WL12-3N2431T01

W12

PHOTOELECTRIC SENSORS

WL12-3N2431T01 | W12
PHOTOELECTRIC SENSORS

Illustration may differ

Ordering information

Type	part no.
WL12-3N2431T01	1041443

Other models and accessories ➜ 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 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

[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	NPN
Switching mode	Light/dark switching
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$_V$ 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, zinc diecast
	Plastic, PTFE coating
Weight	120 g

Ambient data

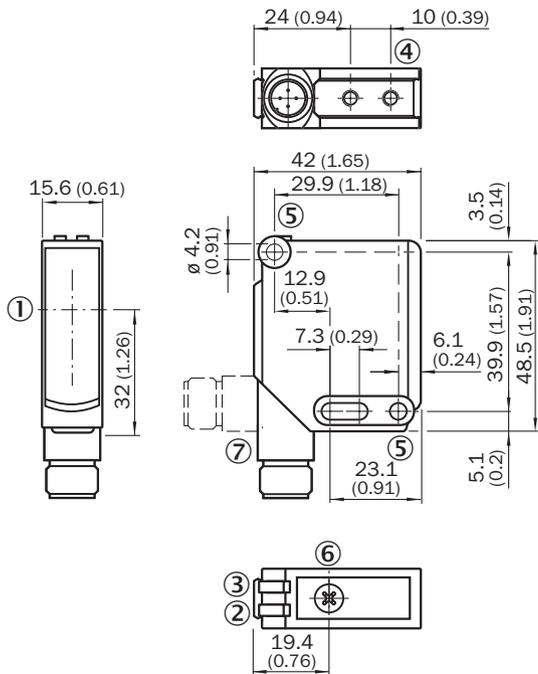| Enclosure rating	IP66
	IP67
	IP69K
Ambient operating temperature	–40 °C ... +60 °C
Ambient temperature, storage	–40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

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	✓

Classifications

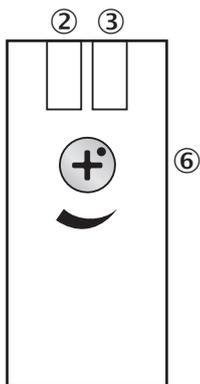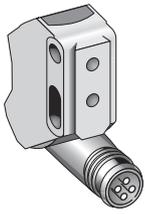| ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

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
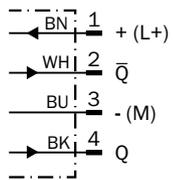⑥ Sensitivity control: potentiometer
⑦ Connection

Adjustments WL12-3, WSE12-3

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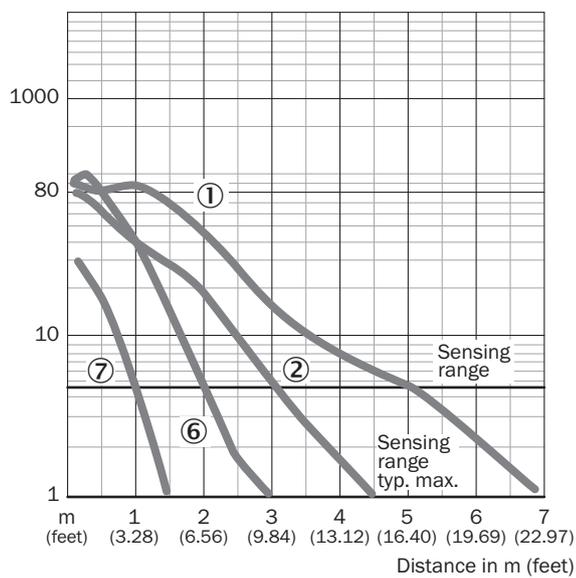③ LED indicator green: Supply voltage active
⑥ Sensitivity control: potentiometer

Connection type
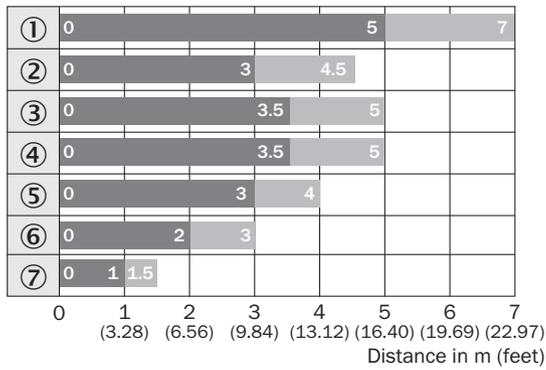
Connection diagram Cd-083

BN	1	+ (L+)
WH	2	$\overline{Q}$
BU	3	- (M)
BK	4	Q

Characteristic curve WL12-3

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

Sensing range diagram WL12-3

①	0	5 7
②	0	3 4.5
③	0	3.5 5
④	0	3.5 5
⑤	0	3 4
⑥	0	2 3
⑦	0	1 1.5

```
0      1      2      3      4      5      6      7
     (3.28) (6.56) (9.84)(13.12)(16.40)(19.69)(22.97)
                    Distance in m (feet)
```

■ 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

Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Mounting bracket, large • **Material:** Stainless steel • **Details:** Stainless steel • **Items supplied:** Mounting hardware included • **Suitable for:** W11-2, W12-3, W16	BEF-WG-W12	2013942
	• **Description:** Plate N02N for universal clamp bracket • **Material:** Stainless steel, stainless steel • **Details:** Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp) • **Items supplied:** Universal clamp (5322627), mounting hardware • **Usable for:** W4S-3 Glass, W10, W4SLG-3, W4S-3 Inox, W4S-3 Inox Glass, W9, W11-2, W12-3, W12-2 Laser, W12G, W12 Teflon, W16, W250, W250-2, PowerProx, W11G-2, TranspaTect, WTT12, UC12, P250, G6 Inox, W4S, W4SL-3V, W4SLG-3V, W4SL-3H	BEF-KHS-N02N	2051618
	• **Description:** Universal mounting bracket for reflectors • **Dimensions (W x H x L):** 85 mm x 90 mm x 35 mm • **Material:** Steel • **Details:** Steel, zinc coated • **Suitable for:** C110A, P250, PL20, PL30A, PL40A, PL80A	BEF-WN-REFX	2064574
	• **Description:** Plate N11N for universal clamp bracket • **Material:** Stainless steel • **Details:** Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp) • **Items supplied:** Universal clamp (5322627), mounting hardware • **Usable for:** DeltaPac, Glare, WTD20E	BEF-KHS-N11N	2071081

Brief description	Type	part no.
connectors and cables		
• **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:** Uncontaminated zones, Zones with chemicals	YF2A14-050VB3XLEAX	2096235
• **Description:** Unshielded • **Connection type head A:** Male connector, M12, 4-pin, straight, A-coded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm²	STE-1204-G	6009932
• **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, PUR, halogen-free • **Description:** Sensor/actuator cable, unshielded • **Application:** Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-050UB3XLEAX	2095608
reflectors and optics		
• **Description:** Rectangular, screw connection • **Dimensions:** 18 mm 60 mm • **Ambient operating temperature:** –30 °C ... +65 °C	PL20A	1012719

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

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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