



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

WTV2S-2N1120



Model Name > [WTV2S-2N1120](#)
Part No. > [1066109](#)



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

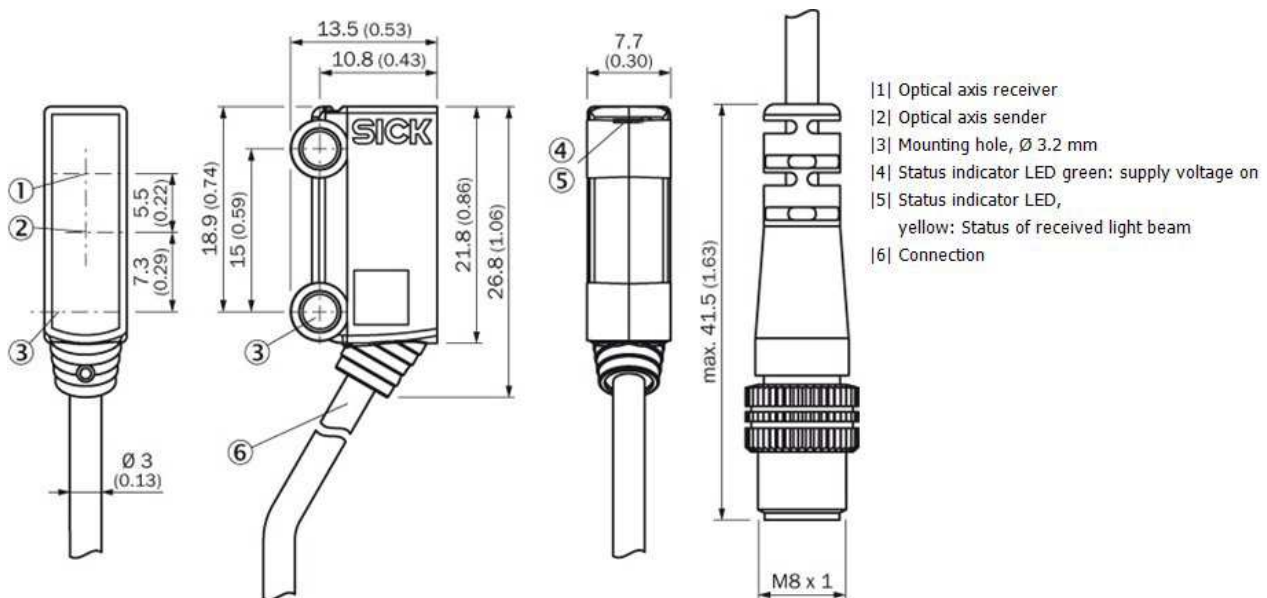
Mechanics/electronics

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

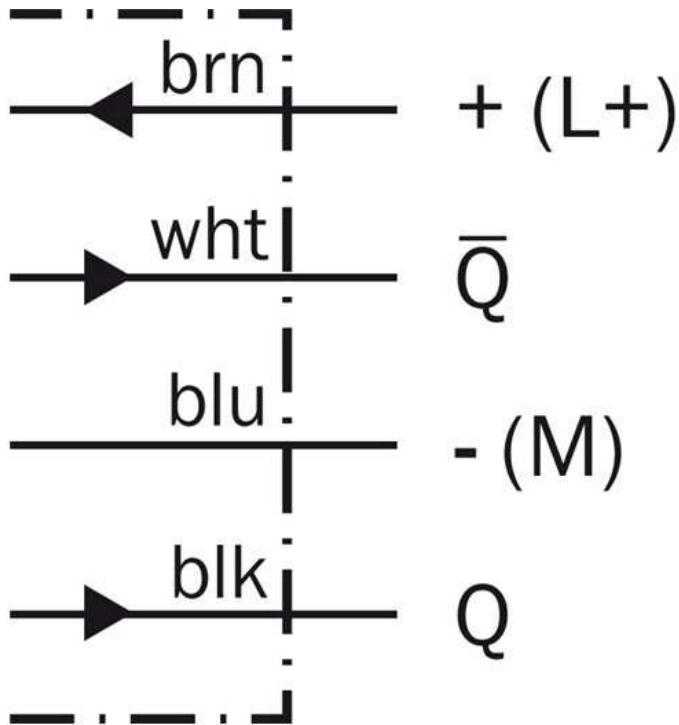
Response time:	< 0.5 ms ⁴⁾
Switching frequency:	1,000 Hz ⁵⁾
Connection type:	Cable, 4-wire, 2 m ⁶⁾
Cable material:	PVC
Cable diameter:	Ø 3 mm
Circuit protection:::	A, B, D ⁷⁾ ⁸⁾ ⁹⁾
IO-Link:	-
Optics material:	PMMA
Enclosure rating:	IP 67
Special feature:	V-optics
Ambient temperature operation:	-25 °C ... +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 connections reverse-polarity protected 8) B = output reverse-polarity protected 9) D = outputs overcurrent and short-circuit protected

Dimensional drawing

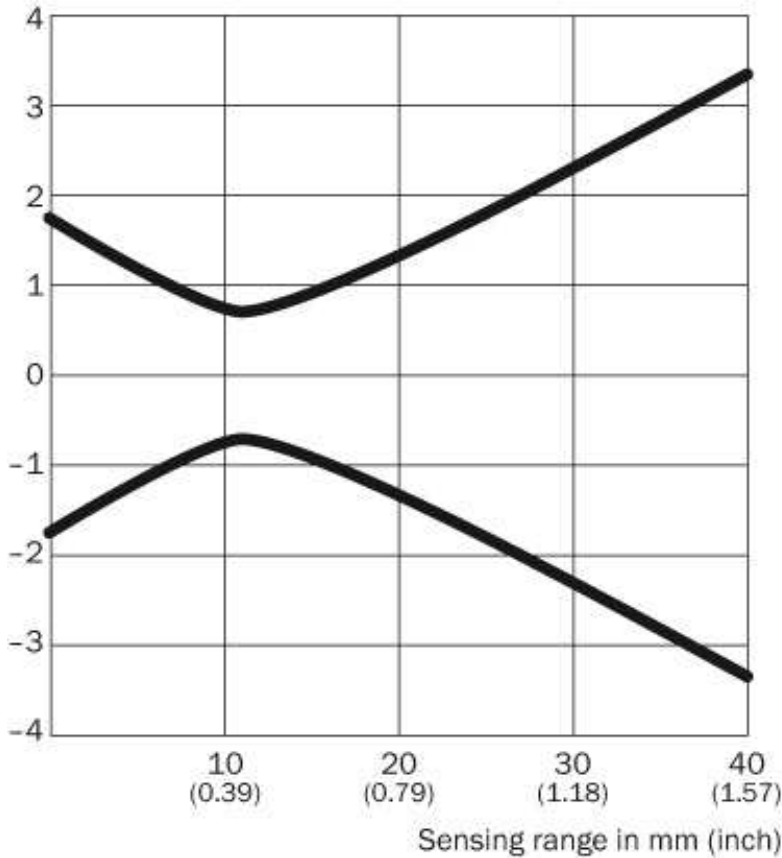


Connection diagram



Light spot size

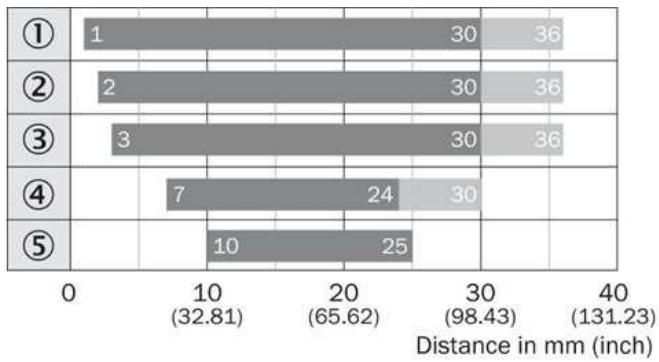
Spot diameter in mm (inch)



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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