

ONLINE DATA SHEET
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Photoelectric sensors
W2S-2, Photoelectric proximity sensor, Background suppression

WTB2S-2P3151S22



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W2S-2, Photoelectric proximity sensor, Background suppression

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 [1)]
Sensing range:	18 mm ... 110 mm [2)]
Type of light:	Visible red light
Light source:	PinPoint LED [3)]
Wave length:	640 nm
Adjustment:	Potentiometer, 3 turns
Light spot size (distance):	X Ø 3.5 mm (50 mm)

[1)] [2)] Object with 90 % reflectance (referred to standard white, DIN 5033) [3)] Average service life: 100,000 h at T_U = +25 °C

Mechanics/electronics

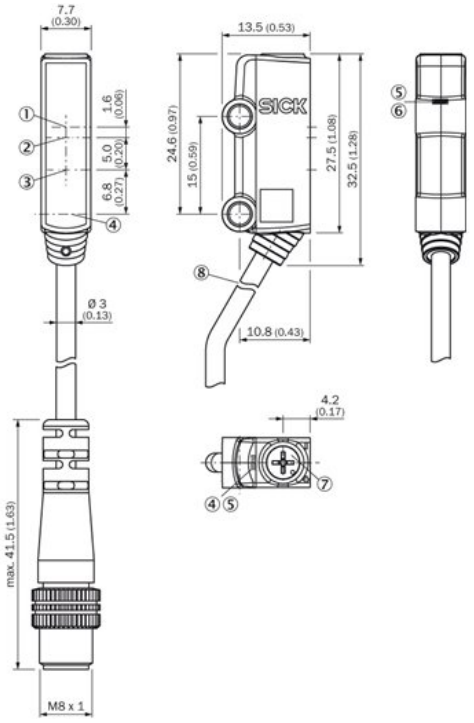
Supply voltage:	10 V DC ... 30 V DC [1)]
Ripple:	≤ 5 Vpp [2)]
Current consumption:	≤ 20 mA [3)]

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Output type:	PNP
Switching mode:	Light switching
Output current Imax.:	< 50 mA
Response time:	< 0.5 ms [4]
Switching frequency:	1,000 Hz [5]
Connection type:	Cable with connector M8, 3-pin, 700 mm [6]
Cable material:	PVC
Cable diameter:	Ø 3 mm
Circuit protection:::	A, B, D [7] [8] [9]
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_V 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

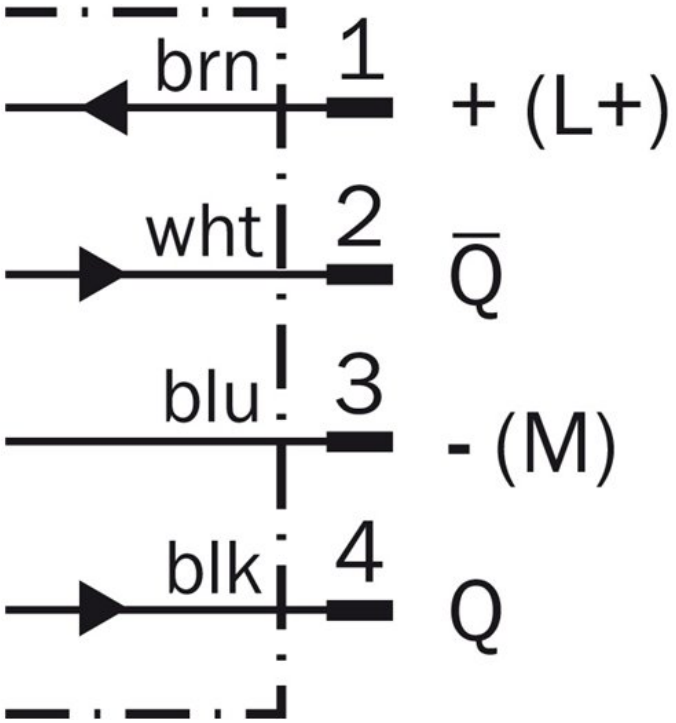
Dimensional drawing



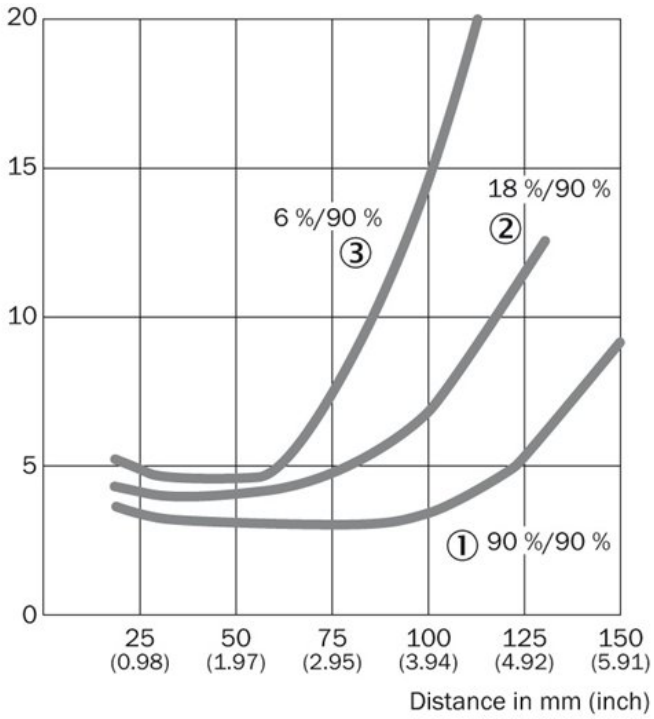
|1| Optical axis, receiver (sensing range min.)
|2| Optical axis, receiver (sensing range max.)
|3| Optical axis, sender
|4| Fixing hole ø 3.2 mm
|5| Status indicator LED green: supply voltage on
|6| Status indicator LED,
yellow: Status of received light beam
|7| Sensing range adjustment: potentiometer,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

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Connection diagram



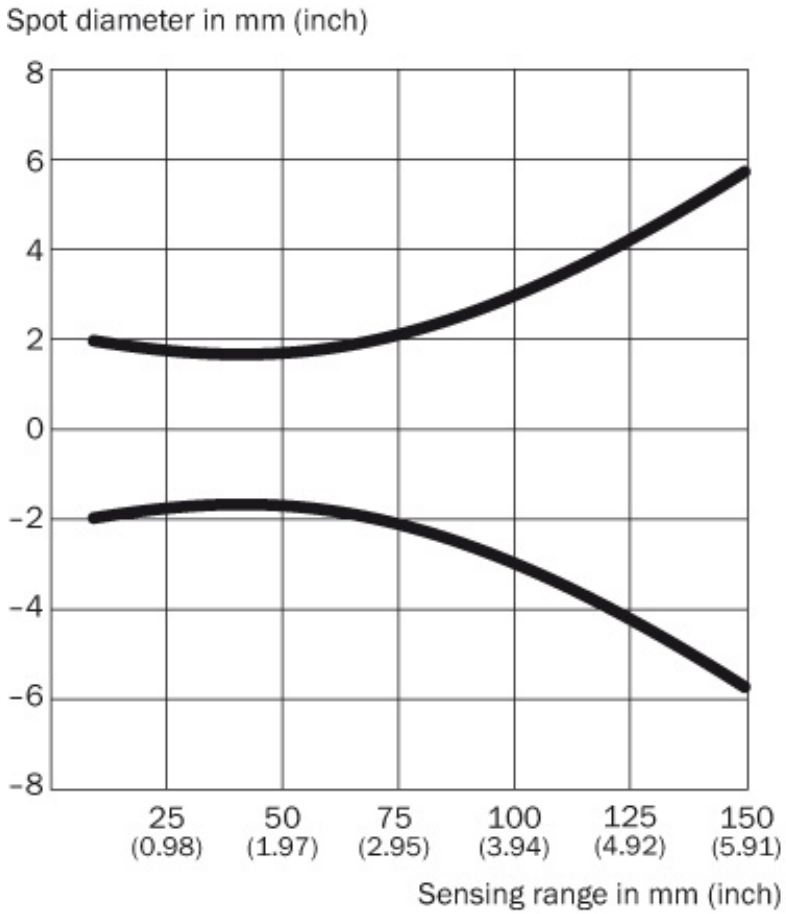
Characteristic curve



|1| Sensing range on white, 90 % remission
|2| Sensing range on gray, 18 % remission
|3| Sensing range on black, 6 % remission

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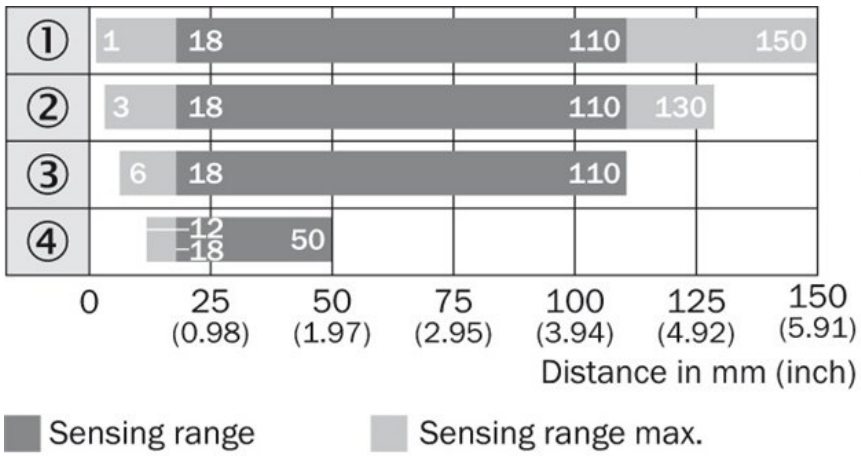
Light spot size



Dimensions in mm (inch)

Sensing range	Spot diameter
10 (0.39)	4.0 (0.16)
20 (0.79)	3.7 (0.15)
40 (1.57)	3.4 (0.13)
80 (3.15)	4.4 (0.17)
120 (4.72)	8.0 (0.31)
150 (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

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