



WTB4FP-97311A0ZZZ
W4

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
WTB4FP-97311A0ZZZ	1125738

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

Detailed technical data

Features

Functional principle		Photoelectric proximity sensor
Functional principle detail		Background suppression, MultiPulse
Sensing range		
	Sensing range min.	28 mm
	Sensing range max.	165 mm
	Reference object	Object with 90% remission factor (complies with standard white according to DIN 5033)
	Minimum distance between set sensing range and background (black 6% / white 90%)	23 mm, at a distance of 165 mm
Emitted beam		
	Light source	PinPoint LED
	Type of light	Visible red light
	Shape of light spot	Point-shaped
	Light spot size (distance)	Ø 4.2 mm (130 mm)
	Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.5° (at Ta = +23 °C)
Key LED figures		
	Normative reference	EN 62471:2008-09 IEC 62471:2006, modified
	LED risk group marking	Free group
	Wave length	635 nm

Average service life	100,000 h at $T_a = +25\text{ °C}$
Smallest detectable object (MDO) typ.	0.2 mm (At 130 mm distance (object with remission factor of 90% (complies with standard white according to DIN 5033)))
Adjustment	
None	–
Display	
LED green	Operating indicatorStatic on: power on
LED yellow	Status of received light beamOscillating: object presentStatic off: object not present
Special features	MultiPulse: sensor with self-monitoring

Safety-related parameters

MTTF_D	642 years
DC_{avg}	0 %
T_M (mission time)	20 years

Electronics

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾
Ripple	≤ 5 V _{pp}
Usage category	DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)
Current consumption	≤ 25 mA, without load. At U _B = 24 V
Protection class	III
Digital output	
Number	1
Type	Push-pull: PNP/NPN
Signal voltage PNP HIGH/LOW	Approx. U _B -2.5 V / 0 V
Signal voltage NPN HIGH/LOW	Approx. U _B / < 2.5 V
Output current I _{max.}	≤ 100 mA
Circuit protection outputs	Reverse polarity protected Overcurrent protected Short-circuit protected
Response time	≤ 0.1 s ²⁾
Repeatability (response time)	150 μs
Switching frequency	10 Hz ³⁾
Pin/Wire assignment	
Function of pin 4/black (BK)	Digital output, object present → output Q, HIGH/LOW oscillating 10 Hz ⁴⁾

¹⁾ Limit values.

²⁾ Signal transit time with resistive load in switching mode.

³⁾ With light/dark ratio 1:1.

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

Mechanics

Housing	Rectangular
Design detail	Flat

Dimensions (W x H x D)	16 mm x 40.1 mm x 12.1 mm
Connection	Cable with connector M8, 3-pin, with knurled nut, 318 mm
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.14 mm ²
Cable diameter	Ø 3.4 mm
Length of cable (L)	280 mm
Material	
Housing	Plastic, VISTAL®
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Male connector	Plastic, VISTAL®
Weight	Approx. 30 g
Maximum tightening torque of the fixing screws	0.4 Nm

Ambient data

Enclosure rating	IP66 (EN 60529) IP67 (EN 60529)
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
Typ. Ambient light immunity	Artificial light: ≤ 50,000 lx Sunlight: ≤ 50,000 lx
Shock resistance	30 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27))
Vibration resistance	10 Hz ... 1,000 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))
Air humidity	35 % ... 95 %, relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2
Resistance to cleaning agent	ECOLAB
UL File No.	NRKH.E181493 & NRKH7.E181493

Certificates

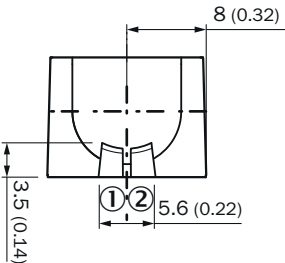
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
EAC certificate / DoC	✓
IO-Link	✓

Classifications

ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904

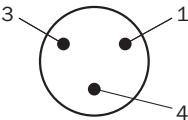
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

display and adjustment elements

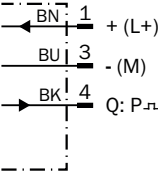


- ① LED green
- ② LED yellow

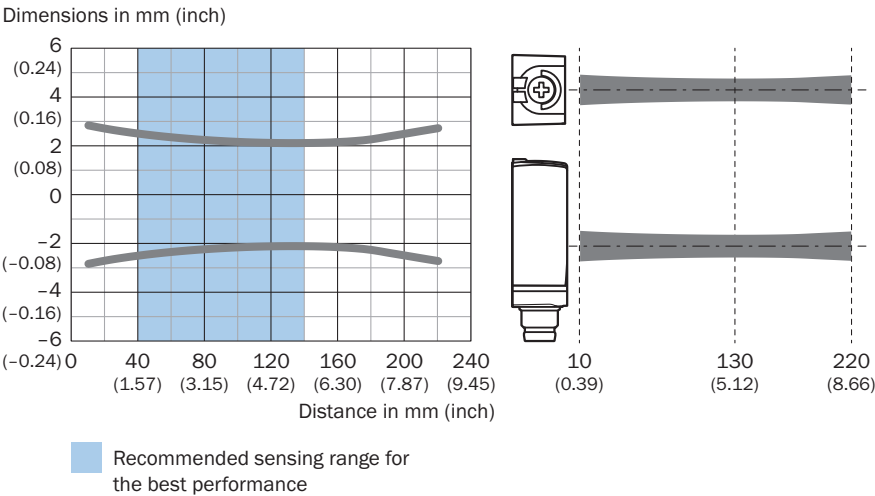
Connection type Connector M8, 3-pin



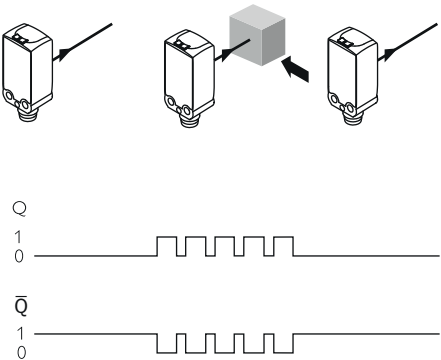
Connection diagram Cd-522



Light spot size



Functional principle: switching status



Technical drawing of the M8 x 1 sensor, showing front and side views with dimensions in mm and inches.

Front View Dimensions:

- Overall width: 16 (0.63)
- Distance from top edge to center of mounting holes: 8 (0.31)
- Distance between mounting holes: 9 (0.35)
- Distance from bottom edge of mounting holes to bottom of sensor body: 3.5 (0.14)
- Distance from bottom edge of sensor body to bottom of mounting holes: 8.1 (0.32)
- Bottom hole diameter: $\varnothing 6.8$ (0.27)
- Bottom hole width: 9 (0.35)

Side View Dimensions:

- Overall height: 37.2 (1.46)
- Top flange width: 12.1 (0.48)
- Distance from top flange to bottom of sensor body: 4.7 (0.18)
- Length of the threaded section: 38 (1.5)
- Thread specification: M8 x 1


Labels:

- ①: Arrow indicating front view
- ②: Arrow indicating side view
- ③: Top view
- ④: Bottom view
- ⑤: Threaded section
- ⑥: Top flange

⑥ display and adjustment elements

Recommended accessories

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

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none">• 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

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