



# WSE4SP-1G311100ZZZ

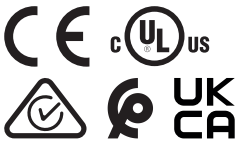
## W4

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

Type	part no.
WSE4SP-1G311100ZZZ	1140384

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

Detailed technical data

Features

<b>Functional principle</b>		Through-beam photoelectric sensor
<b>Sensing range</b>		
	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
<b>Emitted beam</b>		
	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)
<b>Key LED figures</b>		
	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
<b>Adjustment</b>		
	None	–
<b>Display</b>		

	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 Flashing: Below the 1.5 function reserve
<b>Special applications</b>		Detection of poorly remitting and tilted objects
<b>Part number of individual components</b>		WS04SP-1G3ZZ1A0ZZZ, 2139775 WE04SP-1G311100ZZZ, 2139803

## Safety-related parameters

<b>MTTF<sub>D</sub></b>	1,219 years
<b>DC<sub>avg</sub></b>	0%

## Electronics

<b>Supply voltage U<sub>B</sub></b>		10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>		≤ 5 V <sub>pp</sub>
<b>Usage category</b>		DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)
<b>Current consumption</b>		≤ 20 mA, without load. At U <sub>B</sub> = 24 V
<b>Protection class</b>		III
<b>Digital output</b>		
	Number	1
	Type	Push-pull: PNP/NPN
	Switching mode	Dark switching
	Signal voltage PNP HIGH/LOW	Approx. U <sub>B</sub> -2.5 V / 0 V
	Signal voltage NPN HIGH/LOW	Approx. U <sub>B</sub> / < 2.5 V
	Output current I <sub>max.</sub>	≤ 100 mA
	Circuit protection outputs	Reverse polarity protected Overcurrent protected Short-circuit protected
	Response time	≤ 500 μs
	Repeatability (response time)	150 μs
	Switching frequency	1,000 Hz
<b>Pin/Wire assignment, sender</b>		
	Function of pin 4/black (BK)	Input, sender off, LOW active
<b>Pin/Wire assignment, receiver</b>		
	Function of pin 4/black (BK)	Digital output, dark switching, object present → output $\bar{Q}$ HIGH <sup>2)</sup>

1) Limit values.

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

## Mechanics

<b>Housing</b>	Rectangular
<b>Design detail</b>	Slim
<b>Dimensions (W x H x D)</b>	12.1 mm x 41.9 mm x 18.6 mm

<b>Connection</b>	Cable, 3-wire, 2 m
<b>Connection detail</b>	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.14 mm <sup>2</sup>
Cable diameter	Ø 3.4 mm
Length of cable (L)	2 m
<b>Material</b>	
Housing	Plastic, VISTAL®
Front screen	Plastic, PMMA
Cable	Plastic, PVC
<b>Maximum tightening torque of the fixing screws</b>	0.4 Nm

## Ambient data

<b>Enclosure rating</b>	IP66 (EN 60529) IP67 (EN 60529)
<b>Ambient operating temperature</b>	-40 °C ... +60 °C
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C
<b>Typ. Ambient light immunity</b>	Artificial light: ≤ 15,000 lx Sunlight: ≤ 50,000 lx
<b>Shock resistance</b>	30 g, 11 ms (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27))
<b>Vibration resistance</b>	10 Hz ... 1,000 Hz (Amplitude 1 mm, 3 x 30 min (EN60068-2-6))
<b>Air humidity</b>	35 % ... 95 %, relative humidity (no condensation)
<b>Electromagnetic compatibility (EMC)</b>	EN 60947-5-2
<b>Resistance to cleaning agent</b>	ECOLAB
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493

## Certificates

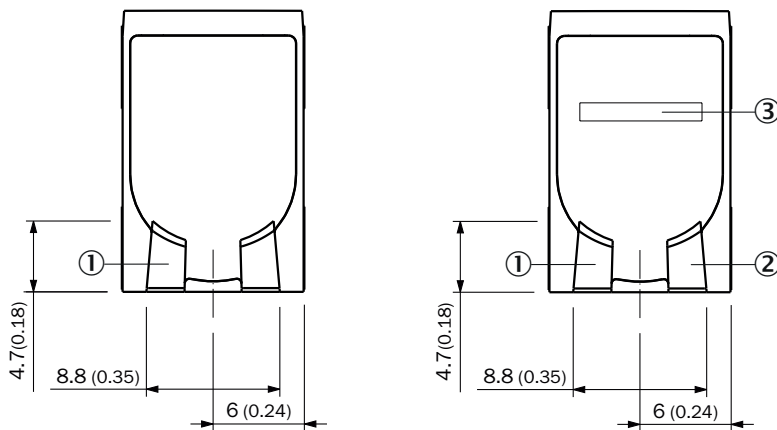
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓

## Classifications

<b>ECLASS 5.0</b>	27270901
<b>ECLASS 5.1.4</b>	27270901
<b>ECLASS 6.0</b>	27270901
<b>ECLASS 6.2</b>	27270901
<b>ECLASS 7.0</b>	27270901
<b>ECLASS 8.0</b>	27270901
<b>ECLASS 8.1</b>	27270901
<b>ECLASS 9.0</b>	27270901
<b>ECLASS 10.0</b>	27270901

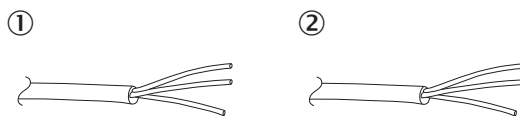
<b>ECLASS 11.0</b>	27270901
<b>ECLASS 12.0</b>	27270901
<b>ETIM 5.0</b>	EC002716
<b>ETIM 6.0</b>	EC002716
<b>ETIM 7.0</b>	EC002716
<b>ETIM 8.0</b>	EC002716
<b>UNSPSC 16.0901</b>	39121528

## display and adjustment elements



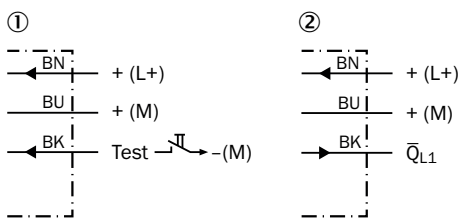
- ① LED green
- ② LED yellow
- ③ LED blue

## Connection type Cable, 3-wire



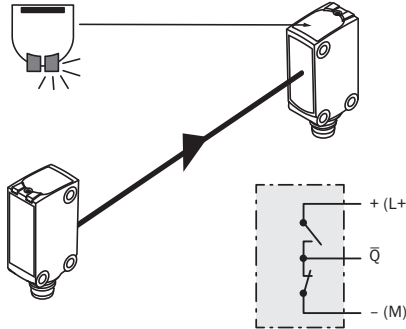
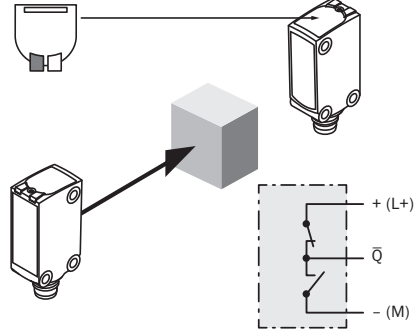
- ① sender
- ② receiver

## Connection diagram Cd-515

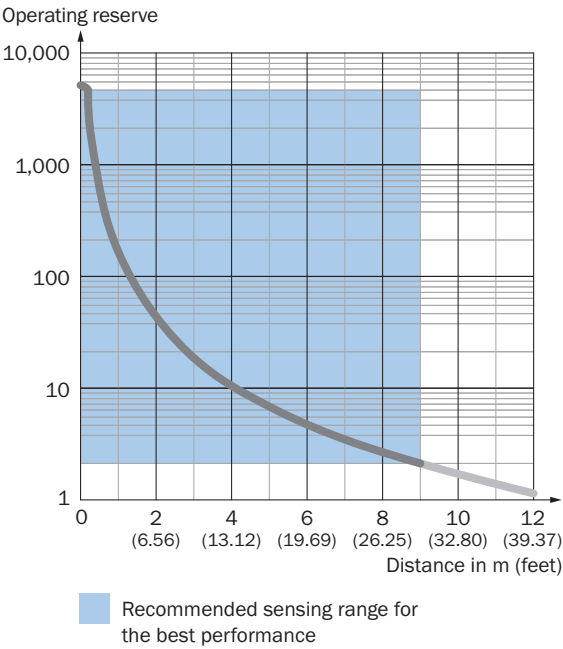


- ① sender
- ② receiver

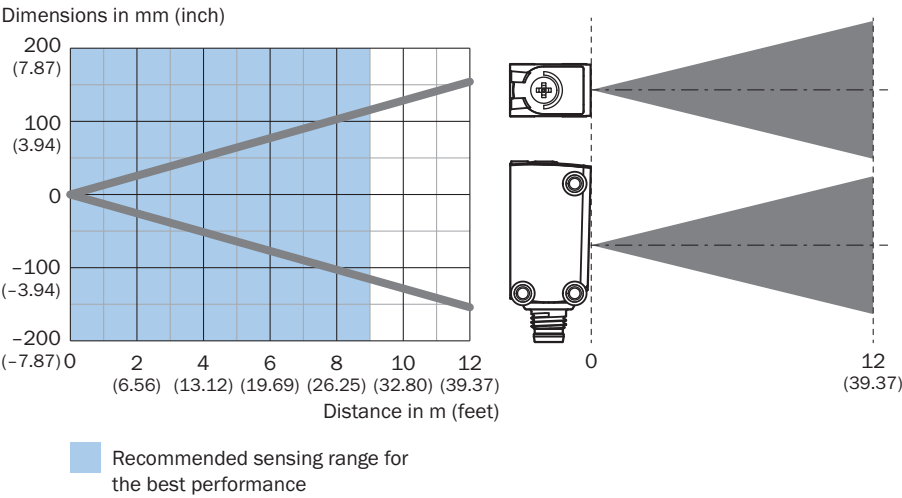
Truth table Push-pull: PNP/NPN – dark switching  $\bar{Q}$

	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	✗	⚡
		

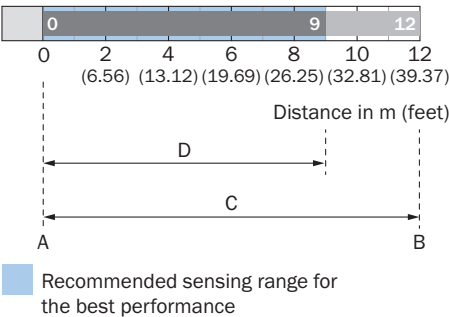
Characteristic curve



Light spot size

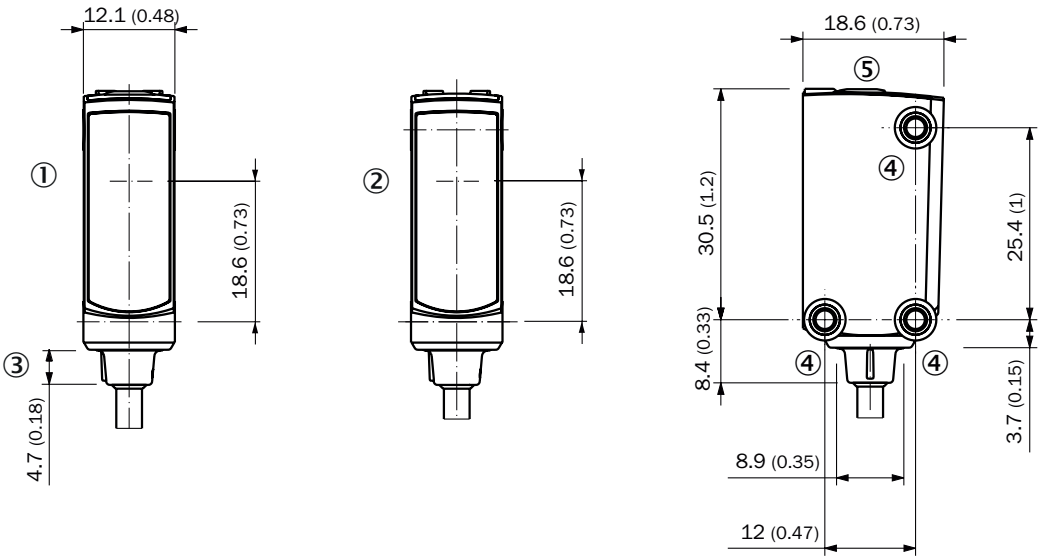


Sensing range diagram



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

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

Recommended accessories

Other models and accessories → [www.sick.com/W4](http://www.sick.com/W4)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Plate N08 for universal clamp bracket</li><li>• <b>Material:</b> Steel, zinc diecast</li><li>• <b>Details:</b> Zinc plated steel (sheet), Zinc die cast (clamping bracket)</li><li>• <b>Items supplied:</b> Universal clamp (5322626), mounting hardware</li><li>• <b>Usable for:</b> W100, W150, W4S, W4F, W8, W9-3, W8G, W8 Laser, W8 Inox, G6, W100 Laser, W100-2, W10, G6 Inox, RAY10, W4SLG-3, W9, GR18, MultiPulse, Reflex Array, MultiLine, LUT3, KT5, KT8, KT10, CS8</li></ul>	BEF-KHS-N08	2051607
	<ul style="list-style-type: none"><li>• <b>Material:</b> Stainless steel</li><li>• <b>Details:</b> Stainless steel (1.4301)</li><li>• <b>Suitable for:</b> W4S, W4S</li></ul>	BEF-WN-G6	2062909
connectors and cables			
	<ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Male connector, M8, 3-pin, straight, A-coded</li><li>• <b>Description:</b> Unshielded</li><li>• <b>Connection systems:</b> Screw-type terminals</li><li>• <b>Permitted cross-section:</b> 0.14 mm² ... 0.5 mm²</li></ul>	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](http://www.sick.com)