

W27-3: The all-rounder: robust, powerful, very wide range of applications

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



speed of set up: simply press the button and, within seconds, the sensor is adjusted to the object. The highly visible red light enormously simplifies the alignment of the photoelectric reflex switch to the reflector.

Optionally, the photoelectric proximity switch can be offered with the new, unique IO-Link fieldbus link.

Overview of W27-3:

- Robust, universal all-rounder,
- Greater security against unwanted optical reflections,
- Easy Teach-in, simple and fast commissioning,
- **IP69K in preparation,**
- ECOLAB certifies the material resistance to cleaning agents and disinfectants in common use in the food-processing sector.



Typical uses:

- Storage and conveying technology,
- Automotive industry,
- Woodworking machinery,
- Doors/gates.

The all-rounder W27-3 shows its particular strengths in harsh industrial environments, easily coping with heavy vibration, shocks and extreme temperature variations. Another benefit of the W27-3 is its very wide range of applications. A choice of variants offering functions including 24 VDC or 24 to 240 VAC, output time delays and front screen heating, permits simple integration into any control system.

Additionally, the full W27-3 product range with different laser sensors and devices for Ex areas according to category 3G/3D (ATEX) opens up new applications (see separate data sheets).

The photoelectric proximity switch leads its class through improved operational security in case of unwanted optical reflections and its

► The WTB27-3 photoelectric proximity switch controls the bay allocation to ensure that everything in the warehouse is in its right place.



▼ The WL27-3 photoelectric reflex switch reliably detects the pallet wrapped with foil.



▲ Easy Teach-in: Commissioning the WTB27-3 photoelectric proximity switch easily and quickly: align on the object, press both keys for 2 seconds, ready.

▲ The WL27-3 photoelectric reflex switch meets the demanding quality requirements in the automotive industry.

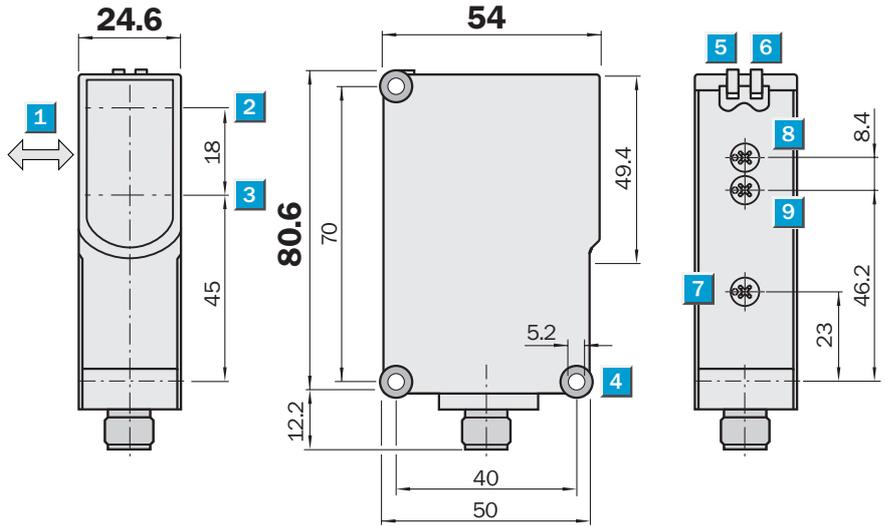
Scanning distance
30 ... 1,100 mm

Photoelectric proximity switch

- Precise background suppression without scanning distance drift
- Reliable in industrial environments; secure against the effects of ambient light, unwanted optical reflections, other sensors mounted adjacently and temperatures from -40 °C ... +60 °C
- Easy Teach-in, simple and fast commissioning

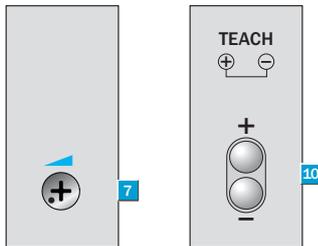


Dimensional drawing

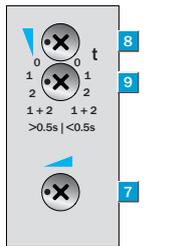


Adjustments possible

WTB27-3P2441	WTB27-3P2443
WTB27-3P3741	



WTB27-3E2641
WTB27-3F2641



- 1 Standard direction of the material being scanned
- 2 Optical axis sender
- 3 Optical axis receiver
- 4 Mounting hole Ø 5.2 mm
- 5 LED indicator green; power on
- 6 LED indicator yellow; status of received light beam
- 7 Adjustment of scanning distance: Poti
- 8 Time control
- 9 Time delay selector switch
- 10 Adjustment of scanning distance: double teach button

Switch-selectable time delay

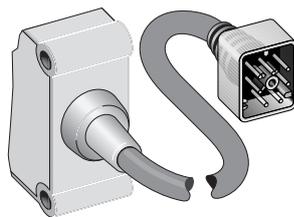
0.02 - 0.5s or 0.5 - 10s

- 0 Without time delay
- 1 Time delay from trailing edge of object
- 2 Time delay from leading edge of object
- 1 + 2 Time delay from trailing and leading edge of object

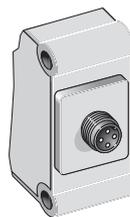


Connection type

WTB27-3P3741	WTB27-3P2441	WTB27-3E2641
	WTB27-3P2443	WTB27-3F2641



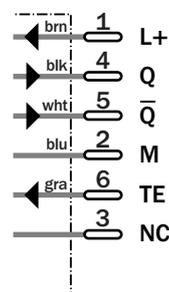
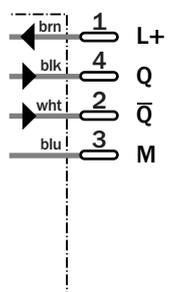
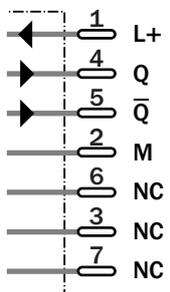
Q7, 7-pin, DC



M12, 4-pin



Q6, 6-pin, DC



See chapter Accessories

Connector, M12, 4-pin
Connector, Q6, 6-pin, DC-coding
Connector, Q7, 7-pin, DC-coding
Mounting systems
Weather protection

Technical data		WTB27-3	E2641	F2641	P2441	P2443	P3741						
Scanning distance typ. max.	30 ... 1,100 mm ¹⁾												
Operating distance	100 ... 1,100 mm ¹⁾												
Adjustment of operating distance	Potentiometer												
	Teach-in: double teach button												
Light source, light type	LED, Red light, 660 nm ²⁾												
Light spot diameter	Approx. 15 mm at 500 mm distance												
Supply voltage V _s	10 ... 30 V DC ³⁾												
Ripple	≤ 5 V _{pp} ⁴⁾												
Power consumption	≤ 35 mA ⁵⁾												
Switching outputs	NPN antivalent												
	PNP antivalent												
Signal voltage PNP HIGH / LOW	> V _s - 2.5 V / approx. 0 V												
Signal voltage NPN HIGH / LOW	Approx. V _s / < 2.5 V												
Output current I _a max	100 mA												
Response time	≤ 1.5 ms ⁶⁾												
Switching frequency	350 Hz ⁷⁾												
Time delay	Selectable: 0.5 ... 10 s / 0.02 ... 0.5 s												
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}												
Test input sender off	TE to V _s												
	TE to 0 V												
Connection type	Connector, Q6, 6-pin, DC												
	Connector, M12, 4-pin												
	Cable with plug, Q7, 7-pin, DC, PVC, 150 mm ⁸⁾												
VDE protection class	□ ⁹⁾												
Circuit protection	V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression												
Enclosure rating	IP 65												
	IP 66, IP 67												
Ambient temperature operation	-40 °C ... +60 °C												
Ambient temperature storage	-40 °C ... +75 °C												
Weight	Approx. 100 g												
	Approx. 120 g												
Housing material	ABS, PMMA												

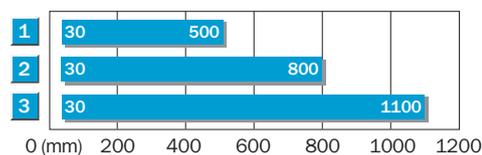
¹⁾ Object with 90 % remission (based on standard white to DIN 5033)
²⁾ Average service life 100,000 h

at T_a = +25 °C
³⁾ Limit values, operation in short-circuit protected network max. 8 A

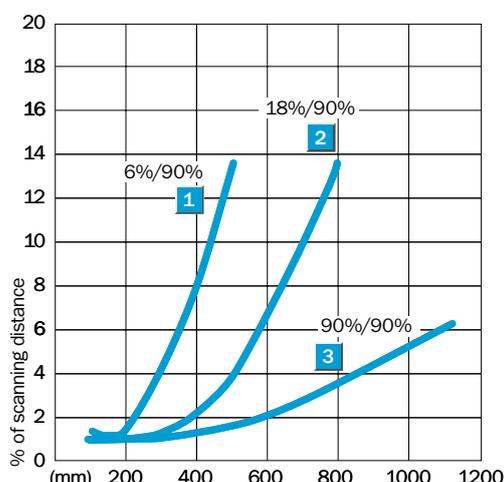
⁴⁾ may not exceed or fall short of V_s tolerances
⁵⁾ without load

⁶⁾ Signal transit time with resistive load
⁷⁾ with light/dark ratio 1:1
⁸⁾ do not bend below 0 °C
⁹⁾ Reference voltage 50 V DC

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	Order no.
WTB27-3E2641	1 027 747
WTB27-3F2641	1 027 746
WTB27-3P2441	1 027 744
WTB27-3P2443	1 027 745
WTB27-3P3741	1 027 748

Photoelectric proximity switch, WTB27-3, BGS, red light - UC

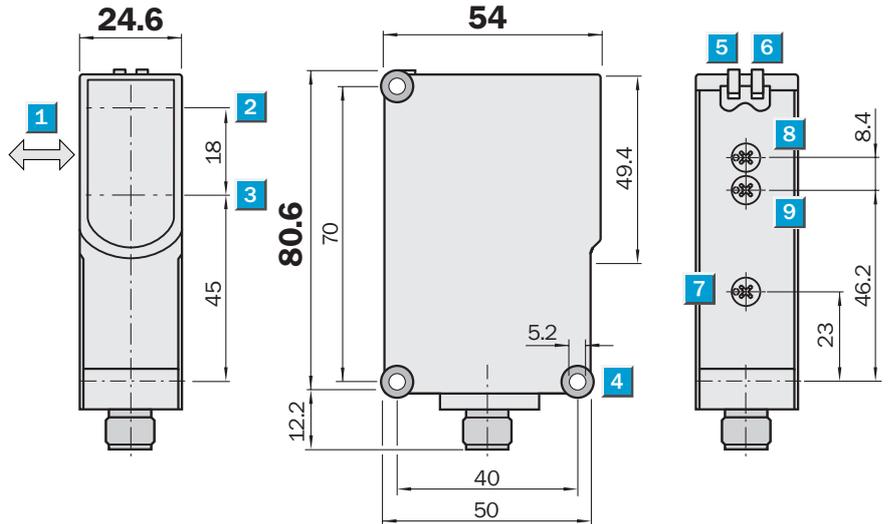
Scanning distance
30 ... 1,100 mm

Photoelectric proximity switch

- Universal supply voltage
- High-precision background suppression without scanning distance drift
- Reliable in industrial environments; secure against the effects of ambient light, unwanted optical reflections, other sensors mounted adjacently and temperatures from -40 °C ... +60 °C

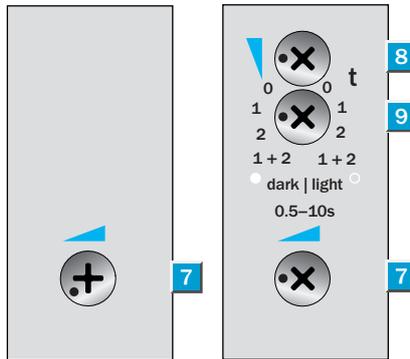


Dimensional drawing



Adjustments possible

WTB27-3S1541	WTB27-3R2641
WTB27-3S3741	



- 1 Standard direction of the material being scanned
- 2 Optical axis sender
- 3 Optical axis receiver
- 4 Mounting hole Ø 5.2 mm
- 5 LED indicator green; power on
- 6 LED indicator yellow; status of received light beam
- 7 Adjustment of scanning distance: Poti
- 8 Time control
- 9 Time delay selector switch
- 0 Light-switching (L)
- Dark-switching (D)

Switch-selectable time delay

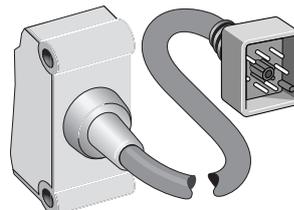
D L	0.5 - 10s
0 0	Without time delay
2 1	Time delay from trailing edge of object
1 2	Time delay from leading edge of object
1 + 2	Time delay from trailing and leading edge of object

Connection type

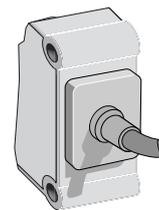
WTB27-3R2641	WTB27-3S3741	WTB27-3S1541
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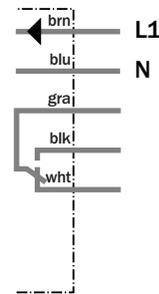
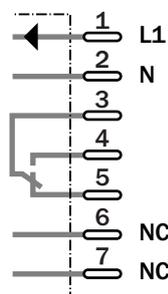
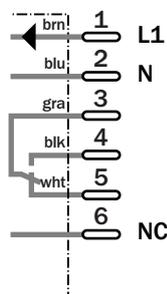
Q6, 6-pin, AC/UC



Q7, 7-pin, AC/UC



5 x 0.25 mm²



See chapter Accessories*

Connector, Q6, 6-pin, UC-coding
Connector, Q7, 7-pin, UC-coding
Mounting systems
Weather protection

* Recommendation for connectors:



Technical data		WTB27-3	R2641	S1541	S3741								
Scanning distance typ. max.	30 ... 1,100 mm ¹⁾												
Operating distance	100 ... 1,100 mm ¹⁾												
Adjustment of operating distance	Potentiometer												
Light source, light type	LED, Red light, 660 nm ²⁾												
Light spot diameter	Approx. 15 mm at 500 mm distance												
Supply voltage V _s	24 ... 240 V UC ³⁾												
Switching outputs	Relay 1 x c/o, electrically isolated ⁴⁾												
	Relay 1 x c/o, electrically isolated ⁵⁾												
Switching mode	Light-/dark-switching, switchable												
	Light-switching												
Power consumption	≤ 2.5 VA												
Max. switching voltage	250 V AC / 250 V DC (max. 0.11 A)												
Switching current max.	3 A @ 250 V AC o. 24 V DC ⁶⁾												
Max. switching power	750 W AC / 72 W DC												
Response time	≤ 10 ms												
Switching frequency	10 Hz ⁷⁾												
Time delay	Selectable: 0.5 ... 10 s												
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}												
Connection type	Connector, Q6, 6-pin, AC/UC												
	Cable, PVC, 2 m ⁸⁾												
	Cable with plug, Q7, 7-pin, AC/UC, PVC, 150 mm ⁸⁾												
VDE protection class	□ ⁹⁾												
Circuit protection	V _s connections reverse-polarity protected / Interference suppression												
Enclosure rating	IP 65												
	IP 66, IP 67												
Ambient temperature operation	-40 °C ... +60 °C ¹⁰⁾												
Ambient temperature storage	-40 °C ... +75 °C												
Weight	Ca. 120 g												
	Approx. 200 g												
	Approx. 140 g												
Housing material	ABS, PMMA												

¹⁾ Object with 90 % remission (based on standard white to DIN 5033)

²⁾ Average service life 100,000 h at T_a = +25 °C

³⁾ ± 10 %

⁴⁾ Provide suitable spark suppression for inductive or capacitive loads. Relay contacts are separated from the power supply by a basic isolation of 3 mm. Depending on the application, additional

isolation might have to be applied in the user's circuit

⁵⁾ Provide suitable spark suppression for inductive or capacitive loads

⁶⁾ Usage category to EN 60947-1,

AC-15, DC-13

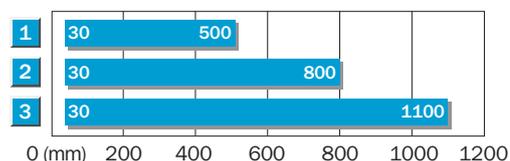
⁷⁾ with light/dark ratio 1:1

⁸⁾ do not bend below 0 °C

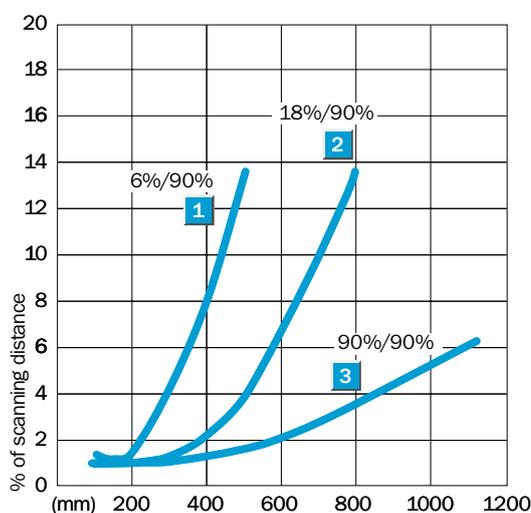
⁹⁾ Reference voltage 250 V AC

¹⁰⁾ UL: 0 °C ... +60 °C

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

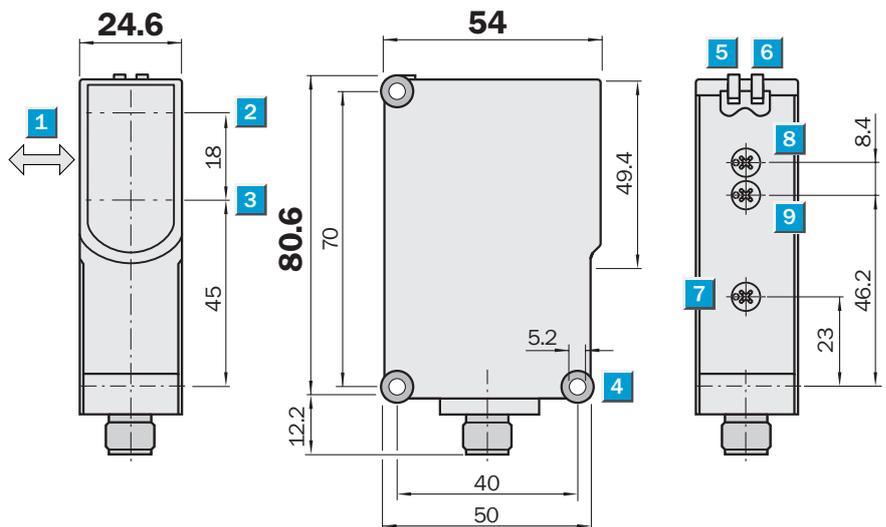
Type	Order no.
WTB27-3R2641	1 027 750
WTB27-3S1541	1 027 749
WTB27-3S3741	1 027 751

Scanning distance
30 ... 1,600 mm

Photoelectric proximity switch

- Infrared light, very long scanning distance
- Reliable in industrial environments; secure against the effects of ambient light, unwanted optical reflections, other sensors mounted adjacently and temperatures from -40 °C ... +60 °C
- Time delays, test input, front screen heating

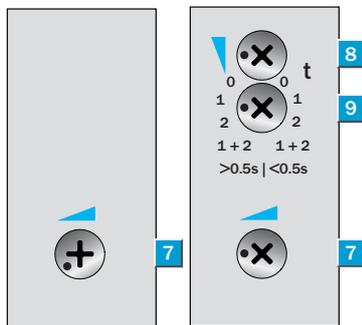
Dimensional drawing



Adjustments possible

WTB27-3P1111	WTB27-3E2411
WTB27-3P2411	WTB27-3E2611
WTB27-3P2421	WTB27-3F2411
WTB27-3P3711	WTB27-3F2611

- Standard direction of the material being scanned
- Optical axis sender
- Optical axis receiver
- Mounting hole Ø 5.2 mm
- LED indicator green; power on
- LED indicator yellow; status of received light beam
- Adjustment of scanning distance: Poti
- Time control
- Time delay selector switch



Switch-selectable time delay

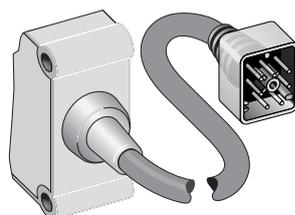
0.02 - 0.5s or 0.5 - 10s

- 0 Without time delay
- 1 Time delay from trailing edge of object
- 2 Time delay from leading edge of object
- 1 + 2 Time delay from trailing and leading edge of object

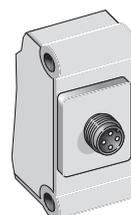


Connection type

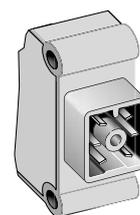
WTB27-3P3711	WTB27-3E2411	WTB27-3E2611	WTB27-3P1111
	WTB27-3F2411	WTB27-3F2611	
	WTB27-3P2411		
	WTB27-3P2421		



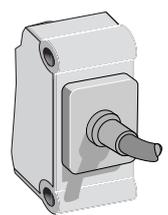
Q7, 7-pin, DC



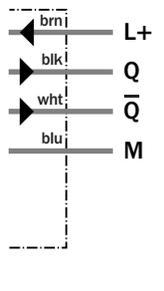
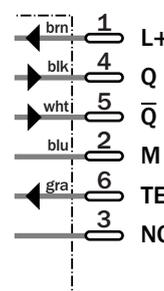
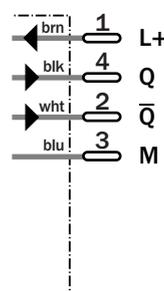
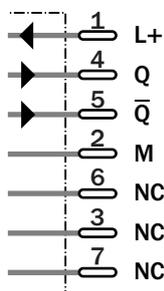
M12, 4-pin



Q6, 6-pin, DC



4 x 0.25 mm²



See chapter Accessories

- Connector, M12, 4-pin
- Connector, Q6, 6-pin, DC-coding
- Connector, Q7, 7-pin, DC-coding
- Mounting systems
- Weather protection

Technical data		WTB27-3	E2411	E2611	F2411	F2611	P1111	P2411	P2421	P3711		
Scanning distance typ. max.	30 ... 1,600 mm ¹⁾											
Operating distance	100 ... 1,600 mm ¹⁾											
Adjustment of operating distance	Potentiometer											
Light source, light type	LED, Infrared light, 880 nm ²⁾											
Light spot diameter	Approx. 25 mm at 800 mm distance											
Supply voltage V _s	10 ... 30 V DC ³⁾											
Ripple	≤ 5 V _{pp} ⁴⁾											
Power consumption	≤ 40 mA ⁵⁾											
	≤ 55 mA ⁵⁾											
Switching outputs	NPN antivalent											
	PNP antivalent											
Signal voltage PNP HIGH / LOW	> V _s - 2.5 V / approx. 0 V											
Signal voltage NPN HIGH / LOW	Approx. V _s / < 2.5 V											
Output current I _a max	100 mA											
Response time	≤ 1.5 ms ⁶⁾											
Switching frequency	350 Hz ⁷⁾											
Time delay	Selectable: 0.5 ... 10 s / 0.02 ... 0.5 s											
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}											
Test input sender off	TE to V _s											
	TE to 0 V											
Connection type	Connector, M12, 4-pin											
	Connector, Q6, 6-pin, DC											
	Cable, PVC, 2 m ⁸⁾											
	Cable with plug, Q7, 7-pin, DC, PVC, 150 mm ⁸⁾											
VDE protection class	□ ⁹⁾											
Circuit protection	V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression											
Enclosure rating	IP 66, IP 67											
	IP 65											
Ambient temperature operation	-40 °C ... +60 °C											
Ambient temperature storage	-40 °C ... +75 °C											
Weight	Approx. 100 g											
	Approx. 180 g											
	Approx. 120 g											
Front screen heating	✓											
Housing material	ABS, PMMA											

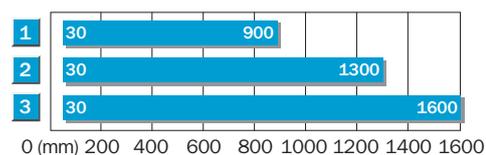
¹⁾ Object with 90 % remission (based on standard white to DIN 5033)
²⁾ Average service life 100,000 h

at T_a = +25 °C
³⁾ Limit values, operation in short-circuit protected network max. 8 A

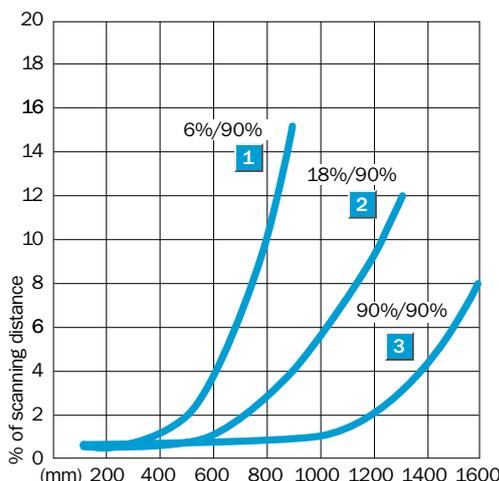
⁴⁾ may not exceed or fall short of V_s tolerances
⁵⁾ without load

⁶⁾ Signal transit time with resistive load
⁷⁾ with light/dark ratio 1:1
⁸⁾ do not bend below 0 °C
⁹⁾ Reference voltage 50 V DC

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

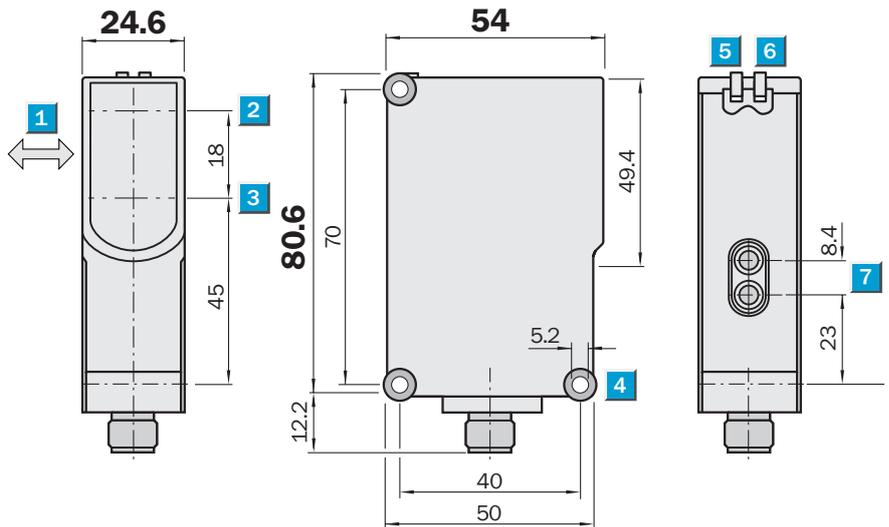
Type	Order no.
WTB27-3E2411	1 027 755
WTB27-3E2611	1 027 757
WTB27-3F2411	1 027 753
WTB27-3F2611	1 027 756
WTB27-3P1111	1 027 752
WTB27-3P2411	1 025 994
WTB27-3P2421	1 027 754
WTB27-3P3711	1 027 758

Scanning distance
30 ... 1,600 mm

Photoelectric proximity switch

- Infrared light, very long scanning distance
- Easy Teach-in, simple and fast commissioning
- Reliable in industrial environments; secure against the effects of ambient light, unwanted optical reflections, other sensors mounted adjacently and temperatures from -40 °C ... +60 °C

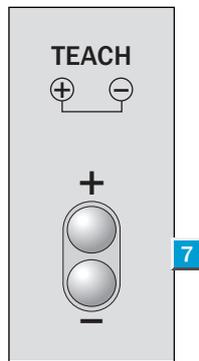
Dimensional drawing



Adjustments possible

- WTB27-3N2413
- WTB27-3P1113
- WTB27-3P2413

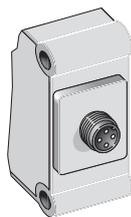
- 1 Standard direction of the material being scanned
- 2 Optical axis sender
- 3 Optical axis receiver
- 4 Mounting hole Ø 5.2 mm
- 5 LED indicator green; power on
- 6 LED indicator yellow; status of received light beam
- 7 Adjustment of scanning distance: double teach button



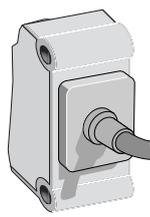
Connection type

- WTB27-3N2413
- WTB27-3P2413

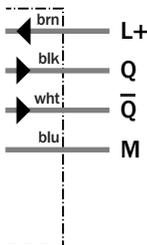
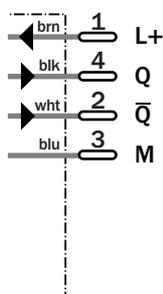
WTB27-3P1113



M12, 4-pin



4 x 0.25 mm²



- See chapter Accessories**
- Connector, M12, 4-pin
 - Mounting systems
 - Weather protection

Technical data		WTB27-3	N2413	P1113	P2413								
Scanning distance typ. max.	30 ... 1,600 mm ¹⁾												
Operating distance	100 ... 1,600 mm ¹⁾												
Adjustment of operating distance	Teach-in: double teach button												
Light source, light type	LED, Infrared light, 880 nm ²⁾												
Light spot diameter	Approx. 25 mm at 800 mm distance												
Supply voltage V_s	10 ... 30 V DC ³⁾												
Ripple	$\leq 5 V_{pp}$ ⁴⁾												
Power consumption	$\leq 40 \text{ mA}$ ⁵⁾												
Switching outputs	NPN antivalent												
	PNP antivalent												
Signal voltage PNP HIGH / LOW	$> V_s - 2.5 \text{ V}$ / approx. 0 V												
Signal voltage NPN HIGH / LOW	Approx. V_s / $< 2.5 \text{ V}$												
Output current I_a max	100 mA												
Response time	$\leq 1.5 \text{ ms}$ ⁶⁾												
Switching frequency	350 Hz ⁷⁾												
Connection type	Connector, M12, 4-pin												
	Cable, PVC, 2 m ⁸⁾												
VDE protection class	\square ⁹⁾												
Circuit protection	V_s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression												
Enclosure rating	IP 66, IP 67												
Ambient temperature operation	-40 °C ... +60 °C												
Ambient temperature storage	-40 °C ... +75 °C												
Weight	Approx. 100 g												
	Approx. 180 g												
Housing material	ABS, PMMA												

¹⁾ Object with 90 % remission (based on standard white to DIN 5033)

²⁾ Average service life 100,000 h

at $T_a = +25 \text{ °C}$

³⁾ Limit values, operation in short-circuit protected network max. 8 A

⁴⁾ may not exceed or fall short of V_s tolerances

⁵⁾ without load

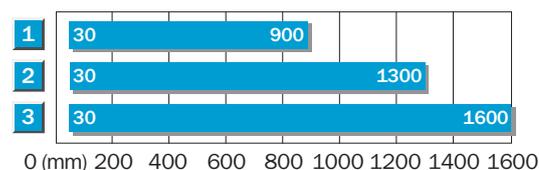
⁶⁾ Signal transit time with resistive load

⁷⁾ with light/dark ratio 1:1

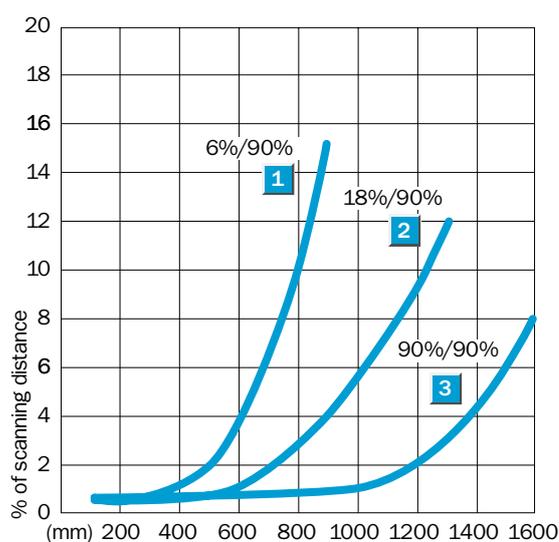
⁸⁾ do not bend below 0 °C

⁹⁾ Reference voltage 50 V DC

Scanning distance



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



Ordering information

Type	Order no.
WTB27-3N2413	1 027 761
WTB27-3P1113	1 027 759
WTB27-3P2413	1 027 760

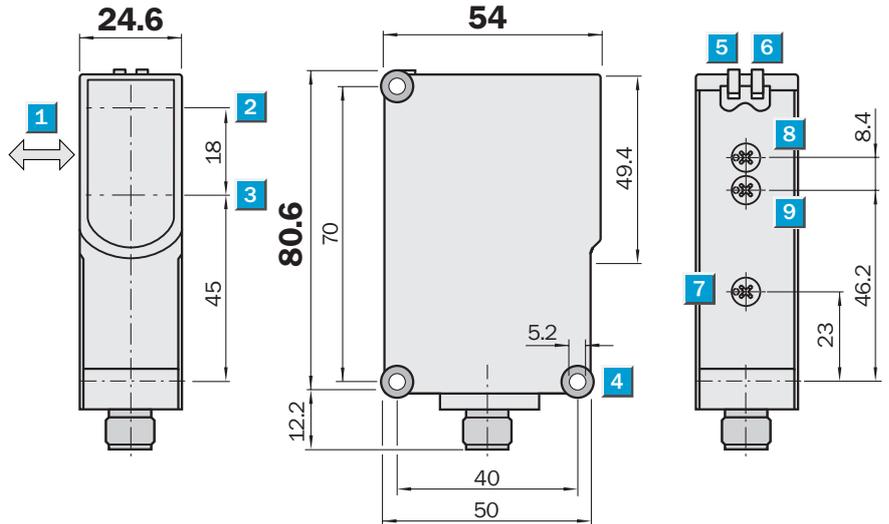
Scanning distance
30 ... 1,600 mm

Photoelectric proximity switch

- Universal supply voltage
- Infrared light, very long scanning distance
- Reliable in industrial environments; secure against the effects of ambient light, unwanted optical reflections, other sensors mounted adjacently and temperatures from -40 °C ... +60 °C
- Time delays

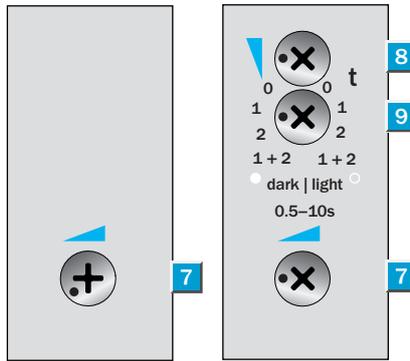


Dimensional drawing



Adjustments possible

WTB27-3S1511	WTB27-3R2611
WTB27-3S3711	



- 1 Standard direction of the material being scanned
- 2 Optical axis sender
- 3 Optical axis receiver
- 4 Mounting hole Ø 5.2 mm
- 5 LED indicator green; power on
- 6 LED indicator yellow; status of received light beam
- 7 Adjustment of scanning distance: Poti
- 8 Time control
- 9 Time delay selector switch
- 0 Light-switching (L)
- Dark-switching (D)

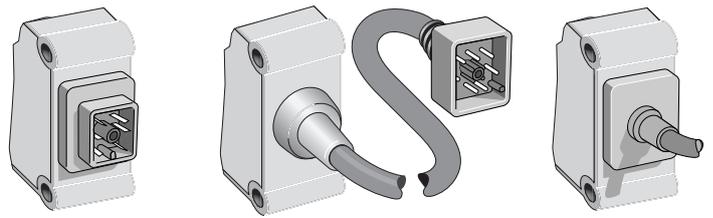
Switch-selectable time delay

D L	0.5 - 10s
0 0	Without time delay
2 1	Time delay from trailing edge of object
1 2	Time delay from leading edge of object
1 + 2	Time delay from trailing and leading edge of object

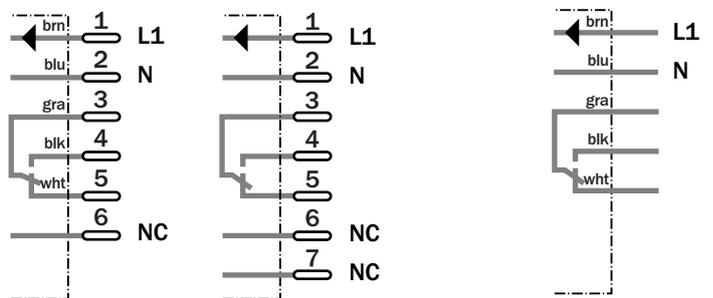


Connection type

WTB27-3R2611	WTB27-3S3711	WTB27-3S1511
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Q6, 6-pin, AC/UC Q7, 7-pin, AC/UC 5 x 0.25 mm²



See chapter Accessories*

Connector, Q6, 6-pin, UC-coding

Connector, Q7, 7-pin, UC-coding

Mounting systems

Weather protection

* Recommendation for connectors:
AWM Style 2464

Technical data		WTB27-3	R2611	S1511	S3711								
Scanning distance typ. max.	30 ... 1,600 mm ¹⁾												
Operating distance	100 ... 1,600 mm ¹⁾												
Adjustment of operating distance	Potentiometer												
Light source, light type	LED, Infrared light, 880 nm ²⁾												
Light spot diameter	Approx. 25 mm at 800 mm distance												
Supply voltage V _s	24 ... 240 V UC ³⁾												
Switching outputs	Relay 1 x c/o, electrically isolated ⁴⁾												
	Relay 1 x c/o, electrically isolated ⁵⁾												
Switching mode	Light-/dark-switching, switchable												
	Light-switching												
Power consumption	≤ 2.5 VA												
Max. switching voltage	250 V AC / 250 V DC (max. 0.11A)												
Switching current max.	3 A @ 250 V AC o. 24 V DC ⁶⁾												
Max. switching power	750 W AC / 72 W DC												
Response time	≤ 10 ms												
Switching frequency	10 Hz ⁷⁾												
Time delay	Selectable: 0.5...10s												
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}												
Connection type	Connector, Q6, 6-pin, AC/UC												
	Cable, PVC, 2 m ⁸⁾												
	Cable with plug, Q7, 7-pin, AC/UC, PVC, 150 mm ⁸⁾												
VDE protection class	□ ⁹⁾												
Circuit protection	V _s connections reverse-polarity protected / Interference suppression												
Enclosure rating	IP 65												
	IP 66, IP 67												
Ambient temperature operation	-40 °C ... +60 °C ¹⁰⁾												
Ambient temperature storage	-40 °C ... +75 °C												
Weight	Approx. 120 g												
	Approx. 200 g												
	Approx. 140 g												
Housing material	ABS, PMMA												

¹⁾ Object with 90 % remission (based on standard white to DIN 5033)

²⁾ Average service life 100,000 h at T_a = +25 °C

³⁾ ± 10%

⁴⁾ Provide suitable spark suppression for inductive or capacitive loads. Relay contacts are separated from the power supply by basic isolation of 3 mm. Depending on the application, additional

isolation might have to be applied in the user's circuit

⁵⁾ Provide suitable spark suppression for inductive or capacitive loads

⁶⁾ Usage category to EN 60947-1,

AC-15, DC-13

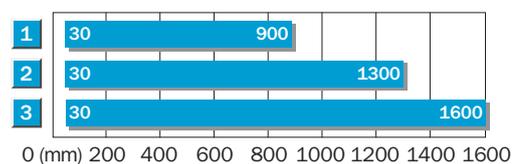
⁷⁾ with light/dark ratio 1:1

⁸⁾ do not bend below 0 °C

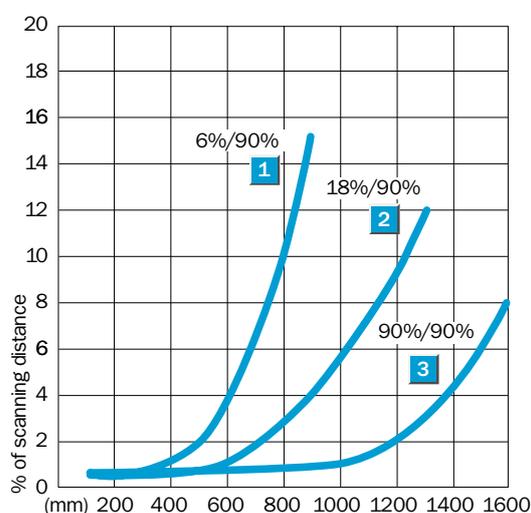
⁹⁾ Reference voltage 250 V AC

¹⁰⁾ UL: 0 °C ... +60 °C

Scanning distance



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



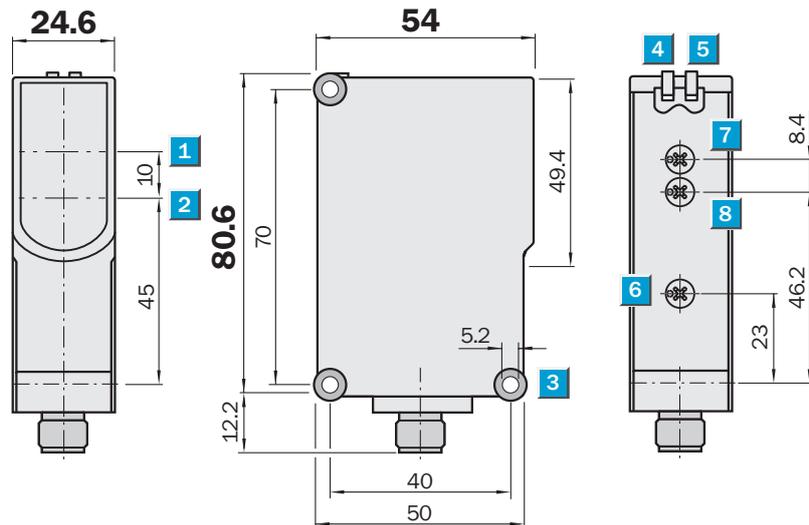
Order information

Type	Order no.
WTB27-3R2611	1 027 763
WTB27-3S1511	1 027 762
WTB27-3S3711	1 027 764


Scanning range
0.1 ... 15 m
Photoelectric reflex switch

- Red light for easier alignment
- Long range, high operating reserve
- Reliable in industrial environments; secure against the effects of ambient light, other sensors mounted adjacently and temperatures from -40 °C ... +60 °C
- Front screen heating, time delays

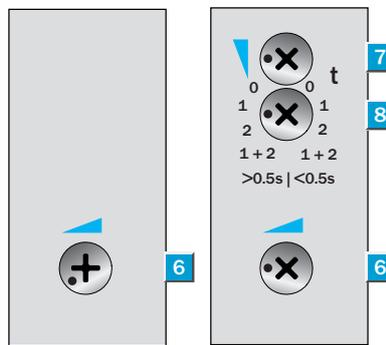
Dimensional drawing



Adjustments possible

WL27-3P1131	WL27-3E2631
WL27-3P2431	WL27-3F2631
WL27-3P2451	

- 1 Optical axis sender
- 2 Optical axis receiver
- 3 Mounting hole Ø 5.2 mm
- 4 LED indicator green; power on
- 5 LED indicator yellow; status of received light beam
- 6 Sensitivity adjustment: Poti
- 7 Time control
- 8 Time delay selector switch



Switch-selectable time delay

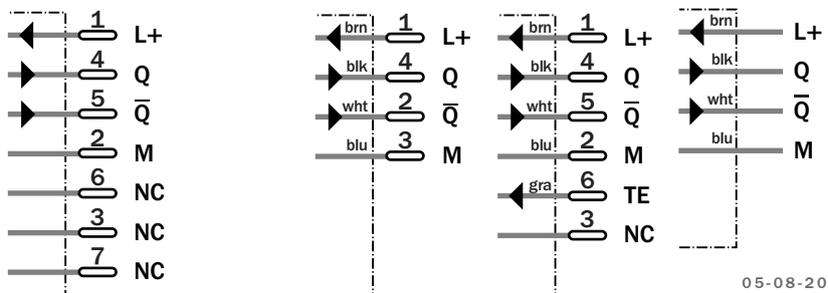
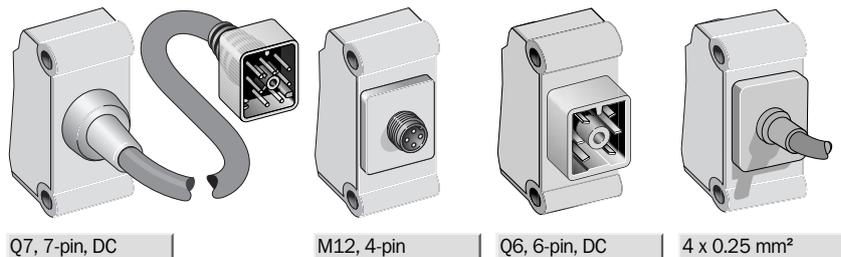
0.02 - 0.5s or 0.5 - 10s

- 0 Without time delay
- 1 Time delay from trailing edge of object
- 2 Time delay from leading edge of object
- 1 + 2 Time delay from trailing and leading edge of object



Connection type

WL27-3P3730	WL27-3P2430	WL27-3E2631	WL27-3P1131
	WL27-3P2431	WL27-3F2631	
	WL27-3P2450		
	WL27-3P2451		



See chapter Accessories

Connector, M12, 4-pin
Connector, Q6, 6-pin, DC-coding
Connector, Q7, 7-pin, DC-coding
Mounting systems
Reflectors
Weather protection

Technical data		WL27-3	E2631	F2631	P1131	P2430	P2431	P2450	P2451	P3730		
Scanning range typ. max.	0.1 ... 15 m											
Scanning range, recommended	0.1 ... 11 m											
Relating to	Reflector PL80 A											
Sensitivity adjustment	Potentiometer											
Light source, light type	LED, Red light, 660 nm ¹⁾											
Light spot diameter	Approx. 220 mm at 10 m distance											
Angle of dispersion	Approx. 1.5 °											
Polarisation filter	✓											
Supply voltage V _s	10 ... 30 V DC ²⁾											
Ripple	≤ 5 V _{pp} ³⁾											
Power consumption	≤ 45 mA ⁴⁾											
	≤ 30 mA ⁴⁾											
Switching outputs	NPN antivalent											
	PNP antivalent											
Signal voltage PNP HIGH / LOW	> V _s - 2.5 V / approx. 0 V											
Signal voltage NPN HIGH / LOW	Approx. V _s / < 2.5 V											
Output current I _a max	100 mA											
Response time	≤ 500 μs ⁵⁾											
Switching frequency	1,000 Hz ⁶⁾											
Time delay	Selectable: 0.5 ... 10 s / 0.02 ... 0.5 s											
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}											
Test input sender off	TE to V _s											
	TE to 0 V											
Connection type	Connector, Q6, 6-pin, DC											
	Cable, PVC, 2 m ⁷⁾											
	Connector, M12, 4-pin											
	Cable with plug, Q7, 7-pin, DC, PVC,											
VDE protection class	□ ⁸⁾											
Circuit protection	V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression											
Enclosure rating	IP 65											
	IP 66, IP 67											
Ambient temperature operation	-40 °C ... +60 °C											
Ambient temperature storage	-40 °C ... +75 °C											
Weight	Approx. 100 g											
	Approx. 180 g											
	Approx. 120 g											
Front screen heating	✓											
Housing material	ABS, PMMA											

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

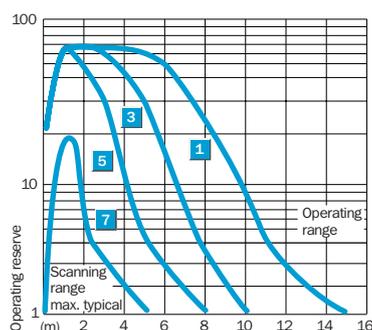
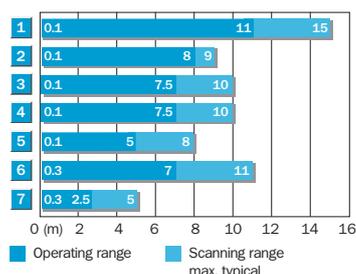
²⁾ Limit values, operation in short-circuit

³⁾ protected network max. 8 A
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

Scanning range and operating reserve



Reflector type	Operating range
1 PL 80 A	0.1 ... 11.0 m
2 PL 50 A	0.1 ... 8.0 m
3 PL 40 A	0.1 ... 7.5 m
4 PL 30 A	0.1 ... 7.5 m
5 PL 20 A	0.1 ... 5.0 m
6 C 110	0.3 ... 7.0 m
7 Reflective tape Diamond Grade	0.3 ... 2.5 m

Order information

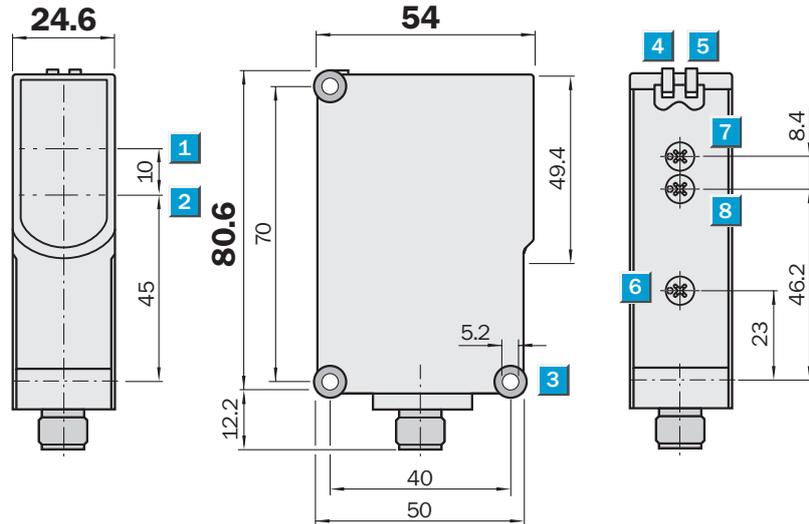
Type	Order no.
WL27-3E2631	1 027 773
WL27-3F2631	1 027 772
WL27-3P1131	1 027 768
WL27-3P2430	1 027 769
WL27-3P2431	1 027 982
WL27-3P2450	1 027 771
WL27-3P2451	1 027 770
WL27-3P3730	1 027 774

Photoelectric reflex switch, WL27-3, red light - UC


Scanning range
0.1 ... 15 m
Photoelectric reflex switch

- Universal supply voltage
- Red light for easier alignment
- Reliable in industrial environments; secure against the effects of ambient light, other sensors mounted adjacently and temperatures from -40 °C ... +60°C
- Time delays

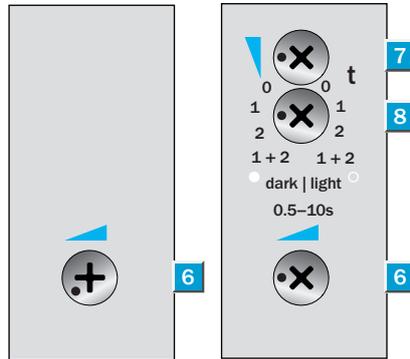
Dimensional drawing



Adjustments possible

WL27-3S1531
 WL27-3S3731

WL27-3R2631



- 1 Optical axis sender
- 2 Optical axis receiver
- 3 Mounting hole Ø 5.2 mm
- 4 LED indicator green; power on
- 5 LED indicator yellow; status of received light beam
- 6 Sensitivity adjustment: Poti
- 7 Time control
- 8 Time delay selector switch
- 0 Light-switching (L)
- Dark-switching (D)



Switch-selectable time delay

D L	0.5 - 10s
0 0	Without time delay
2 1	Time delay from trailing edge of object
1 2	Time delay from leading edge of object
1 + 2	Time delay from trailing and leading edge of object



Connection type

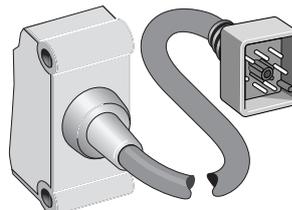
WL27-3R2631

WL27-3S3731

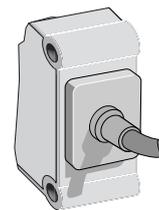
WL27-3S1531



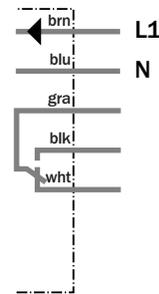
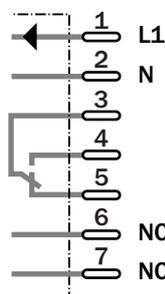
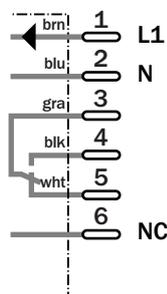
Q6, 6-pin, AC/UC



Q7, 7-pin, AC/UC



5 x 0.25 mm²



See chapter Accessories*

- Connector, Q6, 6-pin, UC-coding
- Connector, Q7, 7-pin, UC-coding
- Mounting systems
- Reflectors
- Weather protection

* Recommendation for connectors:

AWM Style 2464

Technical data		WL27-3	R2631	S1531	S3731						
Scanning range typ. max.	0.1 ... 15 m										
Scanning range, recommended	0.1 ... 11 m										
Relating to	Reflector PL80 A										
Sensitivity adjustment	Potentiometer										
Light source, light type	LED, Red light, 660 nm ¹⁾										
Light spot diameter	Approx. 220 mm at 10 m distance										
Angle of dispersion	Approx. 1.5 °										
Polarisation filter	✓										
Supply voltage V_s	24 ... 240 V UC ²⁾										
Switching outputs	Relay 1 x c/o, electrically isolated ³⁾										
	Relay 1 x c/o, electrically isolated ⁴⁾										
Switching mode	Light-/dark-switching, selectable										
	Light-switching										
Power consumption	≤ 2.5 VA										
Max. switching voltage	250 V AC / 250 V DC (max. 0.11 A)										
Switching current max.	3 A @ 250 V AC o. 24 V DC ⁵⁾										
Max. switching power	750 W AC / 72 W DC										
Response time	≤ 10 ms										
Switching frequency	10 Hz ⁶⁾										
Time delay	Selectable: 0.5 ... 10 s										
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}										
Connection type	Connector, Q6, 6-pin, AC/UC										
	Cable, PVC, 2 m ⁷⁾										
	Cable with plug, Q7, 7-pin, AC/UC, PVC, 150 mm ⁷⁾										
VDE protection class	□ ⁸⁾										
Circuit protection	V _s connections reverse-polarity protected / Interference suppression										
Enclosure rating	IP 65										
	IP 66, IP 67										
Ambient temperature operation	-40 °C ... +60 °C ⁹⁾										
Ambient temperature storage	-40 °C ... +75 °C										
Weight	Approx. 120 g										
	Approx. 200 g										
	Approx. 140 g										
Housing material	ABS, PMMA										

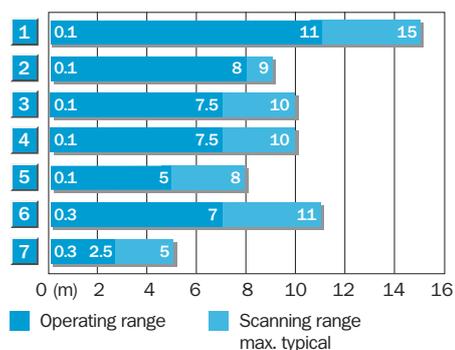
¹⁾ Average service life 100,000 h at T_a = +25 °C
²⁾ ± 10 %
³⁾ Provide suitable spark suppression for

inductive or capacitive loads. Relay contacts are separated from the power supply by a basic isolation of 3 mm. Depending on the application, additional

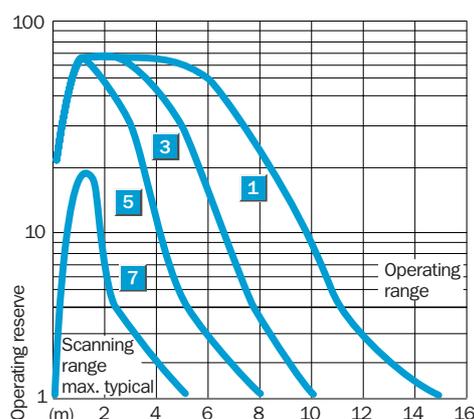
isolation might have to be applied in the user's circuit
⁴⁾ Provide suitable spark suppression for inductive or capacitive loads

⁵⁾ Usage category to EN 60947-1, AC-15, DC-13
⁶⁾ with light/dark ratio 1:1
⁷⁾ do not bend below 0 °C
⁸⁾ Reference voltage 250 V AC

Scanning range and operating reserve



Reflector type	Operating range
1	PL 80 A
2	PL 50 A
3	PL 40 A
4	PL 30 A
5	PL 20 A
6	C 110
7	Reflective tape Diamond Grade



Order information

Type	Order no.
WL27-3R2631	1 027 776
WL27-3S1531	1 027 775
WL27-3S3731	1 027 777

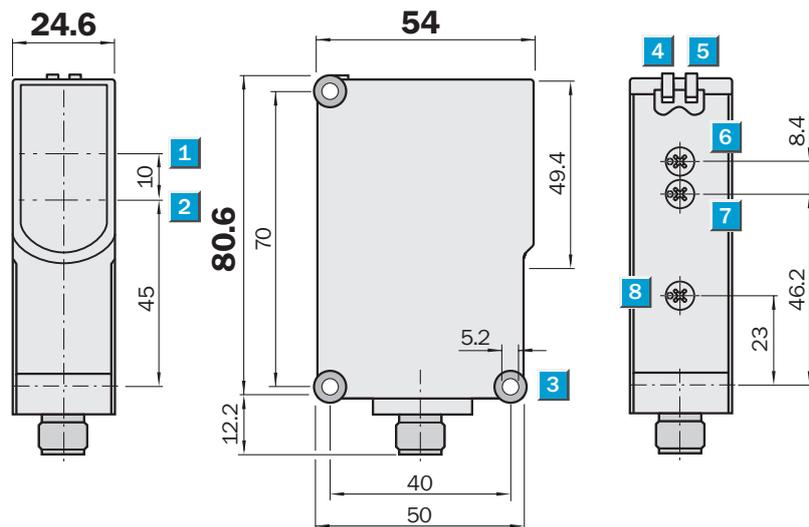
Through-beam photoelectric switch, WSE27-3, red light - DC

Scanning range
0 ... 35 m

Through-beam photoelectric switch

- Red light for easier alignment
- Long range, high operating reserve
- Reliable in industrial environments; secure against the effects of ambient light and temperatures from -40 °C ... +60 °C
- Alarm output, front screen heating, test input, time delays

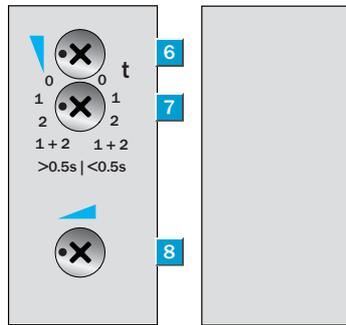
Dimensional drawing



Adjustments possible

WSE27-3E2631	WSE27-3P2430
WSE27-3F2631	WSE27-3P2450
	WSE27-3P3730

- 1 Optical axis sender
- 2 Optical axis receiver
- 3 Mounting hole \varnothing 5.2 mm
- 4 LED indicator green; power on
- 5 LED indicator yellow; status of received light beam
- 6 Time control
- 7 Time delay selector switch
- 8 Sensitivity adjustment: Poti



Switch-selectable time delay

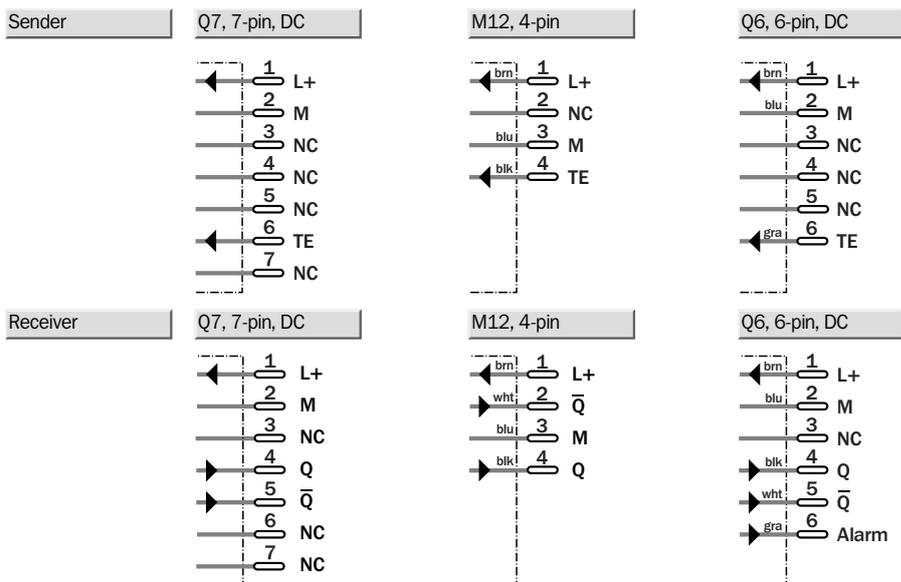
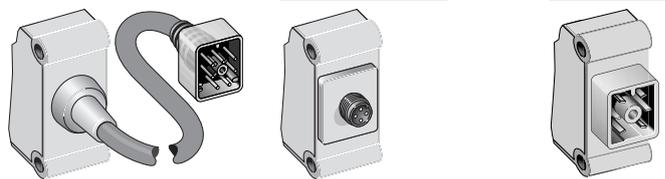
0.02 - 0.5s or 0.5 - 10s

- 0 Without time delay
- 1 Time delay from trailing edge of object
- 2 Time delay from leading edge of object
- 1 + 2 Time delay from trailing and leading edge of object



Connection type

WSE27-3P3730	WSE27-3P2430 WSE27-3P2450	WSE27-3E2631 WSE27-3F2631
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See chapter Accessories

Connector, M12, 4-pin
Connector, Q6, 6-pin, DC-coding
Connector, Q7, 7-pin, DC-coding
Mounting systems
Weather protection

Technical data		WSE27-3	E2631	F2631	P2430	P2450	P3730						
Scanning range typ. max.	0 ... 35 m												
Scanning range, recommended	0 ... 25 m												
Sensitivity adjustment	Potentiometer												
Light source, light type	LED, Red light, 645 nm ¹⁾												
Light spot diameter	Approx. 600 mm at 25 m distance												
Angle of dispersion	Approx. 1.5 °												
Angle of reception	Approx. 3 °												
Supply voltage V _s	10 ... 30 V DC ²⁾												
Ripple	≤ 5 V _{pp} ³⁾												
Power consumption, sender	≤ 35 mA without front screen heating												
	≤ 50 mA with front screen heating												
Power consumption, receiver	≤ 20 mA without front screen heating ⁴⁾												
	≤ 35 mA with front screen heating ⁴⁾												
Switching outputs	NPN antivalent												
	PNP antivalent												
Signal voltage PNP HIGH / LOW	> V _s - 2.5 V / approx. 0 V												
Signal voltage NPN HIGH / LOW	Approx. V _s / < 2.5 V												
Output current I _a max	100 mA												
Response time	≤ 500 μs ⁵⁾												
Switching frequency	1,000 Hz ⁶⁾												
Time delay	Selectable: 0.5 ... 10 s / 0.02 ... 0.5 s												
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}												
Test input sender off	TE to 0 V												
Alarm output	Alarm ⁷⁾												
Connection type	Connector, Q6, 6-pin, DC												
	Connector, M12, 4-pin												
	Cable with plug, Q7, 7-pin, DC, PVC, 150 mm ⁸⁾												
VDE protection class	□ ⁹⁾												
Circuit protection	V _s connections reverse-polarity protected / All outputs short-circuit protected / Interference suppression												
Enclosure rating	IP 65												
	IP 66, IP 67												
Ambient temperature operation	-40 °C ... +60 °C												
Ambient temperature storage	-40 °C ... +75 °C												
Weight	Approx. 200 g												
	Approx. 240 g												
Front screen heating	✓												
Housing material	ABS, PMMA												

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

²⁾ Limit values, operation in short-circuit

protected network max. 8 A
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

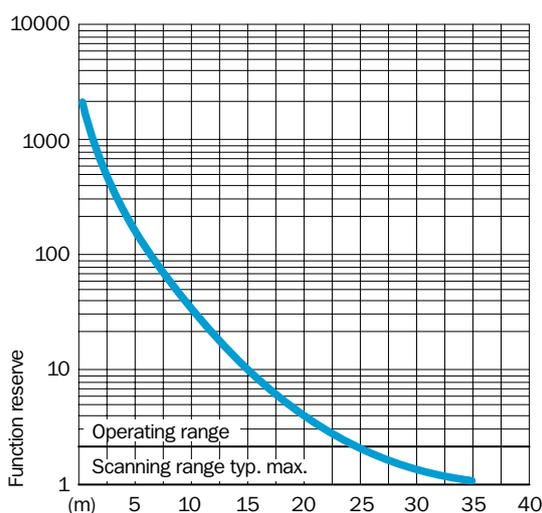
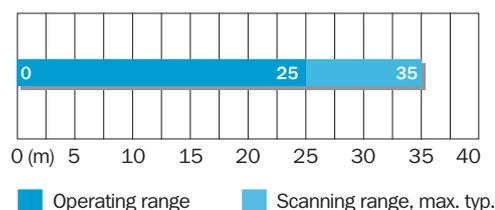
⁷⁾ NPN: Signal reserve > 50 % HIGH.

PNP: Signal reserve > 50 % LOW

⁸⁾ do not bend below 0 °C

⁹⁾ Reference voltage 50 V DC

Scanning range and operating reserve



Order information

Type	Order no.
WSE27-3E2631	1 027 793
WSE27-3F2631	1 027 792
WSE27-3P2430	1 027 790
WSE27-3P2450	1 027 791
WSE27-3P3730	1 027 794

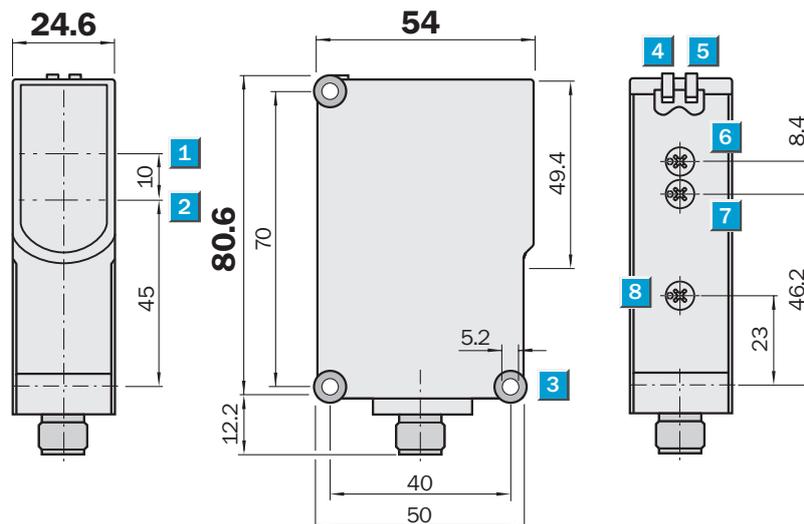
Through-beam photoelectric switch, WSE27-3, red light - UC

Scanning range
0 ... 35 m

Through-beam photoelectric switch

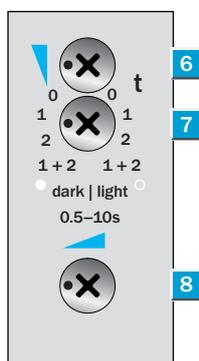
- Universal supply voltage
- Red light for easier alignment
- Long range, high operating reserve
- Reliable in industrial environments; secure against the effects of ambient light and temperatures from -40 °C ... +60 °C
- Time delays

Dimensional drawing



Adjustments possible

WSE27-3R2631



- 1 Optical axis sender
- 2 Optical axis receiver
- 3 Mounting hole Ø 5.2 mm
- 4 LED indicator green; power on
- 5 LED indicator yellow; status of received light beam
- 6 Time control
- 7 Time delay selector switch
- 8 Sensitivity adjustment: Poti
- 0 Light-switching (L)
- Dark-switching (D)

Switch-selectable time delay

D L	0.5 - 10s
0 0	Without time delay
2 1	Time delay from trailing edge of object
1 2	Time delay from leading edge of object
1 + 2	Time delay from trailing and leading edge of object

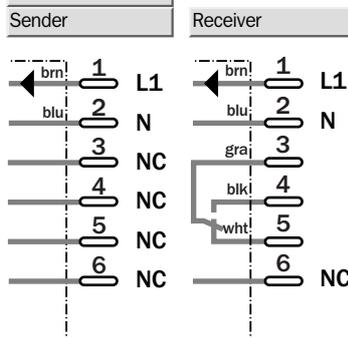


Connection type

WSE27-3R2631



Q6, 6-pin, AC/UC



See chapter Accessories*

Connector, Q6, 6-pin, UC-coding

Mounting systems

Weather protection

* Recommendation for connectors:

AWM Style 2464

Technical data		WSE27-3	R2631												
Scanning range typ. max.	0 ... 35 m														
Scanning range, recommended	0 ... 25 m														
Sensitivity adjustment	Potentiometer														
Light source, light type	LED, Red light, 645 nm ¹⁾														
Light spot diameter	Approx. 600 mm at 25 m distance														
Angle of dispersion	Approx. 1.5 °														
Angle of reception	Approx. 3 °														
Supply voltage V_s	24 ... 240 V UC ²⁾														
Switching outputs	Relay 1 x c/o, electrically isolated ³⁾														
Switching mode	Light-/dark-switching, selectable														
Power consumption, sender	≤ 2 VA														
Power consumption, receiver	≤ 2.5 VA														
Max. switching voltage	250 V AC / 250 V DC (max. 0.11 A)														
Switching current max.	3 A @ 250 V AC o. 24 V DC ⁴⁾														
Max. switching power	750 AC / 72 W DC														
Response time	≤ 10 ms ⁵⁾														
Switching frequency	10 Hz ⁶⁾														
Time delay	Selectable: 0.5 ... 10 s														
Time type	OFF, T _{off} , T _{on} , T _{off} + T _{on}														
Connection type	Connector, Q6, 6-pin, AC/UC														
VDE protection class	□ ⁷⁾														
Circuit protection	V _s connections reverse-polarity protected / Interference suppression														
Enclosure rating	IP 65														
Ambient temperature operation	-40 °C ... +60 °C ⁸⁾														
Ambient temperature storage	-40 °C ... +75 °C														
Weight	Approx. 240 g														
Housing material	ABS, PMMA														

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

²⁾ ± 10 %

³⁾ Provide suitable spark suppression for

inductive or capacitive loads. Relay contacts are separated from the power supply by a basic isolation of 3 mm. Depending on the application, additional

isolation might have to be applied in the user's circuit

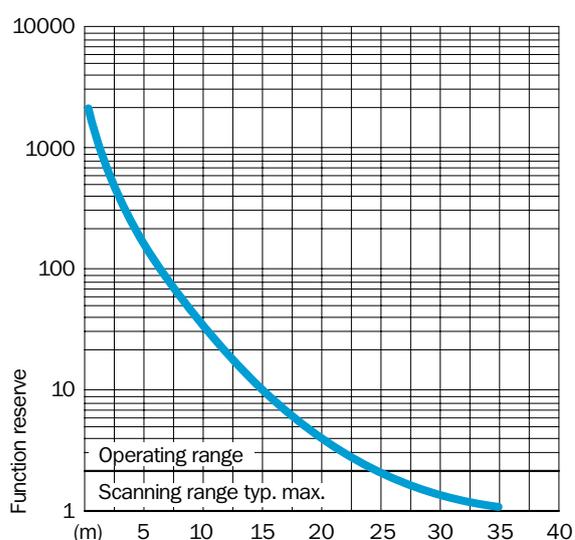
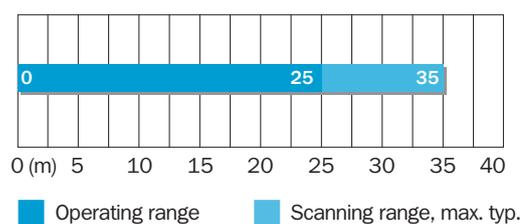
⁴⁾ Usage category to EN 60947-1, AC-15, DC-13

⁵⁾ Signal transit time with resistive load

⁶⁾ with light/dark ratio 1:1

⁷⁾ Reference voltage 250 V AC

⁸⁾ UL: 0 °C ... +60 °C



Order information

Type	Order no.
WSE27-3R2631	1 027 795