



DATA SHEET

WSE4FP-21A12100ZZZ

W4
Photoelectric sensors

SICK

Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WSE4FP-21A12100ZZZ

ORDERING INFORMATION

Type	part no.
WSE4FP-21A12100ZZZ	1149136

Further device versions and accessories at 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 T _u = +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
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	WSO4FP-213ZZ1A0ZZZ, 2121131 WEO4FP-21A12100ZZZ, 2147408

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 Type Switching mode Signal voltage PNP HIGH/LOW Output current I_{max.} Circuit protection outputs Response time Switching frequency
Pin/Wire assignment, sender	1 PNP Light switching Approx. U _B -2.5 V / 0 V ≤ 100 mA Reverse polarity protected Overcurrent protected Short-circuit protected ≤ 500 μs 1,000 Hz ²⁾
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 Q̅ LOW

¹⁾ Limit values.²⁾ With light/dark ratio 1:1.

MECHANICS

Housing	Rectangular
Design detail	Flat
Dimensions (W x H x D)	16 mm x 40.1 mm x 12.1 mm
Connection	Connector M8, 3-pin
Material	Housing Front screen Male connector
	Plastic, VISTAL® Plastic, PMMA Plastic, VISTAL®
Weight	Approx. 30 g
Maximum tightening torque of the fixing screws	0.4 Nm

AMBIENT DATA

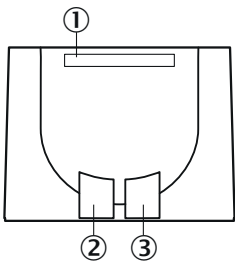
Enclosure rating	IP66 (EN 60529) IP67 (EN 60529)
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
Typ. Ambient light immunity	Artificial light: ≤ 15,000 lx Sunlight: ≤ 50,000 lx
Shock resistance	30 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z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

CERTIFICATES

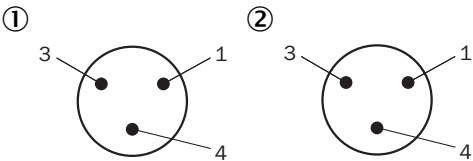
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

DISPLAY AND ADJUSTMENT ELEMENTS



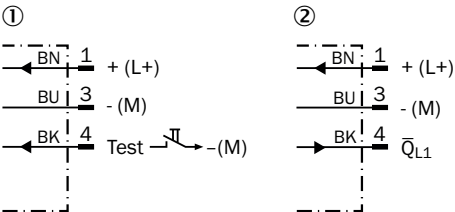
- ① LED blue
- ② LED green
- ③ LED yellow

CONNECTION TYPE CONNECTOR M8, 3-PIN



- ① sender
- ② receiver

CONNECTION DIAGRAM CD-517

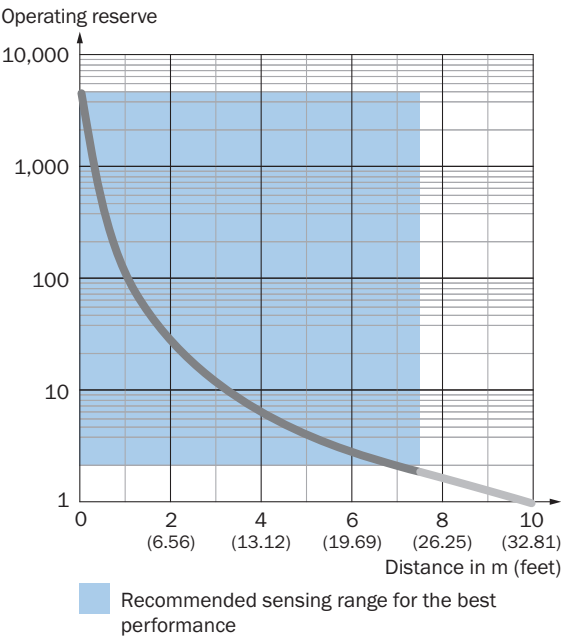


- ① sender
- ② receiver

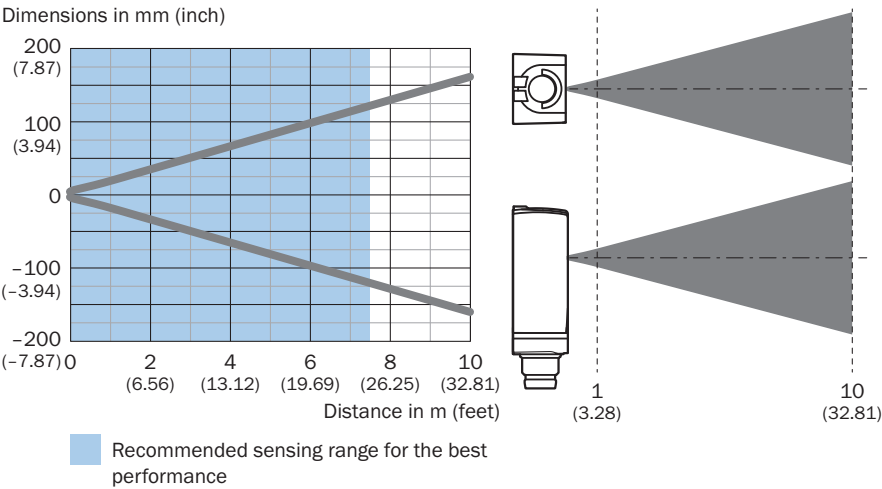
TRUTH TABLE PNP - LIGHT SWITCHING

	Light switching 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 M	✗	⚡

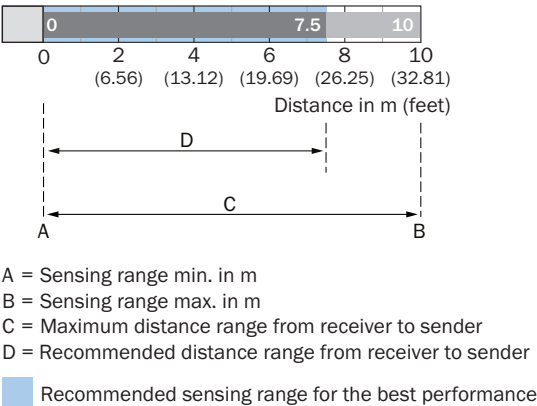
CHARACTERISTIC CURVE

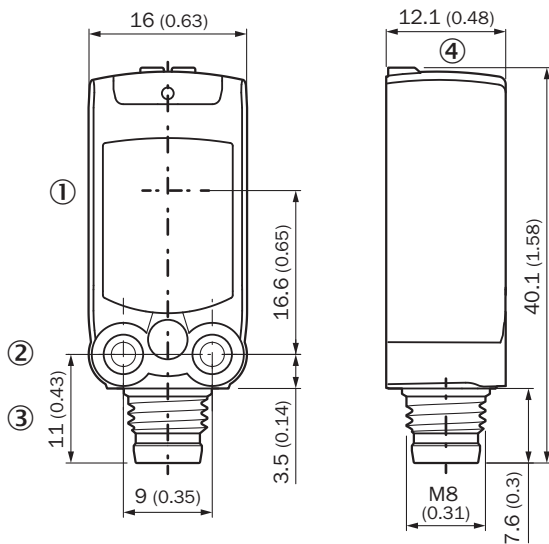


LIGHT SPOT SIZE



SENSING RANGE DIAGRAM



DIMENSIONAL DRAWING

Dimensions in mm (inch)

- ① Center of optical axis
- ② M3 mounting hole
- ③ Connection
- ④ display and adjustment elements

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1149136



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SICK AT A GLANCE

SICK is a leading global technology company for intelligent sensors and integrated solutions in industrial automation. Our technologies set benchmarks, making your industrial processes more efficient, safer and more sustainable – both in logistics and manufacturing operations.

SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

Since 1946, we have been developing innovative technologies with passion and a pioneering spirit. With a global network in around 40 countries, SICK has a global presence and is always close by. The company's headquarters are located in Waldkirch near Freiburg, Germany. Our customers benefit from our understanding of both local and global requirements, which enables us to deliver tailor-made solutions

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