



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

WL12-3P2431T01



Model Name > [WL12-3P2431T01](#)
Part No. > [1041439](#)



Illustration may differ

At a glance

- Best-in-class optical performance due to superior OES technology
- Autocollimation in retro-reflective sensors
- Background and foreground suppression with second emitter LED in proximity sensors
- Highly visible, bright, precise light spot
- Rugged metal housing, optional with Teflon® coating
- Connection via cable or rotatable connector
- Mounting options with through holes, base blind holes, oblong through holes and dovetail
- IO-Link communication available (optional)

Your benefits

Reliable detection due to superior ASIC (application-specific integrated circuit) technology and immunity to optical interference factors from the industrial environment

PinPoint LED technology for a bright, small and precise light spot, enabling quick and easy sensor alignment

Precise switching characteristics ensure reliable object detection, reducing downtime caused by re-adjusting sensors during recipe changes

Quick and easy setup due to highly visible status LEDs

Wide range of products enclosed in a rugged metal housing enables application flexibility in a broad range of industrial environments

Uniform design for entire product family regardless of connection, which ensures simple machine integration

Quick and easy mounting due to several mounting options

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 ... 7 m ¹⁾
Sensing range:	0 m ... 5 m ²⁾

Type of light:	Visible red light
Light source:	LED ³⁾
Wave length:	640 nm
Angle of dispersion:	Ca. 1.5 °
Special features:	Teflon coated housing
Adjustment:	Potentiometer, 5 turns
Light spot size (distance):	Ø 70 mm (3 m)

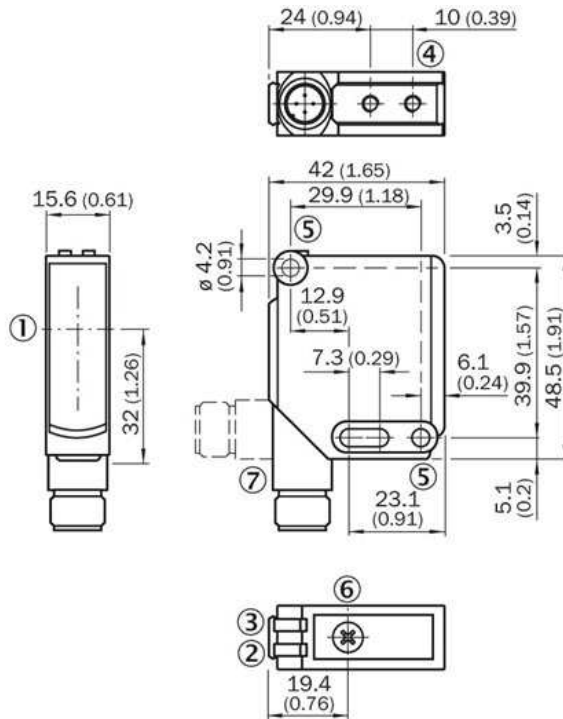
1) 2) PL80A ³⁾ Average service life of 100,000 h at $T_A = +25\text{ °C}$

Mechanics/electronics

Supply voltage:	10 V DC ... 30 V DC ¹⁾
Ripple:	$\leq 5\text{ Vpp}$ ²⁾
Power consumption:	$\leq 30\text{ mA}$ ³⁾
Output type:	PNP
Output function:	Complementary
Switching mode:	Light/dark switching
Output current I _{max.} :	100 mA
Response time:	$\leq 330\text{ }\mu\text{s}$ 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:	✓
Enclosure rating:	IP 66 IP 67 IP 69K
Ambient operating temperature:	-40 °C ... +60 °C
Ambient storage temperature:	-40 °C ... +75 °C
UL File No.:	NRKH.E181493 & NRKH7.E181493
Housing material:	PTFE

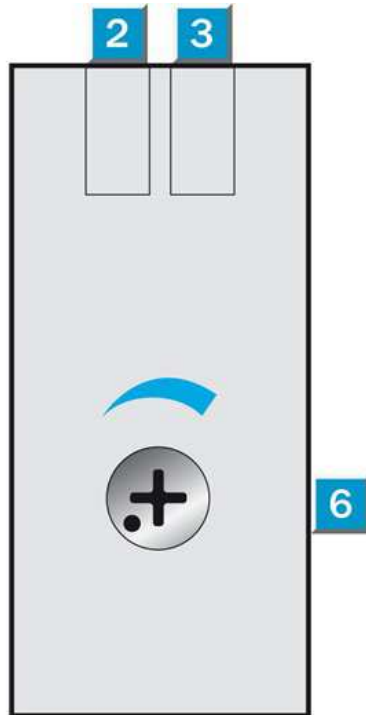
¹⁾ Limit values, operation in short-circuit protected network max. 8 A ²⁾ May not exceed or fall short of V_S tolerances ³⁾ Without load ⁴⁾ Signal transit time with resistive load ⁵⁾ With light/dark ratio 1:1 ⁶⁾ A = V_S connections reverse-polarity protected ⁷⁾ C = interference suppression ⁸⁾ D = outputs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

Dimensional drawing



- |1| Optical axis
- |2| Status indicator LED,
yellow: Status of received light beam
- |3| Status indicator LED green: supply voltage on
- |4| M4 threaded mounting hole, 4 mm deep
- |5| Mounting hole, Ø 4.2 mm
- |6| Sensitivity adjustment: poti
- |7| Connection

Adjustments possible

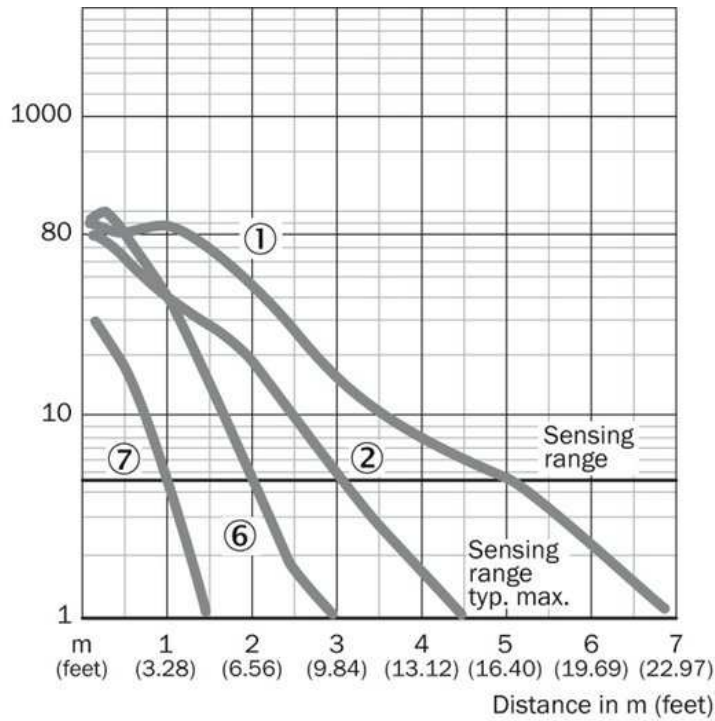


- |2| Status indicator LED,
yellow: Status of received light beam
- |3| Status indicator LED green: supply voltage on
- |6| Sensitivity adjustment: poti

Connection diagram

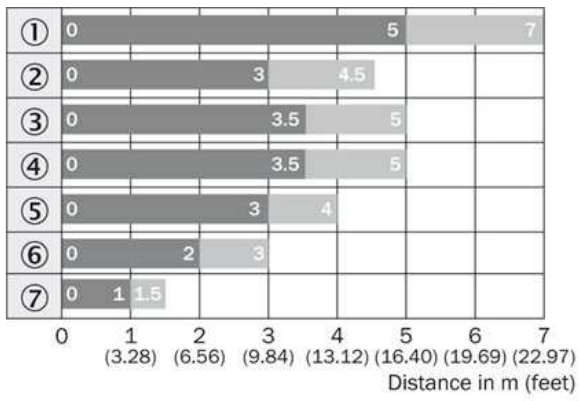


Characteristic curve



- |1| Reflector type PL80A
- |2| Reflector type C110A
- |6| Reflector type PL20A
- |7| reflective tape

Sensing range diagram



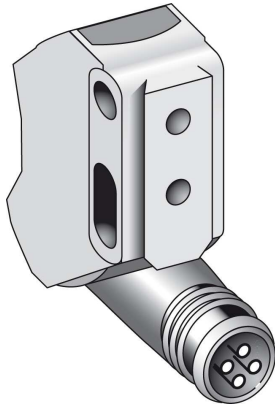
Sensing range
 Sensing range typ. max.

Reflector type

- ① PL80A
- ② C110
- ③ PL50A
- ④ PL40A
- ⑤ PL30A
- ⑥ PL20A
- ⑦ Reflective tape

- |1| PL80A
- |2| C110A
- |3| PL50A
- |4| PL40A
- |5| PL30A
- |6| PL20A
- |7| Reflective tape Diamond Grade

Connection type



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