



DATA SHEET

WT12L-2B540A01

W12
Photoelectric sensors

SICK

Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WT12L-2B540A01

ORDERING INFORMATION

Type	part no.
WT12L-2B540A01	1018474

Further device versions and accessories at www.sick.com/WT12



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)
Focus position	80 mm
Key laser figures	Normative reference EN 60825-1:2014, IEC 60825-1:2007
	Laser class 2 ^{3) 4)}
Key LED figures	Wave length 650 nm
Adjustment	Potentiometer
Special features	American version
Special applications	Detecting small objects, Detection of objects moving at high speeds

¹⁾ Object with 90% 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.

⁴⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

SAFETY-RELATED PARAMETERS

MTTF _D	292 years
DC _{avg}	0 %
T _M (mission time)	10 years

ELECTRONICS

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 PNP ⁴⁾ NPN 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} $\leq 100 \text{ mA}$ Response time $\leq 200 \mu\text{s}$ 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 fall below or exceed 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_B connections reverse-polarity protected.

⁹⁾ C = interference suppression.

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

MECHANICS

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

AMBIENT DATA

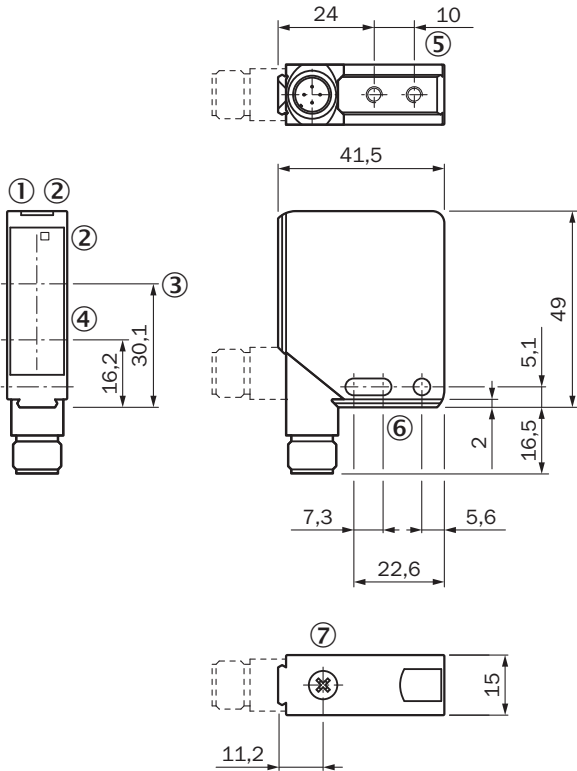
Enclosure rating	IP67 IP69K
Ambient operating temperature	-10 °C ... +50 °C
Ambient temperature, storage	-25 °C ... +75 °C
UL File No.	American Version, 242362, 242361 (0312012-00)

CERTIFICATES

EU declaration of conformity	✓
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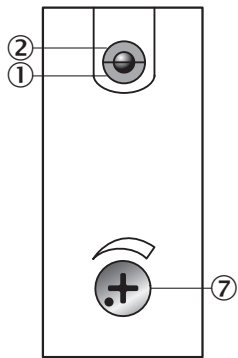
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓
Laser safety (IEC 60825-1) certificate	✓
Optical radiation safety (GB 44703:2024) declaration of manufacturer (low risk)	✓

DIMENSIONAL DRAWING WT12L-2



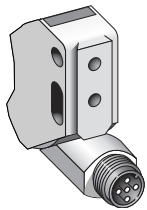
- Dimensions in mm (inch)
- ① Operating indicator, green
 - ② LED reception indicator, yellow
 - ③ Optical axis, receiver
 - ④ Optical axis, sender
 - ⑤ M4 threaded mounting hole – 4 mm depth
 - ⑥ Mounting hole, Ø 4.2 mm
 - ⑦ Adjustment of sensing range

ADJUSTMENTS WT12L-2

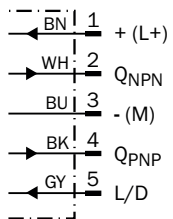


- ① Operating indicator, green
- ② LED reception indicator, yellow
- ⑦ Adjustment of sensing range

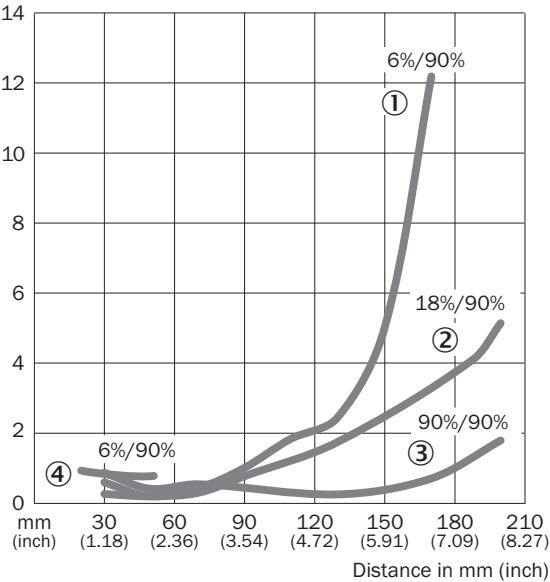
CONNECTION TYPE



CONNECTION DIAGRAM CD-145

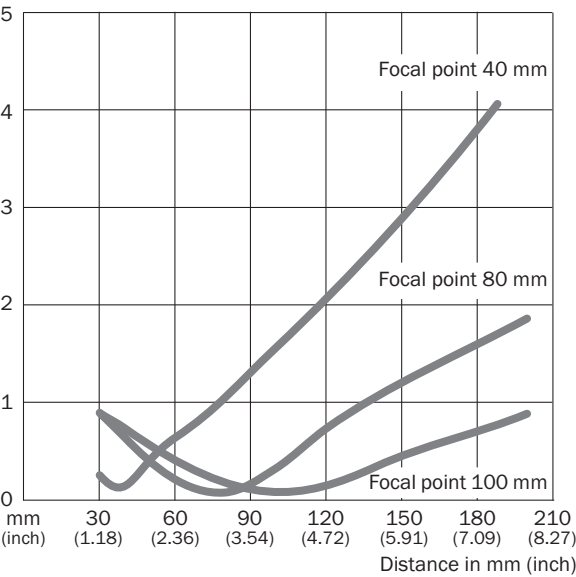


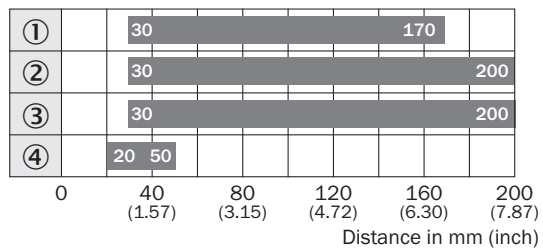
CHARACTERISTIC CURVE WT12L-2



- 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 WT12L-2



SENSING RANGE DIAGRAM WT12L-2

■ Sensing range

- 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

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1018474



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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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