



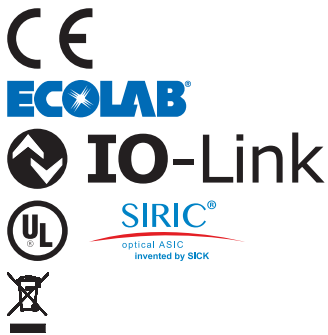
WL9LGC-3P2232B01
W9

SMALL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WL9LGC-3P2232B01	1106618

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

Detailed technical data

Features

Sensor/ detection principle	Photoelectric retro-reflective sensor, autocollimation
Dimensions (W x H x D)	12.2 mm x 52.2 mm x 23.6 mm
Housing design (light emission)	Rectangular
Mounting hole	M3
Sensing range max.	0 m ... 4.5 m ^{1) 2)}
Sensing range	0 m ... 2 m ^{1) 2)}
Type of light	Visible red light
Light source	Laser ³⁾
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	IO-Link Single teach-in button
Diagnosis	Device contamination monitoring, Quality of teach-in
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output

¹⁾ Reflective tape REF-AC1000.

²⁾ To ensure reliable operation, we recommend using REF-AC1000 reflective tape or reflective-tap reflectors such as P41F, PLV14-A, PLH25-M12, or PLH25-D12. Reflectors with large-scale triple structures must only be used if deemed suitable for the application.

³⁾ Average service life: 50,000 h at T_U = +25 °C.

AutoAdapt	✓
Special applications	Detecting small objects, Detecting transparent objects
Special features	Deactivation delay, 50 ms

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Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC ¹⁾
Ripple	$< 5\text{ V}_{\text{pp}}$ ²⁾
Current consumption	30 mA ³⁾
Switching output	PNP ⁴⁾
Output function	Complementary
Switching mode	Light/dark switching ⁴⁾
Output current I_{max}	$\leq 100\text{ mA}$
Response time	$\leq 0.5\text{ ms}$ ⁵⁾
Response time Q/ on Pin 2	$300\text{ }\mu\text{s} \dots 450\text{ }\mu\text{s}$ ^{5) 6)}
Switching frequency	1,000 Hz ⁷⁾
Switching frequency Q / to pin 2	$\leq 1,000\text{ Hz}$ ⁸⁾
Connection type	Male connector M8, 4-pin
Circuit protection	A ⁹⁾ B ¹⁰⁾ C ¹¹⁾
Protection class	III
Weight	13 g
Polarisation filter	✓
IO-Link	✓
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66 IP67

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⁾ Valid for Q \ on Pin2, if configured with software.

⁷⁾ With light/dark ratio 1:1.

⁸⁾ With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

⁹⁾ A = V_{S} connections reverse-polarity protected.

¹⁰⁾ B = inputs and output reverse-polarity protected.

¹¹⁾ C = interference suppression.

¹²⁾ As of $T_{\text{a}} = 50\text{ °C}$, a max. supply voltage $V_{\text{max.}} = 24\text{ V}$ and a max. load current $I_{\text{max.}} = 50\text{ mA}$ is permitted.

¹³⁾ Operation below $T_{\text{u}} -10\text{ °C}$ is possible if the sensor is already switched on at $T_{\text{u}} > -10\text{ °C}$, then cools down, and the supply voltage is subsequently not switched off. Switching on below $T_{\text{u}} -10\text{ °C}$ is not permissible.

	IP69K
Special feature	Detecting transparent objects
Ambient operating temperature	-10 °C ... +50 °C
Ambient operating temperature extended	-30 °C ... +55 °C ¹²⁾ ¹³⁾
Ambient storage temperature	-30 °C ... +70 °C
UL File No.	NRKH.E181493
Repeatability Q/ on Pin 2:	150 µs ⁶⁾

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¹³⁾ Operation below $T_u - 10 °C$ is possible if the sensor is already switched on at $T_u > -10 °C$, then cools down, and the supply voltage is subsequently not switched off. Switching on below $T_u - 10 °C$ is not permissible.

Safety-related parameters

MTTF_D	655 years (EN ISO 13849-1) ¹⁾
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¹⁾ Mode of calculation: Parts-Count-calculation.

Communication interface

Communication interface	IO-Link V1.1
Communication Interface detail	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = empty
VendorID	26
DeviceID HEX	0x800116
DeviceID DEC	8388886

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR WINDOW Hysteresis
Timer function	Deactivated On delay

¹⁾ 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").

²⁾ SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

	Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz ¹⁾ SIO Logic: 1000 Hz ²⁾ IOL: 900 Hz ³⁾
Response time	SIO Direct: 300 µs ... 450 µs ¹⁾ SIO Logic: 500 µs ... 600 µs ²⁾ IOL: 500 µs ... 900 µs ³⁾
Repeatability	SIO Direct: 150 µs ¹⁾ SIO Logic: 150 µs ²⁾ IOL: 400 µs ³⁾
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

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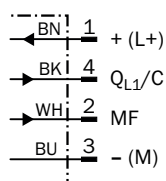
³⁾ IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Classifications

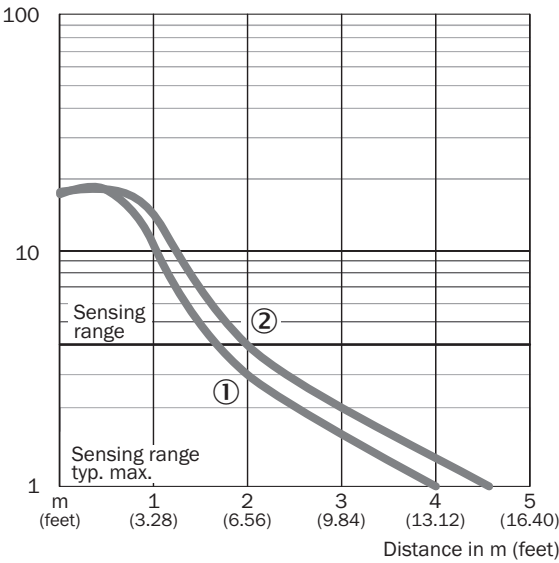
ECI@ss 5.0	27270902
ECI@ss 5.1.4	27270902
ECI@ss 6.0	27270902
ECI@ss 6.2	27270902
ECI@ss 7.0	27270902
ECI@ss 8.0	27270902
ECI@ss 8.1	27270902
ECI@ss 9.0	27270902
ECI@ss 10.0	27270902
ECI@ss 11.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
UNSPSC 16.0901	39121528

Connection diagram

Cd-367

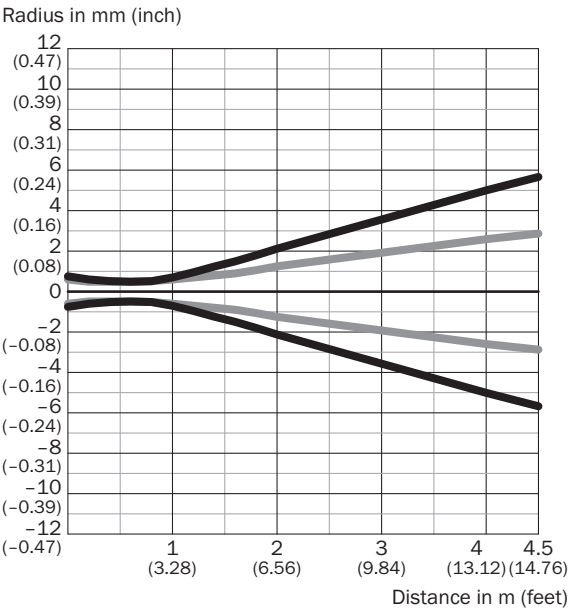


Characteristic curve



Light spot size

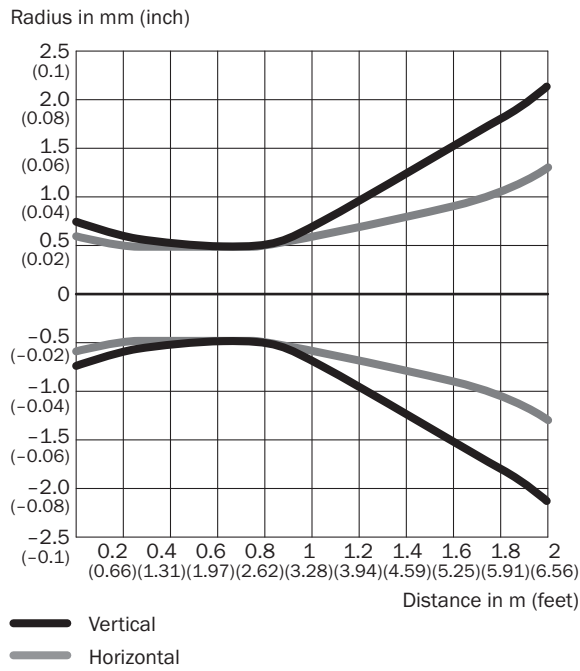
Overview



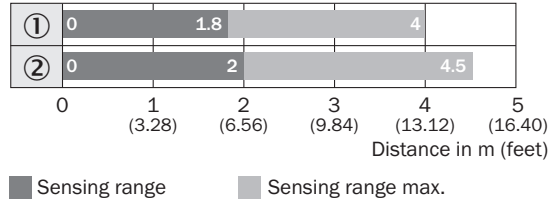
Dimensions in mm (inch)

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)
2 m (6.56 feet)	4.3 (0.17)	2.6 (0.10)
4.5 m (14.76 feet)	11.3 (0.44)	5.6 (0.22)

Light spot size (detailed view)



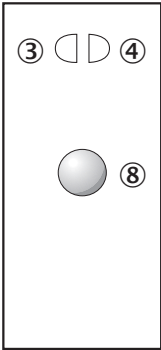
Sensing range diagram



- ① Reflector PLV14-A / PLH25-M12 / PLH25-D12
② Reflector P41F / reflective tape REF-AC1000

Adjustments

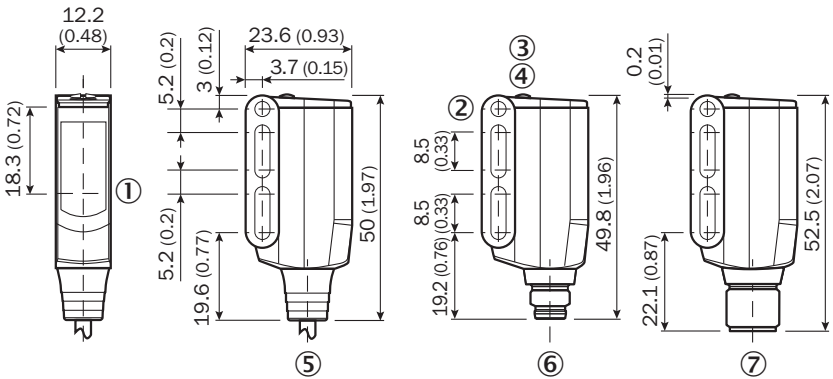
Single teach-in button



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

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

Recommended accessories

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

	Brief description	Type	Part no.
Reflectors			
	Suitable for laser sensors, self-adhesive, cut, see alignment note, 56.3 mm x 56.3 mm, self-adhesive	REF-AC1000-56	4063030

	Brief description	Type	Part no.
Plug connectors and cables			
	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 Head B: - Cable: unshielded	STE-0804-G	6037323

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:

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