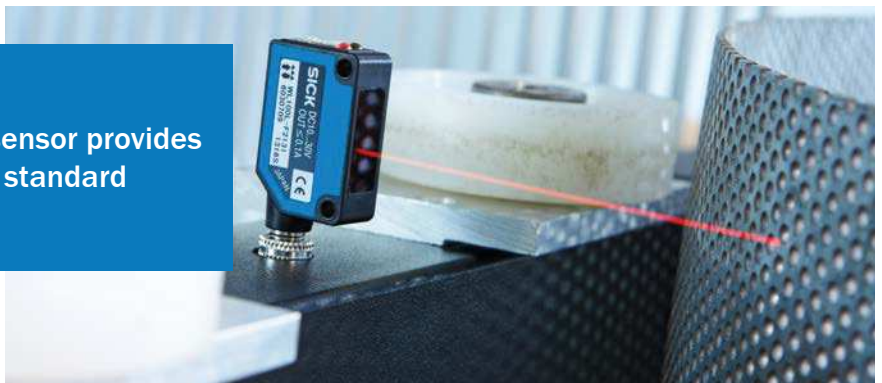


Miniature photoelectric laser sensor provides precise detection of objects in standard applications



F

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Product description

The W100 Laser is a complete family of photoelectric sensors enclosed in a miniature housing. These sensors feature a laser sender LED that provides large sensing ranges for standard applications. The compact housing design

with M3 threaded mounting holes allows for quick and simple mounting. The W100 Laser is a great alternative to the standard W100, especially for applications that demand higher precision or a longer sensing range.

At a glance

- Standard miniature housing with M3 threaded mounting holes
- Long sensing range
- Light/dark switching and sensitivity adjustment via rotary switch possible
- Various versions are available, including through-beam, retro-reflective and energetic
- Wide variety of accessories available
- Laser emitter LED, class 1

Your benefits

- Reliable detection of small objects
- Less contamination due to high optical operating reserve
- M3 threaded mounting holes provide easy installation
- Compact housing easily fits in applications with limited space

→ www.mysick.com/en/W100_Laser

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.



Detailed technical data

Features

	WT100L	WL100L	WS/WE100L
Sensor principle	Photoelectric proximity sensor	Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
Detection principle	Energetic	Standard optics	-
Dimensions (W x H x D)	11 mm x 31 mm x 20 mm		
Housing design (light emission)	Rectangular		
Sensing range max.	0 mm ... 450 mm ¹⁾	0.08 m ... 12 m ²⁾	0 m ... 35 m
Sensing range	0 mm ... 400 mm	0.08 m ... 10 m ²⁾	0 m ... 30 m
Type of light	Visible red light		
Light source ³⁾	Laser		
Light spot size (distance)	Ø 2 mm (400 mm)	Ø 12 mm (10 m)	Ø 30 mm (30 m)
Wave length	650 nm		
Laser class	1		
Adjustment	Potentiometer, 270 °		

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

²⁾ P250F.

³⁾ Average service life 50,000 h at T_A = +25 °C.

Mechanics/electronics

	WT100L	WL100L	WS/WE100L
Supply voltage ¹⁾	10 V DC ... 30 V DC		
Ripple ²⁾	± 10 %		
Power consumption ³⁾	≤ 30 mA		-
Power consumption, sender	-		≤ 15 mA ³⁾
Power consumption, receiver	-		≤ 20 mA ³⁾
Output type	PNP, open collector / NPN, open collector (depending on type)		
Switching mode	Light/dark-switching (manually selectable)		
Signal voltage PNP HIGH/LOW	U _V - 1,8 V / ca. 0 V		
Signal voltage NPN HIGH/LOW	Approx. V _S / < 1.8 V		
Output current I _{max.}	100		
Response time ⁴⁾	< 0.25 ms		
Switching frequency ⁵⁾	2,000		
Connection type	Cable, 2 m ⁶⁾ / Male connector, M8 (depending on type)		
Circuit protection	A ⁷⁾ , B ⁸⁾ , D ⁹⁾		
Weight			
	Cable ⁶⁾	50 g	
	Connector	10 g	
Polarisation filter	-	✓	-
Housing material	ABS/PC/POM, ABS/PC (depending on type)		
Optics material	PMMA		

	WT100L	WL100L	WS/WE100L
Enclosure rating	IP 65		
Items supplied	Stainless steel mounting bracket (1.4301/304) BEF-W100-A	Stainless steel mounting bracket (1.4301/304) BEF-W100-A, Reflector P250F	2 Stainless steel mounting brackets (1.4301/304) BEF-W100-A
Ambient operating temperature	-10 °C ... +50 °C		
Ambient storage temperature	-40 °C ... +70 °C		

¹⁾ Limit values, operation in short-circuit protected network max. 8 A.

²⁾ May not exceed or fall short of V_s tolerances.

³⁾ Without load.

⁴⁾ Signal transit time with resistive load.

⁵⁾ With light/dark ratio 1:1.

⁶⁾ Do not bend below 0 °C.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ D = outputs overcurrent and short-circuit protected.

Ordering information

Other models available at www.mysick.com/en/W100_Laser

WT100L

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** energetic
- **Light spot size (distance):** Ø 2 mm (400 mm)
- **Switching mode:** light/dark-switching
- **Adjustment:** potentiometer, 270 °
- **Items supplied:** stainless steel mounting bracket (1.4301/304) BEF-W100-A

Sensing range max. ¹⁾	Output type	Connection	Connection diagram	Model name	Part no.
0 mm ... 450 mm	PNP	Cable, 3-wire, 2 m, PVC	Cd-043	WT100L-F1141	6030702
		Connector M8, 3-pin	Cd-045	WT100L-F2141	6030703
		Connector M8, 4-pin	Cd-066	WT100L-F2241	6030704
	NPN	Cable, 3-wire, 2 m, PVC	Cd-043	WT100L-E1141	6030705
		Connector M8, 3-pin	Cd-045	WT100L-E2141	6030706
		Connector M8, 4-pin	Cd-066	WT100L-E2241	6030707

¹⁾ Object with 90 % reflectance (referred to standard white, DIN 5033)

WL100L

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** standard optics
- **Light spot size (distance):** Ø 12 mm (10 m)
- **Switching mode:** light/dark-switching
- **Adjustment:** potentiometer, 270 °
- **Items supplied:** stainless steel mounting bracket (1.4301/304) BEF-W100-A, Reflector P250F

Sensing range max. ¹⁾	Output type	Connection	Connection diagram	Model name	Part no.
0.08 m ... 12 m	PNP	Cable, 3-wire, 2 m, PVC	Cd-043	WL100L-F1131	6030708
		Connector M8, 3-pin	Cd-045	WL100L-F2131	6030709
		Connector M8, 4-pin	Cd-066	WL100L-F2231	6030710
	NPN	Cable, 3-wire, 2 m, PVC	Cd-043	WL100L-E1131	6030711
		Connector M8, 3-pin	Cd-045	WL100L-E2131	6030712
		Connector M8, 4-pin	Cd-066	WL100L-E2231	6030713

¹⁾ P250F.

WS/WE100L

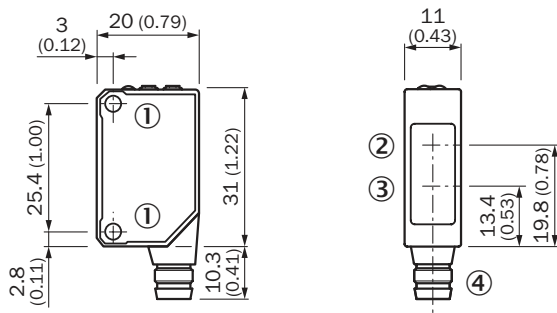
- **Sensor principle:** through-beam photoelectric sensor
- **Light spot size (distance):** Ø 30 mm (30 m)
- **Switching mode:** light/dark-switching
- **Adjustment:** potentiometer, 270 °
- **Items supplied:** 2 Stainless steel mounting brackets (1.4301/304) BEF-W100-A

Sensing range max.	Output type	Connection	Connection diagram	Model name	Part no.
0 m ... 35 m	PNP	Cable, 3-wire, 2 m, PVC	Cd-047	WS/WE100L-F1131	6030714
		Connector M8, 3-pin	Cd-051	WS/WE100L-F2131	6030715
		Connector M8, 4-pin	Cd-071	WS/WE100L-F2231	6030716
	NPN	Cable, 3-wire, 2 m, PVC	Cd-047	WS/WE100L-E1131	6030717
		Connector M8, 3-pin	Cd-051	WS/WE100L-E2131	6030718
		Connector M8, 4-pin	Cd-071	WS/WE100L-E2231	6030719

Dimensional drawings

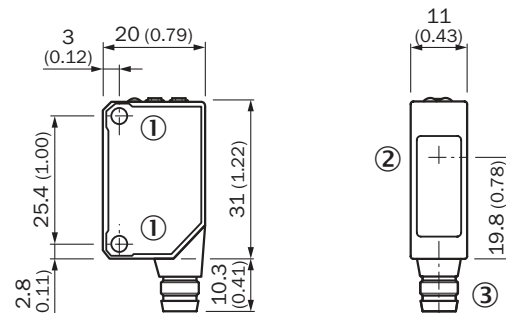
Dimensions in mm (inch)

WT100L, WL100L



- ① Threaded mounting hole M3
- ② Center of optical axis, receiver
- ③ Center of optical axis, sender
- ④ Connection

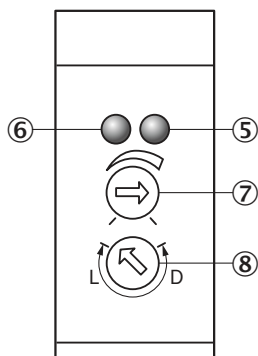
WS/WE100L



- ① Threaded mounting hole M3
- ② Center of optical axis
- ③ Connection

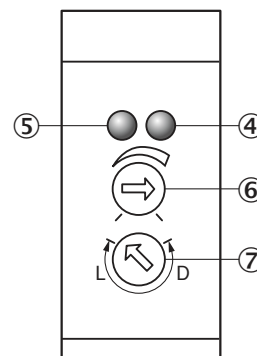
Adjustments

WT100L, WL100L



- ⑤ Orange LED indicator: switching output active
- ⑥ LED signal strength indicator green: power on
- ⑦ Sensing range (WT) / sensitivity (WL) adjustment: potentiometer, 270 °
- ⑧ Light/ dark rotary switch: L = light switching, D = dark switching

WS/WE100L

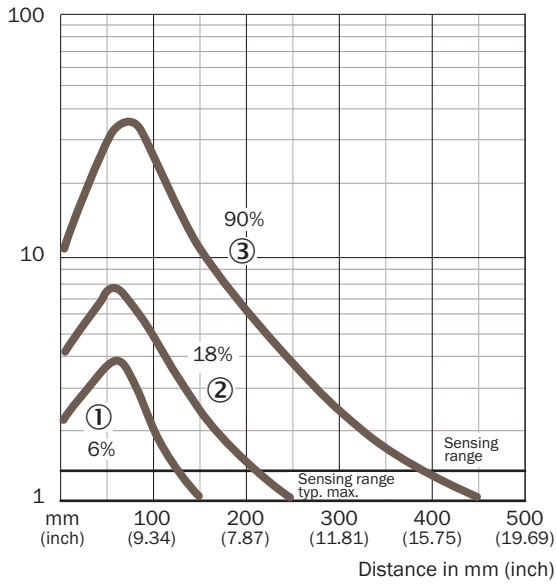


- ④ Orange LED indicator: switching output active
- ⑤ LED signal strength indicator green: power on
- ⑥ Sensitivity adjustment 270 °
- ⑦ Light/ dark rotary switch: L = light switching, D = dark switching

Characteristic curves

Black-white shift

WT100L

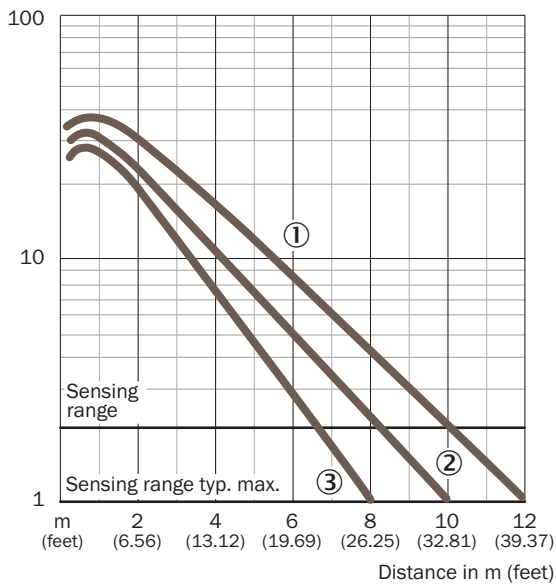


- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission



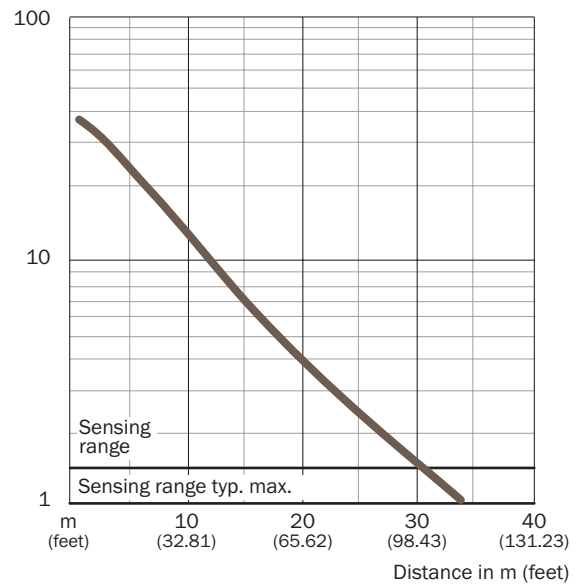
Operating reserve

WL100L



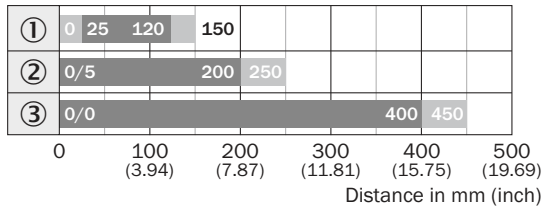
- ① P250F
- ② PL20F
- ③ PL10F

WS/WE100L



Bar diagrams

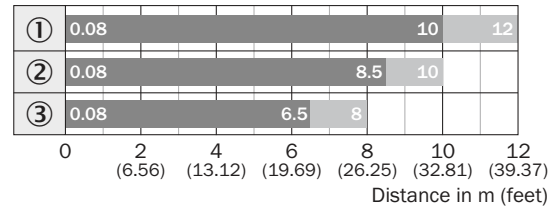
WT100L



■ Sensing range ■ Sensing range max.

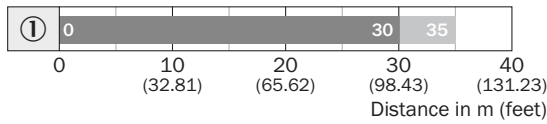
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

WL100L



■ Sensing range ■ Sensing range max.

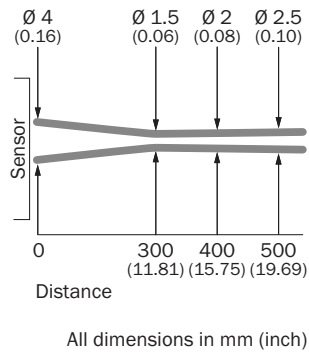
WS/WE100L



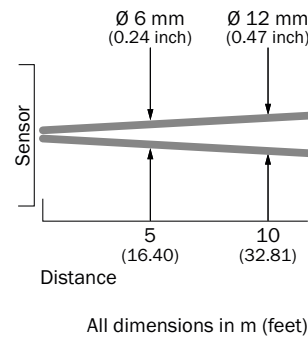
■ Sensing range ■ Sensing range typ. max.

Light spot diameter

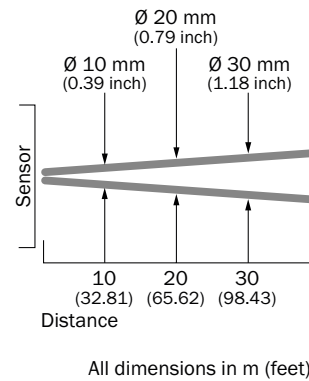
WT100L



WL100L

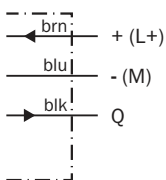


WS/WE100L

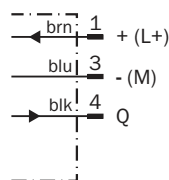


Connection diagram

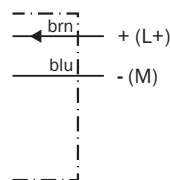
Cd-043



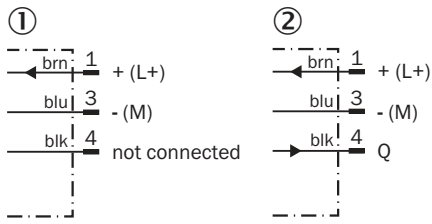
Cd-045



Cd-047

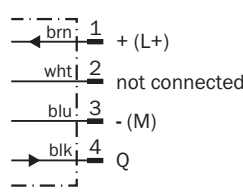


Cd-051

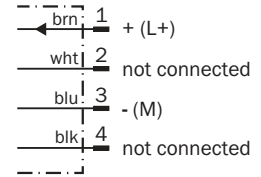


① Sender
② Receiver

Cd-066



Cd-071



Recommended accessories

Mounting brackets/plates

Mounting brackets

Figure	Material	Description	Model name	Part no.
	Stainless steel	Mounting bracket for wall mounting	BEF-W100-A	5311520
	Steel, zinc coated	Mounting bracket for floor mounting	BEF-W100-B	5311521

F

Plug connectors and cables

Connecting cable (female connector-open), PVC

- Cable material: PVC
- Connector material: TPU


Figure	Connection type head A	Connection type head B	Connecting cable	Enclosure rating	Model name	Part no.
	Female connector, M8, 3-pin, straight	Cable, open conductor heads	2 m, 3-wire	IP 67	DOL-0803-G02M	6010785
			5 m, 3-wire	IP 67	DOL-0803-G05M	6022009
	Female connector, M8, 3-pin, angled	Cable, open conductor heads	2 m, 3-wire	IP 67	DOL-0803-W02M	6008489
			5 m, 3-wire	IP 67	DOL-0803-W05M	6022010
	Female connector, M8, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-0804-G02M	6009870
			5 m, 4-wire	IP 67	DOL-0804-G05M	6009872
	Female connector, M8, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-0804-W02M	6009871
			5 m, 4-wire	IP 67	DOL-0804-W05M	6009873

Universal bar clamp systems

Figure	Material	Description	Model name	Part no.
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N08 for universal clamp bracket	BEF-KHS-N08	2051607


Device protection (mechanical)

Protective housing/tubes








Figure	Material	Description	Model name	Part no.
	Stainless steel 1.4571	Safety bracket for floor mounting	BEF-SW-W4S	2051497

Reflectors


Angular

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865

Fine triple reflectors

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Fine triple, screw connection, suitable for laser sensors, 47 mm x 47 mm	P250F	5308843
		Fine triple, self-adhesive, suitable for laser sensors, Ø 23 mm	P25F-1	5319385
		Reflector with microprismatic reflex tape REF-AC1000, suitable for laser sensors, see alignment note, 23 mm x 23 mm	P41F	5315128
		Fine triple, screw connection, suitable for laser sensors, 18 mm x 18 mm	PL10F	5311210
		Fine triple, screw connection, suitable for laser sensors, 38 mm x 16 mm	PL20F	5308844
		Fine triple, screw connection, suitable for laser sensors, 56 mm x 28 mm	PL30F	5326523
		Fine triple, screw connection, suitable for laser sensors, 76 mm x 45 mm	PL81-1F	5325060

Reflective tape

Figure	Description	Model name	Part no.
	Suitable for laser sensors, self-adhesive, cut, see alignment note, 56.3 mm x 56.3 mm	REF-AC1000-56	4063030

→ For additional accessories, please see page L-861