

# WSE27-3P2410S03

W27-3

**COMPACT PHOTOELECTRIC SENSORS** 



# COMPACT PHOTOELECTRIC SENSORS



# Ordering information

Туре	Part no.
WSE27-3P2410S03	1054544

Other models and accessories → www.sick.com/W27-3

Illustration may differ



#### Detailed technical data

#### **Features**

Functional principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	24.6 mm x 80.6 mm x 54 mm
Housing design (light emission)	Rectangular
Sensing range max.	0 m 45 m
Sensing range	0 m 35 m
Focus	Approx. 6°
Type of light	Infrared light
Light source	LED <sup>1)</sup>
Light spot size (distance)	Ø 3.7 m (25 m)
Angle of dispersion	Approx. 6°
Wave length	880 nm
Adjustment	None
Special features	Maximum sensing range 45 m Swichting frequency 300 Hz

 $<sup>^{1)}</sup>$  Average service life: 100,000 h at  $\rm T_U$  = +25  $^{\circ}\rm C.$ 

### Mechanics/electronics

Supply voitage         10 ∨ DC 30 ∨ DC. 10           Ripple         < 5 ∨ V <sub>pp</sub> . 21           Power consumption, sender         45 mA. 31           Power consumption, receiver         20 mA. 31           Switching output         PNP           Output function         Compelmentary           Switching mode         Light/dark switching           Signal voitage PNP HIGH/LOW         Approx. V <sub>S</sub> − 2.5 ∨ / 0 ∨           Output current I <sub>max</sub> .         ≤ 1.00 mA           Response time         ≤ 1.7 ms. 41           Switching frequency         300 Hz. 51           Angle of reception         Approx. 3°           Connection type         Male connector M12, 4-pin           Circuit protection         A <sup>6</sup> B <sup>7</sup> C°           Veight         200 g           Special device         ✓           Housing material         Plastic, ABS           Optics material         Plastic, PMMA           Enclosure rating         Ple6 Ple7           Test input sender off         T to 0 ∨           Ambient emperature         -40 ° C +60 ° C           Ambient temperature, storage         -40 ° C +75 ° C           UL File No.         NCKH.I.E181493 & NRKH.I.E181493	•	
Power consumption, sender         45 mA ³¹           Power consumption, receiver         20 mA ³¹           Switching output         PNP           Output function         Complementary           Switching mode         Light/dark switching           Signal voltage PNP HIGH/LOW         Approx. V <sub>S</sub> − 2.5 V / 0 V           Output current I <sub>max.</sub> ≤ 100 mA           Response time         ≤ 1.7 ms ⁴¹           Switching frequency         300 Hz ⁵¹           Angle of reception         Approx. 3°           Connection type         Male connector M12, 4-pin           Circuit protection         A ⁶¹           B ⁻¹⟩         C శ¹           C 8)         Protection class           II 9¹         Weight           200 g         Y           Housing material         Plastic, ABS           Optics material         Plastic, PMMA           Enclosure rating         IP66           Test input sender off         TE to 0 V           Ambient operating temperature         -40 °C +60 °C           Ambient temperature, storage         -40 °C +75 °C           UL File No.         NRKH.E181493 & NRKH7.E181493	Supply voltage	10 V DC 30 V DC <sup>1)</sup>
Power consumption, receiver   20 mA 3	Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>
Switching output         PNP           Output function         Complementary           Switching mode         Light/dark switching           Signal voltage PNP HIGH/LOW         Approx. V <sub>S</sub> - 2.5 V / 0 V           Output current I <sub>max</sub> ≤ 100 mA           Response time         ≤ 1.7 ms <sup>4)</sup> Switching frequency         300 Hz <sup>5)</sup> Angle of reception         Approx. 3°           Connection type         Male connector M12, 4-pin           Circuit protection         A <sup>6)</sup> / <sub>B</sub> B <sup>7)</sup> / <sub>C</sub> c <sup>8)</sup> Protection class         II <sup>9)</sup> Weight         200 g           Special device         ✓           Housing material         Plastic, ABS           Optics material         Plastic, PMMA           Enclosure rating         IP66 IP67           Test input sender off         TE to 0 V           Ambient operating temperature         -40 °C +60 °C           Ambient temperature, storage         -40 °C +75 °C           UL File No.         NRKH.E181493 & NRKH7.E181493	Power consumption, sender	45 mA <sup>3)</sup>
Output function  Switching mode  Light/dark switching  Signal voltage PNP HIGH/LOW  Approx. V <sub>S</sub> - 2.5 V / 0 V  Output current I <sub>max</sub> .  \$ 100 mA  Response time  \$ 1.7 ms 4)  Switching frequency  300 Hz 5)  Angle of reception  Approx. 3°  Connection type  Male connector M12, 4-pin  A 6) B 7) C 8)  Protection class  II 9)  Weight  200 g  Special device  /  Housing material  Optics material  Plastic, ABS  Optics material  Plostic, PMMA  Enclosure rating  IP66 IP67  Test input sender off  Ambient deparature, storage  4-40 °C +60 °C  Ambient temperature, storage  UL File No.  Cannetting  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0 V  Approx. V <sub>S</sub> - 2.5 V / 0	Power consumption, receiver	20 mA <sup>3)</sup>
Switching mode Light/dark switching   Signal voltage PNP HIGH/LOW Approx. V <sub>S</sub> − 2.5 V / 0 V   Output current I <sub>max</sub> . ≤ 100 mA   Response time ≤ 1.7 ms <sup>4)</sup> Switching frequency 300 Hz <sup>5)</sup> Angle of reception Approx. 3°   Connection type Male connector M12, 4-pin   Circuit protection A <sup>6)</sup> B <sup>7)</sup> C <sup>8)</sup> Protection class II <sup>9)</sup> Weight 200 g   Special device ✓   Housing material Plastic, ABS   Optics material Plastic, PMMA   Enclosure rating IP66 IP67   Test input sender off TE to 0 V   Ambient operating temperature -40 ° C +60 ° C   Ambient temperature, storage -40 ° C +75 ° C   UL File No. NRKH.E181493 & NRKH7.E181493	Switching output	PNP
Signal voltage PNP HIGH/LOW Approx. Vs - 2.5 V / 0 V   Output current I <sub>max</sub> . ≤ 100 mA   Response time ≤ 1.7 ms <sup>4)</sup> Switching frequency 300 Hz <sup>5)</sup> Angle of reception Approx. 3 *   Connection type Male connector M12, 4-pin   Circuit protection A <sup>6)</sup> B <sup>7)</sup> C <sup>8)</sup> Protection class II <sup>9)</sup> Weight 200 g   Special device ✓   Housing material Plastic, ABS   Optics material Plastic, PMMA   Enclosure rating IP66 IP67   Test input sender off TE to 0 V   Ambient operating temperature -40 °C +60 °C   Ambient temperature, storage -40 °C +75 °C   UL File No. NRKH.E181493 & NRKH7.E181493	Output function	Complementary
Output current I <sub>max</sub> .         ≤ 1.7 ms <sup>4)</sup> Response time         ≤ 1.7 ms <sup>4)</sup> Switching frequency         300 Hz <sup>5)</sup> Angle of reception         Approx. 3°           Connection type         Male connector M12, 4-pin           Circuit protection         A <sup>6)</sup>	Switching mode	Light/dark switching
Response time ≤ 1.7 ms <sup>4)</sup> Switching frequency 300 Hz <sup>5)</sup> Angle of reception Approx. 3°   Connection type Male connector M12, 4-pin   Circuit protection A <sup>6)</sup> B <sup>7)</sup> C <sup>6)</sup> Protection class II <sup>9)</sup> Weight 200 g   Special device ✓   Housing material Plastic, ABS   Optics material Plastic, PMMA   Enclosure rating IP66 IP67 IP67   Test input sender off TE to 0 V   Ambient operating temperature -40 °C +60 °C   Ambient temperature, storage -40 °C +75 °C   UL File No. NRKH.E181493 & NRKH7.E181493	Signal voltage PNP HIGH/LOW	Approx. V <sub>S</sub> – 2.5 V / 0 V
Switching frequency  Angle of reception  Approx. 3°  Connection type  Male connector M12, 4-pin  A <sup>6</sup> B <sup>7</sup> C <sup>8</sup> Protection class  II <sup>9)</sup> Weight  200 g  Special device  ✓  Housing material  Plastic, ABS  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67  Test input sender off  A <sup>6</sup> A <sup>6</sup> Ambient operating temperature  -40 °C +75 °C  UL File No.  NRKH.E181493 & NRKH7.E181493	Output current I <sub>max.</sub>	≤ 100 mA
Angle of reception  Connection type  Male connector M12, 4-pin  A 6) B 7) C 8)  Protection class  II 9)  Weight  200 g  Special device  Housing material  Plastic, ABS  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67  Test input sender off  TE to 0 V  Ambient operating temperature  -40 °C +75 °C  UL File No.	Response time	$\leq$ 1.7 ms $^{4)}$
Connection type  Male connector M12, 4-pin  A 6) B 7) C 8)  Protection class  II 9)  Weight  200 g  Special device  Housing material  Plastic, ABS  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67  Test input sender off  TE to 0 V  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  NRKH.E181493 & NRKH7.E181493	Switching frequency	300 Hz <sup>5)</sup>
Circuit protection  A 6 B 7 C 8 B 7 C 8 C 8 C 8 C 8 C 8 C 8 C 8 C 8 C 8 C	Angle of reception	Approx. 3°
B 7) C 8)  Protection class II 9)  Weight 200 g  Special device  Housing material Plastic, ABS  Optics material Plastic, PMMA  Enclosure rating IP66 IP67  Test input sender off TE to 0 V  Ambient operating temperature -40 °C +60 °C  Ambient temperature, storage -40 °C +75 °C  UL File No. NRKH.E181493 & NRKH7.E181493	Connection type	Male connector M12, 4-pin
Weight  Special device  Housing material  Plastic, ABS  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67  Test input sender off  TE to 0 V  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  UL File No.  NRKH.E181493 & NRKH7.E181493	Circuit protection	B <sup>7)</sup>
Special device  Housing material  Plastic, ABS  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67  Test input sender off  TE to 0 V  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  UL File No.  NRKH.E181493 & NRKH7.E181493	Protection class	II <sup>9)</sup>
Housing material  Plastic, ABS  Optics material  Plastic, PMMA  Enclosure rating  IP66 IP67  Test input sender off  TE to 0 V  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  UL File No.  Plastic, ABS  Plastic, ABS  Plastic, ABS  Plastic, ABS  Plastic, ABS  IP66 IP67  TE to 0 V  Ambient sender off  TE to 0 V  Ambient temperature, storage  -40 °C +75 °C  NRKH.E181493 & NRKH7.E181493	Weight	200 g
Optics material  Plastic, PMMA  IP66 IP67  Test input sender off  TE to 0 V  Ambient operating temperature  -40 °C +60 °C  Ambient temperature, storage  UL File No.  Plastic, PMMA  IP66 IP67  TE to 0 V  -40 °C +60 °C  -40 °C +75 °C  NRKH.E181493 & NRKH7.E181493	Special device	✓
Enclosure rating  IP66 IP67  Test input sender off  TE to 0 V  Ambient operating temperature  -40 °C +60 °C  -40 °C +75 °C  UL File No.  NRKH.E181493 & NRKH7.E181493	Housing material	Plastic, ABS
Test input sender off TE to 0 V  Ambient operating temperature -40 °C +60 °C  -40 °C +75 °C  UL File No.  NRKH.E181493 & NRKH7.E181493	Optics material	Plastic, PMMA
Ambient operating temperature -40 °C +60 °C  Ambient temperature, storage -40 °C +75 °C  UL File No. NRKH.E181493 & NRKH7.E181493	Enclosure rating	
Ambient temperature, storage -40 °C +75 °C  UL File No. NRKH.E181493 & NRKH7.E181493	Test input sender off	TE to 0 V
UL File No. NRKH.E181493 & NRKH7.E181493	Ambient operating temperature	-40 °C +60 °C
	Ambient temperature, storage	-40 °C +75 °C
Part number of individual components 2060720 WE27-3P2410S03 2060721 WS27-3D2410S03	UL File No.	NRKH.E181493 & NRKH7.E181493
	Part number of individual components	2060720 WE27-3P2410S03 2060721 WS27-3D2410S03

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

# Safety-related parameters

MTTF <sub>D</sub>	996 years
DC <sub>avg</sub>	0 %

### Classifications

eCl@ss 5.0	27270901
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 $<sup>^{2)}\,\</sup>mathrm{May}$  not exceed or fall below  $\mathrm{U}_{\mathrm{V}}$  tolerances.

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

<sup>&</sup>lt;sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

 $<sup>^{6)}</sup>$  A = V<sub>S</sub> connections reverse-polarity protected.

 $<sup>^{7)}</sup>$  B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

<sup>9)</sup> Reference voltage: 50 V DC.

# WSE27-3P2410S03 | W27-3

### COMPACT PHOTOELECTRIC SENSORS

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

### Connection type

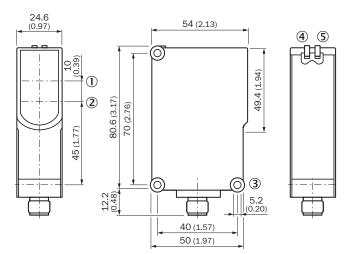


# Connection diagram

Cd-072

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

WL27-3, WSE27-3



- ① Optical axis, sender
- ② Optical axis, receiver
- 3 Mounting hole ø 5.2 mm
- 4 LED indicator green: Supply voltage active
- (5) LED indicator yellow: Status of received light beam

### Recommended accessories

Other models and accessories → www.sick.com/W27-3

	Brief description	Туре	Part no.
Device protection (mechanical)			
7	Protective housing for W26, W27-3 and mounting rods with diameter 12 mm 20 mm, Zinc plated steel (protective housing), Zinc die cast (clamping bracket), Universal clamp BEF-KHS-KH1 (2022726), mounting hardware	BEF-SG-W27	2039601
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

