



## Photoelectric sensors W12G, Photoelectric retro-reflective sensor, autocollimation

WL12G-302431S51



**Model Name** > [WL12G-3O2431S51](#)  
**Part No.** > [1043879](#)



*Illustration may differ*

#### At a glance

- Reliable detection of transparent objects
- Optional Continuous Threshold Adaption (CTA)
- Sensing range is adjustable via potentiometer or teach-in pushbutton
- Rugged housing for industrial use
- Highly visible red light spot for versatile detection of objects
- Quality monitoring thanks to IO-Link
- Key lock function, remote teach
- Diagnostics messages (contamination and short-circuit)

#### Your benefits

Reliable detection of transparent objects, including PET bottles and transparent film  
PinPoint LED technology provides a bright, small and precise light spot that enables quick and easy sensor alignment

Precise switching characteristics and high-performance object detection provides increased productivity

High immunity to optical interference reduces false readings

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

Quick and easy threshold adjustment (depending on type)

Simple monitoring of detection quality

Key lock function and parameter download prevent incorrect setting



#### 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 100 mm (3 m)

Continuous threshold adaption: -

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

## Mechanics/electronics

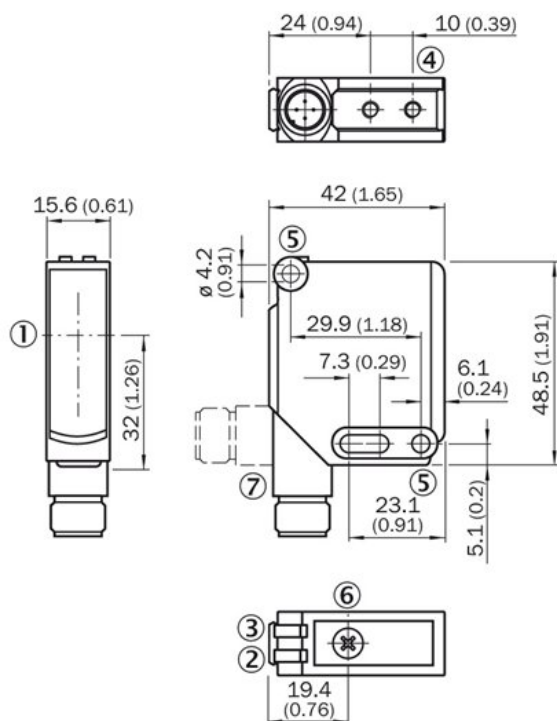
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|                                    |                                                   |
|------------------------------------|---------------------------------------------------|
| Output type:                       | PNP                                               |
| Switching mode:                    | Light/dark-switching                              |
| Output current I <sub>max.</sub> : | 100 mA                                            |
| Response time:                     | ≤ 330 µs <sup>1)</sup>                            |
| Switching frequency:               | ± 1,500 Hz <sup>2)</sup>                          |
| Connection type:                   | Connector M12, 4-pin                              |
| Circuit protection:::              | A, C, D <sup>3)</sup> <sup>4)</sup> <sup>5)</sup> |
| Protection class:                  | II                                                |
| Weight:                            | 120 g                                             |
| Polarisation filter:               | ✓                                                 |
| Special device:                    | ✓                                                 |
| Housing material:                  | Metal                                             |
| Enclosure rating:                  | IP 66<br>IP 67<br>IP 69K                          |
| Special feature:                   | For transparent objects                           |
| Special features:                  | Pin assignment: 1 = V+ / 3 = 0 V / 4 = Q / 2 = Q  |
| Ambient operating temperature:     | -40 °C ... 60 °C                                  |
| Ambient storage temperature:       | -40 °C ... 75 °C                                  |
| UL File No.:                       | NRKH.E181493 & NRKH7.E181493                      |

<sup>1)</sup> Signal transit time with resistive load <sup>2)</sup> With light/dark ratio 1:1 <sup>3)</sup> A = V<sub>S</sub> connections reverse-polarity protected <sup>4)</sup> C = interference suppression <sup>5)</sup> D = outputs

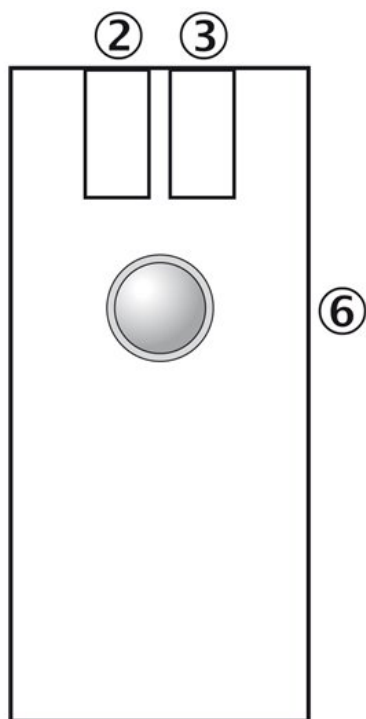
overcurrent and short-circuit protected

## Dimensional drawing



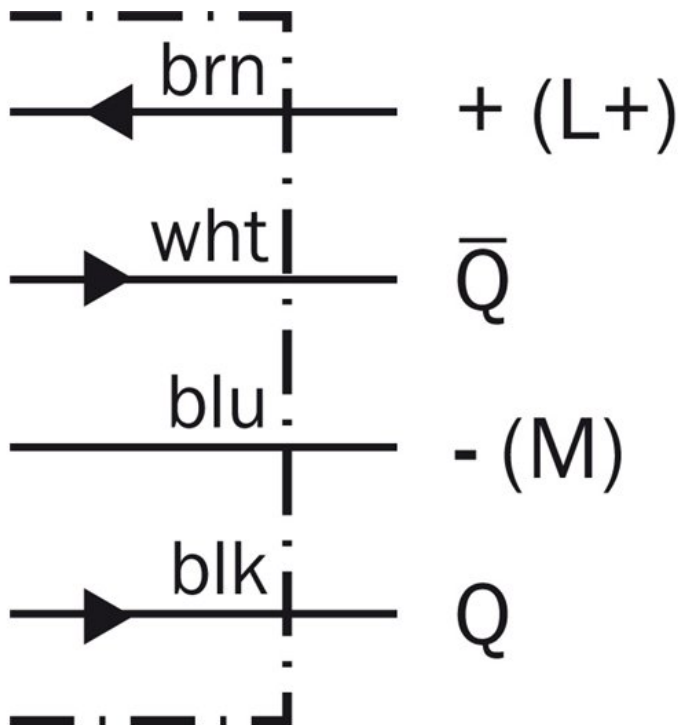
- [1] Optical axis
- [2] LED indicator yellow: Light received
- [3] Green LED indicator: supply voltage active
- [4] M4 threaded mounting hole, 4 mm deep
- [5] Mounting hole, Ø 4.2 mm
- [6] Sensitivity adjustment: poti
- [7] Connection

## Adjustments possible

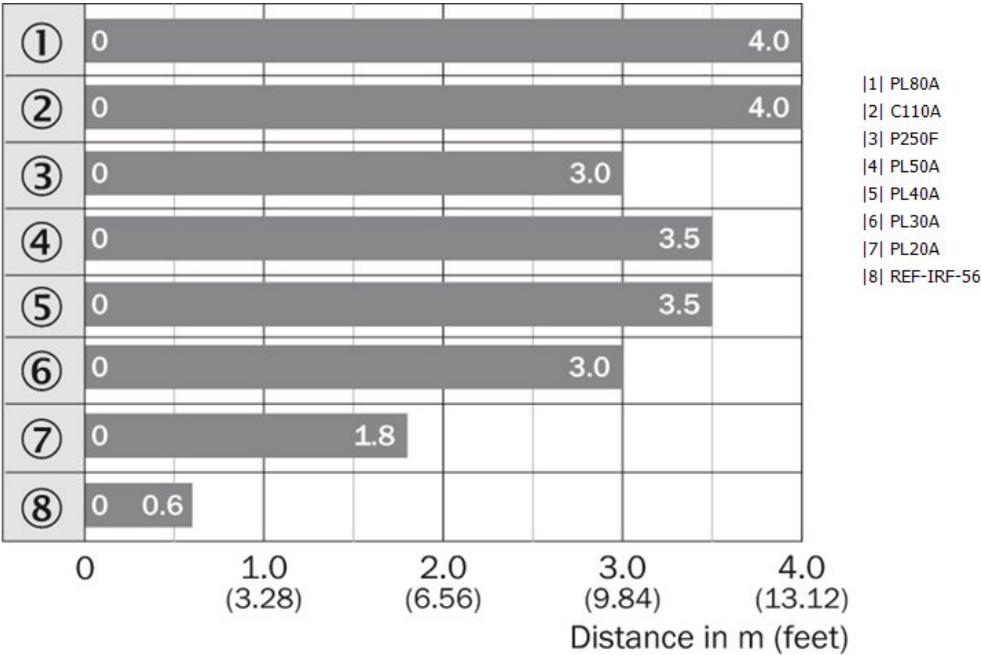


- [2] LED indicator yellow: Light received
- [3] LED indicator, green: power on, teach-in mode I, LED indicator, blue: teach-in mode II
- [6] Single teach button, function 1: teach-in sensitivity on reflector, function 2: change operation/teach-in mode

Connection diagram

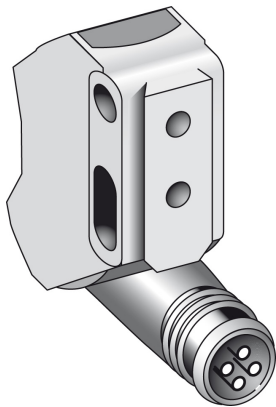


Sensing range diagram

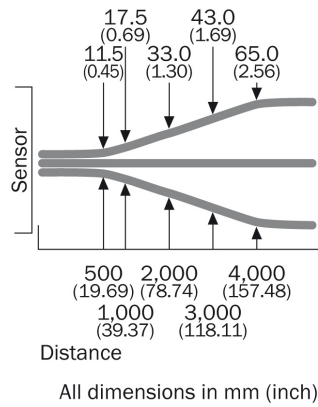


■ Sensing range max.

Connection type



Light spot size



**Australia**

Phone +61 3 9457 0600  
1800 334 802 – tollfree  
E-Mail sales@sick.com.au

**Belgium/Luxembourg**

Phone +32 (0)2 466 55 66  
E-Mail info@sick.be

**Brasil**

Phone +55 11 3215-4900  
E-Mail sac@sick.com.br

**Canada**

Phone +1 905 771 14 44  
E-Mail information@sick.com

**Ceská Republika**

Phone +420 2 57 91 18 50  
E-Mail sick@sick.cz

**China**

Phone +86 4000 121 000  
E-Mail info.china@sick.net.cn  
Phone +852-2153 6300  
E-Mail ghk@sick.com.hk

**Danmark**

Phone +45 45 82 64 00  
E-Mail sick@sick.dk

**Deutschland**

Phone +49 211 5301-301  
E-Mail kundenservice@sick.de

**España**

Phone +34 93 480 31 00  
E-Mail info@sick.es

**France**

Phone +33 1 64 62 35 00  
E-Mail info@sick.fr

**Great Britain**

Phone +44 (0)1727 831121  
E-Mail info@sick.co.uk

**India**

Phone +91-22-4033 8333  
E-Mail info@sick-india.com

**Israel**

Phone +972-4-6801000  
E-Mail info@sick-sensors.com

**Italia**

Phone +39 02 27 43 41  
E-Mail info@sick.it

**Japan**

Phone +81 (0)3 3358 1341  
E-Mail support@sick.jp

**Magyarország**

Phone +36 1 371 2680  
E-Mail office@sick.hu

**Nederlands**

Phone +31 (0)30 229 25 44  
E-Mail info@sick.nl

**Norge**

Phone +47 67 81 50 00  
E-Mail austefjord@sick.no

**Österreich**

Phone +43 (0)22 36 62 28 8-0  
E-Mail office@sick.at

**Polska**

Phone +48 22 837 40 50  
E-Mail info@sick.pl

**România**

Phone +40 356 171 120  
E-Mail office@sick.ro

**Russia**

Phone +7-495-775-05-30  
E-Mail info@sick.ru

**Schweiz**

Phone +41 41 619 29 39  
E-Mail contact@sick.ch

**Singapore**

Phone +65 6744 3732  
E-Mail admin@sicksgp.com.sg

**Slovenija**

Phone +386 (0)1-47 69 990  
E-Mail office@sick.si

**South Africa**

Phone +27 11 472 3733  
E-Mail info@sickautomation.co.za

**South Korea**

Phone +82 2 786 6321/4  
E-Mail info@sickkorea.net

**Suomi**

Phone +358-9-25 15 800  
E-Mail sick@sick.fi

**Sverige**

Phone +46 10 110 10 00  
E-Mail info@sick.se

**Taiwan**

Phone +886-2-2375-6288  
E-Mail sales@sick.com.tw

**Türkiye**

Phone +90 (216) 528 50 00  
E-Mail info@sick.com.tr

**United Arab Emirates**

Phone +971 (0) 4 8865 878  
E-Mail info@sick.ae

**USA/México**

Phone +1(952) 941-6780  
1 800-325-7425 – tollfree  
E-Mail info@sickusa.com

More representatives and agencies  
at [www.sick.com](http://www.sick.com)