


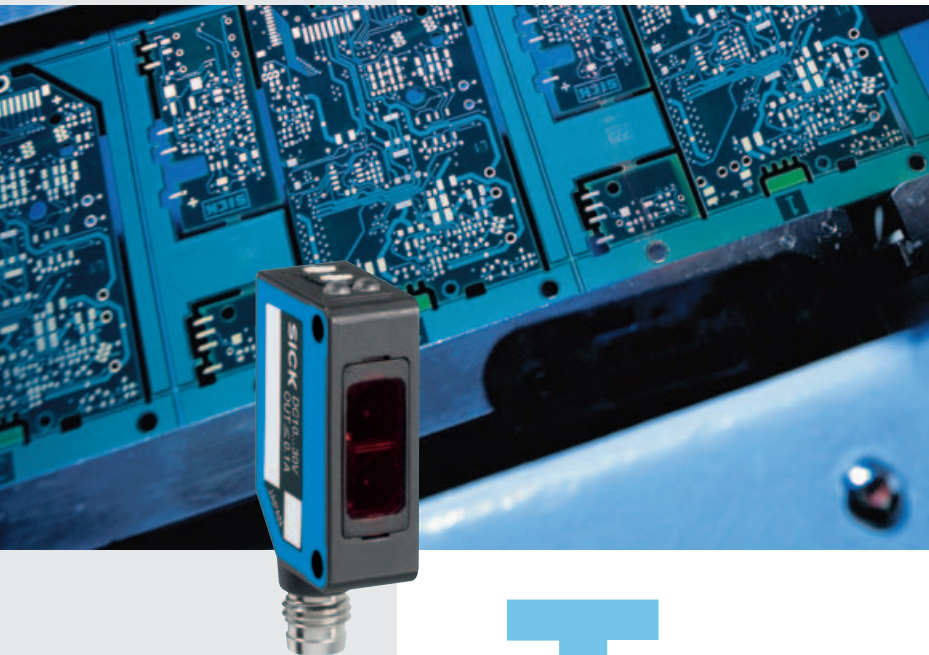


W100L: Laser Sensor in Mini-Format

	Photoelectric proximity switch energ.
	Photoelectric reflex switch
	Through-beam photoelectric switch

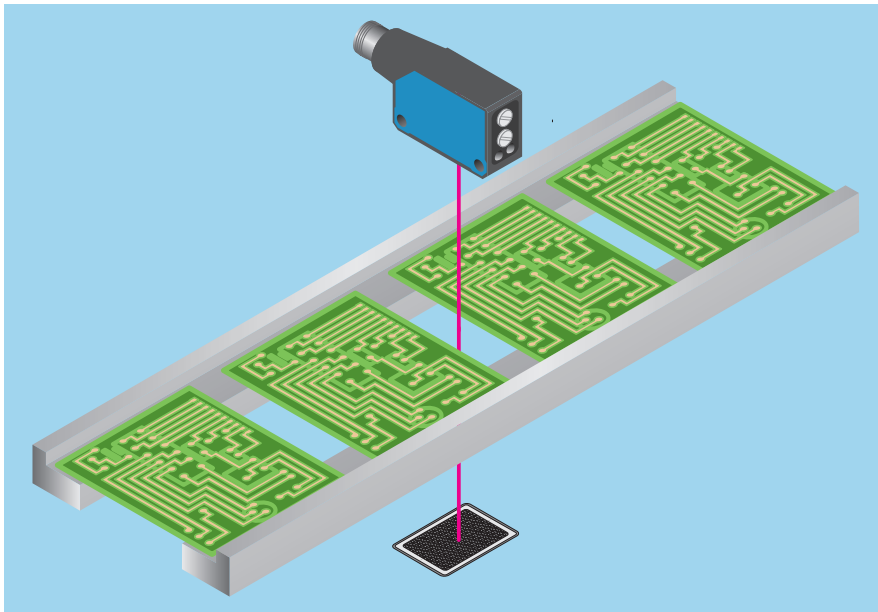


The compact housing creates new applications for laser photoelectric switches where mounting space is at a premium and thus complements the development trend towards ever more compact machines. Where applications demand it, the sensor can be adapted for light or dark switching by the use of a rotary switch.

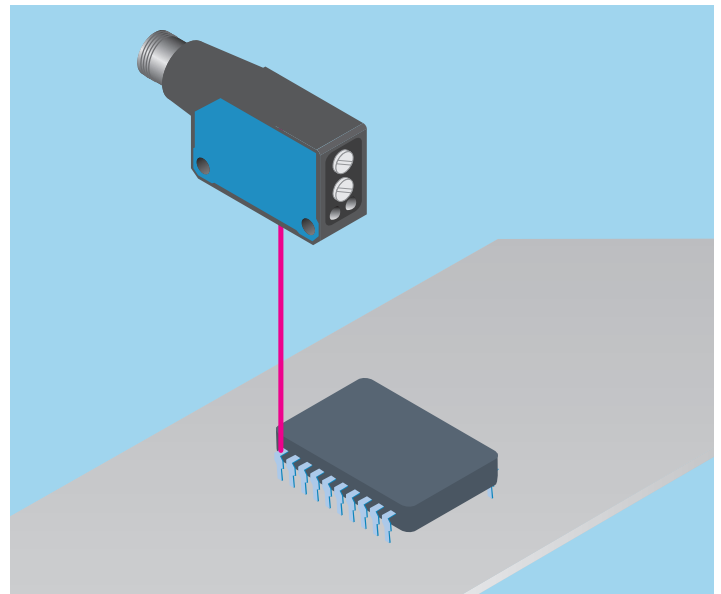
The W100L photoelectric switch series comprises:

- Photoelectric proximity switch WT (energetic) with up to 450 mm scanning distance,
- Photoelectric reflex switch WL with up to 12 m scanning range,
- Through-beam photoelectric switch WS/WE with up to 35 m scanning range.

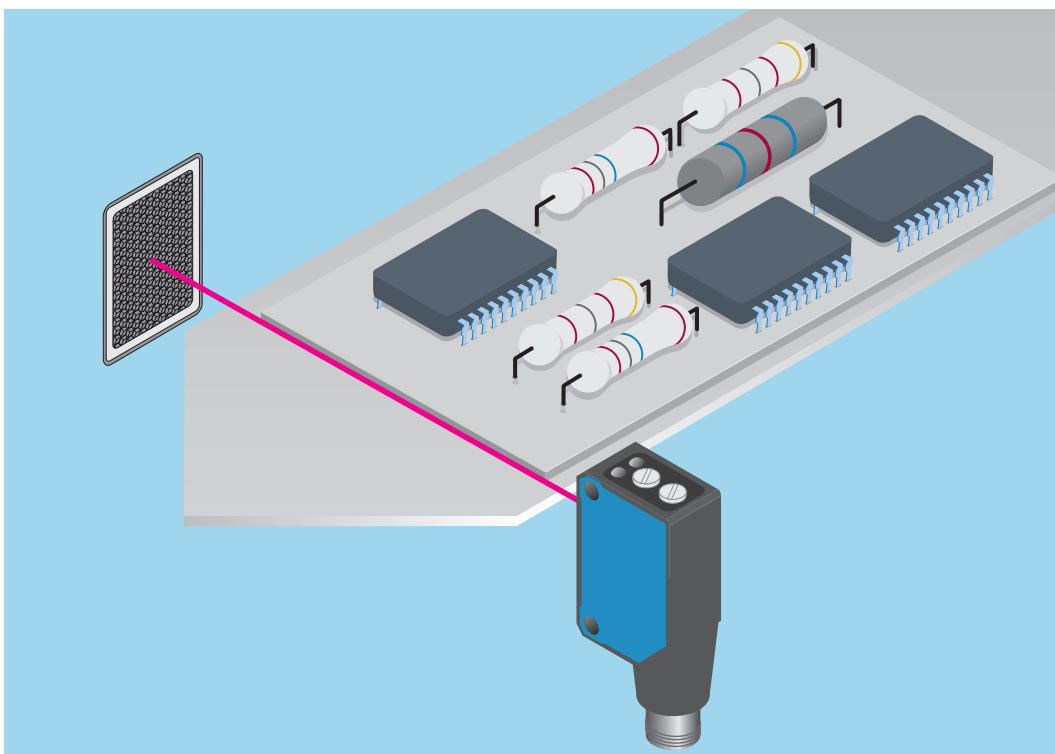
The W100L photoelectric switch series offers laser sensors in a miniature housing. In upgrading the successful W100 series with laser technology, an even wider spectrum of applications can be economically implemented. The small laser light spot and the high switching frequency enable the detection of small objects in highspeed processes. Apart from the benefit to the application, the small and easily visible laser light spot enables easy alignment during installation.




◀ The small beam diameter enables high-precision edge detection.



▶ Even the smallest objects or features can be reliably detected with the precise light spot.

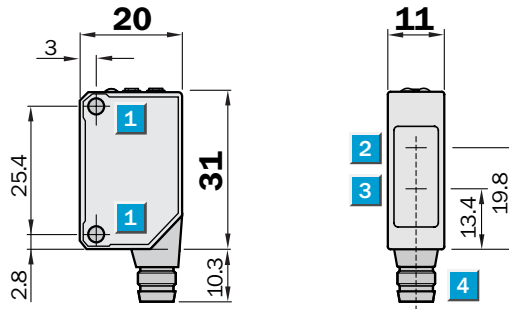


◀ Using the fine laser beam, edge detection can be implemented even with very low object heights.

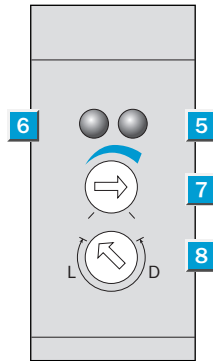

Scanning distance
0 ... 450 mm
Photoelectric proximity switch

- Laser sensor in mini-format
- Easy alignment by Class 2 red light laser
- Switching frequency 2000 Hz

Dimensional drawing



Adjustments possible

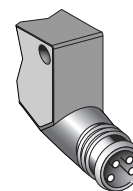
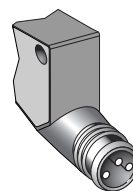
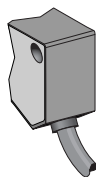


- 1 Mounting hole M3
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 Connector
- 5 LED signal strength indicator orange: switching output active
- 6 LED signal strength indicator green: power on
- 7 Sensitivity adjustment (270°)
- 8 Light/dark rotary switch :
L = light-switching, D = dark-switching



Connection type

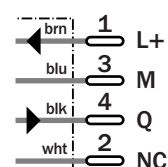
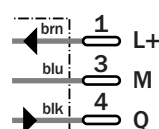
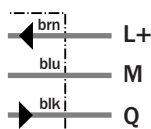
WT100L-E1141	WT100L-E2141	WT100L-E2241
WT100L-F1141	WT100L-F2141	WT100L-F2241



3 x 0.18 mm²

M8, 3-pin

M8, 4-pin



See chapter Accessories

- Connector, M8, 3-pin
- Connector, M8, 4-pin
- Mounting systems

Technical specifications		WT100L-	E1141	E2141	E2241	F1141	F2141	F2241				
Scanning distance typ. max.	0 ... 450 mm ¹⁾											
Operating distance	0 ... 400 mm ¹⁾											
Adjustment of operating distance	Potentiometer											
Light source, light type	Laser diode, Laser, 650 nm ²⁾											
Laser protection class	2 (IEC 60 825-1/C.D.R.H)											
Light spot diameter	2 mm at 400 mm distance											
Supply voltage V _s	DC 10 ... 30 V ³⁾											
Ripple	± 10 % ⁴⁾											
Power consumption	≤ 30 mA ⁵⁾											
Switching outputs	NPN, Q											
	PNP, Q											
Switching mode	Light-/dark-switching via rotary switch											
Output current I _{a,max}	≤ 100 mA											
Response time	< 0.25 ms ⁶⁾											
Switching frequency	2,000 Hz ⁷⁾											
Connection type	Cable, PVC, 2 m ⁸⁾											
	Connector, M8, 3-pin											
	Connector, M8, 4-pin											
Circuit protection	V _s connections reverse-polarity protected / In-/outputs short-circuit protected / Outputs overcurrent and short-circuit protected											
Enclosure rating	IP 65											
Ambient temperature operation	-10 °C ... +50 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 50 g											
	Approx. 10 g											
Housing material	ABS, PMMA											
Included with delivery	Mounting bracket											

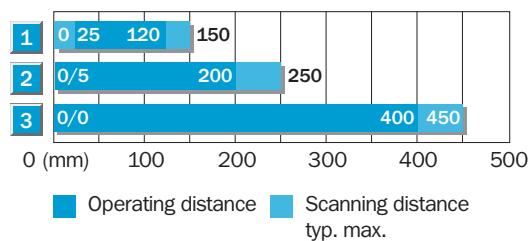
¹⁾ Object with 90 % remission (based on standard white to DIN 5033)
²⁾ Average service life 50,000 h

at T_a = +25 °C
³⁾ Limit values
⁴⁾ may not exceed or fall short of

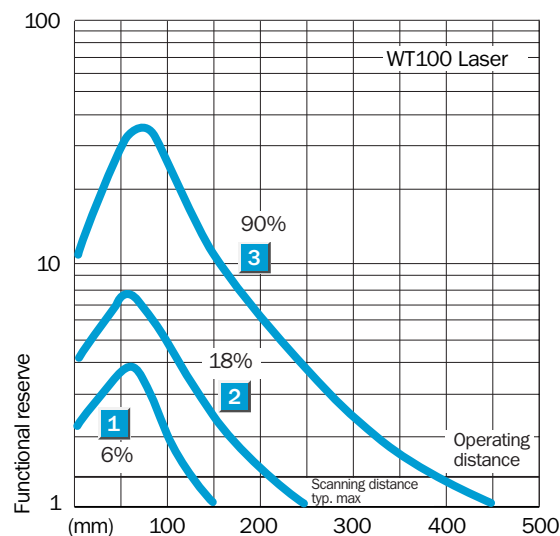
V_s tolerances
⁵⁾ without load
⁶⁾ Signal transit time with resistive load

⁷⁾ with light/dark ratio 1:1
⁸⁾ do not bend below 0 °C

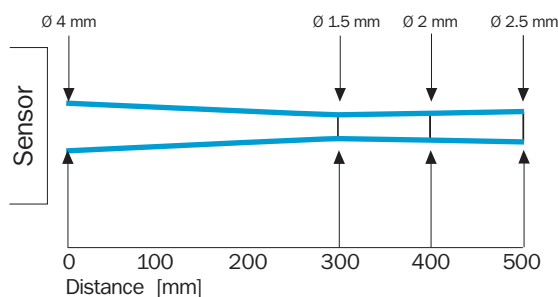
Scanning distance



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




Light spot diameter



Ordering information

Type	Order no.
WT100L-E1141	6 030 705
WT100L-E2141	6 030 706
WT100L-E2241	6 030 707
WT100L-F1141	6 030 702
WT100L-F2141	6 030 703
WT100L-F2241	6 030 704

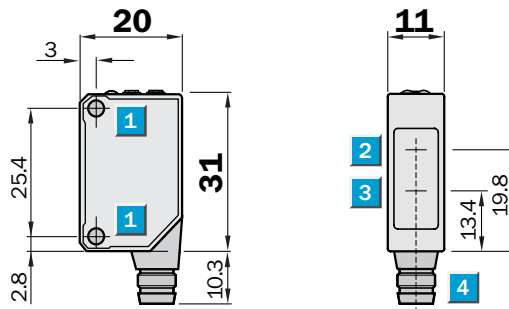
Photoelectric reflex switch, WL100 Laser


Scanning range
0.01 ... 12 m

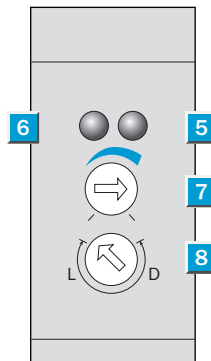
Photoelectric reflex switch

- Laser sensor in mini-format
- Easy alignment by Class 2 red light laser
- Switching frequency 2000 Hz
- Polarisation filter for secure detection of reflective objects

Dimensional drawing



Adjustments possible

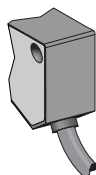


- 1 Mounting hole M3
- 2 Centre of optical axis, receiver
- 3 Centre of optical axis, sender
- 4 Connector
- 5 LED signal strength indicator orange: switching output active
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- 7 Sensitivity adjustment (270°)
- 8 Light/dark rotary switch :
L = light-switching, D = dark-switching

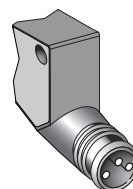


Connection type

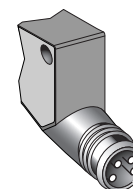
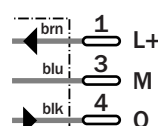
WL100L-E1131	WL100L-E2131	WL100L-E2231
WL100L-F2241	WL100L-F2131	WL100L-F2231



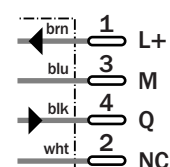
3 x 0.18 mm²



M8, 3-pin



M8, 4-pin



See chapter Accessories

- Connector, M8, 3-pin
- Connector, M8, 4-pin
- Mounting systems
- Reflectors

Technical specifications		WL100L-	E1131	E2131	E2231	F2241	F2131	F2231				
Scanning range typ. max.	0.01 ... 12 m											
Scanning range, recommended	0.01 ... 10 m											
Relating to	Reflector P250 F											
Sensitivity adjustment	Potentiometer											
Light source, light type	Laser diode, Laser, 650 nm ¹⁾											
Laser protection class	2 (IEC 60 825-1/C.D.R.H)											
Light spot diameter	12 mm at 10 m distance											
Supply voltage V _s	DC 10 ... 30 V ²⁾											
Ripple	± 10 % ³⁾											
Power consumption	≤ 30 mA ⁴⁾											
Switching outputs	NPN, Q											
	PNP, Q											
Switching mode	Light-/dark-switching via rotary switch											
Output current I _a max	≤ 100 mA											
Response time	< 0.25 ms ⁵⁾											
Switching frequency	2,000 Hz ⁶⁾											
Connection type	Cable, PVC, 2 m ⁷⁾											
	Connector, M8, 3-pin											
	Connector, M8, 4-pin											
Circuit protection	V _s connections reverse-polarity protected / In-/outputs short-circuit protected / Outputs overcurrent and short-circuit protected											
Enclosure rating	IP 65											
Ambient temperature operation	-10 °C ... +50 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 50 g											
	Approx. 10 g											
Housing material	ABS, PMMA											
Included with delivery	Reflector P250F + mounting brackets											

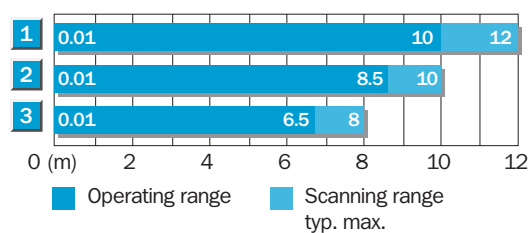
¹⁾ Average service life 50,000 h at T_a = +25 °C

²⁾ Limit values may not exceed or fall short of

V_s tolerances without load

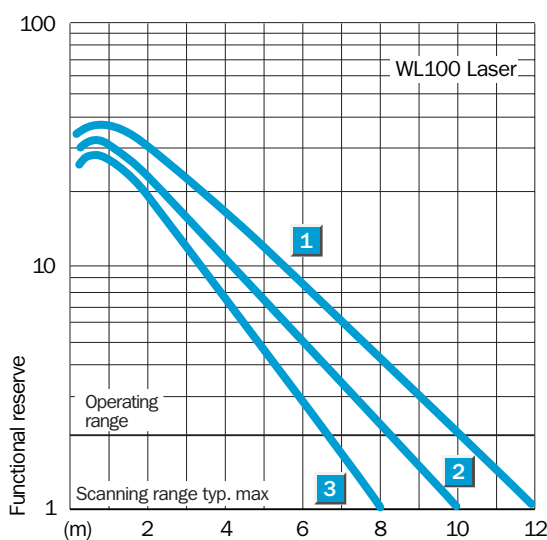
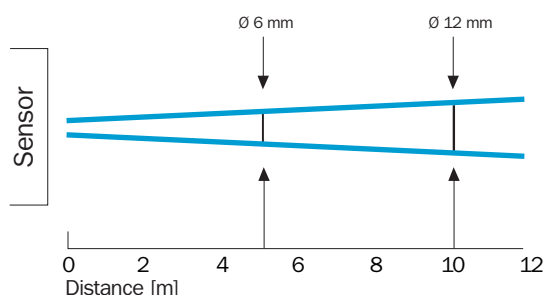
⁵⁾ Signal transit time with resistive load
⁶⁾ with light/dark ratio 1:1
⁷⁾ do not bend below 0 °C

Scanning range and functional reserve



Reflector type	Operating range
1 P250F	0.01 ... 10 m
2 PL20F	0.01 ... 8.5 m
3 PL10F	0.01 ... 6.5 m

Light spot diameter



Ordering information

Type	Order no.
WL100L-E1131	6 030 711
WL100L-E2131	6 030 712
WL100L-E2231	6 030 713
WL100L-F2241	6 030 708
WL100L-F2131	6 030 709
WL100L-F2231	6 030 710

Through-beam photoelectric switch, WS/WE100 Laser

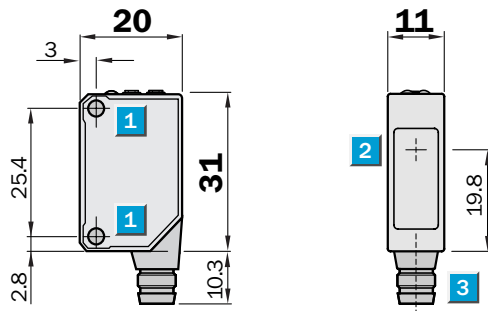


Scanning range
0 ... 35 m

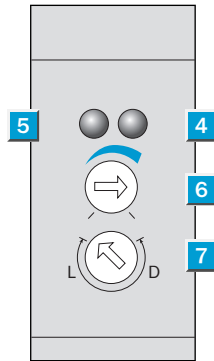
Through-beam photoelectric switch

- Laser sensor in mini-format
- High degree of eye protection by Class 1 red light laser
- Switching frequency 2000 Hz

Dimensional drawing



Adjustments possible

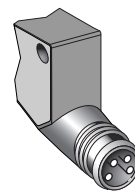
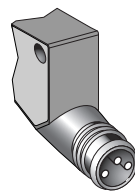
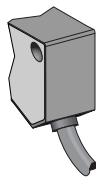


- 1 Mounting hole M3
- 2 Centre of optical axis
- 3 Connector
- 4 LED signal strength indicator orange: switching output active
- 5 LED signal strength indicator green: power on
- 6 Sensitivity adjustment (270 °)
- 7 Light/dark rotary switch:
L = light-switching, D = dark-switching

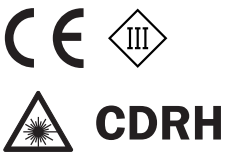


Connection type

WS/WE100L-E1131	WS/WE100L-E2131	WS/WE100L-E2231
WS/WE100L-F1131	WS/WE100L-F2131	WS/WE100L-F2231



	Sender	Receiver																				
	2 x 0.18 mm ²	3 x 0.18 mm ²																				
	<table border="1"> <tr><th colspan="2">M8, 3-pin</th></tr> <tr><td>1</td><td>L+</td></tr> <tr><td>3</td><td>M</td></tr> <tr><td>4</td><td>NC</td></tr> </table>	M8, 3-pin		1	L+	3	M	4	NC	<table border="1"> <tr><th colspan="2">M8, 3-pin</th></tr> <tr><td>1</td><td>L+</td></tr> <tr><td>3</td><td>M</td></tr> <tr><td>4</td><td>Q</td></tr> </table>	M8, 3-pin		1	L+	3	M	4	Q				
M8, 3-pin																						
1	L+																					
3	M																					
4	NC																					
M8, 3-pin																						
1	L+																					
3	M																					
4	Q																					
	<table border="1"> <tr><th colspan="2">M8, 4-pin</th></tr> <tr><td>1</td><td>L+</td></tr> <tr><td>3</td><td>M</td></tr> <tr><td>4</td><td>NC</td></tr> <tr><td>2</td><td>NC</td></tr> </table>	M8, 4-pin		1	L+	3	M	4	NC	2	NC	<table border="1"> <tr><th colspan="2">M8, 4-pin</th></tr> <tr><td>1</td><td>L+</td></tr> <tr><td>3</td><td>M</td></tr> <tr><td>4</td><td>Q</td></tr> <tr><td>2</td><td>NC</td></tr> </table>	M8, 4-pin		1	L+	3	M	4	Q	2	NC
M8, 4-pin																						
1	L+																					
3	M																					
4	NC																					
2	NC																					
M8, 4-pin																						
1	L+																					
3	M																					
4	Q																					
2	NC																					



See chapter Accessories

- Connector, M8, 3-pin
- Connector, M8, 4-pin
- Mounting systems

Technical specifications		WS/WE100L-	E1131	E2131	E2231	F1131	F2131	F2231				
Scanning range typ. max.	0 ... 35 m											
Scanning range, recommended	0 ... 30 m											
Sensitivity adjustment	Potentiometer											
Light source, light type	Laser diode, Laser, 650 nm ¹⁾											
Laser protection class	1 (EN 60 825-1)											
Light spot diameter	30 mm at 30 m distance											
Supply voltage V _s	DC 10 ... 30 V ²⁾											
Ripple	± 10 % ³⁾											
Power consumption	≤ 30 mA ⁴⁾											
Switching outputs	NPN, Q											
	PNP, Q											
Switching mode	Light-/dark-switching via rotary switch											
Output current I _a max	≤ 100 mA											
Response time	< 0.25 ms ⁵⁾											
Switching frequency	2,000 Hz ⁶⁾											
Connection type	Cable, PVC, 2 m ⁷⁾											
	Connector, M8, 3-pin											
	Connector, M8, 4-pin											
Circuit protection	V _s connections reverse-polarity protected / In-/outputs short-circuit protected / Outputs overcurrent and short-circuit protected											
Enclosure rating	IP 65											
Ambient temperature operation	-10 °C ... +50 °C											
Ambient temperature storage	-40 °C ... +70 °C											
Weight	Approx. 50 g											
	Approx. 10 g											
Housing material	ABS, PMMA											
Included with delivery	Mounting bracket											

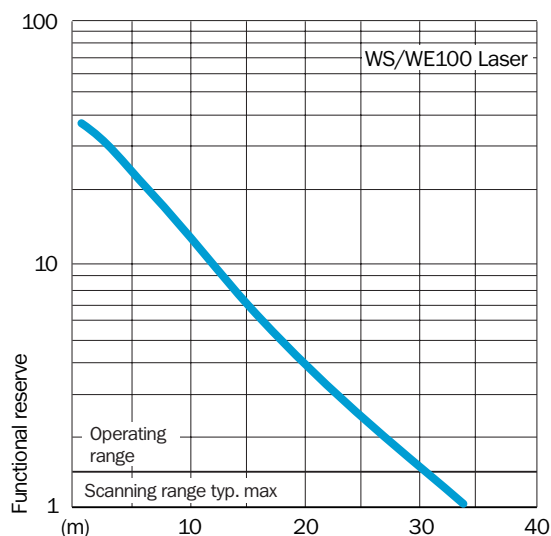
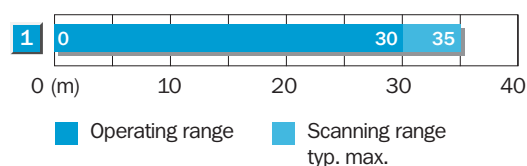
¹⁾ Average service life 50,000 h at T_a = +25 °C

²⁾ Limit values may not exceed or fall short of

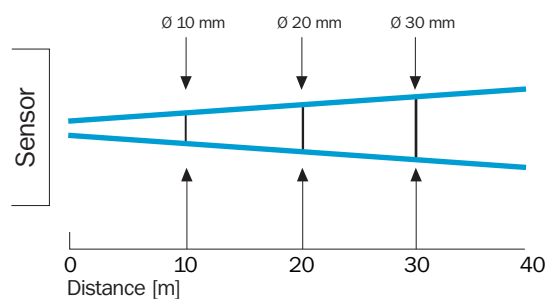
V_s tolerances without load

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

Scanning range and functional reserve



Light spot diameter



Ordering information

Type	Order no.
WS/WE100L-E1131	6 030 717
WS/WE100L-E2131	6 030 718
WS/WE100L-E2231	6 030 719
WS/WE100L-F1131	6 030 714
WS/WE100L-F2131	6 030 715
WS/WE100L-F2231	6 030 716