



Photoelectric sensors
W2S-2, Photoelectric proximity sensor,
Background suppression

WTV2S-2P3220



Model Name > [WTV2S-2P3220](#)
Part No. > [1064661](#)



Illustration may differ

At a glance

- Laser-like, clearly visible light spot
- PinPoint 2.0 LED
- Background suppression that is immune to optical interference
- Rugged housing design
- Established and proven housing design

Your benefits

- Reliable detection of flat, transparent and highly-reflective objects without a reflector
- Space-saving integration in compact machines where space is limited
- Increased productivity due to highly repeatable switching points
- Consistent detection of wafers, displays and foil in all production steps
- High reliability and long-term use in grippers thanks to flexible and rugged cable entry



Features

| | |
|----------------------------------|--|
| Sensor/detection principle: | Photoelectric proximity sensor, Background suppression |
| Dimensions (W x H x D): | 7.7 mm x 21.8 mm x 13.5 mm |
| Housing design (light emission): | Rectangular |
| Sensing range max.: | 1 mm ... 36 mm ¹⁾ |
| Sensing range: | 4 mm ... 30 mm ²⁾ |
| Type of light: | Visible red light |
| Light source: | PinPoint LED ³⁾ |
| Wave length: | 640 nm |
| Special features: | V-optics |
| Light spot size (distance): | Ø 2 mm (15 mm) |

^{1) 2)} Object with 90 % reflectance (referred to standard white, DIN 5033) ³⁾ Average service life of 100,000 h at T_A = +25 °C

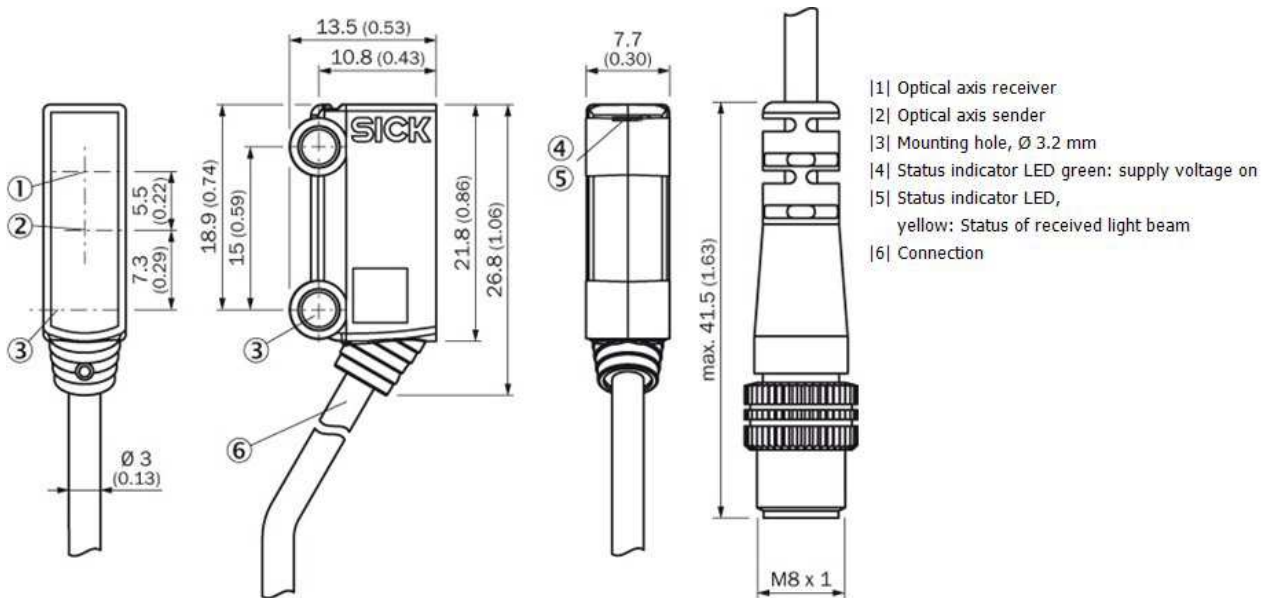
Mechanics/electronics

| | |
|------------------------------------|-----------------------------------|
| Supply voltage: | 10 V DC ... 30 V DC ¹⁾ |
| Ripple: | ≤ 5 Vpp ²⁾ |
| Power consumption: | ≤ 20 mA ³⁾ |
| Output type: | PNP |
| Switching mode: | Light/dark switching |
| Output current I _{max.} : | < 50 mA |

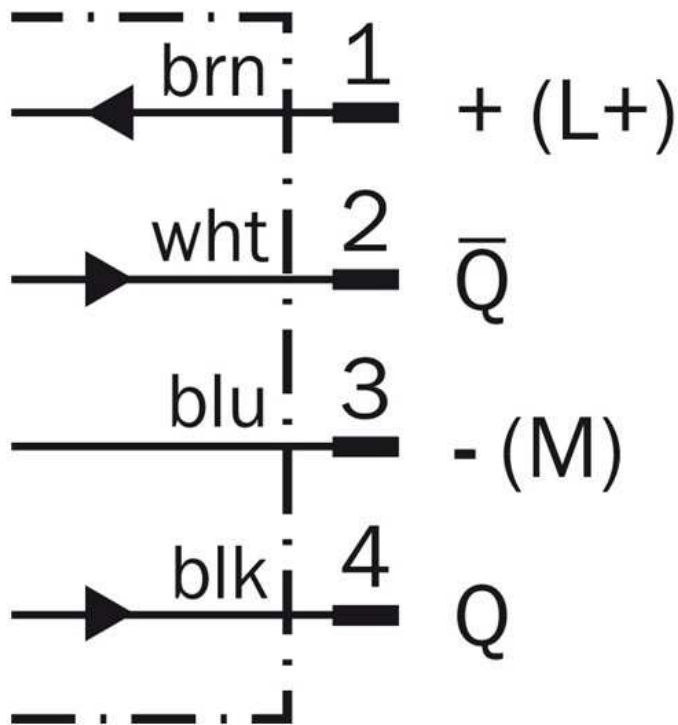
| | |
|--------------------------------|--|
| Response time: | < 0.5 ms ⁴⁾ |
| Switching frequency: | 1,000 Hz ⁵⁾ |
| Connection type: | Cable with connector M8, 4-pin, 200 mm ⁶⁾ |
| Cable material: | PVC |
| Cable diameter: | Ø 3 mm |
| Circuit protection::: | A, B, D ^{7) 8) 9)} |
| IO-Link: | - |
| Optics material: | PMMA |
| Enclosure rating: | IP 67 |
| Special feature: | V-optics |
| Ambient temperature operation: | -25 °C ... +50 °C |
| Ambient storage temperature: | -40 °C ... +75 °C |
| UL File No.: | NRKH.E181493 |
| Housing material: | ABS/PC, Plastic |

1) Limit values 2) May not exceed or fall short of V_S tolerances 3) Without load 4) Signal transit time with resistive load 5) With light/dark ratio 1:1 6) Do not bend below 0 °C 7) A = V_S connections reverse-polarity protected 8) B = output reverse-polarity protected 9) D = outputs overcurrent and short-circuit protected

Dimensional drawing

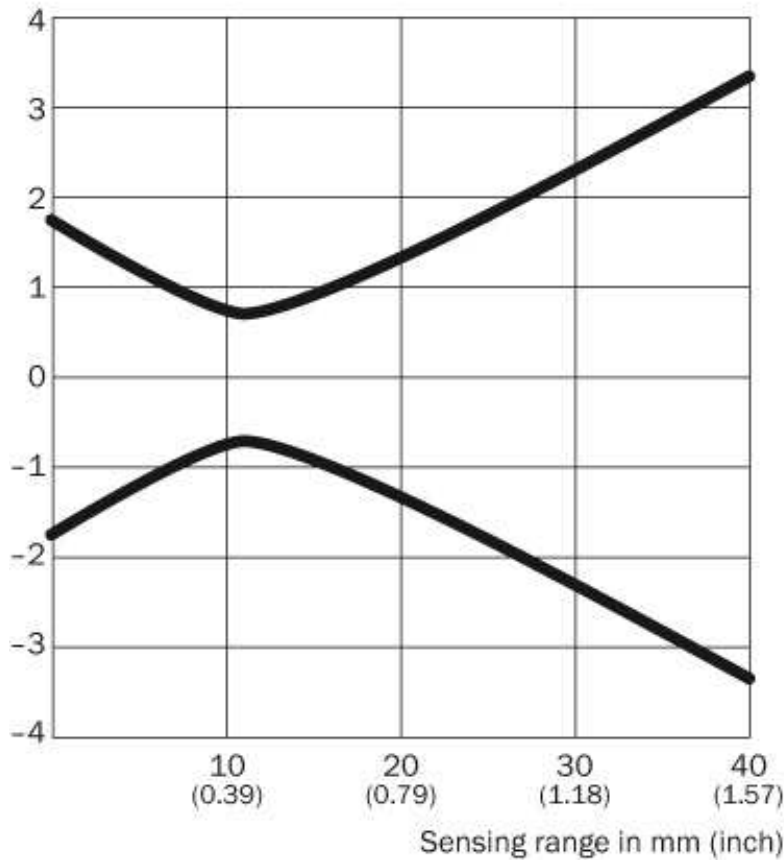


Connection diagram



Light spot size

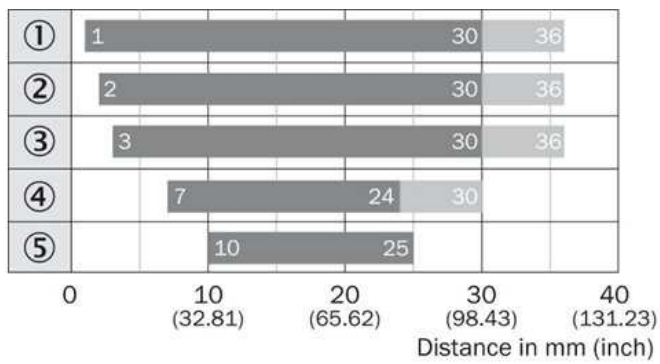
Spot diameter in mm (inch)



Dimensions in mm (inch)

| Sensing range | Spot diameter |
|---------------------|---------------|
| 10 (0.39) | 1.5 (0.06) |
| 20 (0.79) | 2.6 (0.10) |
| 30 (1.18) | 4.6 (0.18) |
| 40 (1.57) | 6.6 (0.26) |

Sensing range diagram



■ Sensing range ■ Sensing range max. typ.

- ① Sensing range on white, 90 % remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on black, 6 % remission
- ④ Sensing range on ultra black, 1 % remission
- ⑤ Sensing range on reflective and transparent surfaces¹⁾

¹⁾ Best detection of reflective and transparent surfaces within a tilt angle of $< +/- 10^\circ$

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