



# WT12L-2B540

W12-2 Laser

**SMALL PHOTOELECTRIC SENSORS**

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
WT12L-2B540	1018251

**Included in delivery:** BEF-KH-W12 (2)

Other models and accessories → [www.sick.com/W12-2\\_Laser](http://www.sick.com/W12-2_Laser)

### Detailed technical data

#### Features

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Background suppression
<b>Sensing range max.</b>	30 mm ... 200 mm <sup>1)</sup>
<b>Emitted beam</b>	
Light source	Laser <sup>2)</sup>
Type of light	Visible red light
Light spot size (distance)	Ø 0.2 mm (80 mm)
<b>Focus position</b>	80 mm
<b>Key laser figures</b>	
Normative reference	EN 60825-1:2014, IEC 60825-1:2007
Laser class	2 <sup>3)</sup>
<b>Key LED figures</b>	
Wave length	650 nm
<b>Adjustment</b>	Potentiometer
<b>Special applications</b>	Detecting small objects, Detection of objects moving at high speeds
<b>Items supplied</b>	2 x clamps BEF-KH-W12, incl. screws

<sup>1)</sup> Object with 18% remission (based on standard white, DIN 5033).

<sup>2)</sup> Average service life: 50,000 h at T<sub>U</sub> = +25 °C.

<sup>3)</sup> Pulse length 4 µs, max. pulse power < 5,0 mW.

#### Safety-related parameters

<b>MTTF<sub>D</sub></b>	292 years
<b>DC<sub>avg</sub></b>	0 %
<b>T<sub>M</sub> (mission time)</b>	10 years

## Electrical data

<b>Supply voltage <math>U_B</math></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>
<b>Current consumption</b>	55 mA <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Type	PNPNPN <sup>4) 5)</sup>
Switching mode	Light switching, Dark switching <sup>4) 5)</sup>
Switching mode selector	Selectable via L/D control cable
Signal voltage PNP HIGH/LOW	U <sub>v</sub> - < 2 V, U <sub>v</sub> / 0 V, <= 1.5 V
Signal voltage NPN HIGH/LOW	U <sub>v</sub> - < 2 V, U <sub>v</sub> / 0 V, <= 1.5 V
Output current I <sub>max.</sub>	≤ 100 mA
Response time	≤ 200 μs <sup>6)</sup>
Switching frequency	2,500 Hz <sup>7)</sup>
<b>Circuit protection</b>	A <sup>8)</sup> C <sup>9)</sup> D <sup>10)</sup>

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not fall below or exceed U<sub>y</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> 0 V or not connected, light switching.

<sup>5)</sup> U<sub>v</sub>, dark switching.

<sup>6)</sup> Signal transit time with resistive load.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> C = interference suppression.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

## Mechanical data

<b>Housing</b>	Rectangular
<b>Dimensions (W x H x D)</b>	15 mm x 49 mm x 41.5 mm
<b>Connection</b>	Male connector M12, 5-pin
<b>Material</b>	
Housing	Metal
Front screen	Plastic, PMMA
<b>Weight</b>	130 g

## Ambient data

<b>Enclosure rating</b>	IP67 IP69K
<b>Ambient operating temperature</b>	-10 °C ... +50 °C
<b>Ambient temperature, storage</b>	-25 °C ... +75 °C
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493

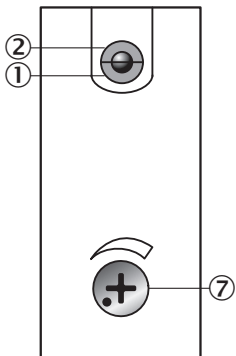
## Classifications

<b>ECLASS 5.0</b>	27270904
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<b>ECLASS 5.1.4</b>	27270904
<b>ECLASS 6.0</b>	27270904
<b>ECLASS 6.2</b>	27270904
<b>ECLASS 7.0</b>	27270904
<b>ECLASS 8.0</b>	27270904
<b>ECLASS 8.1</b>	27270904
<b>ECLASS 9.0</b>	27270904
<b>ECLASS 10.0</b>	27270904
<b>ECLASS 11.0</b>	27270904
<b>ECLASS 12.0</b>	27270903
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>ETIM 8.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

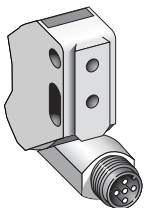
### Adjustments

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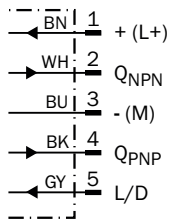
- ① Operating indicator, green
- ② LED reception indicator, yellow
- ⑦ Adjustment of sensing range

### Connection type



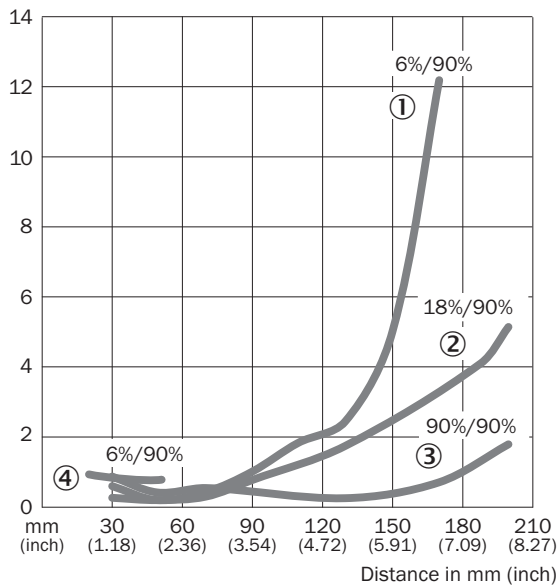
### Connection diagram

Cd-145



### Characteristic curve

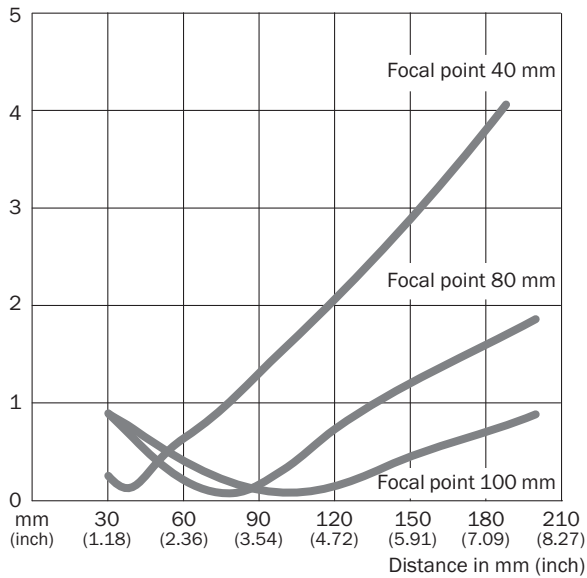
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- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor
- ④ Sensing range on black, 6 % remission, fix

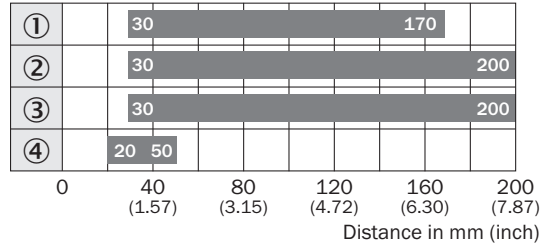
### Light spot size

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### Sensing range diagram

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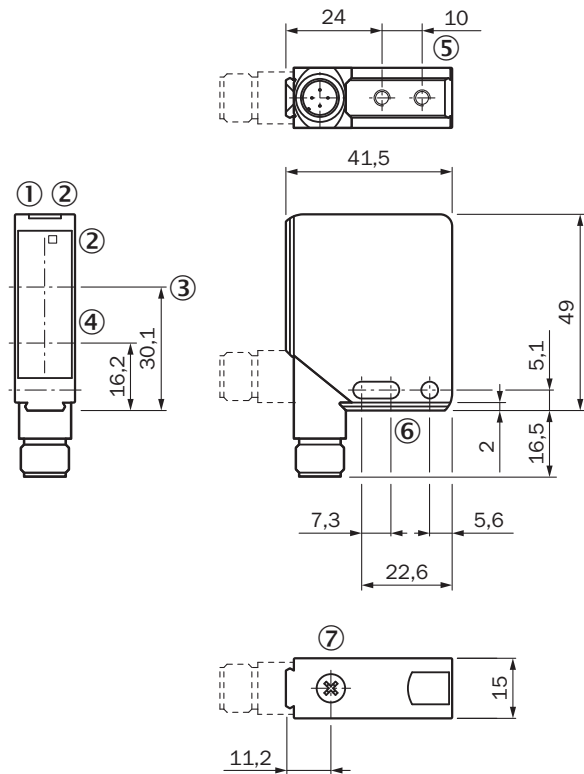


■ Sensing range

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**Dimensional drawing** (Dimensions in mm (inch))

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- ① Operating indicator, green
- ② LED reception indicator, yellow
- ③ Optical axis, receiver
- ④ Optical axis, sender
- ⑤ M4 threaded mounting hole - 4 mm depth
- ⑥ Mounting hole,  $\varnothing$  4.2 mm
- ⑦ Adjustment of sensing range

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)