WSE12C-3P2430A91
W12

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

WSE12C-3P2430A91 | W12

PHOTOELECTRIC SENSORS

Ordering information

Type	part no.
WSE12C-3P2430A91	1067783

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

Illustration may differ

Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor
Sensing range max.	0 m ... 20 m
Sensing range	0 m ... 15 m
Emitted beam	
Light source	PinPoint LED [1]
Type of light	Visible red light
Light spot size (distance)	Ø 220 mm (15 m)
Key LED figures	
Wave length	640 nm
Adjustment	IO-Link
Angle of dispersion	Approx. 1.5 °
Part number of individual components	2077230 WE12C-3P2430A91 2078000 WS12-3D2430S05
Pin 2 configuration	External input, Teach-in input, Detection output, logic output, Device contamination alarm output

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

Safety-related parameters

$MTTF_D$	539 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 = measuring value
VendorID	26
DeviceID HEX	0x8000F9
DeviceID DEC	8388857

Electronics

Supply voltage U_B	10 V DC ... 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Current consumption, sender	≤ 30 mA [3]
Current consumption, receiver	≤ 15 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]
Response time Q/ on Pin 2	200 µs ... 300 µs [5] [6]
Switching frequency Q / to pin 2	≤ 1,500 Hz [12]
Test input sender off	TE to 0 V

[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.

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 IP69K
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	Timestamp + debouncing
Logic function	Direct AND OR WINDOW Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Response time	SIO Direct: 300 µs ... 450 µs [1] SIO Logic: 550 µs ... 650 µs [2] IOL: --- [3]
Repeatability	SIO Direct: 150 µs [1] SIO Logic: 150 µs [2] IOL: --- [3]
Time stamp accuracy	SIO Direct: --- SIO Logic: --- IOL: - 90 ... + 90 µs
Min. Time between two process events (switches)	SIO Direct: 450 µs SIO Logic: 450 µs IOL: 500 ms
Time stamp number buffer	SIO Direct: --- SIO Logic: --- IOL: 8
Max. TimeStamp Range	SIO Direct: --- SIO Logic: --- IOL: 260 ms

[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.

Debounce time max.	SIO Direct: ---
	SIO Logic: 52 ms
	IOL: 52 ms
Switching signal	
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output
Measuring value	Timestamp

[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.

Diagnosis

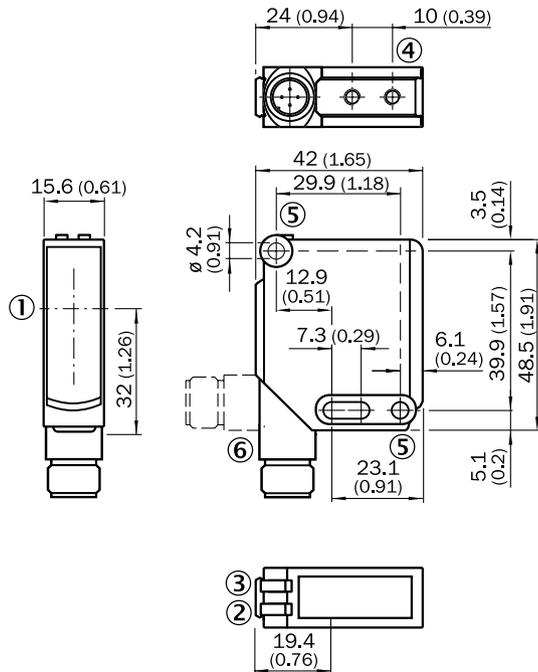| **Device status**	Yes
Function reserve	Yes

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	27270901
ECLASS 5.1.4	27270901
ECLASS 6.0	27270901
ECLASS 6.2	27270901
ECLASS 7.0	27270901
ECLASS 8.0	27270901
ECLASS 8.1	27270901
ECLASS 9.0	27270901
ECLASS 10.0	27270901
ECLASS 11.0	27270901
ECLASS 12.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
UNSPSC 16.0901	39121528

Dimensional drawing

24 (0.94) 10 (0.39)

④

42 (1.65)
29.9 (1.18)

3.5 (0.14)

15.6 (0.61)

⑤

ø 4.2 (0.91)

12.9 (0.51)

39.9 (1.57)

48.5 (1.91)
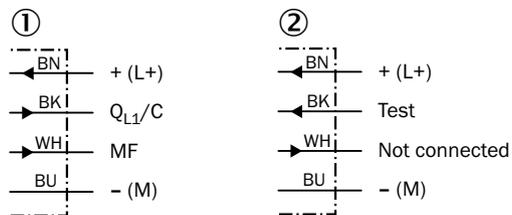
① 32 (1.26)

7.3 (0.29)
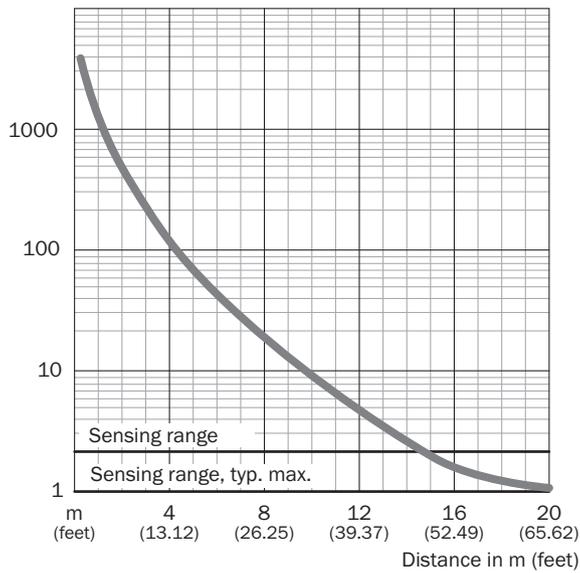
6.1 (0.24)

⑥   ⑤

23.1 (0.91)

5.1 (0.2)

③
②

19.4 (0.76)

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 Connection

Connection diagram Cd-366

①

BN	+ (L+)
BK	Q_{L1}/C
WH	MF
BU	– (M)

②

BN	+ (L+)
BK	Test
WH	Not connected
BU	– (M)

Characteristic curve WSE12-3

Sensing range

Sensing range, typ. max.

Distance in m (feet)

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 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		
• **Description:** Sensor/actuator cable, unshielded • **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 • **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
• **Description:** Sensor/actuator cable, unshielded • **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 • **Application:** Drag chain operation, 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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