



WSE4SP-21312100ZZZ

W4

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
WSE4SP-21312100ZZZ	1140381

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

Illustration may differ



Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor	
Sensing range		
Sensing range min.	0 m	
Sensing range max.	12 m	
Maximum distance range from receiver to sender (operating reserve 1)	0 m ... 12 m	
Recommended distance range from receiver to sender (operating reserve 2)	0 m ... 9 m	
Recommended sensing range for the best performance	0 m ... 9 m	
Emitted beam		
Light source	PinPoint LED	
Type of light	Visible red light	
Shape of light spot	Point-shaped	
Light spot size (distance)	60 mm (2 m)	
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		
None	-	
Display		
LED blue	BluePilot: Alignment aid	
LED green	Operating indicatorStatic on: power on	

	LED yellow	Status of received light beam Static on: object not present Static off: object present Flashing: Below the 1.5 function reserve
Special applications	Detection of poorly remitting and tilted objects	
Part number of individual components	WS04SP-213ZZ1A0ZZZ, 2139776 WE04SP-21312100ZZZ, 2139806	

Safety-related parameters

MTTF_D	1,219 years
DC_{avg}	0%

Electronics

Supply voltage U_B	10 V DC ... 30 V DC ¹⁾	
Ripple	$\leq 5 \text{ V}_{\text{pp}}$	
Usage category	DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)	
Current consumption	$\leq 20 \text{ mA}$, without load. At U _B = 24 V	
Protection class	III	
Digital output		
Number	1	
Type	Push-pull: PNP/NPN	
Switching mode	Light 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.}	$\leq 100 \text{ mA}$	
Circuit protection outputs	Reverse polarity protected	
	Overcurrent protected	
	Short-circuit protected	
Response time	$\leq 500 \text{ }\mu\text{s}$	
Repeatability (response time)	150 μs	
Switching frequency	1,000 Hz	
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, light switching, object present \rightarrow output Q LOW ²⁾	

¹⁾ Limit values.²⁾ This switching output must not be connected to another output.

Mechanics

Housing	Rectangular	
Design detail	Slim	
Dimensions (W x H x D)	12.1 mm x 41.9 mm x 18.6 mm	
Connection	Connector M8, 3-pin	
Material		
Housing	Plastic, VISTAL®	
Front screen	Plastic, PMMA	

Male connector	Plastic, VISTAL®
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

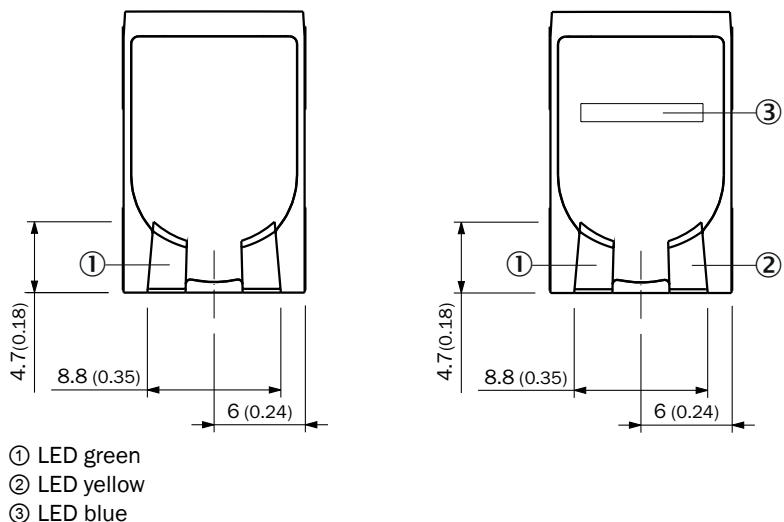
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cULus certificate	✓

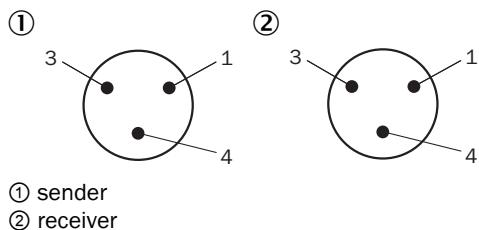
Classifications

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	39121528

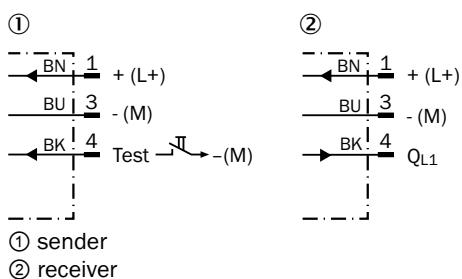
display and adjustment elements



Connection type Connector M8, 3-pin



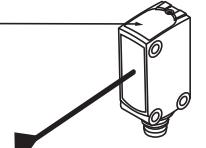
Connection diagram Cd-518

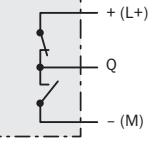


Truth table Push-pull: PNP/NPN - light switching Q

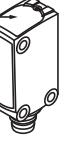
Light switching Q (normally closed (upper switch), normally open (lower switch))		
	Object not present → Output HIGH	Object present → Output LOW
Light receive	✓	✗
Light receive indicator	💡	✗
Load resistance to L+	✗	⚡
Load resistance to M	⚡	✗

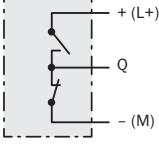




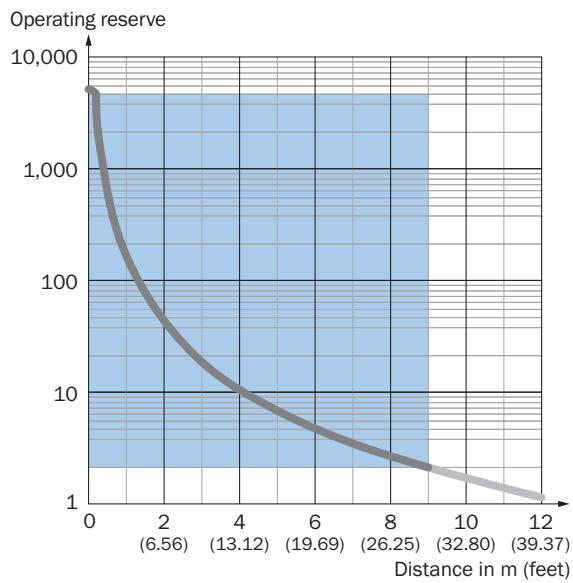




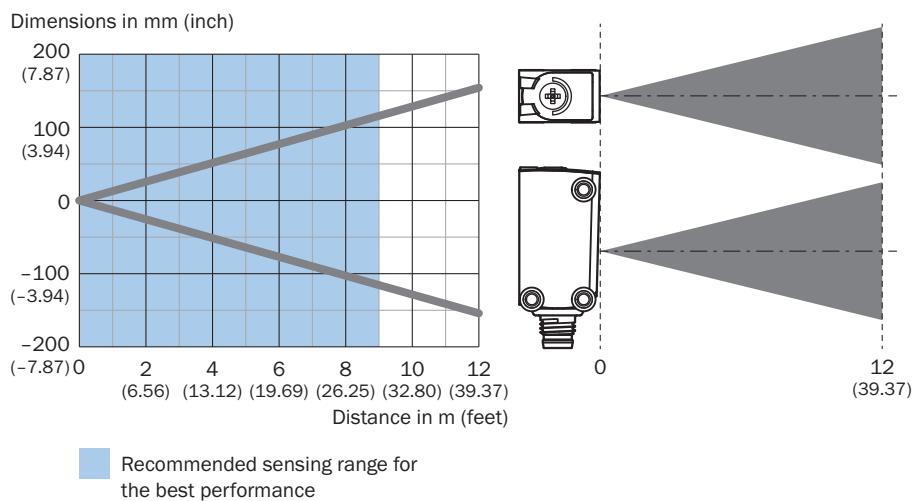




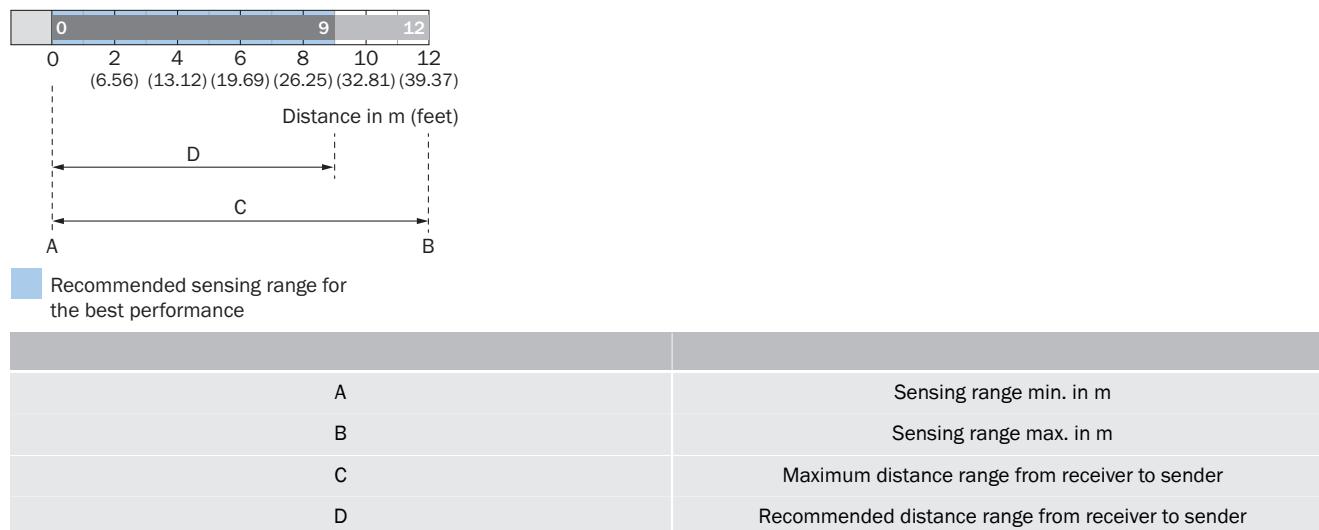
Characteristic curve



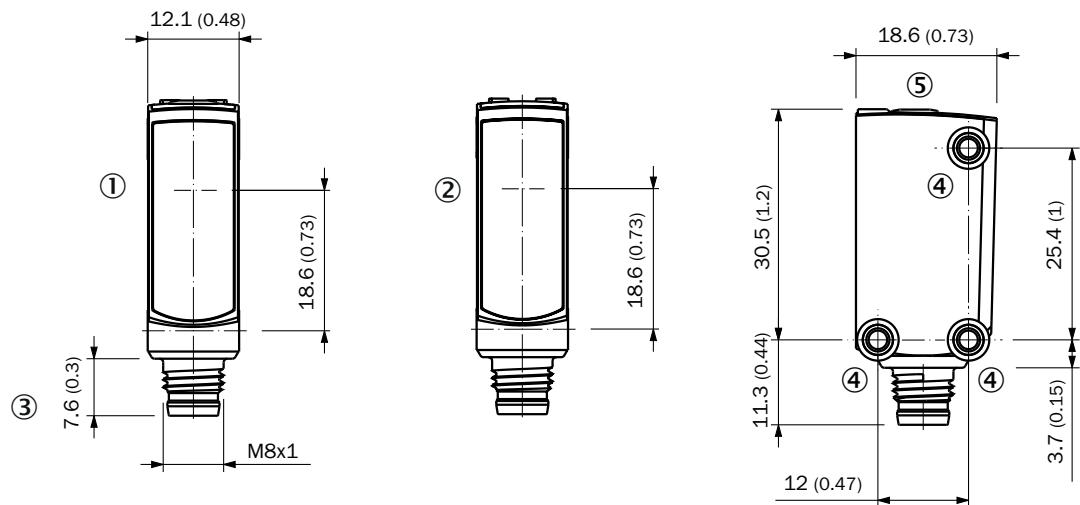
Light spot size



Sensing range diagram



Dimensional drawing, sensor



Dimensions in mm (inch)

- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Connection
- ④ M3 mounting hole
- ⑤ display and adjustment elements

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:

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