



## 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 <sup>1)</sup>                              |
| Sensing range:                   | 0 m ... 5 m <sup>2)</sup>                              |

|                             |                       |
|-----------------------------|-----------------------|
| Type of light:              | Visible red light     |
| Light source:               | LED <sup>3)</sup>     |
| Wave length:                | 640 nm                |
| Angle of dispersion:        | Ca. 1.5 °             |
| Adjustment:                 | Potentiometer, 5-turn |
| Light spot size (distance): | Ø 70 mm (3 m)         |

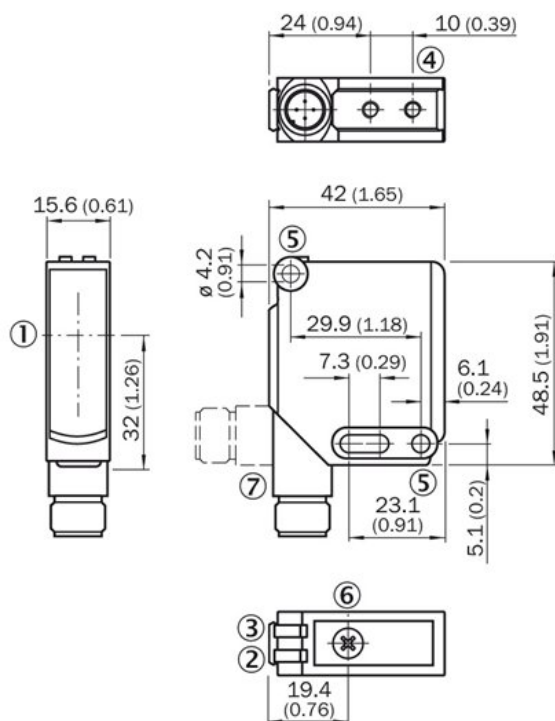
1) 2) PL80A <sup>3)</sup> Average service life of 100,000 h at T<sub>A</sub> = +25 °C

## Mechanics/electronics

|                                   |                                   |
|-----------------------------------|-----------------------------------|
| Supply voltage:                   | 10 V DC ... 30 V DC <sup>1)</sup> |
| Power consumption:                | ≤ 30 mA <sup>2)</sup>             |
| Output type:                      | PNP                               |
| Output function:                  | Complementary                     |
| Switching mode:                   | Light/dark-switching              |
| Output current I <sub>max</sub> : | 100 mA                            |
| Response time:                    | ≤ 330 µs <sup>3)</sup>            |
| Switching frequency:              | 1,500 Hz <sup>4)</sup>            |
| Connection type:                  | Connector M12, 4-pin              |
| Circuit protection:::             | A, C, D <sup>5) 6) 7)</sup>       |
| Protection class:                 | II                                |
| Weight:                           | 120 g                             |
| Polarisation filter:              | ✓                                 |
| Housing material:                 | PTFE                              |
| Enclosure rating:                 | IP 66<br>IP 67<br>IP 69K          |
| Special features:                 | Teflon coated housing             |
| Ambient operating temperature:    | -40 °C ... 60 °C                  |
| Ambient storage temperature:      | -40 °C ... 75 °C                  |
| UL File No.:                      | NRKH.E181493 & NRKH7.E181493      |

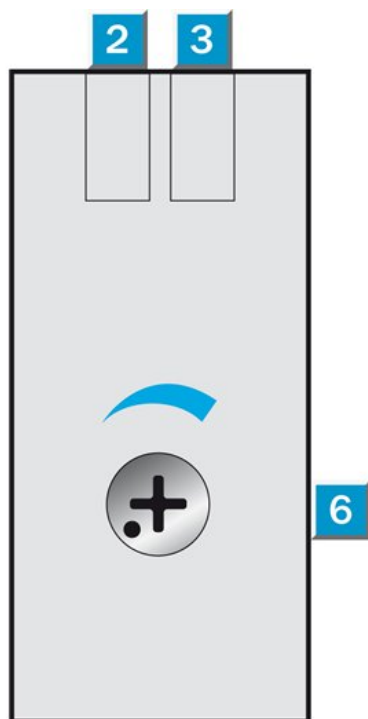
<sup>1)</sup> Limit values, operation in short-circuit protected network max. 8 A <sup>2)</sup> Without load <sup>3)</sup> Signal transit time with resistive load <sup>4)</sup> With light/dark ratio 1:1 <sup>5)</sup> A = V<sub>S</sub>  
<sup>6)</sup> C = interference suppression <sup>7)</sup> D = outputs overcurrent and short-circuit protected

## Dimensional drawing



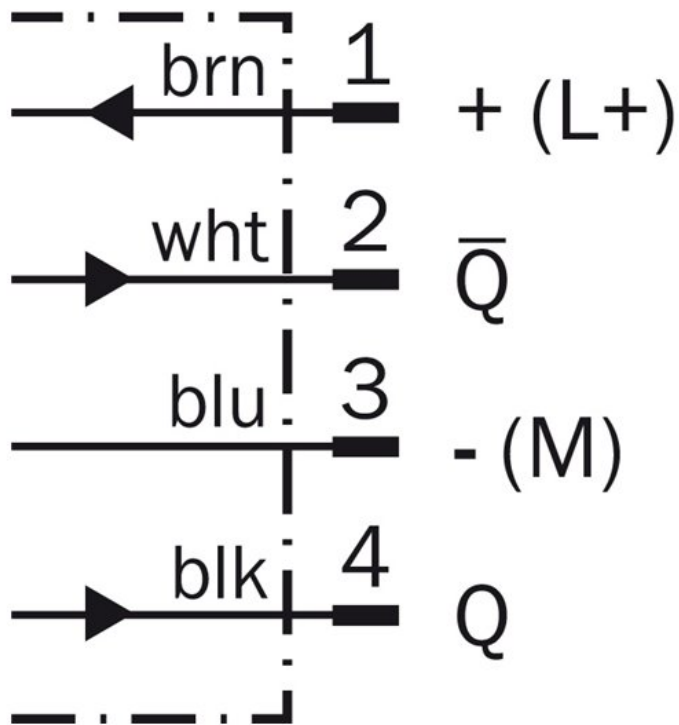
- [1] Optical axis
- [2] LED indicator yellow: Light received
- [3] Green LED indicator: supply voltage active
- [4] M4 threaded mounting hole, 4 mm deep
- [5] Mounting hole,  $\varnothing$  4.2 mm
- [6] Sensitivity adjustment: poti
- [7] Connection

## Adjustments possible

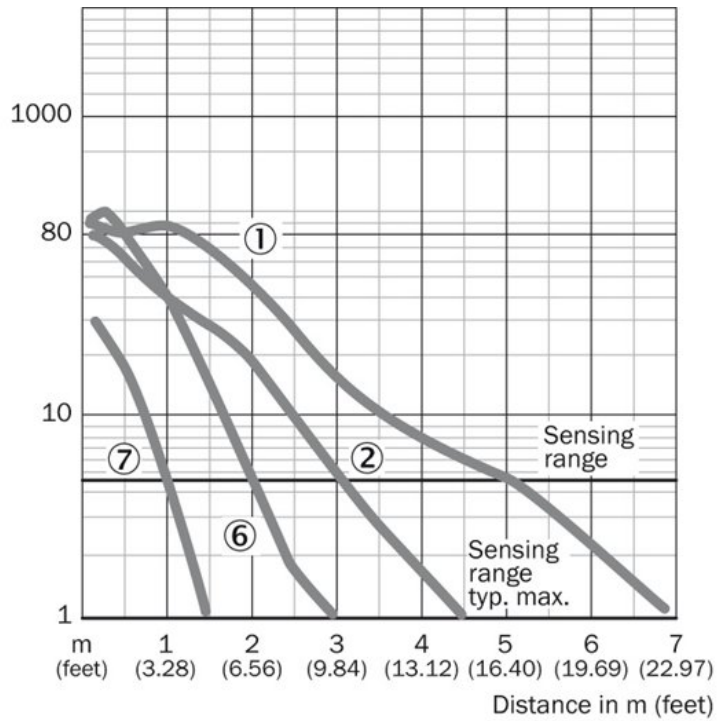


- [2] LED indicator yellow: Light received
- [3] Green LED indicator: supply voltage active
- [6] Sensitivity adjustment: poti

## Connection diagram

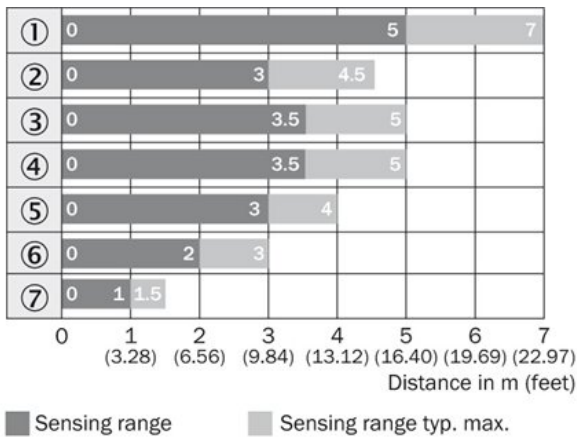


## Characteristic curve



- [1] Reflector type PL80A
- [2] Reflector type C110A
- [6] Reflector type PL20A
- [7] Reflective tape

Sensing range diagram

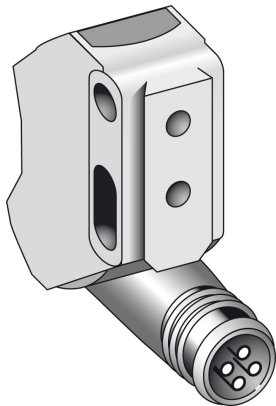


- |1| PL80A
- |2| C110A
- |3| PL50A
- |4| PL40A
- |5| PL30A
- |6| PL20A
- |7| Reflective tape Diamond Grade

Reflector type

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

Connection type



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