Data sheet

WTB26I-24861421A00

W26

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Illustration may differ

Ordering information

Type	part no.
WTB26I-24861421A00	1126768

Other models and accessories ➜ 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.	3,000 mm
Adjustable switching threshold for background suppression	180 mm ... 3,000 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%)	190 mm, at a distance of 1000 mm
Recommended sensing range for the best performance	200 mm ... 1,000 mm
Emitted beam	
Light source	LED
Type of light	Infrared light
Shape of light spot	Point-shaped
Light spot size (distance)	Ø 14 mm (1,000 mm)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.0° (at T_U = +23 °C)
Key LED figures	

Normative reference	EN 62471:2008-09 | IEC 62471:2006, modified
LED risk group marking	Free group
Wave length	850 nm
Average service life	100,000 h at T_a = +25 °C
Adjustment	
Teach-Turn adjustment	BluePilot For setting the sensing range
Teach-in button	For inverting the switching function (light/dark switching)
IO-Link	For configuring the sensor parameters and Smart Task functions
Display	
LED blue	BluePilot: sensing range indicator
LED green	Operating indicator Static on: power on Flashing: IO-Link mode
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

Communication interface

IO-Link	✓ , V1.1
Data transmission rate	COM2 (38,4 kBaud)
Cycle time	2.3 ms
Process data length	16 Bit
Process data structure	Bit 0 = switching signal Q_{L1}
	Bit 1 = switching signal Q_{L2}
	Bit 2 ... 15 = empty
VendorID	26
DeviceID HEX	0x800238
DeviceID DEC	8389176
Compatible master port type	A
SIO mode support	Yes

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
Protection class	III

[1] Limit values.
[2] Signal transit time with resistive load in switching mode.
[3] With light/dark ratio 1:1.

Digital output	
Number	2 (Complementary)
Type	PNP
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	Approx. U_B-2.5 V / 0 V
Output current $I_{max.}$	≤ 100 mA
Circuit protection outputs	Reverse polarity protected
	Overcurrent and short-circuit protected
Response time	≤ 2.5 ms [2]
Repeatability (response time)	150 µs
Switching frequency	200 Hz [3]
Pin/Wire assignment	
Function of pin 4/black (BK)	Digital output, light switching, object present → output Q_{L1} HIGH; IO-Link communication C
Function of pin 4/black (BK) – detail	The pin 4 function of the sensor can be configured
	Additional possible settings via IO-Link
Function of pin 2/white (WH)	Digital output, dark switching, object present → output $\bar{Q}_{L1}$ LOW
Function of pin 2/white (WH) – detail	The pin 2 function of the sensor can be configured
	Additional possible settings via IO-Link

[1] Limit values.
[2] Signal transit time with resistive load in switching mode.
[3] With light/dark ratio 1:1.

Mechanics

Housing	Rectangular
Dimensions (W x H x D)	24.6 mm x 82.5 mm x 53.3 mm
Connection	Male connector M12, 4-pin
Material	
Housing	Plastic, VISTAL®
Front screen	Plastic, PMMA
Male connector	Plastic, VISTAL®
Weight	Approx. 80 g
Maximum tightening torque of the fixing screws	1.3 Nm

Ambient data

Enclosure rating	IP66 (EN 60529) IP67 (EN 60529) IP69 (EN 60529) [1]
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))

[1] Replaces IP69K with ISO 20653: 2013-03.

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
Resistance to cleaning agent	ECOLAB
UL File No.	NRKH.E181493 & NRKH7.E181493

[1] Replaces IP69K with ISO 20653: 2013-03.

Smart Task

Smart Task name	Base logics
Logic function	Direct AND OR Window Hysteresis
Timer function	Deactivated Switch-on delay Off delay ON and OFF delay Impulse (one shot)
Inverter	Yes
Switching frequency	SIO Logic: 200 Hz [1] IOL: 200 Hz [2]
Response time	SIO Logic: 2,5 ms [1] IOL: 2,5 ms [2]
Repeatability	SIO Logic: 300 µs [1] IOL: 400 µs [2]
Switching signal	
Switching signal Q_{L1}	Switching output
Switching signal $\bar{Q}_{L1}$	Switching output

[1] Use of Smart Task functions without IO-Link communication (SIO mode).
[2] Use of Smart Task functions with IO-Link communication function.

Diagnosis

Device status	Yes
Quality of teach	Yes

Classifications

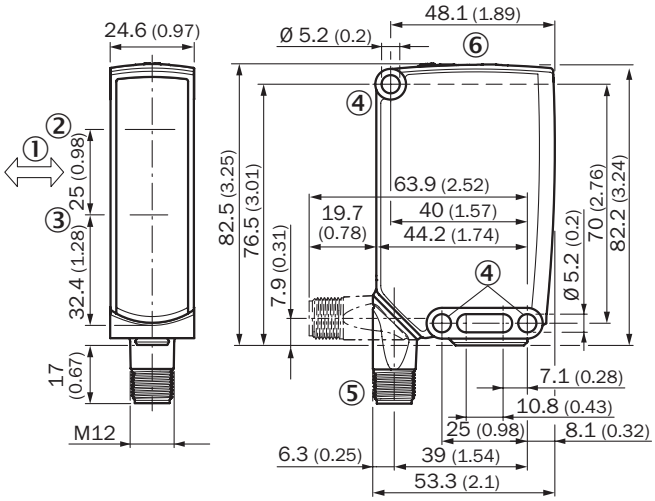
ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904

ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

Certificates

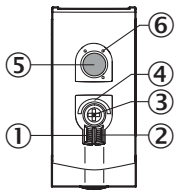
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
IO-Link certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Dimensional drawing, sensor



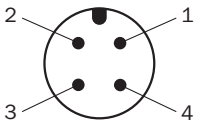
Dimensions in mm (inch)
① Standard direction of the material being detected
② Center of optical axis, sender
③ Center of optical axis, receiver
④ Mounting hole, Ø 5.2 mm
⑤ Connection
⑥ display and adjustment elements

display and adjustment elements

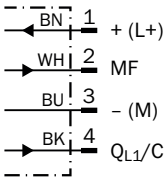


① LED indicator green
② LED indicator yellow
③ Teach-Turn adjustment
④ LED blue 1
⑤ Teach-in button
⑥ LED blue 2

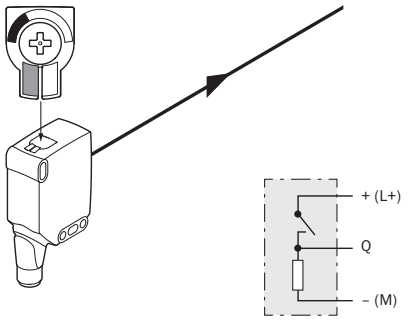
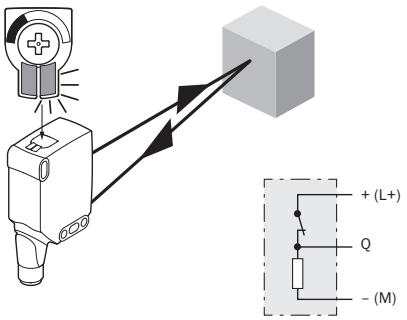
Connection type M12 male connector, 4-pin



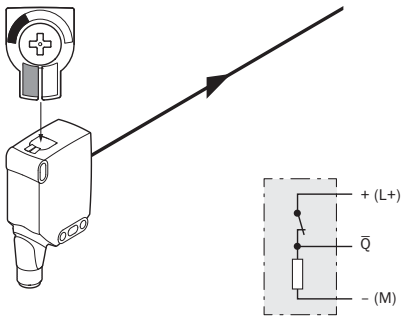
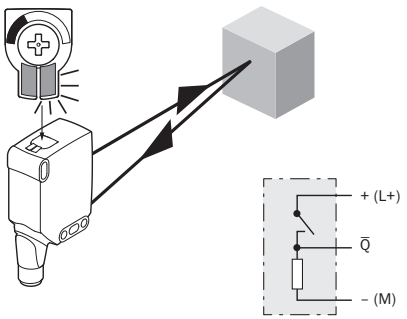
Connection diagram Cd-390



Truth table PNP - light switching Q

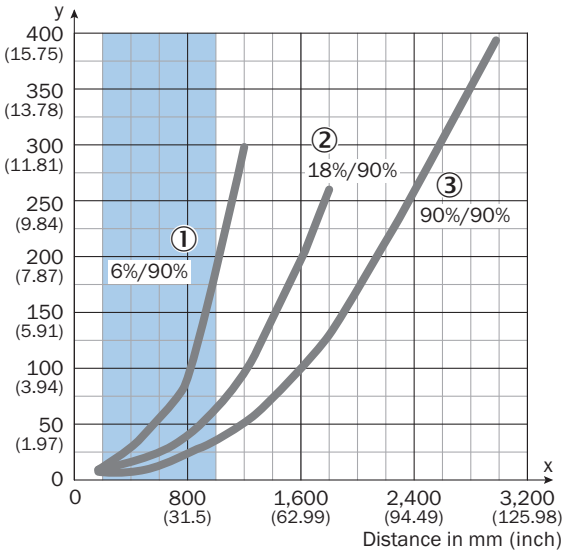
	Light switching Q (normally open)	
	Object not present ➜ Output LOW	Object present ➜ Output HIGH
Light receive	⊗	✓
Light receive indicator	⊗	☀
Load resistance to M	⊗	⚠
		

Truth table PNP - dark switching Q̄

	Dark switching Q̄ (normally closed)	
	Object not present ➜ Output HIGH	Object present ➜ Output LOW
Light receive	⊗	✓
Light receive indicator	⊗	☀
Load resistance to M	⚠	⊗
		

Characteristic curve

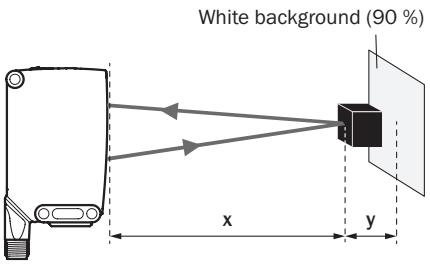
Minimum distance in mm (y) between the set sensing range and white background (90 % remission)



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

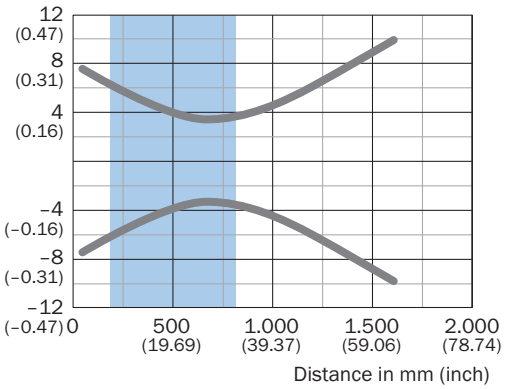
Example:
Safe suppression of the background



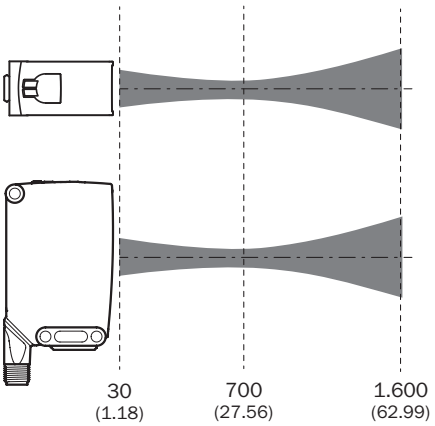
Black object (6 % remission)
Set sensing range x = 1,000 mm
Needed minimum distance to white background y = 190 mm

Light spot size

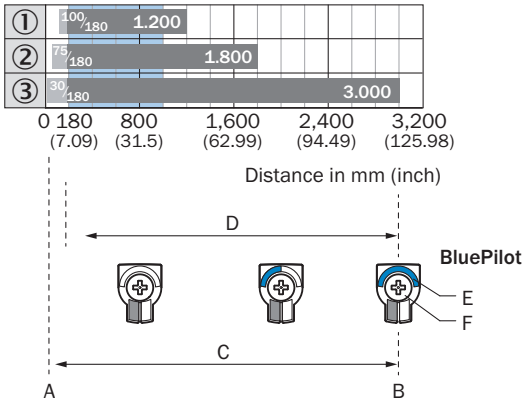
Dimensions in mm (inch)



Recommended sensing range for the best performance



Sensing range diagram

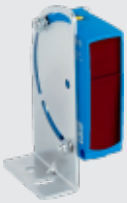


Recommended sensing range for the best performance

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

Recommended accessories

Other models and accessories ➜ www.sick.com/W26

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Mounting bracket with hinged arm • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware included • **Suitable for:** W23-2, W27-3, Reflex Array	BEF-WN-W27	2009122
	• **Description:** Plate N12 for universal clamp. For mounting PL30A, P250 reflectors, W27 and WTR2 sensors. • **Material:** Steel, zinc diecast • **Details:** Zinc plated steel (sheet), Zinc die cast (clamping bracket) • **Items supplied:** Universal clamp (2022726), mounting hardware • **Usable for:** W26, Reflex Array, P250, W23-2, W27-3, W27-3	BEF-KHS-N12	2071950
	• **Description:** Mounting bracket with articulated arm • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware included • **Suitable for:** W16, W26, W11, W12, W23, W27, Dx50, W280, G10	BEF-WN-MULTI2	2093945
	• **Description:** Mounting bracket • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware included • **Suitable for:** W23-2, W27-3, Reflex Array	BEF-WN-W23	2019085
	• **Description:** Plate N11N for universal clamp bracket • **Material:** Stainless steel • **Details:** Stainless steel 1.4571 (sheet), Stainless steel 1.4408 (clamp) • **Items supplied:** Universal clamp (5322627), mounting hardware • **Usable for:** DeltaPac, Glare, WTD20E	BEF-KHS-N11N	2071081

	Brief description	Type	part no.
connectors and cables			
	• **Connection type head A:** Male connector, M12, 4-pin, straight, A-coded • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** ≤ 0.75 mm²	STE-1204-G	6009932
	• **Connection type head A:** Female connector, M12, 4-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 4-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, unshielded • **Application:** Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation	YF2A14-050UB3XLEAX	2095608
	• **Connection type head A:** Female connector, M12, 4-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 4-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Uncontaminated zones, Zones with chemicals	YF2A14-050VB3XLEAX	2096235

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

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