



# WSE12C-3P2430A91

## W12

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	part no.
WSE12C-3P2430A91	1067783

Other models and accessories → [www.sick.com/W12](http://www.sick.com/W12)

### Detailed technical data

#### Features

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

<sup>1)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

#### Safety-related parameters

<b>MTTF<sub>D</sub></b>	539 years
<b>DC<sub>avg</sub></b>	0 %
<b>T<sub>M</sub> (mission time)</b>	20 years

## Communication interface

<b>IO-Link</b>	✓ , 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 <sub>L1</sub>
	Bit 1 = switching signal Q <sub>L2</sub>
	Bit 2 ... 15 = measuring value
VendorID	26
DeviceID HEX	0x8000F9
DeviceID DEC	8388857

## Electronics

<b>Supply voltage U<sub>B</sub></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>
<b>Current consumption, sender</b>	≤ 30 mA <sup>3)</sup>
<b>Current consumption, receiver</b>	≤ 15 mA <sup>3)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Type	PNP <sup>4)</sup>
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	> U <sub>v</sub> - 2,5 V / ca. 0 V
Output current I <sub>max.</sub>	≤ 100 mA
Response time	<sup>5)</sup>
Repeatability (response time)	100 μs <sup>6)</sup>
Switching frequency	1,500 Hz <sup>7)</sup>
<b>Circuit protection</b>	A <sup>8)</sup> B <sup>9)</sup> C <sup>10)</sup> D <sup>11)</sup>
<b>Response time Q/ on Pin 2</b>	200 μs ... 300 μs <sup>5) 6)</sup>
<b>Switching frequency Q / to pin 2</b>	≤ 1,500 Hz <sup>12)</sup>
<b>Test input sender off</b>	TE to 0 V

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

<sup>2)</sup> May not fall below or exceed U<sub>y</sub> tolerances.

<sup>3)</sup> Without load.

<sup>4)</sup> Pin 4: This switching output must not be connected to another output.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> Valid for Q \ on Pin2, if configured with software.

<sup>7)</sup> With light/dark ratio 1:1.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

<sup>10)</sup> C = interference suppression.

<sup>11)</sup> D = outputs overcurrent and short-circuit protected.

<sup>12)</sup> With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

### Mechanics

<b>Housing</b>	Rectangular
<b>Dimensions (W x H x D)</b>	15.6 mm x 48.5 mm x 42 mm
<b>Connection</b>	Male connector M12, 4-pin
<b>Material</b>	
	Housing Metal, zinc diecast
	Front screen Plastic, PMMA
<b>Weight</b>	120 g

### Ambient data

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

### Smart Task

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

<sup>1)</sup> 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").

<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

<b>Debounce time max.</b>	SIO Direct: --- SIO Logic: 52 ms IOL: 52 ms
<b>Switching signal</b>	
Switching signal Q <sub>L1</sub>	Switching output
Switching signal Q <sub>L2</sub>	Switching output
<b>Measuring value</b>	Timestamp

<sup>1)</sup> 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").

<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

## Diagnosis

<b>Device status</b>	Yes
<b>Function reserve</b>	Yes

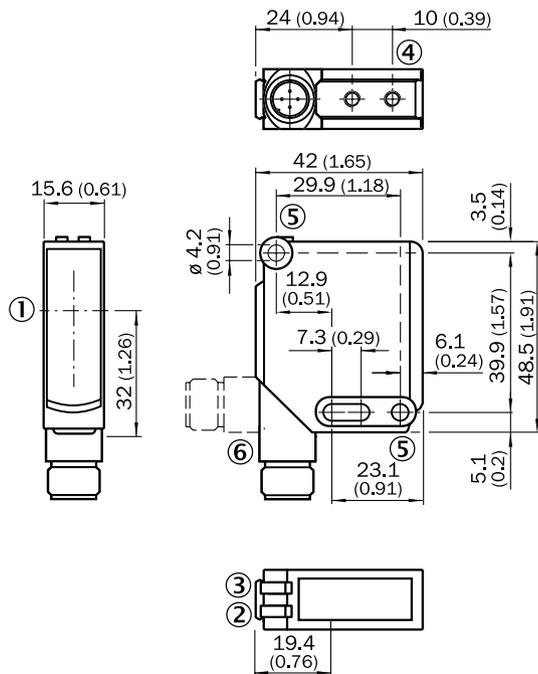
## Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>ECOLAB certificate</b>	✓
<b>cULus certificate</b>	✓
<b>Photobiological safety (DIN EN 62471) certificate</b>	✓

## Classifications

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

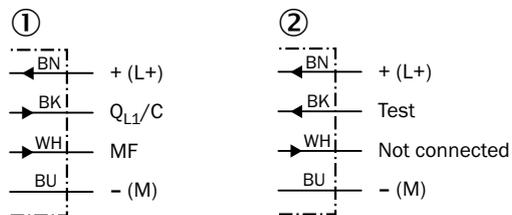
### Dimensional drawing



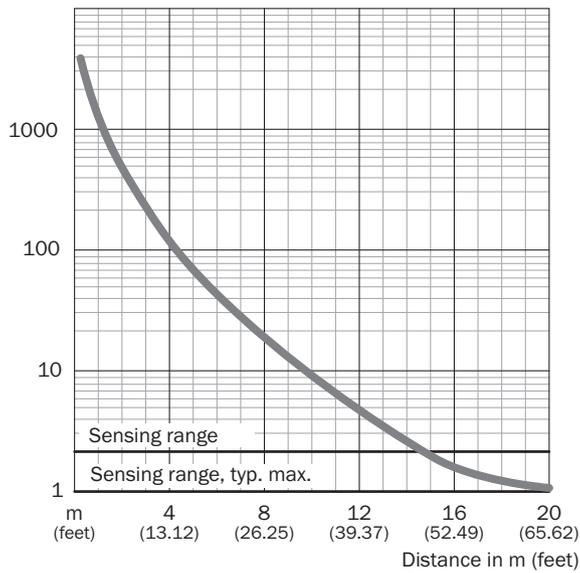
Dimensions in mm (inch)

- 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,  $\varnothing$  4.2 mm
- ⑥ Connection

### Connection diagram Cd-366



Characteristic curve WSE12-3



Recommended accessories

Other models and accessories → [www.sick.com/W12](http://www.sick.com/W12)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket, large</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel</li> <li><b>Items supplied:</b> Mounting hardware included</li> <li><b>Suitable for:</b> W11-2, W12-3, W16</li> </ul>	BEF-WG-W12	2013942
	<ul style="list-style-type: none"> <li><b>Description:</b> Plate N11N for universal clamp bracket</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp)</li> <li><b>Items supplied:</b> Universal clamp (5322627), mounting hardware</li> <li><b>Usable for:</b> DeltaPac, Glare, WTD20E</li> </ul>	BEF-KHS-N11N	2071081

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>	STE-1204-G	6009932
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PUR, halogen-free</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	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.”

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)