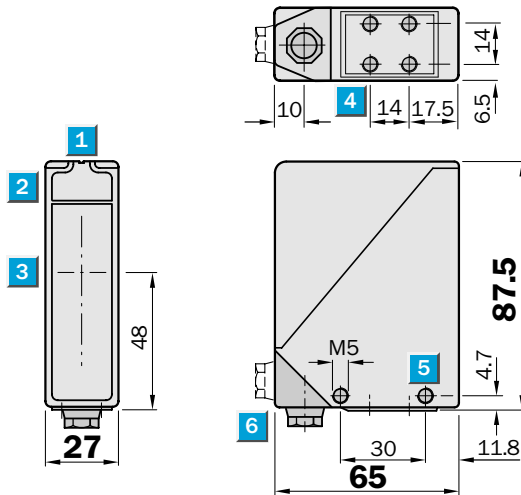


Scanning range
0...60 m

Through-beam photoelectric switches

- Robust metal housing
- Large operating reserve and visible red light
- PG cable gland or plug rotatable by 90°
- Front lens heating and selectable time delay, optional

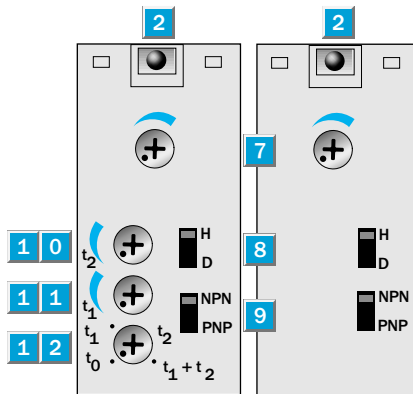
Dimensional drawing



Adjustments possible

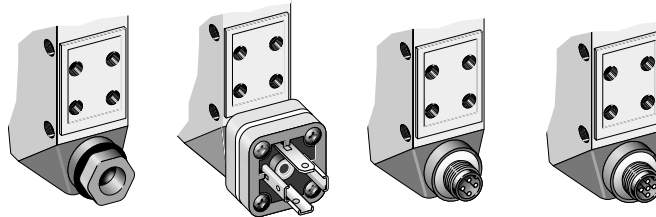
WS/WE 24-2B 440	WS/WE 24-2B 230
WS/WE 24-2B 240	WS/WE 24-2B 333
	WS/WE 24-2B 430
	WS/WE 24-2V 530

- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Centre of optical axis
- 4 M 5 threaded mounting hole, 6 mm deep
- 5 M 5 threaded mounting hole, through-hole
- 6 PG cable gland and plug rotatable by 90°
- 7 Sensitivity adjustment
- 8 Light/dark selector
- 9 NPN/PNP selector
- 1 0 Time control t_2 = OFF-delay
- 1 1 Time control t_1 = ON-delay
- 1 2 Time delay selector switch

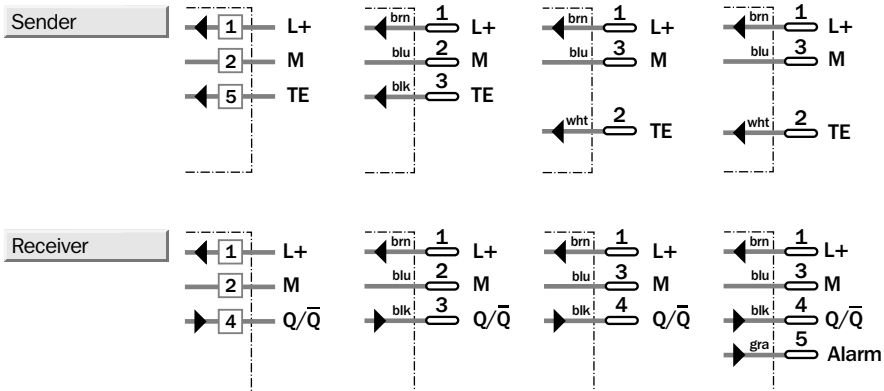


Connection types

WS/WE 24-2B 230	WS/WE 24-2B 333	WS/WE 24-2B 430	WS/WE 24-2V 530
WS/WE 24-2B 240		WS/WE 24-2B 440	



PG 9, terminals	3-pin	4-pin, M 12	5-pin, M 12
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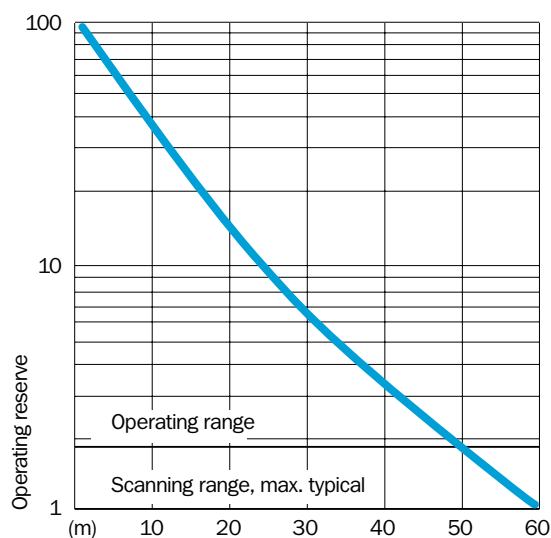
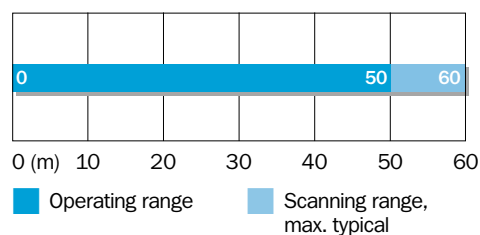
Accessories	page
Cable receptacles	496
Mounting brackets	510
Special accessories	556
Dust shields	
Weather hoods	
Cooling plates	



Technical data		WS/WE 24-2	B 230	B 240	B 333	B 430	B 440	V 530				
Scanning range , max. typical	0...60 m											
Sensitivity	Adjustable											
Light source¹⁾, light type	LED, red light											
Light spot diameter	700 mm at of 50 m											
Angle of dispersion/reception	1°/2.5°											
Supply voltage V_S	10...30 V DC ²⁾											
Ripple ³⁾	< 5 V_{SS}											
Current consumption ⁴⁾												
Sender without heating	≤ 50 mA											
Sender with heating	≤ 70 mA											
Receiver without heating	≤ 40 mA											
Receiver with heating	≤ 60 mA											
Switching outputs	PNP or NPN, Q or $\bar{Q}$											
Output current I_A max.	100 mA											
Response time ⁵⁾	≤ 500 μ s											
Max. switching frequency ⁶⁾	1000/s											
Pre-failure signalling output	Alarm, PNP											
Time delay	Adjustable, 0.5...10 sec											
Test input "TE"	Sender switched off											
Sender OFF	PNP or NPN: test input to 0 V											
Connection types	Plug											
	PG cable gland											
VDE protection class⁷⁾	□											
Circuit protection⁸⁾	A, B, C											
Enclosure rating	IP 67											
Ambient temperature T_A	Operation - 40 °C...+ 60 °C											
	Storage - 40 °C...+ 75 °C											
Weight	Approx. 330 g											
Front lens heating												
Housing material	Zinc die-cast housing											

1) Average service life 100,000 h at $T_A = + 25\text{ °C}$
2) Limit values
3) May not exceed or fall short of V_S tolerances
4) Same values for WS and WE, 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

Operating range and operating reserve



Order information

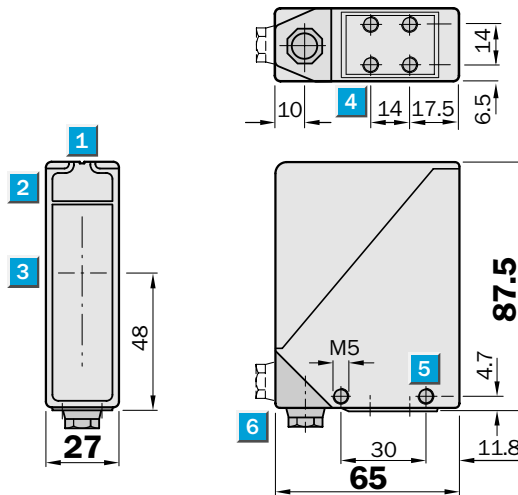
Type	Part no.
WS/WE 24-2B 230	1 017 861
WS/WE 24-2B 240	1 017 862
WS/WE 24-2B 333	1 017 874
WS/WE 24-2B 430	1 017 853
WS/WE 24-2B 440	1 017 875
WS/WE 24-2V 530	1 017 877

Scanning range
0...60 m

Through-beam photoelectric switches

- Robust metal housing
- Large operating reserve and visible red light
- PG cable gland rotatable by 90°
- Front lens heating and selectable time delay, optional

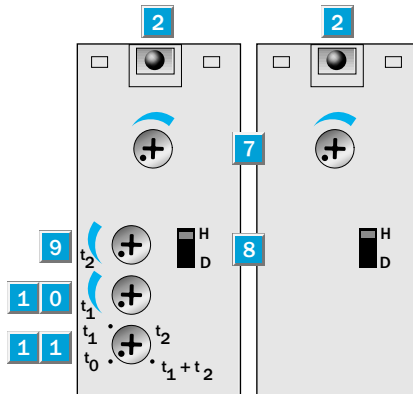
Dimensional drawing



Adjustments possible

WS/WE 24-2R 240

WS/WE 24-2R 230



- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Centre of optical axis
- 4 M 5 threaded mounting hole, 6 mm deep
- 5 M 5 threaded mounting hole, through-hole
- 6 PG cable gland rotatable by 90°
- 7 Sensitivity adjustment
- 8 Light/dark selector
- 9 Time control t_2 = OFF-delay
- 1 0 Time control t_1 = ON-delay
- 1 1 Time delay selector switch

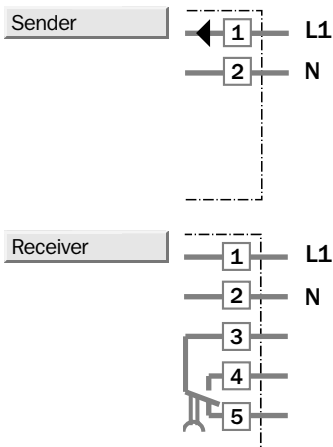
Connection type

WS/WE 24-2R 230

WS/WE 24-2R 240



PG 9, terminals



Accessories	page
Mounting brackets	510
Special accessories	556
Dust shields	
Weather hoods	
Cooling plates	

Technical data		WS/WE 24-2	R 230	R 240										
Scanning range , max. typical	0 ... 60 m													
Sensitivity	Adjustable													
Light source¹⁾, light type	LED, red light													
Light spot diameter	600 mm at 50 m													
Angle of dispersion/reception	1°/2.5°													
Supply voltage V_S	12 ... 240 V DC ²⁾ , 24 ... 240 V AC ³⁾													
Power consumption without heating	< 2 VA													
Power consumption with heating	< 3 VA													
Switching output	SPDT, isolated ⁴⁾													
Max. switching voltage	250 V AC/120 V DC													
Max. switching current	4 A/240 V AC, 4 A/24 V DC													
Max. switching capacity	AC: 1000 VA/DC: 100 W													
Response time	≤ 10 ms													
Max. switching frequency ⁵⁾	10/s													
Time delay	Adjustable, 0.5 ... 10 sec													
Connection type	PG cable gland													
VDE protection class⁶⁾	□													
Circuit protection⁷⁾	A, C													
Enclosure rating	IP 67													
Ambient temperature T_A	Operation - 40 °C ... + 60 °C													
	Storage - 40 °C ... + 75 °C													
Weight	Approx. 330 g													
Front lens heating														
Housing material	Zinc die-cast housing													

1) Average service life 100,000 h
at $T_U = + 25\text{ °C}$

2) Limit values

3) ± 10 %

4) Provide suitable spark suppression for
inductive or capacitive loads

5) Signal transit time with resistive load

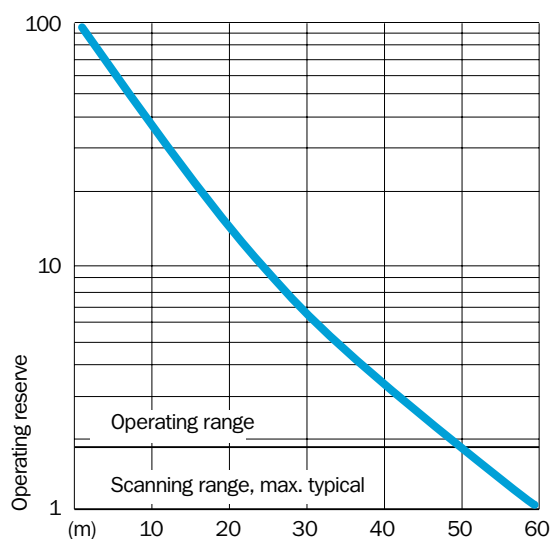
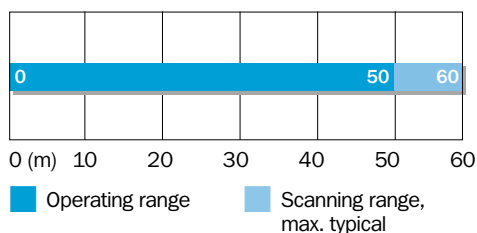
6) With light/dark ratio 1:1

7) Reference voltage 250 V UC

8) A = V_S connections reverse-polarity
protected

C = Interference pulse suppression

Operating range and function reserve



Order information

Type	Part no.
WS/WE 24-2R 230	1 017 863
WS/WE 24-2R 240	1 017 864

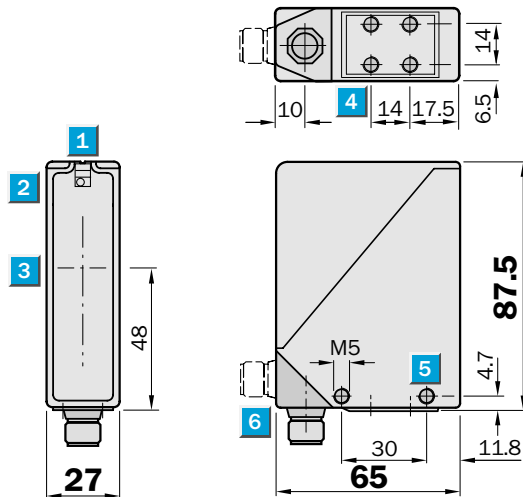


Scanning range
0...40 m

Through-beam photoelectric switches

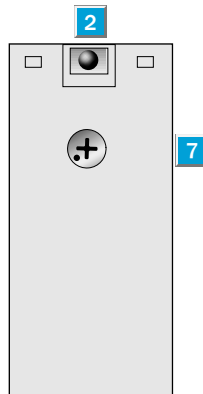
- Robust metal housing
- Large operating reserve and visible red light
- Plug rotatable by 90°

Dimensional drawing



Adjustments possible

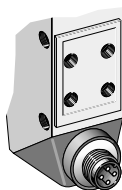
WS/WE 24-2Z 4301



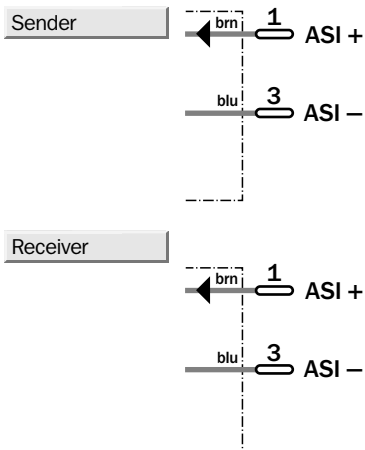
- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Centre of optical axis
- 4 M 5 threaded mounting hole, 6 mm deep
- 5 M 5 threaded mounting hole, through-hole
- 6 Plug rotatable by 90°
- 7 Sensitivity adjustment

Connection type

WS/WE 24-2Z 4301



4-pin, M 12



Accessories	page
Mounting brackets	510
Special accessories	556
Dust shields	
Weather hoods	
Cooling plates	

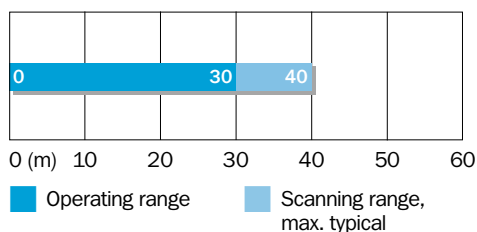
Technical data		WS/WE 24-2	Z 4301												
Scanning range , max. typical	0...40 m														
Sensitivity	Adjustable														
Light source ¹⁾ , light type	LED, red light														
Light spot diameter	Approx. 450 mm at 25 m														
Angle of dispersion/reception	1°/2.5°														
Supply voltage V _S	26.5...31.6 V ²⁾														
Ripple ³⁾	< 5 V _{SS}														
Current consumption ⁴⁾	≤ 50 mA														
Response time ⁵⁾	≤ 500 μs														
Max. switching frequency ⁶⁾	1000/s														
Pre-failure signalling output	Alarm														
Connection type	Plug														
VDE protection class ⁷⁾	□														
Circuit protection ⁸⁾	A, C														
Enclosure rating	IP 67														
Ambient temperature T _A	Operation	– 25 °C...+ 55 °C													
	Storage	– 25 °C...+ 70 °C													
Weight	Approx. 330 g														
Housing material	Zinc die-cast housing														

WS 24-2 Assignment of data bits (Host level)				WS 24-2 Assignment of parameter bits (Host level)			
D ₀ *	Test function	0 Sender ON 1 Sender OFF	Input	P ₀ *	NC	0 1	Parameter
D ₁	NC	0 1	Input	P ₁ *	NC	0 1	Parameter
D ₂	NC	0 1	Input	P ₂ *	NC	0 1	Parameter
D ₃	NC	0 1	Output	P ₃ *	NC	0 1	Parameter

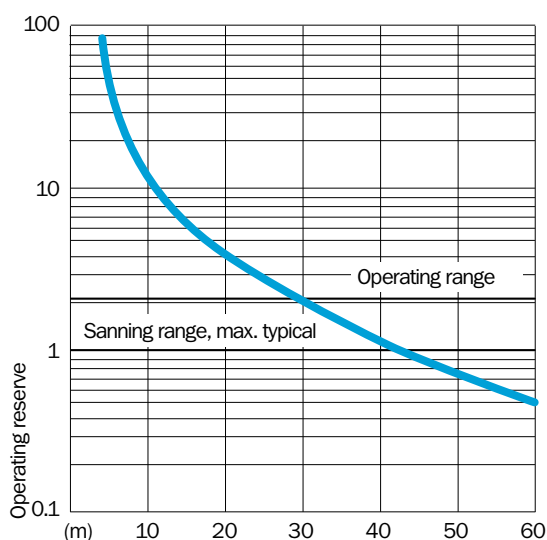
WE 24-2 Assignment of data bits (Host level)				WE 24-2 Assignment of parameter bits (Host level)			
D ₀	Switching state	0 No reflection 1 Reflection	Input	P ₀ *	NC	0 1	Parameter
D ₁	Alarm	0 Active 1 Inactive	Input	P ₁ *	Light/dark selector	0 Dark-switching 1 Light-switching	Parameter
D ₂	NC	0 1	Input	P ₂ *	NC	0 1	Parameter
D ₃ *	NC	0 1	Output	P ₃ *	NC	0 1	Parameter

* Default setting = 1

Operating range and operating reserve



- 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) Same values for WS and WE, 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



Order information

Type	Part no.
WS/WE 24-2Z 4301	1 015 129