



Photoelectric sensors W12-3, Photoelectric retro-reflective sensor, autocollimation

WL12-3P2451



Model Name > [WL12-3P2451](#)
Part No. > [1041448](#)



Illustration may differ

At a glance

- Retro-reflective with autocollimation principle
- Rugged housing designed to withstands harsh environments
- PinPoint LED technology with highly visible light spot
- Rugged die-cast zinc housing, optional Teflon® coating
- Dovetail mounting - mounting holes and oblong holes
- Highly visible status LEDs
- Sensing range adjustment via potentiometer

Your benefits

High immunity to ambient light and crosstalk ensures fewer false readings and less downtime

Quick and easy setup due to highly visible PinPoint LED light spot

Highly visible status LEDs simplify sensitivity adjustments and reduce installation time

Rugged metal housing (optional Teflon® coating available) requires fewer maintenance costs due to its resistance to high-pressure cleaning

Increased reliability in harsh wash down environments

Easy installation using SICK accessories



Features

Sensor/detection principle:	Photoelectric retro-reflective sensor, autocollimation
Dimensions (W x H x D):	15.6 mm x 48.5 mm x 42 mm
Housing design (light emission):	Rectangular
Sensing range max.:	0 m ... 2 m ¹⁾
Sensing range:	0 m ... 1 m ²⁾
Type of light:	Visible red light
Light source:	LED ³⁾
Wave length:	640 nm
Angle of dispersion:	Ca. 5 °
Adjustment:	Potentiometer, 5-turn
Light spot size (distance):	Ø 2 mm (90 mm)

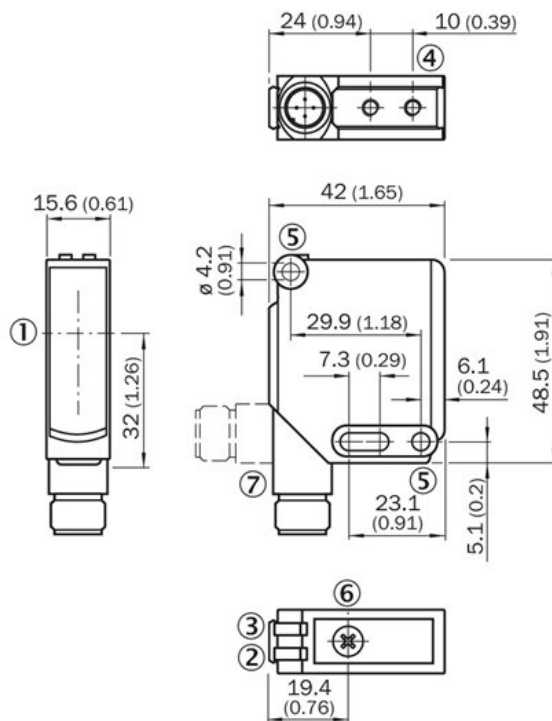
^{1) 2)} PL80A ³⁾ Average service life of 100,000 h at T_A = +25 °C

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	$\leq 5 \text{ V}_{pp}$ ²⁾
Power consumption:	$\leq 30 \text{ mA}$ ³⁾
Output type:	PNP
Output function:	Complementary
Switching mode:	Light/dark-switching
Signal voltage PNP HIGH/LOW:	$> U_v - 2,5 \text{ V} / \text{ca. } 0 \text{ V}$
Output current I _{max} :	100 mA
Response time:	$\leq 330 \mu\text{s}$ ⁴⁾
Switching frequency:	1,500 Hz ⁵⁾
Connection type:	Connector M12, 4-pin
Circuit protection:::	A, C, D ^{6) 7) 8)}
Protection class:	II
Weight:	120 g
Polarisation filter:	✓
Special device:	-
Housing material:	Metal
Enclosure rating:	IP 66 IP 67 IP 69K
Special feature:	Focused optics
Ambient operating temperature:	-40 °C ... 60 °C
Ambient storage temperature:	-40 °C ... 75 °C
UL File No.:	NRKH.E181493 & NRKH7.E181493

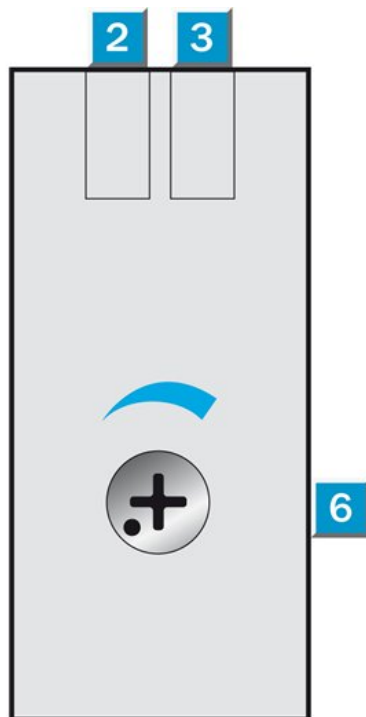
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ Signal transit time with resistive load ⁵⁾ With light/dark ratio 1:1 ⁶⁾ A = V_S connections reverse-polarity protected ⁷⁾ C = interference suppression ⁸⁾ D = outputs overcurrent and short-circuit protected

Dimensional drawing



- [1] Optical axis
- [2] LED indicator yellow: Light received
- [3] Green LED indicator: supply voltage active
- [4] M4 threaded mounting hole, 4 mm deep
- [5] Mounting hole, $\varnothing$ 4.2 mm
- [6] Sensitivity adjustment: poti
- [7] Connection

Adjustments possible

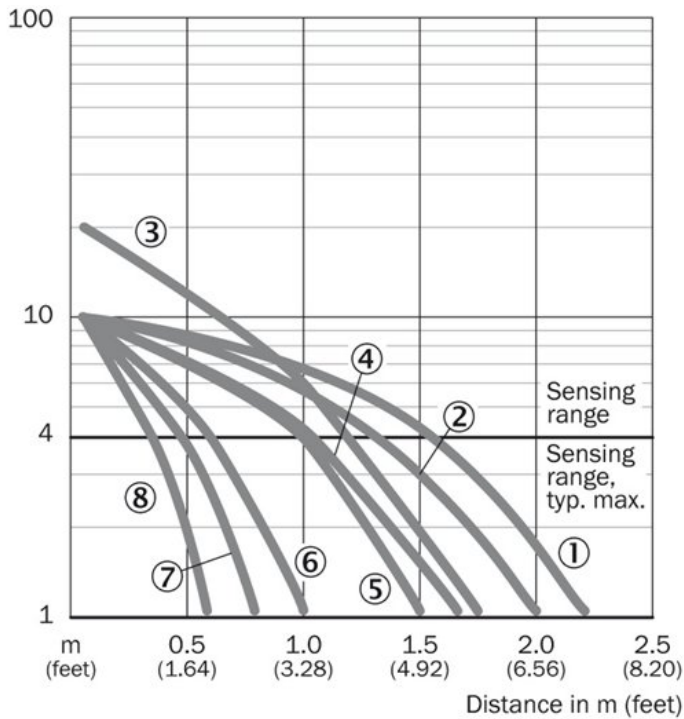


- [2] LED indicator yellow: Light received
- [3] Green LED indicator: supply voltage active
- [6] Sensitivity adjustment: poti

Connection diagram

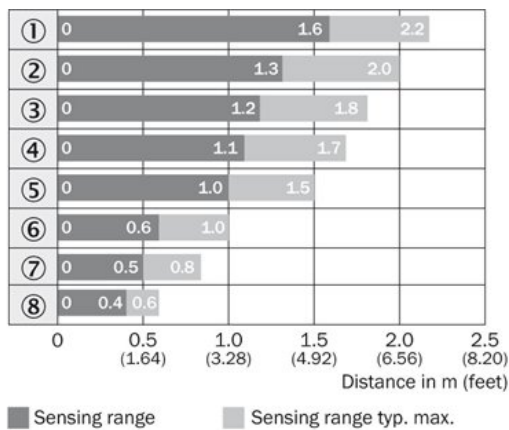


Characteristic curve



- [1] Reflector type C110A
- [2] Reflector type PL80A
- [3] Reflector type P205
- [4] Reflector type PL50A
- [5] Reflector type PL40A
- [6] Reflector type PL30A
- [7] Reflector type PL20A
- [8] Reflector type DG/IRF6000

Sensing range diagram

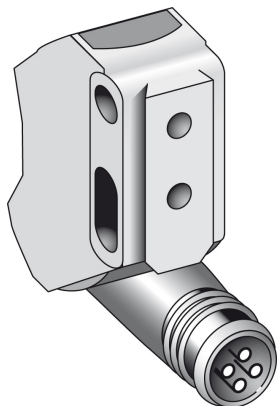


- |1| C110A
- |2| PL80A
- |3| P250F
- |4| PL50A
- |5| PL40A
- |6| C30A
- |7| PL20A
- |8| Reflective tape Diamond Grade

Reflector type

- ① C110A
- ② PL80A
- ③ P250F
- ④ PL50A
- ⑤ PL40A
- ⑥ C30A
- ⑦ P20A
- ⑧ Reflective tape Diamond Grade

Connection type



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