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DATA SHEET

WL12L-2B520

W12
Photoelectric sensors

SICK Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WL12L-2B520

ORDERING INFORMATION

Type	part no.
WL12L-2B520	1018253

Further device versions and accessories at www.sick.com/W12

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	Without reflector minimum distance (autocollimation/coaxial optics)
Sensing range max.	0 m ... 15 m [1]
Polarisation filter	Yes
Emitted beam	
Light source	Laser [2]
Type of light	Visible red light
Light spot size (distance)	Ø 0.8 mm (300 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	Focusable from 150 mm to 450 mm
Special applications	Detecting small objects, Detection of objects moving at high speeds
Items supplied	2 x clamps BEF-KH-W12, incl. screws

[1] Reflector PL80A.

[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

$MTTF_D$	448 years
DC_{avg}	0 %

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	Uv - < 2.9 V, Uv V / 0 V <= 1.5 V
Signal voltage NPN HIGH/LOW	Uv < 1,5 V / Uv < 2,9 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 fall below or exceed U_V tolerances.

[3] Without load.

[4] 0 V or not connected, light switching.

[5] Uv, 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.

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

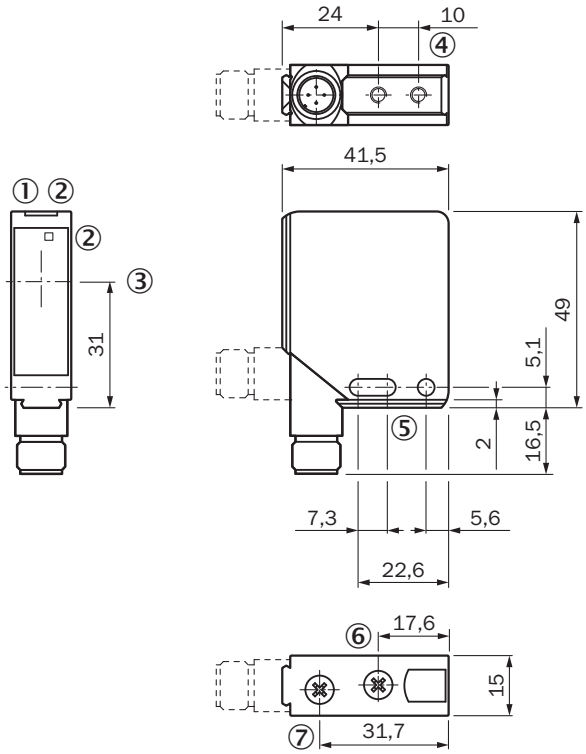
Enclosure rating	IP67 IP69K
Ambient operating temperature	–10 °C ... +50 °C
Ambient temperature, storage	–25 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

CERTIFICATES

EU declaration of conformity	✓

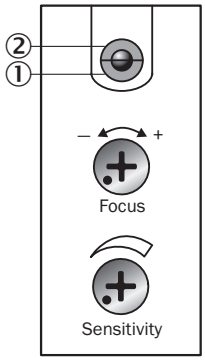
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
cULus certificate	✓
Laser safety (IEC 60825-1) certificate	✓

DIMENSIONAL DRAWING WL12L-2, WS/WE12L-2



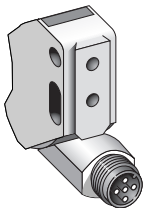
Dimensions in mm (inch)
① Operating indicator, green
② LED reception indicator, yellow
③ Center of optical axis
④ M4 threaded mounting hole – 4 mm depth
⑤ Mounting hole, Ø 4.2 mm
⑥ Focal adjustment
⑦ sensitivity control

ADJUSTMENTS WL12L-2

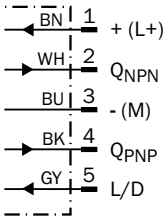


① Operating indicator, green
② LED reception indicator, yellow
⑥ Focal adjustment
⑦ sensitivity control

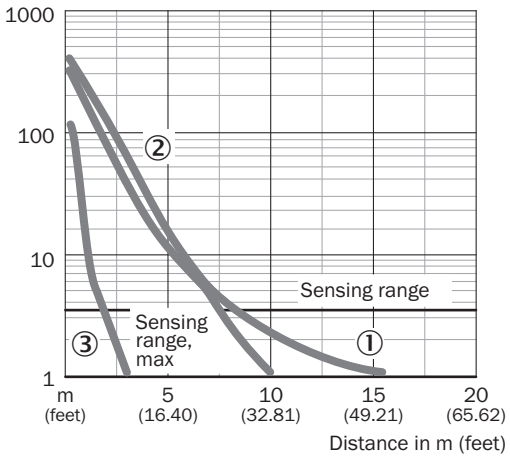
CONNECTION TYPE



CONNECTION DIAGRAM CD-145

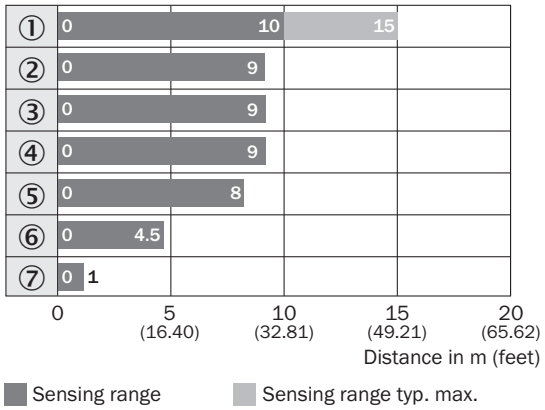


CHARACTERISTIC CURVE WL12L-2, 15 M



① Reflector PL80A
② Reflector PL50A
③ Reflective tape Diamond Grade

SENSING RANGE DIAGRAM WL12L-2, 15 M



① Reflector PL80A
② Reflector PL50A
③ Reflector PL40A
④ Reflector P250
⑤ Reflector PL30A
⑥ Reflector PL20A
⑦ Reflective tape Diamond Grade

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/1018253

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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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