



DATA SHEET

WL12G-3B2531

W12
Photoelectric sensors

SICK

Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WL12G-3B2531

ORDERING INFORMATION

Type	part no.
WL12G-3B2531	1041456

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 ... 4 m ¹⁾
Polarisation filter	Yes
Emitted beam	Light source LED ²⁾
	Type of light Visible red light
	Light spot size (distance) Ø 25 mm (1.5 m)
Key LED figures	Wave length 640 nm
Adjustment	Potentiometer, 11 turns
Angle of dispersion	Approx. 1.5°
Special applications	Detecting transparent objects
Items supplied	2 x clamps BEF-KH-W12, incl. screws

¹⁾ Reflector PL80A.
²⁾ Average service life: 100,000 h at T_u = +25 °C.

SAFETY-RELATED PARAMETERS

MTTF _D	823 years
DC _{avg}	0 %

ELECTRONICS

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current consumption	30 mA ³⁾
Protection class	III
Digital output	Type PNP, NPN Switching mode Light switching, Dark switching Switching mode selector Selectable via L/D control cable Signal voltage PNP HIGH/LOW > $U_V - 3 \text{ V}$ / ca. 0 V Output current I_{max} ≤ 100 mA Response time ≤ 330 μs ⁴⁾ Switching frequency 1,500 Hz ⁵⁾
Circuit protection	A ⁶⁾ C ⁷⁾ D ⁸⁾
Special feature	Detecting transparent objects

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⁾ Signal transit time with resistive load.

⁵⁾ With light/dark ratio 1:1.

⁶⁾ A = V_{S} connections reverse-polarity protected.

⁷⁾ C = interference suppression.

⁸⁾ D = outputs overcurrent and short-circuit protected.

MECHANICS

Housing	Rectangular
Dimensions (W x H x D)	15.6 mm x 48.5 mm x 42 mm
Connection	Plug, M12, 5-pin
Material	Housing Metal, zinc diecast Front screen Plastic, PMMA
Weight	120 g

AMBIENT DATA

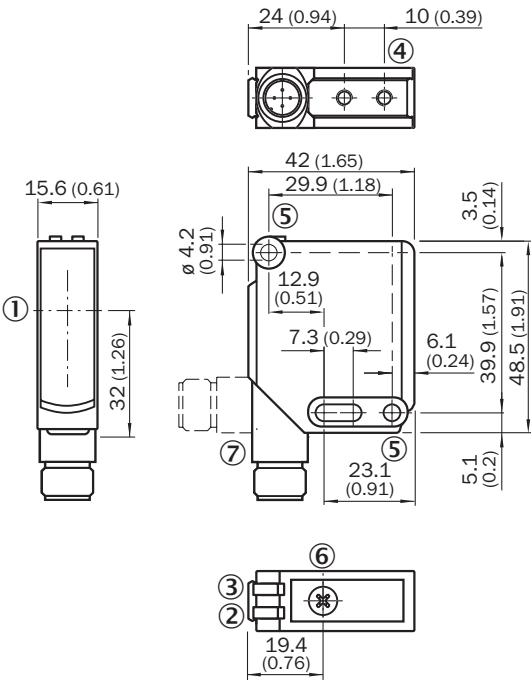
Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

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	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

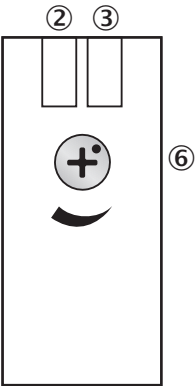
DIMENSIONAL DRAWING WL12-3, WSE12-3



Dimensions in mm (inch)

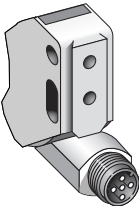
- ① Optical axis
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ④ M4 threaded mounting hole, 4 mm deep
- ⑤ Mounting hole, Ø 4.2 mm
- ⑥ Sensitivity control: potentiometer
- ⑦ Connection

ADJUSTMENTS WL12-3, WSE12-3

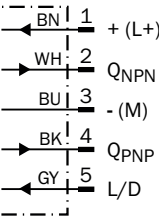


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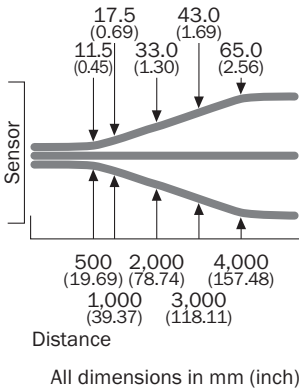
CONNECTION TYPE



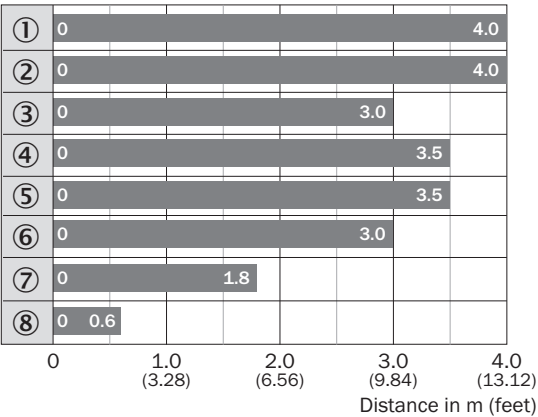
CONNECTION DIAGRAM CD-145



LIGHT SPOT SIZE



SENSING RANGE DIAGRAM WL12G-3



- Sensing range max.
- ① Reflector PL80A
 - ② Reflector C110A
 - ③ Reflector P250F
 - ④ Reflector PL50A
 - ⑤ Reflector PL40A
 - ⑥ Reflector PL30A
 - ⑦ Reflector PL20A
 - ⑧ Reflective tape REF-IRF-56

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/1041456



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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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