

High-performance sensors for clear material detection in a rugged VISTAL™ housing




Additional information

Detailed technical dataG-463
 Ordering informationG-464
 Dimensional drawingsG-465
 AdjustmentsG-465
 Characteristic curvesG-465
 Bar diagramsG-466
 Light spot diameterG-466
 Connection diagramG-466
 Recommended accessoriesG-466

Product description

The WL9G-3 Clear Material photoelectric sensor family features a compact, rugged housing. They are high-performance sensors that are ideal for clear object detection. These sensors have a tough plastic housing made from VISTAL™, which offers outstanding mechanical

durability. The WL9G-3 Clear Material family also includes unique connectivity options, mounting variability and optical specifications, making it the perfect solution for challenging automation applications. Add this advantage to your machine.

At a glance

- High-performance sensor in ultra-rugged VISTAL™ housing
- Best-in-class optical performance for transparent object detection
- Continuous threshold adaption
- PinPoint LED for highly visible and precise light spot
- Variable mounting with M3 or M4 hole pattern
- Wide range of connection options

Your benefits

- Tough VISTAL™ housing provides reliable installation and operation
- Best-in-class optical performance
- Wide variety of connection, mounting and optical possibilities to solve many different applications

G

→ www.mysick.com/en/W9-3_Glass

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

	WL9G-3	WL9M4G-3
Sensor principle	Photoelectric retro-reflective sensor	
Detection principle	Autocollimation	
Dimensions (W x H x D)	12.2 mm x 50 mm x 23.6 mm 12.2 mm x 49.8 mm x 23.6 mm 12.2 mm x 52.2 mm x 23.6 mm (depending on type)	
Housing design (light emission)	Rectangular	
Mounting hole	M3	M4
Sensing range max. ¹⁾	0 m ... 5 m	
Sensing range ¹⁾	0 m ... 3 m	
Type of light	Visible red light	
Light source ²⁾	PinPoint LED	
Light spot size (distance)	Ø 45 mm (1.5 m)	
Wave length	650 nm	
Adjustment	Single teach-in button	
Continuous threshold adaption	✓	
Special feature	Detection of transparent objects	

¹⁾ PL80A.

²⁾ Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	WL9G-3	WL9M4G-3
Supply voltage ¹⁾	10 V DC ... 30 V DC	
Ripple ²⁾	< 5 V _{pp}	
Power consumption ³⁾	≤ 20 mA	
Output type ⁴⁾	PNP/NPN (depending on type)	
Output function	Complementary	
Switching mode ⁴⁾	Light/dark-switching ⁴⁾	
Output current I _{max.} ⁵⁾	≤ 100 mA	
Response time ⁶⁾	< 0.5 ms	
Switching frequency ⁷⁾	1,000 Hz	
Connection type	Cable, 2 m ⁸⁾ /Male connector, M8/Male connector, M12/ Cable with connector, M12, 120 mm ⁸⁾ (depending on type)	
Circuit protection	A ⁹⁾ , B ¹⁰⁾ , C ¹¹⁾	
Protection class	III	
Weight		
Connector M8, 4-pin	13 g	
Cable/cable with connector	80 g	
Polarisation filter	✓	
Housing material	VISTAL™	

G

	WL9G-3	WL9M4G-3
Optics material	PMMA	
Enclosure rating	IP 66/IP 67/IP 69K	
Ambient operating temperature	-40 °C ... +60 °C	
Ambient storage temperature	-40 °C ... +75 °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⁾ Q = light-switching.

⁵⁾ As of Tu 50 °C, a max. load current $I_{lmax.} = 50$ mA is permitted.

⁶⁾ Signal transit time with resistive load.

⁷⁾ With light/dark ratio 1:1.

⁸⁾ Do not bend below 0 °C.

⁹⁾ A = V_s connections reverse-polarity protected.

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

¹¹⁾ C = interference suppression.

Ordering information

Other models available at www.mysick.com/en/W9-3_Glass

WL9G-3

- Mounting hole: M3
- Detection principle: autocollimation

Adjustment	Sensing range max. ¹⁾	Switching mode ²⁾	Output type	Connection	Connection diagram	Model name	Part no.
Single teach-in button	0 m ... 5 m	Light/dark-switching	PNP	Cable, 4-wire, 2 m, PVC	Cd-094	WL9G-3P1132	1049081
				Connector M8, 4-pin	Cd-084	WL9G-3P2232	1049082
				Connector M12, 4-pin	Cd-084	WL9G-3P2432	1049083
				Cable with connector M12, 4-pin, 120 mm, PVC	Cd-084	WL9G-3P3432	1049084
			NPN	Cable, 4-wire, 2 m, PVC	Cd-094	WL9G-3N1132	1049085
				Connector M12, 4-pin	Cd-084	WL9G-3N2432	1054152

¹⁾ PL80A.

²⁾ Q = light-switching.

WL9M4G-3

- Mounting hole: M4
- Detection principle: autocollimation

Adjustment	Sensing range max. ¹⁾	Switching mode ²⁾	Output type	Connection	Connection diagram	Model name	Part no.
Single teach-in button	0 m ... 5 m	Light/dark-switching	PNP	Cable, 4-wire, 2 m, PVC	Cd-094	WL9M4G-3P1132	1051898
				Connector M8, 4-pin	Cd-084	WL9M4G-3P2232	1051899
				Connector M12, 4-pin	Cd-084	WL9M4G-3P2432	1051900
				Cable with connector M12, 4-pin, 120 mm, PVC	Cd-084	WL9M4G-3P3432	1051910
			NPN	Cable, 4-wire, 2 m, PVC	Cd-094	WL9M4G-3N1132	1051897

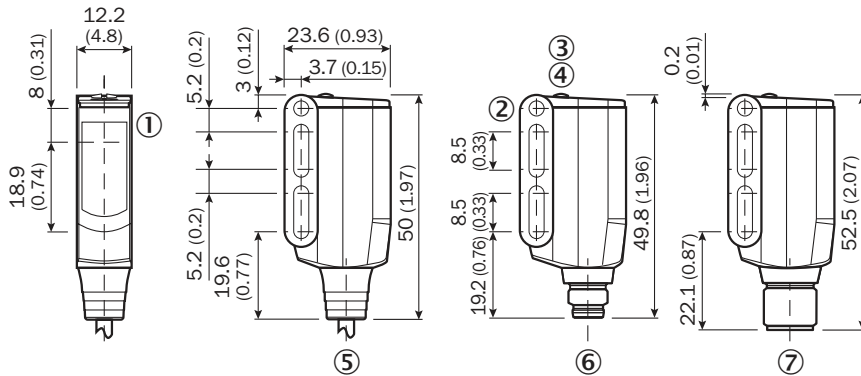
¹⁾ PL80A.

²⁾ Q = light-switching.

Dimensional drawings

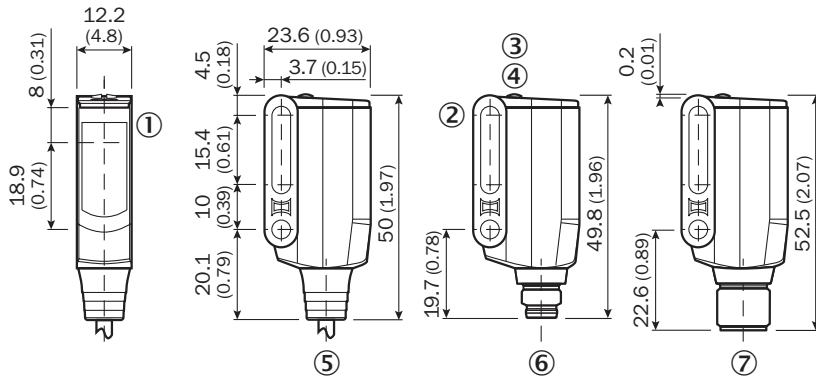
Dimensions in mm (inch)

WL9G-3



- ① Centre of optical axis, sender and receiver
- ② Mounting hole M3 (Ø 3.1 mm)
- ③ LED indicator yellow: Light received
- ④ LED signal strength indicator green:power on
- ⑤ Connecting cable or connector
- ⑥ Connector M8, 4-pin
- ⑦ Connector M12, 4-pin

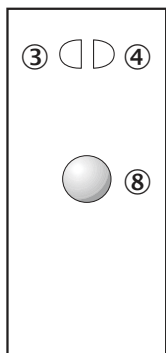
WL9M4G-3



- ① Centre of optical axis, sender and receiver
- ② Mounting hole M4 (Ø 4.1 mm)
- ③ LED indicator yellow: Light received
- ④ LED signal strength indicator green:power on
- ⑤ Connecting cable or connector
- ⑥ Connector M8, 4-pin
- ⑦ Connector M12, 4-pin

Adjustments

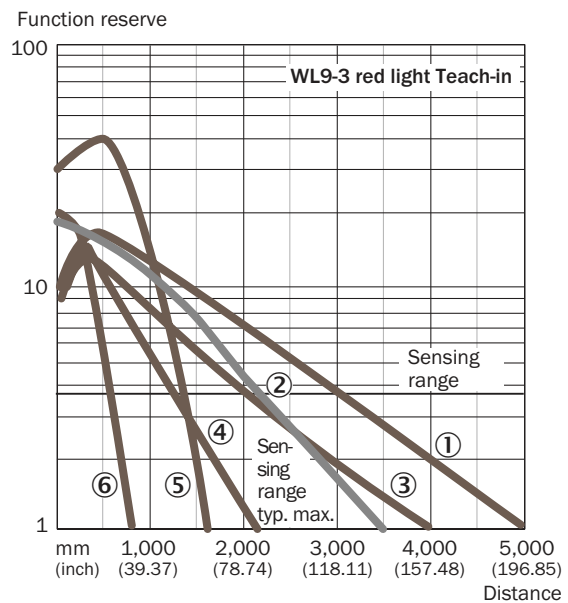
Single teach-in button



- ③ LED indicator yellow: Light received
- ④ LED signal strength indicator green:power on
- ⑧ Teach-in button

Characteristic curves

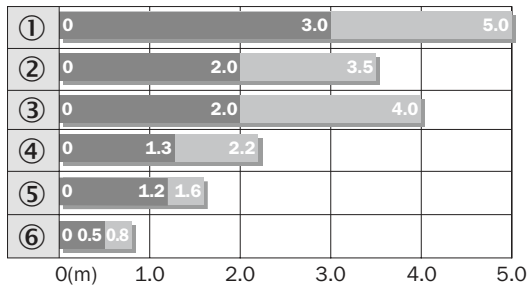
Operating reserve



- ① PL80A
- ② P250F
- ③ PL40A
- ④ PL20F
- ⑤ PL10F
- ⑥ REF-IRF-56

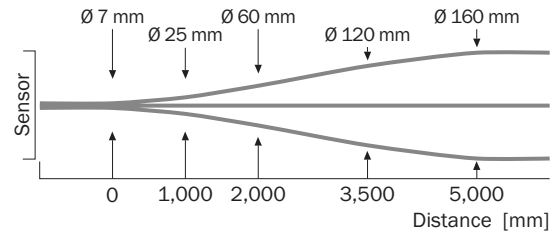


Bar diagrams



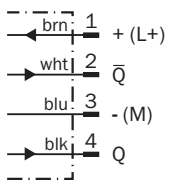
- Sensing range ■ Sensing range max.
- ① PL80A
- ② P250F
- ③ PL40A
- ④ PL20F
- ⑤ PL10F
- ⑥ REF-IRF-56

Light spot diameter

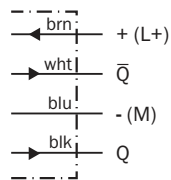


Connection diagram

Cd-084



Cd-094



Recommended accessories

Mounting brackets/plates

Mounting brackets

Figure	Material	Description	Model name	Part no.
	Steel, zinc coated	Mounting bracket for wall mounting	BEF-W160	5305197
		Mounting bracket	BEF-WN-W9-2	2022855





Mounting plates

Figure	Material	Description	Model name	Part no.
	Stainless steel	Adapter plate	BEF-AP-W9	2022734
	PMMA, Brass (Br)	Fastening plate with threaded sleeve M3	BEF-GPM3-W9	4066039





Plug connectors and cables

Connecting cable (female connector-open)

- Cable material: PVC



Figure	Connection type head A	Connection type head B	Connecting cable	Connector material	Enclosure rating	Model name	Part no.
	Female connector, M8, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	PVC	IP 67	DOL-0804-G02M	6009870
			5 m, 4-wire	PVC	IP 67	DOL-0804-G05M	6009872
	Female connector, M8, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	PVC	IP 67	DOL-0804-W02M	6009871
			5 m, 4-wire	PVC	IP 67	DOL-0804-W05M	6009873
	Female connector, M12, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	TPU	IP 67	DOL-1204-G02M	6009382
			5 m, 4-wire	TPU	IP 67	DOL-1204-G05M	6009866
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	TPU	IP 67	DOL-1204-W02M	6009383
			5 m, 4-wire	TPU	IP 67	DOL-1204-W05M	6009867

Female connector (ready to assemble)

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.
	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
	Female connector, M12, 4-pin, straight	Screw-type terminals	PBT	IP 67	DOS-1204-G	6007302
	Female connector, M12, 4-pin, angled	Screw-type terminals	PBT	IP 67	DOS-1204-W	6007303



Male connector (ready to assemble)

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.
	Male connector, M12, 4-pin, straight	Screw-type terminals	PBT	IP 67	STE-1204-G	6009932
	Male connector, M12, 4-pin, angled	Screw-type terminals	PBT	IP 67	STE-1204-W	6022084

Masks


Figure	Description	Model name	Part no.
	Mask card, vertical/horizontal slots, slot width: 0.5 mm / 1.0 mm / 1.5 mm / 2.0 mm	BL-9-2	4033253

Universal bar clamp systems








Figure	Material	Description	Model name	Part no.
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N02 for universal clamp bracket	BEF-KHS-N02	2051608
		Plate N08 for universal clamp bracket	BEF-KHS-N08	2051607

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, screw connection, suitable for laser sensors, 18 mm x 18 mm	PL10F	5311210
	Plastic	Fine triple, chemically resistant, screw connection, 18 mm x 18 mm	PL10F CHEM	5321636
	PMMA/ABS	Fine triple, screw connection, suitable for laser sensors, 38 mm x 16 mm	PL20F	5308844
	Plastic	Fine triple, chemically resistant, screw connection, suitable for laser sensors, 16 mm x 38 mm	PL20F-CHEM	5326089
	PMMA/ABS	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

Special reflectors

Figure	Material	Description	Model name	Part no.
	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