Data sheet

WL12C-3P2432A00

W12

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
WL12C-3P2432A00	1067774

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 ... 5 m [1]
Sensing range	0 m ... 4 m [1]
Polarisation filter	Yes
Emitted beam	
Light source	PinPoint 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	IO-Link, Single teach-in button
Angle of dispersion	Approx. 1.5°
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output

[1] Reflector PL80A.
[2] Average service life: 100,000 h at T_U = +25 °C.

Safety-related parameters

$MTTF_D$	891 years
DC_{avg}	0 %
T_M (mission time)	20 years

Communication interface

IO-Link	✓ , COM2 (38,4 kBaud)
Data transmission rate	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1}
	Bit 1 = switching signal Q_{L2}
	Bit 2 ... 15 = empty
VendorID	26
DeviceID HEX	0x8000EE
DeviceID DEC	8388846

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 [4]
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	[5]
Repeatability (response time)	100 µs [6]
Switching frequency	1,500 Hz [7]
Circuit protection	A [8] B [9] C [10] D [11]

[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] Pin 4: This switching output must not be connected to another output.
[5] Signal transit time with resistive load.
[6] Valid for Q \ on Pin2, if configured with software.
[7] With light/dark ratio 1:1.
[8] A = V_S connections reverse-polarity protected.
[9] B = inputs and output reverse-polarity protected.
[10] C = interference suppression.
[11] D = outputs overcurrent and short-circuit protected.
[12] With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

Response time Q/ on Pin 2	200 µs ... 300 µs [5) 6)]
Switching frequency Q / to pin 2	≤ 1,500 Hz [12)]

[1)] Limit values when operated in short-circuit protected network: max. 8 A.
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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
Front screen	Plastic, PMMA
Weight	120 g

Ambient data

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

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR WINDOW Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1500 Hz [1)] SIO Logic: 1500 Hz [2)] IOL: 1100 Hz [3)]

[1)] SIO Direct: sensor operation in standard I/O mode without IO-Link communication and without using internal sensor logic or time parameters (set to "direct"/"deactivated").
[2)] SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.
[3)] IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Response time	SIO Direct: 200 µs ... 300 µs [1] SIO Logic: 400 µs ... 500 µs [2] IOL: 400 µs ... 750 µs [3]
Repeatability	SIO Direct: 100 µs [1] SIO Logic: 100 µs [2] IOL: 350 µs [3]
Switching signal	
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

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[2] SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.
[3] IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Diagnosis

Device status	Yes
Quality of teach	Yes
Quality of run	Yes, Contamination display

Classifications

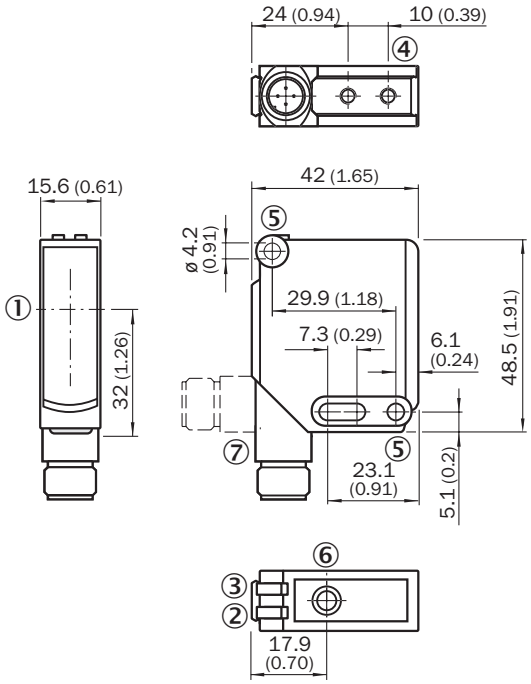
ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC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

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓

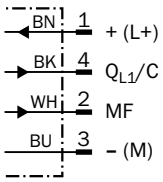
IO-Link	✓
Photobiological safety (DIN EN 62471) certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Dimensional drawing

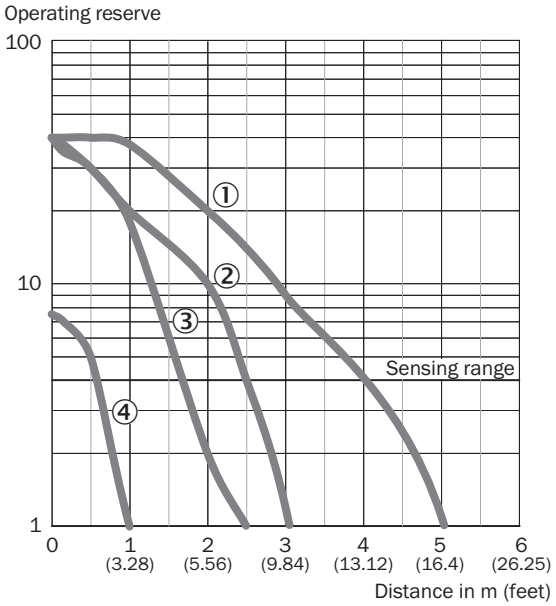


Dimensions in mm (inch)
① Optical axis
② LED indicator yellow: Status of received light beam
③ LED indicator green: Supply voltage active
④ M4 threaded mounting hole, 4 mm deep
⑤ Mounting hole, Ø 4.2 mm
⑥ Sensitivity setting: single teach-in button
⑦ Connection

Connection diagram Cd-367

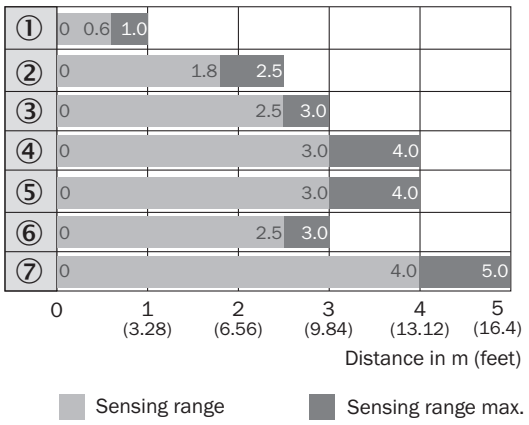


Characteristic curve



① Reflector PL80A
② Reflector C110A
③ Reflector PL20A
④ reflective tape

Sensing range diagram



① reflective tape
② Reflector PL20A
③ Reflector PL30A
④ Reflector PL40A
⑤ Reflector PL50A
⑥ Reflector C110A
⑦ Reflector PL80A

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:** 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
reflectors and optics			
	• **Description:** Rectangular, screw connection • **Dimensions:** 18 mm 60 mm • **Ambient operating temperature:** –30 °C ... +65 °C	PL20A	1012719
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:** Zones with chemicals, Uncontaminated zones	YF2A14-050VB3XLEAX	2096235
	• **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
	• **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:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-050UB3XLEAX	2095608

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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