WSE4C-3P2230A70

W4

SICK
Sensor Intelligence.

PHOTOELECTRIC SENSORS

Ordering information

Type	part no.
WSE4C-3P2230A70	1080937

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

Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor
Sensing range max.	0 m … 4 m
Sensing range	0 m … 3.5 m
Emitted beam	
Light source	PinPoint LED [1]
Type of light	Visible red light
Light spot size (distance)	Ø 75 mm (2 m)
Key LED figures	
Wave length	650 nm
Adjustment	IO-Link
Part number of individual components	2040701 WS4-3D2230, 2087707 WE4C-3P2230A70
Pin 2 configuration	External input, Teach-in input, Detection output, logic output, alarm output operating reserve

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

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	0x800107
DeviceID DEC	8388871

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
Response time	< 0.5 ms [5]
Repeatability (response time)	150 µs [6]
Switching frequency	1,000 Hz [7]
Circuit protection	A [8] C [9] D [10]
Response time Q/ on Pin 2	300 µs … 450 µs [5] [6]
Switching frequency Q / to pin 2	1,000 Hz [11]
Test input sender off	TE to 0 V

[1] Limit values.

[2] May not fall below or exceed U_V tolerances.

[3] Sender.

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

[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] A = V_S connections reverse-polarity protected.

[9] C = interference suppression.

[10] D = outputs overcurrent and short-circuit protected.

[11] With light / dark ratio 1:1, valid for Q \ on Pin2, if configured with software.

Mechanics

Housing	Rectangular
Design detail	Flat
Dimensions (W x H x D)	16 mm x 39.5 mm x 12 mm
Connection	Male connector M8, 4-pin
Material	
Housing	Plastic, ABS
Front screen	Plastic, PMMA
Weight	60 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: --- SIO Logic: - 5,7 ... + 5,7 ms IOL: - 5,9 ... + 5,9 ms
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.
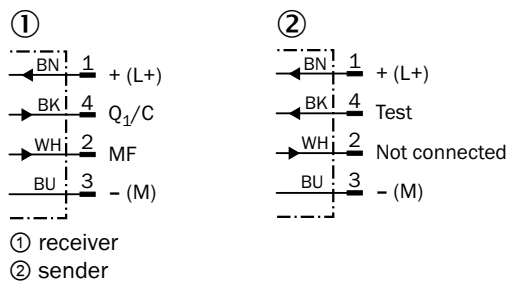
Diagnosis

Device status	Yes
Function reserve	Yes

Classifications

ECLASS 5.0	27270901
ECLASS 5.1.4	27270901
ECLASS 6.0	27270901
ECLASS 6.2	27270901
ECLASS 7.0	27270901
ECLASS 8.0	27270901
ECLASS 8.1	27270901
ECLASS 9.0	27270901

ECLASS 10.0	27270901
ECLASS 11.0	27270901
ECLASS 12.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
UNSPSC 16.0901	39121528

Connection diagram Cd-298

①

BN	1	+ (L+)
BK	4	Q_1/C
WH	2	MF
BU	3	– (M)

②

BN	1	+ (L+)
BK	4	Test
WH	2	Not connected
BU	3	– (M)

① receiver
② sender

Characteristic curve WSE4-3

Operating reserve

Distance in m (feet)
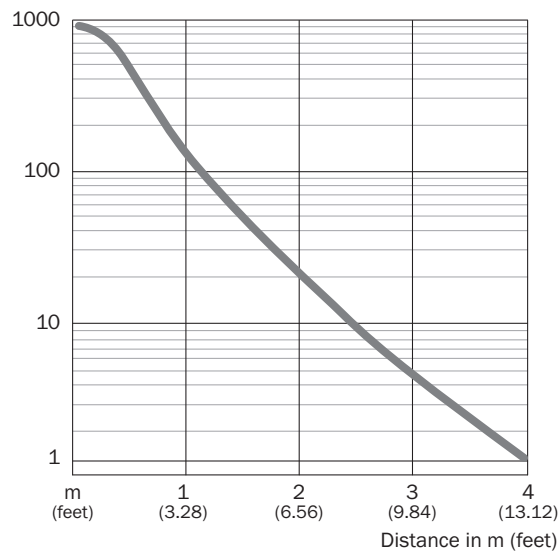
Sensing range diagram WSE4-3

0			3.5	4

0	1 (3.28)	2 (6.56)	3 (9.84)	4 (13.12)

Distance in m (feet)

■ Sensing range typ. max   ■ Sensing range
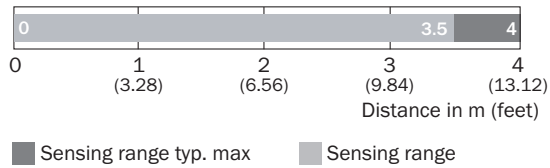
Dimensional drawing WSE4-3

12 (0.47)
16 (0.63)
39.5 (1.56)
28.5 (1.12)
17.6 (0.69)
11 (0.43)
9 (0.35)

① ④ ⑤ ②③
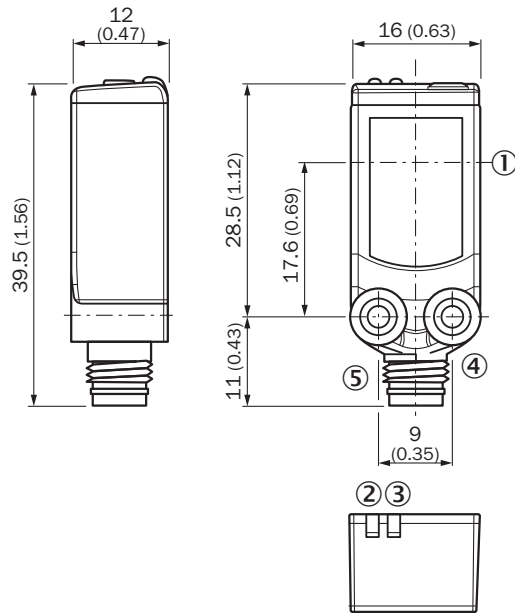
Dimensions in mm (inch)
① Center of optical axis
② Orange LED indicator: status of received light beam
③ LED indicator green: Supply voltage active
④ Threaded mounting hole M3
⑤ Connection

Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	• **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
	• **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:** Mounting bracket for floor mounting • **Material:** Stainless steel • **Details:** Stainless steel 1.4571 • **Items supplied:** Mounting hardware included • **Suitable for:** W4S, W4F, W4S	BEF-W4-B	2051630
	• **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
connectors and cables			
	• **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:** Zones with chemicals, Uncontaminated zones	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:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF8U14-050UA3XLEAX	2094792

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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