



WL12-3N2431

W12-3

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WL12-3N2431	1041440

Included in delivery: BEF-KH-W12 (2)

Other models and accessories → www.sick.com/W12-3

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 filters	Yes						
Emitted beam	<table border="0"> <tr> <td style="padding-right: 20px;">Light source</td> <td>LED ²⁾</td> </tr> <tr> <td>Type of light</td> <td>Visible red light</td> </tr> <tr> <td>Light spot size (distance)</td> <td>Ø 100 mm (3 m)</td> </tr> </table>	Light source	LED ²⁾	Type of light	Visible red light	Light spot size (distance)	Ø 100 mm (3 m)
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Type of light	Visible red light						
Light spot size (distance)	Ø 100 mm (3 m)						
Key LED figures	<table border="0"> <tr> <td style="padding-right: 20px;">Wave length</td> <td>640 nm</td> </tr> </table>	Wave length	640 nm				
Wave length	640 nm						
Adjustment	Potentiometer, 5 turns						
Angle of dispersion	Approx. 1.5°						
Items supplied	2 x clamps BEF-KH-W12, incl. screws						

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at T_J = +25 °C.

Safety-related parameters

MTTF_D	1,543 years
DC_{avg}	0 %

Electrical data

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current consumption	40 mA ³⁾
Protection class	III
Digital output	
Type	NPN
Switching mode	Light/dark switching
Signal voltage NPN HIGH/LOW	Approx. V_S / < 2.5 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⁾ C ⁷⁾ D ⁸⁾

¹⁾ Limit values when operated in short-circuit protected network: max. 8 A.

²⁾ May not fall below or exceed U_y 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.

Mechanical data

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

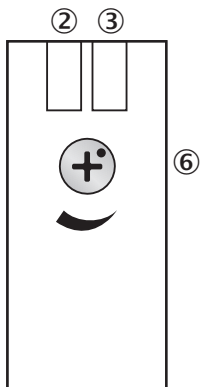
Classifications

ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902

ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

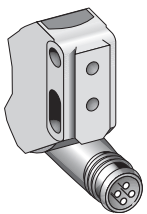
Adjustments

WL12-3, WSE12-3



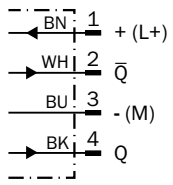
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ⑥ Sensitivity control: potentiometer

Connection type



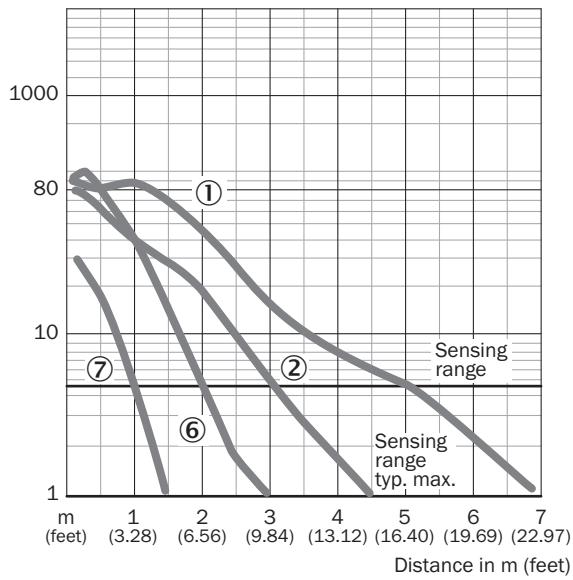
Connection diagram

Cd-083



Characteristic curve

WL12-3



- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector PL20A
- ④ Reflective tape
- ⑤ Reflective tape
- ⑥ Reflective tape
- ⑦ Reflective tape

Sensing range diagram

WL12-3

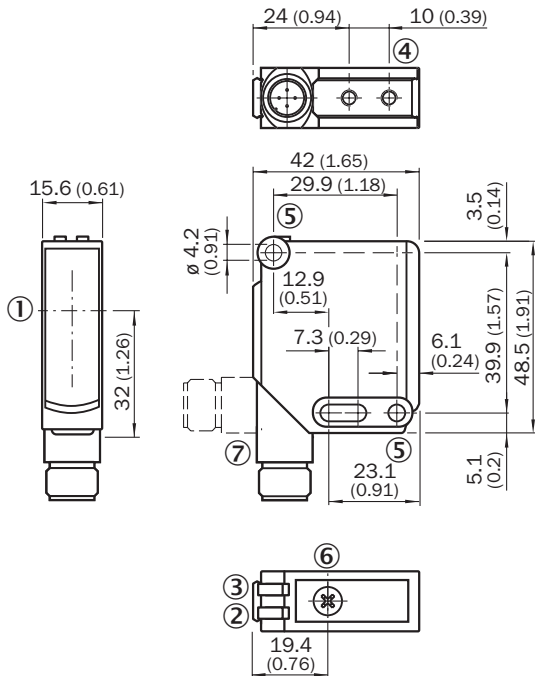


■ Sensing range ■ Sensing range typ. max.

- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector PL50A
- ④ Reflector PL40A
- ⑤ Reflector PL30A
- ⑥ Reflector PL20A
- ⑦ Reflective tape Diamond Grade

Dimensional drawing (Dimensions in mm (inch))





WL12-3, WSE12-3



- 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

Recommended accessories

Other models and accessories → www.sick.com/W12-3

	Brief description	Type	Part no.
Mounting brackets and plates			
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
Reflectors			
	Rectangular, screw connection, 18 mm x 60 mm, PMMA/ABS, Screw-on, 2 hole mounting	PL20A	1012719
Others			
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 4-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 4-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals 	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M12, 4-pin, straight, A-coded • Description: Unshielded • Connection systems: Screw-type terminals • Permitted cross-section: ≤ 0.75 mm² 	STE-1204-G	6009932

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We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

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