



WTB26P-34161120A00 W26

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

| Type | part no. |
|--------------------|----------|
| WTB26P-34161120A00 | 1218806 |

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

Illustration may differ



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 Ta = +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 $T_a = +25^\circ\text{C}$ |
| Adjustment | Teach-Turn adjustment | BluePilot: For setting the sensing range |
| | IO-Link | For configuring the sensor parameters and Smart Task functions |
| Display | LED blue | BluePilot: sensing range indicator |
| | LED green | Operating indicatorStatic on: power on/Off: IO-Link mode |
| | LED yellow | Status of received light beamStatic on: object presentStatic off: object not present |

Safety-related parameters

| | |
|-------------------------------------|-----------|
| MTTF_D | 626 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 | 0x800178 |
| DeviceID DEC | 8388984 |
| Compatible master port type | A |
| SIO mode support | Yes |

Electronics

| | |
|--|--|
| Supply voltage U_B | 10 V DC ... 30 V DC ¹⁾ |
| Ripple | $\leq 5 \text{ V}_{\text{pp}}$ |
| Usage category | DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2) |
| Current consumption | $\leq 30 \text{ mA}$, without load. At $U_B = 24 \text{ V}$ |
| Protection class | III |
| Digital output | |
| Number | 2 (Complementary) |
| Type | Push-pull: PNP/NPN |
| Switching mode | Light/dark switching |

1) Limit values.

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

3) With light/dark ratio 1:1.

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

| | |
|---------------------------------------|---|
| 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 μ s ²⁾ |
| Repeatability (response time) | 150 μ s |
| Switching frequency | 1,000 Hz ³⁾ |
| Pin/Wire assignment | |
| Function of pin 4/black (BK) | Digital output, light switching, object present \rightarrow output Q_{L1} HIGH; IO-Link communication C ⁴⁾ |
| 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 \rightarrow output \bar{Q}_{L1} LOW ⁴⁾ |
| 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 1:1.⁴⁾ This switching output must not be connected to another output.

Mechanics

| | |
|---|--|
| Housing | Rectangular |
| Dimensions (W x H x D) | 24.6 mm x 82.5 mm x 53.3 mm |
| Connection | Cable with M12 male connector, 4-pin, 318 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 |
| Length of male connector | 48 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 | IP66 (EN 60529) |
|-------------------------|-----------------|

¹⁾ Replaces IP69K with ISO 20653: 2013-03.

| | |
|--|--|
| | 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)) |
| 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: 800 Hz ¹⁾ IOL: 650 Hz ²⁾ |
| Response time | SIO Logic: 600 µs ¹⁾ IOL: 750 µs ²⁾ |
| Repeatability | SIO Logic: 300 µs ¹⁾ IOL: 400 µs ²⁾ |
| Switching signal | |
| Switching signal Q _{L1} | Switching output |
| Switching signal Q̄ _{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 |

Certificates

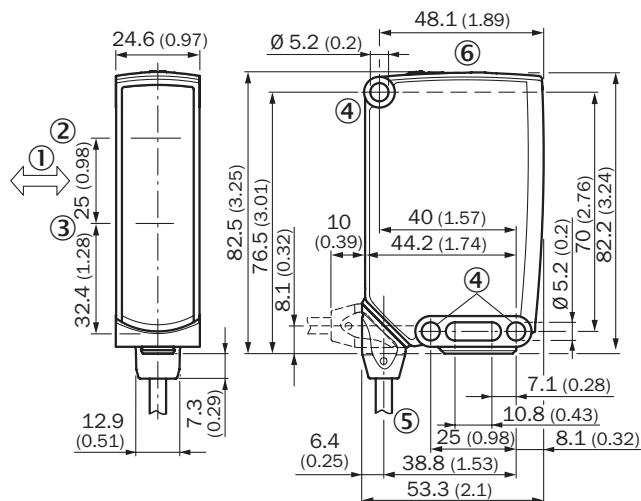
| | |
|---------------------------------------|---|
| EU declaration of conformity | ✓ |
| UK declaration of conformity | ✓ |
| ACMA declaration of conformity | ✓ |

| | |
|--|---|
| Moroccan declaration of conformity | ✓ |
| China-RoHS | ✓ |
| ECOLAB certificate | ✓ |
| cULus certificate | ✓ |
| IO-Link | ✓ |
| Photobiological safety (DIN EN 62471) certificate | ✓ |

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 |

Dimensional drawing, sensor

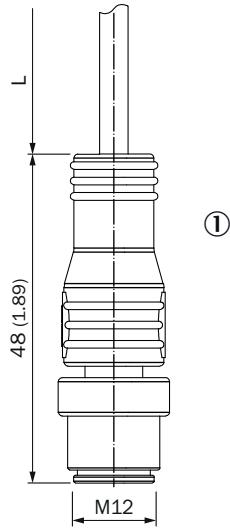


Dimensions in mm (inch)

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

Dimensional drawing, connection

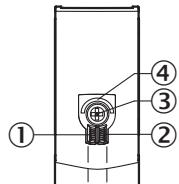


Dimensions in mm (inch)

For length of cable (L), see technical data

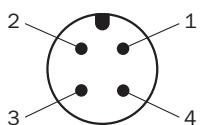
① Cable with M12 male connector

display and adjustment elements

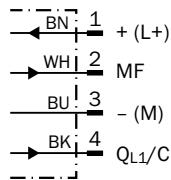


- ① LED indicator green
- ② LED indicator yellow
- ③ Teach-Turn adjustment
- ④ LED blue

Connection type M12 male connector, 4-pin



Connection diagram Cd-390



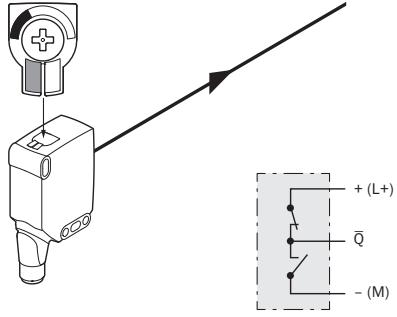
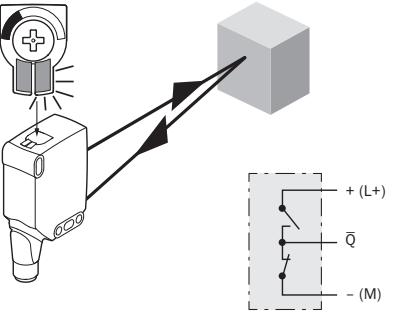
Truth table Push-pull: PNP/NPN - light switching Q

| 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 | ✗ | ⚡ |

Object not present → Output LOW

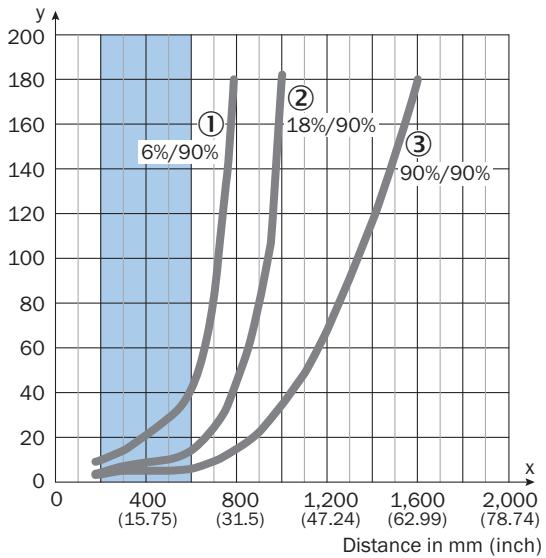
Object present → Output HIGH

Truth table Push-pull: PNP/NPN – dark switching \bar{Q}

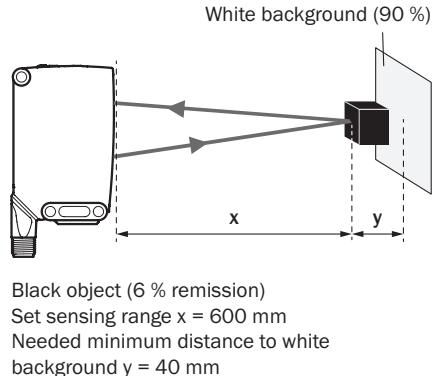
| | Dark switching \bar{Q} (normally closed (upper switch), normally open (lower switch)) | |
|-------------------------|---|---|
| | Object not present → Output HIGH | Object present → Output LOW |
| Light receive | ✖ | ✓ |
| Light receive indicator | ✖ | ✖ |
| Load resistance to L+ | ✖ | ⚠ |
| Load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

Characteristic curve

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



Example:
Safe suppression of the background

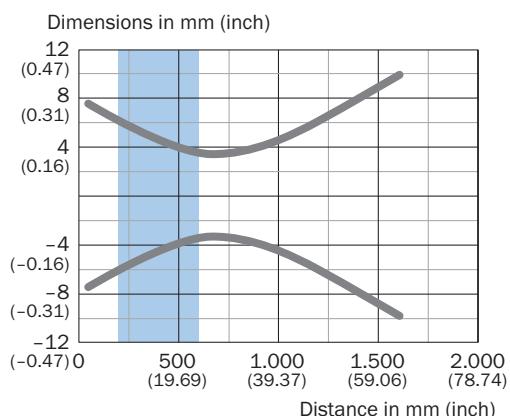


Black object (6 % remission)
Set sensing range $x = 600$ mm
Needed minimum distance to white background $y = 40$ mm

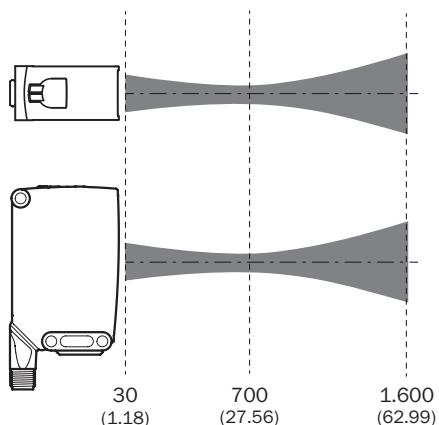
Recommended sensing range for the best performance

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

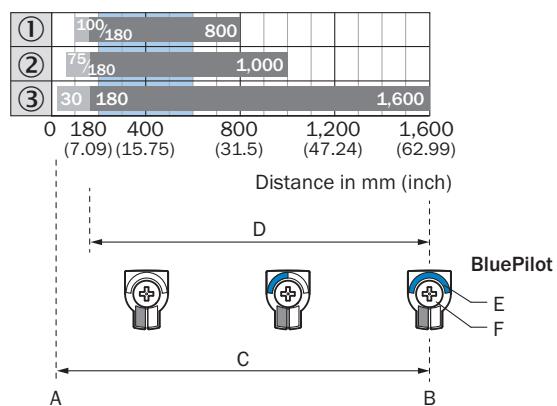
Light spot size WTB26P-xxxxx1xx



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 | | | |
|  | <ul style="list-style-type: none">Description: Plate N12 for universal clamp. For mounting PL30A, P250 reflectors, W27 and WTR2 sensors.Material: Steel, zinc diecastDetails: Zinc plated steel (sheet), Zinc die cast (clamping bracket)Items supplied: Universal clamp (2022726), mounting hardwareUsable for: W26, Reflex Array, P250, W23-2, W27-3, W27-3 | BEF-KHS-N12 | 2071950 |
| connectors and cables | | | |
|  | <ul style="list-style-type: none">Connection type head A: Female connector, M12, 4-pin, straight, A-codedConnection type head B: Flying leadsSignal type: Sensor/actuator cableCable: 5 m, 4-wire, PVCDescription: Sensor/actuator cable, unshieldedApplication: Zones with chemicals, Uncontaminated zones | 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."

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