

PHOTOELECTRIC SENSORS

WL4SL-
GC-3P2252A00

ORDERING INFORMATION

Type	part no.
WL4SLGC-3P2252A00	1080951

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



Illustration may differ

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric retro-reflective sensor	
Functional principle detail	Without reflector minimum distance (autocollimation/coaxial optics)	
Sensing range max.	0 m ... 3.5 m ¹⁾ 2)	
Sensing range	0 m ... 2.2 m ¹⁾ 2)	
Polarisation filter	Yes	
Emitted beam	Light source	Laser ³⁾
	Type of light	Visible red light
	Light spot size (distance)	Ø 0.4 mm (60 mm)
Key laser figures	Normative reference	EN 60825-1:2014, IEC 60825-1:2014 / CDRH 21 CFR 1040.10 & 1040.11
	Laser class	1 ⁴⁾
	Wave length	650 nm
Adjustment	IO-Link, Single teach-in button	
Special applications	Detecting transparent objects, Detecting small objects	
Mounting hole	M3	
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output	
AutoAdapt	✓	

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_v = +25 °C.

⁴⁾ Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

SAFETY-RELATED PARAMETERS

MTTF _D	562 years (EN ISO 13849-1) ¹⁾
DC _{avg}	0 %
T _M (mission time)	10 years

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

COMMUNICATION INTERFACE

IO-Link	✓, IO-Link V1.1
Data transmission rate	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	0x800115
DeviceID DEC	8388885
Compatible master port type	A
SIO mode support	Yes

ELECTRONICS

Supply voltage U _B	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current consumption	30 mA ³⁾
Protection class	III
Digital output	Type PNP ⁴⁾ ⁵⁾
Switching mode	Light/dark switching ⁴⁾
Output current I _{max}	≤ 100 mA
Response time	≤ 0.5 ms ⁶⁾
Repeatability (response time)	150 μs ⁷⁾
Switching frequency	1,000 Hz ⁸⁾
Output function	Complementary
Circuit protection	A ⁹⁾ B ¹⁰⁾

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⁾ Pin 4: This switching output must not be connected to another output.

⁶⁾ Signal transit time with resistive load.

⁷⁾ Valid for Q \ on Pin2, if configured with software.

⁸⁾ With light/dark ratio 1:1.

⁹⁾ A = V_B connections reverse-polarity protected.

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

¹¹⁾ C = interference suppression.

¹²⁾ With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

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	C ¹¹⁾
Response time Q/ on Pin 2	300 μs ... 450 μs ^{6) 7)}
Switching frequency Q / to pin 2	1,000 Hz ¹²⁾

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⁾ Pin 4: This switching output must not be connected to another output.

⁶⁾ Signal transit time with resistive load.

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⁸⁾ With light/dark ratio 1:1.

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

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

¹¹⁾ C = interference suppression.

¹²⁾ With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

MECHANICS

Housing	Rectangular
Design detail	Slim
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Connection	Male connector M8, 4-pin
Material	Housing: Plastic, Novodur Front screen: Plastic, PMMA
Weight	100 g

AMBIENT DATA

Enclosure rating	IP66 IP67
Ambient operating temperature	-10 °C ... +50 °C
Ambient operating temperature extended	-30 °C ... +55 °C ^{1) 2)}
Ambient temperature, storage	-30 °C ... +70 °C
UL File No.	NRKH.E181493
RoHS certificate	✓

¹⁾ 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.

²⁾ 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.

SMART TASK

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

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.

	Switch-on delay 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	Switching signal Q _{L1} Switching output Switching signal Q _{L2} Switching output

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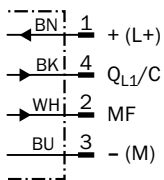
DIAGNOSIS

Device status	Yes
Quality of teach	Yes
Quality of run	Yes, Contamination display

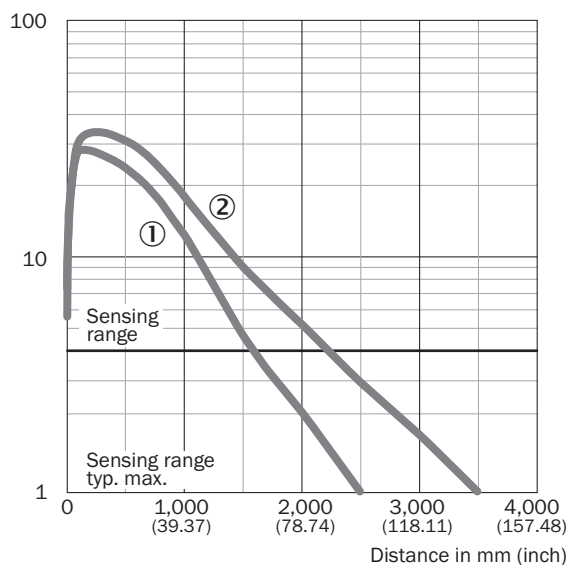
CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
ECOLAB certificate	✓
IO-Link certificate	✓
Laser safety (IEC 60825-1) certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

CONNECTION DIAGRAM CD-363

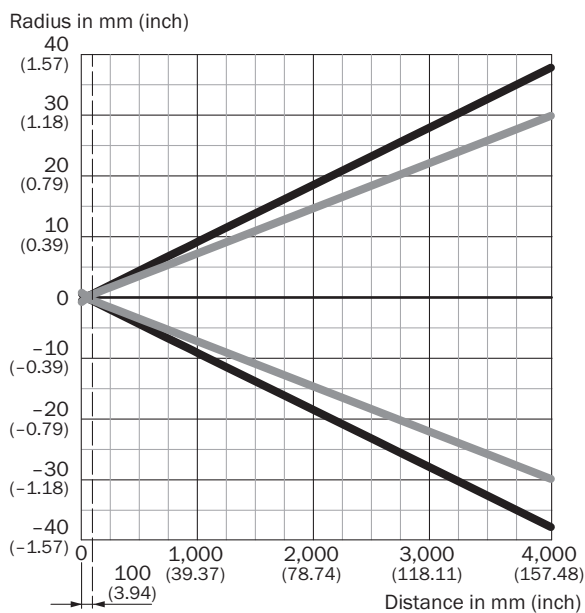


CHARACTERISTIC CURVE



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

LIGHT SPOT SIZE



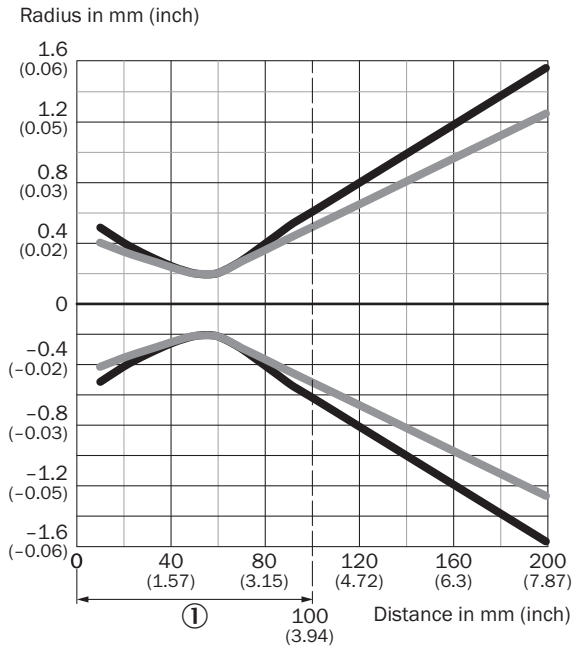
Dimensions in mm (inch)

Sensing range	Vertical	Horizontal
60 mm (2.36)	0.4 (0.02)	0.4 (0.02)
200 mm (7.87)	3.2 (0.13)	2.4 (0.09)
2,000 mm (78.74)	40 (1.57)	30 (0.18)
3,500 mm (137.80)	60 (2.36)	50 (1.97)

- Vertical
- Horizontal

- ① Minimum distance between sensor and reflector

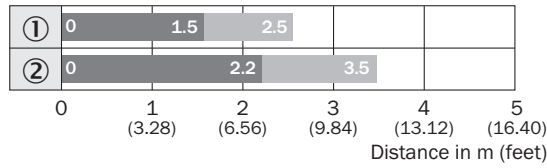
LIGHT SPOT SIZE (DETAILED VIEW)



— Vertical
— Horizontal

① Minimum distance between sensor and reflector

SENSING RANGE DIAGRAM

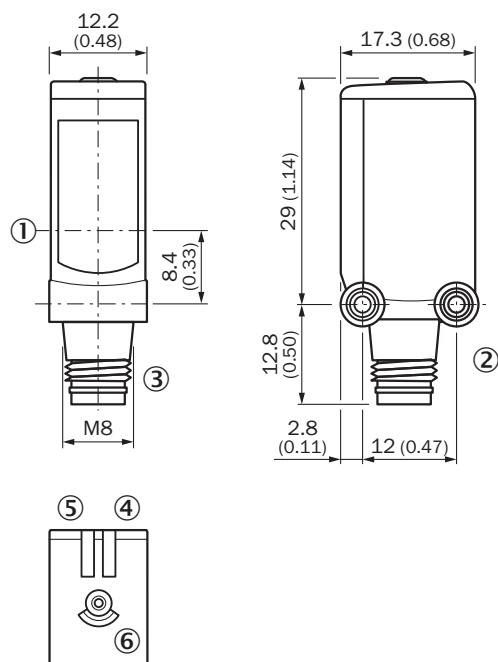


■ Sensing range ■ Sensing range max.

① Reflector PLV14-A / PLH25-M12 / PLH25-D12

② Reflector P41F / reflective tape REF-AC1000

DIMENSIONAL DRAWING WL4SL-3, WL4SLG-3, WSE4SL-3, PLUG



Dimensions in mm (inch)

- ① Center of optical axis
- ② Threaded mounting hole M3
- ③ Connection
- ④ LED indicator green: Supply voltage active
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ 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/1080951



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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.

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