



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

WL9M4L-3P2432



Model Name > [WL9M4L-3P2432](#)
Part No. > [1058228](#)

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
- M4 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



Illustration may differ



Features

Sensor/detection principle:	Photoelectric retro-reflective sensor, autocollimation
Dimensions (W x H x D):	12.2 mm x 52.2 mm x 23.6 mm
Housing design (light emission):	Rectangular
Mounting hole:	M4
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, 1 (IEC 60825-1/CDRH 21 CFR 1040.10 & 1040.11)
Adjustment:	Single teach-in button
Light spot size (distance):	Ø 1 mm (500 mm)

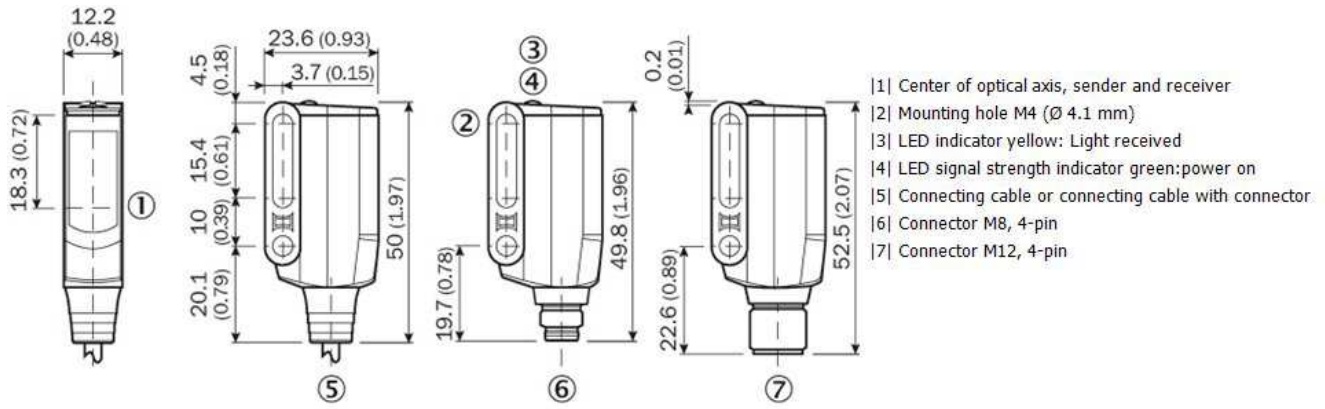
^{1) 2)} PL80A ³⁾ Average service life 50,000 h at T_A = +25 °C

Mechanics/electronics

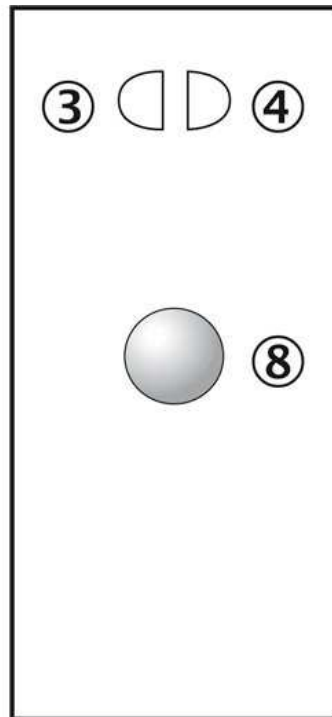
Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	< 5 Vpp ²⁾
Power consumption:	≤ 30 mA ³⁾
Output type:	PNP ⁴⁾
Output function:	Complementary
Switching mode:	Light/dark switching ⁵⁾
Output current I _{max.} :	≤ 100 mA
Response time:	≤ 0.5 ms ⁶⁾
Switching frequency:	1,000 Hz ⁷⁾
Connection type:	Connector M12, 4-pin
Circuit protection:::	A, B, C ^{8) 9) 10)}
Protection class:	III
Weight:	13 g
Polarisation filter:	✓
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 ^{11) 12)}
UL File No.:	NRKH.E181493
Housing material:	Plastic, VISTAL

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) 5)} Q = light-switching ⁶⁾ Signal transit time with resistive load ⁷⁾ With light/dark ratio 1:1 ⁸⁾ A = V_S connections reverse-polarity protected ⁹⁾ B = inputs and output reverse-polarity protected ¹⁰⁾ C = interference suppression ¹¹⁾ As of $T_a = 50\text{ °C}$, a max. supply voltage $V_{max.} = 24\text{ V}$ and a max. load current $I_{max.} = 50\text{ mA}$ is permitted ¹²⁾ Using the sensor below $T_a = -10\text{ °C}$ is possible, if the sensor is turned on at $T_a > -10\text{ °C}$, 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 $T_a = -10\text{ °C}$

Dimensional drawing



Adjustments possible

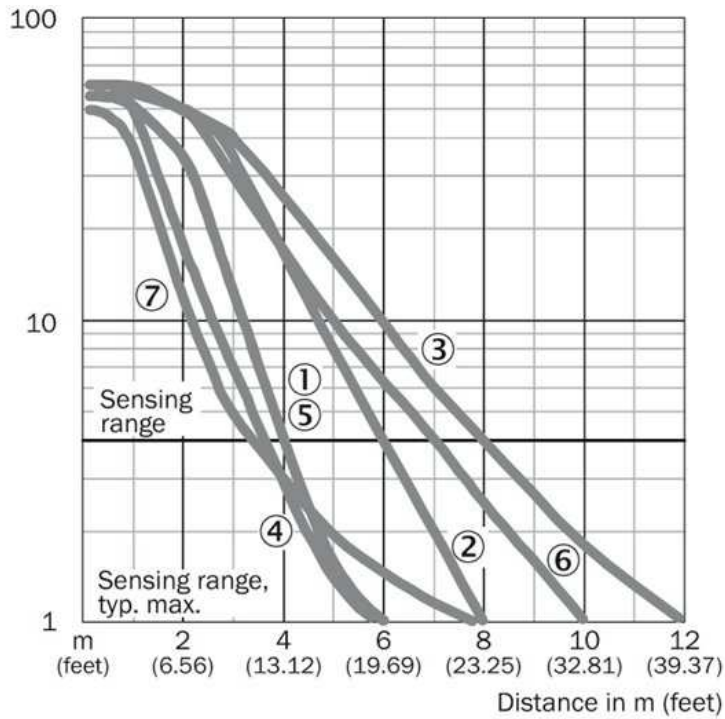


- |3| LED indicator yellow: Light received
- |4| LED signal strength indicator green:power on
- |8| Teach-in button

Connection diagram

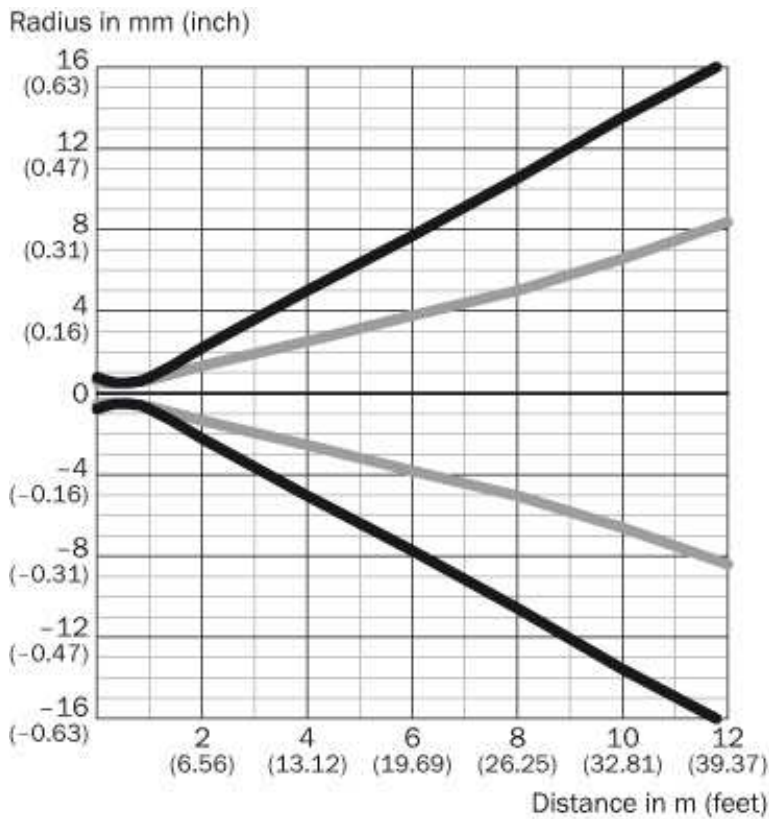


Characteristic curve



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

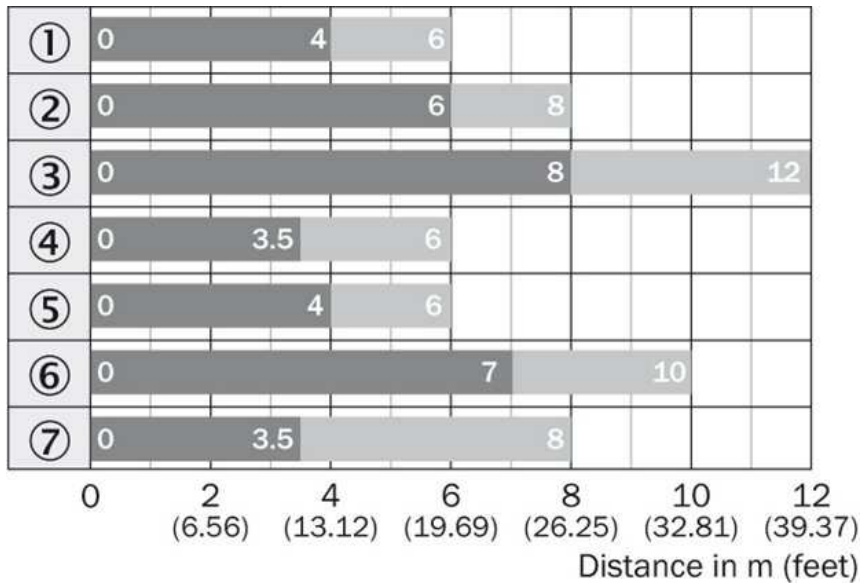
Light spot size



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)

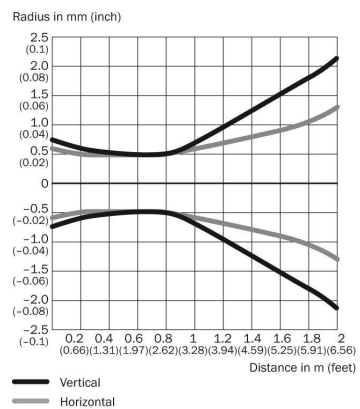
Sensing range diagram



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

■ Sensing range ■ Sensing range typ. max.

Lichtfleckgröße (Detailansicht)



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