WTB4SC-3P2232A00

W4S-3

SICK
Sensor Intelligence.

MINIATURE PHOTOELECTRIC SENSORS

Illustration may differ

Ordering information

Type	Part no.
WTB4SC-3P2232A00	1042049

Other models and accessories ➜ www.sick.com/W4S-3

Detailed technical data

Features

Sensor/ detection principle	Photoelectric proximity sensor, Background suppression
Dimensions (W x H x D)	12.2 mm x 41.8 mm x 17.3 mm
Housing design (light emission)	Rectangular
Sensing range max.	4 mm ... 120 mm [1]
Sensing range	10 mm ... 120 mm [1]
Type of light	Visible red light
Light source	PinPoint LED [2]
Light spot size (distance)	Ø 2.5 mm (50 mm)
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
IO-Link functions	Standard functions

[1] Object with 90 % reflectance (referred to standard white, DIN 5033).
[2] Average service life: 100,000 h at T_U = +25 °C.

Mechanics/electronics

Supply voltage	10 V DC … 30 V DC [1]
Ripple	< 5 V_{pp} [2]
Power consumption	30 mA [3]
Switching output	PNP
Switching mode	Light/dark switching
Output current $I_{max.}$	≤ 100 mA
Response time Q/ on Pin 2	300 µs … 450 µs [4] [5]
Switching frequency	1,000 Hz
Switching frequency Q / to pin 2	1,000 Hz [6]
Connection type	Male connector M8, 4-pin
Circuit protection	A [7] B [8] C [9] D [10]
Protection class	III
Weight	20 g
IO-Link	✓
IO-Link version	1.0
Transmission rate	COM2
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67 IP66
Ambient operating temperature	–40 °C … +60 °C
Ambient storage temperature	–40 °C … +75 °C
UL File No.	NRKH.E181493 & NRKH7.E181493
Repeatability Q/ on Pin 2:	150 µs [5]

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

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

[3] Without load.

[4] Signal transit time with resistive load.

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

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

[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.

Safety-related parameters

$MTTF_D$	868 years
DC_{avg}	0%

Classifications

ECl@ss 5.0	27270904

ECl@ss 5.1.4	27270904
ECl@ss 6.0	27270904
ECl@ss 6.2	27270904
ECl@ss 7.0	27270904
ECl@ss 8.0	27270904
ECl@ss 8.1	27270904
ECl@ss 9.0	27270904
ETIM 5.0	EC002719
ETIM 6.0	EC002719
UNSPSC 16.0901	39121528

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR WINDOW Hysteresis
Timer function	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Direct: 1000 Hz SIO Logic: 600 Hz IOL: 450 Hz
Response time	SIO Direct: 300 µs ... 450 µs [1] SIO Logic: 750 µs ... 900 µs [2] IOL: 800 µs ... 1200 µs [3]
Repeatability	SIO Direct: 150 µs [1] SIO Logic: 150 µs [2] IOL: 400 µs [3]
Switching signal Q_{L1}	Switching output
Switching signal Q_{L2}	Switching output

[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.
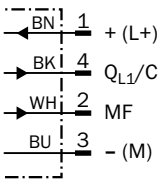
[3] IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

Communication interface

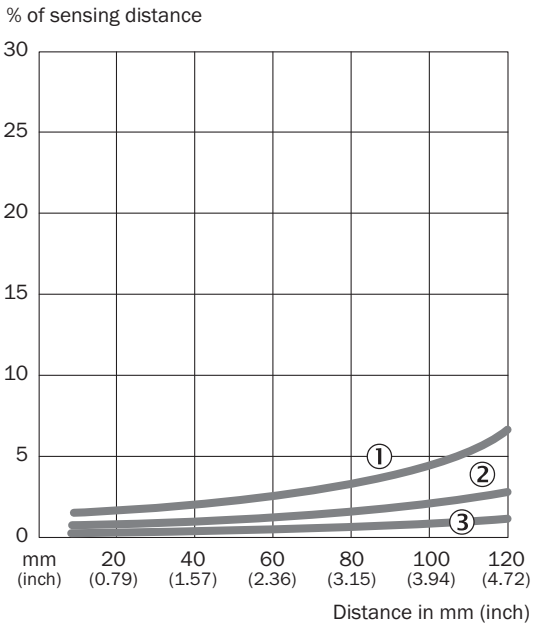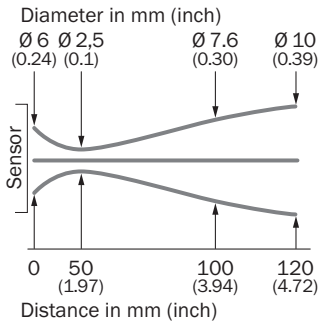|	
Communication interface	IO-Link V1.1
Communication Interface detail	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1} Bit 1 = switching signal Q_{L2} Bit 2 ... 15 = empty

Connection diagram

Cd-367

```
BN   1   + (L+)
BK   4   Q_L1/C
WH   2   MF
BU   3   – (M)
```

Characteristic curve

WTB4S-3, 120 mm

% of sensing distance

| mm (inch) | 20 (0.79) | 40 (1.57) | 60 (2.36) | 80 (3.15) | 100 (3.94) | 120 (4.72) |

Distance in mm (inch)

① Sensing range on black, 6% remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90% remission

Light spot size

Diameter in mm (inch)

Ø 6 (0.24) Ø 2,5 (0.1) Ø 7.6 (0.30) Ø 10 (0.39)

Sensor

| 0 | 50 (1.97) | 100 (3.94) | 120 (4.72) |

Distance in mm (inch)

Sensing range diagram

WTB4S-3, 120 mm

①	4 10	120
②	4 10	120
③	4 10	120

```
0        20      40      60      80      100     120
       (0.79)  (1.57)  (2.36)  (3.15)  (3.94)  (4.72)
                              Distance in mm (inch)
```
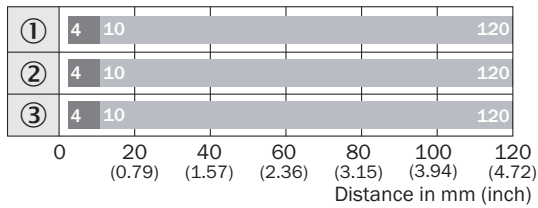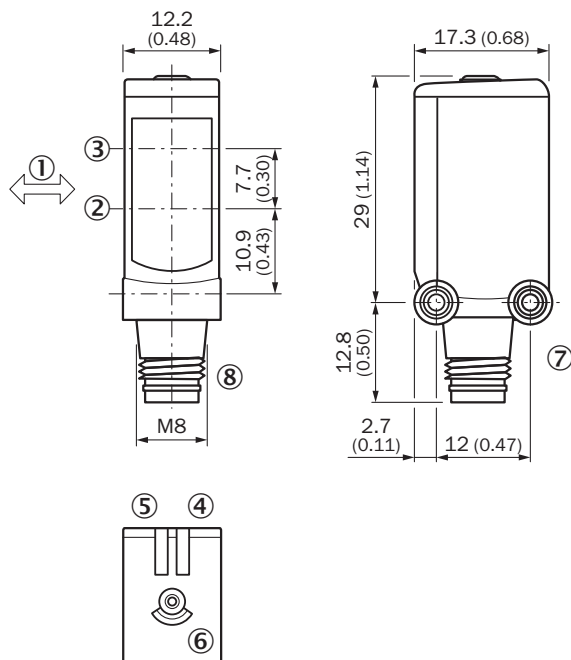
■ Sensing range max.   ■ Sensing range

① Sensing range on black, 6% remission
② Sensing range on gray, 18 % remission
③ Sensing range on white, 90% remission

Dimensional drawing (Dimensions in mm (inch))

WTB4S-3, Single teach-in button

① Standard direction of the material being detected
② Optical axis, receiver
③ Optical axis, sender
④ LED indicator green: Supply voltage active
⑤ LED indicator yellow: Status of received light beam
⑥ Teach-in button
⑦ Threaded mounting hole M3
⑧ Connection

Recommended accessories

Other models and accessories ➜ www.sick.com/W4S-3

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket for wall mounting, Stainless steel 1.4571, mounting hardware included	BEF-W4-A	2051628

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.

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