




W 24-2: Designed for hostile industrial environments

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



If the operating environment is particularly harsh or wet, the W 24-2 series of photoelectric switches ensures the required detection reliability. The photoelectric proximity switches feature high precision and high insensitivity to ambient light. The photoelectric switch and the through-beam photoelectric switch are impressive with their extremely long ranges.

Some useful additional features extend the applications in specialist areas; e.g. the front screen heating prevents misting in rapidly changing ambient temperatures, the cooling plates allow application even for operating temperatures above 60°C, the dust shield with air purge ensures clarity in dusty

areas and the weather hood ensures long life of the devices when used outdoors. User-friendliness, too, is highlighted by easy mounting and installation. The easily accessible terminal chamber facilitates the electrical connection, the rotatable plug connection adapts to the mounting situation.

Overview of W 24-2:

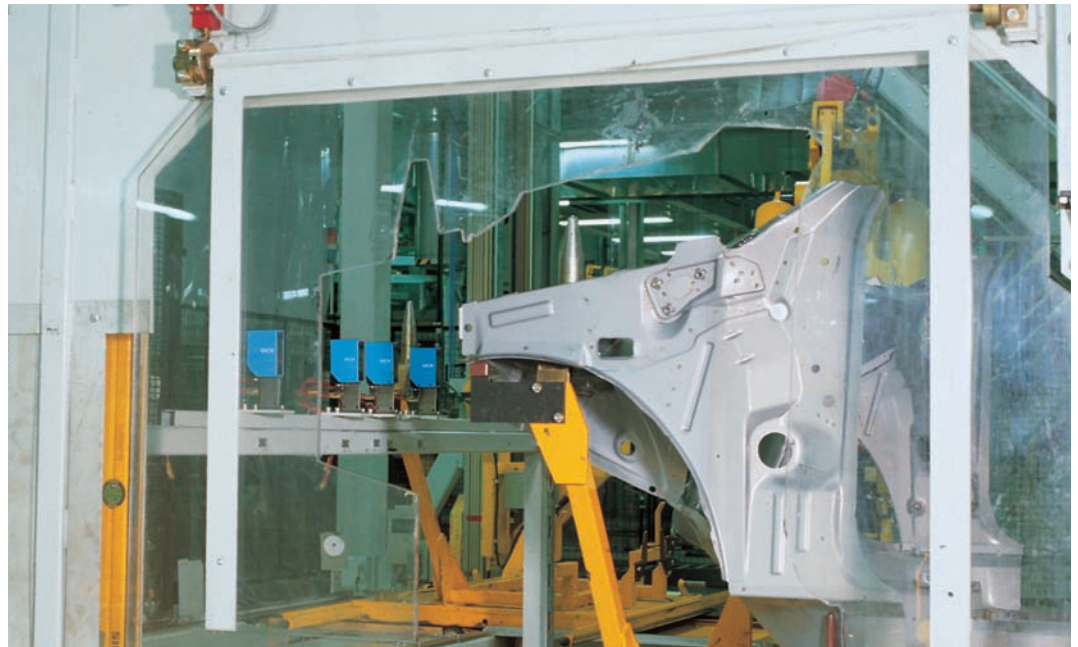
- Extremely robust metal housing for harsh industrial applications with IP 69K rating,
- Very long ranges and high precision, long scanning distance,
- High insensitivity to ambient light increases reliability and availability,
- Universal supply voltage offers flexibility,
- Useful additional functions and accessories for specialist applications.

Main industries:

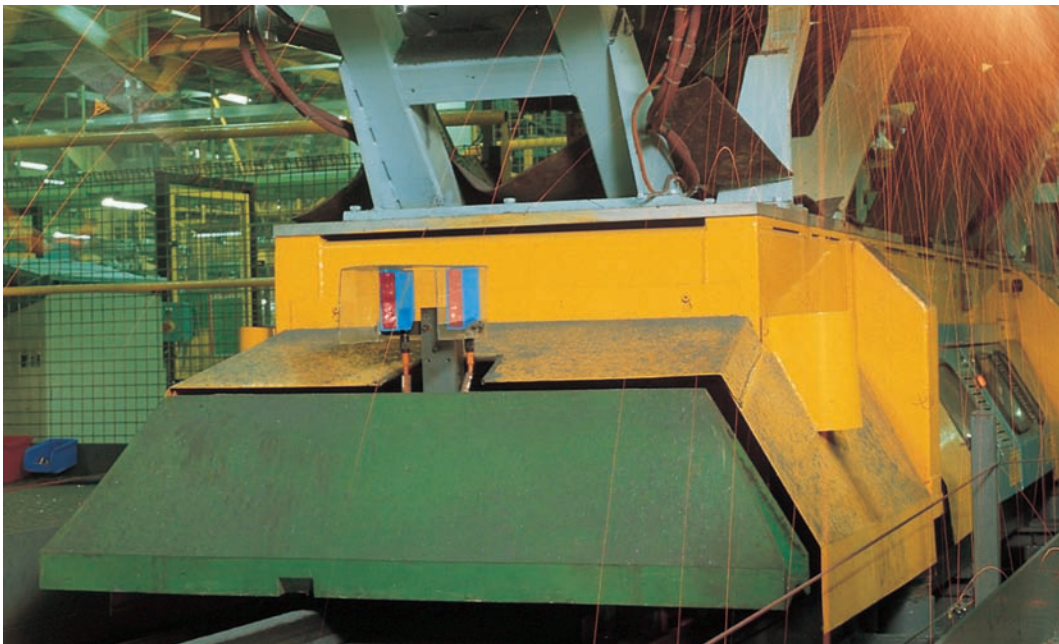
- Automotive industry,
- Chemical industry,
- Storage and material handling,
- Steel industry.




◀ Used as muting sensors, WT 24-2 photoelectric proximity switches signal the entry of an industrial truck into a protected zone and clock the multibeam photoelectric safety switch.



▶ Detection plus identification: WT 24-2 photoelectric proximity switches determine which body panels are to be placed on a conveyor belt.



◀ Collision protection in a fully automatic welding system – made possible thanks to the insensitivity to ambient light of WT 24-2 photoelectric proximity switches.

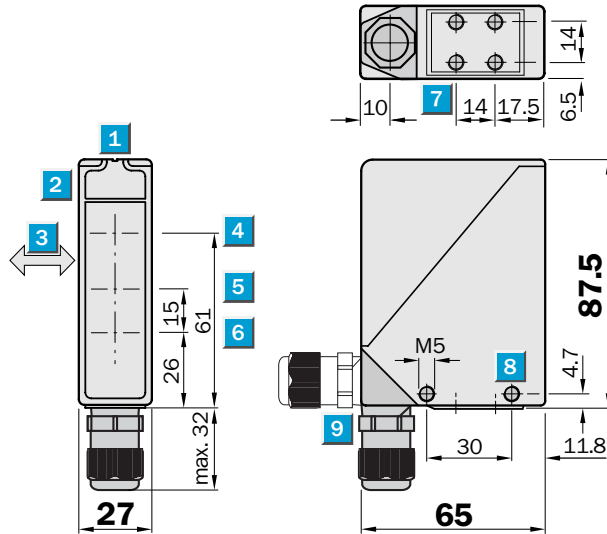
 **Scanning distance**
100...1200 mm

Photoelectric proximity switches

- Robust metal housing
- Red light
- Background suppression, with very precise adjustment
- M16 screw fixing rotatable by 90°
- Front lens heating, time delay and pre-failure signalling output

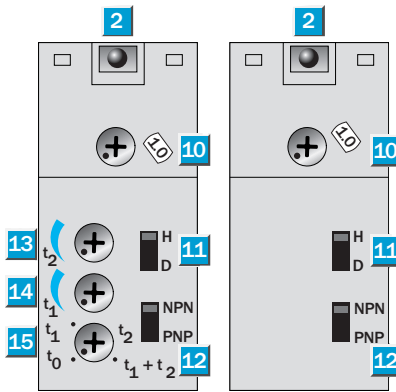


Dimensional drawing



Adjustments possible

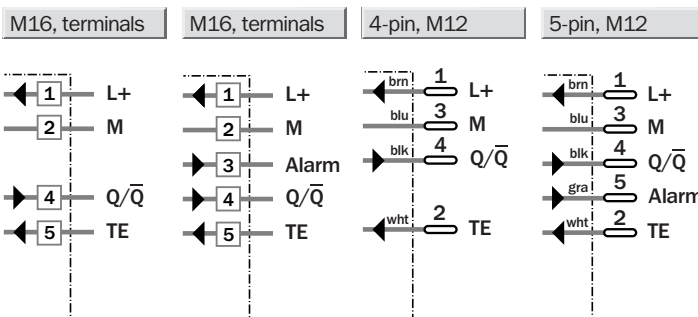
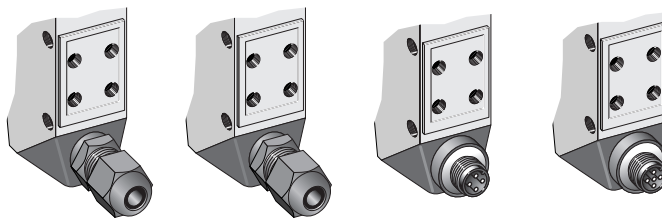
WT 24-2B 250	WT 24-2B 240
WT 24-2V 250	WT 24-2B 440
	WT 24-2V 540



- Alignment sight
- LED signal strength indicator
- Standard direction of the material being scanned
- Centre of optical axis, sender
- Centre of optical axis, receiver (close range)
- Centre of optical axis, receiver (far range)
- M5 threaded mounting hole, 6 mm deep
- M5 threaded mounting hole, through-hole
- M16 screw fixing and plug rotatable by 90°
- Scanning distance adjustment
- Light/dark selector
- NPN/PNP selector
- Time control t_2 = OFF-delay
- Time control t_1 = ON-delay
- Time delay selector switch

Connection types

WT 24-2B 240	WT 24-2V 250	WT 24-2B 440	WT 24-2V 540
WT 24-2B 250			



See chapter Accessories

Cables and connectors
Mounting systems
Special accessories

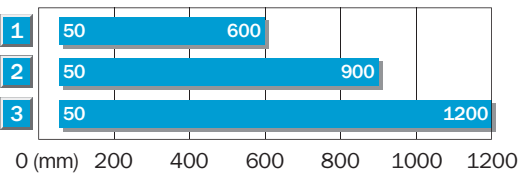
Technical data		WT 24-2	B 240	B 250	B 440	V 250	V 540					
Scanning distance	100...1200 mm, adjustable											
Light source¹⁾, light type	LED, red light											
Light spot diameter	Approx. 40 mm at 1200 mm											
Supply voltage V_S	10...30 V DC ²⁾											
Residual ripple ³⁾	< 5 V_{SS}											
Current consumption ⁴⁾	≤ 50 mA											
	≤ 70 mA, front lens heating											
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: TE to 0 V											
Connection type	M16 screw fixing											
	Plug											
VDE protection class⁷⁾	<input type="checkbox"/>											
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 $T_A = +25$ °C
 2) Limit values
 3) May not exceed or fall short of V_S tolerances

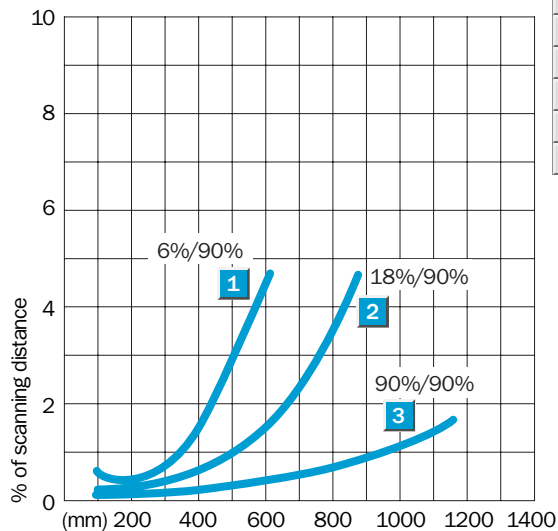
4) Without load
 5) Signal transit time with resistive load
 6) With light/dark ratio 1:1
 7) Reference voltage 50 V DC

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 gray, 18% Remission
- 3 Scanning distance on white, 90% Remission



Order information

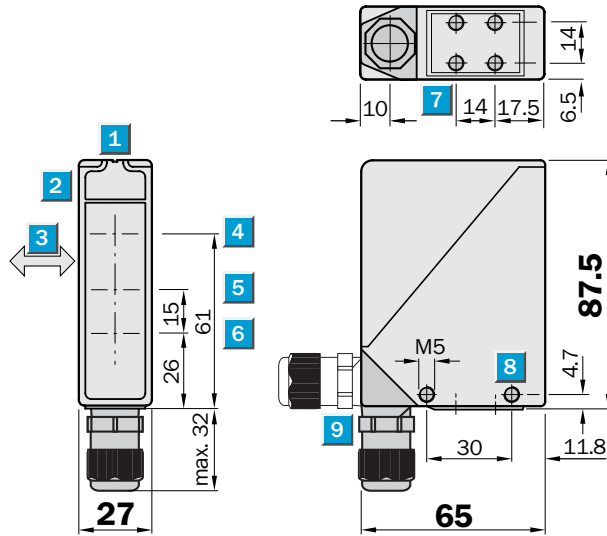
Type	Order no.
WT 24-2 B 240	1 017 813
WT 24-2 B 250	1 017 883
WT 24-2 B 440	1 016 934
WT 24-2 V 250	1 017 887
WT 24-2 V 540	1 017 888

 **Scanning distance**
100...1200 mm

Photoelectric proximity switches

- Universal supply voltage
- Robust metal housing
- Red light
- Background suppression, with very precise adjustment
- M16 screw fixing rotatable by 90°
- Front lens heating and time delay

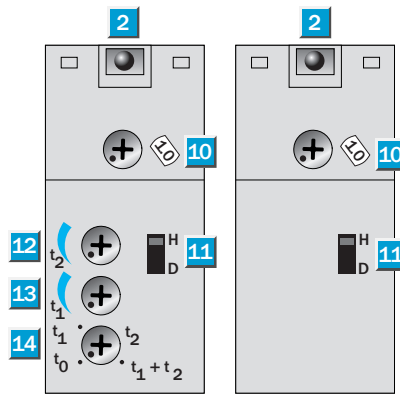
Dimensional drawing



Adjustments possible

WT 24-2R 250

WT 24-2R 240



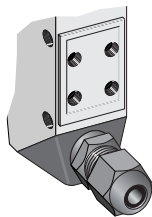
- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Standard direction of the material being scanned
- 4 Centre of optical axis, sender
- 5 Centre of optical axis, receiver (close range)
- 6 Centre of optical axis, receiver (far range)
- 7 M5 threaded mounting hole, 6 mm deep
- 8 M5 threaded mounting hole, through-hole
- 9 M16 screw fixing rotatable by 90°
- 10 Scanning distance adjustment
- 11 Light/dark selector
- 12 Time control t₂ = OFF-delay
- 13 Time control t₁ = ON-delay
- 14 Time delay selector switch



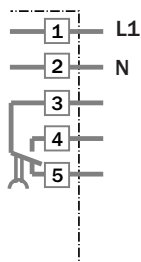
Connection type

WT 24-2R 240

WT 24-2R 250



M16, terminals



See chapter Accessories

Cables and connectors

Mounting systems

Special accessories

Technical data		WT 24-2	R 240	R 250								
Scanning distance	100...1200 mm, adjustable											
Light source¹⁾, light type	LED, red light											
Light spot diameter	Approx. 40 mm at 1200 mm											
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/250 V AC, 4 A/24 V DC ⁵⁾											
Max. switching capacity	AC: 1000 VA/DC: 100 W											
Response time	≤ 10 ms											
Max. switching frequency ⁶⁾	10/s											
Time delay	Adjustable, 0.5...10 sec											
Connection type	M16 screw fixing											
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. 330 g											
Front lens heating												
Housing material	Zinc die-cast housing											

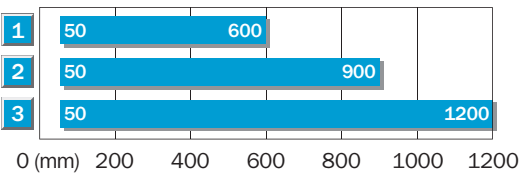
1) Average service life 100,000 h at T_A = +25 °C
 2) Limit values
 3) ± 10 %

4) Provide suitable spark suppression for inductive or capacitive loads
 5) Usage category to EN 60947-1, AC-15, DC-13

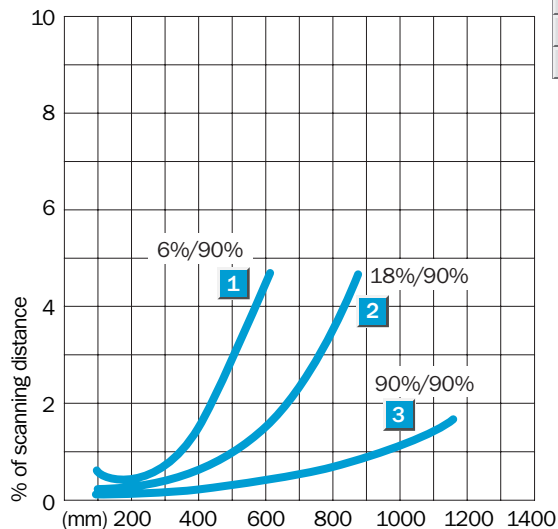
6) With light/dark ratio 1:1
 7) Reference voltage 250 V AC/DC

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

Scanning distance



1	Scanning distance on black, 6% Remission
2	Scanning distance on gray, 18% Remission
3	Scanning distance on white, 90% Remission



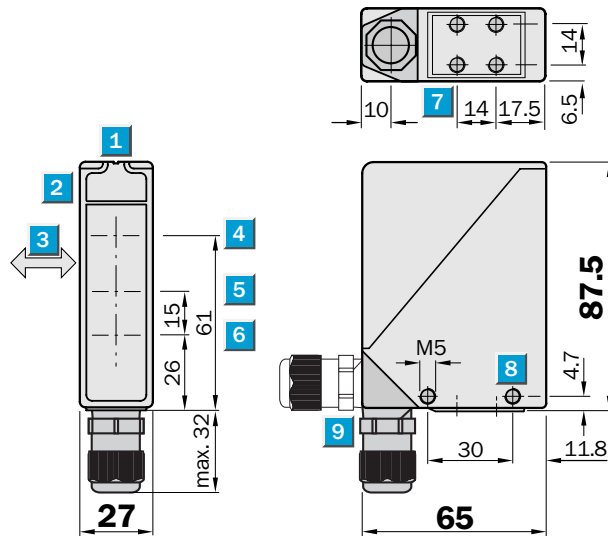
Order information

Type	Order no.
WT 24-2R 240	1 017 854
WT 24-2R 250	1 016 820

Scanning distance
100...2500 mm
 Photoelectric proximity switches

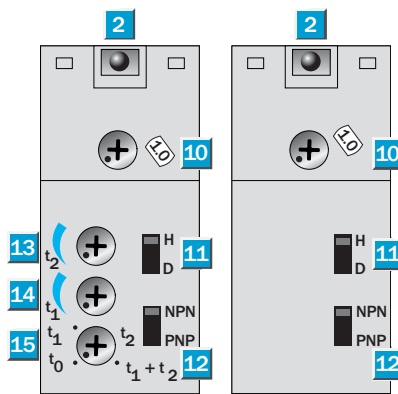
- Robust metal housing
- Infrared light
- Background suppression, with very precise adjustment
- M16 screw fixing or equipment plug rotatable by 90°
- Front lens heating, time delay and pre-failure signalling output

Dimensional drawing



Adjustments possible

WT 24-2B 220	WT 24-2B 210
WT 24-2B 420	WT 24-2B 313
WT 24-2V 220	WT 24-2B 410
	WT 24-2V 510

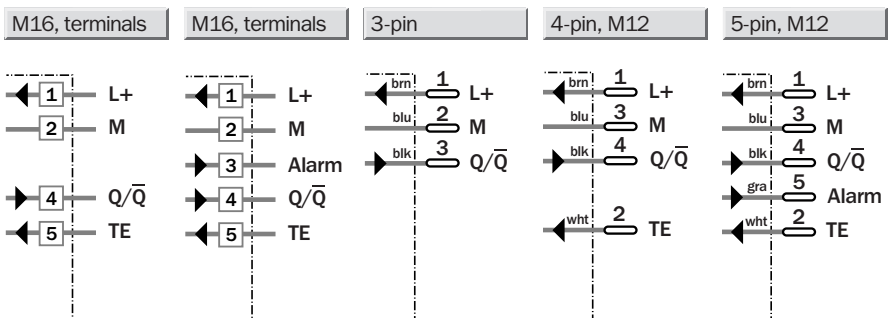
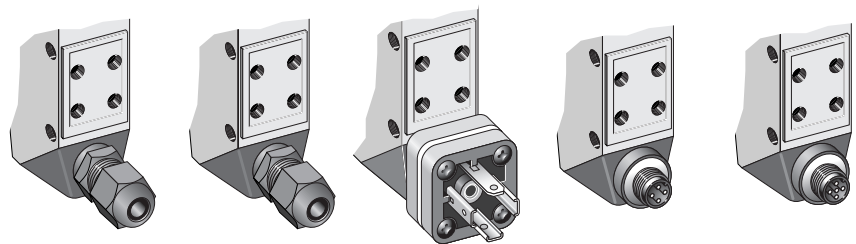


- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Standard direction of the material being scanned
- 4 Centre of optical axis, sender
- 5 Centre of optical axis, receiver (close range)
- 6 Centre of optical axis, receiver (far range)
- 7 M5 threaded mounting hole, 6 mm deep
- 8 M5 threaded mounting hole, through-hole
- 9 M16 screw fixing and plug rotatable by 90°
- 10 Scanning distance adjustment
- 11 Light/dark selector
- 12 NPN/PNP selector
- 13 Time control t_2 = OFF-delay
- 14 Time control t_1 = ON-delay
- 15 Time delay selector switch



Connection types

WT 24-2B 210	WT 24-2V 220	WT 24-2B 313	WT 24-2B 410	WT 24-2V 510
WT 24-2B 220			WT 24-2B 420	



See chapter Accessories

Cables and connectors
Mounting systems
Special accessories

Technical data		WT 24-2	B 210	B 220	B 313	B 410	B 420	V 220	V 510
Scanning distance	100...2500 mm, adjustable								
Light source¹⁾, light type	LED, infrared light								
Light spot diameter	Approx. 80 mm at 2500 mm								
Supply voltage V_S	10...30 V DC ²⁾								
Residual ripple ³⁾	< 5 V_{SS}								
Current consumption ⁴⁾	≤ 50 mA ≤ 70 mA, front lens heating								
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: TE to 0 V								
Connection types	M16 screw fixing Plug								
VDE protection class⁷⁾	<input type="checkbox"/>								
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								

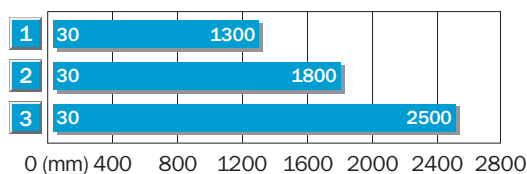
1) Average service life 100,000 h at $T_A = +25\text{ °C}$
2) Limit values

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

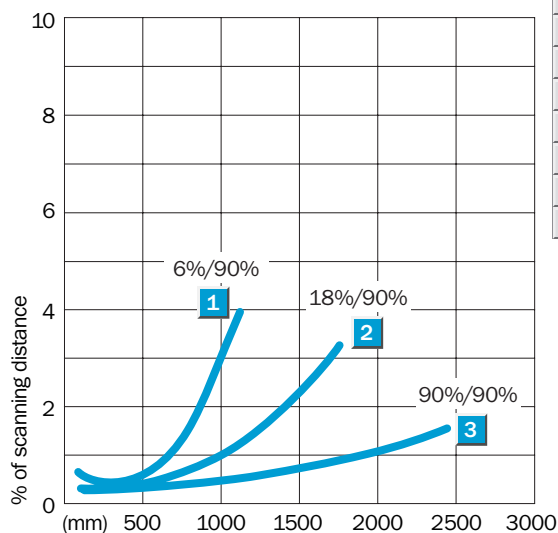
5) Signal transit time with resistive load
6) With light/dark ratio 1:1
7) Reference voltage 50 V DC

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 gray, 18 % Remission
- 3 Scanning distance on white, 90 % Remission



Order information

Type	Order no.
WT 24-2B 210	1 016 931
WT 24-2B 220	1 017 882
WT 24-2B 313	1 017 884
WT 24-2B 410	1 016 933
WT 24-2B 420	1 017 885
WT 24-2V 220	1 017 886
WT 24-2V 510	1 017 855

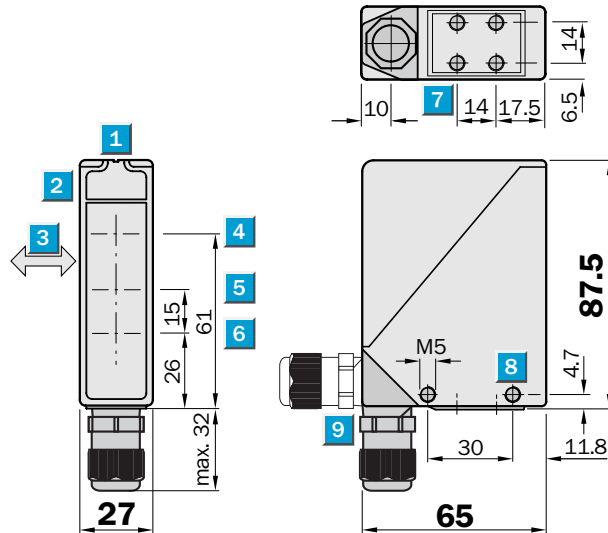
 **Scanning distance**
100...2500 mm

Photoelectric proximity switches

- Universal supply voltage
- Robust metal housing
- Infrared light
- Background suppression, with very precise adjustment
- M16 screw fixing rotatable by 90°
- Front lens heating and time delay



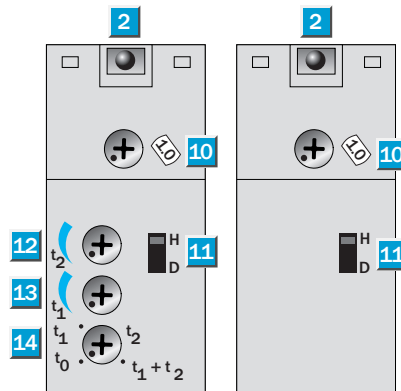
Dimensional drawing



Adjustments possible

WT 24-2R 220

WT 24-2R 210

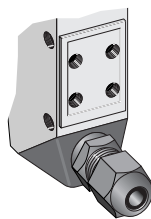


- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Standard direction of the material being scanned
- 4 Centre of optical axis, sender
- 5 Centre of optical axis, receiver (close range)
- 6 Centre of optical axis, receiver (far range)
- 7 M5 threaded mounting hole, 6 mm deep
- 8 M5 threaded mounting hole, through-hole
- 9 M16 screw fixing rotatable by 90°
- 10 Scanning distance adjustment
- 11 Light/dark selector
- 12 Time control t_2 = OFF-delay
- 13 Time control t_1 = ON-delay
- 14 Time delay selector switch

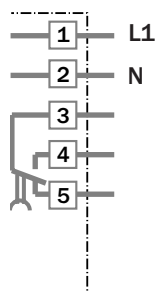
Connection type

WT 24-2R 210

WT 24-2R 220



M16, terminals



See chapter Accessories

Mounting systems

Special accessories

Technical data		WT 24-2	R 210	R 220								
Scanning distance	100...2500 mm, adjustable											
Light source¹⁾, light type	LED, infrared light											
Light spot diameter	Approx. 80 mm at 2500 mm											
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/250 V AC, 4 A/24 V DC ⁵⁾											
Max. switching capacity	AC: 1000 VA/DC: 100 W											
Response time	≤ 10 ms											
Max. switching frequency ⁶⁾	10/s											
Time delay	Adjustable, 0.5...10 sec											
Connection type	M16 screw fixing											
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. 330 g											
Front lens heating												
Housing material	Zinc die-cast housing											

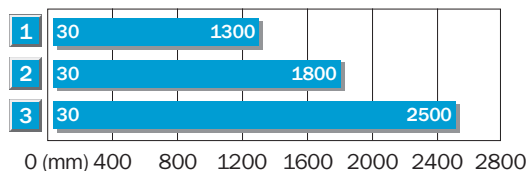
1) Average service life 100,000 h at T_A = +25 °C
 2) Limit values
 3) ± 10 %

4) Provide suitable spark suppression for inductive or capacitive loads
 5) Usage category to EN 60947-1, AC-15, DC-13

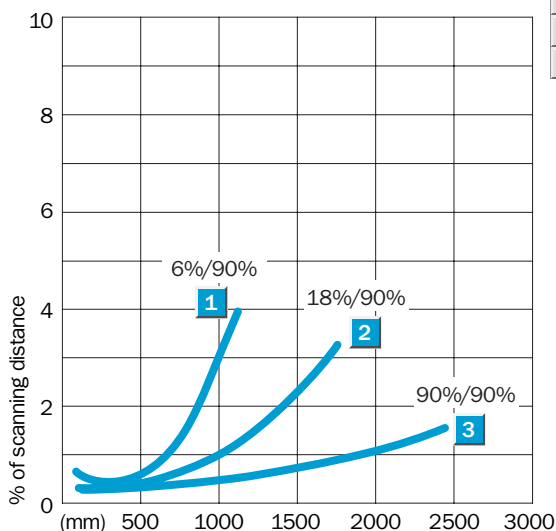
6) With light/dark ratio 1:1
 7) Reference voltage 250 V AC/DC

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

Scanning distance




1	Scanning distance on black, 6 % Remission
2	Scanning distance on gray, 18 % Remission
3	Scanning distance on white, 90 % Remission



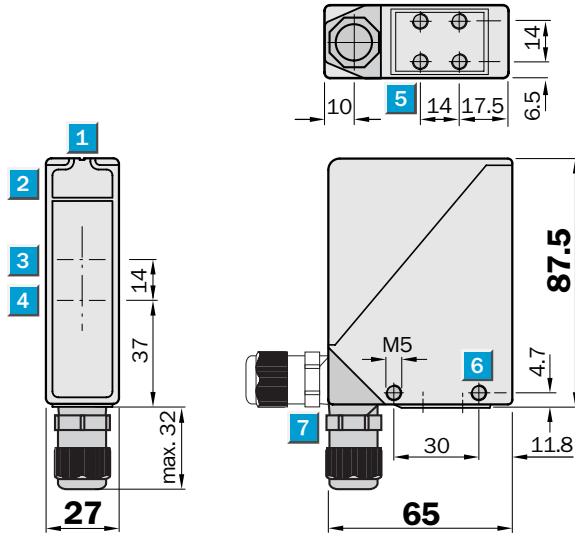
Order information

Type	Order no.
WT 24-2R 210	1 016 932
WT 24-2R 220	1 016 854


Scanning range
22 m
 Photoelectric reflex switches

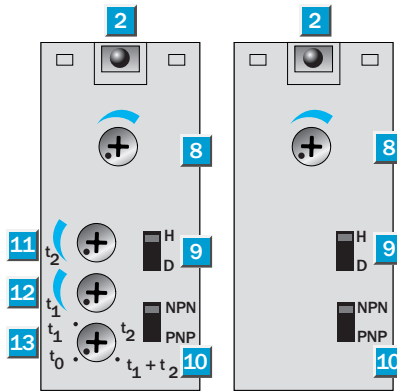
- Robust metal housing
- High operating reserve in visible red light
- M16 screw fixing or plug rotatable by 90°
- Front lens heating, time delay and pre-failure signalling output

Dimensional drawing



Adjustments possible

WL 24-2B 240	WL 24-2B 230
WL 24-2B 440	WL 24-2B 333
	WL 24-2B 430
	WL 24-2V 230
	WL 24-2V 530

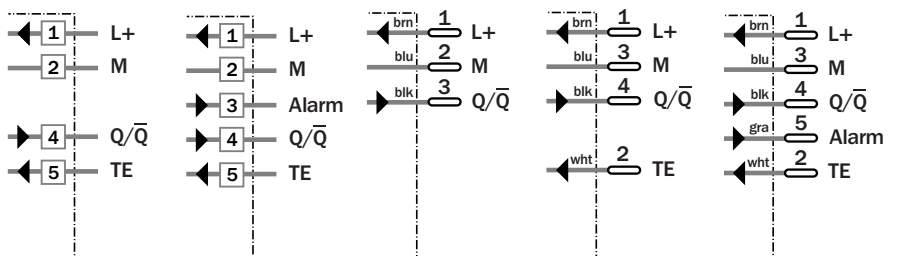
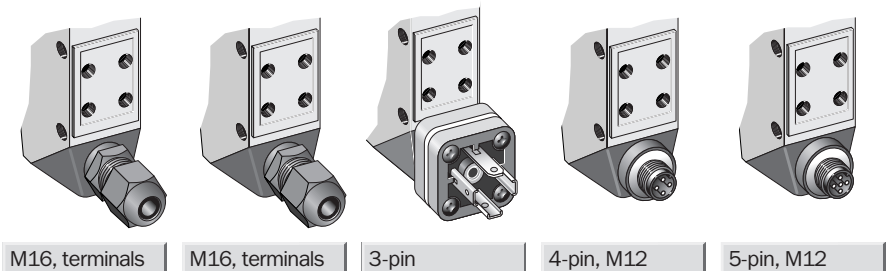


- Alignment sight
- LED signal strength indicator
- Centre of optical axis, sender
- Centre of optical axis, receiver
- M5 threaded mounting hole, 6 mm deep
- M5 threaded mounting hole, through-hole
- M16 screw fixing or plug rotatable by 90°
- Sensitivity adjustment
- Light/dark selector
- NPN/PNP selector
- Time control t_2 = OFF-delay
- Time control t_1 = ON-delay
- Time delay selector switch



Connection types

WL 24-2B 230	WL 24-2V 230	WL 24-2B 333	WL 24-2B 430	WL 24-2V 530
WL 24-2B 240			WL 24-2B 440	



See chapter Accessories

Cables and connectors
Mounting systems
Reflectors
Special accessories

Technical data		WL 24-2	B 230	B 240	B 333	B 430	B 440	V 230	V 530
Scanning range, max. typ./on reflector	22 m/on PL 80 A								
Sensitivity	Adjustable								
Light source¹⁾, light type	LED, red light								
Light spot diameter	Approx. 250 mm at 15 m								
Supply voltage V_S	10...30 V DC ²⁾								
Residual ripple ³⁾	< 5 V_{SS}								
Current consumption ⁴⁾	≤ 50 mA								
	≤ 70 mA, front lens heating								
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: TE to 0 V								
Connection types	M16 screw fixing								
	Plug								
VDE protection class⁷⁾	<input type="checkbox"/>								
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									
Polarising filter									
Housing material	Zinc die-cast housing								

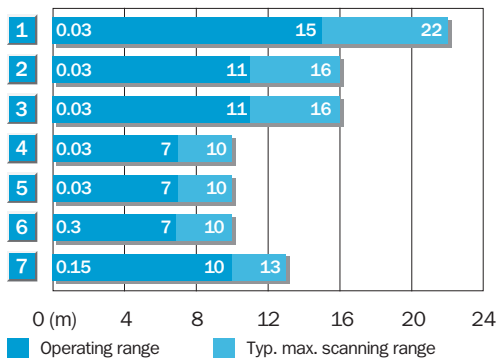
1) Average service life 100,000 h at $T_A = +25\text{ °C}$
 2) Limit values

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

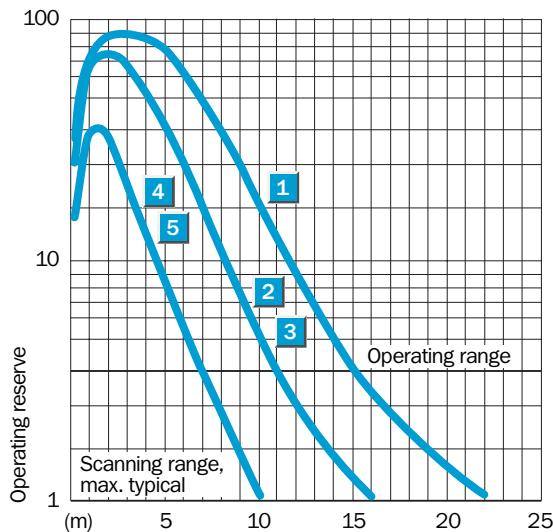
5) Signal transit time with resistive load
 6) With light/dark ratio 1:1
 7) Reference voltage 50 V DC

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

Scanning range and operating reserve




Reflector type	Operating range
1 PL 80 A	0.03 to 15 m
2 PL 50 A	0.03 to 11 m
3 PL 40 A	0.03 to 11 m
4 PL 30 A	0.03 to 7 m
5 PL 20 A	0.03 to 7 m
6 Diamond Grade (20 cm x 20 cm)	0.3 to 7 m
7 C 110	0.15 to 10 m



Order information

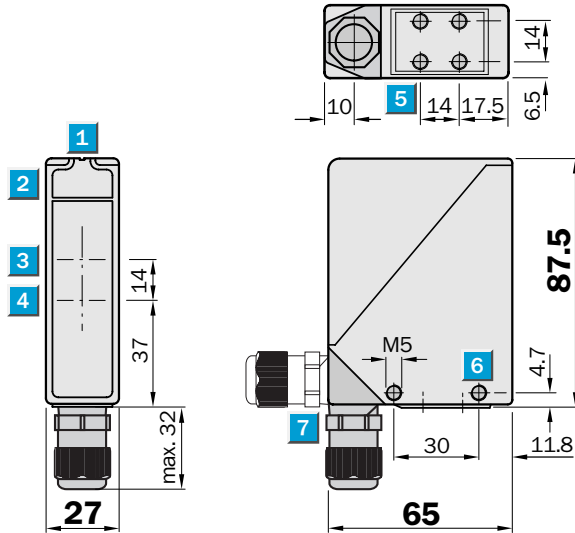
Type	Order no.
WL 24-2B 230	1 015 852
WL 24-2B 240	1 017 859
WL 24-2B 333	1 017 878
WL 24-2B 430	1 017 860
WL 24-2B 440	1 017 879
WL 24-2V 230	1 017 880
WL 24-2V 530	1 017 881


Scanning range
22 m

Photoelectric reflex switches

- Universal supply voltage
- Robust metal housing
- Large operating reserve and visible red light
- M16 screw fixing rotatable by 90°
- Front lens heating and time delay

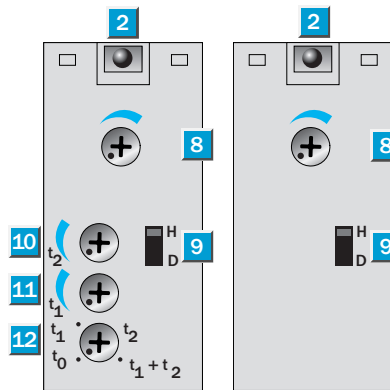
Dimensional drawing



Adjustments possible

WL 24-2R 240

WL 24-2R 230



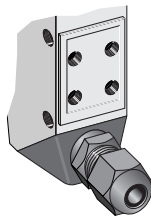
- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Centre of optical axis, sender
- 4 Centre of optical axis, receiver
- 5 M5 threaded mounting hole, 6 mm deep
- 6 M5 threaded mounting hole, through-hole
- 7 M16 screw fixing rotatable by 90°
- 8 Sensitivity adjustment
- 9 Light/dark selector
- 10 Time control t_2 = OFF-delay
- 11 Time control t_1 = ON-delay
- 12 Time delay selector switch



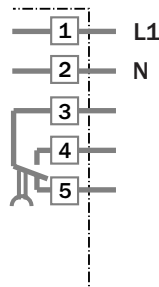
Connection type

WL 24-2R 230

WL 24-2R 240



M16, terminals



See chapter Accessories

Mounting systems
Reflectors
Special accessories

Technical data		WL 24-2	R 230	R 240								
Scanning range, max. typ./on reflector	22 m/on PL 80 A											
Sensitivity	Adjustable											
Light source¹⁾, light type	LED, red light											
Light spot diameter	Approx. 250 mm at a distance of 15 m											
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/250 V AC, 4 A/24 V DC ⁵⁾											
Max. switching capacity	AC: 1000 VA/DC: 100 W											
Response time ⁶⁾	≤ 10 ms											
Max. switching frequency ⁷⁾	10/s											
Time delay	Adjustable, 0.5...10 sec											
Connection type	M16 screw fixing											
VDE protection class⁸⁾	□											
Circuit protection⁹⁾	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												
Polarising filter												
Housing material	Zinc die-cast housing											

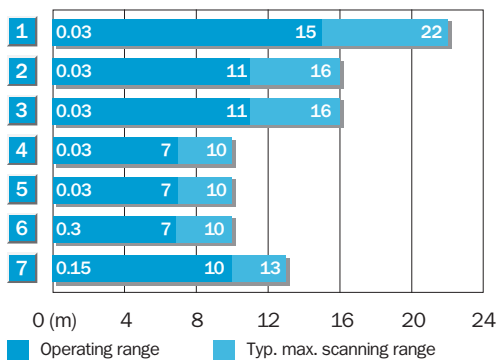
1) Average service life 100,000 h at T_U = +25 °C
 2) Limit values
 3) ± 10 %

4) Provide suitable spark suppression for inductive or capacitive loads
 5) Usage category to EN 60947-1, AC-15, DC-13

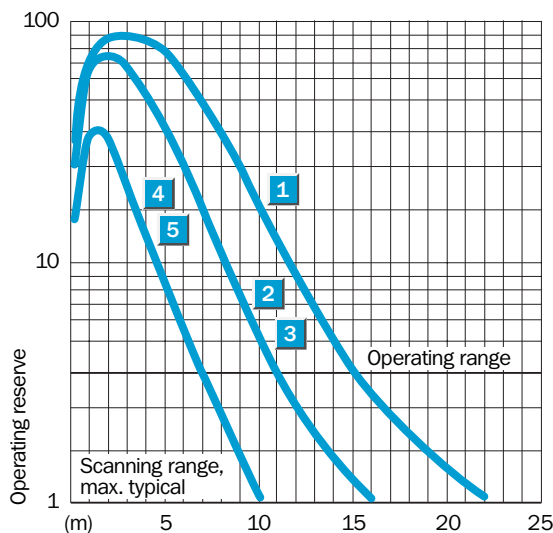
6) Signal transit time with resistive load
 7) With light/dark ratio 1:1
 8) Reference voltage 250 V UC

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

Operating range and operating reserve



Reflector type	Operating range
1 PL 80 A	0.03 to 15 m
2 PL 50 A	0.03 to 11 m
3 PL 40 A	0.03 to 11 m
4 PL 30 A	0.03 to 7 m
5 PL 20 A	0.03 to 7 m
6 Diamond Grade (20 cm x 20 cm)	0.3 to 7 m
7 C 110	0.15 to 10 m



Order information

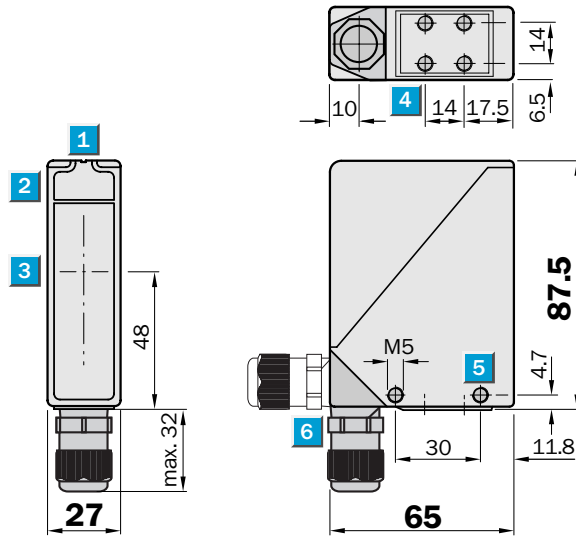
Type	Order no.
WL 24-2R 230	1 017 857
WL 24-2R 240	1 017 858

Scanning range
0...60 m

Through-beam photoelectric switches

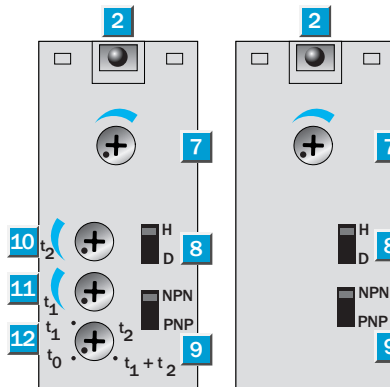
- Robust metal housing
- Large operating reserve and visible red light
- M16 screw fixing or plug rotatable by 90°
- Front lens heating, time delay and pre-failure signalling output

Dimensional drawing



Adjustments possible

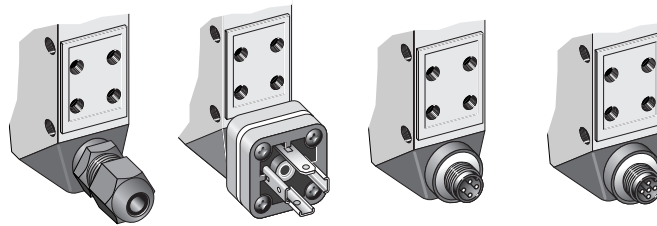
WS/WE 24-2B 240	WS/WE 24-2B 230
WS/WE 24-2B 440	WS/WE 24-2B 333
	WS/WE 24-2B 430
	WS/WE 24-2V 530



- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Centre of optical axis
- 4 M5 threaded mounting hole, 6 mm deep
- 5 M5 threaded mounting hole, through-hole
- 6 M16 screw fixing and plug rotatable by 90°
- 7 Sensitivity adjustment
- 8 Light/dark selector
- 9 NPN/PNP selector
- 10 Time control t_2 = OFF-delay
- 11 Time control t_1 = ON-delay
- 12 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	



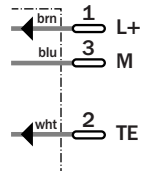
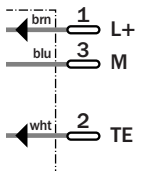
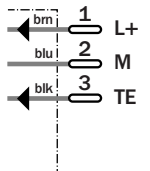
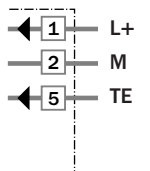
M16, terminals

3-pin

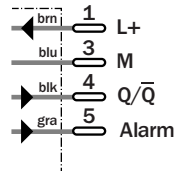
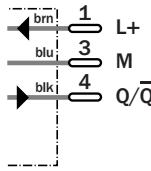
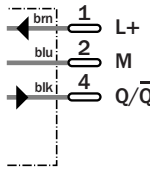
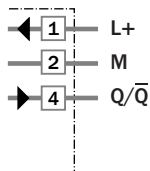
4-pin, M12

5-pin, M12

Sender



Receiver



See chapter Accessories

Cables and connectors
Mounting systems
Special accessories



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	Approx. 700 mm at of 50 m											
Angle of dispersion/reception	1°/2.5°											
Supply voltage V_S	10...30 V DC ²⁾											
Residual 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 μs											
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											
	M16 screw fixing											
VDE protection class⁷⁾	<input type="checkbox"/>											
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											

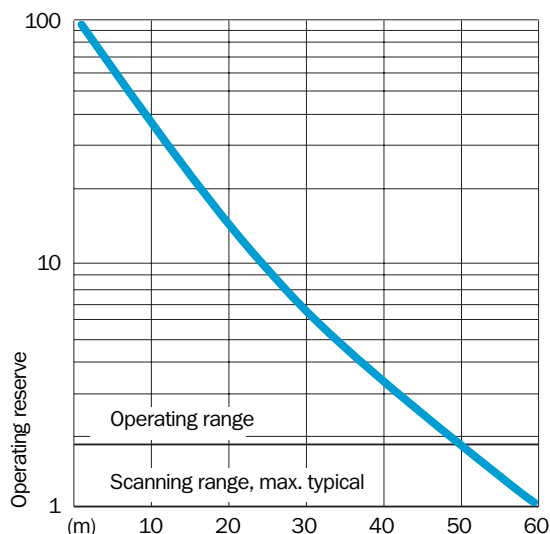
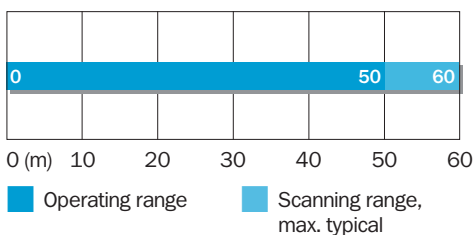
1) Average service life 100,000 h at T_A = +25 °C
 2) Limit values

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	Order 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

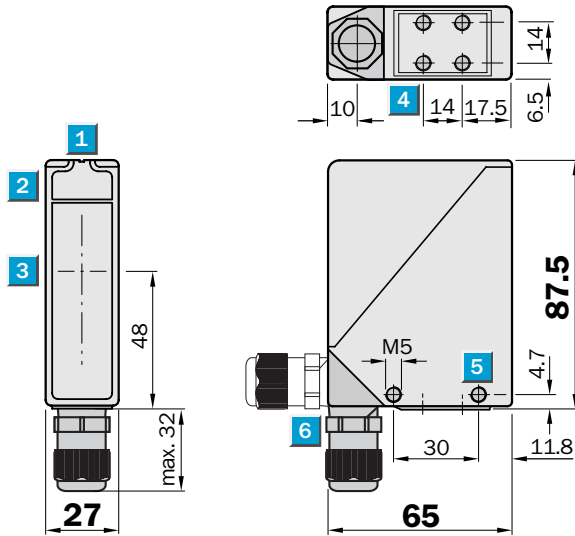
Scanning range
0...60 m

Through-beam photoelectric switches

- Universal supply voltage
- Robust metal housing
- Large operating reserve and visible red light
- M16 screw fixing rotatable by 90°
- Front lens heating and time delay



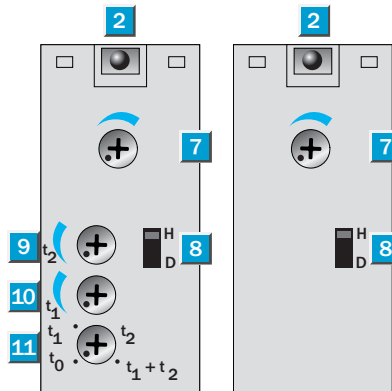
Dimensional drawing



Adjustments possible

WS/WE 24-2R 240

WS/WE 24-2R 230

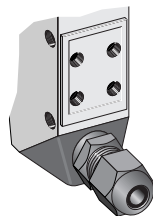


- 1 Alignment sight
- 2 LED signal strength indicator
- 3 Centre of optical axis
- 4 M5 threaded mounting hole, 6 mm deep
- 5 M5 threaded mounting hole, through-hole
- 6 M16 screw fixing rotatable by 90°
- 7 Sensitivity adjustment
- 8 Light/dark selector
- 9 Time control t_2 = OFF-delay
- 10 Time control t_1 = ON-delay
- 11 Time delay selector switch

Connection type

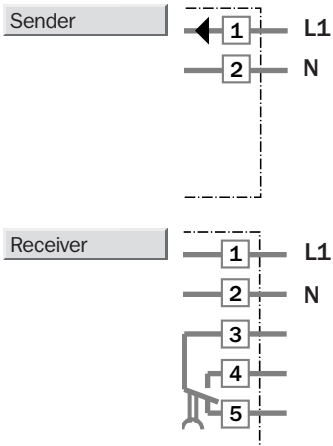
WS/WE 24-2R 230

WS/WE 24-2R 240



M16, terminals

See chapter **Accessories**
Mounting systems
Special accessories



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	Approx. 700 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/250 V AC, 4 A/24 V DC ⁵⁾											
Max. switching capacity	AC: 1000 VA/DC: 100 W											
Response time	≤ 10 ms											
Max. switching frequency ⁶⁾	10/s											
Time delay	Adjustable, 0.5...10 sec											
Connection type	M16 screw fixing											
VDE protection class⁷⁾	□											
Circuit protection⁸⁾	A, C											
Enclosure rating	IP 69K											
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											

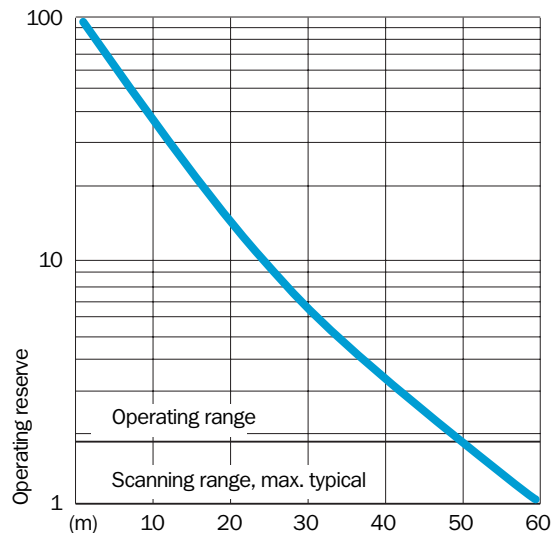
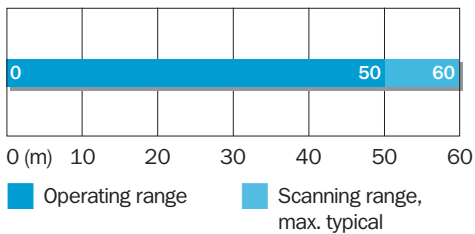
1) Average service life 100,000 h at T_U = +25 °C
 2) Limit values
 3) ± 10 %

4) Provide suitable spark suppression for inductive or capacitive loads
 5) Usage category to EN 60947-1, AC-15, DC-13

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