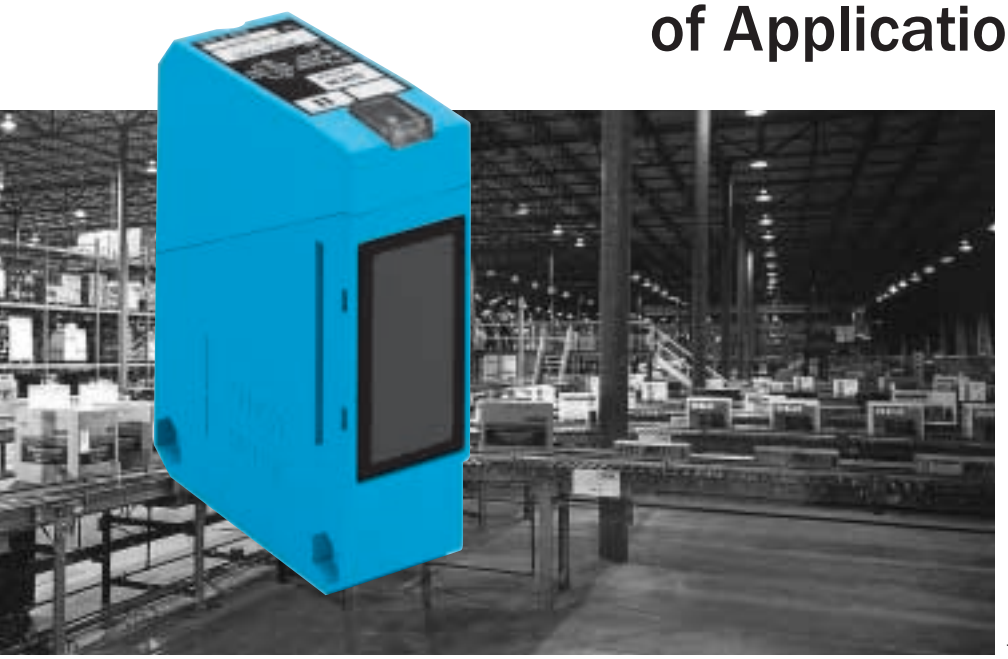
DATA SHEET

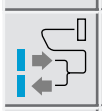
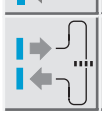
W 260 Series
Standard Photoelectric Switches for a Wide Range of Applications



- 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.

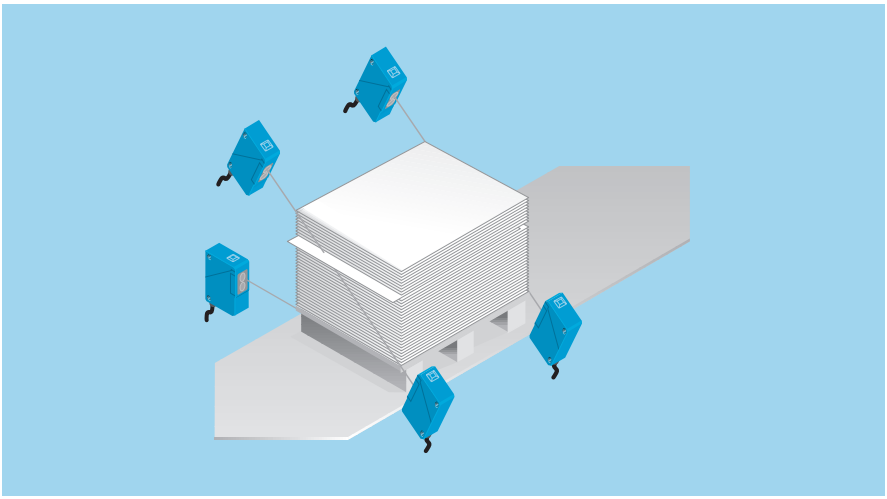
Another highlight of the W 260 is its compliance with the standard EN 500081-1 (interference radiation) This makes it the ideal sensor solution for door and gate control systems in basement garages and entries to residential blocks or hotels.

	**Photoelectric proximity switches, HGA**
	**Photoelectric proximity switches, energetic**
	**Photoelectric reflex switch**
	**Through-beam photoelectric switches**
	**Photoelectric fiber-optic switches (proximity)**
	**Photoelectric fiber-optic switches (through-beam)**

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:

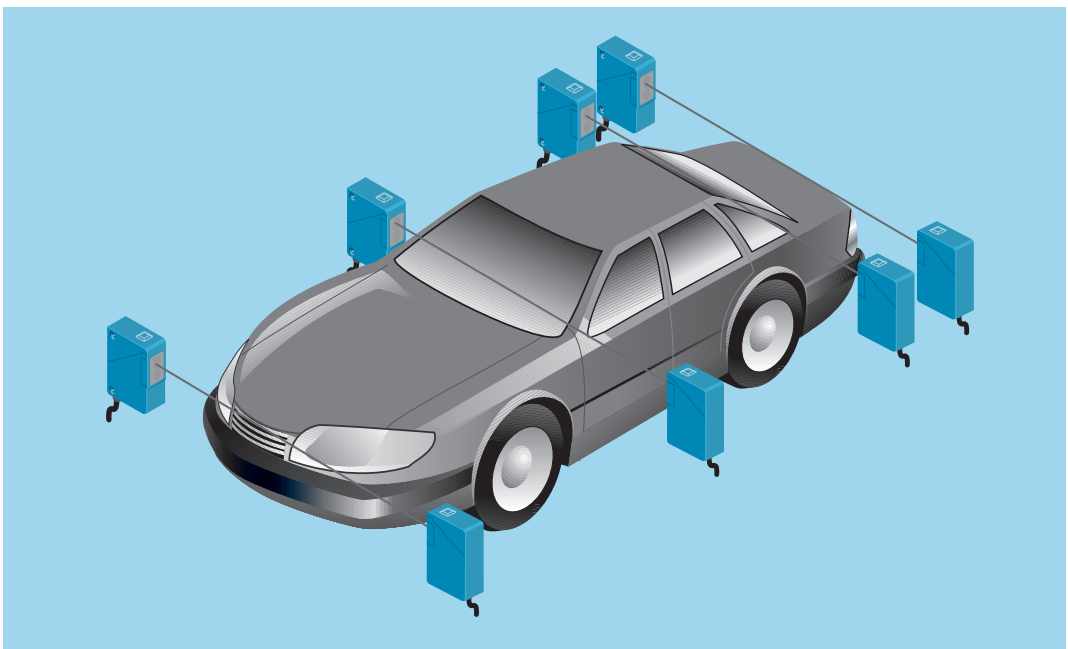
SICK

▶ 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.



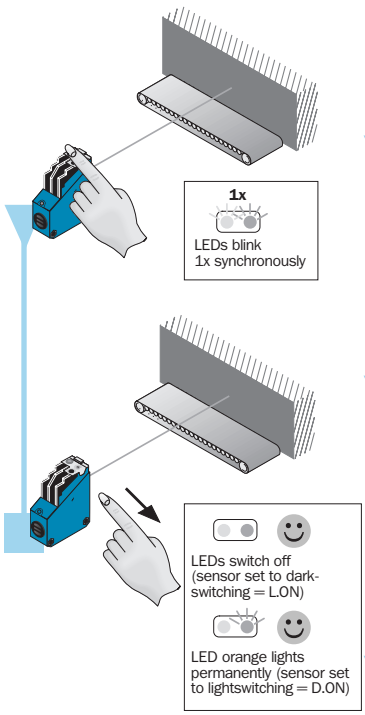
▼ A WT 260 photoelectric proximity switch controlling a commissioning system used in the wood-working industry.

▲ 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.

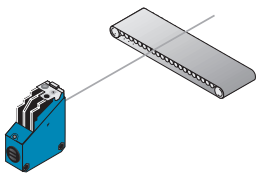


▲ WS/WE 260 through-beam photoelectric switches used for detecting the outline of vehicle bodies on assembly lines in the automotive industry.

Small transition area (1-Point Teach-in)

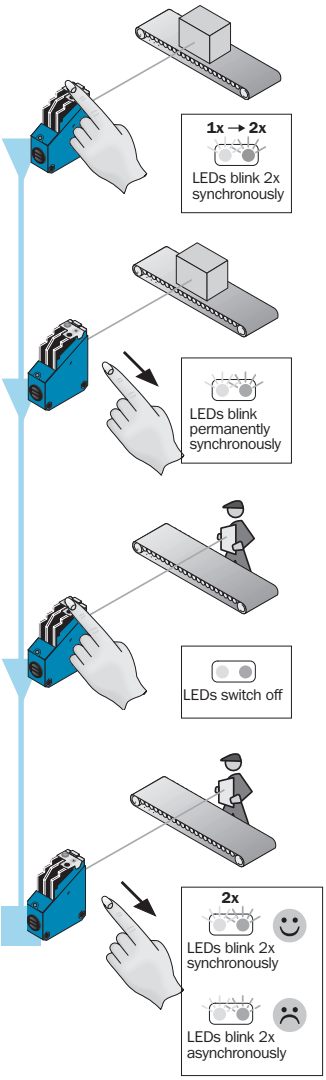


Alternative: no object, no background

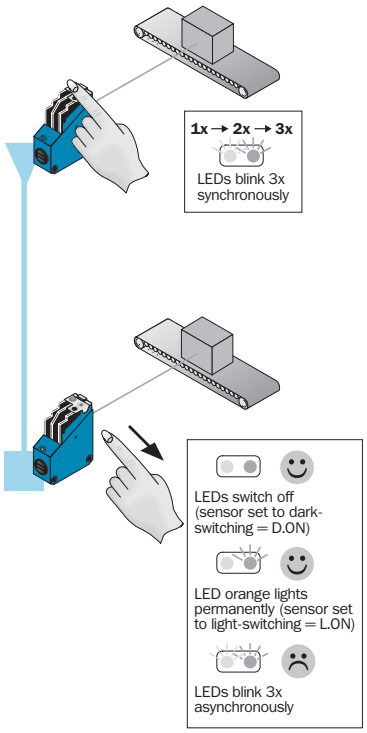


Scanning range: SR = fix ~ 2100 mm
Teach-in without object, without background: Standardizing to max. system scanning range

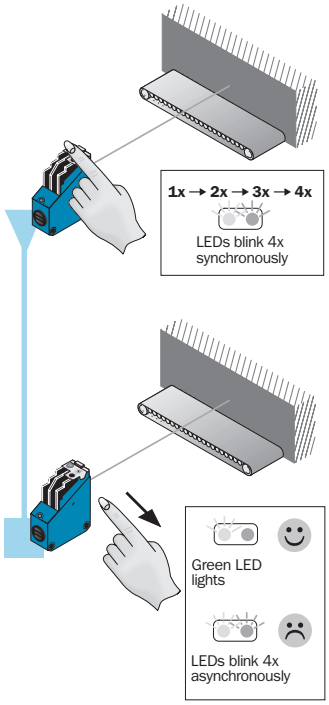
Large function reserve (2-Point Teach-in)



Precise positioning (position Teach-in)

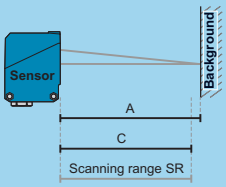


Foreground suppression Teach-in



Teach-in and sensor communication

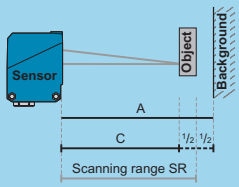
Status



SR = ~95 % of A = C

Background is suppressed

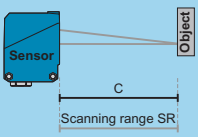
- No influence due to objects in background
- Scanning range setting only with background
- Distance scanning range to background very small
- Ideal for standard applications



SR = C + ½ (A - C)

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

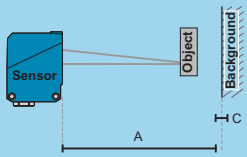
- Maximum operating reliability
- Ideal if object and background are available for Teach-in
- Largest function reserve



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



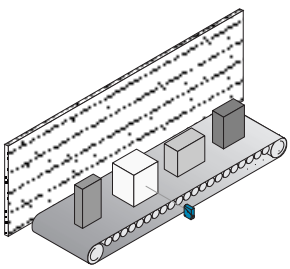
SR = C
Detection range = A

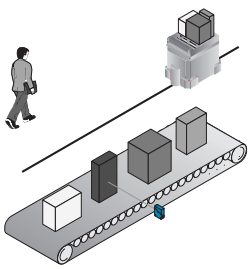
Condition: With "dark-switching" setting "(D.ON)" WT 260T. Teached background is permanently stored

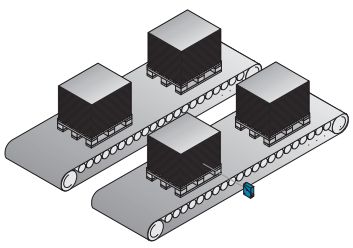
- Sensor is precisely aligned to background ± tolerance
- Consequently, shiny/structured (problem) surfaces are not "detected"
- Ideal if shiny, reflecting or extrem dark objects are well detected

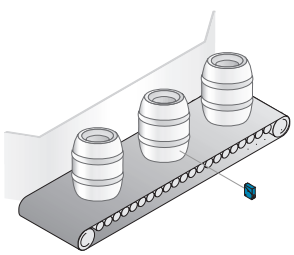
Status

Application







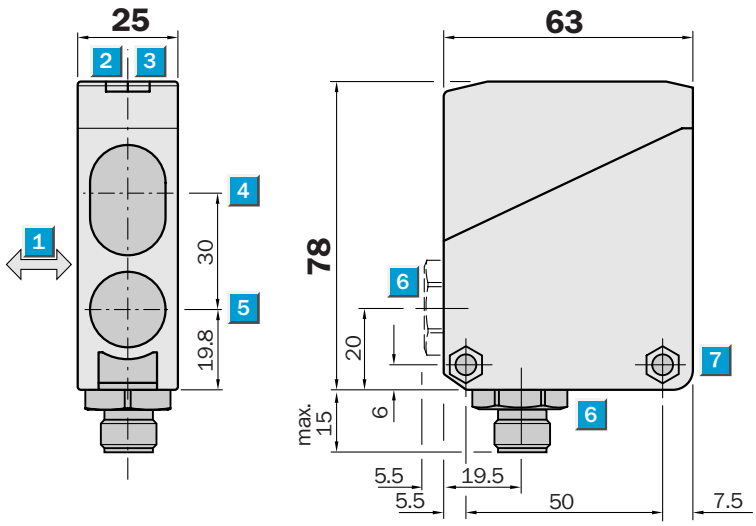


Application

Scanning distance
0.07…2.1 m
Photoelectric proximity switch

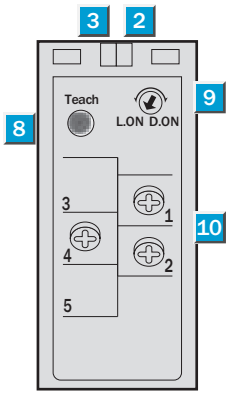
- Scanning distance setting per Teach-in button
- Background suppression: Reliable detection of dark objects even against light backgrounds
- Terminal chamber or M 12 plug, 4 pin
- LED signal indicator green: Operating reserve/Pre-failure display

Dimension illustration



Setting options

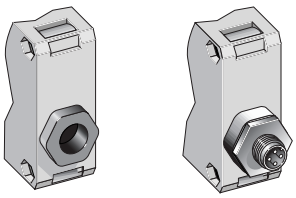
WT 260T-P 290
WT 260T-P 490
WT 260T-N 290
WT 260T-N 490



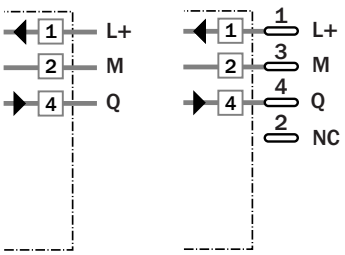
1 Standard direction of material being scanned
2 LED signal indicator orange, switching output active
3 LED signal indicator green, operating reserve
4 Middle of optic axis, receiver
5 Middle of optic axis, sender
6 Cable entry gland 1/2" PF thread
for cable diameters from 6 to 10 mm
optionally at bottom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



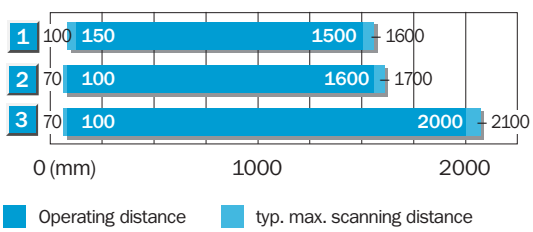
Accessories

Mounting bracket, included
M 12 cable receptacle

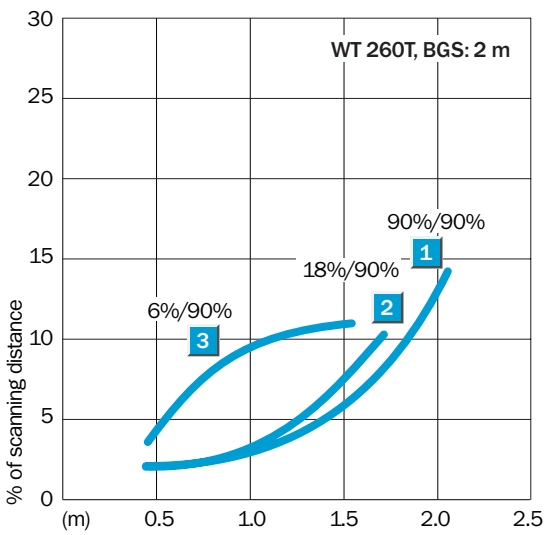
Technical data	WT 260T-	P 290	P 490	N 290	N 490
Scanning distance, typ. max.	70 mm ... 2100 mm [1]	■	■	■	■
Recommended operating scanning dist.	100 mm ... 2000 mm [1]	■	■	■	■
Scanning distance setting	automatic, per Teach-in button	■	■	■	■
Light source [2]	LED, infrared	■	■	■	■
Light spot diameter	Approx. 200 mm at a distance of 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: Q			■	■
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	■	■	■	■
Type of connection	Terminal chamber	■		■	
	M 12 equipment plug, 4 pin		■		■
VDE protection class [8]	⧈	■	■	■	■
Circuit protection [9]	A, B, C, D	■	■	■	■
Enclosure rating	IP 67	■	■	■	■
Ambient temperature	Operating – 25 °C ... + 55 °C	■	■	■	■
	Storage – 40 °C ... + 70 °C	■	■	■	■
Weight	Approx. 120 g	■	■	■	■
Material	Housing: ABS; Optics: PMMA	■	■	■	■

1) Object with 90% reflectance (referred to standard white DIN 5033)
2) Average service life 100000 h at T_U = +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) Withstand voltage 50 V DC
9) A = V_S connections reverse-polarity protected
B = Outputs Q and $\bar{Q}$ 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



1	Scanning range on black [10], background white
2	Scanning range on grey [10], background white
3	Scanning range on white [10], background white



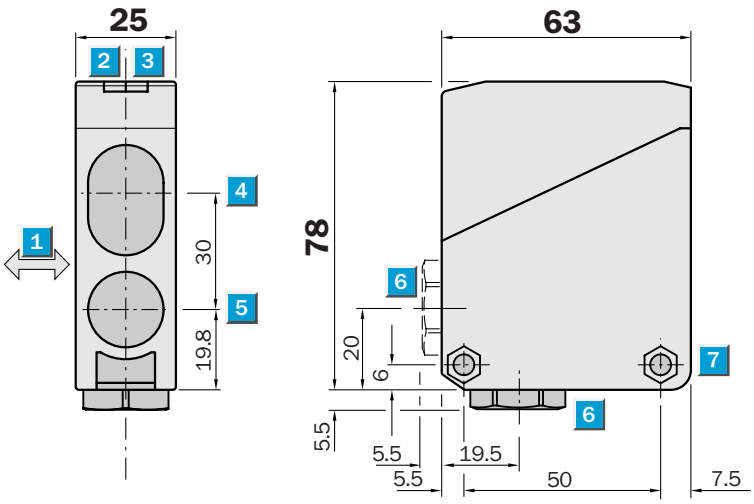
Ordering information

Type	Order 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

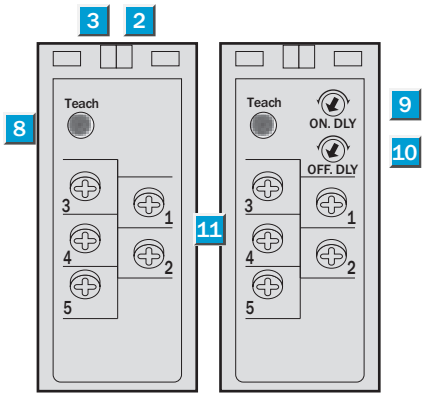
- Scanning distance setting per Teach-in button
- Background suppression: Reliable detection of dark objects even against light backgrounds
- Terminal chamber
- Universal voltage supply, relay output, SP, timer optional, t_{ON} and t_{OFF} can be connected separately

Dimension illustration



Setting options

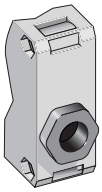
WT 260T-S 290	WT 260T-R 290



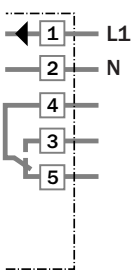
1 Standard direction of material being scanned
2 LED signal indicator orange, switching output active
3 LED signal indicator green, operating reserve
4 Middle of optic axis, receiver
5 Middle of optic axis, sender
6 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom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

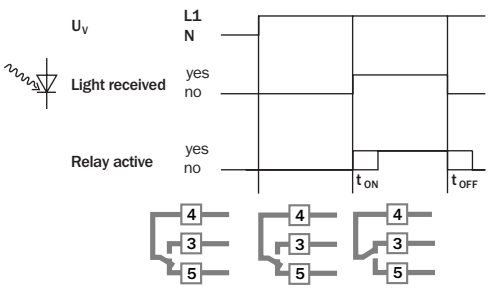


Terminals



Time delay

t = 0.1–10 s



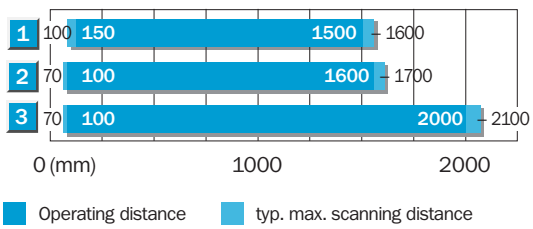
Accessories

Mounting bracket, included
M 12 cable receptacle

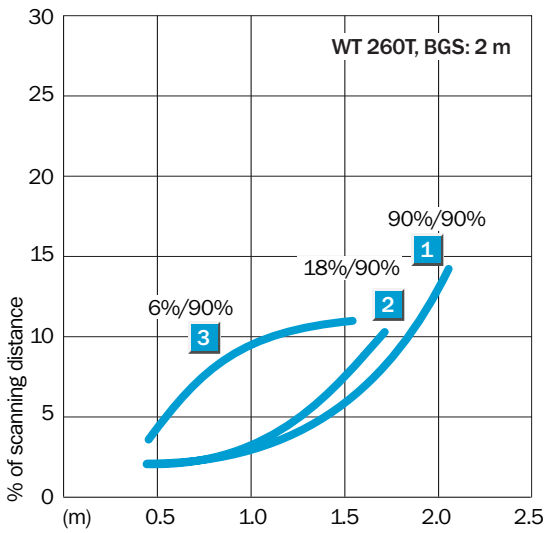
Technical data		WT 260T-	S 290	R 290
Scanning distance , typ. max.	70 mm ... 2100 mm [1]			
Recommended operating scanning dist.	100 mm ... 2000 mm [1]			
Scanning distance	automatic, per Teach-in button			
Light source [2]	LED, infrared			
Light spot diameter	Approx. 200 mm at a distance of 2000 mm			
Aperture angle sender	Approx. 6°			
Supply voltage V_S [3]	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			
Type of connection	Terminal chamber			
VDE protection class [6]	⧈			
Circuit protectio [7]	A, C			
Enclosure rating	IP 67			
Ambient temperature	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% reflectance (referred to standard white DIN 5033)
[2] Average service life 100000 h at T_U = +25 °C
[3] ± 10 %
[4] Provide suitable spark suppression for inductive or capacitive loads
[5] With light/dark ratio 1:1
[6] Withstand voltage 250 V UC
[7] A = V_S connections reverse-polarity protected
C = Interference suppression
[8] Black = 6 % reflectance
Grey = 18 % reflectance
White = 90 % reflectance

Scanning distance



1	Scanning range on black [8], background white
2	Scanning range on gray [8], background white
3	Scanning range on white [8], background white



Ordering information

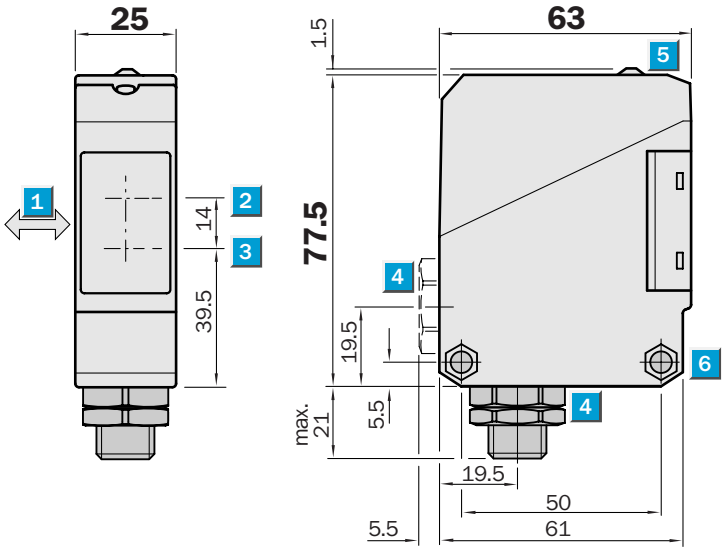
Type	Order no.
WT 260T-S 290	6 021 923
WT 260T-R 290	6 021 924

Scanning distance
0…380 mm

Photoelectric proximity switch

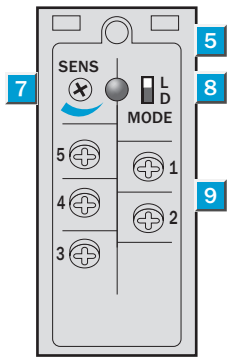
- Reliable detection of dark objects even against light backgrounds
- Scanning distance steplessly adjustable
- Terminal chamber or M 12 plug, 4 pin or 5 pin
- Test input
- VMA contamination signaling output

Dimension illustration



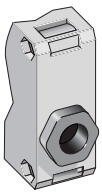
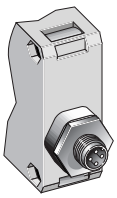
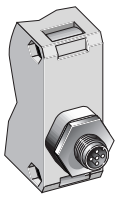
Setting options

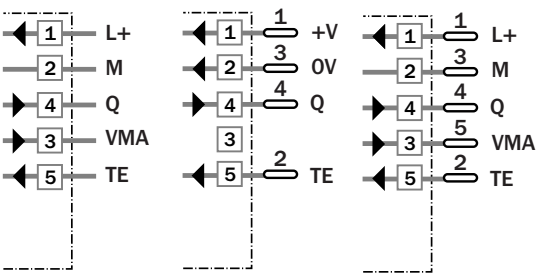
WT 260-P 260
WT 260-P 460
WT 260-P 560
WT 260-N 260



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-N 260	WT 260-P 460	WT 260-P 560
		
Terminals	4 pin, M 12	5 pin, M 12



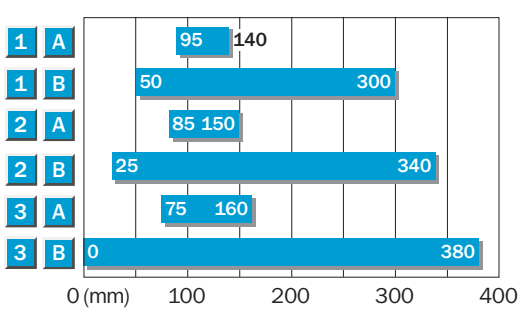
Accessories

Mounting bracket, included
M 12 cable receptacle

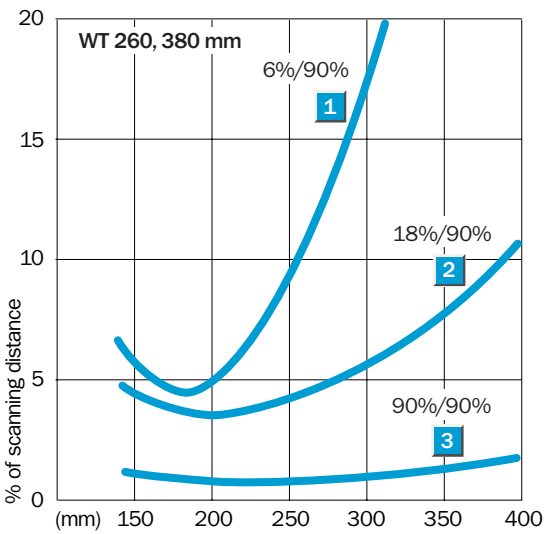
Technische Daten	WT 260-	P 260	P 460	P 560	N 260
Scanning distance	Max.: 0 ... 380 mm, adjustable [1]	■	■	■	■
	Min.: 75 ... 160 mm, adjustable [1]	■	■	■	■
Sensitivity	Adjustable, potentiometer 270°	■	■	■	■
Light source [2]	LED, infrared	■	■	■	■
Light spot diameter	Approx. 17 mm at a distance of 300 mm	■	■	■	■
Aperture angle sender	Approx. 1,5°	■	■	■	■
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]	≤ 2 ms	■	■	■	■
Switching frequency max. [7]	100/s	■	■	■	■
Contamination signaling output VMA [8]	100 mA, static	■		■	■
Test input »TE« sender off	PNP: TE to + V_S	■	■	■	
	NPN: TE to 0 V				■
Type of connection	Terminal chamber	■			■
	M 12 equipment plug, 4 pin		■		
	M 12 equipment plug, 5 pin			■	
VDE protection class [9]	⧈	■	■	■	■
Circuit protection [10]	A, B, C, D	■	■	■	■
Enclosure rating	IP 66	■	■	■	■
Ambient temperature	Operating –25 °C to +55 °C	■	■	■	■
	Storage –40 °C to +70 °C	■	■	■	■
Weight	Approx. 120 g	■	■	■	■
Material	Housing: ABS; Optic: PC	■	■	■	■

1) Object with 90% reflectance (referred to standard white DIN 5033)
2) Average service life 100000 h at T_U = +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) Operating reserve < 50 %
9) Withstand voltage 50 V DC
10) A = V_S connections reverse-polarity protected
B = Inputs/outputs reverse-polarity protected
C = Interference suppression
D = Outputs overcurrent and short-circuit protected
11) Black = 6 % reflectance
Grey = 18 % reflectance
White = 90 % reflectance

Scanning distance



1	Scanning range on black [11], background white
2	Scanning range on grey [11], background white
3	Scanning range on white [11], background white
A	Scanning distance control set to MIN
B	Scanning distance control set to MAX



Ordering information

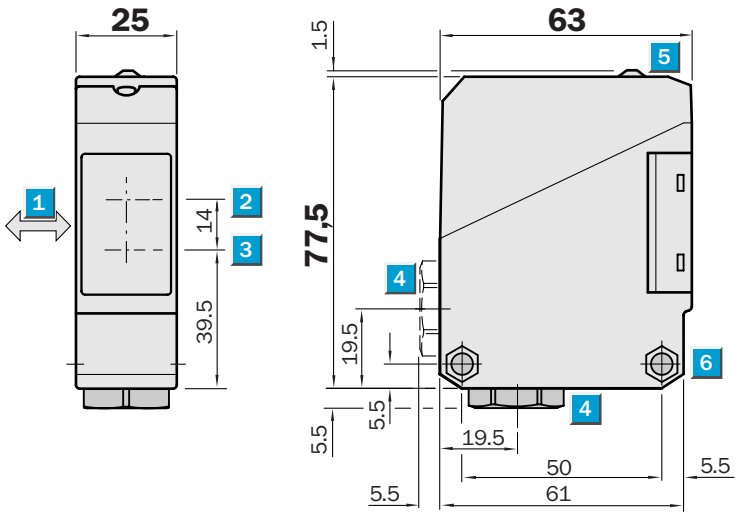
Type	Order no.
WT 260-P 260	6 009 471
WT 260-P 460	1 011 540
WT 260-P 560	1 011 541
WT 260-N 260	6 009 470

Scanning distance
0…380 mm

Photoelectric proximity switch

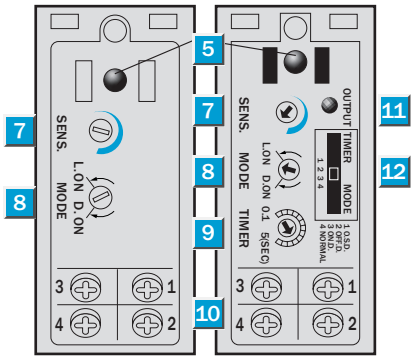
- Reliable detection of dark objects even against light backgrounds
- Scanning distance steplessly adjustable
- Terminal chamber
- Universal voltage supply, relay output 1 x a, Timer optional

Dimension illustration



Setting options

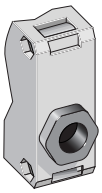
WT 260-S 260 | WT 260-R 260



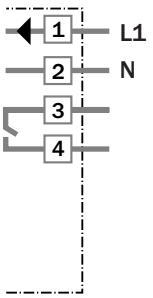
1 Standard direction of material being scanned
2 Middle of optic axis, receiver
3 Middle of optic axis, sender
4 Cable entry gland 1/2" PF thread
for cable diameters from 6 to 10 mm
optionally at bottom or rear;
5 LED signal strength indicator, red
6 Through hole Ø 5.2 mm on both sides
for M 5 hex nut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

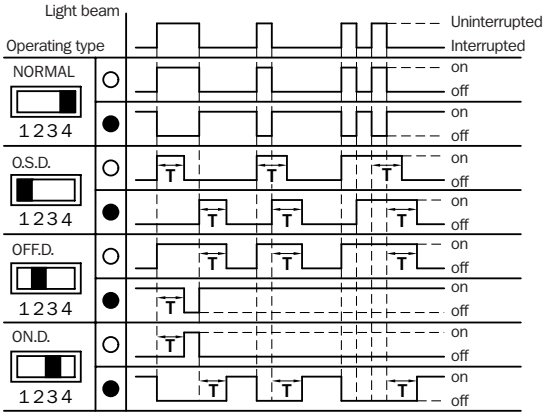


Terminals



Time delays

t = 0.1–5 s



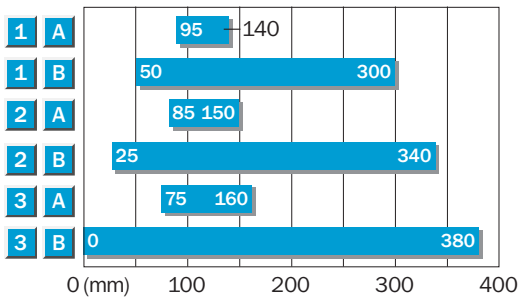
Switching mode: ○ light-switching
● dark-switching

Accessoires
Mounting bracket, included
M 12 cable receptacle

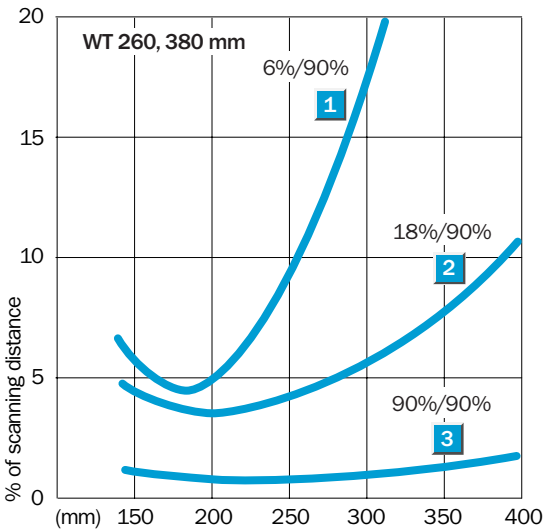
Technical data	WT 260-	S 260	R 260
Scanning distance	max.: 0 ... 380 mm, adjustable [1]		
	min.: 75 ... 160 mm, adjustable [1]		
Sensitivity	Adjustable, potentiometer 270°		
Light source [2]	LED, infrared		
Light spot diameter	Approx. 17 mm at a distance of 300 mm		
Aperture angle sender	Approx. 1,5°		
Supply voltage V_s [3]	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°		
Type of connection	Terminal chamber		
VDE protection class[6]	⧈		
Circuit protection[7]	A, C		
Enclosure rating	IP 66		
Ambient temperature	Operating –25 °C to +55 °C		
	Storage –40 °C to +70 °C		
Weight	Approx. 120 g		
Material	Housing: ABS; Optic: PC		

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

Scanning distance



1	Scanning range on black[8], background white
2	Scanning range on grey[8], background white
3	Scanning range on white[8], background white
A	Scanning distance control set to MIN
B	Scanning distance control set to MAX



Ordering information

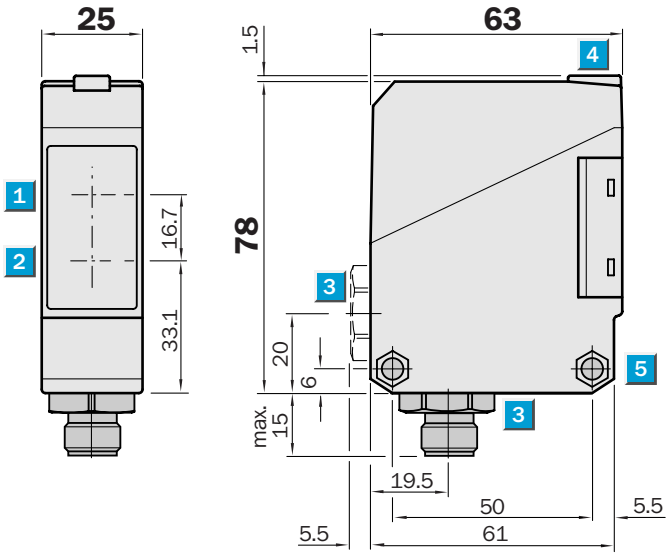
Type	Order no.
WT 260-S 260	6 009 473
WT 260-R 260	6 009 472

Scanning distance
10…3200 mm

Photoelectric proximity switch

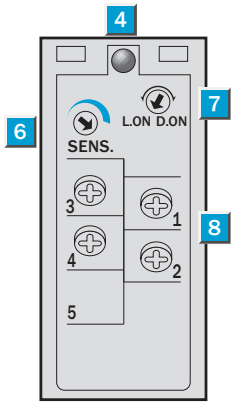
- Adjustable sensitivity
- Terminal chamber or plug M 12, 4 pin
- Test input

Dimension illustration



Setting options

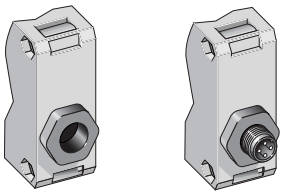
WT 260-F 280
WT 260-F 480
WT 260-E 280
WT 260-E 480



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

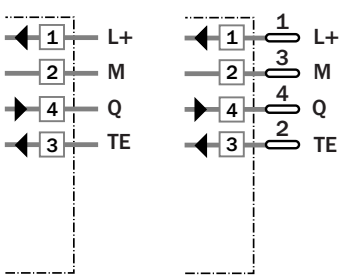
WT 260-F 280	WT 260-F 480
WT 260-E 280	WT 260-E 480



Accessories

Mounting bracket, included
M 12 cable receptacle

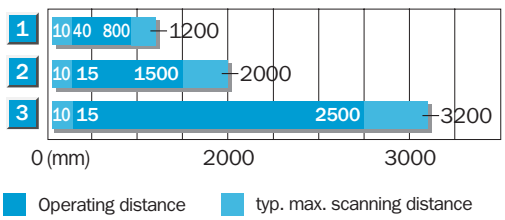
Terminals	4 pin, M 12



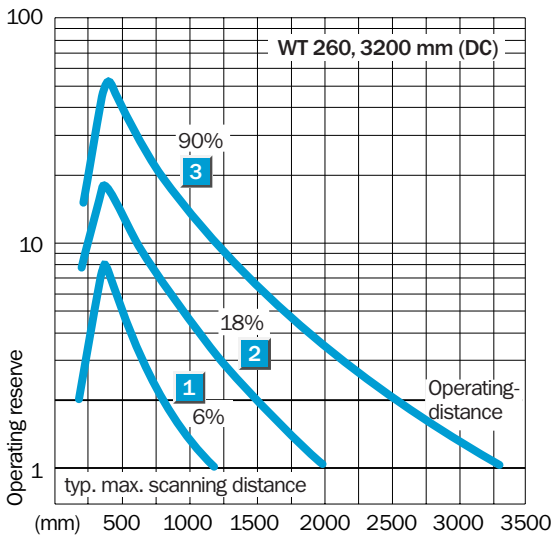
Technical data	WT 260-	F 280	F 480	E 280	E 480
Scanning distance, typ. max.	10 to 3200 mm, adjustable [1]	■	■	■	■
Operating distance	15 to 2500 mm, adjustable [1]	■	■	■	■
Sensitivity	Adjustable, potentiometer 270°	■	■	■	■
Light source [2]	LED, infrared	■	■	■	■
Light spot diameter	Approx. 80 mm at a distance of 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			■	■
Type of connection	Terminal chamber	■		■	
	M 12 equipment plug, 4 pin		■		■
VDE protection class [8]	⧈	■	■	■	■
Circuit protection [9]	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	■	■	■	■

[1] Object with 90% reflectance (referred to standard white DIN 5033)
[2] Average service life 100000 h at T_U = +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] Withstand 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% reflectance
2	Scanning range on grey, 18% reflectance
3	Scanning range on white, 90% reflectance



Ordering information

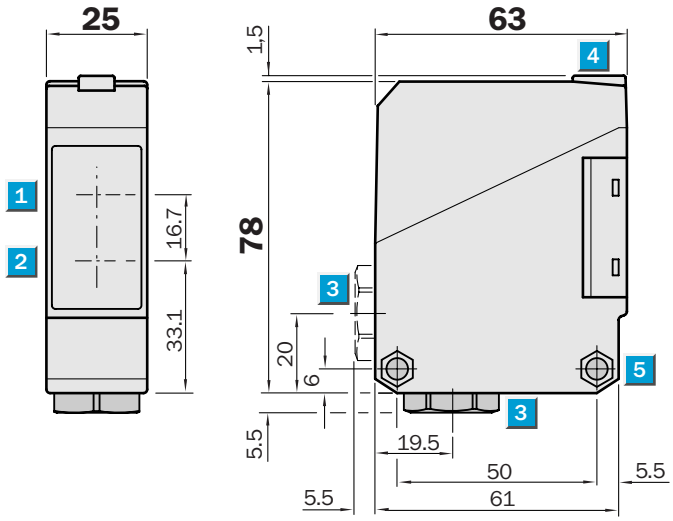
Type	Order no.
WT 260-F 280	6 020 982
WT 260-F 480	6 020 983
WT 260-E 280	6 020 984
WT 260-E 480	6 021 816

Scanning distance
10…3500 mm

Photoelectric proximity switch

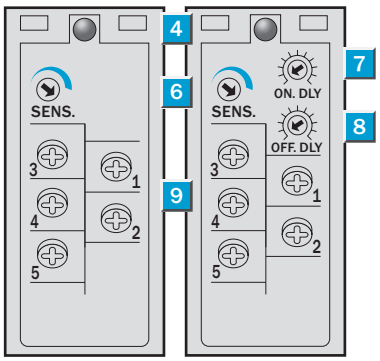
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 ("Household standard")

Dimension illustration



Setting options

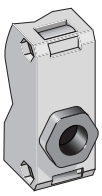
WT 260-S 280 | WT 260-R 280



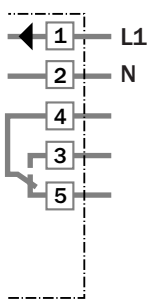
1 Middle of optic axis, receiver
2 Middle of optic axis, sender
3 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear
4 LED signal strength indicator, red
5 Through hole Ø 5.2 mm on both sides for M 5 hex nut
6 Sensitivity control
7 Time control ON delay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

Connection type

WT 260-S 280
WT 260-R 280

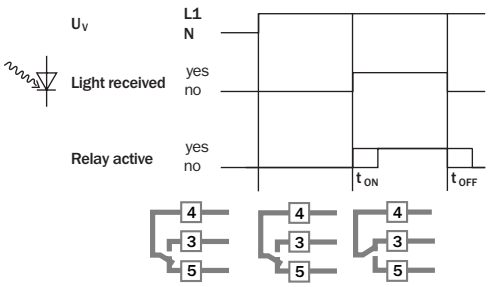


Terminals



Time delays

t = 0.1–10 s

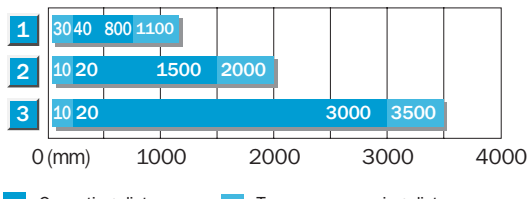


Accessories
Mounting bracket, included
M 12 cable receptacle

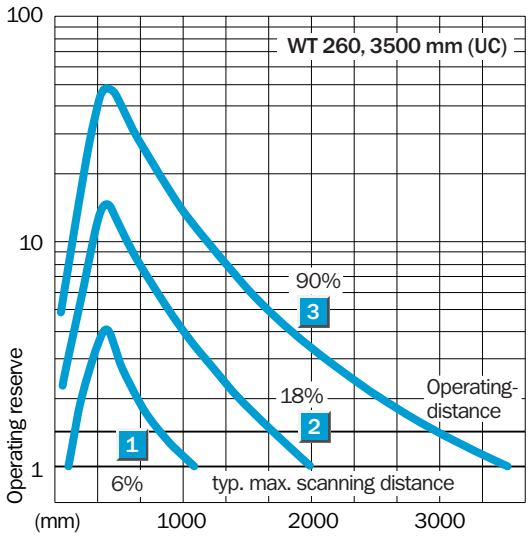
Technical data	WT 260-	S 280	R 280
Scanning distance, typ. max.	10 to 3500 mm, adjustable [1]	■	■
Operating distance	20 to 3000 mm, adjustable [1]	■	■
Sensitivity	Adjustable, potentiometer 270°	■	■
Light source [2]	LED, infrared light	■	■
Light spot diameter	Approx. 95 mm at a distance of 3000 mm	■	■
Aperture angle sender	Approx. 1.7°	■	■
Supply voltage V_S [3]	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 VAC; 3 A/30 VDC	■	■
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		■
Type of connection	Terminal chamber	■	■
CE noise radiation	Level EN 50081-1 (“Household standard”)	■	■
VDE protection class [6]	⧈	■	■
Circuit protection [7]	A, C	■	■
Enclosure rating	IP 67	■	■
Ambient temperature	Operation –25 °C to +55 °C	■	■
	Storage –40 °C to +70 °C	■	■
Weight	Approx. 120 g	■	■
Material	Housing: ABS; Optics: PC	■	■

[1] Object with 90% reflectance (referred to standard white DIN 5033)
[2] Average service life 100000 h at T_U = +25 °C
[3] ± 10 %
[4] Provide suitable spark suppression for inductive or capacitive loads
[5] With light/dark ratio 1:1
[6] Withstand voltage 250 V UC
[7] A = V_S 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

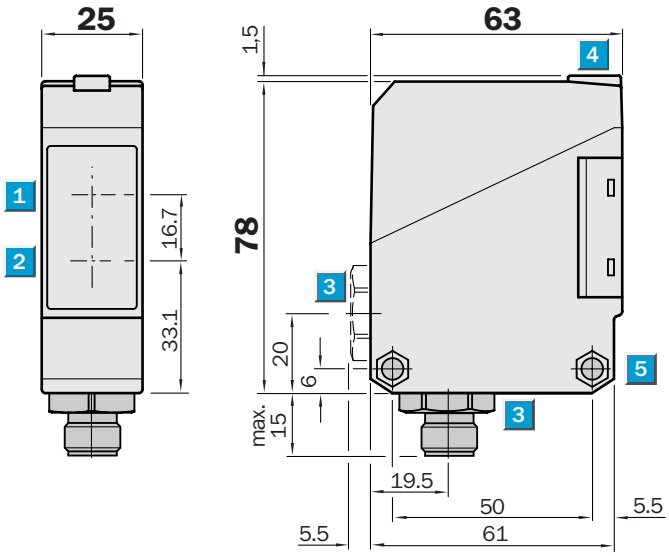
Type	Order no.
WT 260-S 280	6 020 771
WT 260-R 280	6 020 772

Scanning distance
5…1500 mm

Photoelectric proximity switch

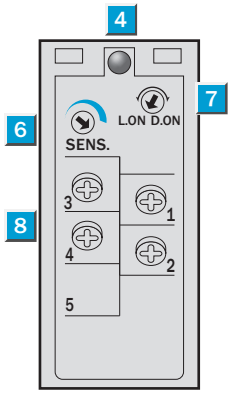
- Sensitivity, adjustable
- Terminal chamber or plug M 12, 4 pin
- Test input

Dimension illustration



Setting options

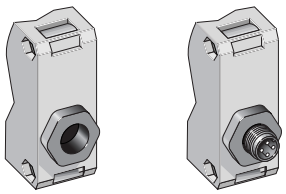
WT 260-F 270
WT 260-F 470
WT 260-E 270
WT 260-E 470



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

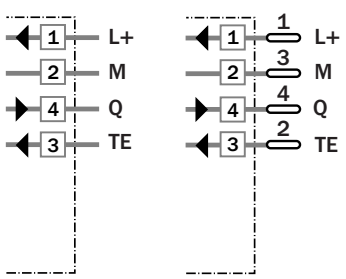
WT 260-F 270	WT 260-F 470
WT 260-E 270	WT 260-E 470



Accessories

Mounting bracket, included
M 12 cable receptacle

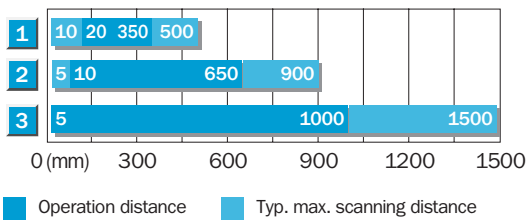
Terminals	4 pin, M 12



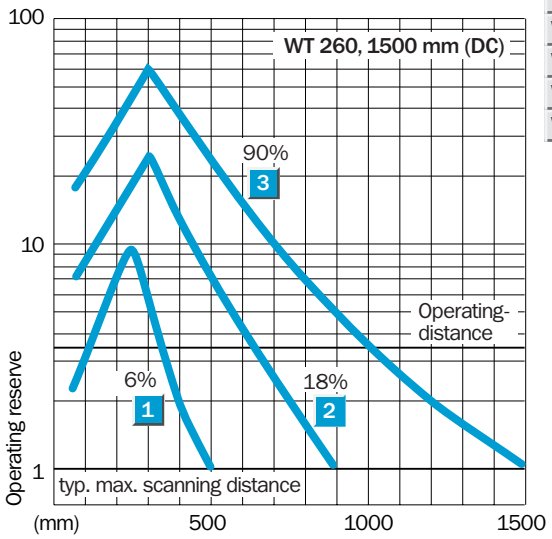
Technical data	WT 260-	F 270	F 470	E 270	E 470
Scanning distance, typ. max.	15 to 1500 mm, adjustable [1]	■	■	■	■
Operating distance	5 to 1000 mm, adjustable [1]	■	■	■	■
Sensitivity	Adjustable, potentiometer 270°	■	■	■	■
Light source [2]	LED, visible red light	■	■	■	■
Light spot diameter	Approx. 45 mm at a distance of 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]	≤ 1.5 ms	■	■	■	■
Switching frequency max. [7]	333/s	■	■	■	■
Test input »TE« sender off	PNP: TE to + V_S	■	■		
	NPN: TE to 0 V			■	■
Type of connection	Terminal chamber	■		■	
	M 12 equipment plug, 4 pin		■		■
VDE protection class [8]	⧈	■	■	■	■
Circuit protection [9]	A, B, C, D	■	■	■	■
Enclosure rating	IP 67	■	■	■	■
Ambient temperature	Operation –25 °C to +55 °C	■	■	■	■
	Storage –40 °C to +70 °C	■	■	■	■
Weight	Approx. 120 g	■	■	■	■
Material	Housing: ABS; Optics: PC	■	■	■	■

1) Object with 90% reflectance (referred to standard white DIN 5033)
2) Average service life 100000 h at T_U = +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) Withstand 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% reflectance
2 Scanning range on grey, 18% reflectance
3 Scanning range on white, 90% reflectance



Ordering information

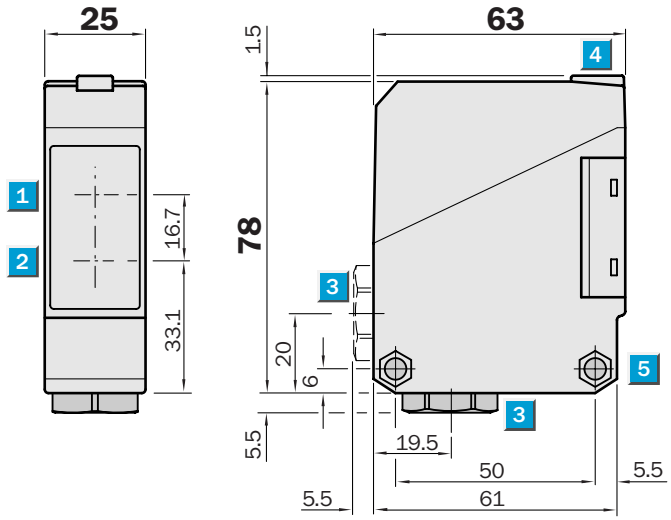
Type	Order no.
WT 260-F 270	6 020 979
WT 260-F 470	6 020 980
WT 260-E 270	6 020 981
WT 260-E 470	6 021 815

Scanning distance
5…1700 mm

Photoelectric proximity switch

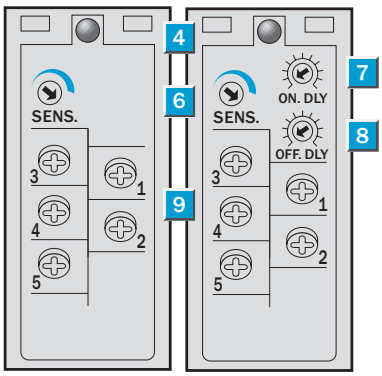
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

Dimension illustration



Setting options

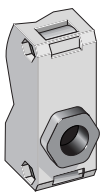
WT 260-S 270 | WT 260-R 270



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 Ø 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

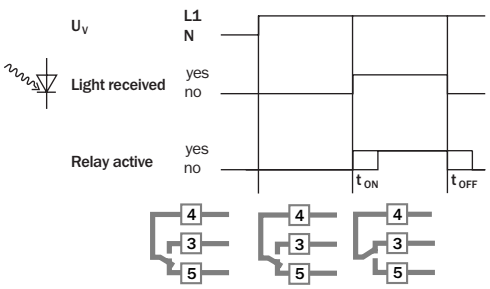
Connection type

WT 260-S 270
WT 260-R 270

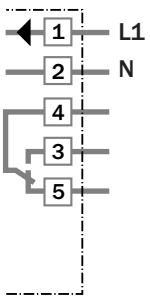


Time delays

t = 0.1–10 s



Terminals



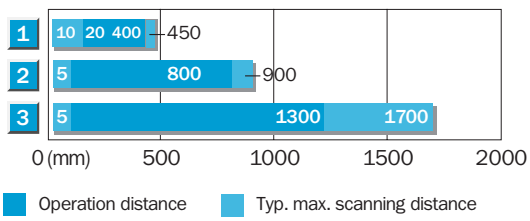
Accessories

Accessories
Mounting bracket, included
M 12 cable receptacle

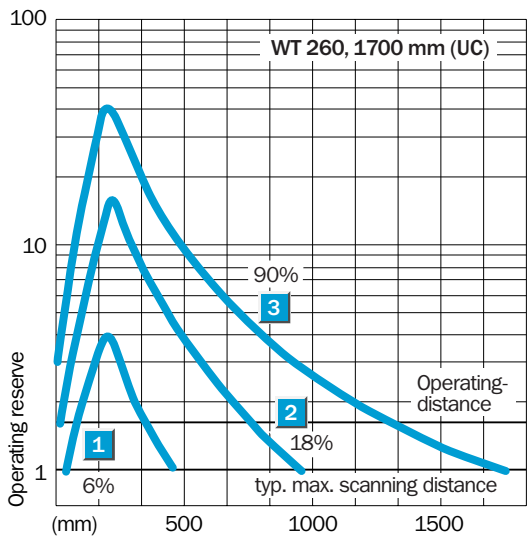
Technical data	WT 260-	S 270	R 270
Scanning distance, typ. max.	5 to 1700 mm, adjustable [1]	■	■
Operating distance	5 to 1300 mm, adjustable [1]	■	■
Sensitivity	Adjustable, potentiometer 270°	■	■
Light source [2]	LED, visible red light	■	■
Light spot diameter	Approx. 60 mm at a distance of 1300 mm	■	■
Aperture angle sender	Approx. 1.8°	■	■
Supply voltage V_S [3]	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		■
Type of connection	Terminal chamber	■	■
CE noise radiation	Level EN 50081-1 (“Household standard”)	■	■
VDE protection class [6]	⧈	■	■
Circuit protection [7]	A, C	■	■
Enclosure rating	IP 67	■	■
Ambient temperature	Operation –25 °C to +55 °C	■	■
	Storage –40 °C to +70 °C	■	■
Weight	Approx. 120 g	■	■
Material	Housing: ABS; Optics: PC	■	■

[1] Object with 90% reflectance (referred to standard white DIN 5033)
[2] Mittlere Lebensdauer 100.000 h bei T_U = + 25 °C
[3] ± 10 %
[4] Provide suitable spark suppression for inductive or capacitive loads
[5] With light/dark ratio 1:1
[6] Withstand voltage 250 V UC
[7] A = V_S 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

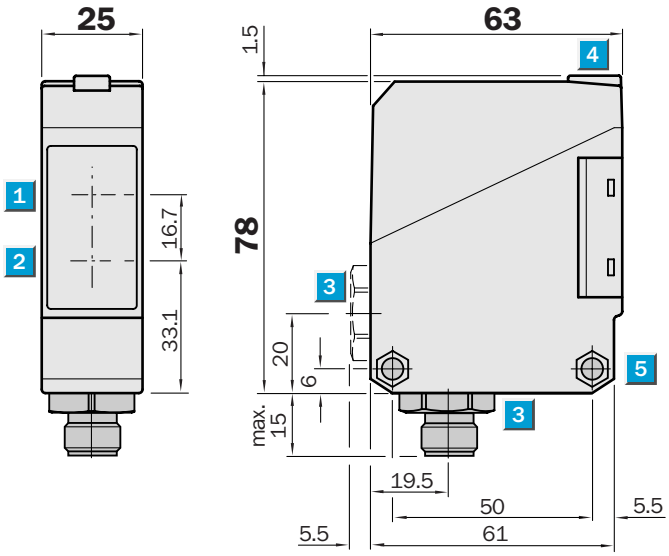
Type	Order no.
WT 260-S 270	6 020 769
WT 260-R 270	6 020 770

Scanning range
0,01…14 m

Photoelectric reflex switch

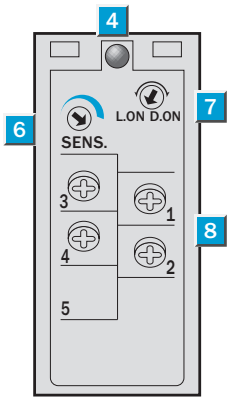
- Polarizing filter providing reliable detection even of objects with shiny surfaces
- Sensitivity, adjustable
- Terminal chamber or plug M 12, 4 pin
- Test input

Dimension illustration



Setting options

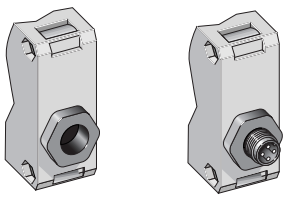
WL 260-F 270
WL 260-F 470
WL 260-E 270
WL 260-E 470



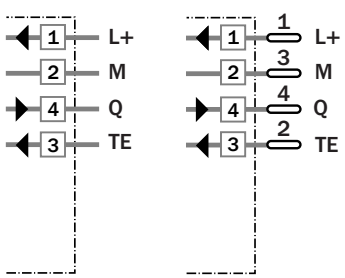
1 Middle of optic axis, receiver
2 Middle of optic axis, sender
3 Cable entry gland 1/2" PF thread
for cable diameters from 6 to 10 mm
optionally at bottom or rear;
or M 12 equipment plug, bottom
4 LED signal strength indicator, yellow,
switching output active
5 Through hole Ø 5.2 mm on both sides
for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

Connection type

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



Terminals	4 pin, M 12



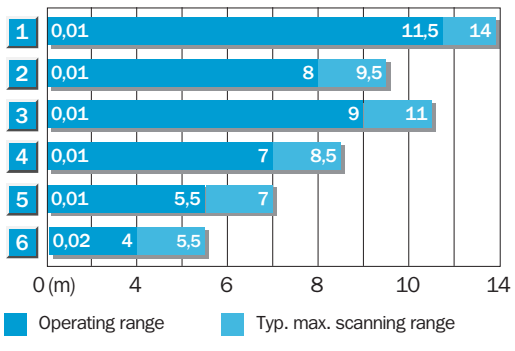
Accessories

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

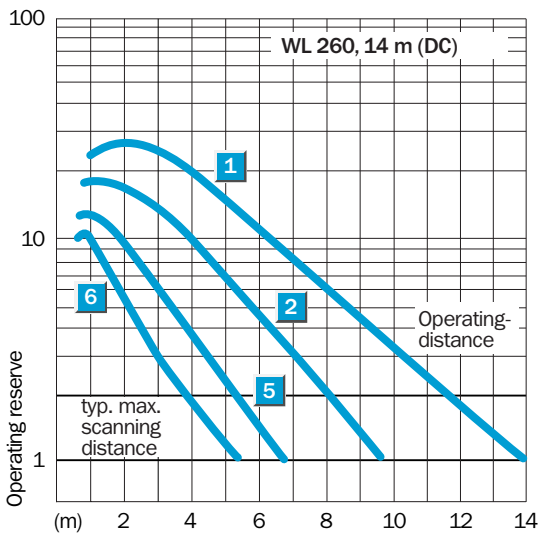
Technical data	WT 260-	F 270	F 470	E 270	E 470
Scanning range, typ. max./on reflector	0.01 to 14 m / PL 80 A	■	■	■	■
typ. max./on reflector	0.01 to 9.5 m / P 250 (included)	■	■	■	■
Operating range	0.01 to 8 m / P 250	■	■	■	■
Sensitivity	Adjustable, potentiometer 270°	■	■	■	■
Light source [1]	LED, visible red light	■	■	■	■
	With polarizing filter	■	■	■	■
Light spot diameter	Approx. 240 mm at a distance of 8 m	■	■	■	■
Aperture angle sender	Approx. 1.7°	■	■	■	■
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]	≤ 1.5 ms	■	■	■	■
Switching frequency max. [6]	333/s	■	■	■	■
Test input »TE« sender off	PNP: TE to + V_S	■	■		
	NPN: TE to 0 V			■	■
Type of connection	Terminal chamber	■		■	
	M 12 equipment plug, 4 pin		■		■
VDE protection class [7]	⧈	■	■	■	■
Circuit protection [8]	A, B, C, D	■	■	■	■
Enclosure rating	IP 67	■	■	■	■
Ambient temperature	Operation –25 °C to +55 °C	■	■	■	■
	Storage –40 °C to +70 °C	■	■	■	■
Weight	Approx. 120 g	■	■	■	■
Material	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

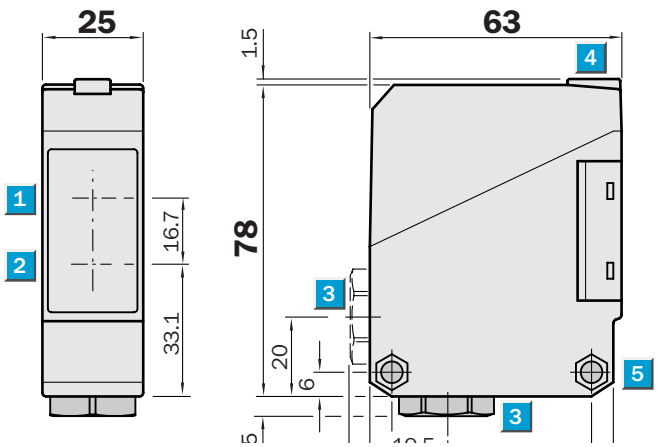
Type	Order no.
WL 260-F 270	6 020 976
WL 260-F 470	6 020 977
WL 260-E 270	6 020 978
WL 260-E 470	6 021 814

Scanning range
0,01…15 m

Photoelectric reflex switch

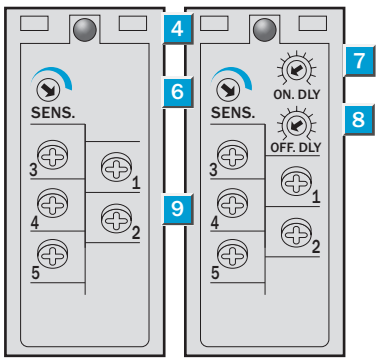
- Polarizing filter providing reliable detection even of objects with shiny surfaces
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 (“Household standard”)

Dimension illustration



Setting options

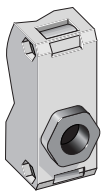
WL 260-S 270 | WL 260-R 270



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 Ø 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

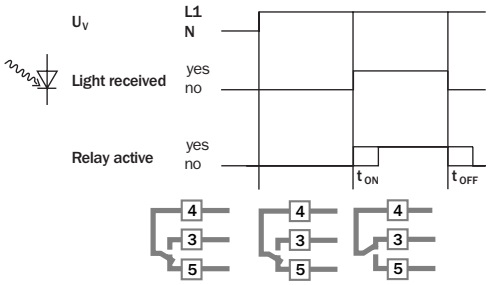
Connection type

WL 260-S 270
WL 260-R 270

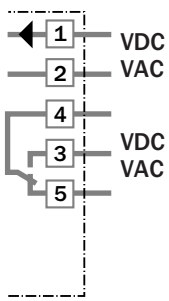


Time delays

t = 0.1–10 s



Terminals



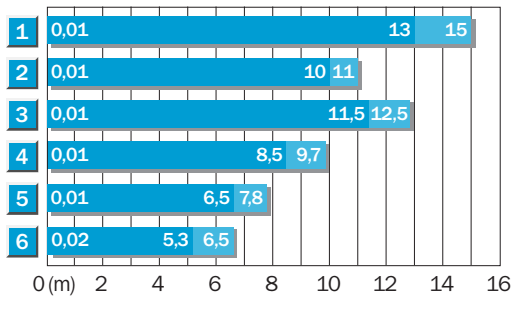
Accessories

Mounting bracket, included
P 250 reflector, included

Technical data	WT 260-	S 270	R 270
Scanning range, typ. max./on reflector	0.01 to 15 m / PL 80 A		
typ. max./on reflector	0.01 to 11 m / P 250 (included)		
Operating range	0.01 to 10 m / P 250		
Sensitivity	Adjustable, potentiometer 270°		
Light source [1]	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°		
Supply voltage V_S [2]	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		
Type of connection	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	Operation –25 °C to +55 °C		
	Storage –40 °C to +70 °C		
Weight	Approx. 120 g		
Material	Housing: ABS; Optics: PMMA		

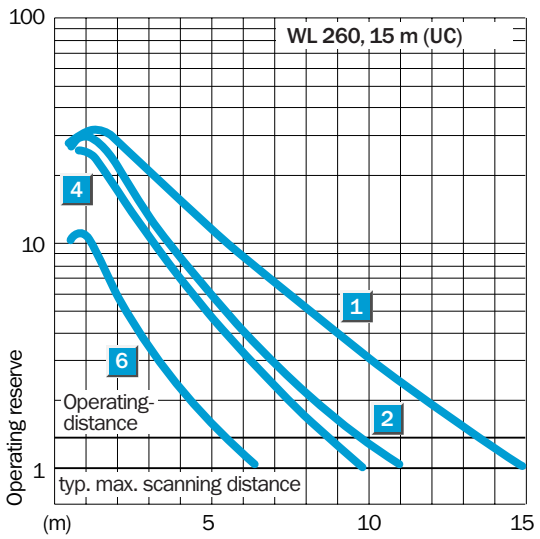
[1] Average service life 100000 h at T_U = +25 °C
[2] ± 10 %
[3] Provide suitable spark suppression for inductive or capacitive loads
[4] With light/dark ratio 1:1
[5] Withstand voltage 250 V UC
[6] A = V_S connections reverse-polarity protected
C = Interference suppression

Scanning range and operating reserve



Operating range Typ. max. scanning range

	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

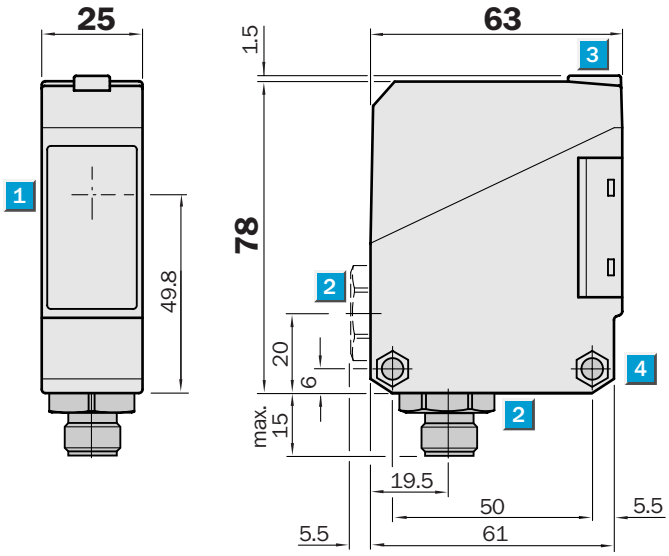
Type	Order no.
WL 260-S 270	6 020 767
WL 260-R 270	6 020 768

Scanning range 35 m

Through-beam photoelectric switch

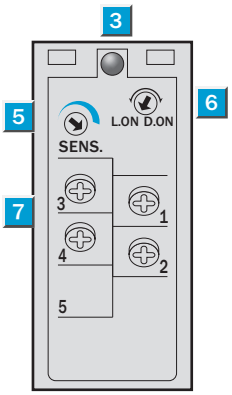
- Sensitivity, adjustable
- Terminal chamber or plug M 12, 4 pin
- Test input

Dimension illustration



Setting options

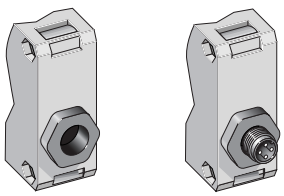
WS/WE 260-F 270
WS/WE 260-F 470
WS/WE 260-E 270
WS/WE 260-E 470

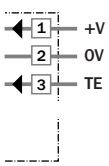
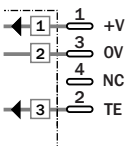
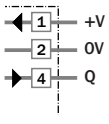
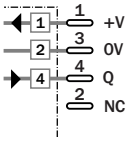


1 Middle of optic axis, sender/receiver
2 Cable entry gland 1/2" PF thread for cable diameters from 6 to 10 mm optionally at bottom or rear; or M 12 equipment plug, bottom
3 LED signal indicator orange
WE 260: switching output active
WS 260: sender active
4 Through hole Ø 5.2 mm on both sides for M 5 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-E 270	WS/WE 260-F 470 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 270	WE 260-F 470 WE 260-E 470
		

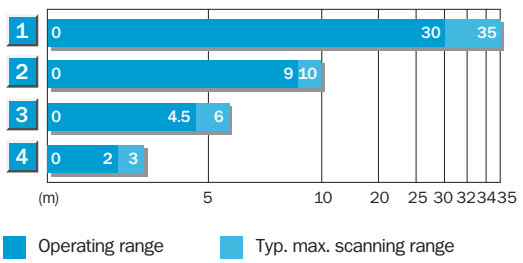
Accessories

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 source [1]	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°	■	■	■	■
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	■	■	■	■
Type of connection	Terminal chamber	■		■	
	M 12 equipment plug, 4 pin		■		■
VDE protection class [7]	⧈	■	■	■	■
Circuit protection [8]					
sender	A, B	■	■	■	■
receiver	A, B, C, D	■	■	■	■
Enclosure rating	IP 67	■	■	■	■
Ambient temperature	Operation –25 °C to +55 °C	■	■	■	■
	Storage –40 °C to +70 °C	■	■	■	■
Weight	Approx. 120 g	■	■	■	■
Material	Housing: ABS; Optics: PC	■	■	■	■

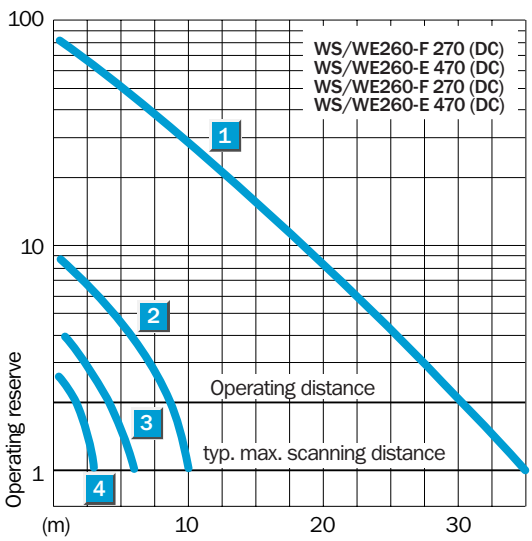
1) Average service life 100 000 h at T_U = +25 °C
2) Limit values
3) Must be within V_S tolerances
4) Without load
5) With resistive load
6) With light/dark ratio 1:1
7) Withstand voltage 50 V DC
8) A = V_S connections reverse-polarity protected
B = Inputs/outputs reverse-polarity protected
C = Interference suppression
D = Outputs overcurrent and short-circuit protected

Operating range and operating reserve



Operating range Typ. max. scanning range

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

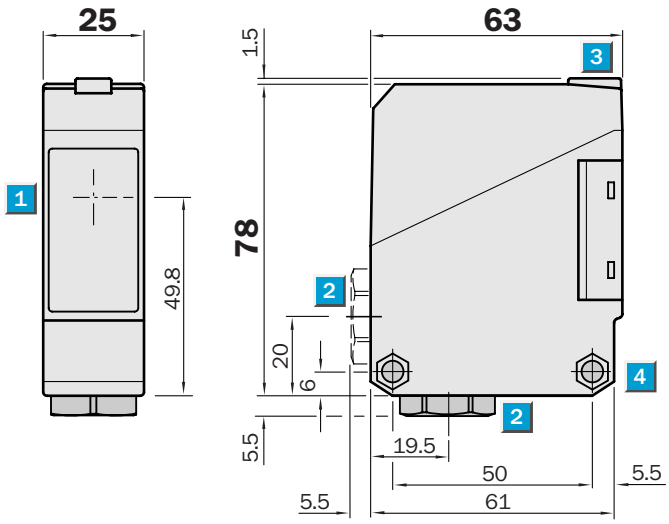
Type	Order no.
WS/WE 260-F 270	6 020 973
WS/WE 260-F 470	6 020 974
WS/WE 260-E 270	6 020 975
WS/WE 260-E 470	6 021 817

Scanning range
45 m

Through-beam photoelectric switch

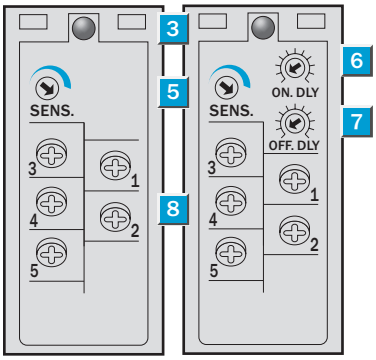
- Sensitivity, adjustable
- Terminal chamber
- Universal voltage supply, Relay output, SPDT, timer optional, t_{ON} and t_{OFF} can be connected separately
- Enclosure rating IP 67
- CE noise radiation EN 50081-1 ("Household standard")

Dimension illustration



Setting options

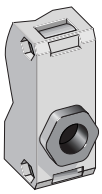
WS/WE 260-S 270	WS/WE 260-R 270



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 Ø 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

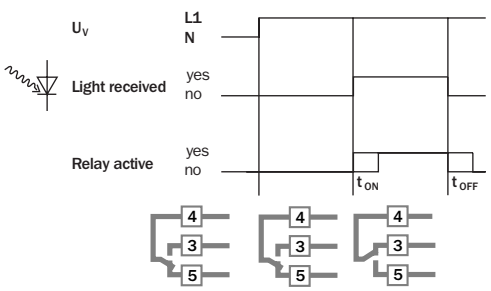
Connection type

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



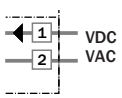
Time delays

t = 0.1–10 s

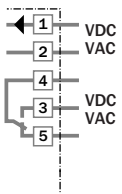


Accessories
Mounting bracket, included
cable receptacle
Slotted masks, BL-260-SK, 5 308 773

	Terminals
Sender	WS 260-S 270



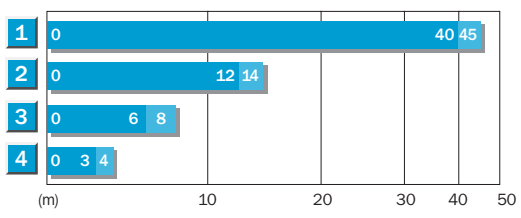
Receiver	WE 260-S 270
	WE 260-R 270



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 [1]	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°		
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		
Type of connection	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	Operation –25 °C to +55 °C		
	Storage –40 °C to +70 °C		
Weight	Approx. 120 g		
Material	Housing: ABS; Optics: PC		

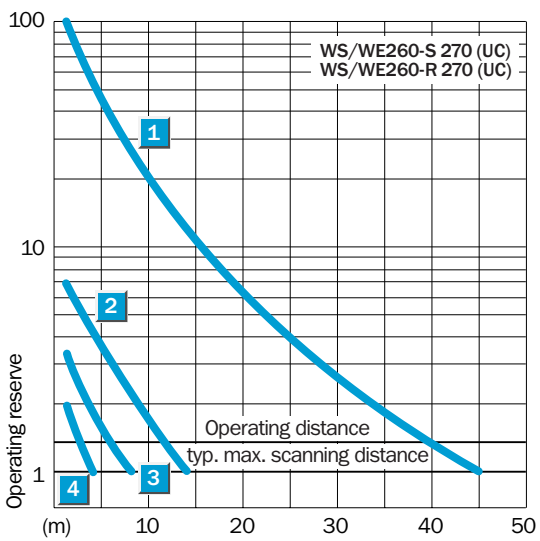
[1] Average service life 100000 h at T_U = +25 °C
[2] ± 10 %
[3] Provide suitable spark suppression for inductive or capacitive loads
[4] With light/dark ratio 1:1
[5] Withstand voltage 250 V UC
[6] A = V_S connections reverse-polarity protected
C = Interference suppression

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

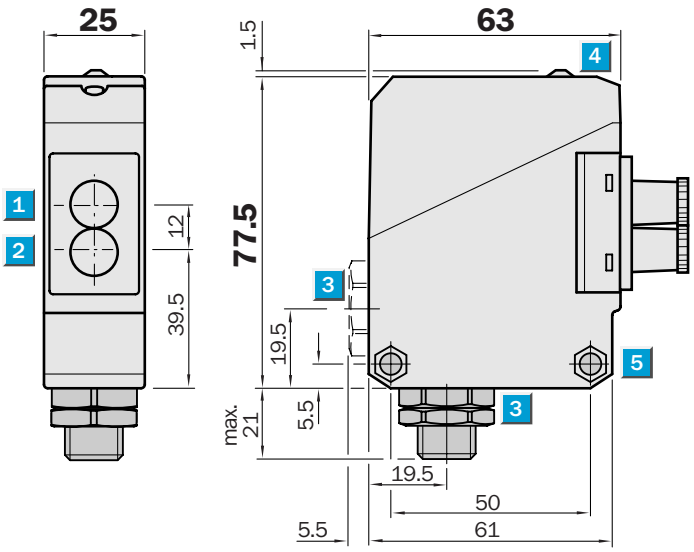
Type	Order no.
WS/WE 260-S 270	6 020 773
WS/WE 260-R 270	6 020 774

Scanning range max. 800 mm
Through-beam systems

Scanning distance max. 65 (110) mm
Proximity systems

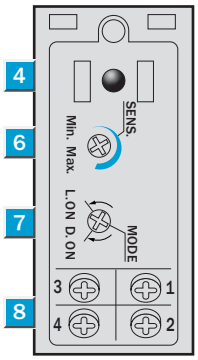
- Broad range of fiber-optic cables for through-beam and proximity applications
- Easy adaption of fiber-optic cable using cap nut
- Sensitivity, adjustable
- Terminal chamber, at bottom or rear
- Universal voltage supply, relay output, SP, timer optional

Dimension illustration



Setting options

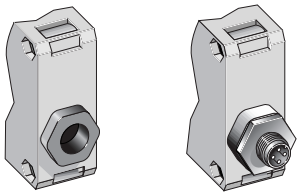
WLL 260-F 240
WLL 260-F 440
WLL 260-E 240



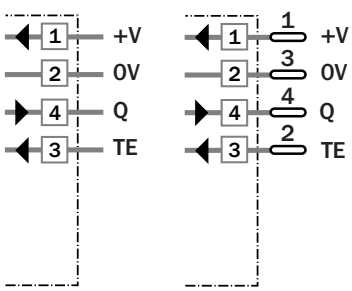
1 Middle of optic axis, receiver
2 Middle of optic axis, sender
3 Cable entry gland 1/2" PF thread
for cable diameters from 6 to 10 mm
optionally at bottom or rear;
or M 12 equipment plug, bottom
4 LED signal strength indicator, red
5 Through hole Ø 5.2 mm on both sides
for M 5 hex nut
6 Sensitivity 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 240
WLL 260-F 440



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
Suitable fiber-optic cable	Glas-fiber-optic cable series LIS .../LBS ...	■	■	■
Scanning distance/range	Depends on the used fiber-optic cable	■	■	■
Through-beam system				
Typ. max. scanning distance [1]	0 to 65 mm	■	■	■
	0 to 110 mm with special fiber-optic cable	■	■	■
Operating distance [1]	0 to 50 mm	■	■	■
	0 to 90 mm with special fiber-optic cable	■	■	■
Proximity system				
Typ. max. scanning range	0 to 800 mm	■	■	■
Operating range	0 to 700 mm	■	■	■
Sensitivity	Adjustable, potentiometer 270°	■	■	■
Light source [2]	LED, visible red light	■	■	■
Light spot diameter	Depends on scanning range	■	■	■
Aperture fiber-optic cable	Approx. 65°	■	■	■
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]	≤ 0.7 ms	■	■	■
Switching frequency max. [7]	700/s	■	■	■
Test input »TE« sender off	PNP: TE following + U_V	■	■	
	NPN: TE following 0 V			■
Type of connection	Terminal chamber	■		■
	M 12 equipment plug, 4-polig		■	
VDE protection class [8]	⧈	■	■	■
Circuit protection [9]	A, B, C, D	■	■	■
Enclosure rating	IP 66	■	■	■
Ambient temperature	Operation –25 °C to +55 °C	■	■	■
	Storage –40 °C to +70 °C	■	■	■
Weight	Approx. 120 g	■	■	■
Material	Housing: ABS	■	■	■

1) Object with 90% reflectance (referred to standard white DIN 5033)
2) Average service life 100000 h at T_U = +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) Withstand 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

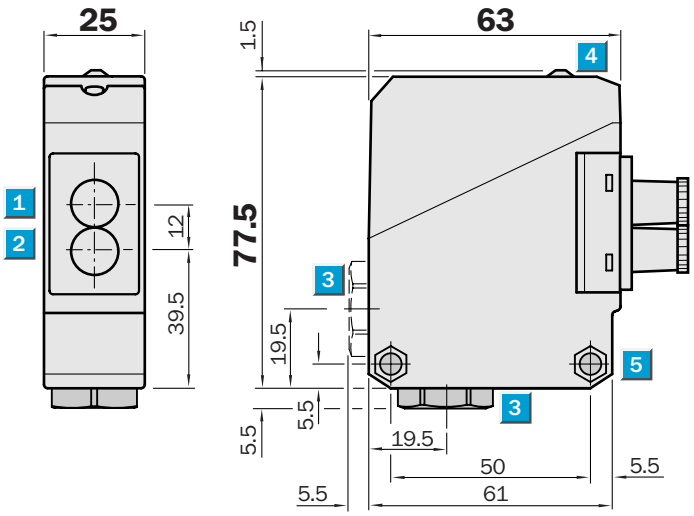
Ordering information	
Type	**Order no.**
WLL 260-F 240	6 020 064
WLL 260-F 440	6 020 065
WLL 260-E 240	6 020 063

Scanning range
max. 800 mm
Through-beam systems

Scanning distance
max. 65 (110) mm
Proximity systems

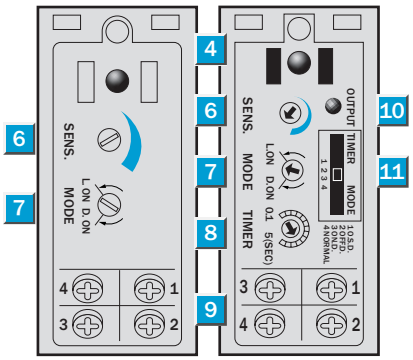
- Broad range of fiber-optic cables for through-beam and proximity applications
- Easy adaption of fiber-optic cable using cap nut
- Sensitivity, adjustable
- Terminal chamber, at bottom or rear
- Universal voltage supply, relay output, SP, timer optional

Dimension illustration



Setting options

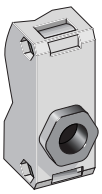
WLL 260-S 240 | WLL 260-R 240



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

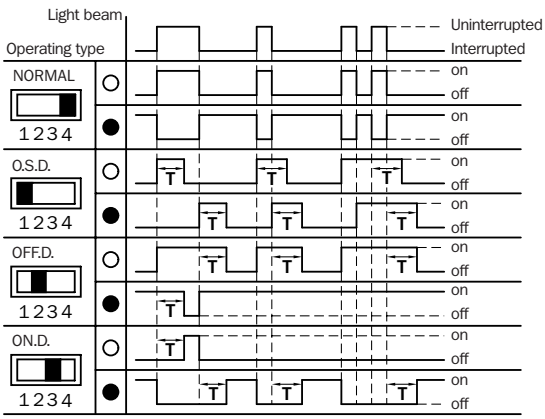
Connection type

WLL 260-S 240
WLL 260-R 240



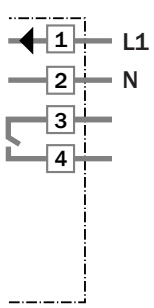
Time delays

t = 0.1–5 s



Switching mode: ○ light-switching
● dark-switching

Terminals



Accessories

Fiber-optic cable
Mounting bracket, included
Cable receptacle

Technical data	WLL 260-	S 240	R 240
Suitable fiber-optic cable	Glas-fiber-optic cable series LIS .../LBS ...	■	■
Scanning distance/range	Depends on the used fiber-optic cable	■	■
Through-beam system		■	■
Typ. max. scanning distance [1]	0 to 65 mm		
	0 to 110 mm with special fiber-optic cable	■	■
Operating distance [1]	0 to 50 mm		
	0 to 90 mm with special fiber-optic cable	■	■
Proximity system			
Typ. max. scanning range	0 to 800 mm	■	■
Operating range	0 to 700 mm		
Sensitivity	Adjustable, potentiometer 270°	■	■
Light source [2]	LED, visible red light	■	■
Light spot diameter	Depends on scanning range	■	■
Aperture fiber-optic cable	Approx. 65°	■	■
Supply voltage V_S [3]	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°		■
Type of connection	Terminal chamber	■	■
VDE protection class [6]	⧈	■	■
Circuit protection [7]	A, C	■	■
Enclosure rating	IP 66	■	■
Ambient temperature	Operation –25 °C to +55 °C	■	■
	Storage –40 °C to +70 °C	■	■
Weight	Approx. 120 g	■	■
Material	Housing: ABS	■	■

[1] Object with 90% reflectance (referred to standard white DIN 5033)
[2] Average service life 100000 h at T_U = +25 °C
[3] ± 10 %
[4] Provide suitable spark suppression for inductive or capacitive loads
[5] With light/dark ratio 1:1
[6] Withstand voltage 50 V DC
[7] A = V_s connections reverse-polarity protected
C = Interference suppression

Ordering information

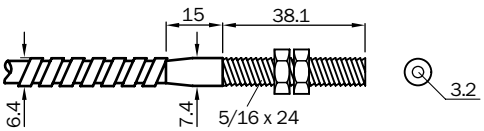
Type	Order no.
WLL 260-S 240	6 009 504
WLL 260-R 240	6 009 503

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

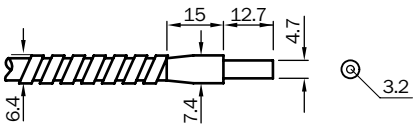
Fiber-optic cable LIS/LBS 32 900

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



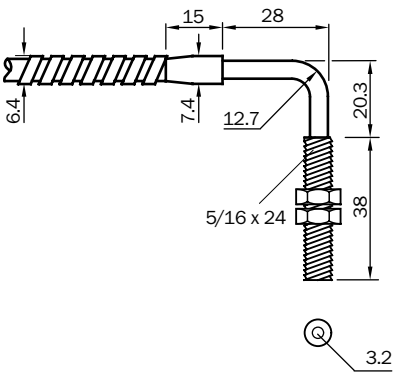
Fiber-optic cable LIS/LBS 32 900

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



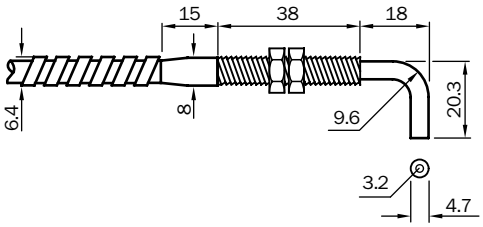
Fiber-optic cable LIS/LBS 32 900

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



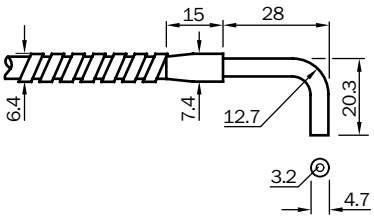
Fiber-optic cable LIS/LBS 32 900

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



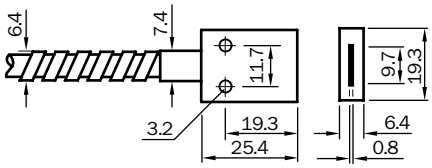
Fiber-optic cable LIS/LBS 32 900

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

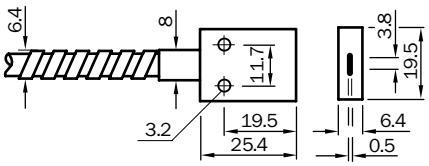
System	Type	Order no.	Scanning dist. *
Through-beam	LISR 32 900	7 020 041	700 mm
Proximity	LBSR 32 900	7 020 042	50 mm



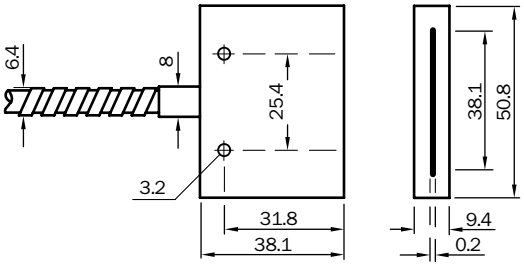
* Operating range or operating scanning range
Object with 90% reflectance (DIN 5033)
Size of object = light spot diameter (aperture angle approx. 60°)

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

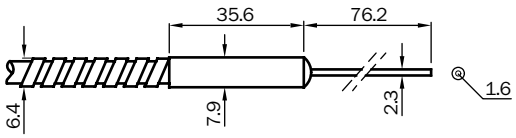
Fiber-optic cable LIS/LBS 16 900			
System	**Type**	**Order no.**	**Scanning dist. ***
Through-beam	LISR 16 900	7 020 049	220 mm
Proximity	LBSR 16 900	7 020 050	15 mm



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

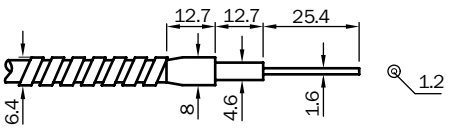


Fiber-optic cable LIS/LBS 16 900			
System	**Type**	**Order no.**	**Scanning dist. ***
Through-beam	LISP 16 900	7 020 043	100 mm
Proximity	LBSP 16 900	7 020 044	6 mm



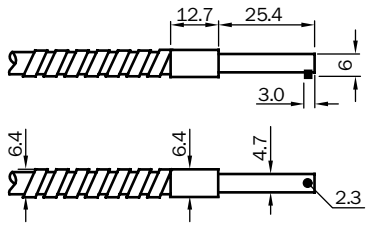
Bending radius of sleeve R_{min} = 12 mm

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



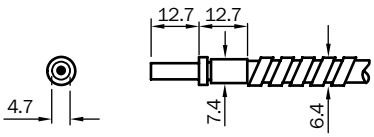
Bending radius of sleeve R_{min} = 6mm

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

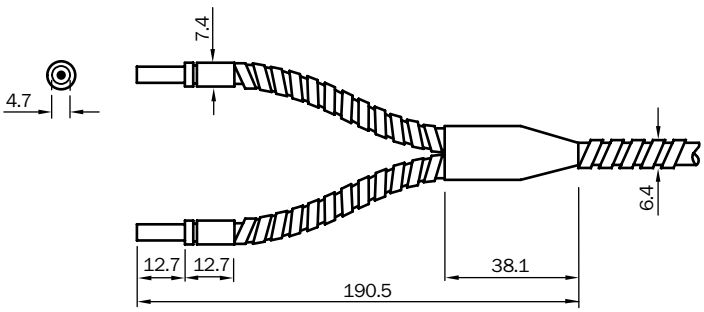


Adaption of fiber-optic cable

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

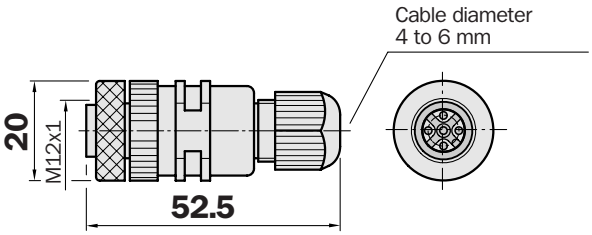
Dimension illustration and order informations

- Pin assignment to EN 50044
- DC coding

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

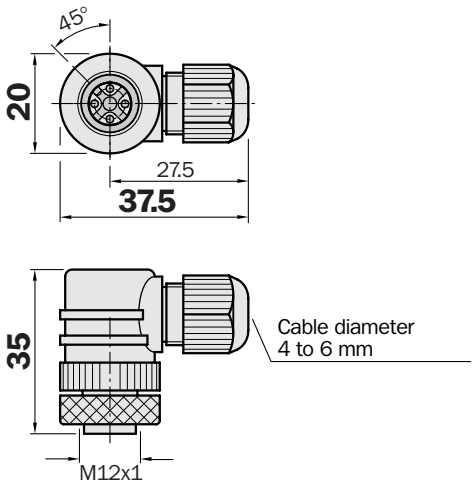
M12 cable receptacle, 4 pin or 5 pin, straight

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



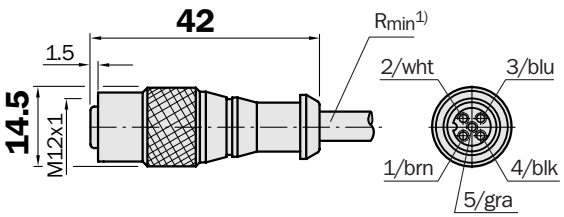
M12 cable receptacle, 4 pin or 5 pin, angled

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



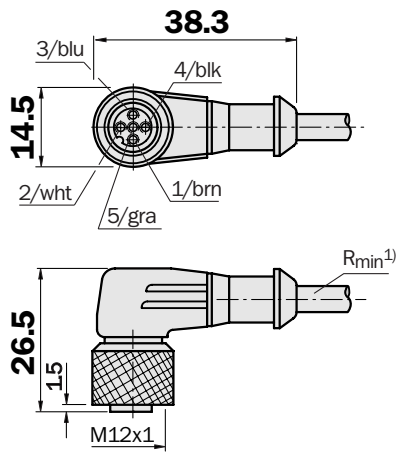
M12 cable receptacle, 4 pin or 5 pin, straight
Cable-Ø 5/6 mm, 4/5 x 0,25 mm², sheath PVC

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 mm², 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

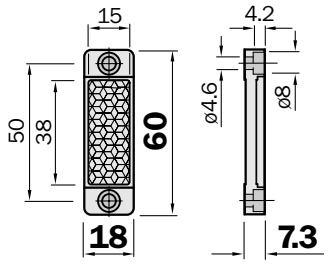


1) Minimum bending radius during dynamic use
R_{min} = 20 x Cable-Ø

Plastic model for temperatures up to 65 °C

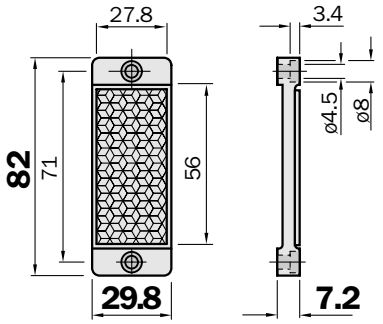
Reflector 20 x 40 mm

Type	Order no.
PL 20 A	1 012 719



Reflector 30 x 50 mm

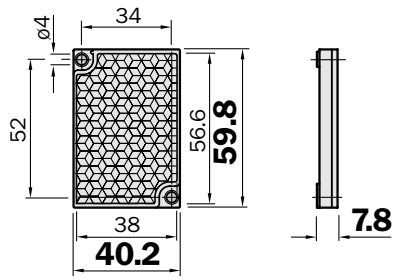
Type	Order no.
PL 30 A	1 002 314



Reflector 40 x 60 mm

Self-adhesive

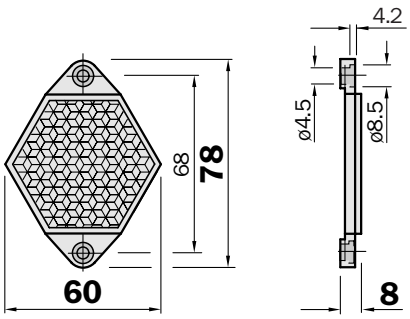
Type	Order no.
PL 40 A	1 012 720



Reflector, hexagonal

Opening width 48 mm

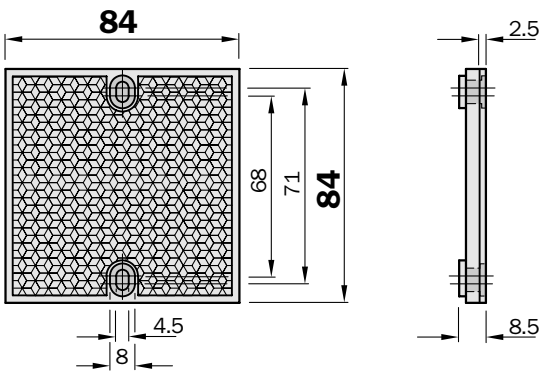
Type	Order no.
PL 50 A	1 000 132



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

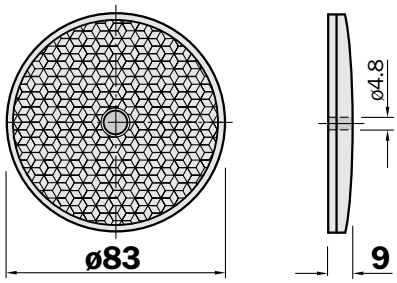
Reflector 80 x 80 mm

Type	Order no.
PL 80 A	1 003 865



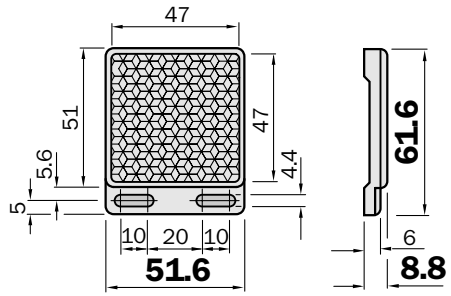
Reflector ø 83 mm, Center hole mounting

Type	Order no.
C 110	5 304 549



Reflector 47 x 47 mm

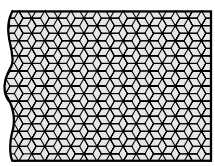
Type	Order no.
P 250	5 304 812



Included with WL 260.

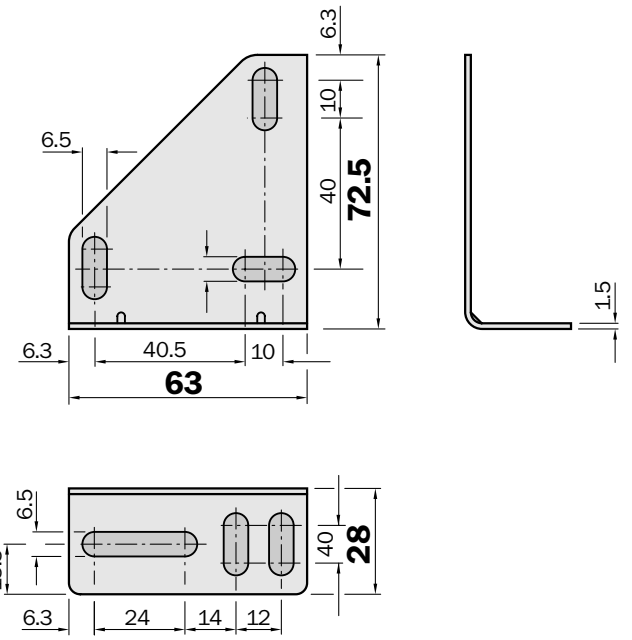
Reflective tape

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



Mounting bracket

Type	Order no.
BEF-W260	5 304 819

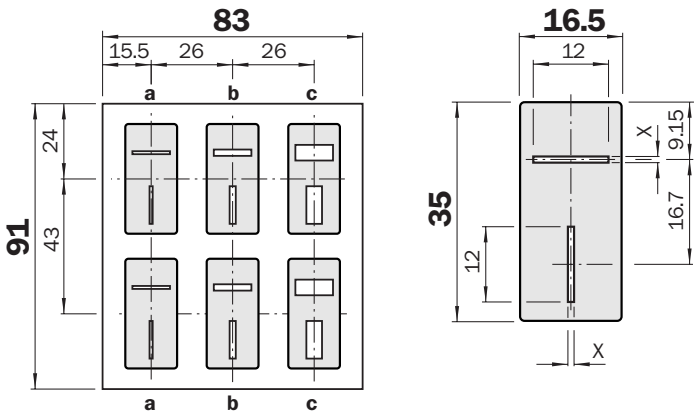


Included with W 260.

Slotted masks for WS/WE*

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

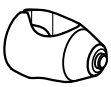
* Two pieces each



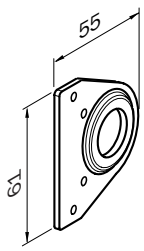
3 pairs with slot widths A, B and C are supplied with equipment.
Mounting by self-adhesive back.
Stick mask on red optics body of WS 260 and WE 260.
For detecting smaller objects or increasing the switching accuracy.
Only for WS/WE 260. Changed operating ranges.

	Operating range	WS/WE 260-S/R 270	WS/WE 260-E/F x70
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

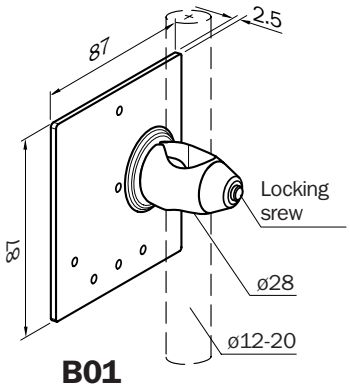
Universal bracket for rod mounting



KH1



F01



B01

Mounting plates	Type	Order no. [1]	Sensors/reflectors
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

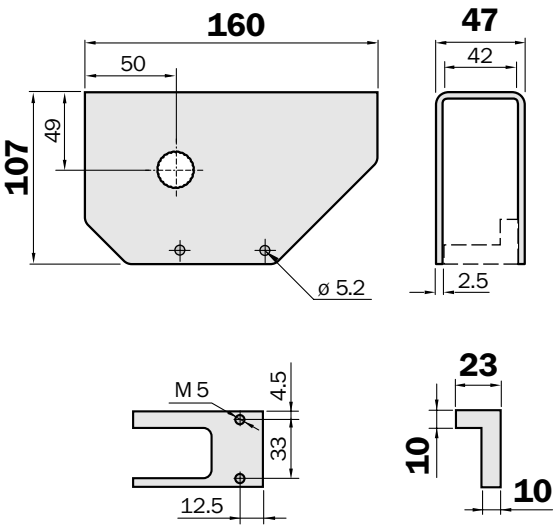
[1] Universal bracket and mounting screws included

Dimension drawings and order information

Special accessories

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

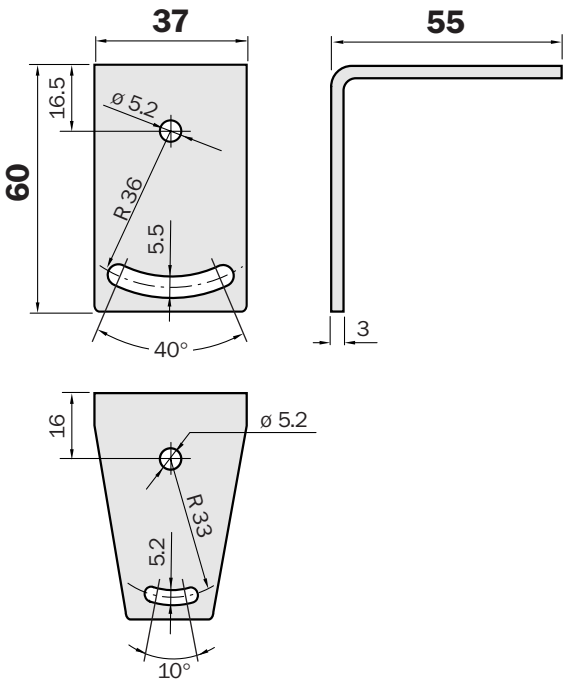
Type	Order no.
OBW-KHS-M01	2 023 240



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

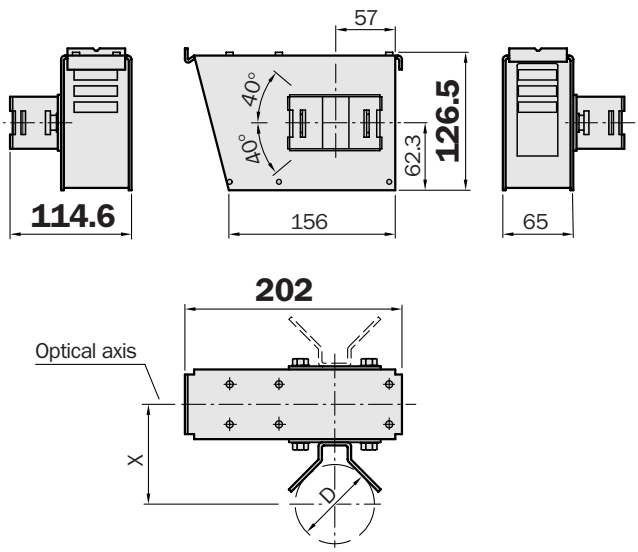
Mounting bracket for weather protection hood OBW-KHS-M01

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



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