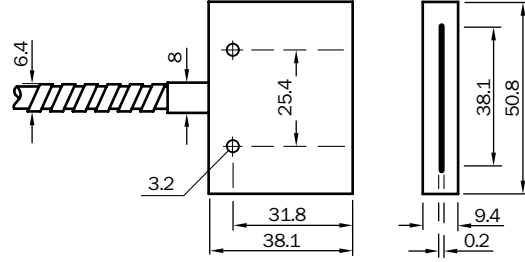
* Operating range or scanning distance
 Scanned material 90 % remission (DIN 5033)
 Size of scanned material = diameter of light spot
 (aperture angle approx. 60°)

The part number includes one fibre-optic cable.
 Two fibre-optic cables are needed for a through-beam system.

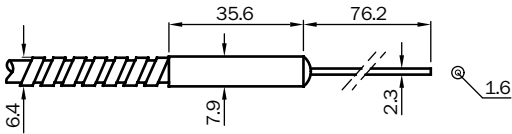
LIS/LBS 16 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISR 16 900	7 020 049	220 mm
Proximity system	LBSR 16 900	7 020 050	15 mm



LIS/LBS 40 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISR 40 900	7 020 051	600 mm
Proximity system	LBSR 40 900	7 020 052	90 mm

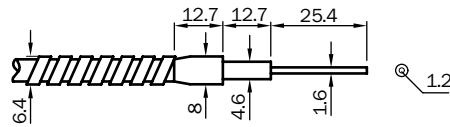


LIS/LBS 16 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISP 16 900	7 020 043	100 mm
Proximity system	LBSP 16 900	7 020 044	6 mm



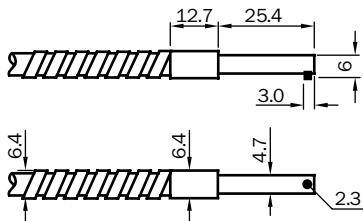
Bend radius of sleeve $R_{min} = 12$ mm

LIS/LBS 12 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISM 12 900	7 020 053	90 mm
Proximity system	LBSM 12 900	7 020 054	6 mm



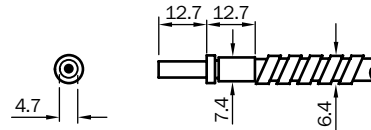
Bend radius of sleeve $R_{min} = 6$ mm

LIS/LBS 23 900 Fibre-optic cables			
System	Type	Part no.	Scanning dist. *
Through-beam	LISAA 23 900	7 020 102	240 mm
Proximity system	LBSAA 23 900	7 020 103	30 mm

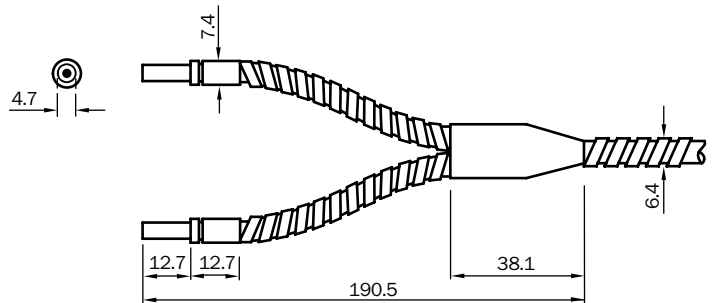


Adaption of fibre-optic cables

Through-beam system



Proximity system



* Operating range or scanning distance
Scanned material 90 % remission (DIN 5033)
Size of scanned material = diameter of light spot
(aperture angle approx. 60°)

The part number includes one fibre-optic cable.
Two fibre-optic cables are needed for a through-beam system.

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

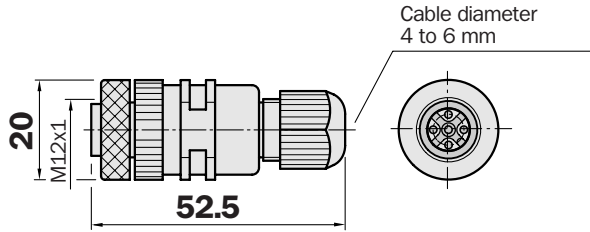
Dimensional drawings and order information

- Pin assignment to EN 50044
- DC coding

SENSICK screw-in system M 12, 4- or 5-pin, enclosure rating IP 67

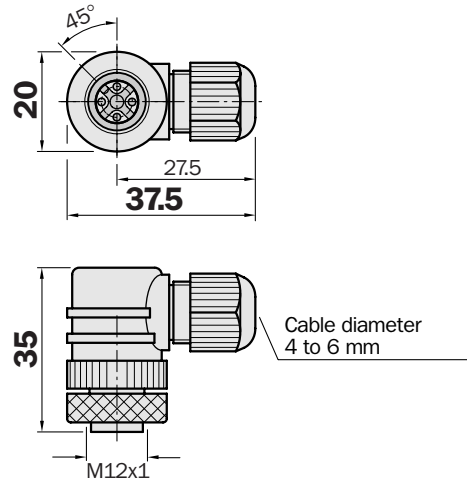
Female connector M 12, 4- or 5-pin, straight

Type	Part no.	Contacts
DOS-1204-G	6 007 302	4
DOS-1205-G	6 007 719	5



Female connector M 12, 4- or 5-pin, right angle

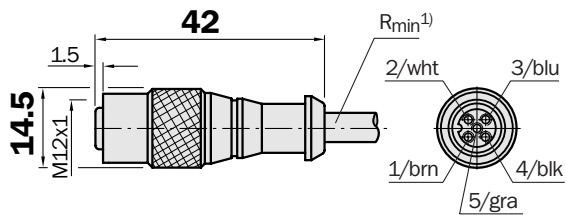
Type	Part no.	Contacts
DOS-1204-W	6 007 303	4
DOS-1205-W	6 007 720	5



Female connector M 12, 4- or 5-pin, straight

Cable diameter 5/6 mm, 4/5 x 0.25 mm², sheath PVC

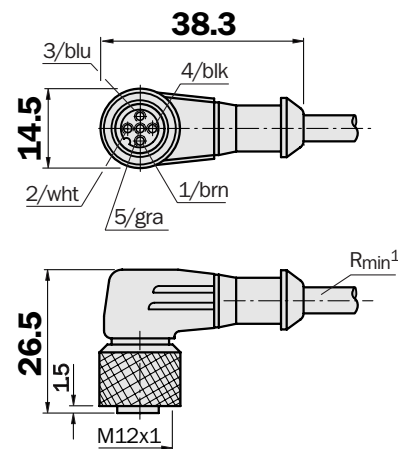
Type	Part no.	Contacts	Cable length
DOL-1204-G02M	6 009 382	4	2 m
DOL-1204-G05M	6 009 866	4	5 m
DOL-1204-G10M	6 010 543	4	10 m
DOL-1205-G02M	6 008 899	5	2 m
DOL-1205-G05M	6 009 868	5	5 m
DOL-1205-G10M	6 010 544	5	10 m



Female connector M 12, 4- or 5-pin, right angle

Cable diameter 5/6 mm, 4/5 x 0.25 mm², sheath PVC

Type	Part no.	Contacts	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

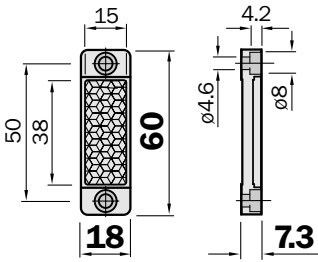


¹⁾ Minimum bend radius in dynamic use
R_{min} = 20 x cable diameter

Plastic design for temperatures up to 65 °C

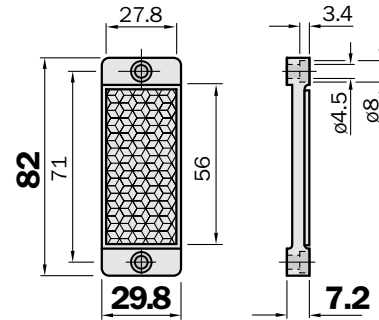
Reflector, 20 x 40 mm²

Type	Part no.
PL 20 A	1 012 719



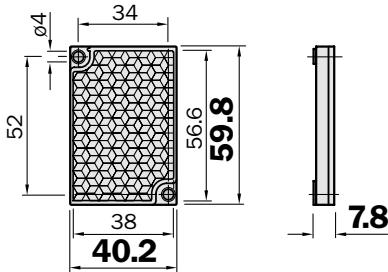
Reflector, 30 x 50 mm²

Type	Part no.
PL 30 A	1 002 314



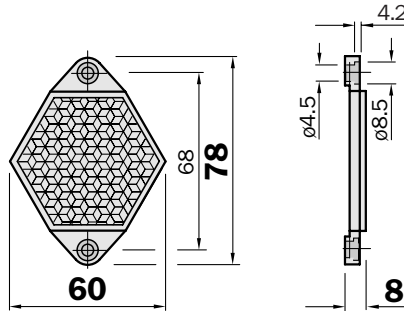
Reflector, 40 x 60 mm²

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



Reflector, 6-sided

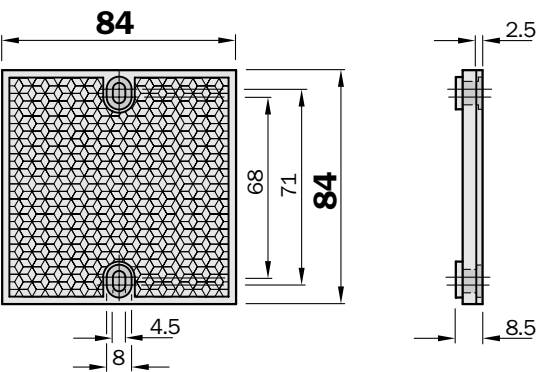
width across flats 48 mm	
Type	Part no.
PL 50 A	1 000 132



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

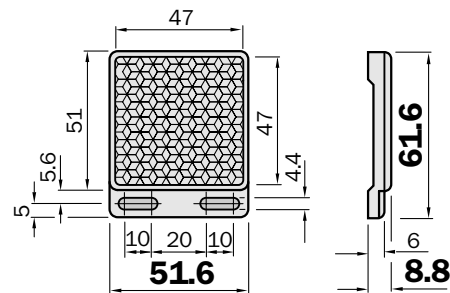
Reflector, 80 x 80 mm²

Type	Part no.
PL 80 A	1 003 865



Reflector, 47 x 47 mm²

Type	Part no.
P 250	5 304 812



Included with WL 260.

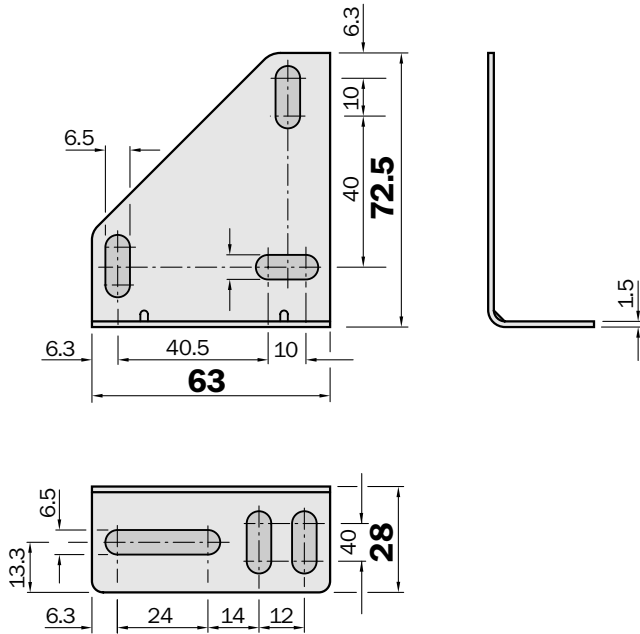
Reflective tape "Diamond Grade"

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



Mounting bracket

Type	Part no.
BEF-W260	5 304 819

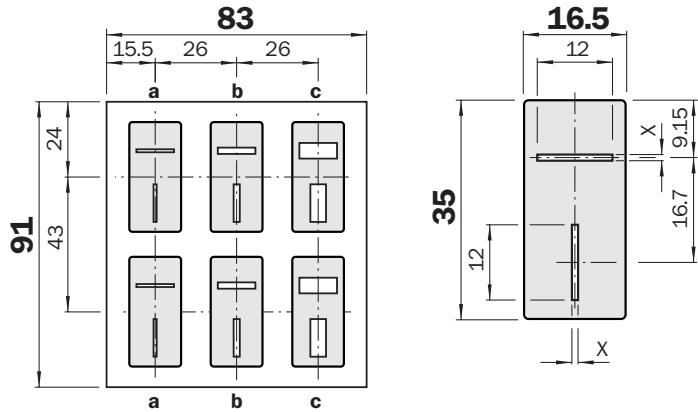


Included with W 260.

Slotted masks for WS/WE*

Type	Part 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.

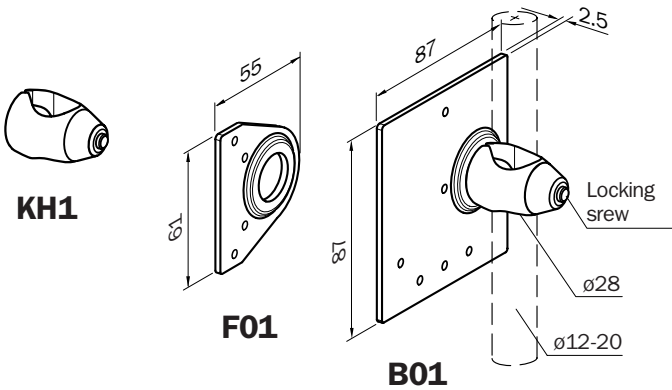
Stick mask on red optics body of WS 260 and WE 260.

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
A	Slot width 5.0 mm	SR = 12 m	SR = 9 m
B	Slot width 2.0 mm	SR = 6 m	SR = 4.5 m
C	Slot width 1.0 mm	SR = 3 m	SR = 2 m

Universal bar clamps for sensors and reflectors



Mounting plates	Type	Part no. ¹⁾	for device/reflector type
B01	BEF-KHS-B01	2 022 459	P 250, PL 30 A, PL 40 A, PL 50 A, PL 80 A, C 110
F01	BEF-KHS-F01	2 022 463	W 260, PL 20 A, P 250
KH1	BEF-KHS-KH1	2 022 726	Clamp bracket rod mounting without attachment plate and mounting material

¹⁾ Universal bracket and mounting screws included

Dimensional drawings and order information

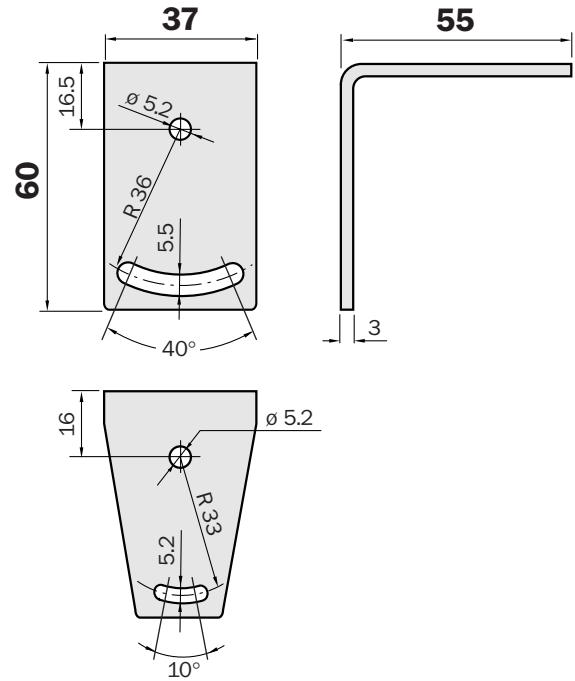
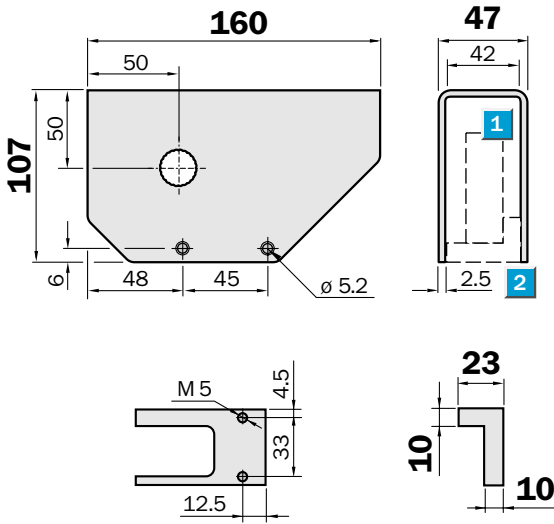
Special accessories

Weather protection hood *)

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

Mounting bracket for weather protection hood OBW-KHS-M01

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



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

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