SICK.COM




DATA SHEET

# WL12-3P2431S43

W12
Photoelectric sensors

SICK Sensor Intelligence




Illustration may differ

# PHOTOELECTRIC SENSORS

# WL12-3P2431S43

## ORDERING INFORMATION

| Type | part no. |
|---|---|
| WL12-3P2431S43 | 1044113 |

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 ... 7 m [1] |
| Sensing range | 0 m ... 5 m [1] |
| Polarisation filter | Yes |
| Emitted beam | |
| Light source | LED [2] |
| Type of light | Visible red light |
| Light spot size (distance) | Ø 100 mm (3 m) |
| Key LED figures | |
| Wave length | 640 nm |
| Adjustment | Potentiometer, 5 turns |
| Angle of dispersion | Approx. 1.5° |

[1] Reflector PL80A.

[2] Average service life: 100,000 h at $T_U$ = +25 °C.

### SAFETY-RELATED PARAMETERS

| | |
|---|---|
| $MTTF_D$ | 1,543 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 |
| Switching mode | Light/dark switching |
| Signal voltage PNP HIGH/LOW | > Uv - 2,5 V / ca. 0 V |
| Output current $I_{max.}$ | ≤ 100 mA |
| Response time | ≤ 330 µs [4] |
| Switching frequency | 1,500 Hz [5] |
| Output function | Complementary |
| Circuit protection | A [6]<br>C [7]<br>D [8] |

[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 | Male connector M12, 4-pin |
| Material | |
| Housing | Metal |
| Front screen | Plastic, PMMA |
| Weight | 120 g |

## AMBIENT DATA

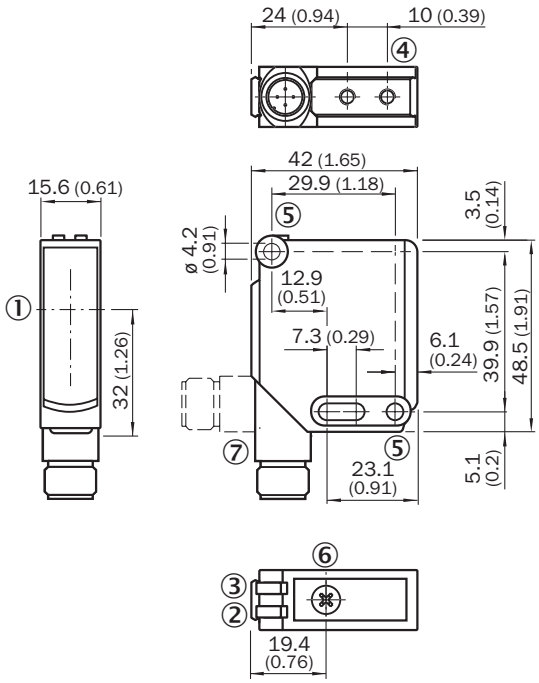
| | |
|---|---|
| Enclosure rating | IP66<br>IP67<br>IP69K |
| Ambient operating temperature | –40 °C ... +60 °C |
| Ambient temperature, storage | –40 °C ... +75 °C |
| UL File No. | NRKH.E181493 & NRKH7.E181493 |

## CERTIFICATES

| | |
|---|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |
| Moroccan declaration of conformity | ✓ |

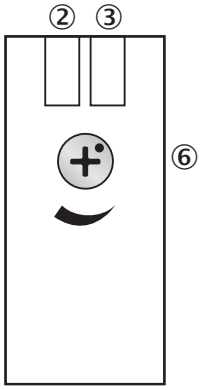
| | |
|---|---|
| China RoHS | ✓ |
| China Compulsory Product Certification (CCC) exempt | ✓ |
| ECOLAB certificate | ✓ |
| cULus certificate | ✓ |
| Photobiological safety (DIN EN 62471) certificate | ✓ |

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



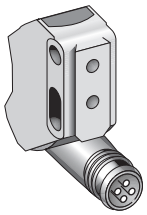

Dimensions in mm (inch)
① Optical axis
② LED indicator yellow: Status of received light beam
③ LED indicator green: Supply voltage active
④ M4 threaded mounting hole, 4 mm deep
⑤ Mounting hole, Ø 4.2 mm
⑥ Sensitivity control: potentiometer
⑦ Connection

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

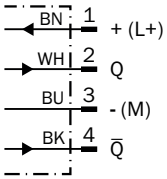



② LED indicator yellow: Status of received light beam
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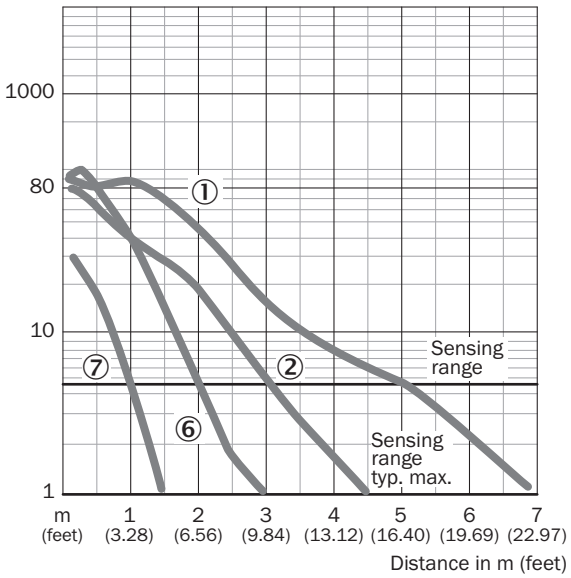
**CONNECTION TYPE**



**CONNECTION DIAGRAM CD-102**

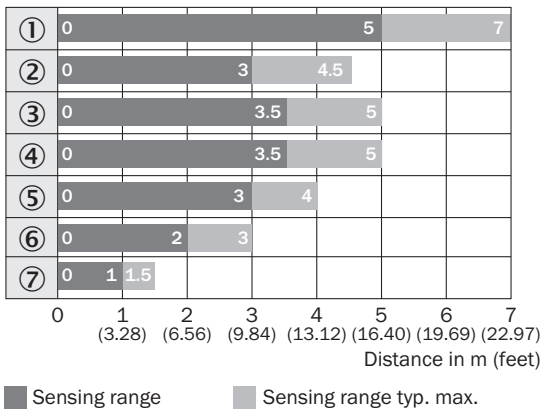


### CHARACTERISTIC CURVE WL12-3




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

### SENSING RANGE DIAGRAM WL12-3




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/1044113

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# SICK AT A GLANCE

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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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