



DATA SHEET

WTB26P-39721122ZZZ

W26
Photoelectric sensors

SICK Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

WTB26P-39721122ZZZ

ORDERING INFORMATION

Type	part no.
WTB26P-39721122ZZZ	1222804

Further device versions and accessories at www.sick.com/W26



DETAILED TECHNICAL DATA

FEATURES

Functional principle	Photoelectric proximity sensor
Functional principle detail	Background suppression
Sensing range	
Sensing range min.	30 mm
Sensing range max.	1,600 mm
Adjustable switching threshold for background suppression	180 mm ... 1,600 mm
Reference object	Object with 90% remission factor (complies with standard white according to DIN 5033)
Minimum distance between set sensing range and background (black 6% / white 90%)	40 mm, at a distance of 600 mm
Recommended sensing range for the best performance	200 mm ... 600 mm
Emitted beam	
Light source	PinPoint LED
Type of light	Visible red light
Shape of light spot	Point-shaped
Light spot size (distance)	Ø 7 mm (700 mm)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.0° (at T ₀ = +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	
Teach-Turn adjustment 1	BluePilot For setting the sensing range
Teach-Turn adjustment 2	BluePilot For configuring the time function

	Wire/pin	For activating the test input
Display		
	LED blue 1	BluePilot: sensing range indicator
	LED blue 2	BluePilot: Time function display
	LED green	Operating indicator Static on: power on
	LED yellow	Status of received light beam Static on: object present Static off: object not present

SAFETY-RELATED PARAMETERS

MTTF _D	507 years
DC _{avg}	0 %
T _M (mission time)	20 years

ELECTRONICS

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	≤ 30 mA, without load. At U _B = 24 V ²⁾
Protection class	III
Digital output	
Number	2 (Complementary)
Type	Push-pull: PNP/NPN
Switching mode	Light/dark 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 and short-circuit protected
Response time	≤ 500 μs ³⁾
Repeatability (response time)	150 μs
Switching frequency	1,000 Hz ⁴⁾
Time functions	Deactivated (factory setting) Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Delay time	Teach-turn adjustment, 0 ms ... 30,000 ms, 0 ms (factory setting)
Pin/Wire assignment	
Function of pin 4/black (BK)	Digital output, light switching, object present → output Q HIGH ⁵⁾
Pin 5 function/white (WH)	Digital output, dark switching, object present → output Q̄ LOW
Pin 6 function/gray (GY)	Test at 0 V

¹⁾ Limit values.

²⁾ 10 V DC ... 16 V DC, without load.

³⁾ Signal transit time with resistive load in switching mode.

⁴⁾ With light/dark ratio 1:1.

⁵⁾ This switching output must not be connected to another output.

MECHANICS

Housing	Rectangular
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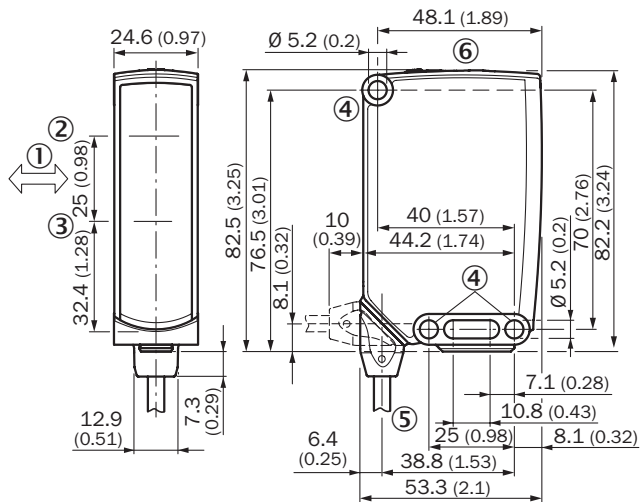
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm
Connection	Cable with Q6 male connector, 6-pin, DC-coded, 298 mm
Connection detail	
Deep-freeze property	Do not bend below 0 °C
Conductor size	0.14 mm ²
Cable diameter	Ø 4.8 mm
Length of cable (L)	270 mm
Bending radius	For flexible use > 12 x cable diameter
Bending cycles	1,000,000
Material	
Housing	Plastic, VISTAL®
Front screen	Plastic, PMMA
Cable	Plastic, PVC
Male connector	Plastic, VISTAL®
Weight	Approx. 100 g
Maximum tightening torque of the fixing screws	1.3 Nm

AMBIENT DATA

Enclosure rating	IP65 (EN 60529)
Ambient operating temperature	-40 °C ... +60 °C
Ambient temperature, storage	-40 °C ... +75 °C
Shock resistance	50 g, 11 ms (25 positive and 25 negative shocks per axis, for X, Y, Z axes, 150 shocks in total (EN60068-2-27)) 50 g, 6 ms (5,000 positive and 5,000 negative shocks per axis, for X, Y, Z axes, 30,000 shocks in total (EN60068-2-27))
Vibration resistance	10 Hz ... 2,000 Hz (Amplitude 0.5 mm / 10 g, 20 sweeps per axis, for X, Y, Z axes, 1 octave/min, (EN60068-2-6))
Air humidity	35 % ... 95 %, relative humidity (no condensation)
Electromagnetic compatibility (EMC)	EN 60947-5-2
UL File No.	NRKH.E181493 & NRKH7.E181493

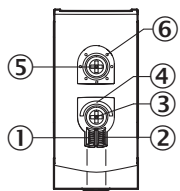
CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

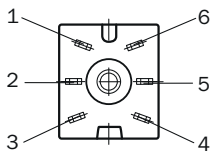
DIMENSIONAL DRAWING, SENSOR

Dimensions in mm (inch)

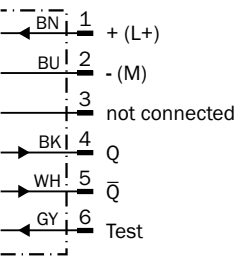
- ① Standard direction of the material being detected
- ② Center of optical axis, sender
- ③ Center of optical axis, receiver
- ④ Mounting hole, Ø 5.2 mm
- ⑤ Connection
- ⑥ display and adjustment elements

DISPLAY AND ADJUSTMENT ELEMENTS

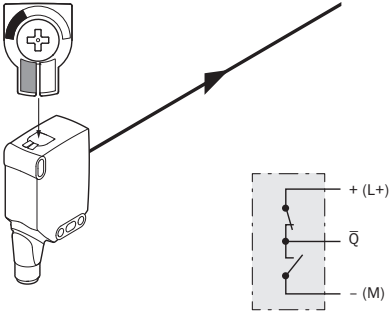
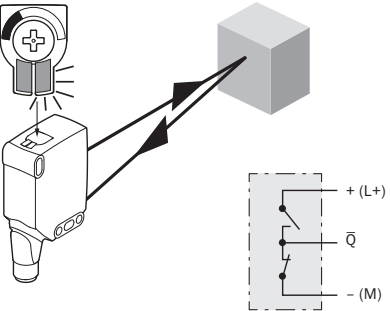
- ① LED indicator green
- ② LED indicator yellow
- ③ Teach-Turn adjustment 1
- ④ LED blue 1
- ⑤ Teach-Turn adjustment 2
- ⑥ LED blue 2

CONNECTION TYPE CUBIC CONNECTOR, 6-PIN

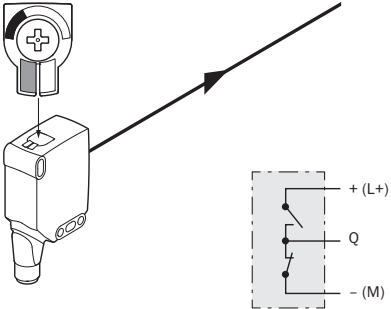
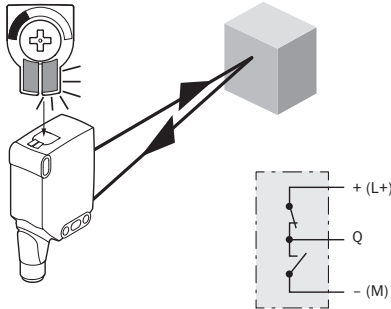
CONNECTION DIAGRAM CD-178



TRUTH TABLE PUSH-PULL: PNP/NPN - DARK SWITCHING $\bar{Q}$

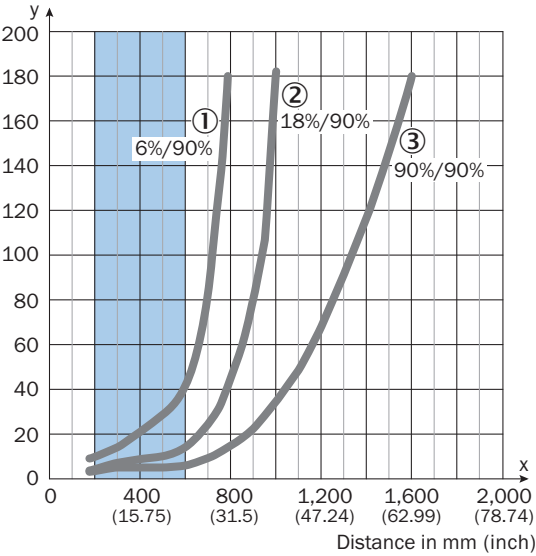
	Dark switching $\bar{Q}$ (normally closed (upper switch), normally open (lower switch))	
	Object not present → Output HIGH	Object present → Output LOW
Light receive	✗	✓
Light receive indicator	✗	☀
Load resistance to L+	✗	⚡
Load resistance to M	⚡	✗
		

TRUTH TABLE PUSH-PULL: PNP/NPN - LIGHT SWITCHING Q

	Light switching 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	⊗	⚡
		

CHARACTERISTIC CURVE

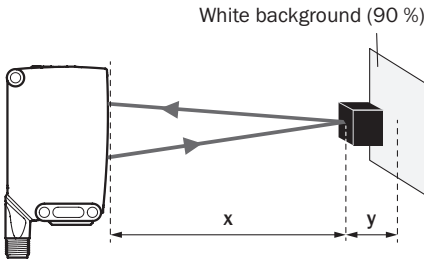
Minimum distance in mm (y) between the set sensing range and white background (90 % remission)



Recommended sensing range for the best performance

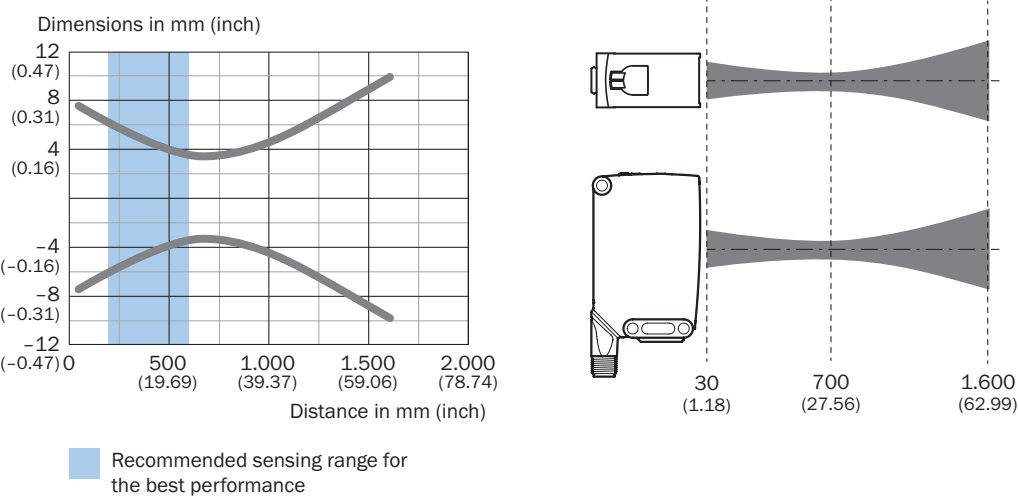
- ① Black object, 6% remission factor
- ② Gray object, 18% remission factor
- ③ White object, 90% remission factor

Example:
Safe suppression of the background

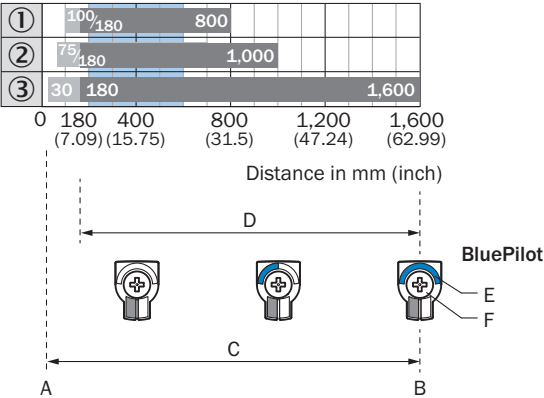


Black object (6 % remission)
Set sensing range x = 600 mm
Needed minimum distance to white background y = 40 mm

LIGHT SPOT SIZE WTB26P-XXXXX1XX



SENSING RANGE DIAGRAM



Recommended sensing range for the best performance

1	Black object, 6% remission factor
2	Gray object, 18% remission factor
3	White object, 90% remission factor
A	Sensing range min. in mm
B	Sensing range max. in mm
C	Field of view
D	Adjustable switching threshold for background suppression
E	Sensing range indicator
F	Teach-Turn adjustment

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1222804



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SICK AT A GLANCE

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