



Photoelectric sensors  
W12-2 Laser, Photoelectric proximity sensor,  
Background suppression

WT12L-2B540A01



## Photoelectric sensors W12-2 Laser, Photoelectric proximity sensor, Background suppression

**Model Name** > [WT12L-2B540A01](#)  
**Part No.** > [1018474](#)



### At a glance

- Laser protection class 1 or 2
- Precise background suppression
- Rugged sensors for industrial use
- Highly visible laser light spot for versatile object detection
- Rugged die-cast zinc housing with optional Teflon® coating
- Versatile mounting options due to dovetail mounting - mounting holes and oblong holes
- Highly visible status LEDs
- Sensing range adjustment via potentiometer

### Your benefits

Precise background suppression reduces false readings caused by stray background reflections

High immunity to optical interference ensures fewer false readings and less downtime

Highly visible laser light spot provides quick and easy setup

Highly visible status LEDs simplify sensing distance adjustments and reduce installation time

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

Laser protection class 1 or 2 for eye safety

Rotatable connector provides easy installation



### Features

|                                  |                                                        |
|----------------------------------|--------------------------------------------------------|
| Sensor/detection principle:      | Photoelectric proximity sensor, Background suppression |
| Dimensions (W x H x D):          | 15 mm x 49 mm x 41.5 mm                                |
| Housing design (light emission): | Rectangular                                            |
| Sensing range max.:              | 30 mm ... 200 mm <sup>1)</sup>                         |
| Type of light:                   | Visible red light                                      |
| Light source:                    | Laser <sup>2)</sup>                                    |
| Light spot (distance):           | 0.2 mm (80 mm)                                         |
| Wave length:                     | 650 nm                                                 |

Sensitivity adjustment:

Potentiometer

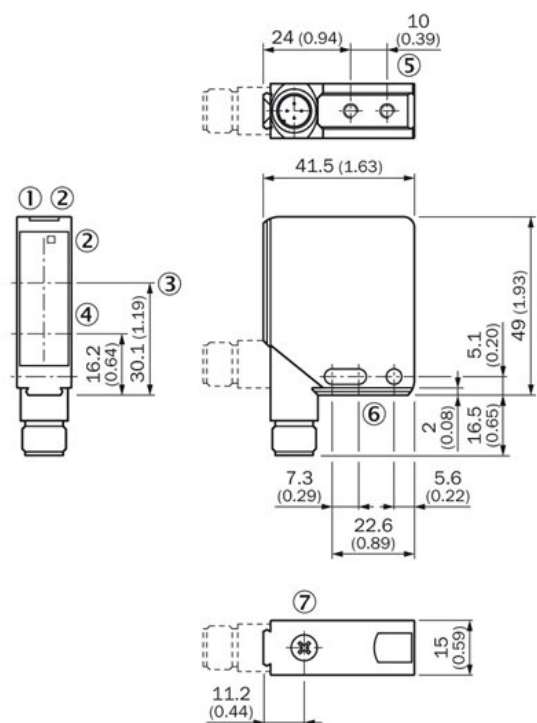
<sup>1)</sup> Object with 90 % reflectance (referred to standard white DIN 5033) <sup>2)</sup> Average service life 50,000 h at Ta = +25 °C

## Mechanics/electronics

|                                   |                                                                                                                                       |
|-----------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| Supply voltage:                   | 10 V DC ... 30 V DC <sup>1)</sup>                                                                                                     |
| Ripple:                           | $\leq 5 \text{ Vpp}$ <sup>2)</sup>                                                                                                    |
| Power consumption:                | $\leq 55 \text{ mA}$ <sup>3)</sup>                                                                                                    |
| Output type:                      | NPN, Dark-switching, 0 V or not connected, light-switching, PNP, Light-switching, Selectable via L/D control wire, Uv, dark-switching |
| Signal voltage PNP HIGH/LOW:      | $U_v - < 2 \text{ V}, U_v/0 \text{ V}, \leq 1.5 \text{ V}$                                                                            |
| Signal voltage NPN HIGH/LOW:      | $U_v - < 2 \text{ V}, U_v/0 \text{ V}, \leq 1.5 \text{ V}$                                                                            |
| Output current I <sub>max</sub> : | 100 mA                                                                                                                                |
| Response time:                    | $\leq 200 \mu\text{s}$ <sup>4)</sup>                                                                                                  |
| Switching frequency:              | 2,500 Hz <sup>5)</sup>                                                                                                                |
| Connection type:                  | Connector M12, 5-pin                                                                                                                  |
| Circuit protection:::             | A, C, D <sup>6)</sup> <sup>7)</sup> <sup>8)</sup>                                                                                     |
| Protection class:                 | II                                                                                                                                    |
| Weight:                           | 130 g                                                                                                                                 |
| Enclosure rating:                 | IP 67<br>IP 69K                                                                                                                       |
| Special features:                 | American version                                                                                                                      |
| Ambient operating temperature:    | -10 °C ... 50 °C                                                                                                                      |
| Ambient storage temperature:      | -25 °C ... 75 °C                                                                                                                      |
| UL File-No.:                      | American Version, 242362, 242361 (0312012-00)                                                                                         |

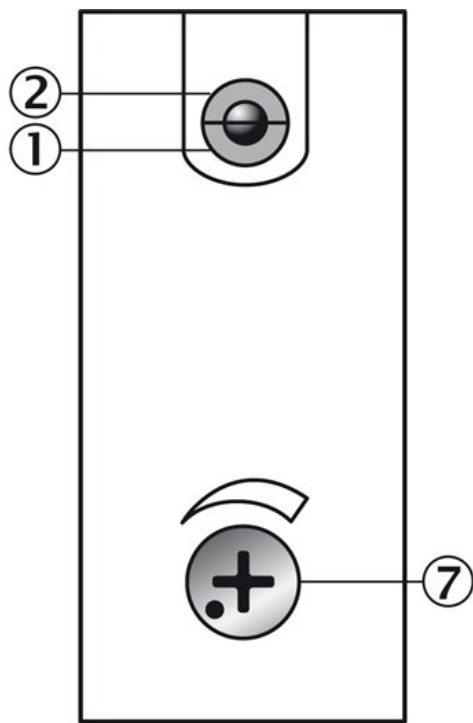
<sup>1)</sup> Limit values <sup>2)</sup> May not exceed or fall short of  $V_{S8}$  <sup>3)</sup> Without load <sup>4)</sup> Signal transit time with resistive load <sup>5)</sup> With light/dark ratio 1:1 <sup>6)</sup> A =  $V_S$  connections reverse-polarity protected <sup>7)</sup> C = interference suppression <sup>8)</sup> D = outputs overcurrent and short-circuit protected

Dimensional drawing



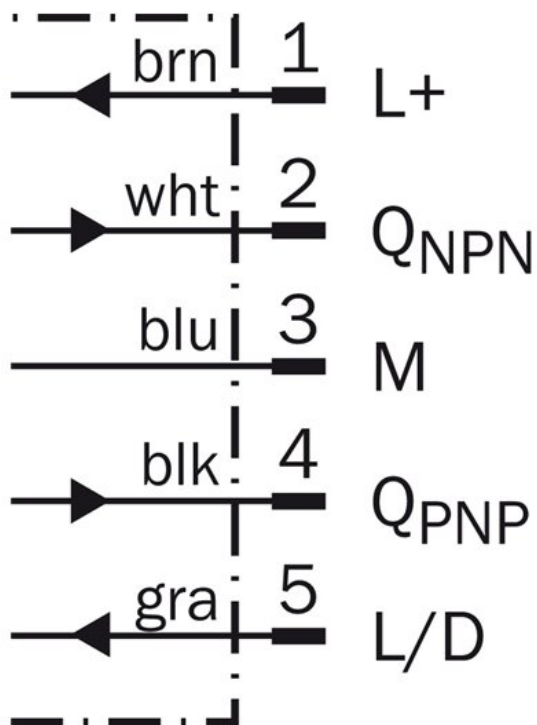
- |1| Operating indicator, green
- |2| LED reception indicator, yellow
- |3| Optical axis, receiver
- |4| Optical axis, sender
- |6| Mounting hole, Ø 4.2 mm
- |7| Sensing distance adjustment

Adjustments possible

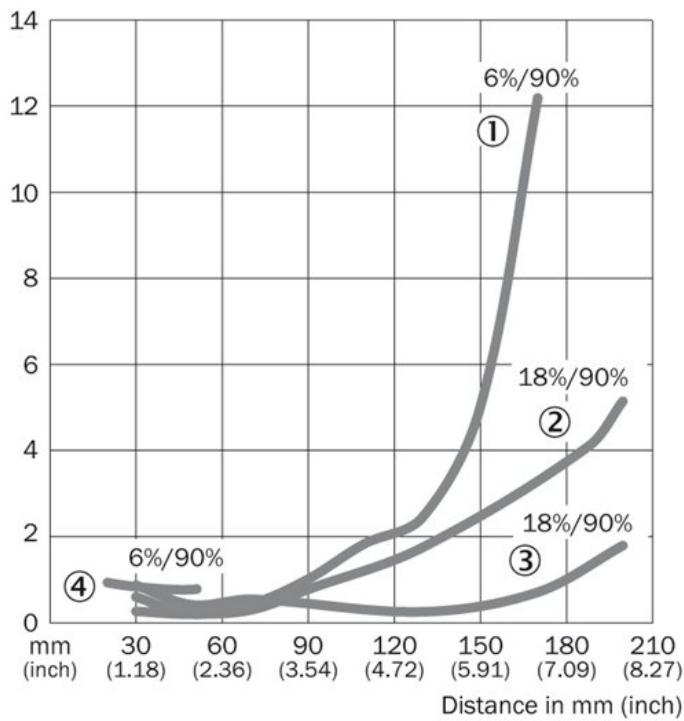


- |1| Operating indicator, green
- |2| LED reception indicator, yellow
- |7| Sensing distance adjustment

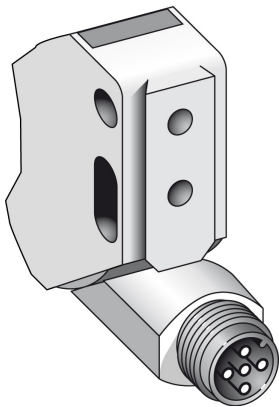
Connection diagram



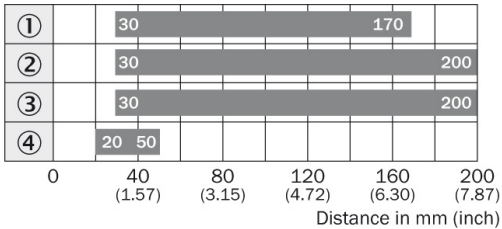
Characteristic curve



Connection type



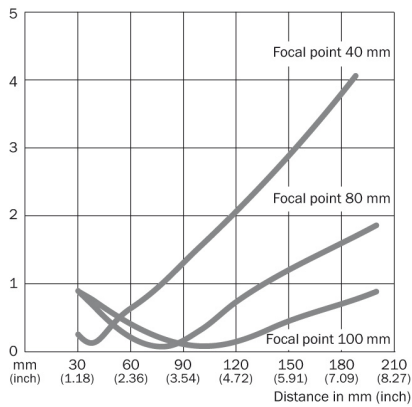
Sensing range diagram



■ Sensing range

- ① Sensing range on black, 6 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90 % remission
- ④ Sensing range on black, 6 % remission, fixed

Light spot size



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