



# WTF9C-3P2462A00

W9

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



## Ordering information

Type	Part no.
WTF9C-3P2462A00	1099064

Other models and accessories → [www.sick.com/W9](http://www.sick.com/W9)

## Detailed technical data

### Features

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Foreground suppression
<b>Dimensions (W x H x D)</b>	12.2 mm x 52.2 mm x 23.6 mm
<b>Housing design (light emission)</b>	Rectangular
<b>Mounting hole</b>	M3
<b>Sensing range max.</b>	20 mm ... 350 mm <sup>1)</sup>
<b>Sensing range</b>	20 mm ... 200 mm <sup>2)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	PinPoint LED <sup>3)</sup>
<b>Light spot size (distance)</b>	Ø 4.5 mm (75 mm)
<b>Wave length</b>	650 nm
<b>Adjustment</b>	IO-Link Single teach-in button
<b>Pin 2 configuration</b>	External input, Teach-in input, Sender off input, Detection output, logic output

<sup>1)</sup> Object with 90% remission (based on standard white, DIN 5033).

<sup>2)</sup> Object with 6% remission (based on standard white, DIN 5033).

<sup>3)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/electronics

<b>Supply voltage <math>U_B</math></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>	30 mA <sup>3)</sup>
<b>Switching output</b>	PNP <sup>4) 5)</sup>
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching <sup>4)</sup>
<b>Output current <math>I_{max}</math></b>	≤ 100 mA <sup>6)</sup>
<b>Response time</b>	< 0.333 ms <sup>7)</sup>
<b>Response time Q/ on Pin 2</b>	200 μs ... 300 μs <sup>7) 8)</sup>
<b>Switching frequency</b>	1,500 Hz <sup>9)</sup>
<b>Switching frequency Q / to pin 2</b>	≤ 1,500 Hz <sup>10)</sup>
<b>Connection type</b>	Male connector M12, 4-pin
<b>Circuit protection</b>	A <sup>11)</sup> B <sup>12)</sup> C <sup>13)</sup>
<b>Protection class</b>	III
<b>Weight</b>	13 g
<b>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, PMMA
<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
<b>Repeatability Q/ on Pin 2:</b>	100 μs <sup>8)</sup>

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

<sup>2)</sup> May not exceed or fall below  $U_V$  tolerances.

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

<sup>4)</sup> Q = light switching.

<sup>5)</sup> Pin 4: this switching output must not be connected to any other output.

<sup>6)</sup> At and above  $T_u$  50 °C, a max. load current of  $I_{max} = 50$  mA is permitted.

<sup>7)</sup> Signal transit time with resistive load.

<sup>8)</sup> Valid for Q \ on Pin2, if configured with software.

<sup>9)</sup> With light/dark ratio 1:1.

<sup>10)</sup> With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

<sup>11)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>12)</sup> B = inputs and output reverse-polarity protected.

<sup>13)</sup> C = interference suppression.

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	865 years
<b>DC<sub>avg</sub></b>	0 %
<b>T<sub>M</sub> (mission time)</b>	20 years

### Communication interface

<b>Communication interface</b>	IO-Link V1.1
<b>Communication Interface detail</b>	COM2 (38,4 kBaud)
<b>Cycle time</b>	2.3 ms
<b>Process data length</b>	16 Bit
<b>Process data structure</b>	Bit 0 = switching signal Q <sub>L1</sub> Bit 1 = switching signal Q <sub>L2</sub> Bit 2 ... 15 = empty
<b>VendorID</b>	26
<b>DeviceID HEX</b>	0x800226
<b>DeviceID DEC</b>	8389158

### Smart Task

<b>Smart Task name</b>	Base logics
<b>Logic function</b>	Direct AND OR WINDOW Hysteresis
<b>Timer function</b>	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
<b>Inverter</b>	Yes
<b>Switching frequency</b>	SIO Direct: 1500 Hz <sup>1)</sup> SIO Logic: 600 Hz <sup>2)</sup> IOL: 450 Hz <sup>3)</sup>
<b>Response time</b>	SIO Direct: 200 µs ... 300 µs <sup>1)</sup> SIO Logic: 650 µs ... 750 µs <sup>2)</sup> IOL: 650 µs ... 1000 µs <sup>3)</sup>
<b>Repeatability</b>	SIO Direct: 100 µs <sup>1)</sup> SIO Logic: 100 µs <sup>2)</sup> IOL: 350 µs <sup>3)</sup>
<b>Switching signal</b>	
	Switching signal Q <sub>L1</sub> Output type (dependant on the adjusted threshold)
	Switching signal Q <sub>L2</sub> Output type (dependant on the adjusted threshold)

<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
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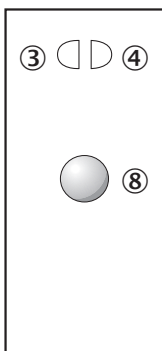
### Classifications

<b>ECLASS 5.0</b>	27270904
<b>ECLASS 5.1.4</b>	27270904
<b>ECLASS 6.0</b>	27270904
<b>ECLASS 6.2</b>	27270904

<b>ECLASS 7.0</b>	27270904
<b>ECLASS 8.0</b>	27270904
<b>ECLASS 8.1</b>	27270904
<b>ECLASS 9.0</b>	27270904
<b>ECLASS 10.0</b>	27270904
<b>ECLASS 11.0</b>	27270904
<b>ECLASS 12.0</b>	27270903
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>ETIM 8.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

## Adjustments

Single teach-in button



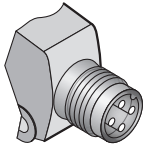
- ③ LED indicator yellow: Status of received light beam
- ④ LED indicator green: power on
- ⑧ Teach-in button

Potentiometer



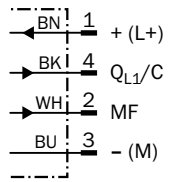
- ④ LED indicator yellow: Status of received light beam
- ⑤ LED indicator green: power on
- ⑨ Adjustment of sensing range

Connection type

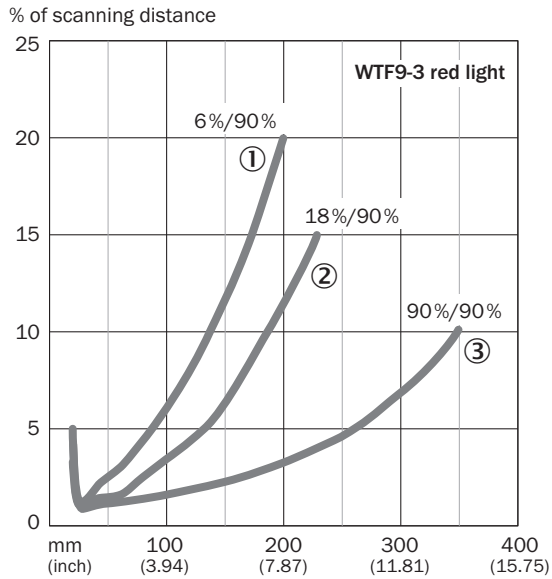


Connection diagram

Cd-367

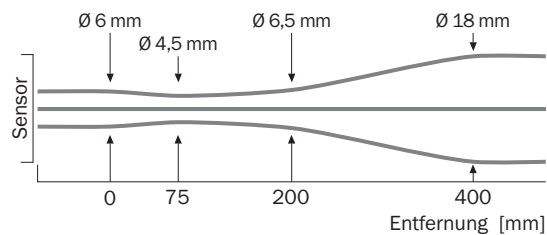


Characteristic curve



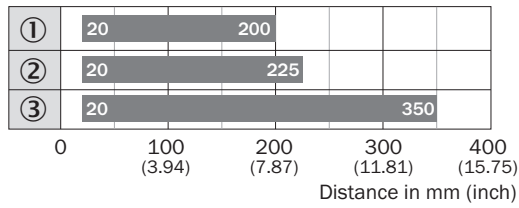
Light spot size

WT9-3, red light, 350 mm



### Sensing range diagram

WT9-3, red light, 350 mm

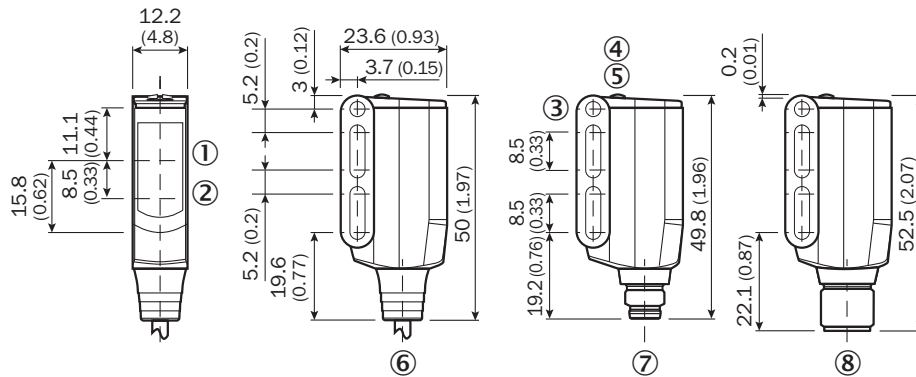


■ Sensing range

- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- ③ Sensing range on white, 90% remission factor

### Dimensional drawing (Dimensions in mm (inch))


WT9-3




- ① Center of optical axis, receiver
- ② Center of optical axis, sender
- ③ Mounting hole M3 (Ø 3.1 mm)
- ④ LED indicator yellow: Status of received light beam
- ⑤ LED indicator green: power on
- ⑥ Connection cable 2 m
- ⑦ Male connector M8, 4-pin
- ⑧ Male connector M12, 4-pin

### Recommended accessories

Other models and accessories → [www.sick.com/W9](http://www.sick.com/W9)

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Mounting bracket, steel, zinc coated, mounting hardware included	BEF-WN-W9-2	2022855

	Brief description	Type	Part no.
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: female connector, M8, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF8U14-050VA3XLEAX	2095889
	Head A: male connector, M8, 4-pin, straight Cable: unshielded	STE-0804-G	6037323
	Head A: male connector, M12, 4-pin, straight Cable: unshielded	STE-1204-G	6009932

### Recommended services

Additional services → [www.sick.com/W9](http://www.sick.com/W9)

	Type	Part no.
Function Block Factory		
<ul style="list-style-type: none"> <li><b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&amp;R. More information on the FBF can be found <a href="https://fbf.cloud.sick.com">here</a>.</li> <li><b>Note:</b> You can configure your function block at <a href="https://fbf.cloud.sick.com">Function Block Factory</a>. As a login please use your SICK ID.</li> </ul>	Function Block Factory	On request



## 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)