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DATA SHEET

WSE4SL-3N1137V

W4
Photoelectric sensors

SICK Sensor Intelligence

PHOTOELECTRIC SENSORS

WSE4SL-3N1137V

ORDERING INFORMATION

Type	part no.
WSE4SL-3N1137V	1058270

Further device versions and accessories at www.sick.com/W4



Illustration may differ



DETAILED TECHNICAL DATA

FEATURES

Functional principle	Through-beam photoelectric sensor						
Sensing range max.	0 m ... 60 m						
Sensing range	0 m ... 50 m						
Emitted beam	<table border="0"> <tr> <td>Light source</td> <td>Laser ¹⁾</td> </tr> <tr> <td>Type of light</td> <td>Visible red light</td> </tr> <tr> <td>Light spot size (distance)</td> <td>Ø 1 mm (500 mm)</td> </tr> </table>	Light source	Laser ¹⁾	Type of light	Visible red light	Light spot size (distance)	Ø 1 mm (500 mm)
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Type of light	Visible red light						
Light spot size (distance)	Ø 1 mm (500 mm)						
Key laser figures	<table border="0"> <tr> <td>Normative reference</td> <td>EN 60825-1:2014, IEC 60825-1:2014 / CDRH 21 CFR 1040.10 & 1040.11</td> </tr> <tr> <td>Laser class</td> <td>1 ²⁾</td> </tr> <tr> <td>Wave length</td> <td>650 nm</td> </tr> </table>	Normative reference	EN 60825-1:2014, IEC 60825-1:2014 / CDRH 21 CFR 1040.10 & 1040.11	Laser class	1 ²⁾	Wave length	650 nm
Normative reference	EN 60825-1:2014, IEC 60825-1:2014 / CDRH 21 CFR 1040.10 & 1040.11						
Laser class	1 ²⁾						
Wave length	650 nm						
Adjustment	Single teach-in button						
Special applications	Hygienic and washdown zones, Detecting small objects						
Part number of individual components	2064101 WS4SL-3D1136V 2064104 WE4SL-3N1132V						
Housing design	Washdown ³⁾						
Mounting hole	M3						

¹⁾ Average service life: 50,000 h at T_u = +25 °C.

²⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

³⁾ Difference between standard/washdown and hygiene: The essential difference between a standard/washdown product and a hygiene product is that where the process and contact with the medium (activity in the vicinity of the food) are concerned, a hygiene product is designed in accordance with the latest standards and hygiene design guidelines, and materials are selected accordingly.

SAFETY-RELATED PARAMETERS

MTTF _D	350 years (EN ISO 13849-1) ¹⁾
DC _{avg}	0 %

¹⁾ Mode of calculation: Parts-Count-calculation.

ELECTRONICS

Supply voltage U _s	10 V DC ... 30 V DC ¹⁾										
Ripple	< 5 V _{pp} ²⁾										
Current consumption	30 mA ³⁾										
Protection class	III										
Digital output	<table border="0"> <tr> <td>Type</td> <td>NPN⁴⁾</td> </tr> <tr> <td>Switching mode</td> <td>Light/dark switching⁴⁾</td> </tr> <tr> <td>Output current I_{max}</td> <td>≤ 100 mA</td> </tr> <tr> <td>Response time</td> <td>≤ 0.5 ms⁵⁾</td> </tr> <tr> <td>Switching frequency</td> <td>1,000 Hz⁶⁾</td> </tr> </table>	Type	NPN ⁴⁾	Switching mode	Light/dark switching ⁴⁾	Output current I _{max}	≤ 100 mA	Response time	≤ 0.5 ms ⁵⁾	Switching frequency	1,000 Hz ⁶⁾
Type	NPN ⁴⁾										
Switching mode	Light/dark switching ⁴⁾										
Output current I _{max}	≤ 100 mA										
Response time	≤ 0.5 ms ⁵⁾										
Switching frequency	1,000 Hz ⁶⁾										
Output function	Complementary										
Circuit protection	A ⁷⁾ B ⁸⁾ C ⁹⁾										

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

²⁾ May not fall below or exceed U_v tolerances.

³⁾ Without load.

⁴⁾ Q = light switching.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ A = V_s connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ C = interference suppression.

MECHANICS

Housing	Rectangular						
Design detail	Slim						
Dimensions (W x H x D)	15.3 mm x 55.4 mm x 22.2 mm						
Connection	Cable, 4-wire, 2 m ¹⁾						
Connection detail	<table border="0"> <tr> <td>Conductor size</td> <td>0.14 mm²</td> </tr> <tr> <td>Length of cable (L)</td> <td>2 m¹⁾</td> </tr> </table>	Conductor size	0.14 mm ²	Length of cable (L)	2 m ¹⁾		
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Material	<table border="0"> <tr> <td>Housing</td> <td>Metal, Stainless steel V4A (1.4404, 316L)</td> </tr> <tr> <td>Front screen</td> <td>Plastic, PMMA</td> </tr> <tr> <td>Cable</td> <td>Plastic, PVC</td> </tr> </table>	Housing	Metal, Stainless steel V4A (1.4404, 316L)	Front screen	Plastic, PMMA	Cable	Plastic, PVC
Housing	Metal, Stainless steel V4A (1.4404, 316L)						
Front screen	Plastic, PMMA						
Cable	Plastic, PVC						
Weight	80 g						

¹⁾ Do not bend below 0 °C.

AMBIENT DATA

Enclosure rating	IP66 IP67 IP68 IP69K ¹⁾
Ambient operating temperature	-10 °C ... +50 °C
Ambient operating temperature extended	-30 °C ... +55 °C ^{2) 3)}
Ambient temperature, storage	-30 °C ... +70 °C
RoHS certificate	✓

¹⁾ Only in case of correctly mounted IP69K connecting cable.

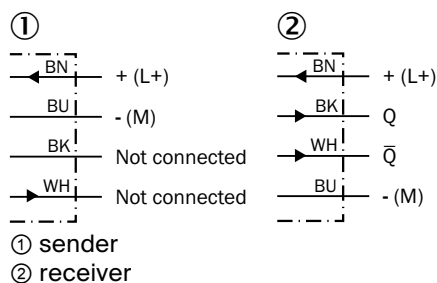
²⁾ As of T_a = 50 °C, a max. supply voltage V_{max} = 24 V and a max. load current I_{max} = 50 mA is permitted.

³⁾ Operation below Tu -10 °C is possible if the sensor is already switched on at Tu > -10 °C, then cools down, and the supply voltage is subsequently not switched off. Switching on below Tu -10 °C is not permissible.

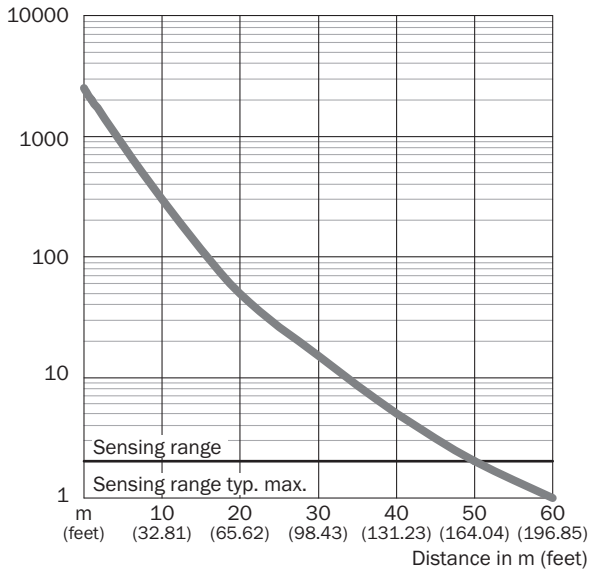
CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
ECOLAB certificate	✓
Laser safety (IEC 60825-1) certificate	✓

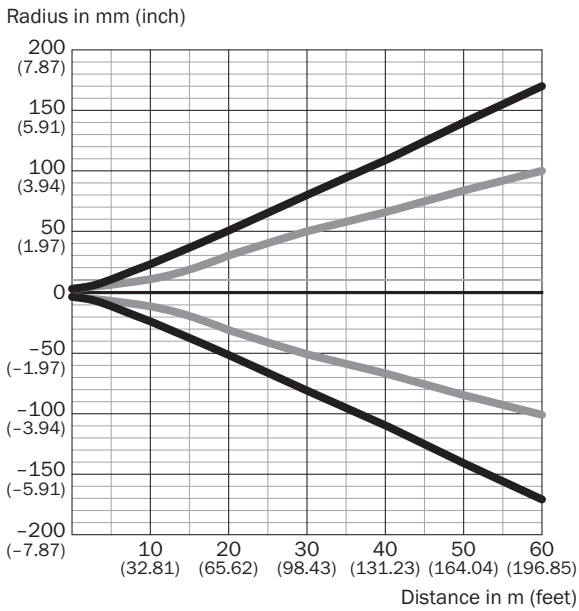
CONNECTION DIAGRAM CD-231



CHARACTERISTIC CURVE



LIGHT SPOT SIZE

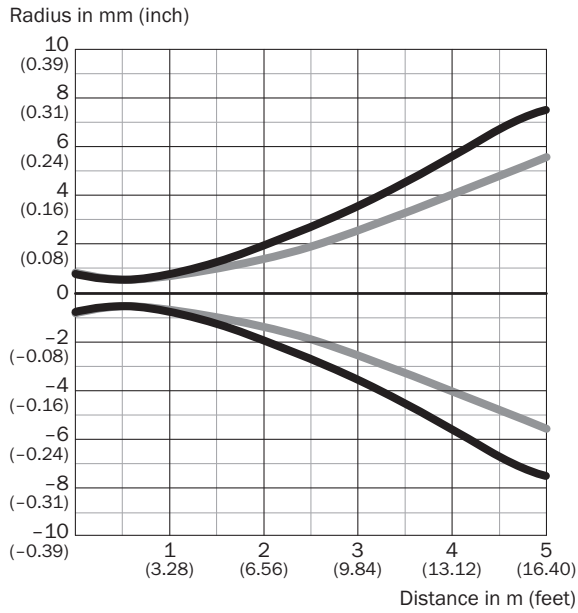


Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
0.5 m (1.64 feet)	< 1.0 (0.04)	< 1.0 (0.04)
1 m (3.28 feet)	1.5 (0.06)	1.2 (0.05)
5 m (16.40 feet)	15 (0.59)	11 (0.43)
10 m (32.81 feet)	45 (1.77)	28 (1.10)
60 m (196.85 feet)	336 (13.23)	200 (7.87)

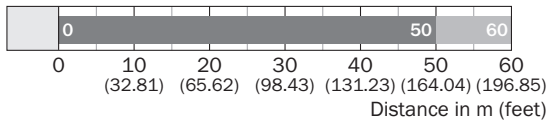
— Vertical
— Horizontal

LIGHT SPOT SIZE (DETAILED VIEW) DETAILED VIEW CLOSE RANGE



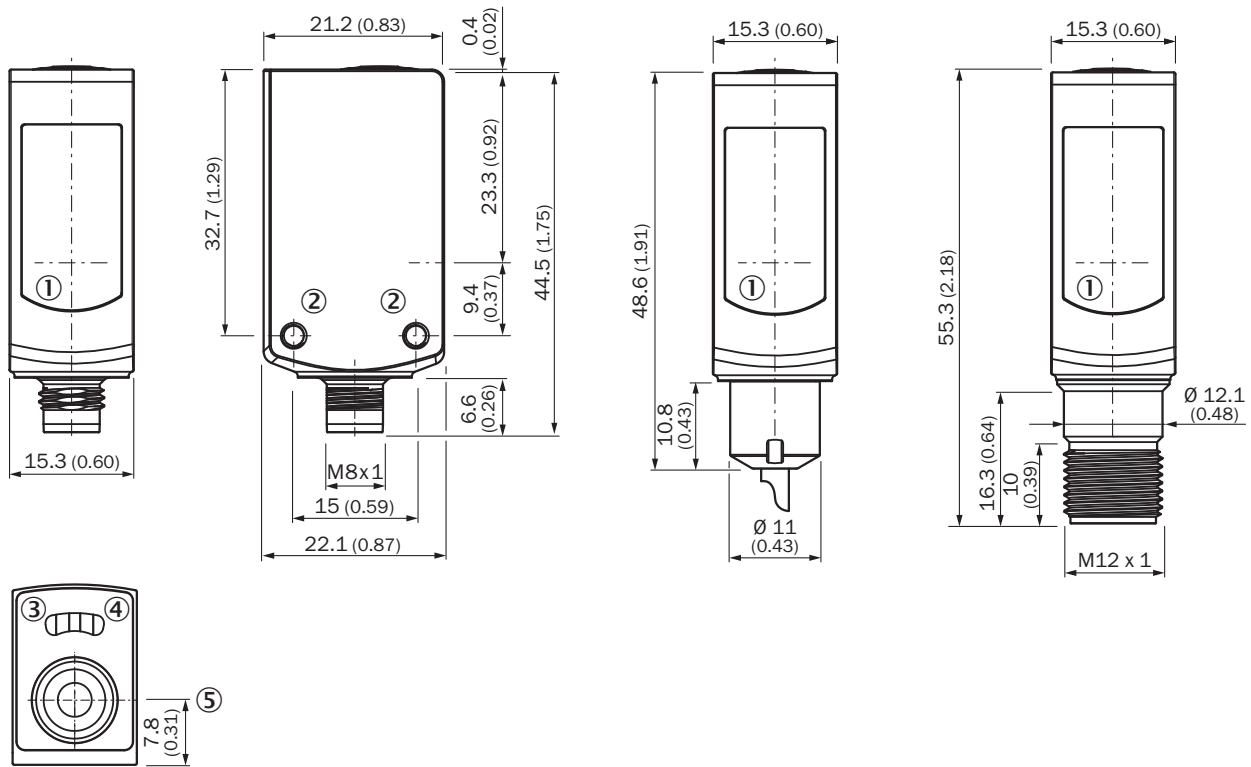
- Vertical
- Horizontal

SENSING RANGE DIAGRAM



- Sensing range
- Sensing range typ. max.

DIMENSIONAL DRAWING WSE4SL-3, WL4SLG-3



Dimensions in mm (inch)

- ① Center of optical axis
- ② Threaded mounting hole M3
- ③ LED indicator yellow: Status of received light beam
- ④ LED indicator green: Supply voltage active
- ⑤ single teach-in button

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1058270



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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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