

High-performance object detection at close range



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Product description

The W8 is a high-quality, miniature photoelectric sensor family specially designed for close-range applications. Autocollimation, background suppression, and high switching frequencies of 2 kHz make these sensors ideal for a broad range of applications. The

series is comprised of the WTB8 photoelectric proximity sensor, the WL8 and WLG8 photoelectric retro-reflective sensor and the WSE8 photoelectric through-beam sensor. The housing is designed with M3 threaded mounting holes that provide easy and secure mounting.

At a glance

- Miniature housing with M3 threaded mounting holes
- Switching frequency up to 2 kHz
- Stainless steel mounting bracket (1.4301/304) BEF-W100-A included with delivery

Your benefits

- Highly flexible design and operational capabilities due to precise background suppression
- Quick and easy mounting due to the universally compatible M3 threaded mounting holes
- A fast switching frequency optimizes production processes
- All necessary accessories are included with delivery, decreasing installation and procurement costs
- Application versatility due to sensitivity adjustments, light/dark switching and a variety of connection options



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→ www.mysick.com/en/W8

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

	WTB8	WL8
Sensor principle	Photoelectric proximity sensor	Photoelectric retro-reflective sensor
Detection principle	Background suppression	Autocollimation
Dimensions (W x H x D)	11 mm x 31 mm x 20 mm	
Housing design (light emission)	Rectangular	
Sensing range max.	5 mm ... 300 mm ¹⁾ (depending on type)	0 m ... 4 m ²⁾
Sensing range	20 mm ... 300 mm ¹⁾ (depending on type)	0 ... 3 m ²⁾
Type of light	Visible red light	
Light source ³⁾	LED	
Wave length	650 nm	
Adjustment	Potentiometer, 4 turns	Potentiometer, 270 °

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

²⁾ PL80A.

³⁾ Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	WTB8	WL8
Supply voltage ¹⁾	10 V DC ... 30 V DC	
Ripple ²⁾	± 10 %	
Power consumption ³⁾	≤ 30 mA	
Output type	PNP, open collector / NPN, open collector (depending on type)	
Switching mode	Light/dark-switching (manually selectable)	
Signal voltage PNP HIGH/LOW	Approx. V _S - 1.8 V / 0 V	
Signal voltage NPN HIGH/LOW	Approx. V _S / < 1.8 V	
Output current I_{max.}	≤ 100 mA	
Response time ⁴⁾	≤ 0.5 ms	≤ 25 ms
Switching frequency ⁵⁾	1,000 Hz	2,000 Hz
Connection type	Cable, 2 m ⁶⁾ / Male connector, M8 (depending on type)	
Circuit protection	A ⁷⁾ , B ⁸⁾ , D ⁹⁾	
Weight		
	Cable	50 g
	Connector M8	10 g
Polarisation filter	-	✓
Housing material	ABS	
Optics material	PMMA	
Enclosure rating	IP 67	
Items supplied	Stainless steel mounting bracket (1.4301/304) BEF-W100-A	Stainless steel mounting bracket (1.4301/304) BEF-W100-A, Reflector P250
Ambient operating temperature	-25 °C ... +55 °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/W8

WTB8

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** background suppression
- **Switching mode:** light/dark-switching
- **Adjustment:** potentiometer, 4 turns

Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Model name	Part no.
5 mm ... 100 mm	Ø 6 mm (100 mm)	PNP	Cable, 3-wire, 2 m, PVC	Cd-043	WTB8-P1111	6033211
			Connector M8, 3-pin	Cd-045	WTB8-P2111	6033213
			Connector M8, 4-pin	Cd-066	WTB8-P2211	6033215
		NPN	Cable, 3-wire, 2 m, PVC	Cd-043	WTB8-N1111	6033210
			Connector M8, 3-pin	Cd-045	WTB8-N2111	6033212
			Connector M8, 4-pin	Cd-066	WTB8-N2211	6033214
30 mm ... 300 mm	Ø 6 mm (100 mm)	PNP	Cable, 3-wire, 2 m, PVC	Cd-043	WTB8-P1131	6033205
			Connector M8, 3-pin	Cd-045	WTB8-P2131	6033207
			Connector M8, 4-pin	Cd-066	WTB8-P2231	6033209
		NPN	Cable, 3-wire, 2 m, PVC	Cd-043	WTB8-N1131	6033204
			Connector M8, 3-pin	Cd-045	WTB8-N2131	6033206
			Connector M8, 4-pin	Cd-066	WTB8-N2231	6033208

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

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WL8

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** autocollimation
- **Switching mode:** light/dark-switching
- **Adjustment:** potentiometer, 270 °

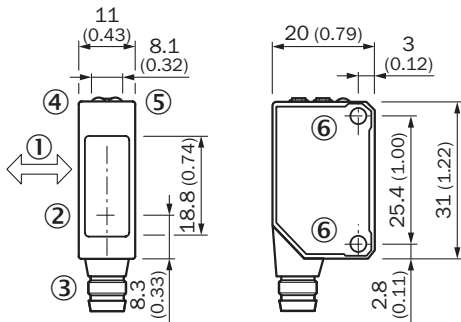
Sensing range max. ¹⁾	Light spot size (distance)	Output type	Connection	Connection diagram	Model name	Part no.
0 m ... 4 m	Ø 30 mm (1 m)	PNP	Cable, 3-wire, 2 m, PVC	Cd-043	WL8-P1131	6033177
			Connector M8, 3-pin	Cd-045	WL8-P2131	6033180
			Connector M8, 4-pin	Cd-066	WL8-P2231	6033182
		NPN	Cable, 3-wire, 2 m, PVC	Cd-043	WL8-N1131	6033176
			Connector M8, 3-pin	Cd-045	WL8-N2131	6033179
			Connector M8, 4-pin	Cd-066	WL8-N2231	6033181

¹⁾ PL80A.

Dimensional drawings

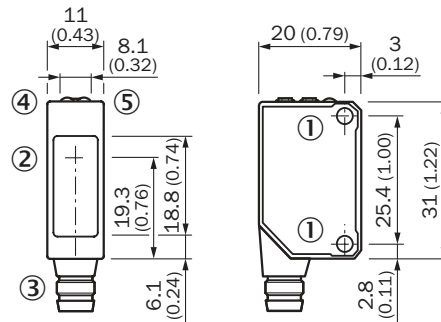
Dimensions in mm (inch)

WTB8



- ① Standard direction
- ② Center of optical axis
- ③ Connection
- ④ Orange LED indicator: switching output active
- ⑤ LED indicator green: stability indicator
- ⑥ Threaded mounting hole M3, max. tightening torque: 0.6 Nm

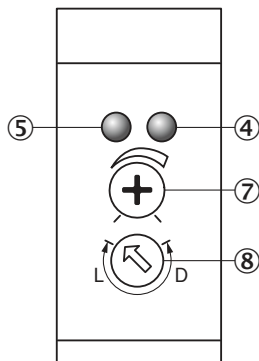
WL8



- ① Threaded mounting hole M3, max. tightening torque: 0.6 Nm
- ② Center of optical axis
- ③ Connection
- ④ Orange LED indicator: switching output active
- ⑤ LED indicator green: stability indicator

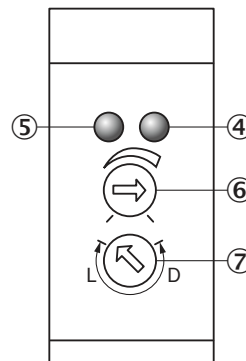
Adjustments

WTB8



- ④ Orange LED indicator: switching output active
- ⑤ LED indicator green: stability indicator
- ⑦ Sensing range adjustment
- ⑧ Light/ dark rotary switch:
L = light switching, D = dark switching

WL8



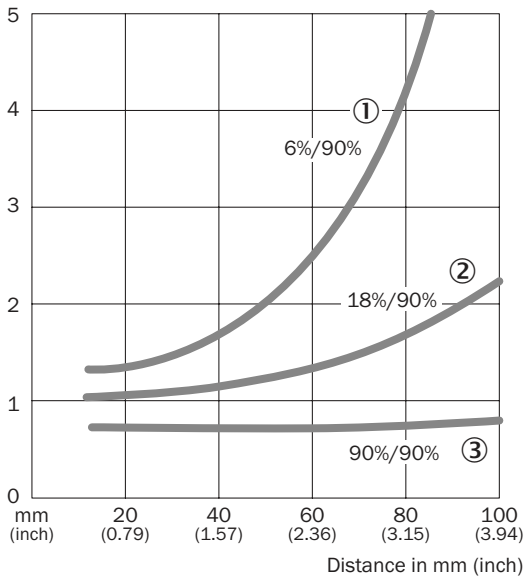
- ④ Orange LED indicator: switching output active
- ⑤ LED indicator green: stability indicator
- ⑥ Sensitivity adjustment
- ⑦ Light/ dark rotary switch:
L = light switching, D = dark switching

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Characteristic curves

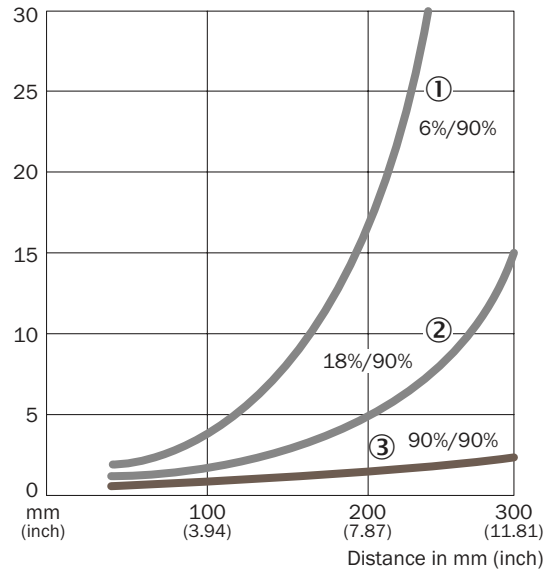
Black-white shift

WTB8, 100 mm



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

WTB8, 300 mm

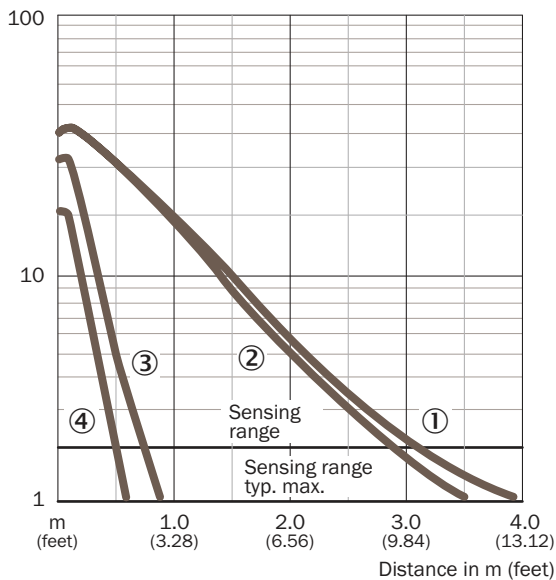


- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission



Operating reserve

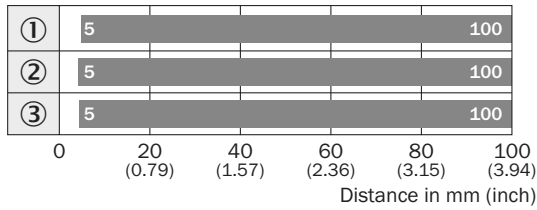
WL8



- ① PL80A
- ② P250
- ③ P45
- ④ Reflective tape Diamond Grade

Bar diagrams

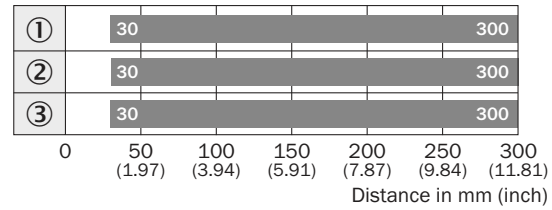
WTB8, 100 mm



■ Sensing range

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

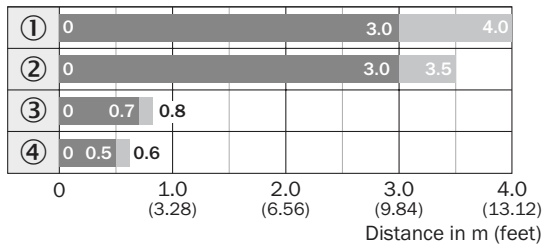
WTB8, 300 mm



■ Sensing range

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

WL8

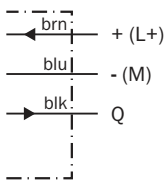


■ Sensing range ■ Sensing range max.

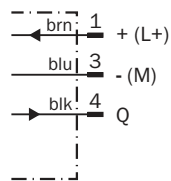
- ① PL80A
- ② P250
- ③ P45
- ④ Reflective tape Diamond Grade

Connection diagram

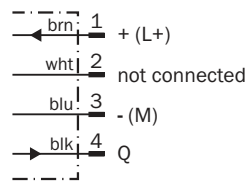
Cd-043



Cd-045



Cd-066



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

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

Female connector (ready to assemble)M8, 3-pin

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.
	Female connector, M8, 3-pin, straight	Screw-type terminals	PBT	IP 67	DOS-0803-G	7902077
	Female connector, M8, 3-pin, angled	Pin penetration	PBT	IP 67	DOS-0803-W	7902078
	Female connector, M8, 4-pin, straight	Screw-type terminals	PBT	IP 67	DOS-0804-G	6009974
	Female connector, M8, 4-pin, angled	Pin penetration	PBT	IP 67	DOS-0804-W	6009975

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


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Reflectors


Angular

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Rectangular, screw connection, 47 mm x 47 mm	P250	5304812
		Rectangular, screw connection, 38 mm x 15 mm	PL20A	1012719
		Rectangular, screw connection, 56 mm x 28 mm	PL30A	1002314
		Rectangular, screw connection, 37 mm x 56 mm	PL40A	1012720
		Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865

Reflective tape

Figure	Description	Model name	Part no.
	Self-adhesive, 50 mm x 60 mm	REF-IRF-56	5314244

Round

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Round, pluggable for metal plates	PL22-3	1004488

→ For additional accessories, please see page L-861

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