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Product data sheet




# WL9L-3P1132

W9

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

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# WL9L-3P1132 | W9

SMALL PHOTOELECTRIC SENSORS



Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| WL9L-3P1132 | 1058233 |

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

## Detailed technical data

### Features

| | |
|---|---|
| **Functional principle** | Photoelectric retro-reflective sensor |
| **Functional principle detail** | Autocollimation |
| **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 ... 12 m [1] |
| **Sensing range** | 0 m ... 8 m [1] |
| **Type of light** | Visible red light |
| **Light source** | Laser [2] |
| **Light spot size (distance)** | Ø 1 mm (500 mm) |
| **Wave length** | 650 nm |
| **Laser class** | 1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11) |
| **Adjustment** | Single teach-in button |
| **Special applications** | Detecting small objects |

[1] Reflector PL80A.

[2] Average service life: 50,000 h at $T_U$ = +25 °C.

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## Mechanics/electronics

| | |
|---|---|
| **Supply voltage $U_B$** | 10 V DC ... 30 V DC [1] |
| **Ripple** | < 5 $V_{pp}$ [2] |
| **Current consumption** | 30 mA [3] |
| **Switching output** | PNP [4] |
| **Output function** | Complementary |
| **Switching mode** | Light/dark switching [4] |
| **Output current $I_{max.}$** | ≤ 100 mA |
| **Response time** | ≤ 0.5 ms [5] |
| **Switching frequency** | 1,000 Hz [6] |
| **Connection type** | Cable, 4-wire, 2 m [7] |
| **Cable material** | PVC |
| **Conductor cross section** | 0.14 mm² |
| **Circuit protection** | A [8]<br>B [9]<br>C [10] |
| **Protection class** | III |
| **Weight** | 80 g |
| **Polarisation filter** | ✓ |
| **Housing material** | Plastic, VISTAL® |
| **Optics material** | Plastic, PMMA |
| **Enclosure rating** | IP66<br>IP67<br>IP69K |
| **Ambient operating temperature** | –10 °C ... +50 °C |
| **Ambient operating temperature extended** | –30 °C ... +55 °C [11] [12] |
| **Ambient temperature, storage** | –30 °C ... +70 °C |
| **UL File No.** | NRKH.E181493 |

[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below $U_V$ tolerances.
[3] Without load.
[4] Q = light switching.
[5] Signal transit time with resistive load.
[6] With light/dark ratio 1:1.
[7] Do not bend below 0 °C.
[8] A = $V_S$ connections reverse-polarity protected.
[9] B = inputs and output reverse-polarity protected.
[10] C = interference suppression.
[11] 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.
[12] 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.

## Safety-related parameters

| | |
|---|---|
| **$MTTF_D$** | 616 years (EN ISO 13849-1) [1] |

[1] Mode of calculation: Parts-Count-calculation.

| | |
|---|---|
| **$DC_{avg}$** | 0 % |
| **$T_M$ (mission time)** | 10 years |

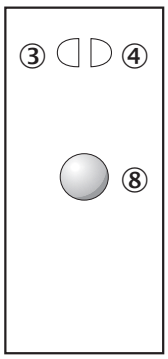
[1] Mode of calculation: Parts-Count-calculation.

## Classifications

| | |
|---|---|
| **ECLASS 5.0** | 27270902 |
| **ECLASS 5.1.4** | 27270902 |
| **ECLASS 6.0** | 27270902 |
| **ECLASS 6.2** | 27270902 |
| **ECLASS 7.0** | 27270902 |
| **ECLASS 8.0** | 27270902 |
| **ECLASS 8.1** | 27270902 |
| **ECLASS 9.0** | 27270902 |
| **ECLASS 10.0** | 27270902 |
| **ECLASS 11.0** | 27270902 |
| **ECLASS 12.0** | 27270902 |
| **ETIM 5.0** | EC002717 |
| **ETIM 6.0** | EC002717 |
| **ETIM 7.0** | EC002717 |
| **ETIM 8.0** | EC002717 |
| **UNSPSC 16.0901** | 39121528 |

## Adjustments

Single teach-in button



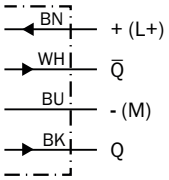

③ LED indicator yellow: Status of received light beam
④ LED indicator green: power on
⑧ Teach-in button

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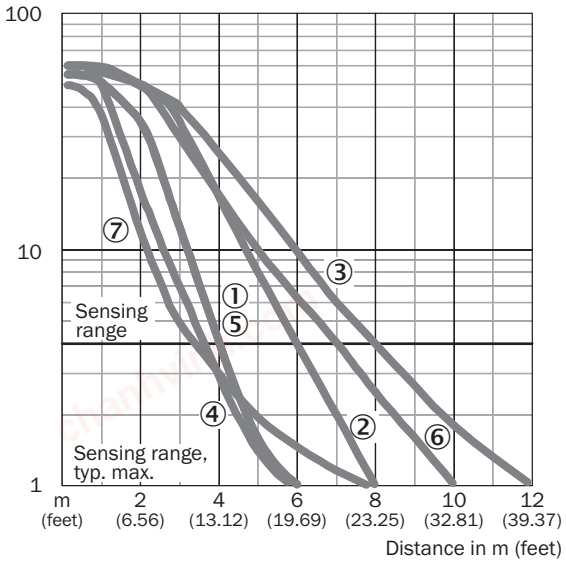


## Connection diagram

Cd-095

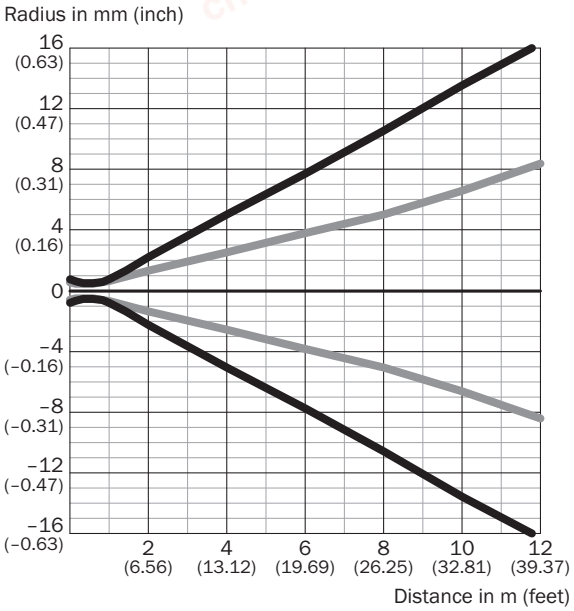



## Characteristic curve




① Reflector PL20A
② Reflector PL40A
③ Reflector PL80A
④ PL10F reflector
⑤ Reflector PL20F
⑥ Reflector P250F
⑦ Reflective tape REF-AC1000

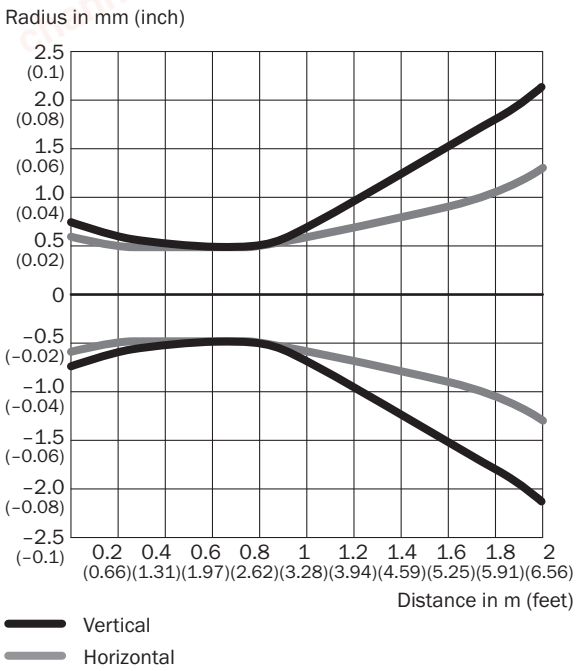
## Light spot size




**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) |
| **6 m (19.69 feet)** | 15.2 (0.60) | 7.6 (0.30) |
| **12 m (39.37 feet)** | 32.4 (1.28) | 16.4 (0.65) |

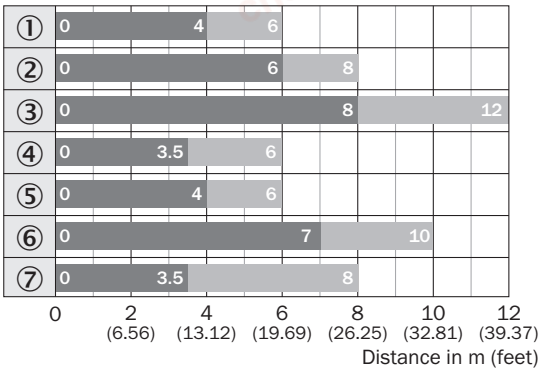
## Light spot size (detailed view)



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## Sensing range diagram

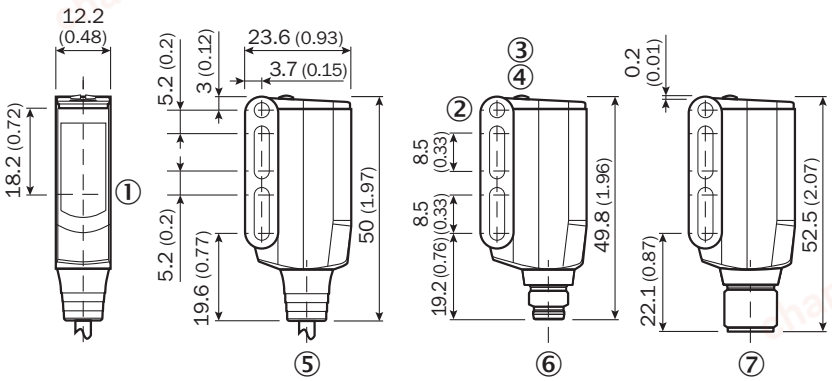



Sensing range  Sensing range typ. max.

① Reflector PL20A
② Reflector PL40A
③ Reflector PL80A
④ PL10F reflector
⑤ Reflector PL20F
⑥ Reflector P250F
⑦ Reflective tape REF-AC1000

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

WL9L-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 connecting cable with connector
⑥ Male connector M8, 4-pin
⑦ Male connector M12, 4-pin

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## Recommended accessories

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

| | Brief description | Type | 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: male connector, M12, 4-pin, straight<br>Cable: unshielded | STE-1204-G | 6009932 |
| Reflectors | | | |
|  | Fine triple reflector, screw connection, suitable for laser sensors, 20 mm x 32 mm, PMMA/ABS, Screw-on, 2 hole mounting | PL10F | 5311210 |

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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.”**

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