Data sheet

WL4SC-3P2232A70

W4

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
WL4SC-3P2232A70	1067760

Other models and accessories → www.sick.com/W4

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 ... 5 m [1]
Sensing range	0 m ... 3 m [1]
Polarisation filter	Yes
Emitted beam	
Light source	PinPoint LED [2]
Type of light	Visible red light
Light spot size (distance)	Ø 45 mm (1.5 m)
Key LED figures	
Wave length	650 nm
Adjustment	IO-Link, Single teach-in button
Pin 2 configuration	External input, Teach-in input, Sender off input, Detection output, logic output, Device contamination alarm output

[1] Reflector PL80A.
[2] Average service life: 100,000 h at T_U = +25 °C.

Safety-related parameters

$MTTF_D$	1,222 years
DC_{avg}	0 %

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	0x8000D7
DeviceID DEC	8388823

Electronics

Supply voltage U_B	10 V DC ... 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Current consumption	20 mA [3]
Protection class	III
Digital output	
Type	PNP [4]
Switching mode	Light/dark switching
Output current $I_{max.}$	≤ 100 mA
Repeatability (response time)	150 µs [5]
Switching frequency	1,000 Hz
Circuit protection	A [6] B [7] C [8] D [9]
Response time Q/ on Pin 2	300 µs ... 450 µs [10] [5]
Switching frequency Q / to pin 2	1,000 Hz [11]

[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] A = V_S connections reverse-polarity protected.
[7] B = inputs and output reverse-polarity protected.
[8] C = interference suppression.
[9] D = outputs overcurrent and short-circuit protected.
[10] Signal transit time with resistive load.
[11] 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, ABS
Front screen	Plastic, PMMA
Weight	30 g

Ambient data

Enclosure rating	IP67 IP66
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	Time measurement + debouncing
Logic function	Direct WINDOW
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Response time	1) 2)
Repeatability	1) 2)
Time measurement accuracy	SIO Direct: --- SIO Logic: - 0,7 ... + 0,7 ms ± 0,5 % of time measurement value IOL: - 0.9 ... + 0.9 ms ± 0.5% of the time measurement
Time measurement accuracy (e.g. accuracy for time measurement value = 1 s)	SIO Direct: --- 3) SIO Logic: - 5,7 ... + 5,7 ms 1) IOL: - 5,9 ... + 5,9 ms 2)
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

1) SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.
2) IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.
3) 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").

Diagnosis

Device status	Yes

Quality of teach	Yes
Quality of run	Yes, Contamination display

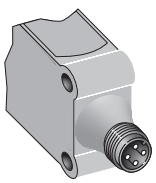
Certificates

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

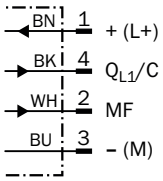
Classifications

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

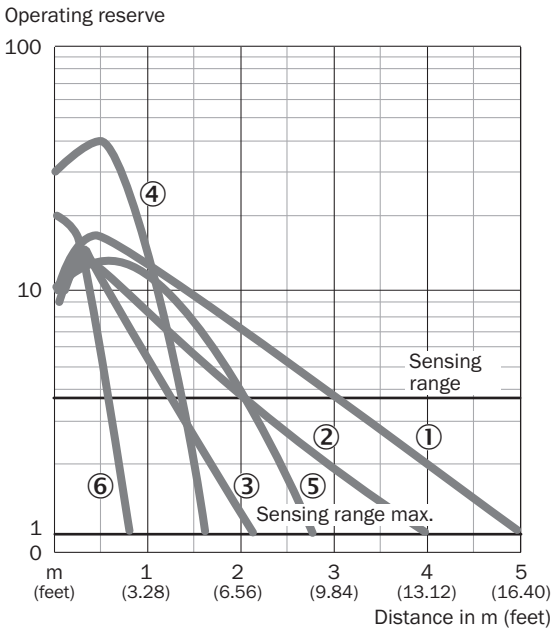
Connection type



Connection diagram Cd-367

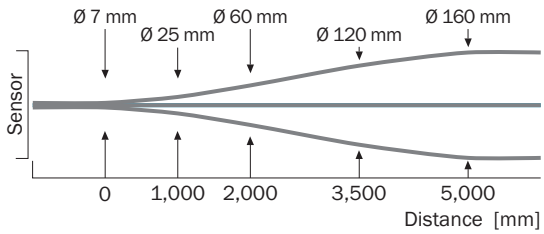


Characteristic curve WL4S-3, WLG4S-3, 5 m

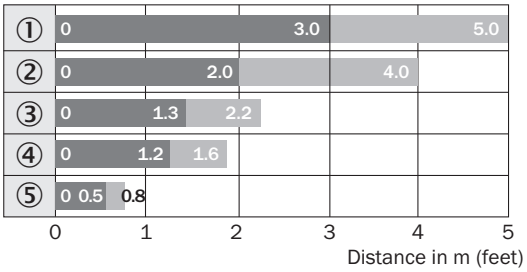


① Reflector PL80A
② Reflector PL40A
③ Reflector PL20A
④ PL10F reflector
⑤ Reflector P250 CHEM
⑥ Reflective tape REF-IRF-56

Light spot size



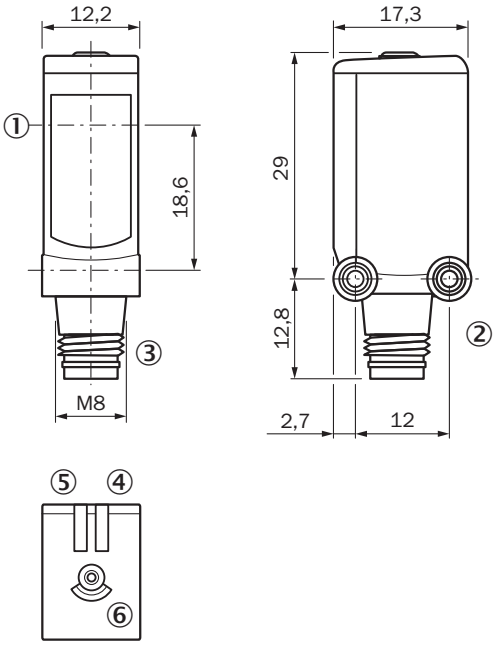
Sensing range diagram WL4S-3, WLG4S-3, 5 m



Sensing range Sensing range max.

① Reflector PL80A
② Reflector PL40A
③ Reflector PL20A
④ PL10F reflector
⑤ Reflective tape REF-IRF-56

Dimensional drawing WL4S-3, WLG4S-3, single teach-in button



Dimensions in mm (inch)
① Center of optical axis
② Threaded mounting hole M3
③ Connection
④ LED indicator green: Supply voltage active
⑤ Orange LED indicator: status of received light beam
⑥ Teach-in button

Recommended accessories

Other models and accessories ➜ www.sick.com/W4

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Mounting bracket for wall mounting • **Material:** Stainless steel • **Details:** Stainless steel 1.4571 • **Items supplied:** Mounting hardware included • **Suitable for:** W4S, W4F, W4S	BEF-W4-A	2051628
	• **Description:** Plate N08 for universal clamp bracket • **Material:** Steel, zinc diecast • **Details:** Zinc plated steel (sheet), Zinc die cast (clamping bracket) • **Items supplied:** Universal clamp (5322626), mounting hardware • **Usable for:** W100, W150, W4S, W4F, W8, W9-3, W8G, W8 Laser, W8 Inox, G6, W100 Laser, W100-2, W10, G6 Inox, RAY10, W4SLG-3, W9, GR18, MultiPulse, Reflex Array, MultiLine, LUT3, KT5, KT8, KT10, CS8	BEF-KHS-N08	2051607
reflectors and optics			
	• **Description:** Fine triple reflector, screw connection, suitable for laser sensors • **Dimensions:** 20 mm 32 mm • **Ambient operating temperature:** –30 °C ... +65 °C	PL10F	5311210
connectors and cables			
	• **Connection type head A:** Female connector, M8, 4-pin, straight, A-coded • **Connection type head B:** Male connector, M12, 4-pin, straight, A-coded • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Uncontaminated zones, Zones with chemicals	YF8U14-050VA3M2A14	2096609
	• **Connection type head A:** Female connector, M8, 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:** Uncontaminated zones, Zones with chemicals	YF8U14-050VA3XLEAX	2095889
	• **Connection type head A:** Male connector, M8, 4-pin, straight, A-coded • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** 0.14 mm² ... 0.5 mm²	STE-0804-G	6037323
	• **Connection type head A:** Female connector, M8, 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:** Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation	YF8U14-050UA3XLEAX	2094792
	• **Connection type head A:** Male connector, M12, 4-pin, A-coded • **Connection type head B:** Female connector, M8, 4-pin, A-coded • **Connection type head C:** Female connector, M8, 4-pin, A-coded • **Cable:** 0.11 m, PVC • **Description:** Unshielded	SYL-8204-G0M11-X2	6055012

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.”

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