

Highest reliability, maximum resistance and endless possibilities



F

STAIN-LESS STEEL

IP 69K

SIRIC®

Additional information

Detailed technical data. F-321

Ordering information. F-322

Dimensional drawings F-324

Characteristic curves F-327

Bar diagrams. F-329

Connection diagram F-330

Recommended accessories. . . . F-331

Product description

The W4S-3 Inox Hygiene series of photoelectric sensors combines hygienic requirements based on EHEDG with best-in-class performance. These sensors are completely enclosed in a stainless steel housing and can be taught via a stainless steel teach button with a metal membrane. With built in protec-

tion for the sensor cable, no additional mounting brackets or mounting holes are required for in-process machine integration. These sensors are designed for a completely hygienic sensor solution that is a necessity for the most hygienic machines.

At a glance

- Smooth stainless steel housing (316L/1.4404)
- Hygienic mounting using M12-adapt-er thread or D12-adapt-er shaft
- IP 66, IP 67, IP 68 and IP 69K en-closure rating and Ecolab certified
- Resistant to a variety of common cleaning and disinfection agents
- Highly visible laser-like light spot due to PinPoint LED
- Teach-in via stainless steel pushbut-ton with a metal membrane

Your benefits

- Smooth hygienic housing and acces-sories with no grooves or crevices eliminates the potential for bacteria to grow, providing a more hygienic solution.
- Long service life in harsh conditions ensures less downtime and fewer replacement costs
- Easy adjustment via a stainless steel metal membrane teach-in pushbutton
- Quick and easy alignment due to highly visible PinPoint emitter LED

→ www.mysick.com/en/W4S-3_Inox_Hygiene

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

	WTB4S-3H	WTF4S-3H	WL4S-3H	WSE4S-3H
Sensor principle	Photoelectric proximity sensor		Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
Detection principle	Background suppression	Foreground suppression	Autocollimation	–
Dimensions (W x H x D)	15.25 mm x 48.6 mm x 22.15 mm / 15.25 mm x 63.2 mm x 22.15 mm (depending on type)			
Housing design	Hygiene			
Housing design (light emission)	Rectangular			
Sensing range max.	4 mm ... 500 mm ¹⁾ (depending on type)	20 mm ... 200 mm ¹⁾	0 m ... 5 m ²⁾ (depending on type)	0 m ... 5 m
Sensing range	10 mm ... 350 mm ¹⁾ (depending on type)	–	0 m ... 3 m ²⁾ (depending on type)	0 m ... 4.5 m
Type of light	Visible red light			
Light source ³⁾	PinPoint LED			
Wave length	650 nm			
Adjustment	Cable ⁴⁾ / Single teach-in button / Cable, Single teach-in button ⁴⁾ (depending on type)	Cable, Single teach-in button ⁴⁾	Single teach-in button	–

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.

⁴⁾ External teach-in: pulse > 2 s with voltage U_v with PNP and M with NPN.

Mechanics/electronics

	WTB4S-3H	WTF4S-3H	WL4S-3H	WSE4S-3H
Supply voltage ¹⁾	10 V DC ... 30 V DC			
Ripple ²⁾	< 5 V _{pp}			
Power consumption	≤ 30 mA ³⁾			≤ 20 mA ⁴⁾
Output type	PNP / NPN (depending on type)			
Output function	Complementary	–	Complementary	
Switching mode	Light switching / Light/dark-switching (depending on type)	Light switching	Light/dark-switching	Light switching Dark-switching Light/dark-switching (depending on type)
Output current I_{max.}	≤ 100 mA			
Response time ⁵⁾	< 0.5 ms			
Switching frequency ⁶⁾	1,000 Hz			
Connection type	Cable, 2 m ⁷⁾ / Male connector, M8 ⁸⁾ / Cable with connector, M8, 150 mm ^{7) 8)} (depending on type)			
Mechanical connection	M12 adapter thread / D12 adapter shaft (depending on type)	M12 adapter thread	M12 adapter thread / D12 adapter shaft (depending on type)	
Circuit protection	A ⁹⁾ , B ¹⁰⁾ , C ¹¹⁾			
Protection class	III			
Weight				
	Cable ⁷⁾	80 g	–	80 g
	Connector ⁸⁾	140 g	50 g	40 g
	Cable with connector ^{7) 8)}	50 g	–	140 g

	WTB4S-3H	WTF4S-3H	WL4S-3H	WSE4S-3H
Polarisation filter	-		✓	-
Housing material	Stainless steel 316L			
Enclosure rating	IP 66, IP 67, IP 68, IP 69K			
Test input sender off	-			"Test" to 0 V
Ambient operating temperature	-30 °C ... +60 °C / -30 °C ... +70 °C ¹²⁾			
Ambient storage temperature	-30 °C ... +75 °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⁾ Sender.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ Do not bend below 0 °C.

⁸⁾ Tightening torque, max.: 0.6 Nm.

⁹⁾ A = V_S connections reverse-polarity protected.

¹⁰⁾ B = inputs and output reverse-polarity protected.

¹¹⁾ C = interference suppression.

¹²⁾ At UV ≤ 24 V and IA < 30 mA.

Ordering information

Other models available at www.mysick.com/en/W4S-3_Inox_Hygiene

WTB4S-3H

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** background suppression

Sensing range max. ¹⁾	Light spot size (distance)	Mechanical connection	Output type	Switching mode	Adjustment	Connection	Con- nection diagram	Model name	Part no.
4 mm ... 120 mm	Ø 2.5 mm (50 mm)	M12 adapter thread	PNP	Light switching	Cable ²⁾	Cable with connector M8, 4-pin, 150 mm, PVC	Cd-092	WTB4S-3P3235H	1048100
				Light/dark-switching	Single teach-in button		Cd-083	WTB4S-3P3232H	1048096
			NPN	Light switching	Cable ²⁾	Cable, 4-wire, 2 m, PVC	Cd-093	WTB4S-3N1135H	1048101
				Light/dark-switching	Single teach-in button	Cable, 4-wire, 2 m, PVC	Cd-094	WTB4S-3N1132H	1048098
		D12 adapter shaft	PNP	Light/dark-switching	Single teach-in button	Connector M8, 4-pin	Cd-083	WTB4S-3P5232H	1054864
				Light switching	Cable, Single teach-in button ²⁾	Connector M8, 4-pin	Cd-083	WTB4S-3P5204HS02	1054865
4 mm ... 500 mm	Ø 6.5 mm (150 mm)	M12 adapter thread	PNP	Light switching	Cable, Single teach-in button	Cable, 4-wire, 2 m, PVC	Cd-094	WTB4S-3P1162H	1051983
				Light/dark-switching	Single teach-in button	Cable with connector M8, 4-pin, 150 mm, PVC	Cd-092	WTB4S-3P3265H	1048102
			NPN	Light/dark-switching	Single teach-in button	Cable, 4-wire, 2 m, PVC	Cd-083	WTB4S-3P3262H	1048094
				Light switching	Cable ²⁾	Cable, 4-wire, 2 m, PVC	Cd-093	WTB4S-3N1165H	1048107
		D12 adapter shaft	NPN	Light/dark-switching	Single teach-in button	Cable, 4-wire, 2 m, PVC	Cd-094	WTB4S-3N1162H	1048095

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

²⁾ External teach-in: pulse > 2 s with voltage U_v with PNP and M with NPN.

WTF4S-3H

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** foreground suppression

Sensing range max. ¹⁾	Light spot size (distance)	Mechanical connection	Output type	Switching mode	Adjustment ²⁾	Connection	Con-nection diagram	Model name	Part no.
20 mm ... 200 mm	Ø 6.5 mm (150 mm)	M12 adapter thread	PNP	Light switching	Cable, Single teach-in button	Cable with connector M8, 4-pin, 150 mm, PVC	Cd-092	WTF4S-3P3264H	1048109

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

²⁾ External teach-in: pulse > 2 s with voltage U_v with PNP and M with NPN.

WL4S-3H

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** autocollimation

Sensing range max. ¹⁾	Light spot size (distance)	Mechanical connection	Output type	Switching mode	Adjustment	Connection	Con-nection diagram	Model name	Part no.
0 m ... 4 m	Ø 45 mm (1,5 mm)	M12 adapter thread	PNP	Light/dark-switching	-	Cable with connector M8, 4-pin, 150 mm, PVC	Cd-083	WL4S-3P3230H	1048115
			NPN	Light/dark-switching	-	Cable, 4-wire, 2 m, PVC	Cd-094	WL4S-3N1130H	1048116
		D12 adapter shaft	PNP	Light/dark-switching	-	Connector M8, 4-pin	Cd-083	WL4S-3P5230H	1057052
0 m ... 5 m	Ø 45 mm (1,5 mm)	M12 adapter thread	PNP	Light/dark-switching	Single teach-in button	Cable with connector M8, 4-pin, 150 mm, PVC	Cd-083	WL4S-3P3232H	1048117
			NPN	Light/dark-switching	Single teach-in button	Cable, 4-wire, 2 m, PVC	Cd-094	WL4S-3N1132H	1048119

¹⁾ PL80A.

WL4S-3H, Alarm output

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** autocollimation

Sensing range max. ¹⁾	Light spot size (distance)	Mechanical connection	Output type	Switching mode	Adjustment	Connection	Con-nection diagram	Model name	Part no.
0 m ... 5 m	Ø 45 mm (1,5 mm)	M12 adapter thread	PNP	Light/dark-switching	Single teach-in button	Cable with connector M8, 4-pin, 150 mm, PVC	Cd-107	WL4S-3V3232H	1048118

¹⁾ PL80A.

WSE4S-3H

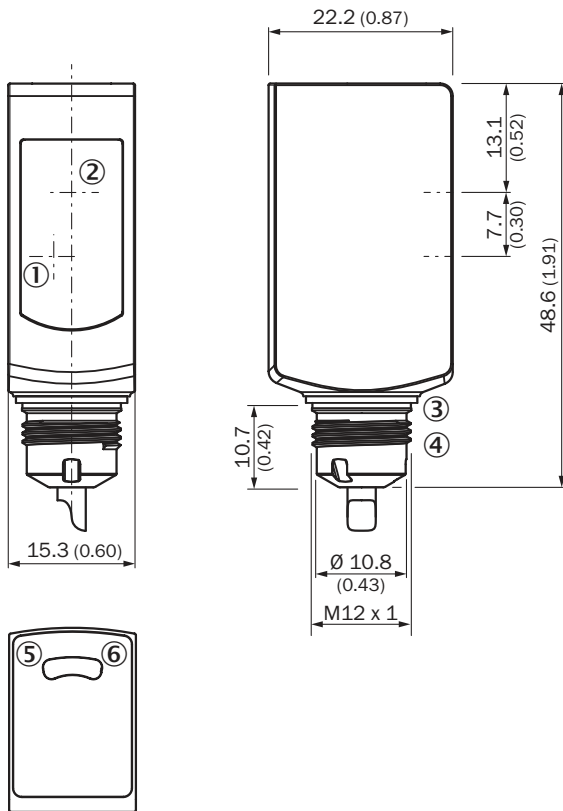
- **Sensor principle:** through-beam photoelectric sensor

Sensing range max.	Light spot size (distance)	Mechanical connection	Output type	Switching mode	Connection	Con-nection diagram	Model name	Part no.
0 m ... 5 m	Ø 50 mm (2 mm)	M12 adapter thread	PNP	Light switching	Cable with connector M8, 3-pin, 150 mm, PVC	Cd-069	WSE4S-3P3130H	1052888
				Dark-switching		Cd-069	WSE4S-3F3130H	1052882
			NPN	Light switching	Cable, 3-wire, 2 m, PVC	Cd-061	WSE4S-3N1330H	1052873
				Dark-switching	Cable, 3-wire, 2 m, PVC	Cd-055	WSE4S-3N1330H	1048129
					Cable, 3-wire, 2 m, PVC	Cd-055	WSE4S-3E1330H	1048130
				Cable with connector M8, 3-pin, 150 mm, PVC	Cd-069	WSE4S-3E3130H	1052870	
		D12 adapter shaft	PNP	Light/dark-switching	Cable, 3-wire, 2 m, PVC	Cd-061	WSE4S-3E1330H	1052868
					Cable with connector M8, 4-pin, 150 mm, PVC	Cd-072	WSE4S-3P5230H	1054896

Dimensional drawings

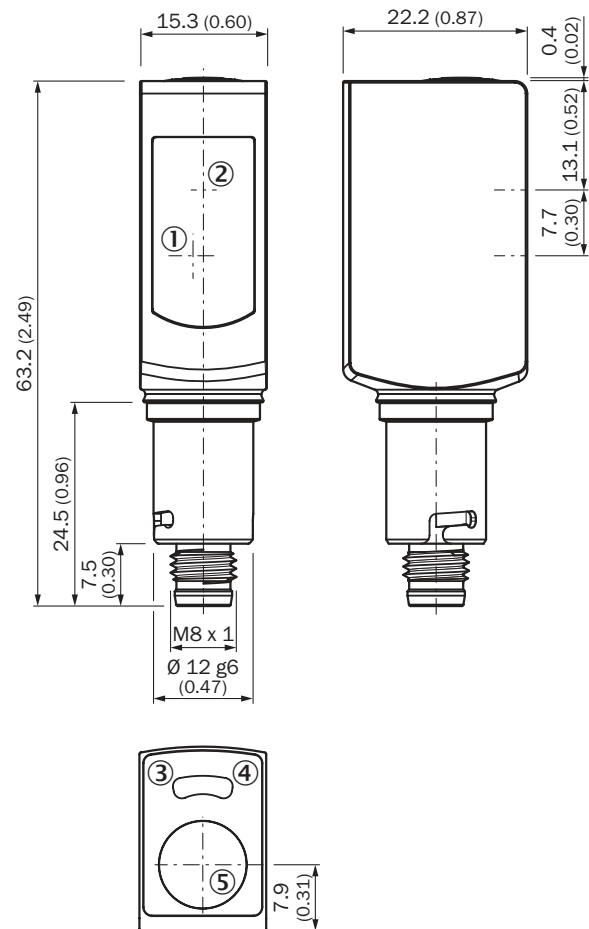
Dimensions in mm (inch)

WTB4S-3H, WTF4S-3H,
without single teach-in button



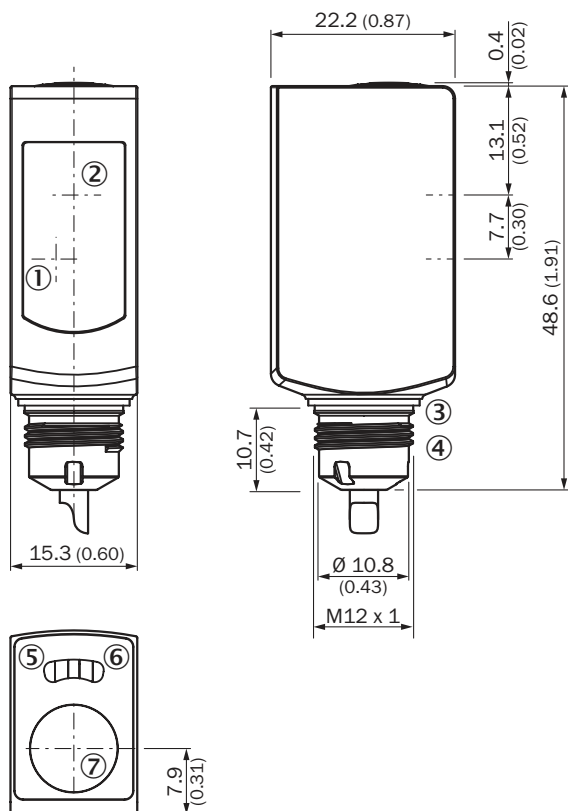
- ① Center of optical axis, receiver
- ② Center of optical axis, sender
- ③ Gasket (tightening torque 6Nm)
- ④ Connector M12
- ⑤ Status indicator LED, yellow: Status of received light beam
- ⑥ Status indicator LED green: power on

WTB4S-3H, WTF4S-3H,
with single teach-in button, D12 adapter shaft, L-adaption



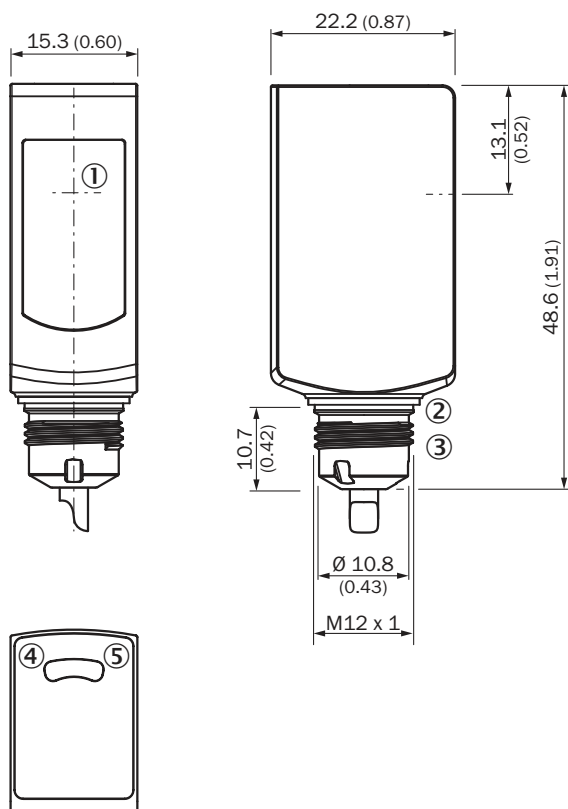
- ① Center of receiver's optical axis
- ② Center of optical axis, sender
- ③ Status indicator LED, yellow: Status of received light beam
- ④ Status indicator LED green: power on
- ⑤ Single teach-in button

WTB4S-3H, WTF4S-3H, with single teach-in button



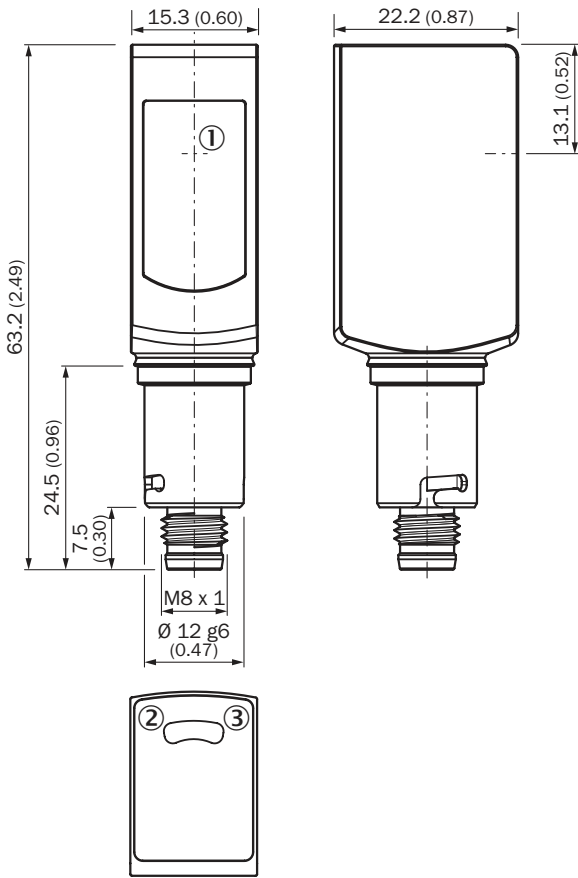
- ① Center of optical axis, receiver
- ② Center of optical axis, sender
- ③ Gasket (tightening torque 6Nm)
- ④ Connector M12
- ⑤ Status indicator LED, yellow: Status of received light beam
- ⑥ Status indicator LED green: power on
- ⑦ Teach-in button

WL4S-3H, without single teach-in button



- ① Center of optical axis
- ② Gasket (tightening torque 6Nm)
- ③ Connector M12
- ④ Status indicator LED, yellow: Status of received light beam
- ⑤ Status indicator LED green: power on

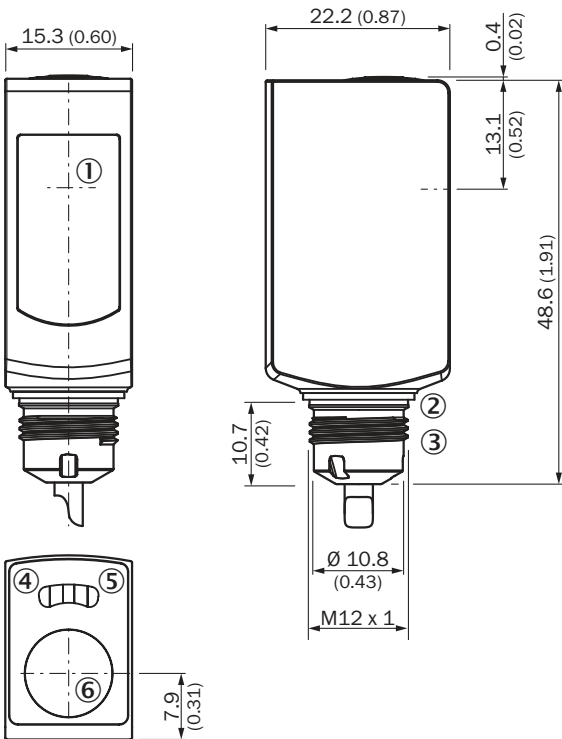
WL4S-3H, with single teach-in button, D12 adapter shaft, I-adaption



- ① Center of optical axis
- ② Status indicator LED green: power on
- ③ Status indicator LED, yellow: Status of received light beam

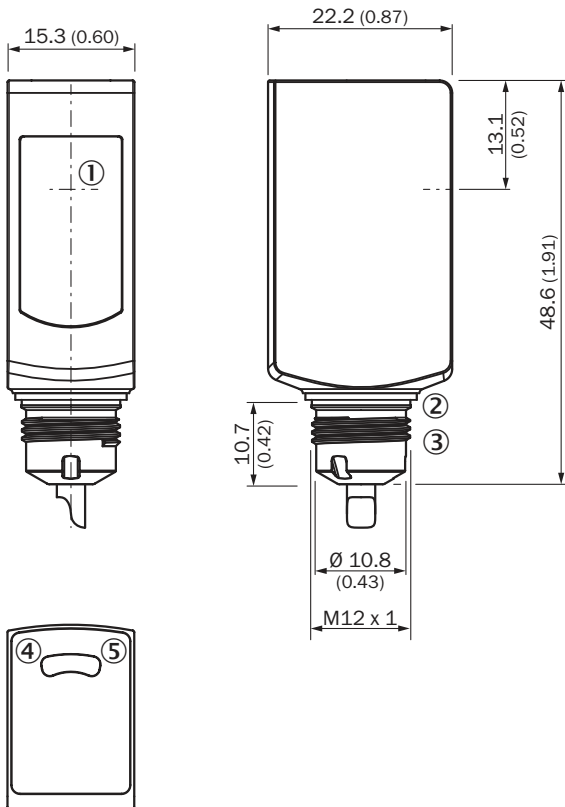
F

WL4S-3H, with single teach-in button



- ① Center of optical axis
- ② Gasket (tightening torque 6Nm)
- ③ Connector M12
- ④ Status indicator LED, yellow: Status of received light beam
- ⑤ Status indicator LED green: power on
- ⑥ Teach-in button

WSE4S-3H



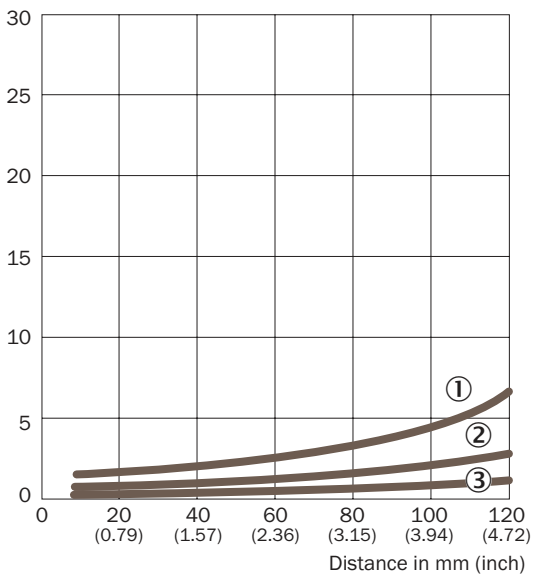
- ① Center of optical axis, sender (WS) and receiver (WE)
- ② Gasket (tightening torque 6Nm)
- ③ Connector M12
- ④ Status indicator LED, yellow: Status of received light beam
- ⑤ Status indicator LED green: power on

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Characteristic curves

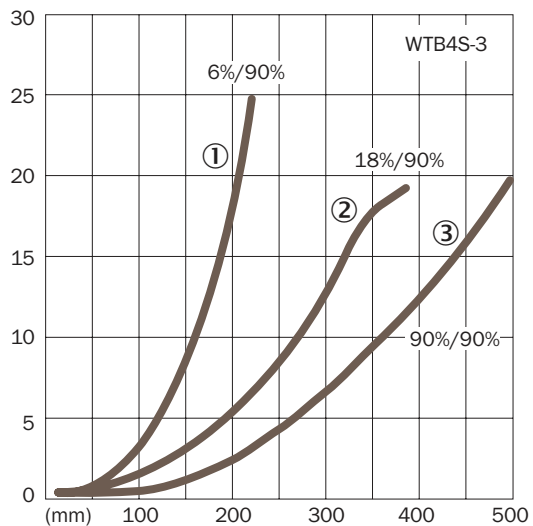
Black-white shift

WTB4S-3, 120 mm



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

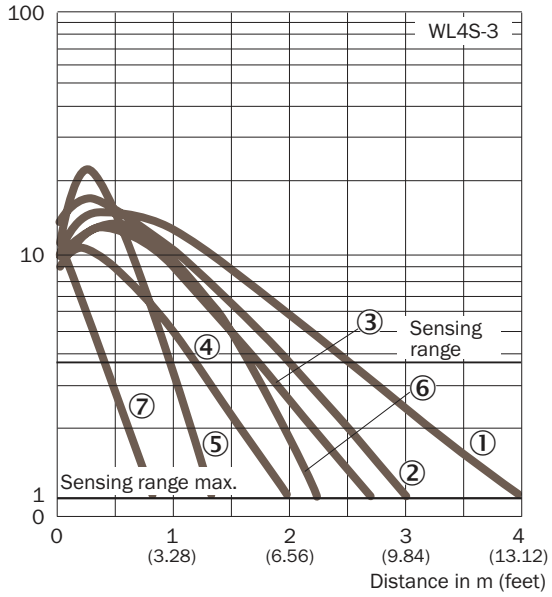
WTB4S-3, 500 mm



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

Operating reserve

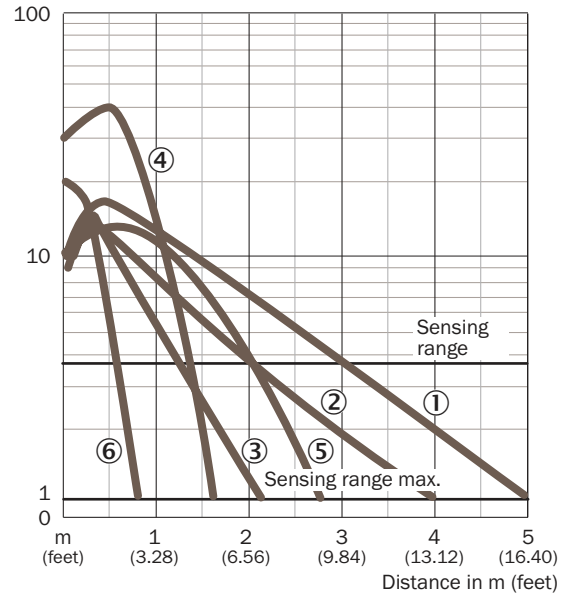
WL4S-3, 4 m



- ① PL80A
- ② P250F
- ③ PL40A
- ④ PL20A
- ⑤ PL10F
- ⑥ P250 CHEM
- ⑦ REF-IRF-56

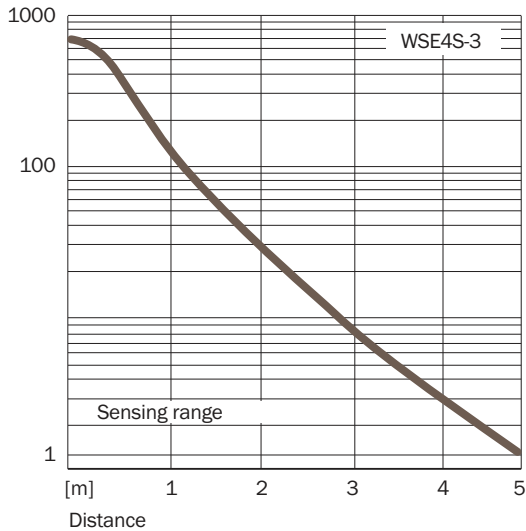
WL4S-3, 5 m

Operating reserve



- ① PL80A
- ② PL40A
- ③ PL20A
- ④ PL10F
- ⑤ P250 CHEM
- ⑥ REF-IRF-56

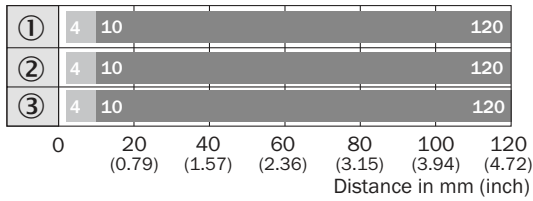
WSE4S-3V, WSE4S-3H



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Bar diagrams

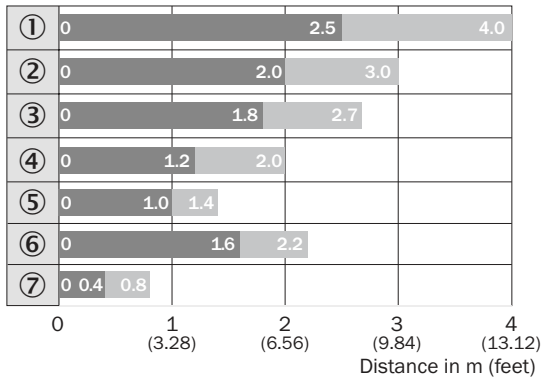
WTB4S-3, 120 mm



■ 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

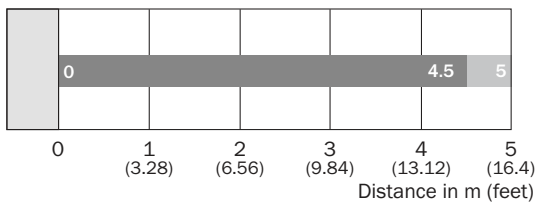
WL4S-3, 4 m



■ Sensing range ■ Sensing range max.

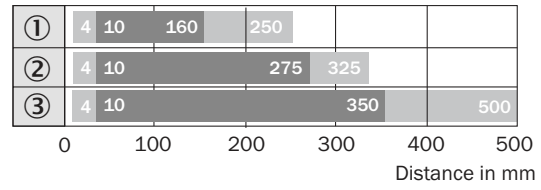
- ① PL80A
- ② P250F
- ③ PL40A
- ④ PL20A
- ⑤ PL10F
- ⑥ P250 CHEM
- ⑦ REF-IRF-56

WSE4S-3



■ Sensing range ■ Sensing range max.

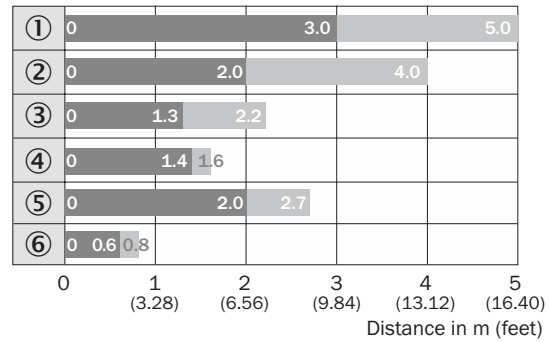
WTB4S-3, 500 mm



■ 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

WL4S-3, 5 m

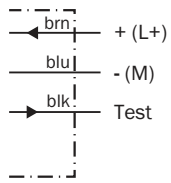


■ Sensing range ■ Sensing range max.

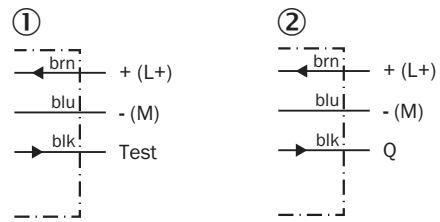
- ① PL80A
- ② PL40A
- ③ PL20A
- ④ PL10F
- ⑤ P250 CHEM
- ⑥ REF-IRF-56

Connection diagram

Cd-055

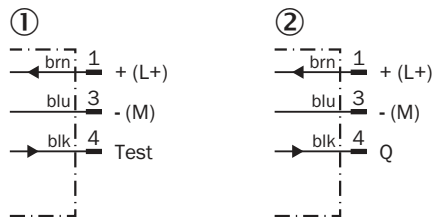


Cd-061



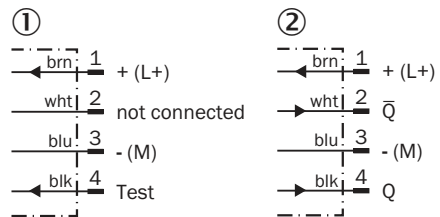
① Sender
② Receiver

Cd-069



① Sender
② Receiver

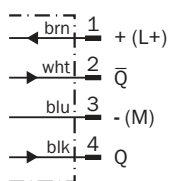
Cd-072



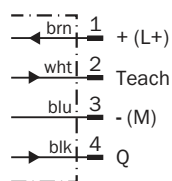
① Sender
② Receiver

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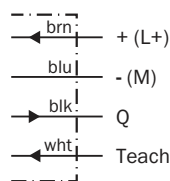
Cd-083



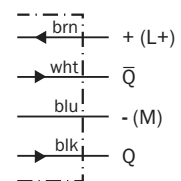
Cd-092



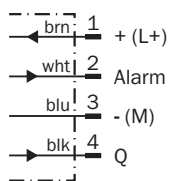
Cd-093



Cd-094



Cd-107




Recommended accessories

Plug connectors and cables







Connecting cable (female connector-open)M8, 4-pin, PP, 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, 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
	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

- For product family: Hygienic Design BeftechHD for sensors with D12 adapter shaft



Figure	Material	Description	Model name	Part no.
	Hygienic Design, Stainless steel V4A (1.4404, 316L), Silicone (seal)	Hygienic design mounting tube with bayonet lock, 14.4 mm x 85.5 mm x 14.4 mm	BEF-HDSBR	4074403
		Hygienic design flange with seal, 40 mm x 12 mm x 40 mm	BEF-HDSF	4072880
		Hygienic design telescopic tube, straight, with bayonet lock without flange, 23 mm x 153 mm x 23 mm	BEF-HDSTRG	2067780
		Hygienic design telescopic tube, straight, with bayonet lock with flange, 40 mm x 165 mm x 40 mm	BEF-HDSTRGF	2067779
		Hygienic design telescopic tube, angled, with bayonet lock without flange, 23 mm x 125 mm x 73 mm	BEF-HDSTRW	2067778
		Hygienic design telescopic tube, angled, with bayonet lock with flange, 40 mm x 125 mm x 76 mm	BEF-HDSTRWF	2067777

Reflectors

Angular

Figure	Material	Description	Model name	Part no.
	Plastic	Chemically resistant, screw connection, 47 mm x 47 mm	P250 CHEM	5321097
	PMMA/ABS	Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865







Fine triple reflectors

Figure	Material	Description	Model name	Part no.
	Plastic	Fine triple, chemically resistant, screw connection, 18 mm x 18 mm	PL10F CHEM	5321636
		Fine triple, chemically resistant, screw connection, suitable for laser sensors, 16 mm x 38 mm	PL20F-CHEM	5326089

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

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