



WL9GC-3P2432A70

W9

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
WL9GC-3P2432A70	1080919

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

Illustration may differ



Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	Without reflector minimum distance (autocollimation/coaxial optics)
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 ... 5 m ¹⁾
Sensing range	0 m ... 3 m ¹⁾
Type of light	Visible red light
Light source	PinPoint LED ²⁾
Light spot size (distance)	Ø 45 mm (1.5 m)
Wave length	650 nm
Adjustment	Cable, Single teach-in button
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output
AutoAdapt	✓
Special feature	Detecting transparent objects

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at $T_U = +25^\circ\text{C}$.

Special applications	Detecting transparent objects
1) Reflector PL80A.	
2) Average service life: 100,000 h at $T_U = +25^\circ\text{C}$.	
Mechanics/electronics	
Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current consumption	20 mA ³⁾
Switching output	PNP ⁴⁾ ⁵⁾
Output function	Complementary
Switching mode	Light/dark switching ⁴⁾
Output current $I_{\max.}$	$\leq 100 \text{ mA}$ ⁶⁾
Response time	< 0.5 ms ⁷⁾
Response time Q/ on Pin 2	300 μs ... 450 μs ^{7) 8)}
Switching frequency	1,000 Hz ⁹⁾
Switching frequency Q / to pin 2	$\leq 1,000 \text{ Hz}$ ¹⁰⁾
Connection type	Male connector M12, 4-pin
Circuit protection	A ¹¹⁾ B ¹²⁾ C ¹³⁾
Protection class	III
Weight	13 g
Polarisation filter	✓
Housing material	Plastic, VISTAL®
Optics material	Plastic, PMMA
Enclosure rating	IP66 IP67 IP69K
Special feature	Detecting transparent objects
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C

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

2) May not fall below or exceed U_U tolerances.

3) Without load.

4) Q = light switching.

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

6) At and above $T_U 50^\circ\text{C}$, a max. load current of $I_{\max.} = 50 \text{ mA}$ is permitted.

7) Signal transit time with resistive load.

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

9) With light/dark ratio 1:1.

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

11) A = V_S connections reverse-polarity protected.

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

13) C = interference suppression.

UL File No.	NRKH.E181493
Repeatability Q/ on Pin 2:	150 μ s ⁸⁾

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⁾ At and above Tu 50 °C, a max. load current of I_{max.} = 50 mA is permitted.

⁷⁾ Signal transit time with resistive load.

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¹⁰⁾ With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

¹¹⁾ A = V_S connections reverse-polarity protected.

¹²⁾ B = inputs and output reverse-polarity protected.

¹³⁾ C = interference suppression.

Safety-related parameters

MTTF_D	1,222 years
DC_{avg}	0 %

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 = measuring value
VendorID	26
DeviceID HEX	0x8000DF
DeviceID DEC	8388831

Smart Task

Smart Task name	Time measurement + debouncing
Logic function	Direct WINDOW
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Time measurement accuracy	SIO Direct: --- ¹⁾ SIO Logic: - 0,7 ... + 0,7 ms \pm 0,5 % of time measurement value ²⁾ IOL: - 0,9 ... + 0,9 ms \pm 0,5 % of the time measurement ³⁾
Time measurement accuracy (e.g. accuracy for time measurement value = 1 s)	SIO Direct: --- ¹⁾

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.

	SIO Logic: - 5,7 ... + 5,7 ms ²⁾ IOL: - 5,9 ... + 5,9 ms ³⁾
Resolution time measuring value	1 ms
Min. Time between two process events (switches)	SIO Direct: -- SIO Logic: 450 µs IOL: 500 µs
Debounce time max.	SIO Direct: -- SIO Logic: 30.000 ms IOL: 30.000 ms
Switching signal	
Switching signal Q _{L1}	Output type (dependant on the adjusted threshold)
Switching signal Q _{L2}	Output type (dependant on the adjusted threshold)
Measuring value	Time measurement value

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Diagnosis

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

Certificates

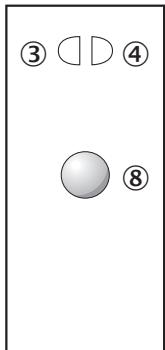
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
IO-Link	✓
Photobiological safety (DIN EN 62471) certificate	✓

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

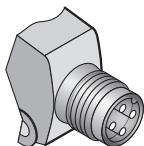


③ LED indicator yellow: Status of received light beam

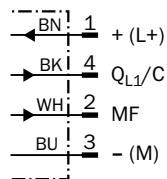
④ LED indicator green: power on

⑧ Teach-in button

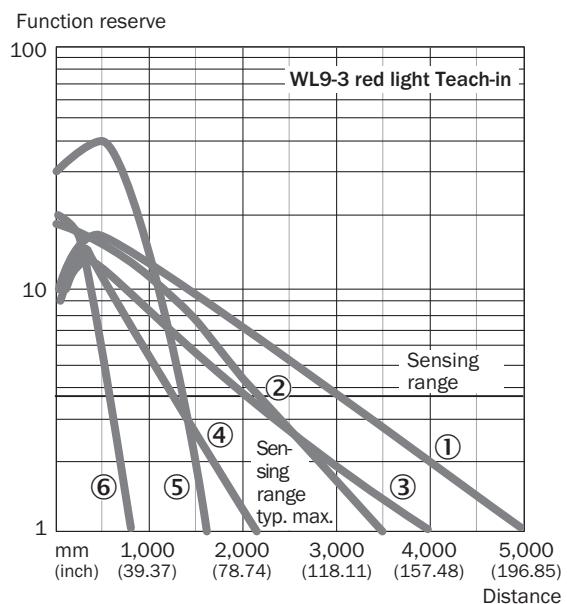
Connection type



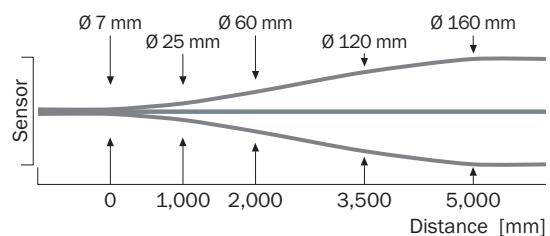
Connection diagram Cd-367



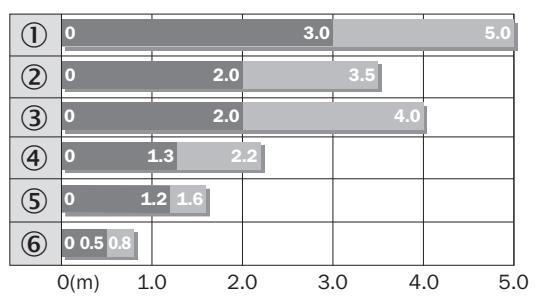
Characteristic curve WL9G-3



Light spot size



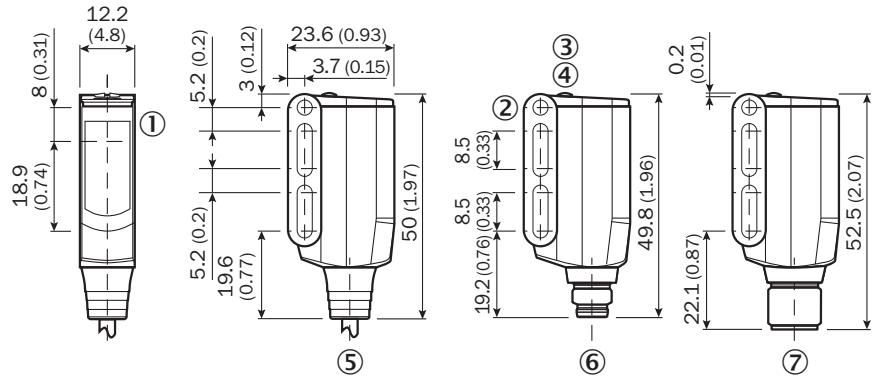
Sensing range diagram WL9G-3



① Reflector PL80A
② Reflector P250F

- ③ Reflector PL40A
- ④ Reflector PL20F
- ⑤ PL10F reflector
- ⑥ Reflective tape REF-IRF-56

Dimensional drawing WL9-3, WSE9-3



Dimensions in mm (inch)

- ① Sender and receiver optical axis center
- ② Mounting hole M3 (\varnothing 3.1 mm)
- ③ LED indicator yellow: Status of received light beam
- ④ LED indicator green: power on
- ⑤ Connecting cable or 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 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
Mounting systems			
	<ul style="list-style-type: none"> • Description: Mounting bracket • Material: Steel • Details: Steel, zinc coated • Items supplied: Mounting hardware included • Suitable for: W9-3 	BEF-WN-W9-2	2022855

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none">Connection type head A: Female connector, M12, 4-pin, straight, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 5 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: 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-codedDescription: UnshieldedConnection systems: Screw-type terminalsPermitted cross-section: $\leq 0.75 \text{ mm}^2$	STE-1204-G	6009932

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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