

WL12GC-3P2472B01

W12

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	part no.
WL12GC-3P2472B01	1070335

Other models and accessories → www.sick.com/W12



SpareCruX

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 ... 4 m
Sensing range	0 m ... 4 m ¹⁾
Polarisation filter	Yes
Emitted beam	
Light source	PinPoint LED ²⁾
Type of light	Visible red light
Light spot size (distance)	Ø 25 mm (1.5 m)
Key LED figures	
Wave length	660 nm
Adjustment	IO-Link, Single teach-in button
Special features	Functions compatible with WL12GC-3P2472A91
Special applications	Detecting transparent objects
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output
AutoAdapt	✓

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at T_U = +25 °C.

Safety-related parameters

MTTF_D	891 years
DC_{avg}	0 %
T_M (mission time)	20 years

Communication interface

IO-Link	✓, COM2 (38,4 kBaud)
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 = measuring value
VendorID	26
DeviceID HEX	0x8000F5
DeviceID DEC	8388853

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⁾
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. V _S - 2.5 V / 0 V
Output current I _{max.}	≤ 100 mA
Repeatability (response time)	100 μs ⁵⁾
Switching frequency	1,500 Hz ⁶⁾
Attenuation along light beam	> 8 %
Circuit protection	A ⁷⁾ B ⁸⁾ C ⁹⁾ D ¹⁰⁾

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

²⁾ May not fall below or exceed U_y tolerances.

³⁾ Without load.

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

⁵⁾ Valid for Q \ on Pin2, if configured with software.

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.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

¹¹⁾ Signal transit time with resistive load.

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

Response time Q/ on Pin 2	200 μ s ... 300 μ s ^{1) 5)}
Switching frequency Q / to pin 2	\leq 1,500 Hz ¹²⁾
Special feature	Detecting transparent objects

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

⁵⁾ Valid for Q \ on Pin2, if configured with software.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ A = V_S connections reverse-polarity protected.

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¹¹⁾ Signal transit time with resistive load.

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

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	15.6 mm x 48.5 mm x 42 mm
Connection	Male connector M12, 4-pin
Material	
	Housing: Metal, zinc diecast
	Front screen: Plastic, PMMA
Weight	120 g

Ambient data

Enclosure rating	IP66 IP67
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493

Smart Task

Smart Task name	Timestamp + debouncing
Logic function	Direct AND OR WINDOW Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Response time	SIO Direct: 300 μ s ... 450 μ s ¹⁾ SIO Logic: 550 μ s ... 650 μ s ²⁾

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.

	IOL: --- ³⁾
Repeatability	SIO Direct: 150 µs ¹⁾ SIO Logic: 150 µs ²⁾ IOL: --- ³⁾
Time stamp accuracy	SIO Direct: --- SIO Logic: --- IOL: - 90 ... + 90 µs
Min. Time between two process events (switches)	SIO Direct: 450 µs SIO Logic: 450 µs IOL: 500 ms
Time stamp number buffer	SIO Direct: --- SIO Logic: --- IOL: 8
Max. TimeStamp Range	SIO Direct: --- SIO Logic: --- IOL: 260 ms
Debounce time max.	SIO Direct: --- SIO Logic: 52 ms IOL: 52 ms
Switching signal	
Switching signal Q _{L1}	Switching output
Switching signal Q _{L2}	Switching output
Measuring value	Timestamp

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").

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Diagnosis

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

Certificates

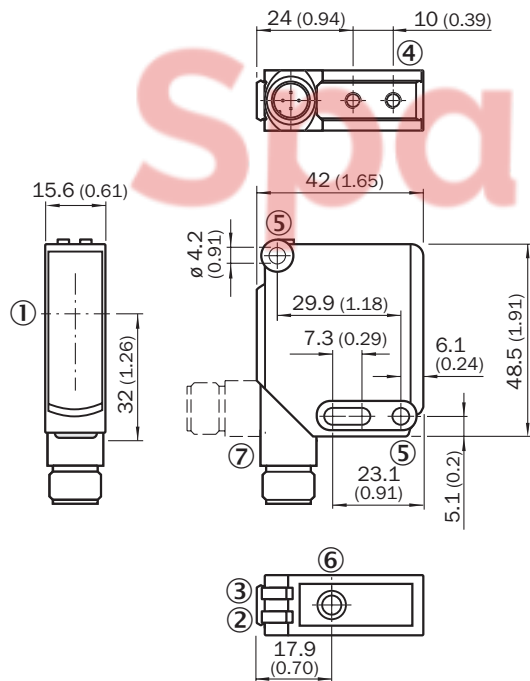
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
IO-Link certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

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

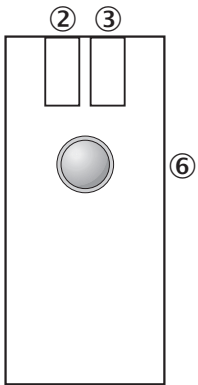
Dimensional drawing



Dimensions in mm (inch)

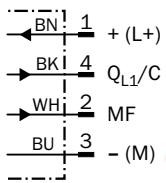
- ① Optical axis
- ② LED indicator yellow: Status of received light beam
- ③ LED indicator green: Supply voltage active
- ④ M4 threaded mounting hole, 4 mm deep
- ⑤ Mounting hole, \varnothing 4.2 mm
- ⑥ Sensitivity setting: single teach-in button
- ⑦ Connection

Adjustments Teach-in

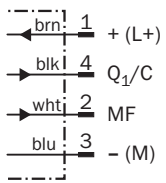


- ② LED indicator yellow: Status of received light beam
- ③ green LED indicator: power on, teach-in mode I
- ③ blue LED indicator: teach-in mode II
- ⑥ Single teach-in button,
- ⑥ function 1: teach-in sensitivity on reflector,
- ⑥ function 2: change operation/teach-in mode

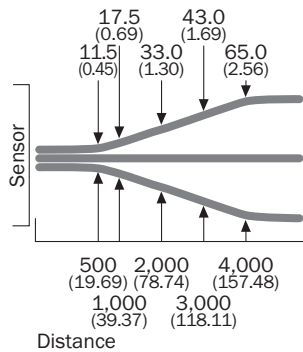
Connection diagram Cd-367



Connection diagram Cd-273

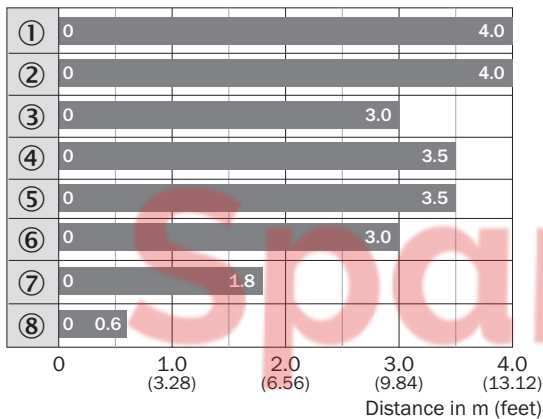


Light spot size



All dimensions in mm (inch)

Sensing range diagram WL12G-3



■ Sensing range max.




- ① Reflector PL80A
- ② Reflector C110A
- ③ Reflector P250F
- ④ Reflector PL50A
- ⑤ Reflector PL40A
- ⑥ Reflector PL30A
- ⑦ Reflector PL20A
- ⑧ Reflective tape REF-IRF-56

Functions

Teach-in-Modus für Objekte / Teach-in mode for objects	Lichtdämpfung / Light attenuation	Objekttyp / Object type	Teach-in-Zeit / Teach-in time	Ext. Teach-in über Leitung / Ext. cable teach-in	Anzeige-LED / LED indicator
I	10 %	PET-Flasche / Folie / Glas / PET-Flasche / Folie / glas	1 ... 5 s	30 ... 100 ms	grün / green
II	18 %	Farbglasflaschen / Colored glass bottles	5 ... 10 s	100 ... 200 ms	blau / blue

Recommended accessories

Other models and accessories → www.sick.com/W12

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> Description: Universal mounting bracket for reflectors Dimensions (W x H x L): 85 mm x 90 mm x 35 mm Material: Steel Details: Steel, zinc coated Suitable for: C110A, P250, PL20, PL30A, PL40A, PL80A 	BEF-WN-REFX	2064574
	<ul style="list-style-type: none"> Description: Mounting bracket, large Material: Stainless steel Details: Stainless steel Items supplied: Mounting hardware included Suitable for: W11-2, W12-3, W16 	BEF-WG-W12	2013942
	<ul style="list-style-type: none"> Description: Plate N11N for universal clamp bracket Material: Stainless steel Details: Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp) Items supplied: Universal clamp (5322627), mounting hardware Usable for: DeltaPac, Glare, WTD20E 	BEF-KHS-N11N	2071081
reflectors and optics			
	<ul style="list-style-type: none"> Description: Fine triple reflector, screw connection, suitable for laser sensors Dimensions: 52 mm 62 mm Ambient operating temperature: -30 °C ... +65 °C 	P250F	5308843
connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PVC Description: Sensor/actuator cable, unshielded Application: Zones with chemicals, Uncontaminated zones 	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> Connection type head A: Male connector, M12, 4-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² 	STE-1204-G	6009932
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 4-pin, straight, A-coded Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PUR, halogen-free Description: Sensor/actuator cable, unshielded Application: Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation 	YF2A14-050UB3XLEAX	2095608

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

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