



WSE4SC-3P2230A91

W4

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	part no.
WSE4SC-3P2230A91	1067770

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

### Detailed technical data

#### Features

<b>Functional principle</b>	Through-beam photoelectric sensor	
<b>Sensing range max.</b>	0 m ... 5 m	
<b>Sensing range</b>	0 m ... 4.5 m	
<b>Emitted beam</b>	Light source	PinPoint LED <sup>1)</sup>
	Type of light	Visible red light
	Light spot size (distance)	Ø 50 mm (2 m)
<b>Key LED figures</b>	Wave length	650 nm
	<b>Adjustment</b>	IO-Link
<b>Part number of individual components</b>	2073737 WS4S-3D2230 2073951 WE4SC-3P2230A91	
<b>Pin 2 configuration</b>	External input, Teach-in input, Detection output, logic output, alarm output operating reserve	

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

#### Safety-related parameters

<b>MTTF<sub>D</sub></b>	693 years
<b>DC<sub>avg</sub></b>	0 %

#### 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	0x8000E9
DeviceID DEC	8388841

## 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</b>	20 mA <sup>3)</sup> 20 mA <sup>4)</sup>
<b>Protection class</b>	III
<b>Digital output</b>	
Type	PNP <sup>5)</sup>
Switching mode	Light/dark switching
Output current I <sub>max.</sub>	≤ 100 mA
Repeatability (response time)	150 μs <sup>6)</sup>
Switching frequency	1,000 Hz
<b>Circuit protection</b>	A <sup>7)</sup> B <sup>8)</sup> C <sup>9)</sup> D <sup>10)</sup>
<b>Response time Q/ on Pin 2</b>	300 μs ... 450 μs <sup>11) 6)</sup>
<b>Switching frequency Q/ to pin 2</b>	1,000 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> Sender.

<sup>4)</sup> Receiver without load.

<sup>5)</sup> Pin 4: This switching output must not be connected to another output.

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

<sup>7)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

<sup>9)</sup> C = interference suppression.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

<sup>11)</sup> Signal transit time with resistive load.

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

## Mechanics

<b>Housing</b>	Rectangular
<b>Design detail</b>	Slim
<b>Dimensions (W x H x D)</b>	12.2 mm x 41.8 mm x 17.3 mm
<b>Connection</b>	Male connector M8, 4-pin
<b>Material</b>	
Housing	Plastic, ABS

Front screen	Plastic, PMMA
<b>Weight</b>	40 g

### Ambient data

<b>Enclosure rating</b>	IP67 IP66
<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
<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

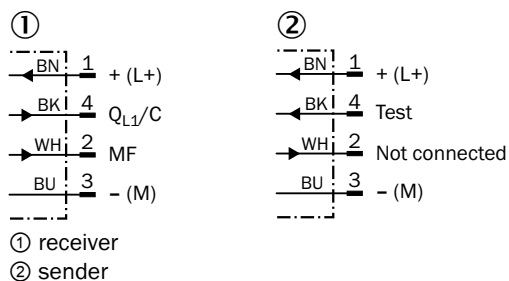
Certificates

<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>Photobiological safety (DIN EN 62471) certificate</b>	✓

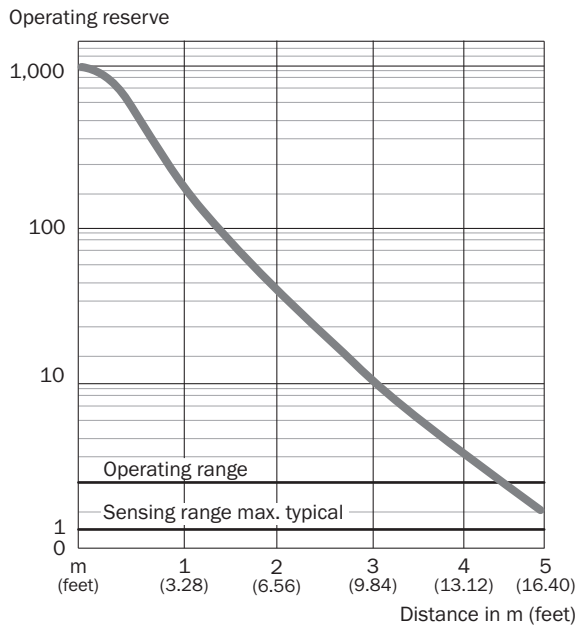
Classifications

<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

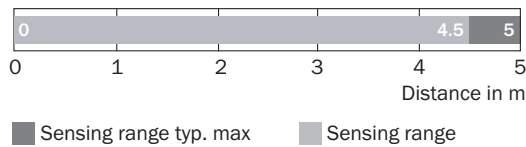
Connection diagram Cd-365



### Characteristic curve WSE4S-3








### Sensing range diagram WSE4S-3



### Recommended accessories

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

	Brief description	Type	part no.
<b>Mounting systems</b>			
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for wall mounting</li> <li><b>Material:</b> Stainless steel</li> <li><b>Details:</b> Stainless steel 1.4571</li> <li><b>Items supplied:</b> Mounting hardware included</li> <li><b>Suitable for:</b> W4S, W4F, W4S</li> </ul>	BEF-W4-A	2051628
	<ul style="list-style-type: none"> <li><b>Description:</b> Plate N08 for universal clamp bracket</li> <li><b>Material:</b> Steel, zinc diecast</li> <li><b>Details:</b> Zinc plated steel (sheet), Zinc die cast (clamping bracket)</li> <li><b>Items supplied:</b> Universal clamp (5322626), mounting hardware</li> <li><b>Usable for:</b> W100, W150, W4S, W4F, W8, W9-3, W8G, W8 Laser, W8 Inox, G6, W100 Laser, W100-2, W10, G6 Inox, RAY10, W4SLG-3, W9, GR18, MultiPulse, Reflex Array, MultiLine, LUT3, KT5, KT8, KT10, CS8</li> </ul>	BEF-KHS-N08	2051607

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Description:</b> Unshielded</li> <li><b>Connection type head A:</b> Male connector, M8, 4-pin, straight, A-coded</li> <li><b>Connection systems:</b> Screw-type terminals</li> <li><b>Permitted cross-section:</b> 0.14 mm<sup>2</sup> ... 0.5 mm<sup>2</sup></li> </ul>	STE-0804-G	6037323
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M8, 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>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF8U14-050VA3XLEAX	2095889
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M8, 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>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF8U14-050UA3XLEAX	2094792

## 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)