

WSE9-3P3430

W9

**SMALL PHOTOELECTRIC SENSORS** 

**SICK**Sensor Intelligence.



## Ordering information

Туре	Part no.
WSE9-3P3430	1049078

Other models and accessories → www.sick.com/W9

Illustration may differ



#### Detailed technical data

#### **Features**

Functional principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	12.2 mm x 50 mm x 23.6 mm
Housing design (light emission)	Rectangular
Mounting hole	M3
Sensing range max.	0 m 10 m
Sensing range	0 m 7 m
Type of light	Visible red light
Light source	PinPoint LED <sup>1)</sup>
Light spot size (distance)	Ø 25 mm (1 m)
Wave length	650 nm
Adjustment	None

 $<sup>^{1)}</sup>$  Average service life: 100,000 h at  $T_{U}$  = +25 °C.

## Mechanics/electronics

Supply voltage Ua         10 ∨ D C 30 ∨ D C		
Current consumption         30 mA ³)           Switching output         PNP ⁴)           Output function         Complementary           Switching mode         Light/dark switching ⁴)           Output current I <sub>max</sub> ≤ 100 mA ⁵)           Response time         < 0.5 ms ⁶)           Switching frequency         1,000 Hz ⁻¹)           Connection type         Cable with M12 male connector, 4-pin, 120 mm ⁶)           Cable material         PVC           Conductor cross section         0.14 mm²           Circuit protection         A ⁰ Name           B ¹0)         C¹¹¹)           Protection class         III           Weight         80 g           Housing material         Plastic, VISTAL®           Optics material         Plastic, PMMA           Enclosure rating         IP66 IP67 IP69K           Test input sender off         Sender off           Ambient operating temperature         -40 °C +60 °C           Ambient temperature, storage         -40 °C +75 °C           UL File No.         NRKH.E181493	Supply voltage U <sub>B</sub>	10 V DC 30 V DC <sup>1)</sup>
Switching output         PNP 4)           Output function         Complementary           Switching mode         Light/dark switching 4)           Output current I <sub>max</sub> .         ≤ 100 mA 5)           Response time         < 0.5 ms 6)	Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>
Output function     Complementary       Switching mode     Light/dark switching <sup>4)</sup> Output current I <sub>max</sub> .     \$ 100 mA <sup>5)</sup> Response time     < 0.5 ms <sup>6)</sup> Switching frequency     1,000 Hz <sup>7)</sup> Connection type     Cable with M12 male connector, 4-pin, 120 mm <sup>8)</sup> Cable material     PVC       Conductor cross section     0.14 mm²       Circuit protection     A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup> C <sup>11)</sup> Protection class     III       Weight     80 g       Housing material     Plastic, VISTAL®       Optics material     Plastic, PMMA       Enclosure rating     IP66 IP67 IP69K       Test input sender off     Sender off       Ambient operating temperature     -40 °C +60 °C       Ambient temperature, storage     -40 °C +75 °C       UL, File No.     NRKH.E181493	Current consumption	30 mA <sup>3)</sup>
Switching mode  Light/dark switching 4)  Output current I <sub>max.</sub> \$ 100 mA 5)  Response time  \$ 0.5 ms 6)  Switching frequency  1,000 Hz 7)  Connection type  Cable with M12 male connector, 4-pin, 120 mm 8)  Cable material  PVC  Conductor cross section  0.14 mm²  Circuit protection  A 9) B 10) C 11)  Protection class  III  Weight  80 g  Housing material  Plastic, VISTAL®  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  Ambient temperature, storage  JRESH NRKH.E181493	Switching output	PNP <sup>4)</sup>
Output current I <sub>max</sub> .         ≤ 100 mA <sup>5)</sup> Response time         < 0.5 ms <sup>6)</sup> Switching frequency         1,000 Hz <sup>7)</sup> Connection type         Cable with M12 male connector, 4-pin, 120 mm <sup>8)</sup> Cable material         PVC           Conductor cross section         0.14 mm²           Circuit protection         A <sup>9)</sup>	Output function	Complementary
Response time  Switching frequency  1,000 Hz <sup>7)</sup> Connection type  Cable with M12 male connector, 4-pin, 120 mm <sup>8)</sup> PVC  Conductor cross section  0.14 mm²  Circuit protection  A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup> Protection class  III  Weight  80 g  Housing material  Plastic, VISTAL®  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K IP67 IP69K IP68 Test input sender off  Ambient operating temperature  Ambient temperature, storage  UL File No.  NRKH.E181493	Switching mode	Light/dark switching <sup>4)</sup>
Switching frequency  Connection type  Cable with M12 male connector, 4-pin, 120 mm <sup>8)</sup> Cable material  PVC  Conductor cross section  0.14 mm²  Circuit protection  A <sup>9)</sup> B <sup>10)</sup> C <sup>11)</sup> Protection class  III  Weight  80 g  Housing material  Optics material  Plastic, VISTAL®  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  Ambient temperature, storage  UL File No.  NRKH.E181493	Output current I <sub>max.</sub>	$\leq$ 100 mA $^{5)}$
Connection type Cable with M12 male connector, 4-pin, 120 mm 8)  Cable material PVC Conductor cross section O.14 mm² Circuit protection A 9) B 10) C 11)  Protection class III  Weight 80 g Housing material Optics material Plastic, VISTAL® Optics material Ple66 IP67 IP69K  Test input sender off Ambient operating temperature Ambient temperature, storage UL File No.  Cable with M12 male connector, 4-pin, 120 mm 8)  PVC  Cable with M12 male connector, 4-pin, 120 mm 8)  PVC  A 9) B 10) C 11) B 10 C 11) B 10 C 11	Response time	< 0.5 ms <sup>6)</sup>
Cable material         PVC           Conductor cross section         0.14 mm²           Circuit protection         A 9) B 10) C 11)           Protection class         III           Weight         80 g           Housing material         Plastic, VISTAL®           Optics material         Plastic, PMMA           Enclosure rating         IP66 IP67 IP69K           Test input sender off         Sender off           Ambient operating temperature         -40 °C +60 °C           Ambient temperature, storage         -40 °C +75 °C           UL File No.         NRKH.E181493	Switching frequency	1,000 Hz <sup>7)</sup>
Conductor cross section  Circuit protection  A 9) B 10) C 11)  Protection class  III  Weight  Housing material  Plastic, VISTAL®  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  -40 °C +75 °C  UL File No.  Ontice material  Ontice material  Ontice material  Plastic, PMMA  Plastic, PMMA  Plastic, PMMA  Plastic, PMMA  Plastic, PMMA  Plastic, PMMA  Plastic, VISTAL®  Optics material  Plastic, VISTAL®  Optics material  Plastic, VISTAL®  Plastic, VISTAL®  Optics material  Plastic, VISTAL®  Plastic, VISTAL®  Optics material  Plastic, VISTAL®  NMA  NMA  NRKH.E181493	Connection type	Cable with M12 male connector, 4-pin, 120 mm <sup>8)</sup>
Circuit protection  A 9) B 10) C 11)  Protection class  III  Weight  80 g  Plastic, VISTAL®  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  -40 °C +60 °C  -40 °C +75 °C  UL File No.	Cable material	PVC
B 10) C 11)  Protection class  III  Weight  80 g  Housing material  Plastic, VISTAL®  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  UL File No.  NRKH.E181493	Conductor cross section	0.14 mm <sup>2</sup>
Weight  Housing material  Plastic, VISTAL®  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  -40 °C +75 °C  UL File No.  NRKH.E181493	Circuit protection	B <sup>10)</sup>
Housing material  Optics material  Plastic, VISTAL®  Plastic, PMMA  Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  UL File No.  Plastic, VISTAL®  Plastic, PMMA  Plastic, PMMA  IP66 IP67 IP69K  Sender off  Ambient operating temperature  -40 °C +75 °C  NRKH.E181493	Protection class	III
Optics material  Plastic, PMMA  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  Ambient temperature, storage  UL File No.  Plastic, PMMA  Plastic, PMMA  Plastic, PMMA  Plastic, PMMA  Positive PMMA  Positive PMMA  Sender off  Accordance  -40 °C +60 °C  -40 °C +75 °C  NRKH.E181493	Weight	80 g
Enclosure rating  IP66 IP67 IP69K  Test input sender off  Ambient operating temperature  -40 °C +60 °C  -40 °C +75 °C  UL File No.  IP66 IP67 IP69K  Sender off  C +60 °C  -40 °C +75 °C  NRKH.E181493	Housing material	Plastic, VISTAL®
IP67 IP69K  Test input sender off Sender off  Ambient operating temperature -40 °C +60 °C  -40 °C +75 °C  UL File No.  NRKH.E181493	Optics material	Plastic, PMMA
Ambient operating temperature -40 °C +60 °C  Ambient temperature, storage -40 °C +75 °C  UL File No. NRKH.E181493	Enclosure rating	IP67
Ambient temperature, storage -40 °C +75 °C  UL File No. NRKH.E181493	Test input sender off	Sender off
UL File No.  NRKH.E181493	Ambient operating temperature	-40 °C +60 °C
	Ambient temperature, storage	-40 °C +75 °C
Part number of individual components 2055823 WE9-3P3430 2055828 WS9-3D3430	UL File No.	NRKH.E181493
	Part number of individual components	2055823 WE9-3P3430 2055828 WS9-3D3430

 $<sup>^{1)}\,\</sup>mathrm{Limit}$  values when operated in short-circuit protected network: max. 8 A.

## Safety-related parameters

$MTTF_D$	968 years
DC <sub>avg</sub>	0 %
T <sub>M</sub> (mission time)	20 years

 $<sup>^{2)}\,\</sup>mathrm{May}$  not exceed or fall below  $\mathrm{U}_{\mathrm{V}}$  tolerances.

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

<sup>&</sup>lt;sup>4)</sup> Q = light switching.

 $<sup>^{5)}</sup>$  At and above Tu 50 °C, a max. load current of Imax. = 50 mA is permitted.

 $<sup>^{6)}</sup>$  Signal transit time with resistive load.

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

<sup>8)</sup> Do not bend below 0 °C.

 $<sup>^{9)}</sup>$  A = V<sub>S</sub> connections reverse-polarity protected.

 $<sup>^{10)}</sup>$  B = inputs and output reverse-polarity protected.

<sup>11)</sup> C = interference suppression.

#### 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

## Adjustments

No adjustment possibility



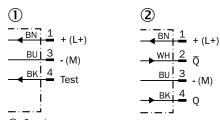
- 3 LED indicator yellow: Status of received light beam
- ④ LED indicator green: power on

## Connection type



## Connection diagram

Cd-077

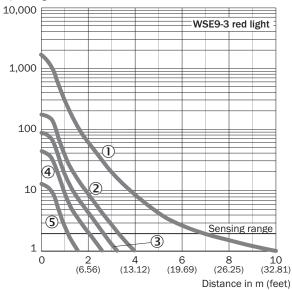


- ① Sender
- ② Receiver

#### Characteristic curve

WSE9-3, red light, 10 m

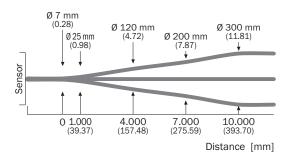
Operating reserve



- ① Without masks
- ② With slotted mask, width 2.0 mm
- ③ With slotted mask, width 1.5 mm
- ④ With slotted mask, width 1.0 mm
- ⑤ With slotted mask, width 0.5 mm

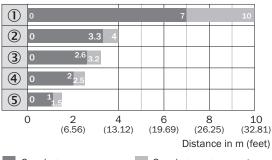
## Light spot size

WSE9-3, red light, 10 m



#### Sensing range diagram

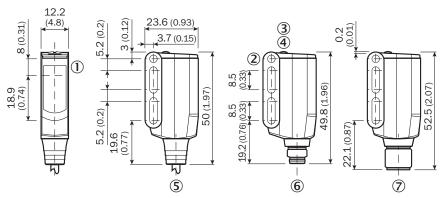
WSE9-3, red light, 10 m



- Sensing range
- Sensing range, max. typ.
- ① Without masks
- ② With slotted mask, width 2.0 mm
- ③ With slotted mask, width 1.5 mm
- ④ With slotted mask, width 1.0 mm
- ⑤ With slotted mask, width 0.5 mm

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

#### WL9-3, WSE9-3



- ① Sender and receiver optical axis center
- ② Mounting hole M3 (Ø 3.1 mm)
- 3 LED indicator yellow: Status of received light beam
- 4 LED indicator green: power on
- ⑤ Connecting cable or connector
- Male connector M8, 4-pin
- Male connector M12, 4-pin

#### Recommended accessories

Other models and accessories → www.sick.com/W9

	Brief description	Туре	Part no.
Mounting brackets and plates			
	Mounting bracket, steel, zinc coated, mounting hardware included	BEF-WN-W9-2	2022855
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: male connector, M12, 4-pin, straight Cable: unshielded	STE-1204-G	6009932

## 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

