



WSE4FP-31311600ZZZ

W4

MINIATURE PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

Type	Part no.
WSE4FP-31311600ZZZ	1124218

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



Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor
Sensing range	
Sensing range min.	0 m
Sensing range max.	2 m
Maximum distance range from receiver to sender (operating reserve 1)	0 m ... 2 m
Recommended distance range from receiver to sender (operating reserve 2)	0 m ... 1.5 m
Recommended sensing range for the best performance	0 m ... 1.5 m
Emitted beam	
Light source	PinPoint LED
Type of light	Visible red light
Shape of light spot	Point-shaped
Light spot size (distance)	Ø 40 mm (1,000 mm)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.5° (at T _a = +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 °C
Adjustment	
Wire/pin	For deactivation of the sender and execution of test logic

Indication	LED blue	BluePilot: Alignment aid
	LED green	Operating indicator Static on: power on
	LED yellow	Status of received light beam Static on: object not present Static off: object present
Special features	Vertical slotted diaphragm	
Part number of individual components	WS04FP-313ZZ6A0ZZZ, 2126426 WE04FP-31311600ZZZ, 2126424	

Safety-related parameters

MTTF_D	574 years
DC_{avg}	0 %
T_M (mission time)	20 years

Electrical data

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	≤ 20 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	≤ 500 μs
	Switching frequency	1,000 Hz ²⁾
Pin/Wire assignment, sender		
Function of pin 4/black (BK)	Input, sender off, LOW active	
Pin/Wire assignment, receiver		
Function of pin 4/black (BK)	Digital output, dark switching, object present → output Q HIGH	

¹⁾ Limit values.

²⁾ With light/dark ratio 1:1.

Mechanical data

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, 110 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)	77 mm
Material		
	Housing	Plastic, VISTAL®
	Front screen	Plastic, PMMA
	Cable	PVC
	Male connector	Plastic, VISTAL®
Weight		Approx. 30 g
Maximum tightening torque of the fixing screws		0.4 Nm

Ambient data

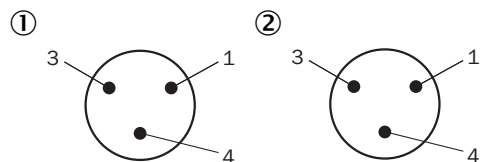
Enclosure rating	IP66 (EN 60529) IP67 (EN 60529)
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
Typ. Ambient light immunity	Artificial light: ≤ 15,000 lx Sunlight: ≤ 50,000 lx
Shock resistance	30 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z 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

Classifications

eCl@ss 5.0	27270901
eCl@ss 5.1.4	27270901
eCl@ss 6.0	27270901
eCl@ss 6.2	27270901
eCl@ss 7.0	27270901
eCl@ss 8.0	27270901
eCl@ss 8.1	27270901
eCl@ss 9.0	27270901
eCl@ss 10.0	27270901
eCl@ss 11.0	27270901
eCl@ss 12.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
UNSPSC 16.0901	39121528

Connection type

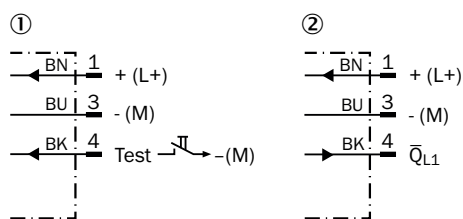
Connector M8, 3-pin



- ① Sender
- ② Receiver

Connection diagram

Cd-517



- ① Sender
- ② Receiver

Truth table

Push-pull: PNP/NPN – dark switching \bar{Q}

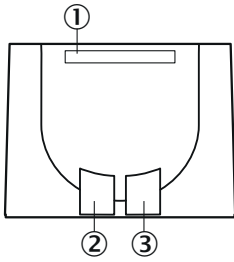
Dark switching \bar{Q} (normally open (upper switch), normally closed (lower switch))		
	Object not present → Output LOW	Object present → Output HIGH
Light receive	✓	✗
Light receive indicator	☉	✗
Load resistance to L+	⚠	✗
Load resistance to M	✗	⚠

Push-pull: PNP/NPN - light switching Q

Light switching Q (normally closed (upper switch), normally open (lower switch))		
	Object not present → Output HIGH	Object present → Output LOW
Light receive	✓	✗
Light receive indicator	☉	✗
Load resistance to L+	✗	⚠
Load resistance to M	⚠	✗

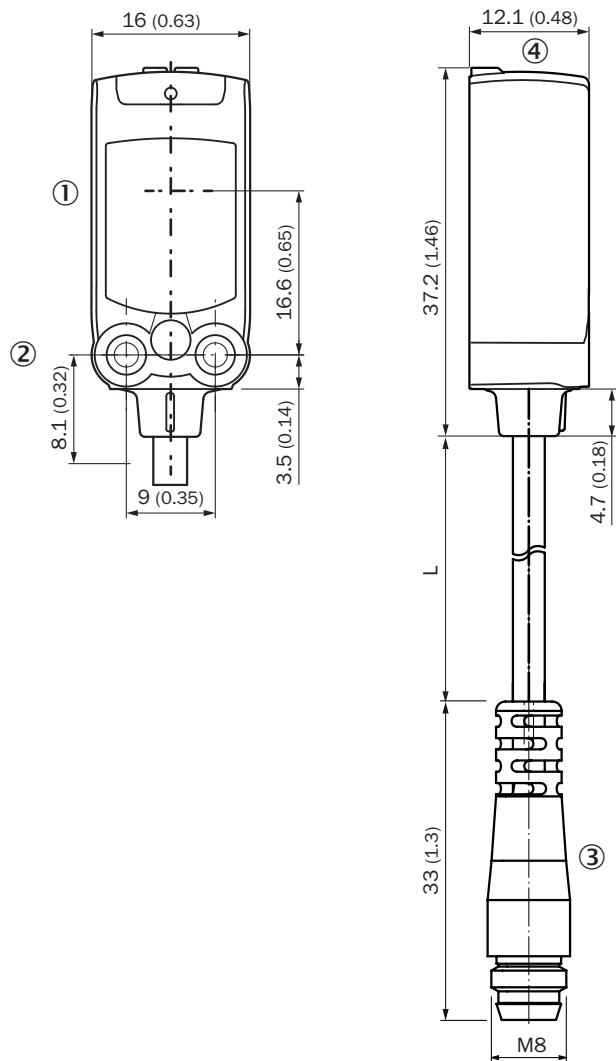
Adjustments

Display and adjustment elements



- ① LED blue
- ② LED green
- ③ LED yellow

Dimensional drawing (Dimensions in mm (inch))






For length of cable (L), see technical data

- ① Center of optical axis
- ② M3 mounting hole
- ③ Cable with connector M8
- ④ Display and adjustment elements

Recommended accessories

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

	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
Plug connectors and cables			
	Head A: female connector, M8, 3-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF8U13-050VA1XLEAX	2095884
	Head A: male connector, M8, 3-pin, straight Cable: unshielded	STE-0803-G	6037322

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Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

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