

DATA SHEET

# WL12-3N2431T01

W12  
Photoelectric sensors

# SICK

Sensor Intelligence

## PHOTOELECTRIC SENSORS

## WL12-3N2431T01

## ORDERING INFORMATION

Type	part no.
WL12-3N2431T01	1041443

Further device versions and accessories at [www.sick.com/W12](http://www.sick.com/W12)



Illustration may differ



## 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 ... 7 m <sup>1)</sup>	
Sensing range	0 m ... 5 m <sup>1)</sup>	
Polarisation filter	Yes	
Emitted beam	Light source	LED <sup>2)</sup>
	Type of light	Visible red light
	Light spot size (distance)	Ø 70 mm (3 m)
Key LED figures	Wave length	640 nm
	Adjustment	Potentiometer, 5 turns
Angle of dispersion	Approx. 1.5°	
Special features	Teflon coated housing	
Special applications	Hygienic and washdown zones	

<sup>1)</sup> Reflector PL80A.

<sup>2)</sup> Average service life: 100,000 h at T<sub>u</sub> = +25 °C.

## SAFETY-RELATED PARAMETERS

MTTF <sub>D</sub>	1,543 years
DC <sub>avg</sub>	0 %

**ELECTRONICS**

Supply voltage $U_B$	10 V DC ... 30 V DC <sup>1)</sup>
Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>
Current consumption	30 mA <sup>3)</sup>
Protection class	III
Digital output	Type NPN Switching mode Light/dark switching Output current $I_{max}$ ≤ 100 mA Response time ≤ 330 μs <sup>4)</sup> Switching frequency 1,500 Hz <sup>5)</sup>
Output function	Complementary
Circuit protection	A <sup>6)</sup> C <sup>7)</sup> D <sup>8)</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  $U_V$  tolerances.

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

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A =  $V_B$  connections reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

<sup>8)</sup> 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	Male connector M12, 4-pin
Material	Housing Metal, zinc diecast Plastic, PTFE coating
Weight	120 g

**AMBIENT DATA**

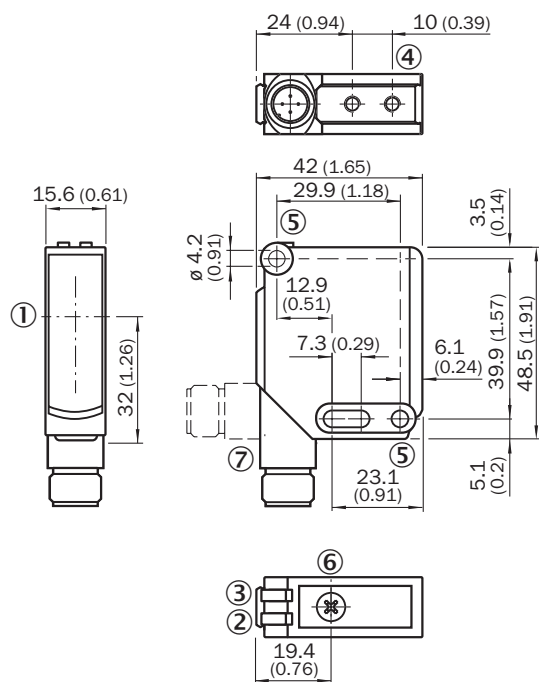
Enclosure rating	IP66 IP67 IP69K
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

**CERTIFICATES**

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓

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

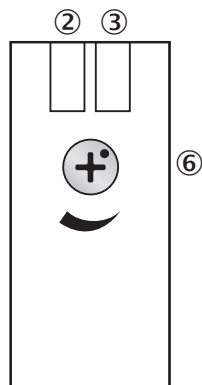
**DIMENSIONAL DRAWING WL12-3, WSE12-3**



Dimensions in mm (inch)

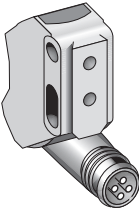
- ① Optical axis
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ④ M4 threaded mounting hole, 4 mm deep
- ⑤ Mounting hole,  $\varnothing 4.2$  mm
- ⑥ Sensitivity control: potentiometer
- ⑦ Connection

**ADJUSTMENTS WL12-3, WSE12-3**

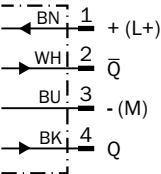


- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ⑥ Sensitivity control: potentiometer

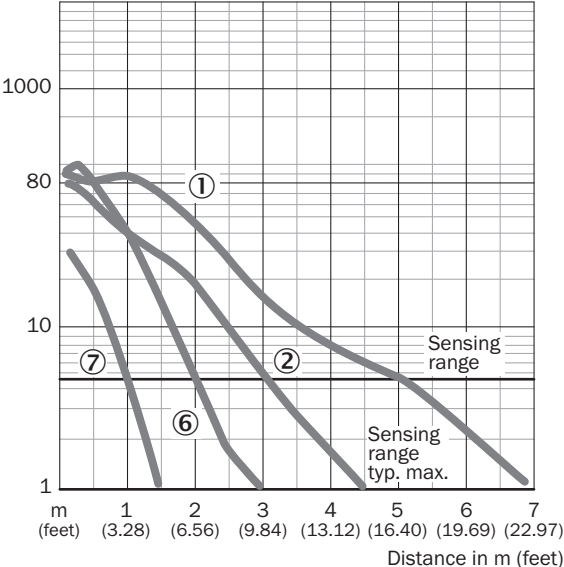
CONNECTION TYPE



CONNECTION DIAGRAM CD-083

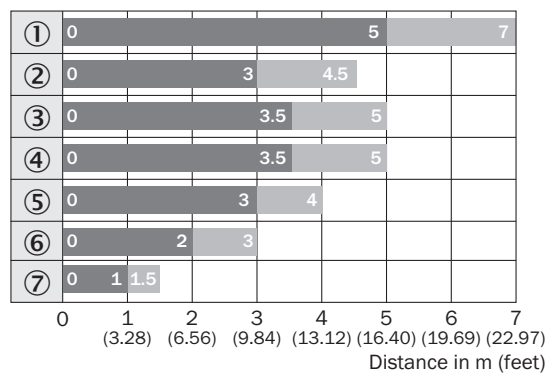


CHARACTERISTIC CURVE WL12-3



- ① Reflector PL80A
- ② Reflector C110A
- ⑥ Reflector PL20A
- ⑦ reflective tape

**SENSING RANGE DIAGRAM WL12-3**



■ Sensing range      ■ Sensing range typ. max.

- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector PL50A
- ④ Reflector PL40A
- 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/1041443](http://www.sick.com/1041443)



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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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