

W 11: Economic and Reliable

	Photoelectric proximity switch BGS
	Photoelectric proximity switch ener.
	Photoelectric reflex switch



All W11 sensors have visible red sender diodes as standard. This visible light spot allows the sensors to align with the object rapidly and reliably. The 4-pole M12 device plug or the 2 m cable are also included in the standard option, as well as the 800 Hz switching frequency or the short-circuit protected switching outputs. The WL11 UC photoelectric reflex switch probably offers today's most compact photoelectric switch with relay output.

The essential requirements of a sensor in standard applications are economy and reliability. Series

W11 fulfils these requirements.

W11 options:

- Photoelectric reflex switch WL11 with 7 m range,
- Photoelectric reflex switch WL11 "Glass detection" with maximum range 4 m,
- Photoelectric proximity switch with background suppression and maximum scanning distance 250 mm,
- Photoelectric proximity switch with foreground suppression and maximum scanning distance 100 mm,
- Energetic photoelectric proximity switch with maximum scanning distance 1000 mm.

The Series W11 sensors fulfil the test requirements of

ECOLAB

ECOLAB certifies that material resistance tests with cleaning agents and disinfectants in common use in the food-processing sector, were successfully completed.

Thanks to their reliability W11 sensors are routinely installed in typical application areas, such as the packaging industry, food and drinks, and the electronics and textile industries.

▼ Reliable detection of transparent objects like e.g. bottles with WL11G photoelectric reflex switch.



▲ WL11 Easy monitoring of doors and gates with WL11 photoelectric reflex switch.



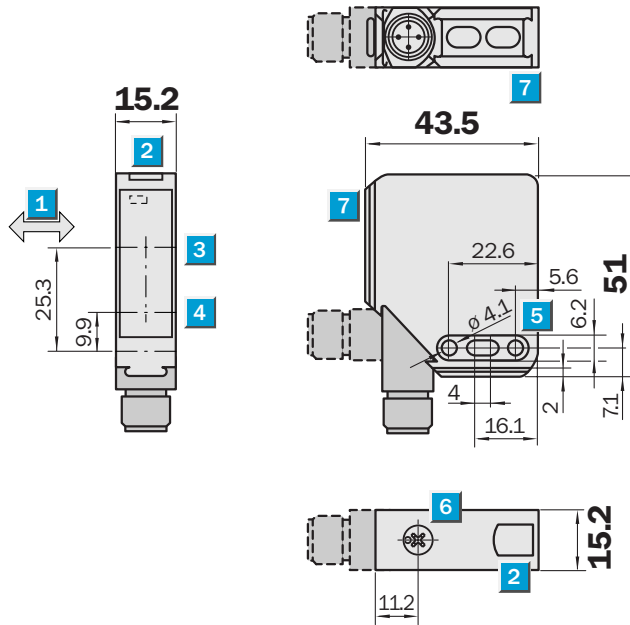
◀ WL11 as trigger reflex switch. In presence of available products a bar code scanner is activated.

Scanning distance
35 ... 100 mm

Photoelectric proximity switch

- Red light
- Insensitive to ambient light sources
- M12 plug rotatable by 90° or 2 m cable
- Adjustable foreground suppression
- ECOLAB material resistance tests

Dimensional drawing



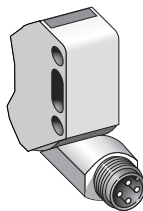
Adjustments possible



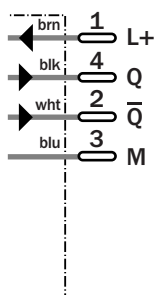
- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis sender
- 4 Optical axis receiver
- 5 Mounting holes \varnothing 4.1 mm
- 6 Scanning distance adjuster
- 7 Dovetail

Connection type

WT11-P440



M12, 4-pin



See chapter Accessories
Connector, M12, 4-pin
Mounting systems

Technical specifications		WT11-	P440											
Operating distance	35 ... 100 mm													
Adjustment of operating distance	Potentiometer													
Light source, light type	LED, Red light ¹⁾													
Supply voltage V_s	10 ... 30 V DC ²⁾													
Ripple	$\leq 5 V_{SS}$ ³⁾													
Power consumption	$\leq 30 \text{ mA}$ ⁴⁾													
Switching outputs	PNP antivalent													
Output current I_a max	$< 100 \text{ mA}$													
Response time	$\leq 625 \mu\text{s}$ ⁵⁾													
Switching frequency	800 Hz ⁶⁾													
Connection type	Connector, M12, 4-pin													
VDE protection class	\square ⁷⁾													
Circuit protection	V_s connections reverse-polarity protected / Output Q and Q not short-circuit protected / Interference suppression													
Enclosure rating	IP 65													
Ambient temperature operation	-20 °C ... +60 °C													
Ambient temperature storage	-20 °C ... +75 °C													
Housing material	ABS													

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

²⁾ Limit values

³⁾ may not exceed or fall short of

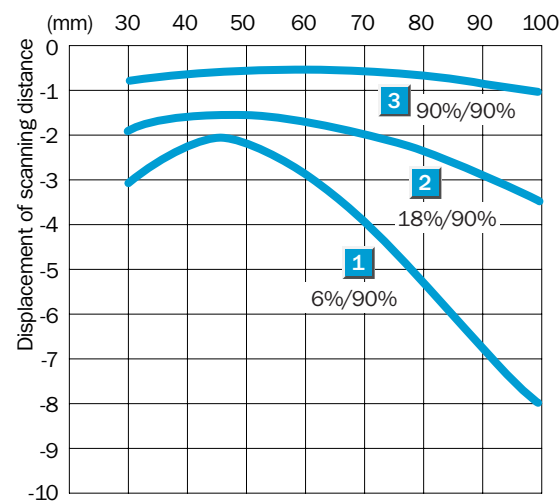
V_s tolerances
⁴⁾ without load

⁵⁾ Signal transit time with resistive load

⁶⁾ with light/dark ratio 1:1

⁷⁾ Reference voltage 50 V DC

Scanning distance



Order information

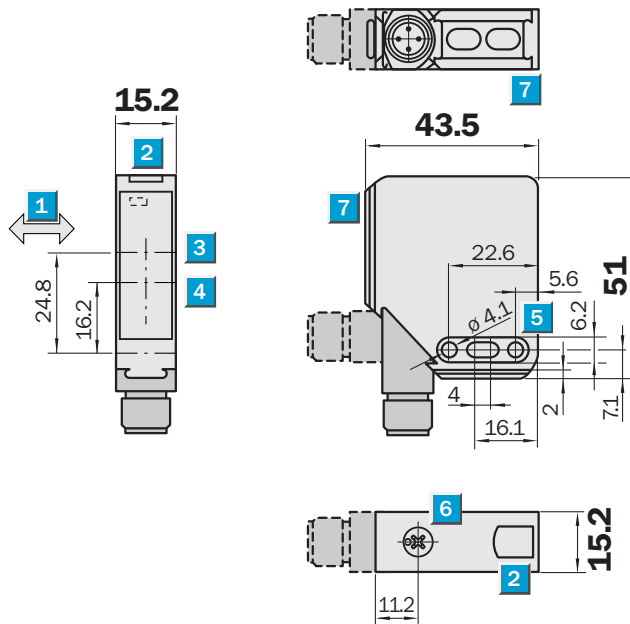
Type	Order No.
WT11-P440	1 022 049

Scanning distance
20 ... 250 mm

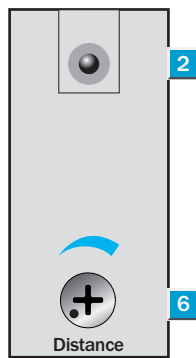
Photoelectric proximity switch

- Red light
- Insensitive to ambient light sources
- M12 plug rotatable by 90° or 2 m cable
- Adjustable background suppression
- ECOLAB material resistance tests

Dimensional drawing



Adjustments possible



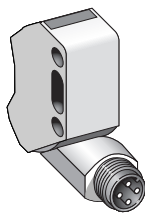
- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis sender
- 4 Optical axis receiver
- 5 Mounting holes \varnothing 4.1 mm
- 6 Scanning distance adjuster
- 7 Dovetail



Connection type

WT11-N430
WT11-P430

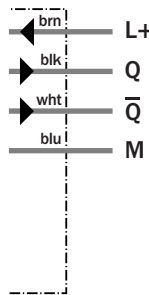
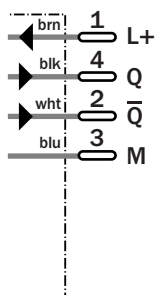
WT11-N130
WT11-P130



M12, 4-pin



4 x 0.25 mm²



See chapter Accessories
Connector, M12, 4-pin
Mounting systems

Technical specifications		WT11-	N130	N430	P130	P430						
Operating distance	20 ... 250 mm ¹⁾											
Adjustment of operating distance	Potentiometer											
Light source, light type	LED, Red light ²⁾											
Light spot diameter	Approx. 10 mm at 200 mm distance											
Supply voltage V_s	10 ... 30 V DC ³⁾											
Ripple	≤ 5 V _{ss} ⁴⁾											
Power consumption	≤ 40 mA ⁵⁾											
	≤ 30 mA ⁵⁾											
Switching outputs	NPN antivalent											
	PNP antivalent											
Output current I _a max	≤ 100 mA											
Response time	≤ 625 μs ⁶⁾											
Switching frequency	800 Hz ⁷⁾											
Connection type	Cable, PVC, 2 m ⁸⁾											
	Connector, M12, 4-pin											
VDE protection class	□ ⁹⁾											
Circuit protection	V _s connections reverse-polarity protected / Output Q and Q not short-circuit protected / Interference suppression											
Enclosure rating	IP 65											
Ambient temperature operation	-20 °C ... +60 °C											
Ambient temperature storage	-20 °C ... +75 °C											
Weight	Approx. 200 g											
	Approx. 120 g											
Housing material	ABS											

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

⁴⁾ may not exceed or fall short of

V_s tolerances

⁵⁾ without load

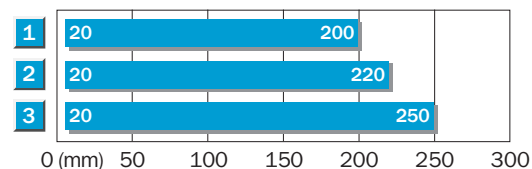
⁶⁾ Signal transit time with resistive load

⁷⁾ with light/dark ratio 1:1

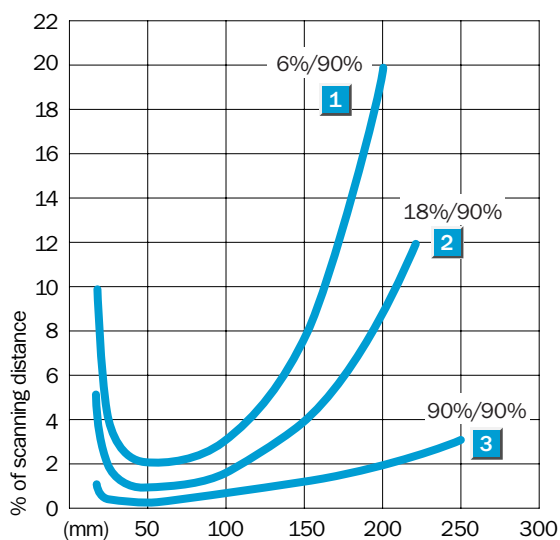
⁸⁾ do not bend below 0 °C

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



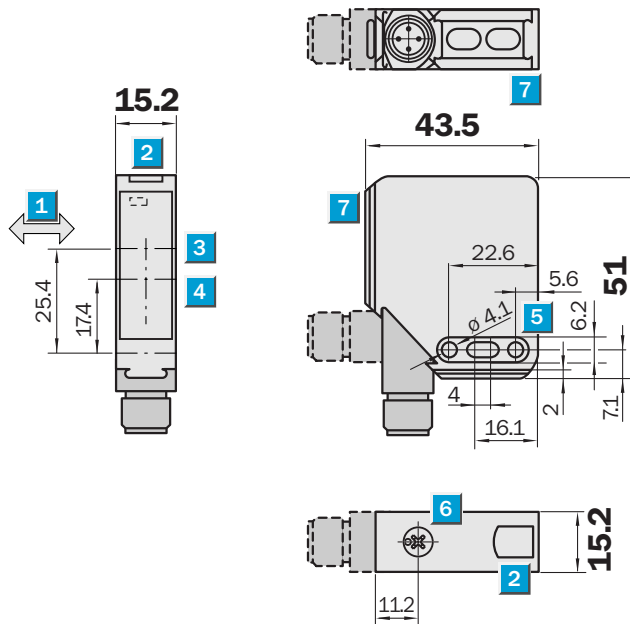
Order information

Type	Order No.
WT11-N130	1 018 684
WT11-N430	1 018 685
WT11-P130	1 018 683
WT11-P430	1 018 511

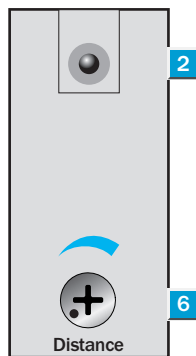

Scanning distance
 10 ... 1,000 mm
Photoelectric proximity switch

- Red light
- Insensitive to ambient light sources
- M12 plug rotatable by 90° or 2 m cable
- Energetic proximity switch, adjustable
- ECOLAB material resistance tests

Dimensional drawing



Adjustments possible



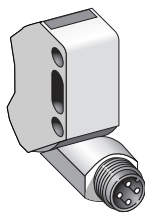
- 1 Standard direction of the material being scanned
- 2 LED signal strength indicator
- 3 Optical axis sender
- 4 Optical axis receiver
- 5 Mounting holes \varnothing 4.1 mm
- 6 Scanning distance adjuster
- 7 Dovetail



Connection type

WT11-N450
WT11-P450

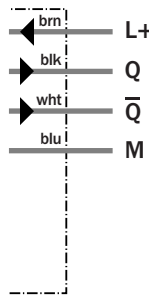
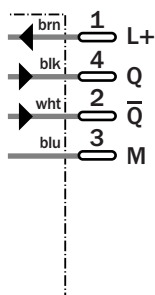
WT11-N150
WT11-P150



M12, 4-pin



4 x 0.25 mm²



See chapter Accessories
 Connector, M12, 4-pin
 Mounting systems

Technical specifications		WT11-	N150	N450	P150	P450						
Scanning distance typ. max.	10 ... 1,000 mm ¹⁾											
Operating distance	80 ... 700 mm ¹⁾											
Adjustment of operating distance	Potentiometer											
Light source, light type	LED, Red light ²⁾											
Light spot diameter	Approx. 30 mm at 600 mm distance											
Supply voltage V _s	10 ... 30 V DC ³⁾											
Ripple	≤ 5 V _{ss} ⁴⁾											
Power consumption	≤ 40 mA ⁵⁾											
	≤ 30 mA ⁵⁾											
Switching outputs	NPN antivalent											
	PNP antivalent											
Output current I _a max	≤ 100 mA											
Response time	≤ 625 μs ⁶⁾											
Switching frequency	800 Hz ⁷⁾											
Connection type	Cable, PVC, 2 m ⁸⁾											
	Connector, M12, 4-pin											
VDE protection class	□ ⁹⁾											
Circuit protection	V _s connections reverse-polarity protected / Output Q and Q not short-circuit protected / Interference suppression											
Enclosure rating	IP 65											
Ambient temperature operation	-20 °C ... +60 °C											
Ambient temperature storage	-20 °C ... +75 °C											
Weight	Approx. 200 g											
	Approx. 120 g											
Housing material	ABS											

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

⁴⁾ may not exceed or fall short of

V_s tolerances

⁵⁾ without load

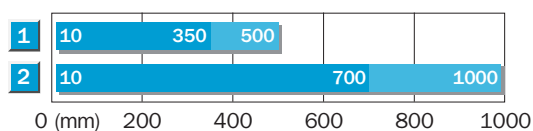
⁶⁾ Signal transit time with resistive load

⁷⁾ with light/dark ratio 1:1

⁸⁾ do not bend below 0 °C

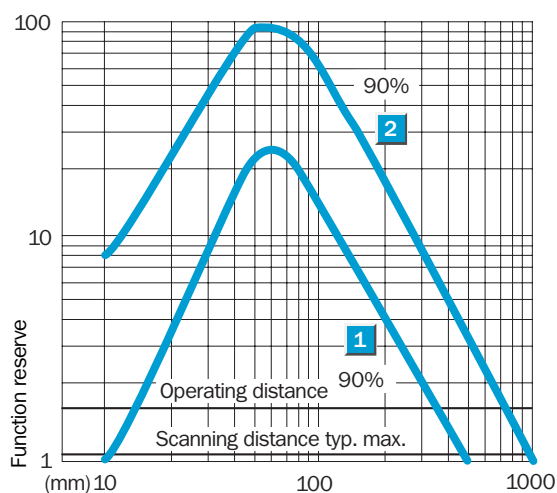
⁹⁾ Reference voltage 50 V DC

Scanning distance




■ Operating distance ■ Limiting scanning distance

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



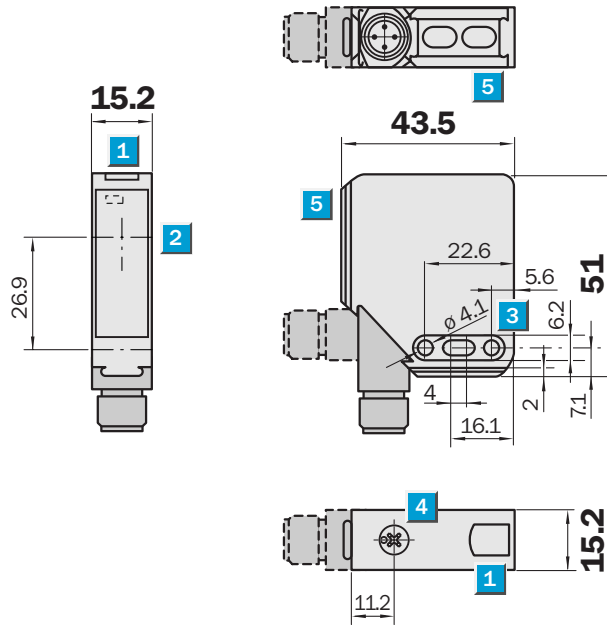
Order information

Type	Order No.
WT11-N150	1 018 688
WT11-N450	1 018 689
WT11-P150	1 018 686
WT11-P450	1 018 687

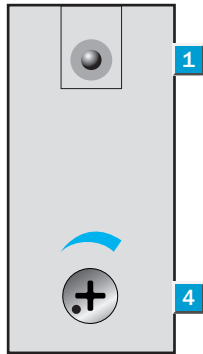

Scanning range
0 ... 7 m
Photoelectric reflex switch

- Red light
- Insensitive to ambient light sources
- M12 plug rotatable by 90° or 2 m cable
- Adjustable sensitivity
- ECOLAB material resistance tests

Dimensional drawing



Adjustments possible



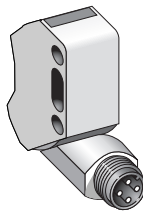
- 1** LED signal strength indicator
- 2** Middle of optical axis
- 3** Mounting holes \varnothing 4.1 mm
- 4** Sensitivity control
- 5** Dovetail



Connection type

WL11-N430
WL11-P430

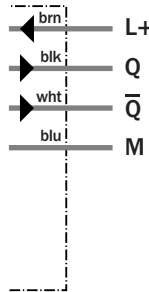
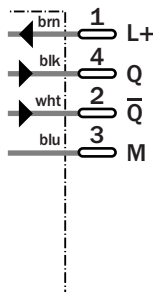
WL11-N130
WL11-P130



M12, 4-pin



4 x 0.25 mm²



See chapter Accessories
 Mounting systems
 Reflectors

Technical specifications		WL11-	N130	N430	P130	P430							
Scanning range typ. max.	0 ... 7 m												
Scanning range, recommended	0 ... 5 m												
Relating to	Reflector PL80A												
Sensitivity adjustment	Potentiometer												
Light source, light type	LED, Red light ¹⁾												
Light spot diameter	Approx. 80 mm at 3 m distance												
Supply voltage V _s	10 ... 30 V DC ²⁾												
Ripple	≤ 5 V _{SS} ³⁾												
Power consumption	≤ 40 mA ⁴⁾												
Switching outputs	NPN antivalent												
	PNP antivalent												
Output current I _a max	≤ 100 mA												
Response time	≤ 625 μs ⁵⁾												
Switching frequency	800 Hz ⁶⁾												
Connection type	Cable, PVC, 2 m ⁷⁾												
	Connector, M12, 4-pin												
VDE protection class	□ ⁸⁾												
Circuit protection	V _s connections reverse-polarity protected / Output Q and Q not short-circuit protected / Interference suppression												
Enclosure rating	IP 65												
Ambient temperature operation	-20 °C ... +60 °C												
Ambient temperature storage	-20 °C ... +75 °C												
Weight	Approx. 200 g												
	Approx. 120 g												
Housing material	ABS												

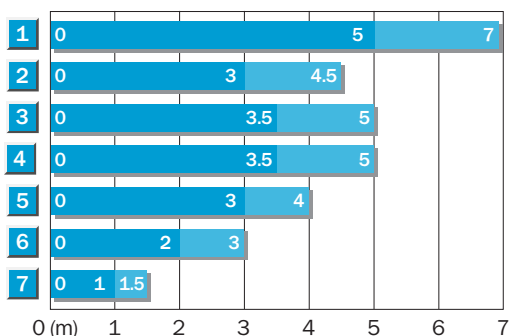
¹⁾ Average service life 100,000 h at T_a = +25 °C
²⁾ Limit values

³⁾ may not exceed or fall short of V_s tolerances
⁴⁾ without load

⁵⁾ Signal transit time with resistive load
⁶⁾ with light/dark ratio 1:1
⁷⁾ do not bend below 0 °C

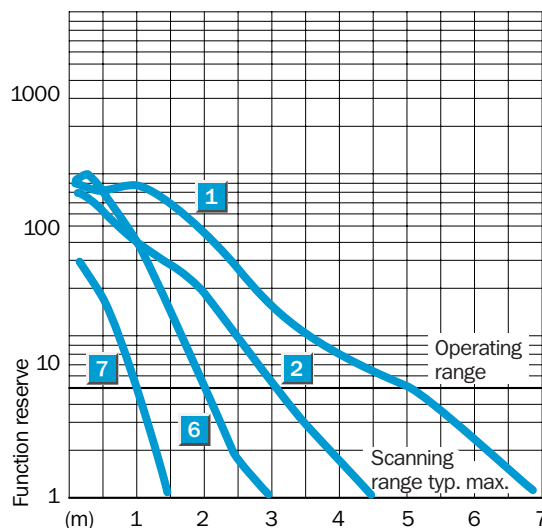
⁸⁾ Reference voltage 50 V DC

Scanning range and operating reserve




■ Operating range ■ Scanning range typ. max.

Reflector type	Operating range
1 PL 80 A	0 – 5.0 m
2 C 110	0 – 3.0 m
3 PL 50 A	0 – 3.5 m
4 PL 40 A	0 – 3.5 m
5 PL 30 A	0 – 3.0 m
6 PL 20 A	0 – 2.0 m
7 Reflective tape	0 – 1.0 m



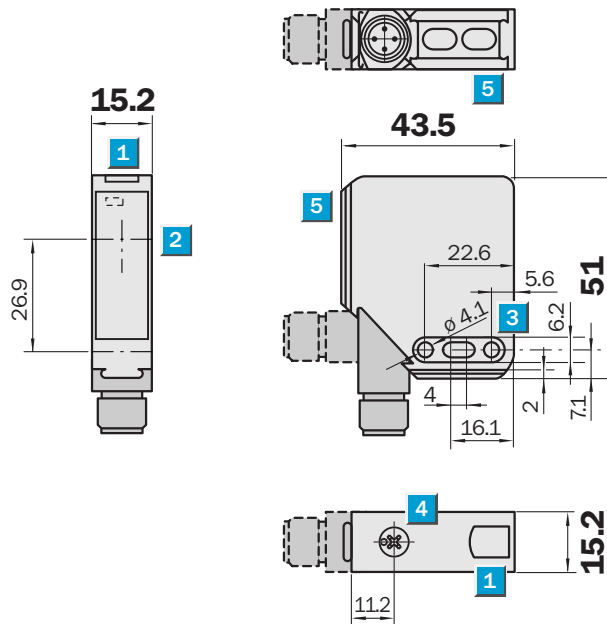
Order information

Type	Order No.
WL11-N130	1 018 681
WL11-N430	1 018 682
WL11-P130	1 018 680
WL11-P430	1 018 510

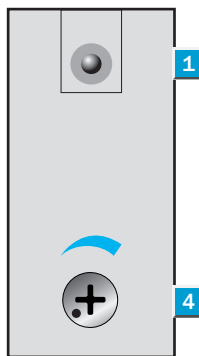

Scanning range
0 ... 4 m
Photoelectric reflex switch

- Red light
- Insensitive to ambient light sources
- Detection of glass and transparent films
- Adjustable sensitivity
- ECOLAB material resistance tests

Dimensional drawing



Adjustments possible

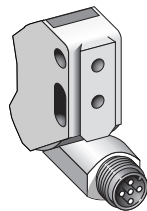


- 1 LED signal strength indicator
- 2 Middle of optical axis
- 3 Mounting holes Ø 4.1 mm
- 4 Sensitivity control
- 5 Dovetail

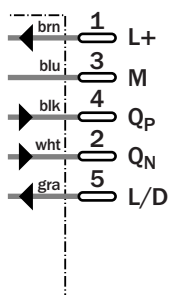


Connection type

WL11-B560



M12, 5-pin



See chapter Accessories

Connector, M12, 5-pin

Mounting systems

Reflectors

Technical specifications		WL11-	B560											
Scanning range typ. max.	0 ... 4 m													
Scanning range, recommended	0 ... 3.5 m													
Relating to	Reflector PL80A													
Sensitivity adjustment	Potentiometer													
Light source, light type	LED, Red light ¹⁾													
Light spot diameter	30 mm at 1.5 m distance													
Supply voltage V_s	10 ... 30 V DC ²⁾													
Ripple	$\leq 5 V_{ss}$ ³⁾													
Power consumption	$\leq 30 \text{ mA}$ ⁴⁾													
Switching outputs	Transistor outputs Q_p and Q_n													
Switching mode	Light-/dark-switching, switchable													
Output current I_a , max	100 mA													
Response time	$< 625 \mu\text{s}$ ⁵⁾													
Switching frequency	800 Hz ⁶⁾													
Connection type	Connector, M12, 5-pin													
VDE protection class	□													
Circuit protection	V_s connections reverse-polarity protected / Output Q and Q not short-circuit protected / Interference suppression													
Enclosure rating	IP 65													
Ambient temperature operation	-20 °C ... +60 °C													
Ambient temperature storage	-20 °C ... +75 °C													
Housing material	ABS													

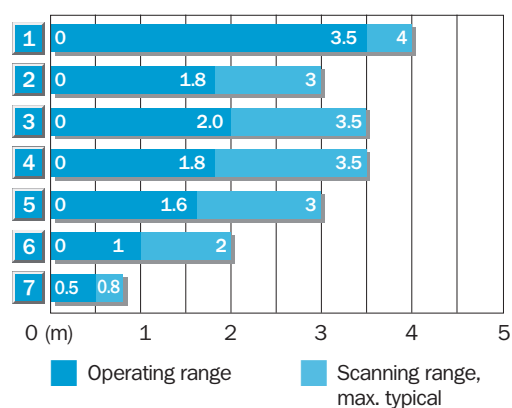
¹⁾ Average service life 100,000 h at $T_a = +25 \text{ °C}$

²⁾ Limit values
³⁾ may not exceed or fall short of

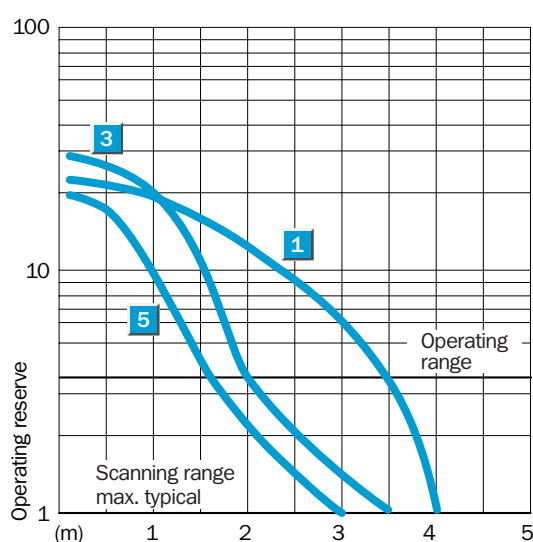
V_s tolerances
⁴⁾ without load

⁵⁾ Signal transit time with resistive load
⁶⁾ with light/dark ratio 1:1

Scanning range and operating reserve



Reflector type	Operating range
1 PL80A	0 ... 3.5 m
2 C110	0 ... 1.8 m
3 PL50A	0 ... 2.0 m
4 PL40A	0 ... 1.8 m
5 PL30A	0 ... 1.6 m
6 PL20A	0 ... 1.0 m
7 Reflective tape	0 ... 0.5 m



Order information

Type	Order No.
WL11-B560	1 019 704

Technical specifications		WL11-	R130											
Scanning range typ. max.	0.1 ... 7 m													
Scanning range, recommended	0.1 ... 5 m													
Relating to	Reflector PL80A													
Light source, light type	LED, Red light ¹⁾													
Light spot diameter	Approx. 80 mm at 3 m distance													
Angle of dispersion	2 °													
Polarisation filter	✓													
Supply voltage V_s	24 ... 240 V DC / 24 ... 240 V AC ²⁾													
Switching outputs	Relay 1 x c/o, electrically isolated													
Max. switching voltage	AC 250 V AC / 120 V DC													
Switching current max.	3 A/250 V AC; 3A/30 V DC ³⁾													
Max. switching power	750 VA AC / 30 V DC													
Response time	≤ 25 ms ⁴⁾													
Switching frequency	20 Hz ⁵⁾													
Connection type	Cable, 2 m ⁶⁾													
VDE protection class	□ ⁷⁾													
Circuit protection	V _s connections reverse-polarity protected / Interference suppression													
Enclosure rating	IP 65													
Ambient temperature operation	-25 °C ... +55 °C													
Ambient temperature storage	-40 °C ... +70 °C													
Weight	Approx. 200 g													
Housing material	ABS, PMMA													

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

²⁾ Tolerance: +10 %, -20 %

³⁾ Usage category to EN 60947-1,

AC-15, DC-13

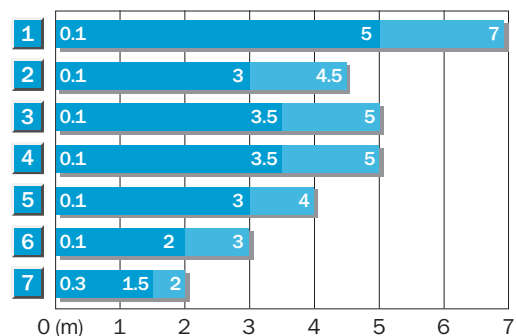
⁴⁾ Signal transit time with resistive load

⁵⁾ with light/dark ratio 1:1

⁶⁾ do not bend below 0 °C

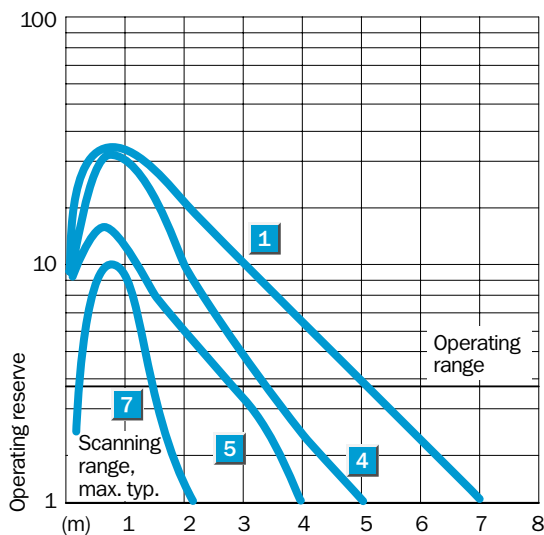
⁷⁾ Reference voltage 50 V DC

Scanning range and operating reserve



Operating range (light blue bar) Scanning range, max. typical (dark blue bar)

Reflector type	Operating range
1 PL 80 A	0.1 – 5.0 m
2 C 110	0.1 – 3.0 m
3 PL 50 A	0.1 – 3.5 m
4 PL 40 A	0.1 – 3.5 m
5 PL 30 A	0.1 – 3.0 m
6 PL 20 A	0.1 – 2.0 m
7 Reflective tape	0.3 – 1.5 m



Order information

Type	Order No.
WL11-R130	1 026 232