



WT12L-2B540

W12-2 Laser

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

| Type | Part no. |
|-------------|----------|
| WT12L-2B540 | 1018251 |

Other models and accessories → www.sick.com/W12-2_Laser

Illustration may differ



Detailed technical data

Features

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

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

²⁾ Average service life: 50,000 h at T_U = +25 °C.

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

Safety-related parameters

| | |
|-------------------------------------|-----------|
| MTTF_D | 292 years |
| DC_{avg} | 0 % |
| T_M (mission time) | 10 years |

Electrical data

| | | |
|--|--|--|
| Supply voltage U_B | 10 V DC ... 30 V DC ¹⁾ | |
| Ripple | < 5 V _{pp} ²⁾ | |
| Current consumption | 55 mA ³⁾ | |
| Protection class | III | |
| Digital output | Type | PNPNPN ^{4) 5)} |
| | Switching mode | Light switching, Dark switching ^{4) 5)} |
| | Switching mode selector | Selectable via L/D control cable |
| | 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_{max} | ≤ 100 mA |
| | Response time | ≤ 200 μs ⁶⁾ |
| | Switching frequency | 2,500 Hz ⁷⁾ |
| Circuit protection | A ⁸⁾ C ⁹⁾ D ¹⁰⁾ | |

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

²⁾ May not exceed or fall below U_V tolerances.

³⁾ Without load.

⁴⁾ 0 V or not connected, light switching.

⁵⁾ U_V , dark switching.

⁶⁾ Signal transit time with resistive load.

⁷⁾ With light/dark ratio 1:1.

⁸⁾ A = V_S connections reverse-polarity protected.

⁹⁾ C = interference suppression.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

Mechanical data

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

Ambient data

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

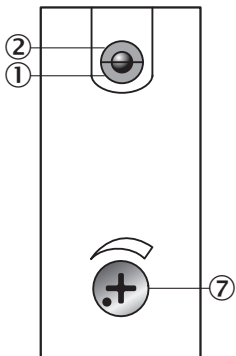
Classifications

| | |
|-------------------|----------|
| ECLASS 5.0 | 27270904 |
|-------------------|----------|

| | |
|-----------------------|----------|
| ECLASS 5.1.4 | 27270904 |
| ECLASS 6.0 | 27270904 |
| ECLASS 6.2 | 27270904 |
| ECLASS 7.0 | 27270904 |
| ECLASS 8.0 | 27270904 |
| ECLASS 8.1 | 27270904 |
| ECLASS 9.0 | 27270904 |
| ECLASS 10.0 | 27270904 |
| ECLASS 11.0 | 27270904 |
| ECLASS 12.0 | 27270903 |
| ETIM 5.0 | EC002719 |
| ETIM 6.0 | EC002719 |
| ETIM 7.0 | EC002719 |
| ETIM 8.0 | EC002719 |
| UNSPSC 16.0901 | 39121528 |

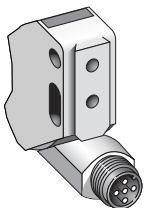
Adjustments

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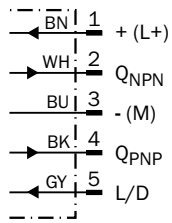
- ① Operating indicator, green
- ② LED reception indicator, yellow
- ⑦ Adjustment of sensing range

Connection type



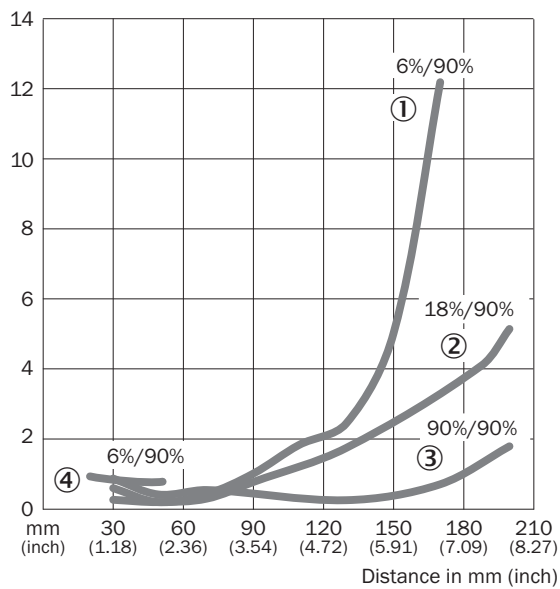
Connection diagram

Cd-145



Characteristic curve

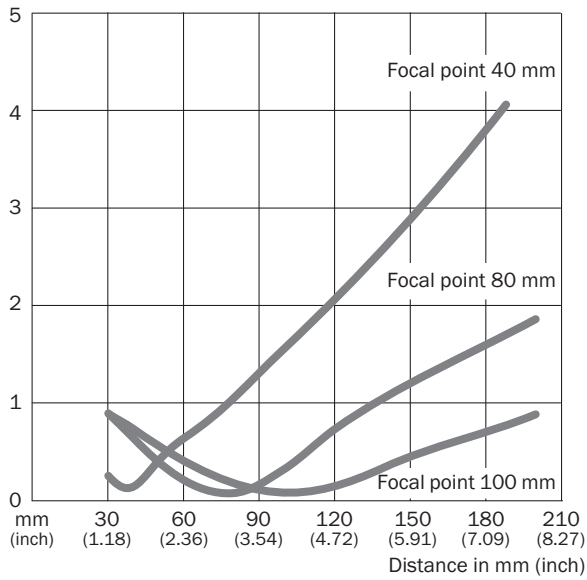
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- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor
- ④ Sensing range on black, 6% remission, fix

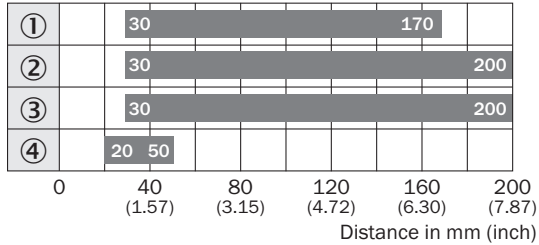
Light spot size

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Sensing range diagram

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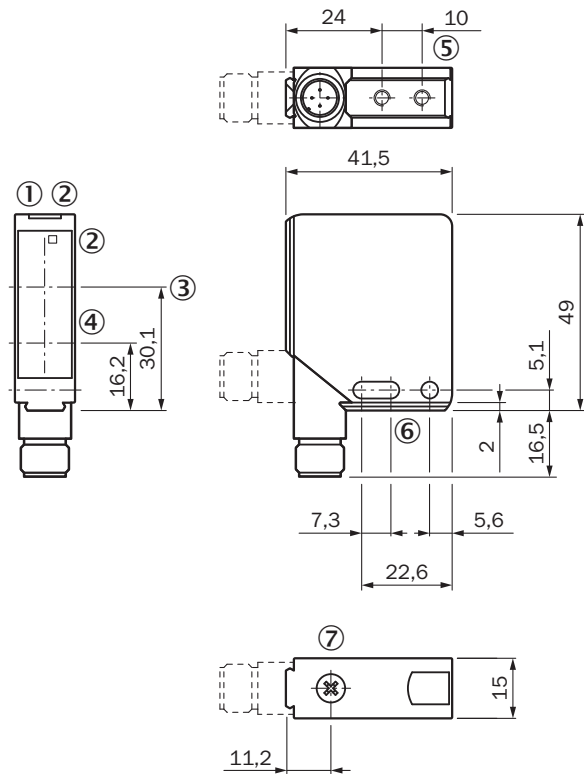


■ Sensing range

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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.”

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