

Compact, high-performance INOX sensors
for harsh wash down environments



STAIN-
LESS
STEEL

IP 69K



Additional information

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Product description

The W8 INOX is a miniature product family, especially for applications in harsh ambient conditions. The high-quality IP 69K stainless steel housing (1.4404/SUS316L) in combination with high-performance PPSU and PEEK plastics make these sensors suitable for a broad range of applications. In addition to a highly visible LED light spot, the W8 INOX includes M3 threaded mounting holes that

reduce mounting time. These compact, lightweight sensors provide maximum resistance to harsh wash down environments in the food and beverage industry. The four models – through-beam, retro-reflective, energetic and background suppression (BGS) – provide reliable, high-performance solutions for harsh environments.

At a glance

- Rugged IP 69K stainless steel housing 1.4404/316L
- Front screen made of high-performance PPSU plastic that is resistant to heat and chemicals
- Potentiometer made of mechanically stable high-performance PEEK (polyether ketone) plastic
- Constructed with FDA-approved materials
- Well-defined, highly visible light spot
- M3 threaded mounting holes and stainless steel mounting bracket (1.4301/304) included with delivery

Your benefits

- High reliability due to an IP 69K stainless steel housing, which withstands aggressive cleaning agents or cooling lubricants
- Quick and easy mounting due to universally compatible M3 threaded mounting holes
- Compact housing saves space (equal to W8 plastic version)
- Highly visible light spot provides easy alignment
- All necessary accessories are included, which simplifies installation

→ www.mysick.com/en/W8_Inox

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 Inox	WTE8 Inox	WL8 Inox	WSE8 Inox
Sensor principle	Photoelectric proximity sensor		Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
Detection principle	Background suppression	Energetic	Standard optics	–
Dimensions (W x H x D)	11 mm x 21 mm x 33.3 mm			
Housing design (light emission)	Rectangular			
Sensing range max.	5 mm ... 500 mm ¹⁾ (depending on type)	0 mm ... 950 mm ¹⁾	0.01 m ... 6.5 m ²⁾	0 m ... 45 m
Sensing range	5 mm ... 300 mm ¹⁾ (depending on type)	0 mm ... 700 mm ¹⁾	0.01 m ... 4.5 m ³⁾	0 m ... 20 m
Type of light	Visible red light			
Light source ⁴⁾	LED			
Angle of dispersion	–	Approx. 3°		Approx. 2.5°
Wave length	650 nm	645 nm		
Adjustment	Potentiometer, 4 turns	Potentiometer, 270°		

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

²⁾ PL80A.

³⁾ P250A.

⁴⁾ Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	WTB8 Inox	WTE8 Inox	WL8 Inox	WSE8 Inox
Supply voltage ¹⁾	10 V DC ... 30 V DC			
Ripple ²⁾	± 10 %			
Power consumption ³⁾	≤ 30 mA			–
Power consumption, sender	–			≤ 15 mA ⁴⁾
Power consumption, receiver	–			≤ 20 mA ⁴⁾
Output type	PNP / NPN (depending on type)			
Switching mode	Light/dark-switching (selectable via light/dark selector)			
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 ⁵⁾	≤ 0.5 ms			
Switching frequency ⁶⁾	1,000 Hz			
Angle of reception	–			Approx. 15°
Connection type	Cable, 2 m ⁷⁾ / Male connector, M8 (depending on type)			
Circuit protection	A ⁸⁾ , B ⁹⁾ , D ¹⁰⁾			
Protection class	III			
Weight	83.6 g			
Polarisation filter	–			–
Housing material	Stainless steel V4A (1.4404, 316L)			

	WTB8 Inox	WTE8 Inox	WL8 Inox	WSE8 Inox
Enclosure rating	IP 69K			
Items supplied	Stainless steel mounting bracket (1.4301/304) BEF-W100-A		Stainless steel mounting bracket (1.4301/304) BEF-W100-A, P250A reflector	Stainless steel mounting bracket (1.4301/304) BEF-W100-A
Ambient operating temperature ¹¹⁾	-30 °C ... +60 °C			
Ambient storage temperature	-40 °C ... +70 °C			

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

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

³⁾ Without load.

⁴⁾ Receiver without load.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ Do not bend below 0 °C.

⁸⁾ A = V_s connections reverse-polarity protected.

⁹⁾ B = inputs and output reverse-polarity protected.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

¹¹⁾ At an air humidity of 35 ... 95 %.

Ordering information

Other models available at www.mysick.com/en/W8_Inox

WTB8 Inox

- **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 ... 150 mm	Ø 8 mm (100 mm)	PNP	Cable, 3-wire 2 m PVC	Cd-043	WTB8-P1111V	6041457
			Connector M8, 3-pin	Cd-045	WTB8-P2111V	6041458
			Connector M8, 4-pin	Cd-066	WTB8-P2211V	6041459
		NPN	Cable, 3-wire 2 m PVC	Cd-043	WTB8-N1111V	6041453
			Connector M8, 3-pin	Cd-045	WTB8-N2111V	6041454
			Connector M8, 4-pin	Cd-066	WTB8-N2211V	6041455
10 mm ... 500 mm	Ø 22 mm (350 mm)	PNP	Cable, 3-wire 2 m PVC	Cd-043	WTB8-P1131V	6041465
			Connector M8, 3-pin	Cd-045	WTB8-P2131V	6041466
			Connector M8, 4-pin	Cd-066	WTB8-P2231V	6041467
		NPN	Cable, 3-wire 2 m PVC	Cd-043	WTB8-N1131V	6041461
			Connector M8, 3-pin	Cd-045	WTB8-N2131V	6041462
			Connector M8, 4-pin	Cd-066	WTB8-N2231V	6041463

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

WTE8 Inox

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** energetic
- **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 mm ... 950 mm	Ø 35 mm (700 mm)	PNP	Cable, 3-wire 2 m PVC	Cd-043	WTE8-P1131V	6041473
			Connector M8, 3-pin	Cd-045	WTE8-P2131V	6041474
			Connector M8, 4-pin	Cd-066	WTE8-P2231V	6041475
		NPN	Cable, 3-wire 2 m PVC	Cd-043	WTE8-N1131V	6041469
			Connector M8, 3-pin	Cd-045	WTE8-N2131V	6041470
			Connector M8, 4-pin	Cd-066	WTE8-N2231V	6041471

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

WL8 Inox

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** standard optics
- **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.
0.01 m ... 6.5 m	Ø 245 mm (4.5 m)	PNP	Cable, 3-wire 2 m PVC	Cd-043	WL8-P1131V	6041481
			Connector M8, 3-pin	Cd-045	WL8-P2131V	6041482
			Connector M8, 4-pin	Cd-066	WL8-P2231V	6041483
		NPN	Cable, 3-wire 2 m PVC	Cd-043	WL8-N1131V	6041477
			Connector M8, 3-pin	Cd-045	WL8-N2131V	6041478
			Connector M8, 4-pin	Cd-066	WL8-N2231V	6041479

¹⁾ PL80A.

WSE8 Inox

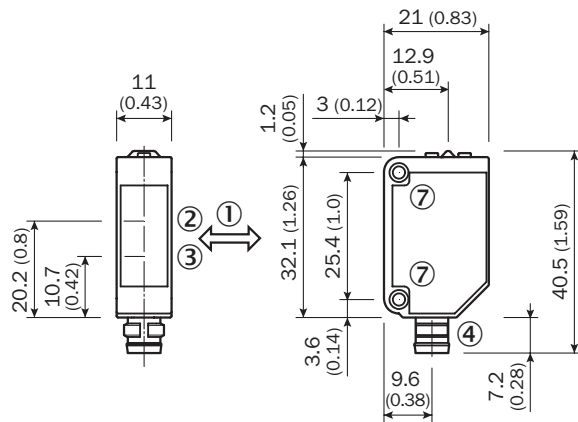
- **Sensor principle:** through-beam photoelectric sensor
- **Switching mode:** light/dark-switching
- **Adjustment:** potentiometer, 270 °

Sensing range max.	Light spot size (distance)	Output type	Connection	Connection diagram	Model name	Part no.
0 m ... 45 m	Ø 900 mm (20 m)	PNP	Cable, 3-wire 2 m PVC	Cd-049	WSE8-P1131V	6041489
			Connector M8, 3-pin	Cd-051	WSE8-P2131V	6041490
			Connector M8, 4-pin	Cd-057	WSE8-P2231V	6041491
		NPN	Cable, 3-wire 2 m PVC	Cd-049	WSE8-N1131V	6041485
			Connector M8, 3-pin	Cd-051	WSE8-N2131V	6041486
			Connector M8, 4-pin	Cd-057	WSE8-N2231V	6041487

Dimensional drawings

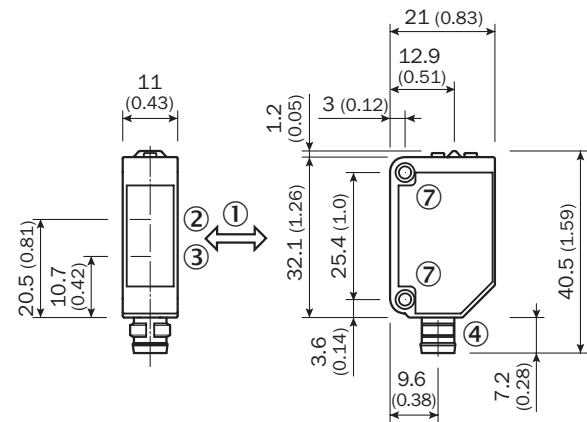
Dimensions in mm (inch)

WTB8, 150 mm



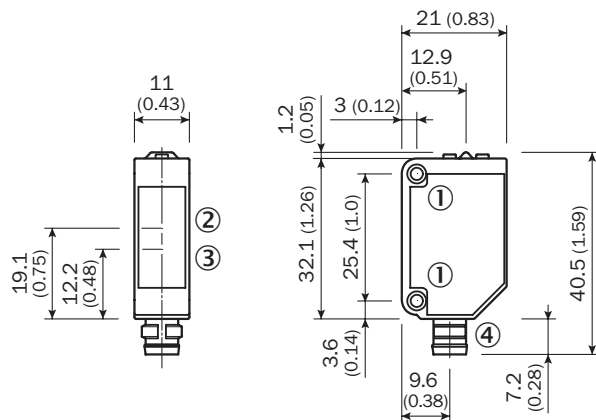
- ① Standard direction
- ② Center of optical axis, receiver
- ③ Center of optical axis, sender
- ④ Connection
- ⑦ Threaded mounting hole M3, max. tightening torque of 1.8 Nm for M3 screw with washer, spring ring and mounting bracket (2 x 3.2 mm borehole)

WTB8, 500 mm



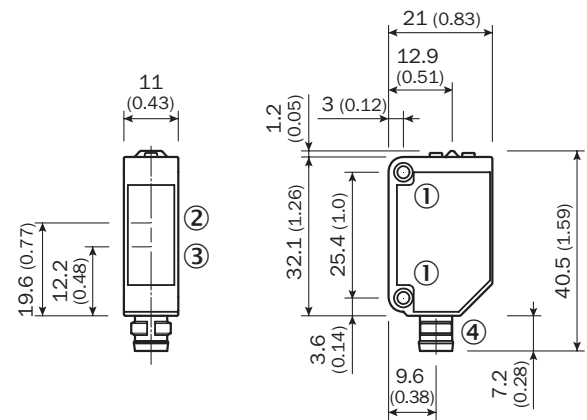
- ① Standard direction
- ② Center of optical axis, receiver
- ③ Center of optical axis, sender
- ④ Connection
- ⑦ Threaded mounting hole M3, max. tightening torque of 1.8 Nm for M3 screw with washer, spring ring and mounting bracket (2 x 3.2 mm borehole)

WTE8



- ① Threaded mounting hole M3, max. tightening torque of 1.8 Nm for M3 screw with washer, spring ring and mounting bracket (2 x 3.2 mm borehole)
- ② Center of optical axis, receiver
- ③ Center of optical axis, sender
- ④ Connection

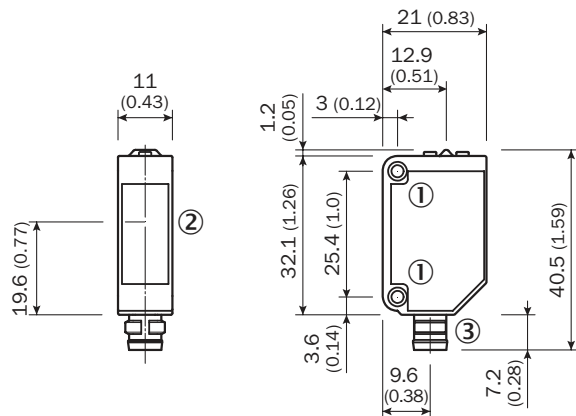
WL8



- ① Threaded mounting hole M3, max. tightening torque of 1.8 Nm for M3 screw with washer, spring ring and mounting bracket (2 x 3.2 mm borehole)
- ② Center of optical axis, receiver
- ③ Center of optical axis, sender
- ④ Connection

F

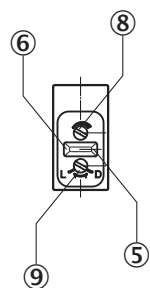
WSE8



- ① Threaded mounting hole M3, max. tightening torque of 1.8 Nm for M3 screw with washer, spring ring and mounting bracket (2 x 3.2 mm borehole)
- ② Center of optical axis, sender and receiver
- ③ Connection

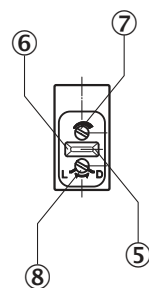
Adjustments

WTB8



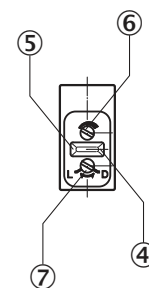
- ⑤ Orange LED indicator: switching output active
- ⑥ LED indicator green: stability indicator light up when the light received is < 0.9 or > 1.1 (based on switching threshold $Q = 1$)
- ⑧ Sensing range adjustment: potentiometer, 4-turn
- ⑨ Light/ dark rotary switch: L = light switching, D = dark switching

WTE8, WL8



- ⑤ Orange LED indicator: switching output active
- ⑥ LED indicator green: stability indicator light up when the light received is < 0.9 or > 1.1 (based on switching threshold $Q = 1$)
- ⑦ Sensitivity control: potentiometer 270°
- ⑧ Light/ dark rotary switch: L = light switching, D = dark switching

WSE8



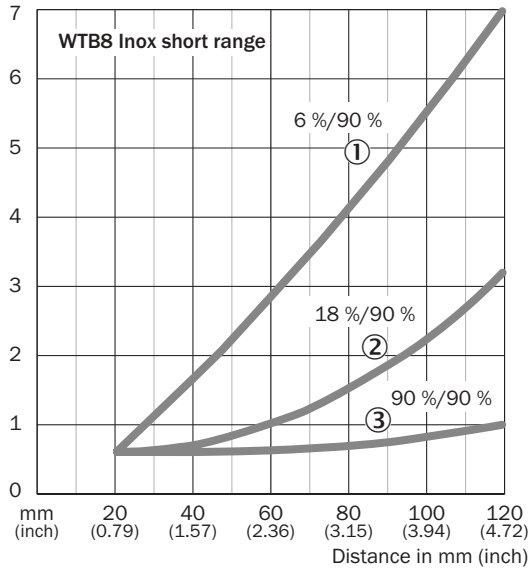
- ④ Orange LED indicator: switching output active (only WE)
- ⑤ LED indicator green: stability indicator light up when the light received is < 0.9 or > 1.1 (based on switching threshold $Q = 1$)
- ⑥ Sensitivity control: potentiometer 270° on WE
- ⑦ Light/ dark rotary switch: L = light switching, D = dark switching

Characteristic curves

Black-white shift

WTB8, 150 mm

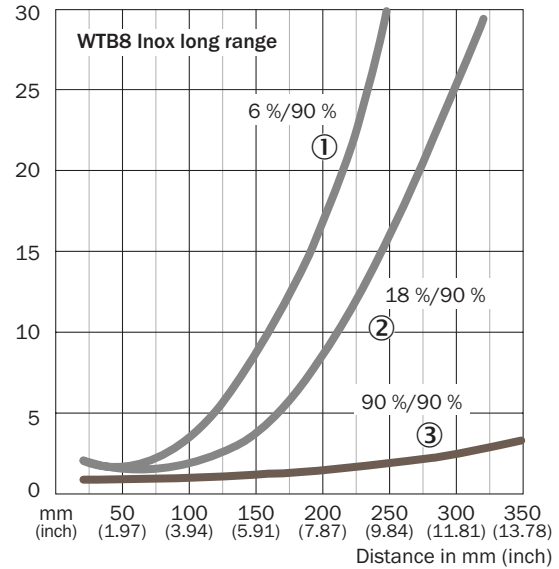
% of sensing distance



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

WTB8, 500 mm

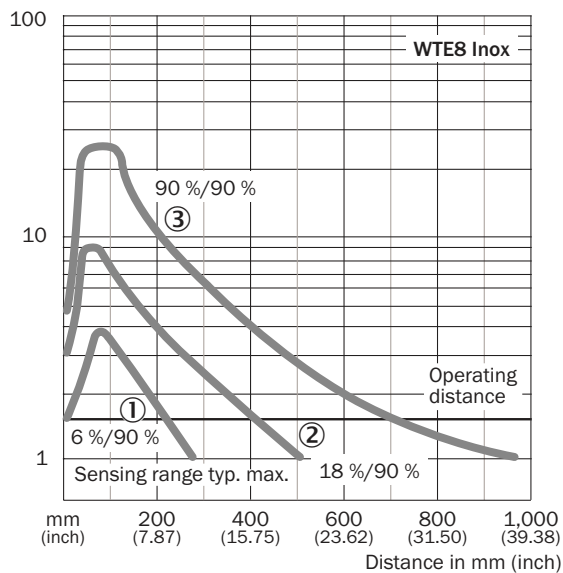
% of sensing



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

WTE8

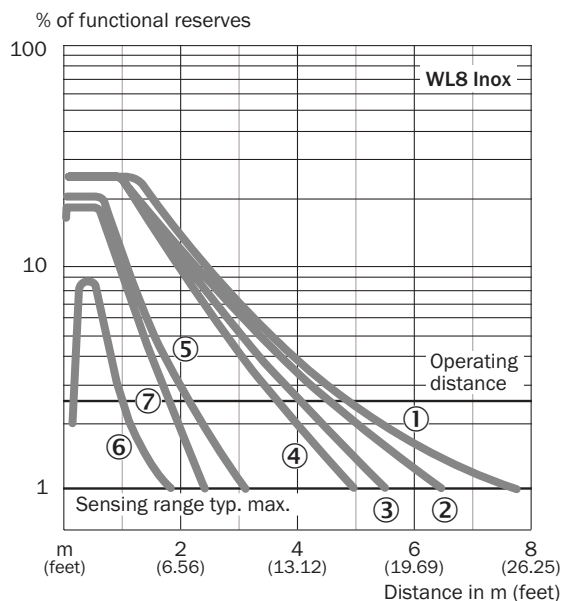
% of functional reserves



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

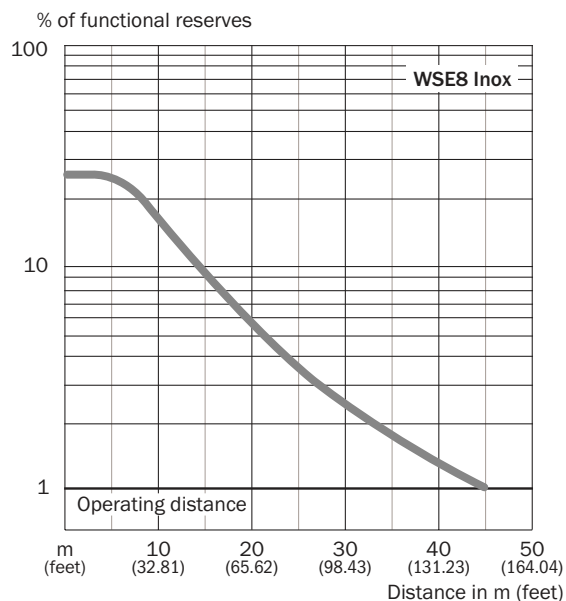
Operating reserve

WL8



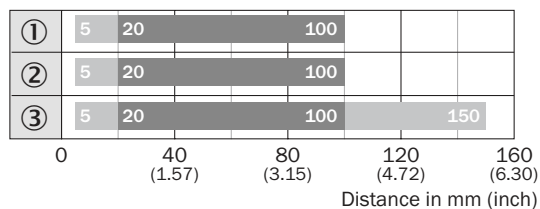
- ① PL80A
- ② P250
- ③ PL40A
- ④ PL30A
- ⑤ PL20A
- ⑥ Reflective tape Diamond Grade (100 mm x 100 mm/3.94 inch x 3.94 inch)
- ⑦ P45

WSE8



Bar diagrams

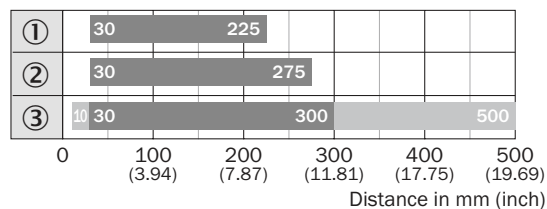
WTB8, 150 mm



■ 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

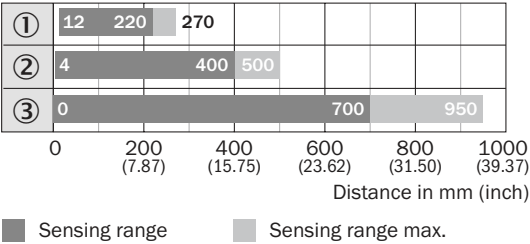
WTB8, 500 mm



■ Sensing range ■ Sensing range max.

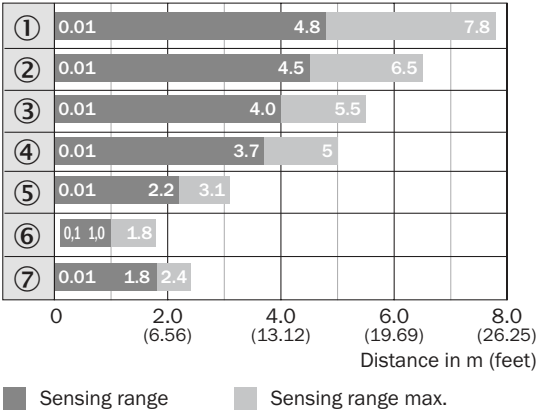
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

WTE8



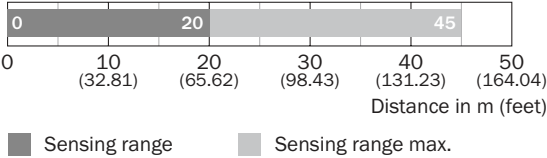
- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission

WL8



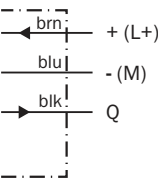
- ① PL80A
- ② P250
- ③ PL40A
- ④ PL30A
- ⑤ PL20A
- ⑥ Reflective tape Diamond Grade
- ⑦ P45

WSE8

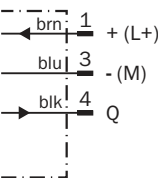


Connection diagram

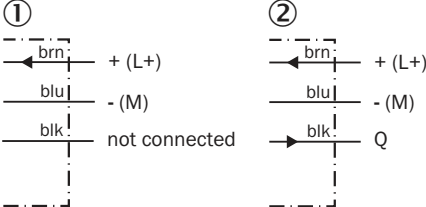
Cd-043



Cd-045

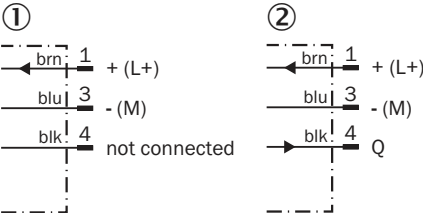


Cd-049



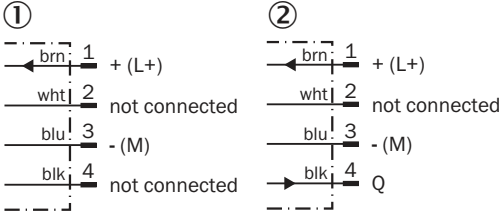
- ① Sender
- ② Receiver

Cd-051



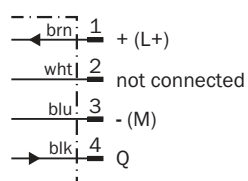
- ① Sender
- ② Receiver

Cd-057



- ① Sender
- ② Receiver

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), hygienic systems

- Cable material: PP
- Connector material: PP


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, IP 69K	DOL-0803-G02MN	6033664
			5 m, 3-wire	IP 67, IP 69K	DOL-0803-G05MN	6033665
	Female connector, M8, 3-pin, angled	Cable, open conductor heads	2 m, 3-wire	IP 67, IP 69K	DOL-0803-W02MN	6033667
			5 m, 3-wire	IP 67, IP 69K	DOL-0803-W05MN	6033668
			10 m, 3-wire	IP 67, IP 69K	DOL-0803-W10MN	6033669
	Female connector, M8, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	IP 67, IP 69K	DOL-0804-G02MN	6033670
			5 m, 4-wire	IP 67, IP 69K	DOL-0804-G05MN	6033671
			10 m, 4-wire	IP 67, IP 69K	DOL-0804-G10MN	6033672
	Female connector, M8, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	IP 67, IP 69K	DOL-0804-W02MN	6033673
			5 m, 4-wire	IP 67, IP 69K	DOL-0804-W05MN	6033674

Universal bar clamp systems

Figure	Material	Description	Model name	Part no.
	Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)	Plate N08N for universal clamp bracket	BEF-KHS-N08N	2051616


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.
	Plastic	Chemically resistant, screw connection, 47 mm x 47 mm	P250 CHEM	5321097

Fine triple reflectors







Figure	Material	Description	Model name	Part no.
	Plastic	Fine triple, chemically resistant, screw connection, suitable for laser sensors, 16 mm x 38 mm	PL20F-CHEM	5326089

F

Reflective tape

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

Special reflectors

Figure	Material	Description	Model name	Part no.
	Plastic	Chemically resistant, screw connection, 38 mm x 15 mm	PL20 CHEM	5321089
	PMMA/ABS	Antifog, for prevention of moisture fogging on the reflection area, screw connection, 56 mm x 37 mm	PL40A Antifog	5322011
	Plastic	Rectangular, screw connection M3, countersunk screw head, chemical resistant, 56 mm x 37 mm	PL40B-CHEM	5326088
	Stainless steel V4A (1.4404, 316L)	Stainless steel reflector, hygienic design, chemically resistant, Enclosure rating IP 69K, D12-adapter shaft, 25 mm x 25 mm	PLH25-D12	2063404
		Stainless steel reflector, hygienic design, chemically resistant, Enclosure rating IP 69K, M12-adapter thread, 25 mm x 25 mm	PLH25-M12	2063403
		Stainless steel reflector, wash-down design, chemically resistant, Enclosure rating IP 69K, screw connection, 14 mm x 14 mm	PLV14-A	2063405

→ For additional accessories, please see page L-861

