

Laser precision in a rugged VISTAL™ housing for clear material detection



VISTAL®

IP 69K

SIRIC®











Additional information

Detailed technical data.....G-485

Ordering information.....G-486

Dimensional drawings.....G-486

Adjustments.....G-487

Characteristic curves.....G-487

Light spot diameter.....G-487

Connection diagram.....G-488

Recommended accessories....G-488

Product description

Precise detection of small objects and object features. Reliable even in harsh industrial environments. Equipped with the latest laser technology as well as offering continuous switching threshold adjustment (CTA), the WL9LG-3 photoelectric retro-reflective sensor is the ideal solution for detecting transparent materials. The innovative technology is protected by a rugged VISTAL™ housing – for even stronger mechanical resistance

and reliability. The WL9LG-3 range works using SICK’s optimized ASIC technology, optical and electromagnetic interference is effectively suppressed for safe switching behavior in any environment. With various connection, mounting and sensing options, the WL9LG-3 sensor family is the ideal solution for a variety of application needs in the automation environment.

At a glance

- Tough VISTAL™ housing
- Teach-in
- Precise laser light spot, laser class 1
- SIRIC technology
- Continuous switching threshold adjustment (CTA)
- Connections: M8 and M12 plugs, cable as well as cable with plug
- Autocollimation optics and polarizing filter
- M3 and M4 hole pattern

Your benefits

- Precise detection of small objects and object features
- No blind spots, also detects shiny objects
- Detection of objects even through small openings
- Wide range of connection options
- Best-in-class for detecting transparent objects
- Multiple mounting options
- Less machine downtime thanks to the stable VISTAL™ housing
- Highly visible light spot simplifies alignment

→ www.mysick.com/en/W9LG-3

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.



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Detailed technical data

Features

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
Sensing range max. ¹⁾	0 m ... 4.5 m
Sensing range ¹⁾	0 m ... 2 m
Type of light	Visible red light
Light source ²⁾	Laser
Light spot size (distance)	Ø 1 mm (500 mm)
Wave length	650 nm
Laser class ³⁾	1
Adjustment	Single teach-in button
Continuous threshold adaption	✓
Special feature	Detection of transparent objects

¹⁾ REF-AC1000.

²⁾ Average service life 50,000 h at T_A = +25 °C.

³⁾ IEC 60825-1/CDRH 21 CFR 1040.10 & 1040.11.

Mechanics/electronics

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



Enclosure rating	IP 66/IP 67/IP 69K
Ambient operating temperature	-10 °C ... +50 °C
Ambient operating temperature extended ^{10) 11)}	-30 °C ... +55 °C
Ambient storage temperature	-30 °C ... +70 °C

- ¹⁾ Limit values, operation in short-circuit protected network max. 8 A.
- ²⁾ Without load.
- ³⁾ Q = light-switching.
- 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⁾ C = interference suppression.
- ¹⁰⁾ As of T_a = 50 °C, a max. supply voltage V_{max.} = 24 V and a max. load current I_{max.} = 50 mA is permitted.
- ¹¹⁾ Using the sensor below T_a = -10 °C is possible, if the sensor is turned on at T_a > -10 °C, then the environment cools down and the sensor is not disconnected from the supply voltage during the whole time. It is not allowed to turn on the sensor below T_a = -10 °C.

Ordering information

Other models available at www.mysick.com/en/W9LG-3

WL9LG-3

- Laser class: 1
- Light spot size (distance): Ø 1 mm (500 mm)
- Mounting hole: M3
- Output type: PNP
- Switching mode: light/dark-switching (Q = light-switching.)
- Adjustment: single teach-in button

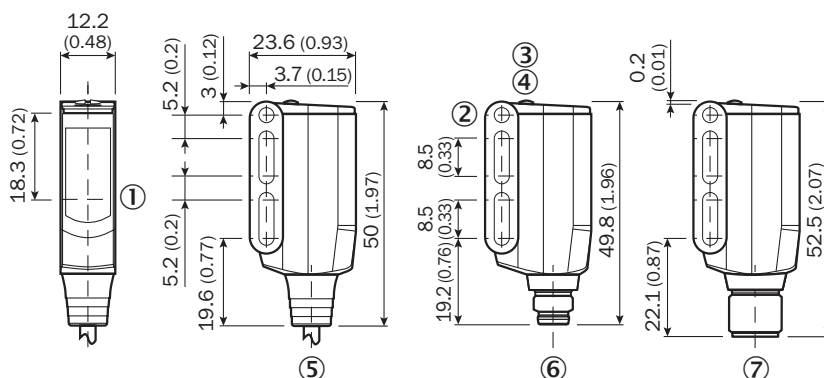
Sensing range max. ¹⁾	Connection	Connection diagram	Model name	Part no.
0 m ... 4.5 m	Cable, 4-wire, 2 m, PVC	Cd-095	WL9LG-3P1132	1058236
	Connector M8, 4-pin	Cd-083	WL9LG-3P2232	1058234
	Connector M12, 4-pin	Cd-083	WL9LG-3P2432	1058235

¹⁾ REF-AC1000.

Dimensional drawings

Dimensions in mm (inch)

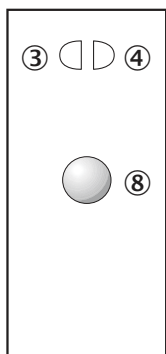
WL9LG-3



- 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 connecting cable with connector
- ⑥ Connector M8, 4-pin
- ⑦ Connector M12, 4-pin

Adjustments

Single teach-in button

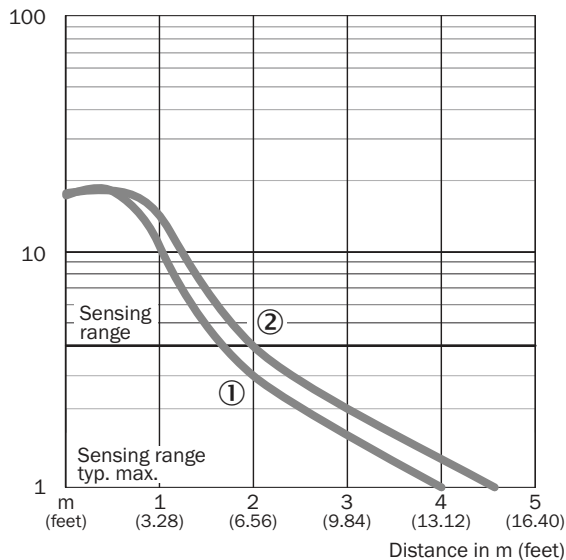


- ③ LED indicator yellow: Light received
- ④ LED signal strength indicator green: power on
- ⑧ Teach-in button

Characteristic curves

Operating reserve

WL9LG-3

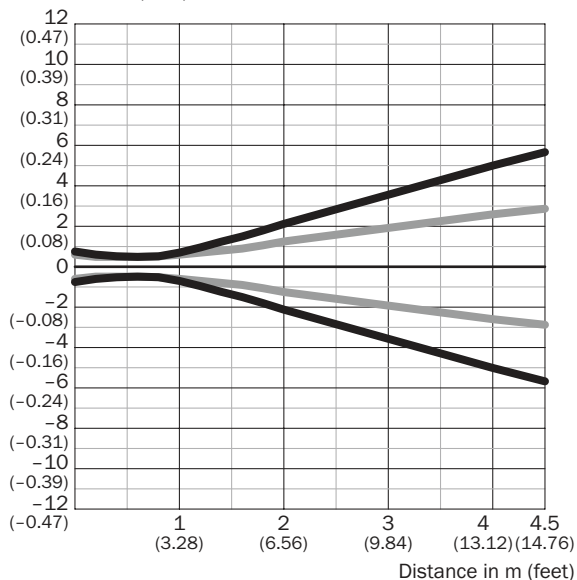


- ① PLV14-A / PLH25-M12 / PLH25-D12
- ② P41F / REF-AC1000

Light spot diameter

Overview

Radius in mm (inch)



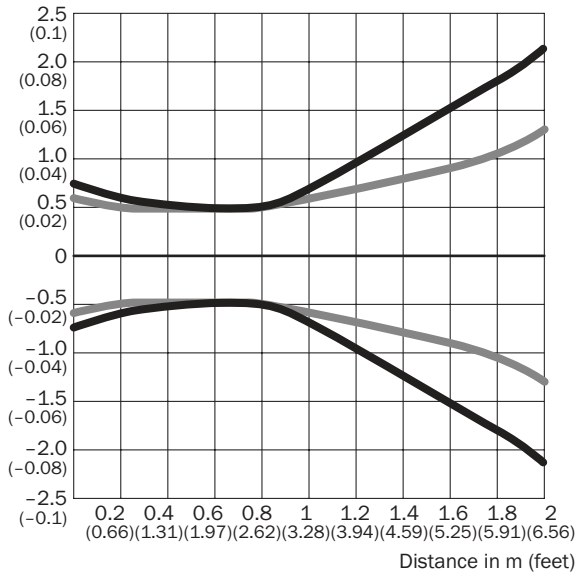
Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
0.5 m (1.64 feet)	< 1.0 (0.04)	< 1.0 (0.04)
1 m (3.28 feet)	1.5 (0.06)	1.2 (0.05)
2 m (6.56 feet)	4.3 (0.17)	2.6 (0.10)
4.5 m (14.76 feet)	11.3 (0.44)	5.6 (0.22)

- Vertical
- Horizontal

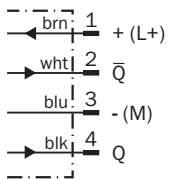
WL9LG-3, close up near range

Radius in mm (inch)

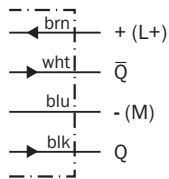


Connection diagram

Cd-083



Cd-095




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Recommended accessories

Mounting brackets/plates

Mounting brackets

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





Mounting plates

Figure	Material	Description	Model name	Part no.
	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

Universal bar clamp systems








Figure	Material	Description	Model name	Part no.
	Zinc diecast	Universal bar clamp for mounting bars with 12 mm diameter	BEF-KHS-KH3	5322626
	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-adaptor shaft, 25 mm x 25 mm	PLH25-D12	2063404
		Stainless steel reflector, hygienic design, chemically resistant, Enclosure rating IP 69K, M12-adaptor 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

