



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

WTB2S-2P3151S22



Type > [WTB2S-2P3151S22](#)  
Part No. > [1069138](#)



Illustration may differ

**At a glance**

- Sensing ranges of up to 150 mm
- Almost no black/white shift up to 60 mm
- Sensor with line-shaped light spot
- Sensor with laser-like focused light spots
- Precise background suppression that is immune to interference/crosstalk
- High-performance PinPoint 2.0 LED

**Your benefits**

- An ultra-compact design with the performance of large photoelectric proximity sensors offers new space-saving machine construction possibilities.
- Large variety of proximity sensors and operating concepts enable a wide range of application options
- Use in confined spaces: detection of small, flat parts thanks to high-quality background suppression and almost nonexistent black/white shift
- Remote access: models with IO-Link allow data to be easily accessed from the PLC
- High availability 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 27.5 mm x 13.5 mm
Housing design (light emission):	Rectangular
Sensing range max.:	1 mm ... 150 mm <sup>1)</sup>
Sensing range:	18 mm ... 110 mm <sup>2)</sup>
Type of light:	Visible red light
Light source:	PinPoint LED <sup>3)</sup>
Wave length:	640 nm
Adjustment:	Potentiometer, 3 turns
Light spot size (distance):	X Ø 3.5 mm (50 mm)

<sup>1) 2)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033) <sup>3)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C

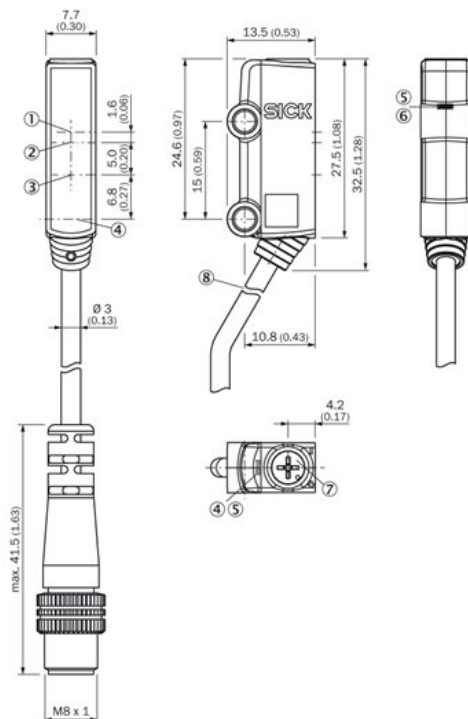
**Mechanics/electronics**

Supply voltage:	10 V DC ... 30 V DC <sup>1)</sup>
Ripple:	≤ 5 Vpp <sup>2)</sup>
Current consumption:	≤ 20 mA <sup>3)</sup>

Output type:	PNP
Switching mode:	Light switching
Output current I <sub>max.</sub> :	< 50 mA
Response time:	< 0.5 ms <sup>4)</sup>
Switching frequency:	1,000 Hz <sup>5)</sup>
Connection type:	Cable with connector M8, 3-pin, 700 mm <sup>6)</sup>
Cable material:	PVC
Cable diameter:	Ø 3 mm
Circuit protection:::	A, B, D <sup>7) 8) 9)</sup>
IO-Link:	-
Special device:	✓
Optics material:	PMMA
Enclosure rating:	IP 67
Ambient operating temperature:	-25 °C ... +50 °C
Ambient storage temperature:	-40 °C ... +75 °C
UL File No.:	NRKH.E181493
Housing material:	ABS/PC, Plastic

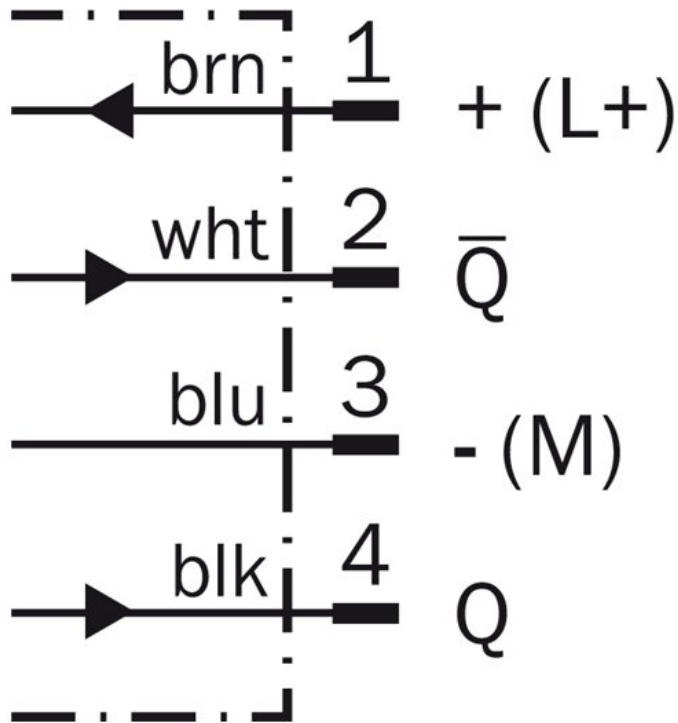
1) Limit values 2) May not exceed or fall below U<sub>v</sub> tolerances 3) Without load 4) Signal transit time with resistive load 5) With light/dark ratio 1:1 6) Do not bend below 0 °C 7) A = V<sub>S</sub> connections reverse-polarity protected 8) B = output reverse-polarity protected 9) D = outputs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

## Dimensional drawing

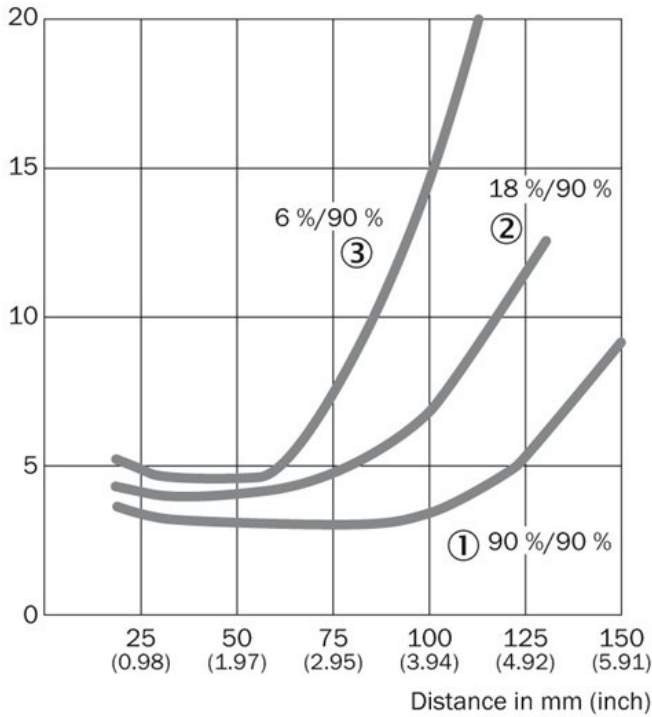


- [1] Optical axis, receiver (sensing range min.)
- [2] Optical axis, receiver (sensing range max.)
- [3] Optical axis, sender
- [4] Fixing hole ø 3.2 mm
- [5] Status indicator LED green: supply voltage on
- [6] Status indicator LED, yellow: Status of received light beam
- [7] Sensing range adjustment: potentiometer, 3 turns
- [8] Connection

Connection diagram



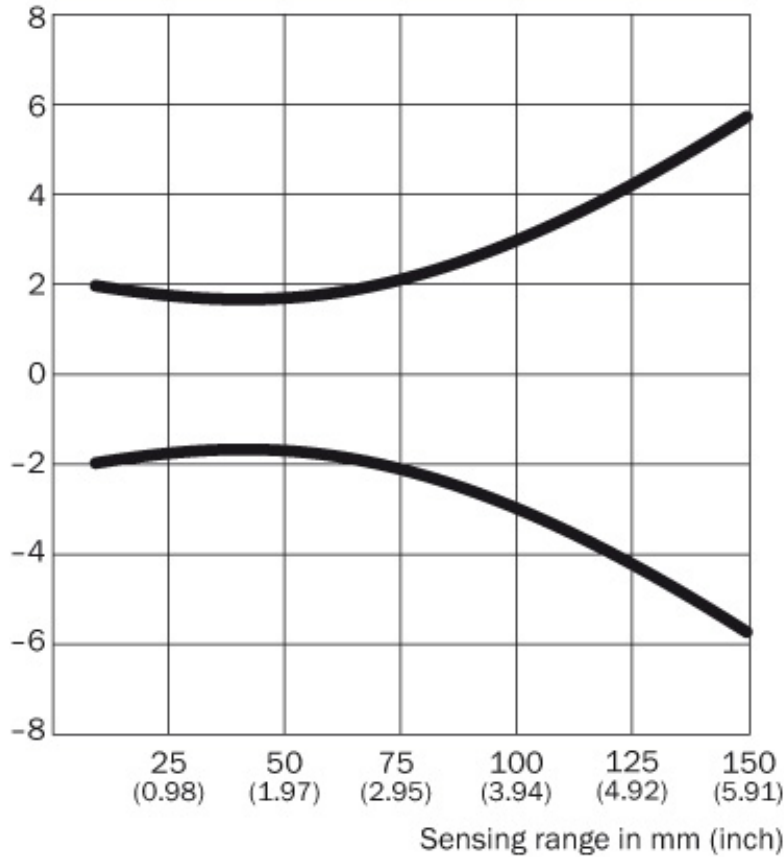
Characteristic curve



- [1] Sensing range on white, 90 % remission
- [2] Sensing range on gray, 18 % remission
- [3] Sensing range on black, 6 % remission

**Light spot size**

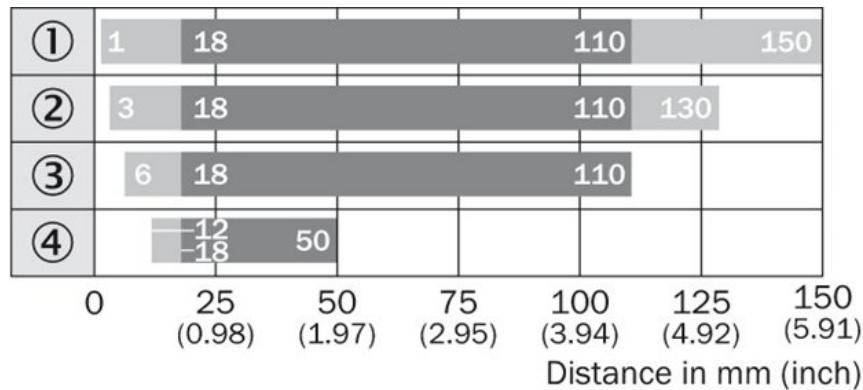
Spot diameter in mm (inch)



**Dimensions in mm (inch)**

Sensing range	Spot diameter
<b>10</b> (0.39)	4.0 (0.16)
<b>20</b> (0.79)	3.7 (0.15)
<b>40</b> (1.57)	3.4 (0.13)
<b>80</b> (3.15)	4.4 (0.17)
<b>120</b> (4.72)	8.0 (0.31)
<b>150</b> (5.91)	11.5 (0.45)

**Sensing range diagram**



- [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 ultrablack, 1 % remission

■ Sensing range      ■ Sensing range max.

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