

W 27-2: The photoelectric switch series with expanded possibilities

	Photoelectric proximity switches, BGS
	Photoelectric reflex switches
	Through-beam photoelectric switches



Variability and flexibility are the two key characteristics of the W 27-2 series of photoelectric switches. Thanks to their modular design, it is possible to offer a broad range of very different sensors.

Fully welded plastic housing made of ABS and impressive performance data are features common to all devices:

- the WT 27-2 photoelectric proximity switch with infrared or red-light sender with adjustable scanning distances of 100...1,500 mm and 100...1,000 mm respectively, with background suppression,
- 100...800 mm for the photoelectric proximity switch with visible laser light and adjustable scanning range and background suppression,

- 14 metres for the WL 27-2 photoelectric reflex switch, and
- 35 metres for the WS/WE 27-2 through-beam photoelectric switch.

The variety of models and configurations available within this photoelectric series, means that the many different requirements of users can easily be satisfied:

- plug or connecting cable,
- plug: 4-pin or 6-pin,
- supply voltage 10...30 V DC with transistor output or 24...240 V UC with relay output,
- transistor output PNP- or NPN-switching,
- timer modules for ON- or OFF-delay or for ON- and OFF-delay,
- optional test input,
- pre-failure signalling output,
- front screen heating to prevent condensation under rapidly changing ambient temperatures,
- integrated ASI technology,
- use as laser scanner.

All sensors have the CE symbol and UL approval.

► WS/WE 27-2 through-beam photoelectric switches used to check the height of beer crates before they are fed into a stacker.



◄ WT 27-2 sensors used to detect hangers in a monorail conveyor system for transporting clothing.



▲ WT 27-2 photoelectric proximity switches being used to detect and automatically position car wheels prior to assembly.

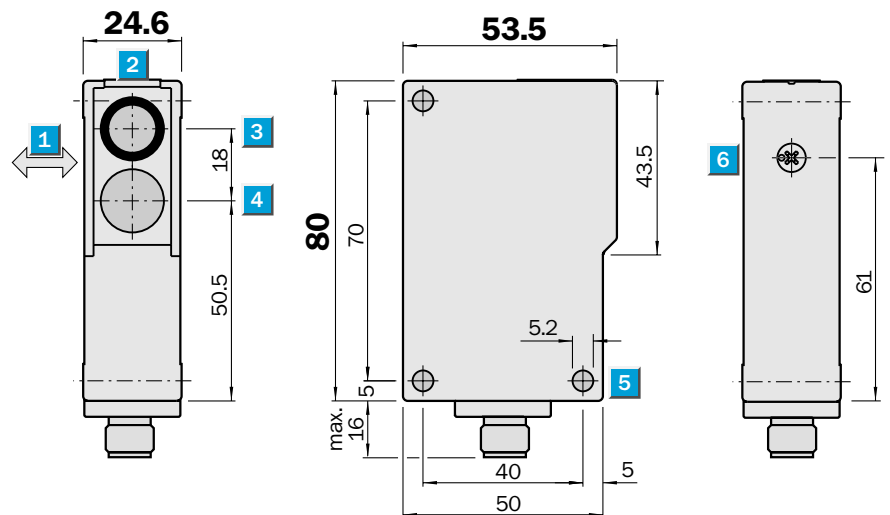


▲ WT 27-2 used for positioning a vehicle on a telescopic sliding pallet in a fully automated car park.

	Scanning distance 100...800 mm
Photoelectric proximity switches	

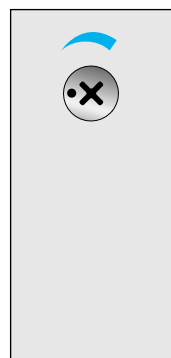
- Laser LED, red light
- Adjustable background suppression

Dimensional drawing



Adjustments possible

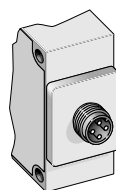
WT 27L-2F 430



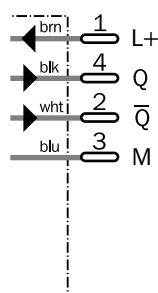
- | | |
|--|--|
| <ul style="list-style-type: none"> 1 2 3 4 5 6 | <ul style="list-style-type: none"> Standard direction of the material being scanned LED signal strength indicator Optical axis, sender Optic axis, receiver Mounting hole $\varnothing$ 5.2 mm Sensitivity adjustment |
|--|--|

Connection type

WT 27L-2F 430



4-pin, M 12



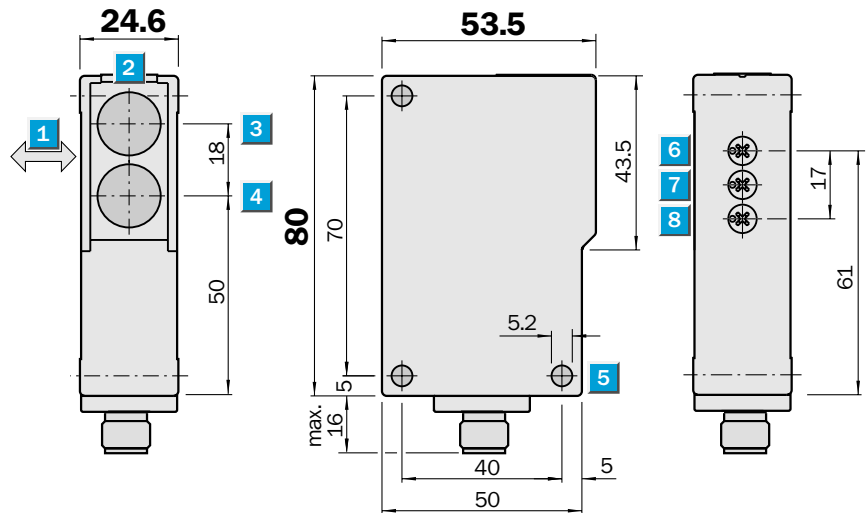
Laser class 2

Accessories	page
Cable receptacles	496
Mounting brackets	510

	Scanning distance 100...1000 mm
Photoelectric proximity switches	

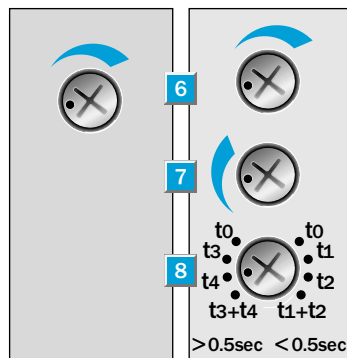
- Red light
- Adjustable background suppression
- Selectable time delay

Dimensional drawing



Adjustments possible

WT 27-2F 430	WT 27-2P 630
WT 27-2F 431	WT 27-2N 630
WT 27-2F 730	



- Standard direction of the material being scanned
- LED signal strength indicator
- Optical axis, sender
- Optical axis, receiver
- Mounting hole $\varnothing$ 5.2 mm
- Sensitivity adjustment
- Time control
- Time delay selector switch

Switch-selectable time delay

0.5 – 10 s

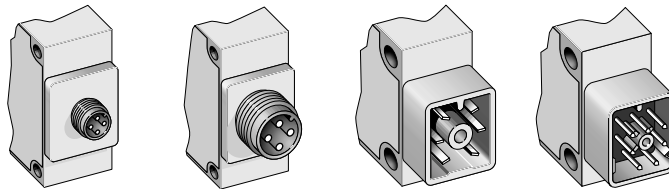
- t_0 Without time delay
- t_3 OFF-delay from trailing edge of object
- t_4 ON-delay from leading edge of object
- $t_3 + t_4$ OFF- and ON-delay

0.02 – 0.5 s

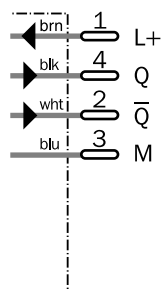
- t_0 Without time delay
- t_1 OFF-delay from trailing edge of object
- t_2 ON-delay from leading edge of object
- $t_1 + t_2$ OFF- and ON-delay

Connection types

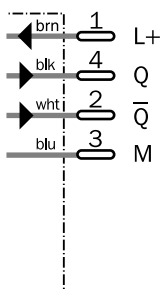
WT 27-2F 430	WT 27-2F 431	WT 27-2P 630	WT 27-2F 730
		WT 27-2N 630	



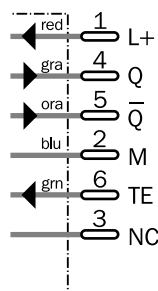
4-pin, M 12



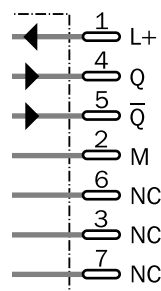
4-pin, M 18



6-pin



7-pin



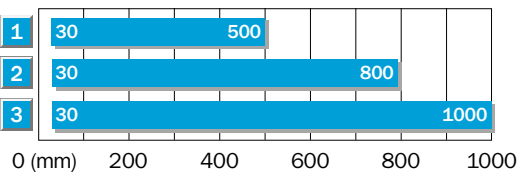
Accessories	page
Cable receptacles	496
Mounting brackets	510



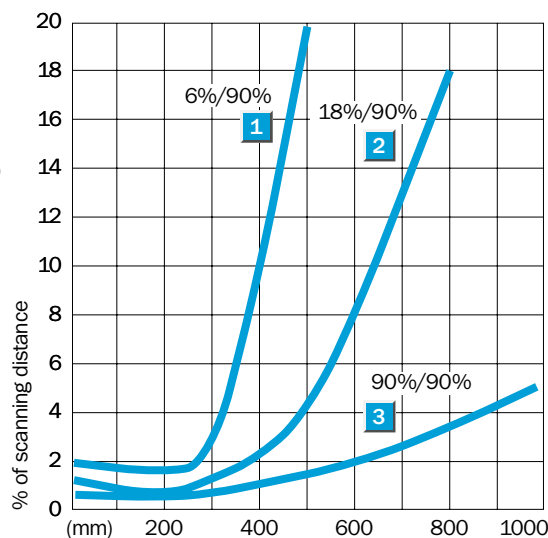
Technical data		WT 27-2	F 430	F 431	P 630	F 730	N 630						
Scanning distance	100...1000 mm, adjustable												
Light source¹⁾, light type	LED, red light												
Light spot diameter	Approx. 15 mm at 500 mm												
Supply voltage V_S	10...30 V DC ²⁾												
Ripple ³⁾	$\leq 5 V_{SS}$												
Current consumption ⁴⁾	≤ 25 mA												
Switching outputs	PNP, Q and $\bar{Q}$												
	NPN, Q and $\bar{Q}$												
Output current I_A max.	100 mA												
Response time ⁵⁾	2 ms												
Max. switching frequency ⁶⁾	250/s												
Selectable delay ranges	0.5...10 s/0.02...0.5 s												
Test input "TE", sender OFF	PNP: Test input to 0 V												
	NPN: Test input to V_S												
Connection types	Plug												
VDE protection class⁷⁾	□												
Circuit protection⁸⁾	A, B, C												
Enclosure rating	IP 67												
	IP 65												
Ambient temperature T_A	Operation -40 °C...+60 °C												
	Storage -40 °C...+75 °C												
Weight	Approx. 100 g												
Housing material	ABS												

1) Average service life 100,000 h at $T_A = +25$ °C
 2) Limit values
 3) May not exceed or fall short of V_S tolerances
 4) Without load
 5) Signal transit time with resistive load
 6) With light/dark ratio 1:1
 7) Reference voltage 50 V DC
 8) A = V_S connections reverse-polarity protected
 B = Output Q and $\bar{Q}$ short-circuit protected
 C = Interference pulse suppression

Scanning distance



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



Order information

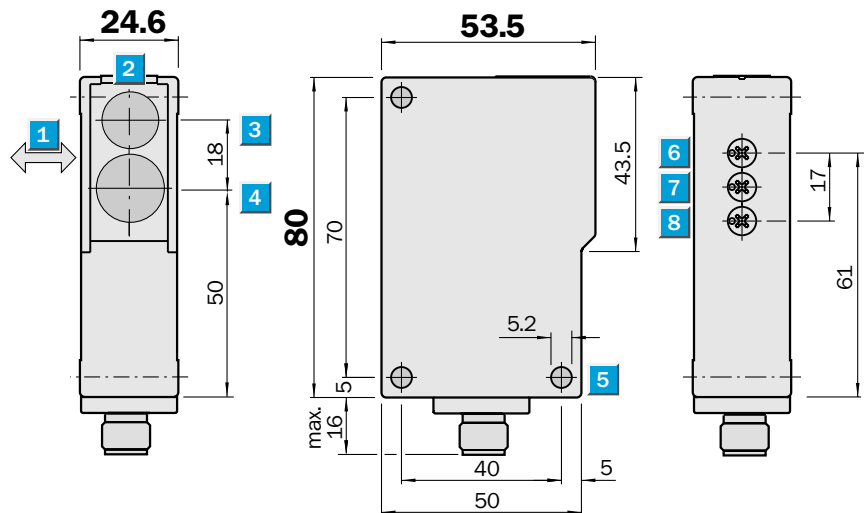
Type	Part no.
WT 27-2F 430	1 015 082
WT 27-2F 431	1 015 086
WT 27-2P 630	1 015 090
WT 27-2F 730	1 015 084
WT 27-2N 630	1 015 088

	Scanning distance 100...1000 mm
Photoelectric proximity switches	

- Red light
- Adjustable background suppression
- Selectable time delay

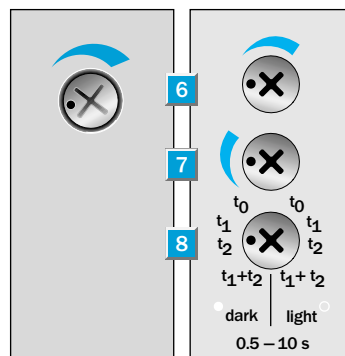


Dimensional drawing



Adjustments possible

WT 27-2S 132	WT 27-2R 630
WT 27-2S 730	



- 1 Standard direction of the material being scanned
 - 2 LED signal strength indicator
 - 3 Optical axis, sender
 - 4 Optical axis, receiver
 - 5 Mounting hole $\varnothing$ 5.2 mm
 - 6 Sensitivity adjustment
 - 7 Time control
 - 8 Time delay selector switch
- ☐ Light-switching
☐ Dark-switching

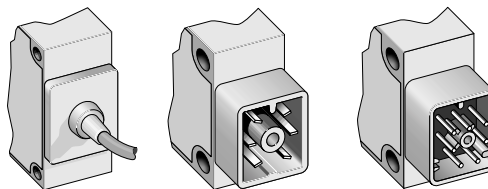
Switch-selectable time delay

0.5 – 10 s

- t_0 Without time delay
 t_1 OFF-delay from trailing edge of object
 t_2 ON-delay from leading edge of object
 $t_1 + t_2$ OFF- and ON-delay

Connection types

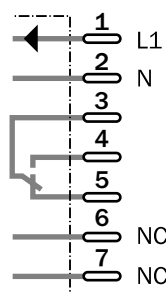
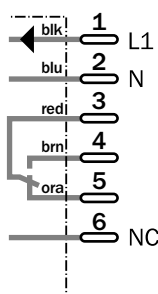
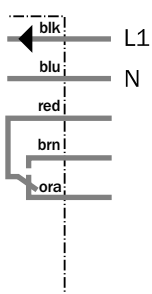
WT 27-2S 132	WT 27-2R 630	WT 27-2S 730
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5 x 0.25 mm²

6-pin

7-pin

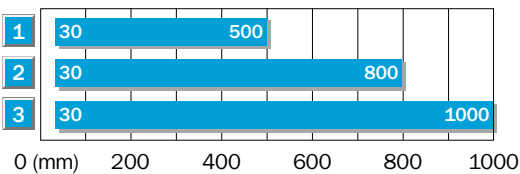


Accessories	page
Cable receptacles	496
Mounting brackets	510

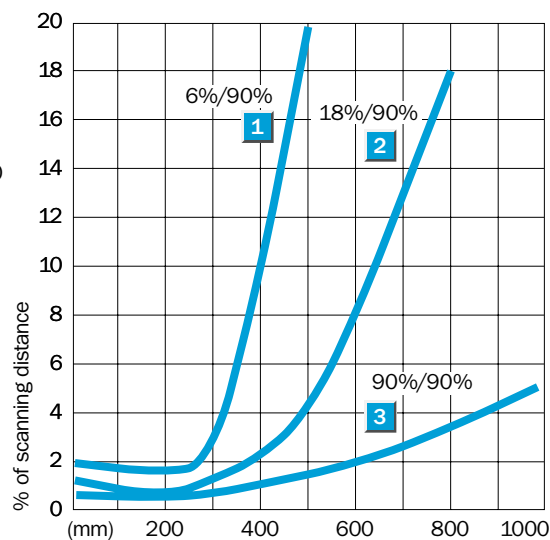


Technical data		WT 27-2	S 132	R 630	S 730							
Scanning distance	100...1000 mm, adjustable											
Light source¹⁾, light type	LED, red light											
Light spot diameter	Approx. 15 mm at 500 mm											
Supply voltage V_S	24...240 V UC (+ 10 %, – 20 %)											
Current consumption	< 2 VA											
Switching outputs	SPDT, isolated ²⁾											
Max. switching voltage	250 V AC / 120 V DC											
Max. switching current	4 A / 240 V AC or 24 V DC											
Max. switching capacity	AC 1000 V A / DC 100 W											
Resonse time	< 6 ms											
Max. switching frequency ³⁾	10/s											
Delay range	0.5...10 s											
Connection types	Cable ⁴⁾ , 2 m											
	Plug											
VDE protection class⁵⁾	□											
Circuit protection⁶⁾	A, C											
Enclosure rating	IP 67											
	IP 65											
Ambient temperature T_A	Operation – 40 °C...+ 60 °C											
	Storage – 40 °C...+ 75 °C											
Weight	Approx. 100 g											
Housing material	ABS											
1) Average service life 100,000 h at $T_A = + 25 °C$ 2) Provide suitable spark suppression for inductive and capacitive loads 3) With light/dark ratio 1:1 4) Do not bend below 0 °C 5) Reference voltage 250 V AC 6) A = V_S connections reverse-polarity protected C = Interference pulse suppression												

Scanning distance

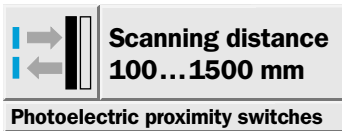


1	Scanning distance on black, 6 % remission
2	Scanning distance on grey, 18 % remission
3	Scanning distance on white, 90 % remission



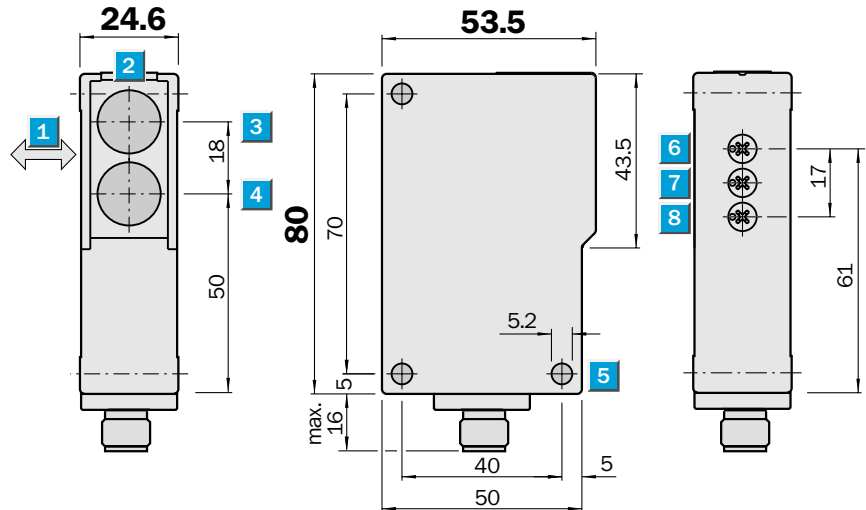
Order information

Type	Part no.
WT 27-2S 132	1 015 960
WT 27-2R 630	1 015 092
WT 27-2S 730	1 015 097



- Infrared light
- Adjustable background suppression
- Front screen heating, optional
- Selectable time delay

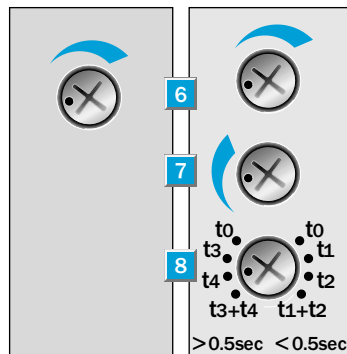
Dimensional drawing



Adjustments possible

WT 27-2F 112	WT 27-2P 410
WT 27-2F 410	WT 27-2P 610
WT 27-2F 440	WT 27-2N 410
WT 27-2F 411	WT 27-2N 610
WT 27-2F 710	

- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis, sender
- 4 Optical axis, receiver
- 5 Mounting hole $\varnothing$ 5.2 mm
- 6 Sensitivity adjustment
- 7 Time control
- 8 Time delay selector switch



Switch-selectable time delay

0.5 – 10 s

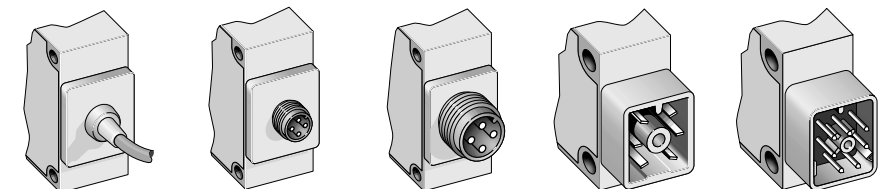
- t_0 Without time delay
- t_3 OFF-delay from trailing edge of object
- t_4 ON-delay from leading edge of object
- $t_3 + t_4$ OFF- and ON-delay

0.02 – 0.5 s

- t_0 Without time delay
- t_1 OFF-delay from trailing edge of object
- t_2 ON-delay from leading edge of object
- $t_1 + t_2$ OFF- and ON-delay

Connection types

WT 27-2F 112	WT 27-2F 410	WT 27-2F 411	WT 27-2P 610	WT 27-2F 710
	WT 27-2P 410		WT 27-2N 610	
	WT 27-2N 410			
	WT 27-2F 440			

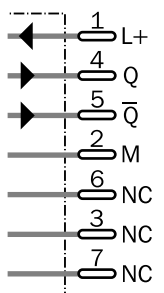
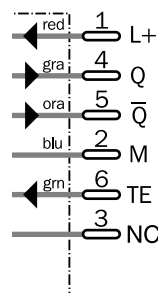
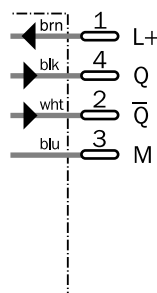
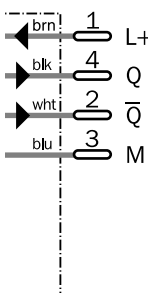
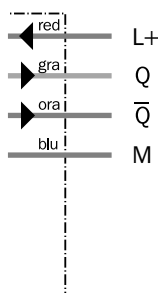

4 x 0.25 mm²

4-pin, M 12

4-pin, M 18

6-pin

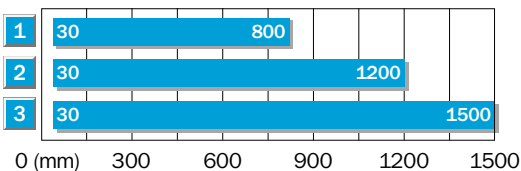
7-pin



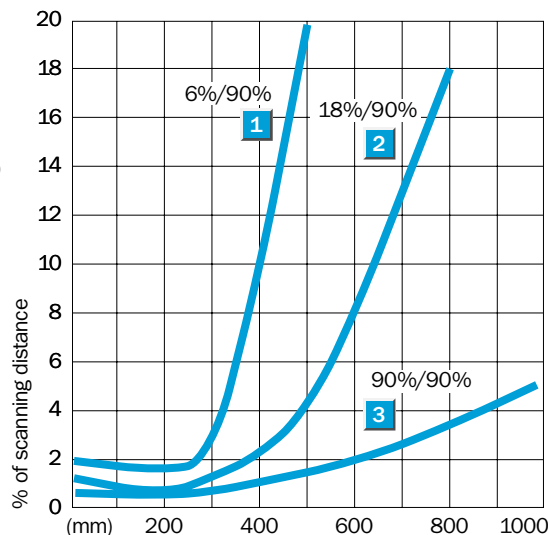
Accessories	page
Cable receptacles	496
Mounting brackets	510



Technical data		WT 27-2	F 112	F 410	N 410	F 411	F 440	P 410	P 610	N 610	F 710
Scanning distance	100...1500 mm, adjustable										
Light source¹⁾, light type	LED, infrared light										
Light spot diameter	Approx. 25 mm at 800 mm										
Supply voltage V_S	10...30 V DC ²⁾										
Ripple ³⁾	$\leq 5 V_{SS}$										
Current consumption ⁴⁾	≤ 25 mA										
	≤ 35 mA, front screen heating										
Switching outputs	PNP, Q and $\bar{Q}$										
	NPN, Q and $\bar{Q}$										
Output current I_A max.	100 mA										
Response time ⁵⁾	2 ms										
Max. switching frequency ⁶⁾	250/s										
Selectable delay ranges	0.5...10 s/0.02...0.5 s										
Test input "TE", sender OFF	PNP : Test input to 0 V										
	NPN : Test input to V_S										
Connection types	Cable ⁷⁾ , 2 m										
	Plug										
VDE protection class⁸⁾	□										
Circuit protection⁹⁾	A, B, C										
Enclosure rating	IP 67										
	IP 65										
Ambient temperature T_A	Operation -40 °C...+60 °C										
	Storage -40 °C...+75 °C										
Weight	Approx. 100 g										
Front screen heating											
Housing material	ABS										
1) Average service life 100,000 h at $T_A = +25$ °C 2) Limit values 3) May not exceed or fall short of V_S tolerances 4) Without load 5) Signal transit time with resistive load 6) With light/dark ratio 1:1 7) Do not bend below 0 °C 8) Reference voltage 50 V DC 9) A = V_S connections reverse-polarity protected B = Output Q and $\bar{Q}$ short-circuit protected C = Interference pulse suppression											

Scanning distance

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

**Order information**

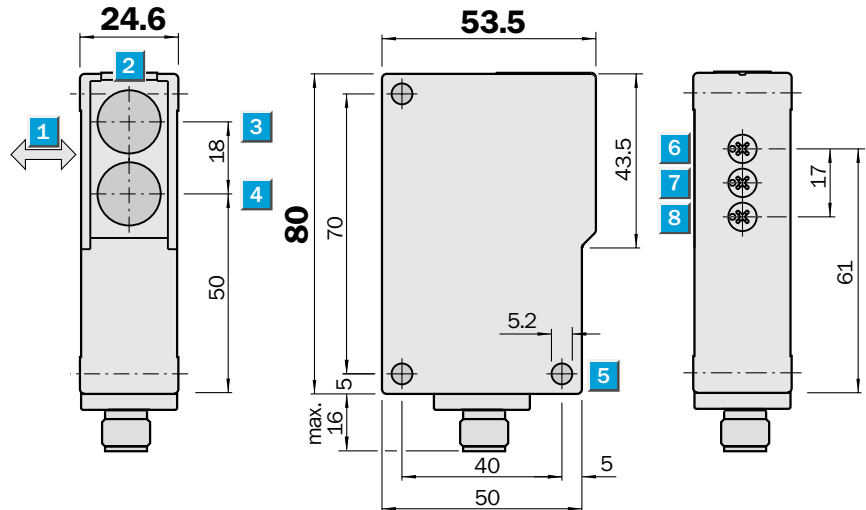
Type	Part no.
WT 27-2F 112	1 015 076
WT 27-2F 410	1 013 268
WT 27-2N 410	1 016 030
WT 27-2F 411	1 015 085
WT 27-2F 440	1 015 079
WT 27-2P 410	1 015 138
WT 27-2P 610	1 015 089
WT 27-2N 610	1 015 087
WT 27-2F 710	1 015 083

	Scanning distance 100...1500 mm
Photoelectric proximity switches	

- Infrared light
- Adjustable background suppression
- Selectable time delay



Dimensional drawing

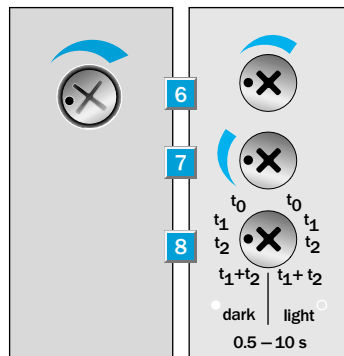


Adjustments possible

WT 27-2S 112

WT 27-2R 610

WT 27-2S 710



- 1 Standard direction of the material being scanned
 - 2 LED signal strength indicator
 - 3 Optical axis, sender
 - 4 Optical axis, receiver
 - 5 Mounting hole $\varnothing$ 5.2 mm
 - 6 Sensitivity adjustment
 - 7 Time control
 - 8 Time delay selector switch
- ☐ Light-switching
☐ Dark-switching

Switch-selectable time delay

0.5 – 10 s

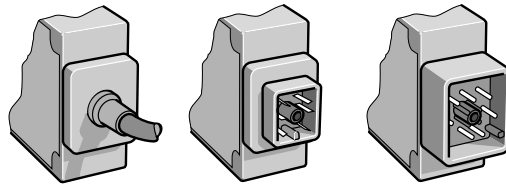
- t_0 Without time delay
 t_1 OFF-delay from trailing edge of object
 t_2 ON-delay from leading edge of object
 $t_1 + t_2$ OFF- and ON-delay

Connection types

WT 27-2S 112

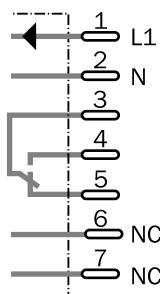
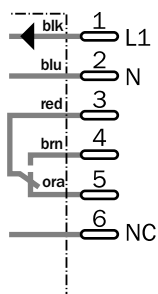
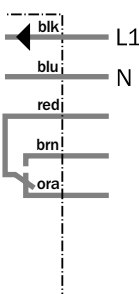
WT 27-2R 610

WT 27-2S 710


5 x 0.25 mm²

6-pin

7-pin



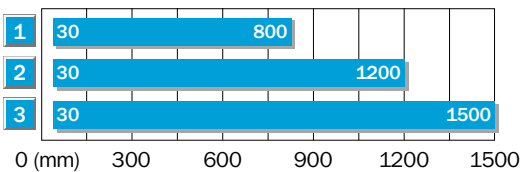
Accessories	page
Cable receptacles	496
Mounting brackets	510



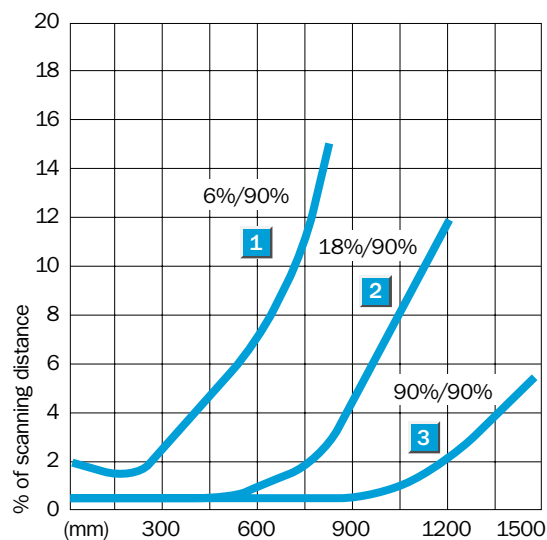
Technical data		WT 27-2	S 112	R 610	S 710							
Scanning distance	100...1500 mm, adjustable											
Light source¹⁾, light type	LED, infrared light											
Light spot diameter	Approx. 25 mm at 800 mm											
Supply voltage V_S	24...240 V UC (+ 10 %, – 20 %)											
Current consumption	< 2 VA											
Switching outputs	SPDT, isolated ²⁾											
Max. switching voltage	250 V AC / DC 120 V											
Max. switching current	4 A / 240 V AC or 24 V DC											
Max. switching capacity	AC 1000 V A / DC 100 W											
Response time	< 6 ms											
Max. switching frequency ³⁾	10/s											
Delay range	0.5...10 s											
Connection types	Cable ⁴⁾ , 2 m											
	Plug											
VDE protection class⁵⁾	□											
Circuit protection⁶⁾	A, C											
Enclosure rating	IP 67											
	IP 65											
Ambient temperature T_A	Operation – 40 °C...+ 60 °C											
	Storage – 40 °C...+ 75 °C											
Weight	Approx. 100 g											
Housing material	ABS											

1) Average service life 100,000 h at $T_A = + 25 °C$
2) Provide suitable spark suppression for inductive and capacitive loads
3) With light/dark ratio 1:1
4) Do not bend below 0 °C
5) Reference voltage 250 V AC
6) A = V_S connections reverse-polarity protected
C = Interference pulse suppression

Scanning distance



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



Order information

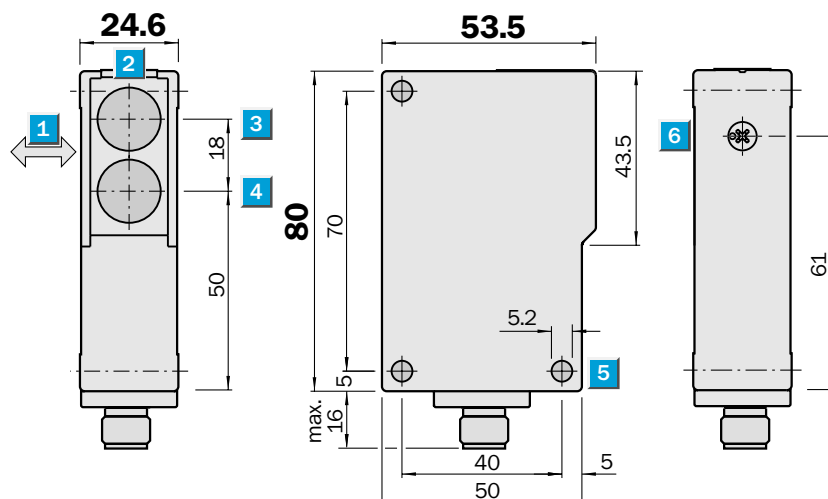
Type	Part no.
WT 27-2S 112	1 015 093
WT 27-2R 610	1 015 091
WT 27-2S 710	1 015 096

	Scanning distance 100...1000 mm
	Scanning distance 100...1500 mm
Photoelectric proximity switches	

- Red/infrared light
- Adjustable background suppression
- Front screen heating, optional (only for infrared type)
- Integrated ASI chip



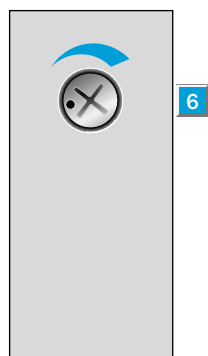
Dimensional drawing



Adjustments possible

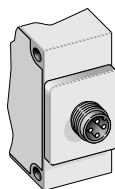
WT 27-2Z 230
WT 27-2Z 210
WT 27-2Z 240

- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis, sender
- 4 Optical axis, receiver
- 5 Mounting hole $\varnothing$ 5.2 mm
- 6 Scanning distance adjustment

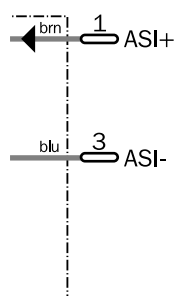


Connection type

WT 27-2Z 230
WT 27-2Z 210
WT 27-2Z 240



4-pin, M 12



Accessories	page
Cable receptacles	496
Mounting brackets	510
ASI	574

Technical data		WT 27-2	Z 230	Z 210	Z 240							
Scanning distance	100...1000 mm, adjustable											
	100...1500 mm, adjustable											
Light source¹⁾, light type	LED, red light											
	LED, infrared light											
Light spot diameter	Approx. 15 mm at 500 mm											
	Approx. 25 mm at 800 mm											
Supply voltage V_S	26.5...31.6 V DC ²⁾											
	Ripple ³⁾	$\leq 5 V_{SS}$										
	Current consumption ⁴⁾	≤ 30 mA										
		≤ 40 mA, front screen heating										
Response time ⁵⁾	2 ms											
Max. switching frequency ⁶⁾	250/s											
Connection type	Plug											
VDE protection class⁷⁾	□											
Circuit protection⁸⁾	A, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation $-40\text{ }^{\circ}\text{C} \dots +60\text{ }^{\circ}\text{C}$											
	Storage $-40\text{ }^{\circ}\text{C} \dots +75\text{ }^{\circ}\text{C}$											
Weight	Approx. 100 g											
Front screen heating												
Housing material	ABS											

- 1) Average service life 100,000 h at $T_A = +25\text{ }^{\circ}\text{C}$
 2) Limit values
 3) May not exceed or fall short of V_S tolerances

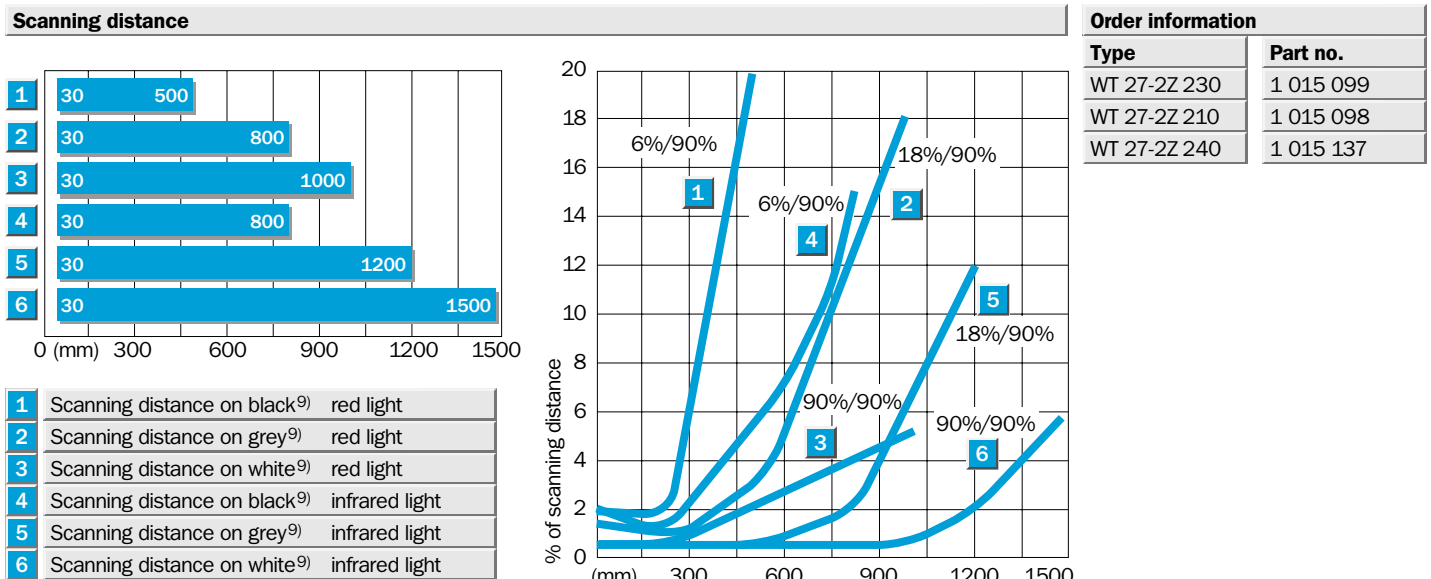
- 4) Without load
 5) Signal transit time with resistive load
 6) With light/dark ratio 1:1
 7) Reference voltage 50 V DC

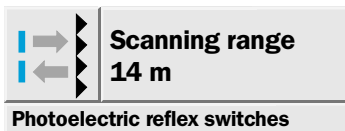
- 8) A = V_S connections reverse-polarity protected
 C = Interference pulse suppression

- 9) Black = 6 % remission
 Grey = 18 % remission
 White = 90 % remission

Assignment of data bits				(Host level)	Assignment of parameter bits				(Host level)
Switching state	0 No reflection	Input	D_0^*	NC	0	Parameter	P_0^*	NC	0
	1 Reflection				1				
Alarm	0 Active	Input	D_1	Light-/dark-switching	0 Dark-switching	Parameter	P_1^*	Light-switching	1
	1 Inactive				1 Light-switching				
NC	0	Input	D_2	NC	0	Parameter	P_2^*	NC	0
	1				1				
Test function	0 Sender ON	Output	D_3^*	NC	0	Parameter	P_3^*	NC	0
	1 Sender OFF				1				

* Default setting = 1

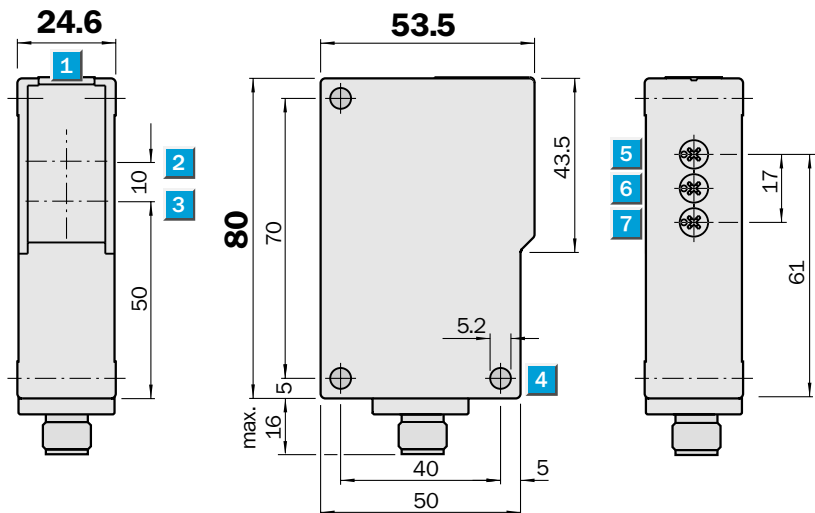




- Red light
- Front screen heating, optional
- Selectable time delay



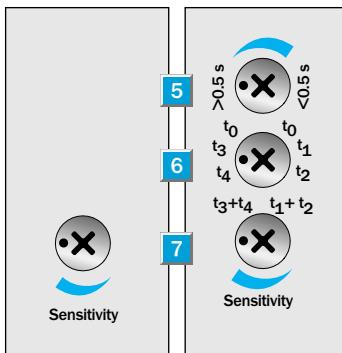
Dimensional drawing



Adjustments possible

WL 27-2F 132	WL 27-2P 630
WL 27-2F 430	WL 27-2N 630
WL 27-2F 431	
WL 27-2F 440	
WL 27-2F 450	
WL 27-2F 730	

- 1 LED signal strength indicator
- 2 Optical axis, sender
- 3 Optical axis, receiver
- 4 Mounting hole $\varnothing$ 5.2 mm
- 5 Time control
- 6 Time delay selector switch
- 7 Sensitivity adjustment



Switch-selectable time delay

0.5 – 10 s

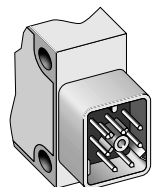
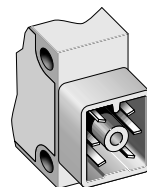
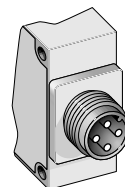
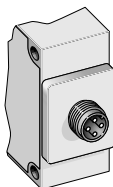
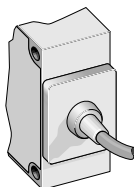
- t_0 Without time delay
- t_3 ON-delay from interruption light path
- t_4 OFF-delay from reset of light path
- $t_3 + t_4$ ON- and OFF-delay

0.02 – 0.5 s

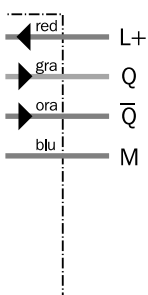
- t_0 Without time delay
- t_1 ON-delay from interruption light path
- t_2 OFF-delay from reset of light path
- $t_1 + t_2$ ON- and OFF-delay

Connection types

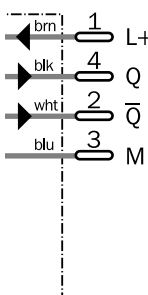
WL 27-2F 132	WL 27-2F 430	WL 27-2F 431	WL 27-2P 630	WL 27-2F 730
	WL 27-2F 440		WL 27-2N 630	
	WL 27-2F 450			



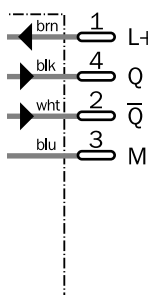
4 x 0.25 mm²



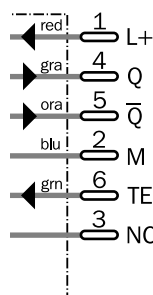
4-pin, M 12



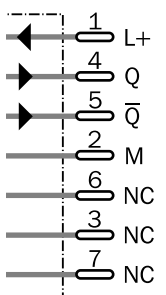
4-pin, M 18



6-pin



7-pin



Accessories

Accessories	page
Cable receptacles	496
Mounting brackets	510
Reflectors	520

Technical data		WL 27-2	F 132	F 430	F 431	F 440	F 450	P 630	F 730	N 630		
Scanning range , max. typ./on reflector 14 m/PL 80 A												
	Adjustable sensitivity											
Light source¹⁾, light type	LED, red light											
Light spot diameter	Approx. 220 mm at 10 mm											
Supply voltage V_S	10...30 V DC ²⁾											
Ripple ³⁾	$\leq 5 V_{SS}$											
Current consumption ⁴⁾	≤ 25 mA											
	≤ 35 mA, front screen heating											
Switching outputs	PNP, Q and $\bar{Q}$											
	NPN, Q and $\bar{Q}$											
Output current I_A max.	100 mA											
Response time ⁵⁾	≤ 500 μ s											
Max. switching frequency ⁶⁾	1000/s											
Selectable delay ranges	0.5...10 s/0.02...0.5 s											
Test input "TE", sender OFF	PNP : Test input to 0 V											
	NPN : Test input to V_S											
Connection types	Cable ⁷⁾ , 2 m											
	Plug											
VDE protection class⁸⁾	□											
Circuit protection⁹⁾	A, B, C											
Enclosure rating	IP 67											
	IP 65											
Ambient temperature T_A	Operation -40 °C...+60 °C											
	Storage -40 °C...+75 °C											
Weight	Approx. 100 g											
Front screen heating												
Polarising filter												
Housing material	ABS											

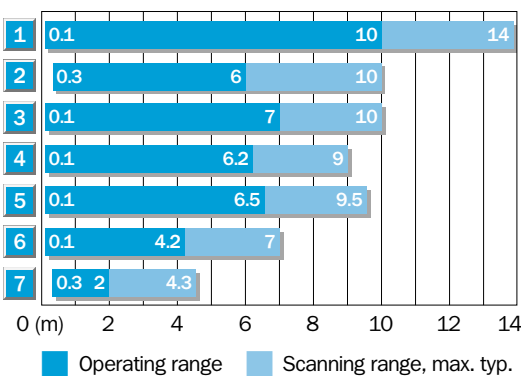
- 1) Average service life 100,000 h at $T_A = +25$ °C
2) Limit values

- 3) May not exceed or fall short of V_S tolerances
4) Without load

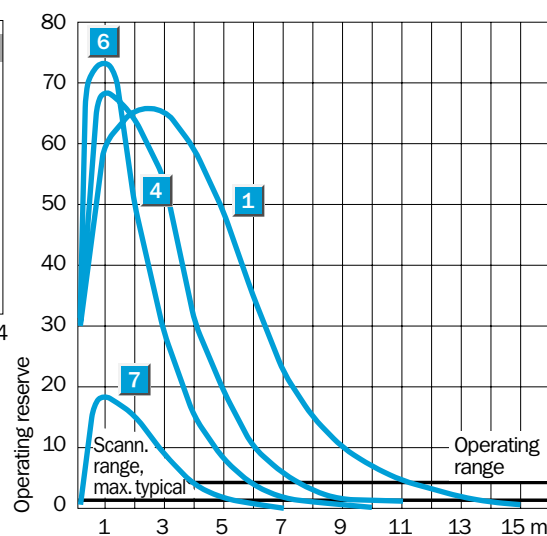
- 5) Signal transit time with resistive load
6) With light/dark ratio 1:1
7) Do not bend below 0 °C
8) Reference voltage 50 V DC

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

Operating range and operating reserve



Reflector type	Operating range
1 PL 80 A	0.1...10.0 m
2 C 110	0.3...6.0 m
3 PL 50 A	0.1...7.0 m
4 PL 40 A	0.1...6.2 m
5 PL 30 A	0.1...6.5 m
6 PL 20 A	0.1...4.2 m
7 Reflective tape «Diamond Grade»	0.3...2.0 m



Order information

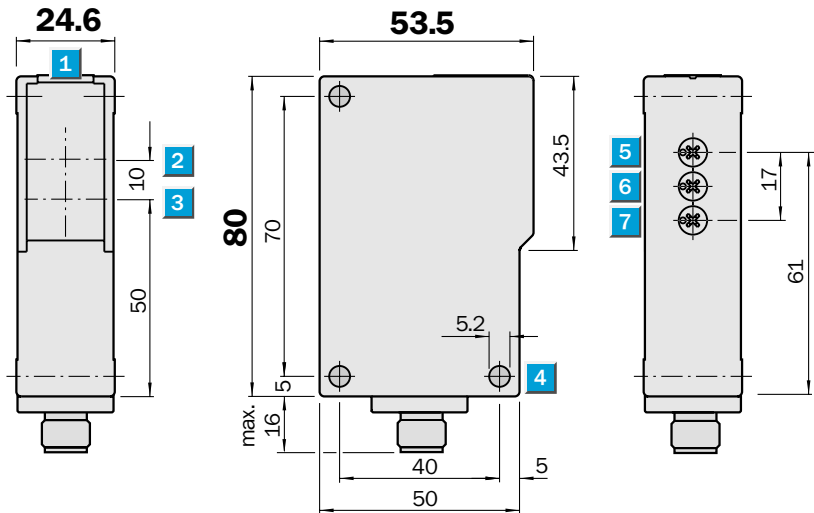
Type	Part no.
WL 27-2F 132	1 015 100
WL 27-2F 430	1 013 269
WL 27-2F 431	1 015 106
WL 27-2F 440	1 015 101
WL 27-2F 450	1 015 102
WL 27-2P 630	1 015 108
WL 27-2F 730	1 015 104
WL 27-2N 630	1 015 107

	Scanning range 14 m
Photoelectric reflex switches	

- Red light
- Selectable time delay

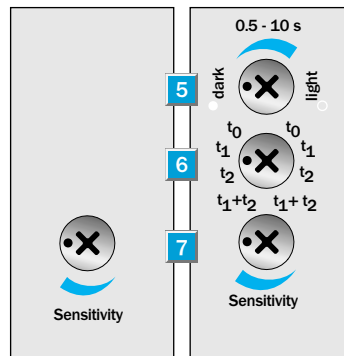


Dimensional drawing



Adjustments possible

WL 27-2S 132	WL 27-2R 630
WL 27-2S 730	



- 1 LED signal strength indicator
- 2 Optical axis, sender
- 3 Optical axis, receiver
- 4 Mounting hole $\varnothing$ 5.2 mm
- 5 Time control
- 6 Time delay selector switch
- Light-switching
- Dark-switching
- 7 Sensitivity adjustment

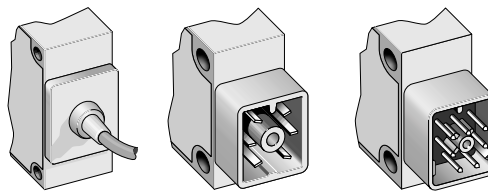
Switch-selectable time delay

0.5 – 10 s

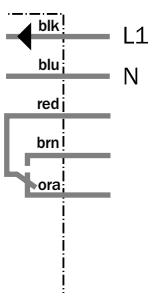
- t_0 Without time delay
- t_1 ON-delay from interruption of light path
- t_2 OFF-delay from reset of light path
- $t_1 + t_2$ ON- and OFF-delay

Connection types

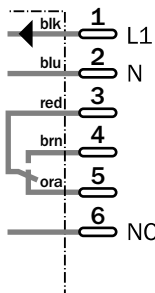
WL 27-2S 132	WL 27-2R 630	WL 27-2S 730
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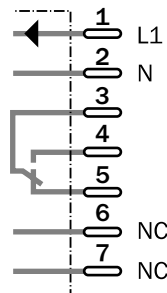
5 x 0.25 mm²



6-pin



7-pin



Accessories	page
Cable receptacles	496
Mounting brackets	510
Reflectors	520

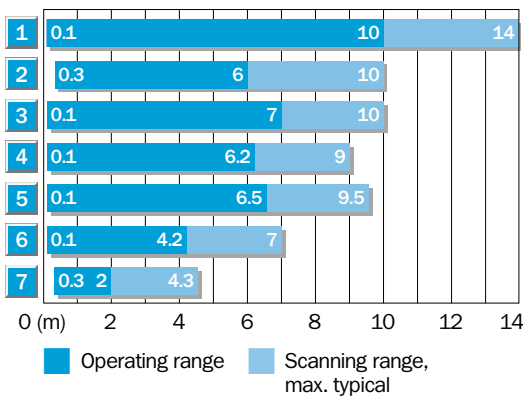
Technical data		WL 27-2	S 132	R 630	S 730								
Scanning range , max. typ./on reflector	14 m/PL 80 A												
	Adjustable sensitivity												
Light source¹⁾, light type		LED, red light											
Light spot diameter		Approx. 220 mm at 10 mm											
Supply voltage V_S		24...240 V UC (+ 10 %, – 20 %)											
Current consumption		< 2 VA											
Switching outputs		SPDT, isolated ²⁾											
Max. switching voltage		250 V AC / 120 V DC											
Max. switching current		4 A / 240 V AC or 24 V DC											
Max. switching capacity		AC 1000 V A / DC 100 W											
Response time		< 6 ms											
Max. switching frequency ³⁾		10/s											
Delay range		0.5...10 s											
Connection types		Cable ⁴⁾ , 2 m											
		Plug											
VDE protection class⁵⁾		□											
Circuit protection⁶⁾		A, C											
Enclosure rating		IP 67											
		IP 65											
Ambient temperature T_A		Operation – 40 °C...+ 60 °C											
		Storage – 40 °C...+ 75 °C											
Weight		Approx. 100 g											
Polarising filter													
Housing material		ABS											

- 1) Average service life 100,000 h at $T_A = + 25 °C$
 2) Provide suitable spark suppression for inductive and capacitive loads.

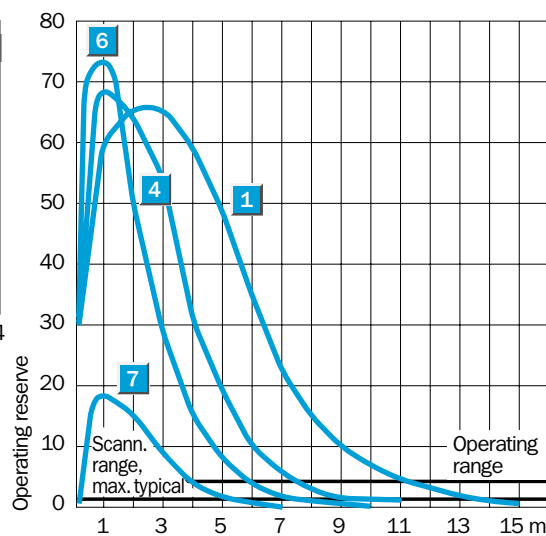
- 3) With light/dark ratio 1:1
 4) Do not bend below 0 °C
 5) Reference voltage 250 V AC

- 6) A = V_S connections reverse-polarity protected
 C = Interference pulse suppression

Operating range and operating reserve



Reflector type	Operating range
1 PL 80 A	0.1...10.0 m
2 C 110	0.3...6.0 m
3 PL 50 A	0.1...7.0 m
4 PL 40 A	0.1...6.2 m
5 PL 30 A	0.1...6.5 m
6 PL 20 A	0.1...4.2 m
7 Reflective tape	0.3...2.0 m
«Diamond Grade»	



Order information

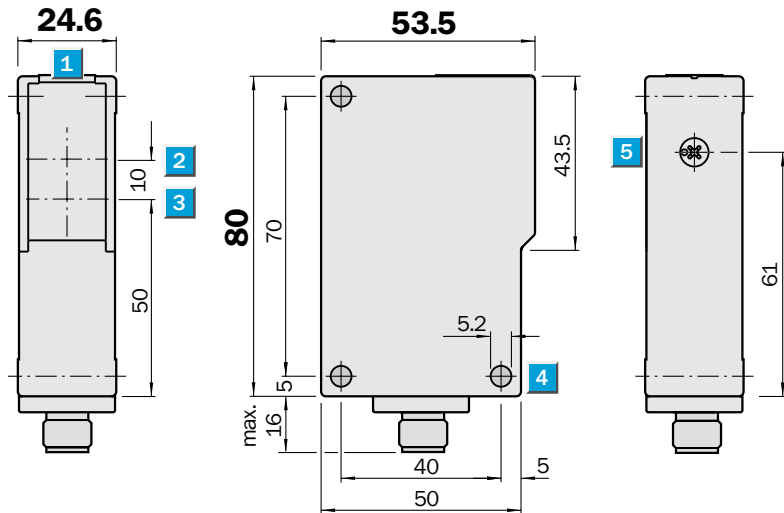
Type	Part no.
WL 27-2-S 132	1 015 110
WL 27-2-R 630	1 015 109
WL 27-2-S 730	1 015 111

	Scanning range 14 m
Photoelectric reflex switches	

- Visible red light
- Front screen heating, optional
- With integrated ASI chip



Dimensional drawing

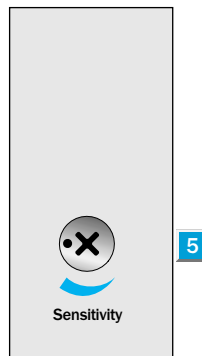


Adjustments possible

WL 27-2Z 230

WL 27-2Z 240

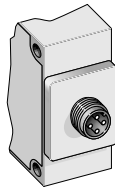
- 1** LED signal strength indicator
- 2** Optical axis, sender
- 3** Optical axis, receiver
- 4** Mounting hole ø 5.2 mm
- 5** Sensitivity adjustment



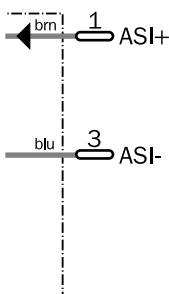
Connection type

WL 27-2Z 230

WL 27-2Z 240



4-pin, M 12



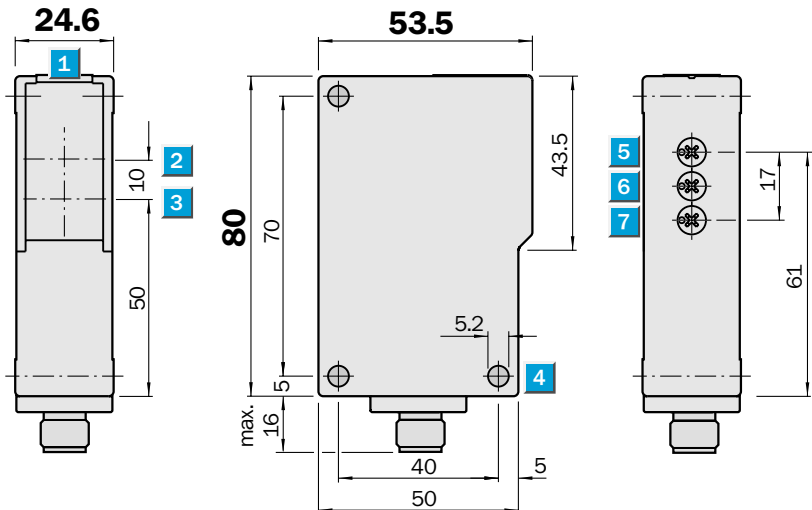
Accessories	page
Cable receptacles	496
Mounting brackets	510
Reflectors	520
ASI	574





- Visible red light
- Front screen heating, optional
- Selectable time delay

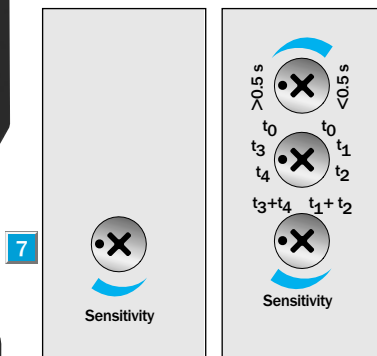
Dimensional drawing



Adjustments possible

WS/WE 27-2F 430	WS/WE 27-2P 630
WS/WE 27-2F 431	WS/WE 27-2N 630
WS/WE 27-2F 450	
WS/WE 27-2F 730	

- 1 LED signal strength indicator
- 2 Optical axis, sender
- 3 Optical axis, receiver
- 4 Mounting hole $\varnothing$ 5.2 mm
- 5 Time control
- 6 Time delay selector switch
- 7 Sensitivity adjustment



5 Switch-selectable time delay

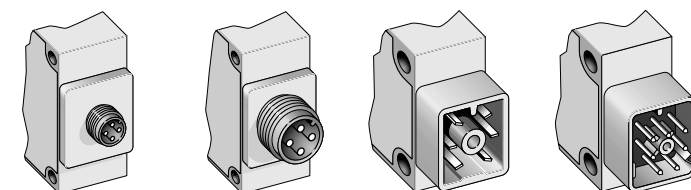
0.5 – 10 s

0.02 – 0.5 s

- 6 t_0 Without time delay
- t_3 ON-delay from interruption of light path
- t_4 OFF-delay from reset of light path
- $t_3 + t_4$ ON- and OFF-delay
- t_0 Without time delay
- t_1 ON-delay from interruption of light path
- t_2 OFF-delay from reset of light path
- $t_1 + t_2$ ON- and OFF-delay

Connection types

WS/WE 27-2F 430	WS/WE 27-2F 431	WS/WE 27-2P 630	WS/WE 27-2F 730
WS/WE 27-2F 450		WS/WE 27-2N 630	



4-pin, M 12

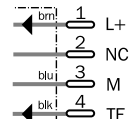
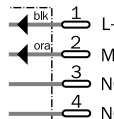
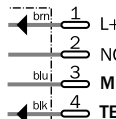
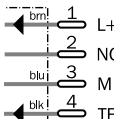
4-pin, M 18

6-pin

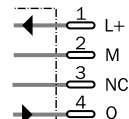
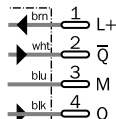
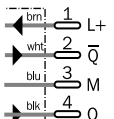
7-pin

Accessories	page
Cable receptacles	496
Mounting brackets	510

Sender



Receiver



Technical data		WS/WE 27-2	F 430	F 431	F 450	P 630	N 630	F 730				
Scanning range , max. typical	0...35 m											
	Adjustable sensitivity											
Light source¹⁾, light type	LED, red light											
Light spot diameter	Approx. 1200 mm at 25 mm											
Angle of dispersion	3°											
Supply voltage V_S	10...30 V DC ²⁾											
Ripple ³⁾	$\leq 5 V_{SS}$											
Current consumption ⁴⁾	≤ 25 mA											
	≤ 35 mA, sender without heating											
	≤ 45 mA, sender with heating											
	≤ 25 mA, receiver without heating											
	≤ 35 mA, receiver with heating											
Switching outputs	PNP, Q and $\bar{Q}$											
	NPN, Q and $\bar{Q}$											
Output current I_A max.	100 mA											
Response time ⁵⁾	$\leq 500 \mu s$											
Max. switching frequency ⁶⁾	1000/s											
Selectable delay ranges	0.5...10 s/0.02...0.5 s											
Pre-failure signalling output VMA ⁷⁾												
Test input "TE" , sender OFF	PNP : Test input to 0 V											
	NPN : Test input to V_S											
Connection types	Plug											
VDE protection class⁸⁾	□											
Circuit protection⁹⁾	A, B, C											
Enclosure rating	IP 65											
	IP 67											
Ambient temperature T_A	Operation - 40 °C...+ 60 °C											
	Storage - 40 °C...+ 75 °C											
Weight	Approx. 100 g											
Front screen heating												
Housing material	ABS											

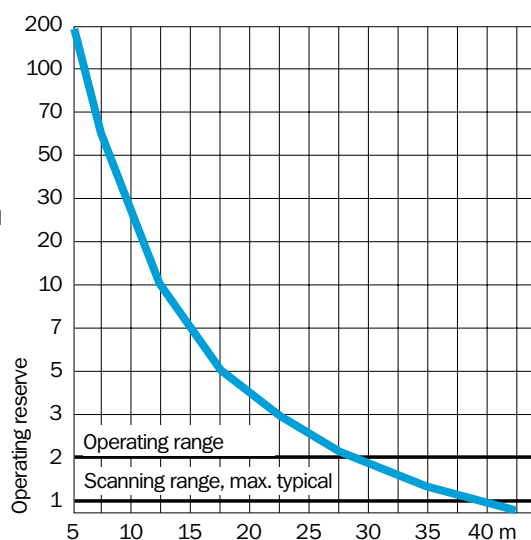
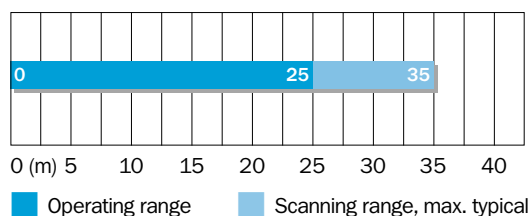
- 1) Average service life 100,000 h at $T_A = +25$ °C
 2) Limit values
 3) May not exceed or fall short of V_S tolerances

- 4) Without load
 5) Signal transit time with resistive load
 6) With light/dark ratio 1:1

- 7) NPN: Signal reserve > 50 % HIGH
 PNP: Signal reserve > 50 % LOW
 8) Reference voltage 50 V DC

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

Operating range and operating reserve



Order information

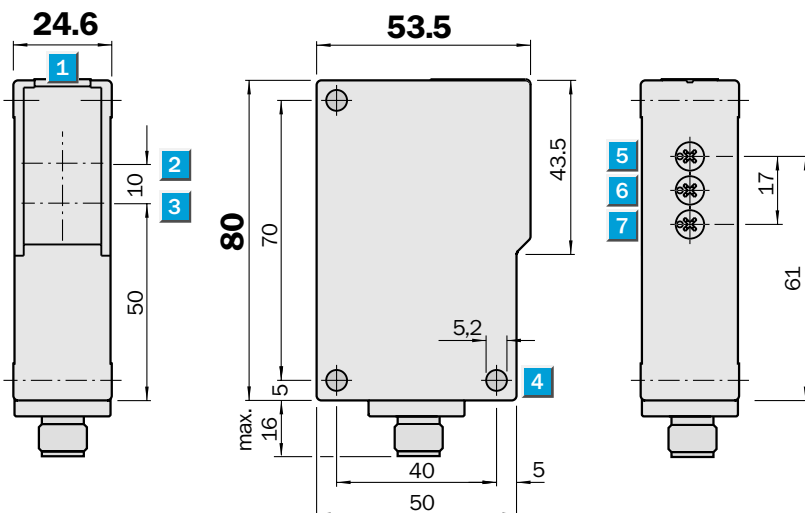
Type	Part no.
WS/WE 27-2F 430	1 015 121
WS/WE 27-2F 431	1 015 126
WS/WE 27-2F 450	1 015 127
WS/WE 27-2P 630	1 015 123
WS/WE 27-2N 630	1 015 122
WS/WE 27-2F 730	1 015 124

Scanning range
35 m

Through-beam photoelectric switches

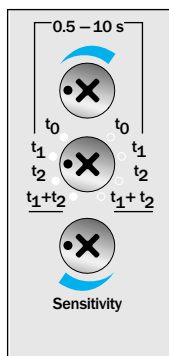
- Red light
- Selectable time delay

Dimensional drawing



Adjustments possible

WS/WE 27-2R 630



- 1 LED signal strength indicator
- 2 Optical axis, sender
- 3 Optical axis, receiver
- 4 Mounting hole Ø 5.2 mm
- 5 Time control
- 6 Time delay selector switch
- Light-switching
- Dark-switching
- 7 Sensitivity adjustment

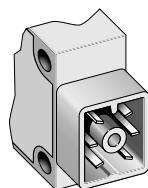
Switch-selectable time delay

0.5 - 10 s

- t_0 Without time delay
- t_1 ON-delay from interruption of light path
- t_2 OFF-delay from reset of light path
- $t_1 + t_2$ ON- and OFF-delay

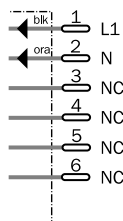
Connection type

WS/WE 27-2R 630

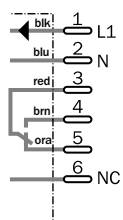


6-pin

Sender



Receiver



Accessories	page
Cable receptacles	496
Mounting brackets	510



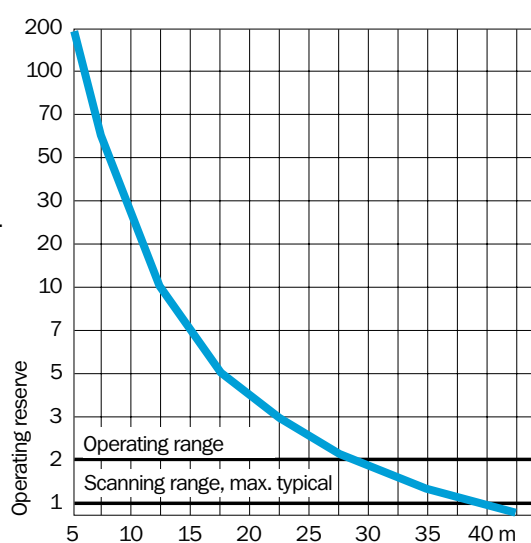
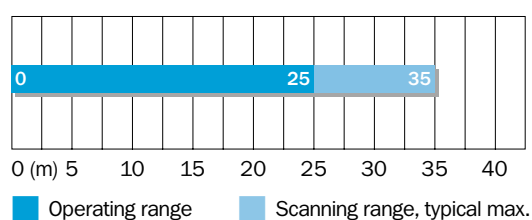
Technical data		WS/WE 27-2	R 630
Scanning range, max. typical		0...35 m	
Light source¹⁾, light type		LED, red light	
Light spot diameter	Approx. 1200 mm at 25 mm		
Angle of dispersion	3°		
Supply voltage V_S		24...240 V UC (+ 10 %, – 20 %)	
Current consumption	< 2 VA		
Switching outputs		SPDT, isolated ²⁾	
Max. switching voltage	250 V AC / 120 V DC		
Max. switching current	4 A / 240 V AC or 24 V DC		
Max. switching capacity	AC 1000 VA / DC 100 W		
Response time	< 6 ms		
Max. switching frequency ³⁾	10/s		
Delay range	0.5...10 s		
Connection type		Plug	
VDE protection class⁴⁾		□	
Circuit protection⁵⁾		A, C	
Enclosure rating		IP 65	
Ambient temperature T_A		Operation – 40 °C...+ 60 °C Storage – 40 °C...+ 75 °C	
Weight		Approx. 100 g	
Housing material		ABS	

- 1) Average service life 100,000 h
at $T_A = +25^\circ\text{C}$
- 2) Provide suitable spark suppression
for inductive and capacitive loads.

- 3) With light/dark ratio 1:1
4) Reference voltage 250 V AC

- 5) A = V_S connections reverse-polarity protected
C = Interference pulse suppression

Operating range and operating reserve



Order information

Type	Part no.
WS/WE 27-2R 630	1 015 116

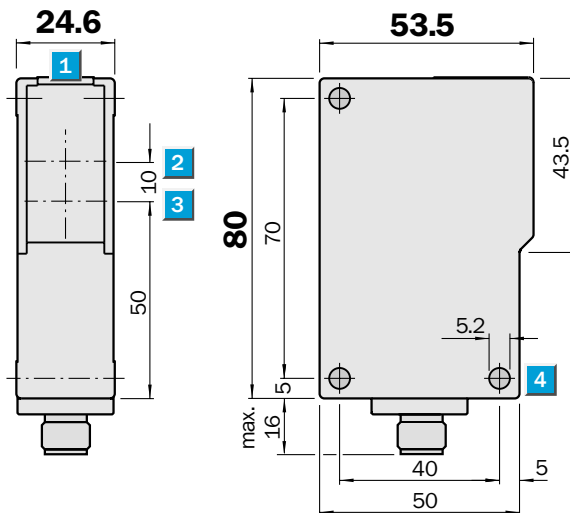


Scanning range
35 m

Through-beam photoelectric switches

- Red light
- Selectable time delay
- With integrated ASI chip

Dimensional drawing

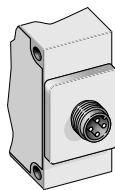


- 1 LED signal strength indicator
- 2 Optical axis, sender
- 3 Optical axis, receiver
- 4 Mounting hole $\varnothing$ 5.2 mm



Connection type

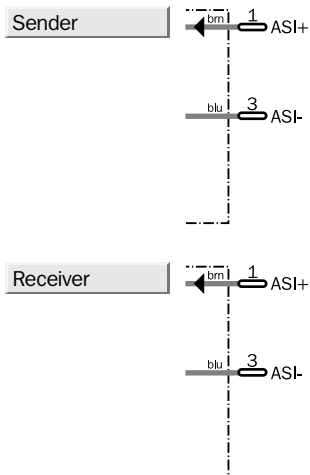
WS/WE 27-2Z 250



4-pin, M 12



Accessories	page
Cable receptacles	496
Mounting brackets	510
ASI	574



Technical data		WS/WE 27-2	Z 250								
Scanning range , max. typical		0...35 m									
Light source¹⁾, light type		LED, red light									
Light spot diameter		Approx. 1200 mm at 25 m									
Angle of dispersion		3°									
Supply voltage V_S		26.5...31.6 V DC ²⁾									
Ripple ³⁾		≤ 5 V _{SS}									
Current consumption ⁴⁾	sender	≤ 35 mA, front screen heating									
	receiver	≤ 40 mA, front screen heating									
Response time ⁵⁾		500 μs									
Max. switching frequency ⁶⁾		1000/s									
Connection type		Plug									
VDE protection class⁷⁾		□									
Circuit protection⁸⁾		A, C									
Enclosure rating		IP 67									
Ambient temperature T_A		Operation – 40 °C...+ 60 °C									
		Storage – 40 °C...+ 75 °C									
Weight		Approx. 100 g									
Housing material		ABS									

1) Average service life 100,000 h
at $T_A = +25^\circ\text{C}$

2) Limit values

3) May not exceed or fall short of V_c tolerances

4) Without load

5) Signal transit time with resistive load

6) With light/dark ratio 1:1

7) Reference voltage 50 V DC

8) $A = V_S$ connections reverse-polarity protected

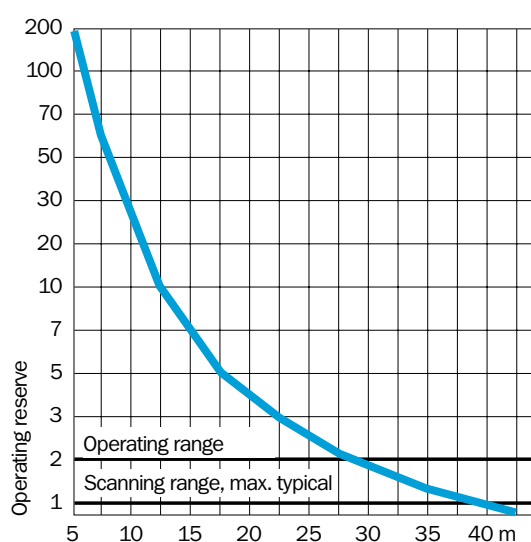
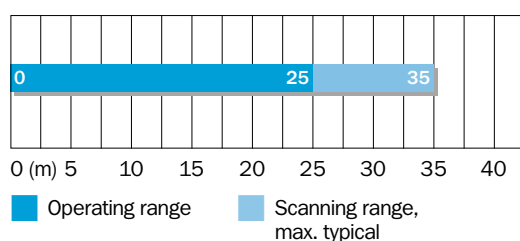
C = Interference pulse suppression

WS 27-2 – Assignment of data bits				WS 27-2 – Assignment of parameter bits			
(Host level)				(Host level)			
Test function	0 Sender OFF	Input	D ₀ *	NC	0	Parameter	P ₀ *
	1 Sender ON				1		
NC	0	Input	D ₁	NC	0	Parameter	P ₁ *
	1				1		
NC	0	Entrée	D ₂	NC	0	Parameter	P ₂ *
	1				1		
NC	0	Output	D ₃	NC	0	Parameter	P ₃ *
	1				1		

WE 27-2 – Assignment of data bits				(Host level)	WE 27-2 – Assignment of parameter bits				(Host level)
Switching state	0	No reflection	Input	D ₀ *	NC	0		Parameter	P ₀ *
	1	Reflection				1			
Alarm	0	Active	Input	D ₁	Light-/dark-switching	0	Dark-switching	Parameter	P ₁ *
	1	Inactive				1	Light-switching		
NC	0		Input	D ₂	NC	0		Parameter	P ₂ *
	1					1			
Test function	0		Output	D ₃ *	NC	0		Parameter	P ₃ *
	1					1			

* Default setting = 1

Operating range and operating reserve



Order information

Type	Part no.
WS/WE 27-2Z 250	1 015 140