



Photoelectric sensors W9L-3, Photoelectric retro-reflective sensor, autocollimation

WL9L-3N2232



Model Name > [WL9L-3N2232](#)
Part No. > [1058172](#)



Illustration may differ

At a glance

- Tough VISTAL™ housing
- Precise laser light spot
- Laser class 1
- Autocollimation optics and polarizing filter
- Teach-in
- Optimized SICK ASIC technology
- Connections: M8 and M12 plugs, cable as well as cable with plug
- M3 hole pattern

Your benefits

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



Features

Sensor/detection principle:	Photoelectric retro-reflective sensor, autocollimation
Dimensions (W x H x D):	12.2 mm x 49.8 mm x 23.6 mm
Housing design (light emission):	Rectangular
Mounting hole:	M3
Sensing range max.:	0 m ... 12 m ¹⁾
Sensing range:	0 m ... 8 m ²⁾
Type of light:	Visible red light
Light source:	Laser ³⁾
Laser class:	1 (IEC 60825-1/CDRH 21 CFR 1040.10 & 1040.11)
Wave length:	650 nm
Adjustment:	Single teach-in button
Light spot size (distance):	Ø 1 mm (500 mm)

^{1) 2)} PL80A ³⁾ Average service life 50,000 h at T_A = +25 °C

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Power consumption:	$\leq 30 \text{ mA}$ ²⁾
Output type:	NPN ³⁾
Output function:	Complementary
Switching mode:	Light/dark-switching ⁴⁾
Output current I _{max.} :	$\leq 100 \text{ mA}$
Response time:	$\leq 0.5 \text{ ms}$ ⁵⁾
Switching frequency:	1,000 Hz ⁶⁾
Connection type:	Connector M8, 4-pin
Circuit protection:::	A, B, C ^{7) 8) 9)}
Protection class:	III
Weight:	13 g
Polarisation filter:	✓
Housing material:	Plastic, VISTAL
Optics material:	PMMA
Enclosure rating:	IP 66 IP 67 IP 69K

Ambient operating temperature: -10 °C ... 50 °C

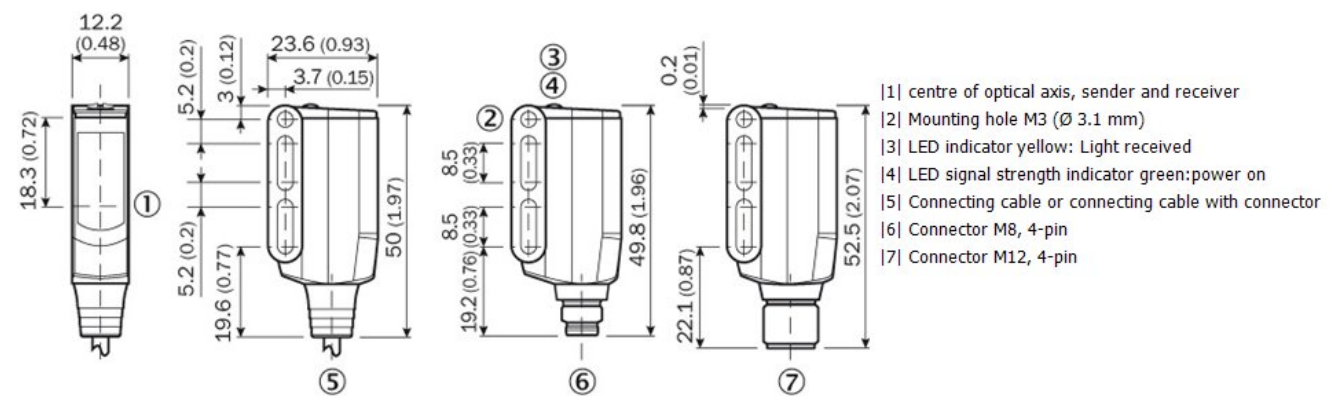
Ambient storage temperature: -30 °C ... 70 °C

Ambient operating temperature extended:: -30 °C ... 55 °C ^{10) 11)}

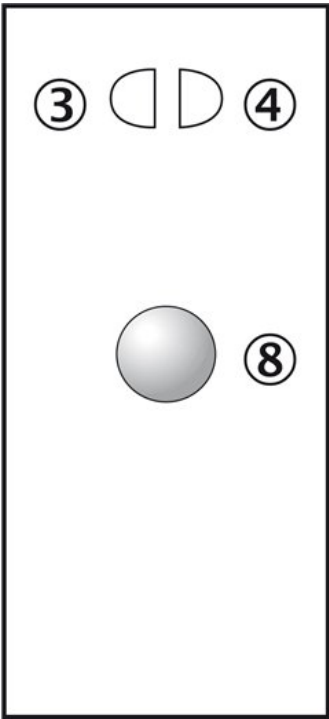
MTTFd: 723 a (EN ISO 13849-1) ¹²⁾

¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ Without load ^{3) 4)} Q = light-switching ⁵⁾ Signal transit time with resistive load ⁶⁾ With light/dark ratio 1:1 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 ¹²⁾ Mode of calculation: Parts-Count-calculation

Dimensional drawing

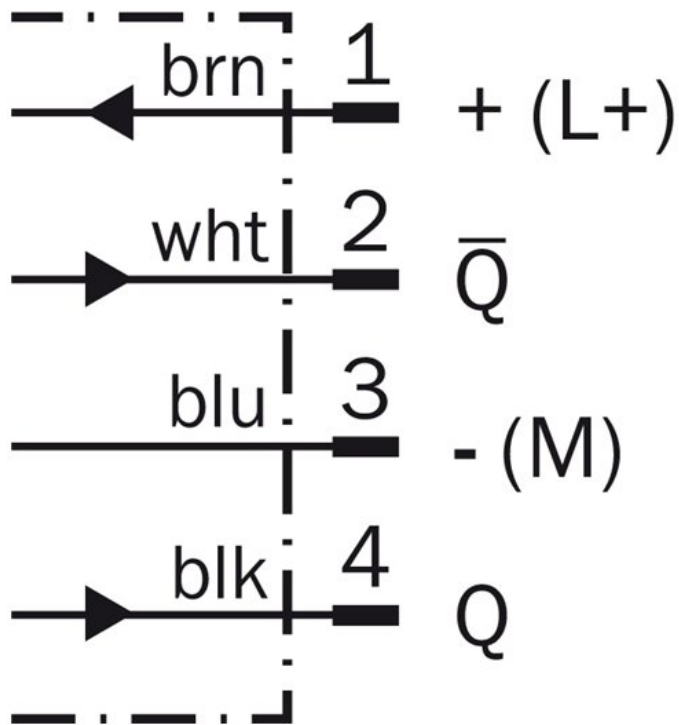


Adjustments possible

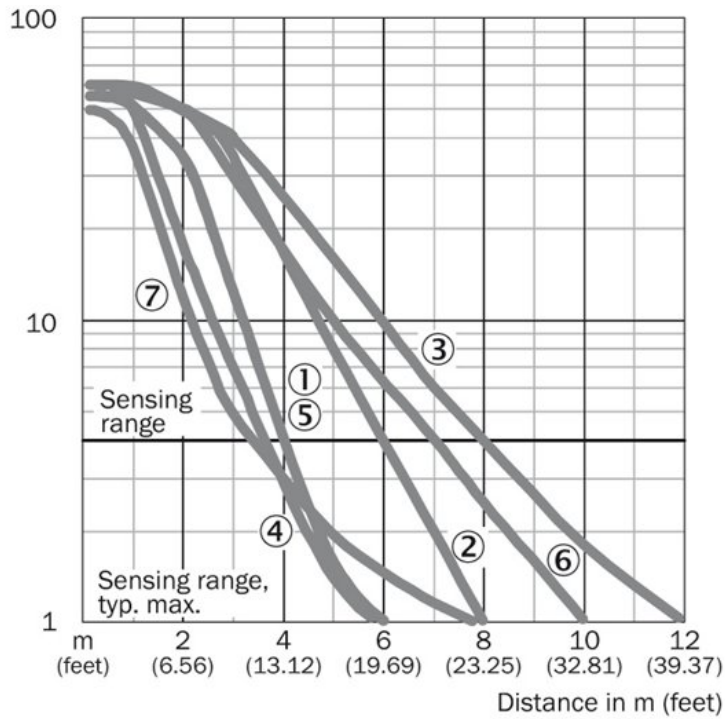


- |3| LED indicator yellow: Light received
- |4| LED signal strength indicator green:power on
- |8| Teach-in button

Connection diagram

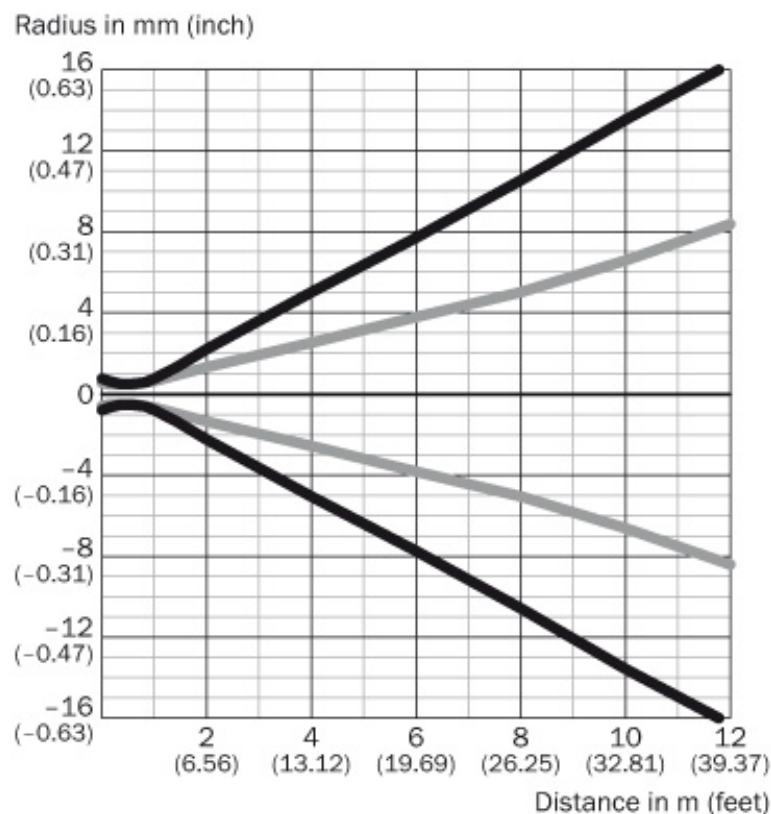


Characteristic curve



- [1] PL20A
- [2] PL40A
- [3] PL80A
- [4] PL10F
- [5] PL20F
- [6] P250F
- [7] REF-AC1000

Light spot size

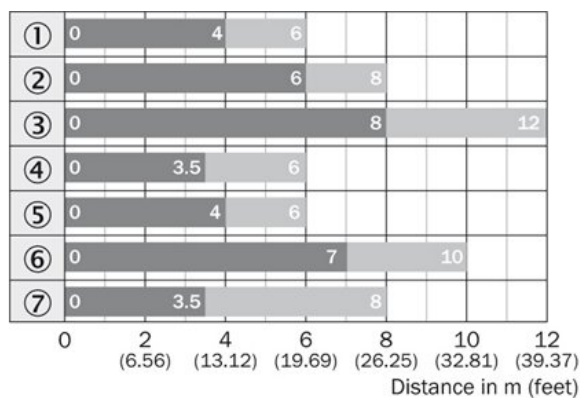


Dimensions in mm (inch)

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)
6 m (19.69 feet)	15.2 (0.60)	7.6 (0.30)
12 m (39.37 feet)	32.4 (1.28)	16.4 (0.65)

— Vertical
— Horizontal

Sensing range diagram



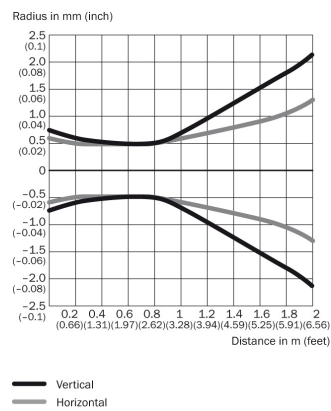
[1] PL20A
[2] PL40A
[3] PL80A
[4] PL10F
[5] PL20F
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[7] REF-AC1000

■ Sensing range ■ Sensing range typ. max.

Reflector type

- ① PL20A
- ② PL40A
- ③ PL80A
- ④ PL10F
- ⑤ PL20F
- ⑥ P250F
- ⑦ REF-AC1000

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