



WSE4FP-31311100ZZZ

W4

MINIATURE PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
WSE4FP-31311100ZZZ	1123398

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.	10 m
	Maximum distance range from receiver to sender (operating reserve 1)	0 m ... 10 m
	Recommended distance range from receiver to sender (operating reserve 2)	0 m ... 7.5 m
	Recommended sensing range for the best performance	0 m ... 7.5 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 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 Ta = +25 °C
Adjustment		
	Wire/pin	For deactivation of the sender and execution of test logic

Display	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
Part number of individual components		WS04FP-313ZZ1A0ZZZ, 2121135 WE04FP-31311100ZZZ, 2124452

Safety-related parameters

MTTF_D	574 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		≤ 20 mA, without load. At U _B = 24 V
Protection class		III
Digital output		
	Number	1
	Type	Push-pull: PNP/NPN
	Switching mode	Dark switching
	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 ³⁾

¹⁾ Limit values.

²⁾ With light/dark ratio 1:1.

³⁾ 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, 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	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: ≤ 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

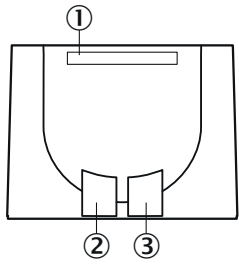
Classifications

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

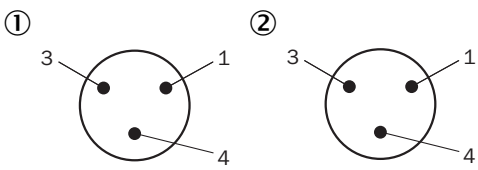
UNSPSC 16.0901

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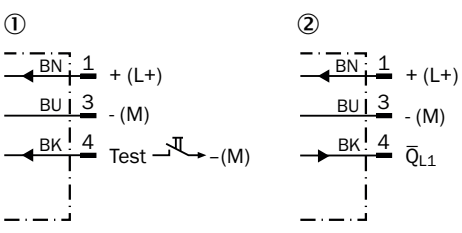
Adjustments



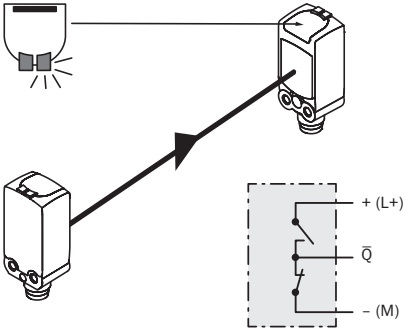
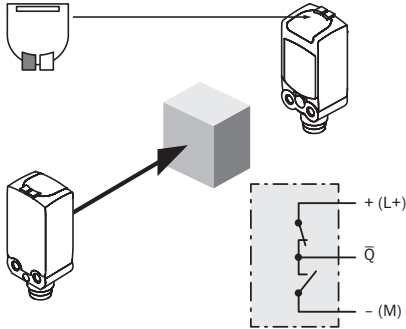
Connection type

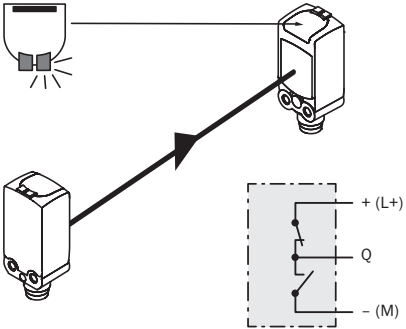
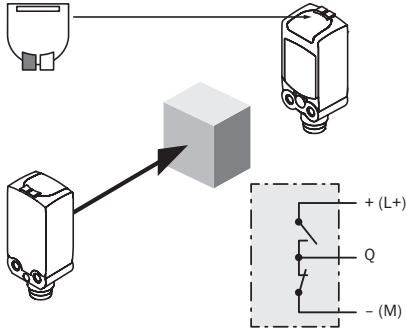


Connection diagram

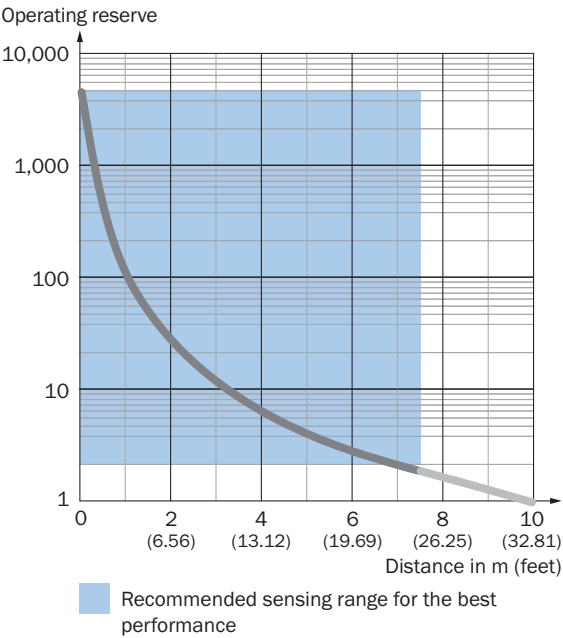


Truth table

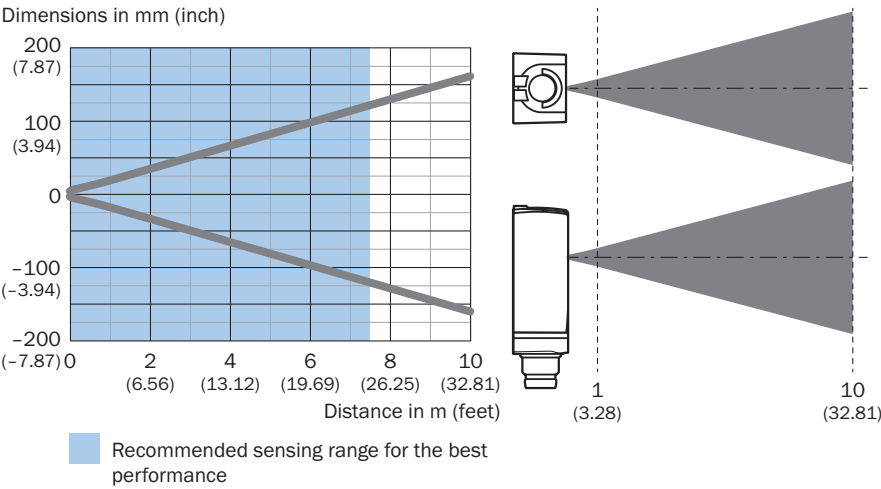
	Dark switching \bar{Q} (normally open (upper switch), normally closed (lower switch))	
	Object not present → Output LOW	Object present → Output HIGH
Light receive	✓	✗
Light receive indicator	☉	✗
Load resistance to L+	⚡	✗
Load resistance to M	✗	⚡
		

	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	⚡	✗
		

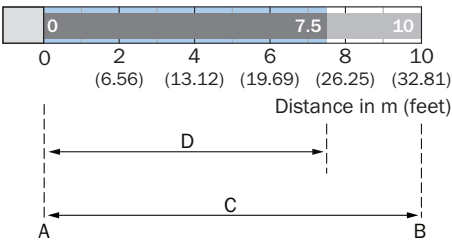
Characteristic curve



Light spot size



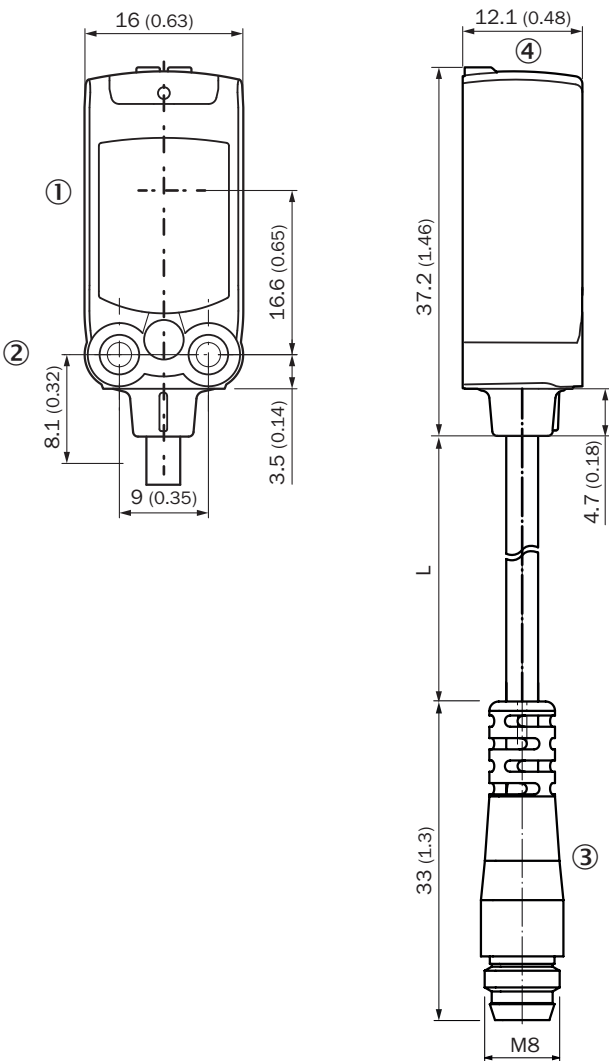
Sensing range diagram



A = Sensing range min. in m
B = Sensing range max. in m
C = Maximum distance range from receiver to sender
D = Recommended distance range from receiver to sender




Recommended sensing range for the best performance

Dimensional drawing (Dimensions in mm (inch))



Recommended accessories

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

	Brief description	Type	Part no.
Mounting brackets and plates			
	<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
Others			
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M8, 3-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 3-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals, Uncontaminated zones 	YF8U13-050VA1XLEAX	2095884
	<ul style="list-style-type: none"> • Connection type head A: Male connector, M8, 3-pin, straight, A-coded • Description: Unshielded • Connection systems: Screw-type terminals • Permitted cross-section: 0.14 mm² ... 0.5 mm² 	STE-0803-G	6037322

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