



WSE4FP-6G312100ZZZ

W4

MINIATURE PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ

Ordering information

| Type | Part no. |
|--------------------|----------|
| WSE4FP-6G312100ZZZ | 1123899 |

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 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 |
| Part number of individual components | | WS04FP-6G3ZZ1A0ZZZ, 2126119 WE04FP-6G312100ZZZ, 2126124 |

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 |
| | 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.} | ≤ 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, light switching, object present → output Q LOW ³⁾ | |

¹⁾ Limit values.

²⁾ With light/dark ratio 1:1.

³⁾ This switching output must not be connected to another output.

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, 3-wire, 5 m |
| 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) | 5 m |
| Material | |
| Housing | Plastic, VISTAL® |
| Front screen | Plastic, PMMA |
| Cable | Plastic, PVC |
| 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 |

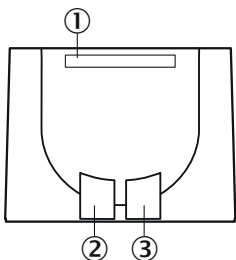
Classifications

| | |
|---------------------|----------|
| 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 | 39121528 |

Adjustments

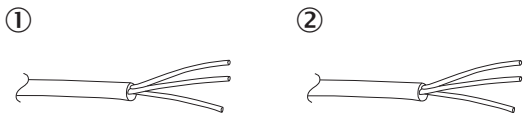
Display and adjustment elements



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

Connection type

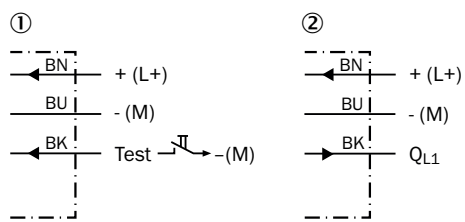
Cable, 3-wire



- ① Sender
- ② Receiver

Connection diagram

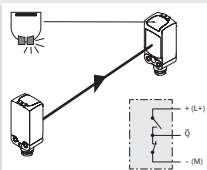
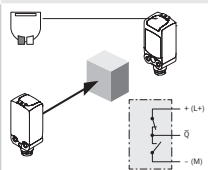
Cd-519



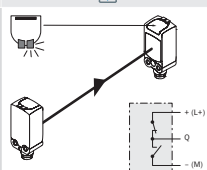
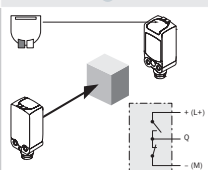
- ① Sender
- ② Receiver

Truth table

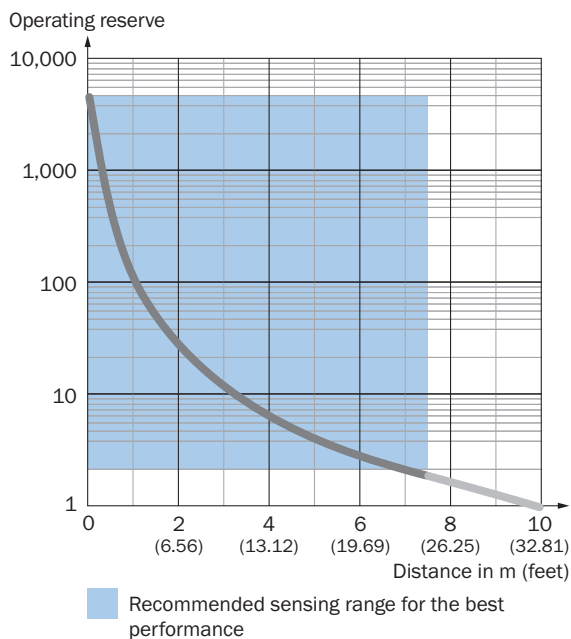
Push-pull: PNP/NPN – dark switching \bar{Q}

| | 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 | ✗ | ⚠ |
| |  |  |

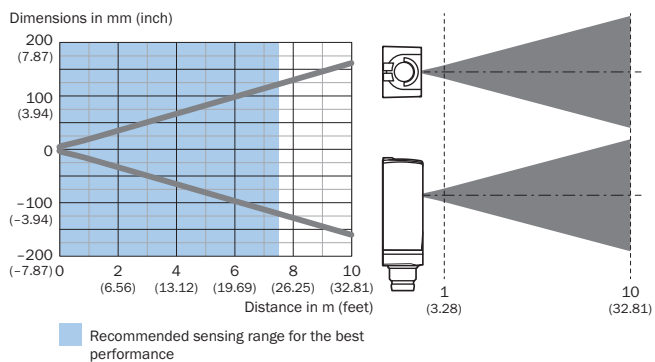
Push-pull: PNP/NPN - light switching Q

| | 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 | ⚠ | ✗ |
| |  |  |

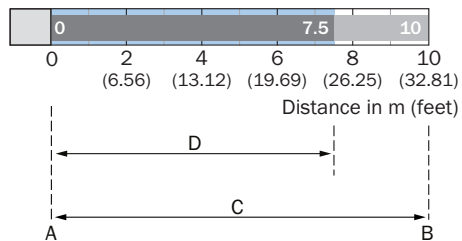
Characteristic curve



Light spot size



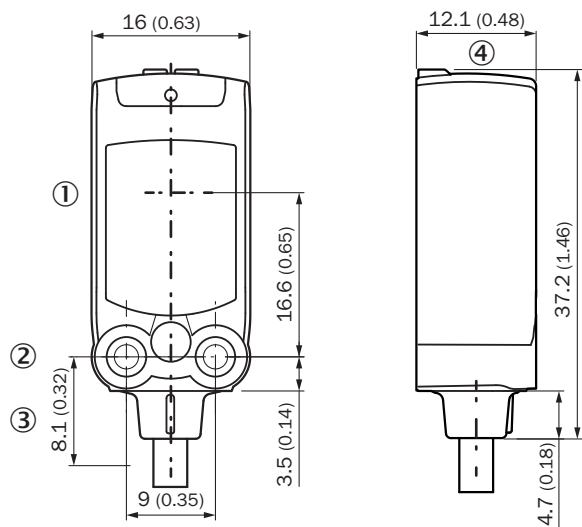
Sensing range diagram



- 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))



- ① Center of optical axis
- ② M3 mounting hole
- ③ Connection
- 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 |
| Others | | | |
|  | <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 |

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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.”

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