



# WTS26P-24161120A70

W26

COMPACT PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
WTS26P-24161120A70	1219799

The sensor is equipped with a special Smart Task function. Additional information can be found in the "Technical Data." Use of the sensor for pure object detection is limited.

Other models and accessories → [www.sick.com/W26](http://www.sick.com/W26)

### Detailed technical data

#### Features

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Background suppression, TwinEye technology
<b>Sensing range</b>	
Sensing range min.	10 mm
Sensing range max.	1,000 mm
Adjustable switching threshold for background suppression	150 mm ... 1,000 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%)	25 mm, at a distance of 500 mm
Recommended sensing range for the best performance	200 mm ... 500 mm
<b>Emitted beam</b>	
Light source	PinPoint LED
Type of light	Visible red light
Shape of light spot	Point-shaped
Light spot size (distance)	Ø 10 mm (550 mm)
Maximum dispersion of the emitted beam around the standardized transmission axis (squint angle)	< +/- 1.0° (at Ta = +23 °C)

<b>Key LED figures</b>	
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 $T_a = +25\text{ °C}$
<b>Adjustment</b>	
Teach-Turn adjustment	BluePilot: For setting the sensing range
IO-Link	For configuring the sensor parameters and Smart Task functions
<b>Indication</b>	
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
<b>Special applications</b>	
Detecting uneven, shiny objects, Detecting objects wrapped in film	

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	413 years
<b>DC<sub>avg</sub></b>	0%
<b>T<sub>M</sub> (mission time)</b>	20 years (EN ISO 13849, rate of use: 60 %)

### Communication interface

<b>IO-Link</b>	✓, 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 <sub>L1</sub> Bit 1 = switching signal Q <sub>L2</sub> Bit 2 ... 15 = empty
VendorID	26
DeviceID HEX	0x80017D
DeviceID DEC	8388989
Compatible master port type	A
SIO mode support	Yes

### Electrical data

<b>Supply voltage U<sub>B</sub></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	≤ 5 V <sub>pp</sub>
<b>Usage category</b>	DC-12 (According to EN 60947-5-2) DC-13 (According to EN 60947-5-2)
<b>Current consumption</b>	≤ 30 mA, without load. At U <sub>B</sub> = 24 V
<b>Protection class</b>	III

<sup>1)</sup> Limit values.

<sup>2)</sup> Signal transit time with resistive load in switching mode.

<sup>3)</sup> With light/dark ratio 1:1.

<b>Digital output</b>	
Type	Push-pull: PNP/NPN
Signal voltage PNP HIGH/LOW	Approx. $U_B - 2.5 \text{ V} / 0 \text{ V}$
Signal voltage NPN HIGH/LOW	Approx. $U_B / < 2.5 \text{ V}$
Output current $I_{\text{max}}$	$\leq 100 \text{ mA}$
Circuit protection outputs	Reverse polarity protected Overcurrent and short-circuit protected
Response time	$\leq 1.4 \text{ ms}^{2)}$
Repeatability (response time)	750 $\mu\text{s}$
Switching frequency	350 Hz <sup>3)</sup>
<b>Pin/Wire assignment</b>	
Function of pin 4/black (BK)	Digital output, $Q_{L1}$ , IO-Link communication C (see document no. 8022709, 8021940)
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 input (see document no. 8022709, 8021940)
Function of pin 2/white (WH) – detail	The pin 2 function of the sensor can be configured, Additional possible settings via IO-Link

<sup>1)</sup> Limit values.

<sup>2)</sup> Signal transit time with resistive load in switching mode.

<sup>3)</sup> With light/dark ratio 1:1.

### Mechanical data

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

### Ambient data

<b>Enclosure rating</b>	IP66 (EN 60529) IP67 (EN 60529) IP69 (EN 60529) <sup>1)</sup>
<b>Ambient operating temperature</b>	-40 °C ... +60 °C
<b>Ambient temperature, storage</b>	-40 °C ... +75 °C
<b>Shock resistance</b>	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))
<b>Vibration resistance</b>	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))
<b>Air humidity</b>	35 % ... 95 %, Relative humidity (no condensation)
<b>Electromagnetic compatibility (EMC)</b>	EN 60947-5-2

<sup>1)</sup> Replaces IP69K with ISO 20653: 2013-03.

<b>Resistance to cleaning agent</b>	ECOLAB
<b>UL File No.</b>	NRKH.E181493 & NRKH7.E181493

<sup>1)</sup> Replaces IP69K with ISO 20653: 2013-03.

## Smart Task

<b>Smart Task name</b>	Time measurement + debouncing
<b>Logic function</b>	Direct WINDOW
<b>Timer function</b>	Deactivated On delay Off delay ON and OFF delay Impulse (one shot)
<b>Inverter</b>	Yes
<b>Response time</b>	<sup>1)</sup>
<b>Repeatability</b>	<sup>1)</sup>
<b>Time measurement accuracy</b>	SIO Logic: - 1,65 ... + 1,65 ± 0,5 % of time measurement value <sup>2)</sup> IOL: - 1.8 ... + 1.8 ms ± 0.5% of the time measurement <sup>3)</sup>
<b>Time measurement accuracy (e.g. accuracy for time measurement value = 1 s )</b>	SIO Logic: - 6,8 ... + 6,8 ms <sup>2)</sup> IOL: - 6,8 ... + 6,8 ms <sup>3)</sup>
<b>Resolution time measuring value</b>	1 ms
<b>Min. Time between two process events (switches)</b>	SIO Logic: 1,25 ms IOL: 1,55 ms
<b>Debounce time max.</b>	SIO Logic: 30.000 ms <sup>2)</sup> IOL: 30.000 ms <sup>3)</sup>
<b>Switching signal</b>	
	Switching signal Q <sub>L1</sub>
<b>Measuring value</b>	Output type (dependant on the adjusted threshold) Time measurement value

<sup>1)</sup> Use of Smart Task functions with IO-Link communication function.

<sup>2)</sup> SIO Logic: Sensor operation in standard I/O mode without IO-Link communication. Sensor-internal logic or timing parameters plus Automation Functions used.

<sup>3)</sup> IOL: Sensor operation with full IO-Link communication and usage of logic, timing and Automation Function parameters.

## Diagnosis

<b>Device status</b>	Yes
<b>Quality of teach</b>	Yes

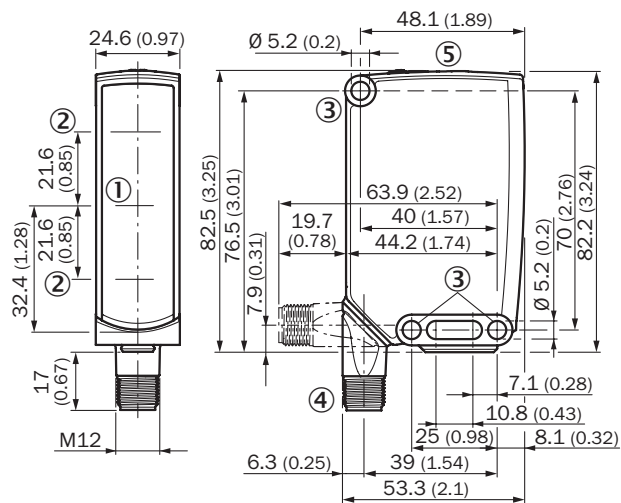
## Classifications

<b>ECLASS 5.0</b>	27270904
<b>ECLASS 5.1.4</b>	27270904
<b>ECLASS 6.0</b>	27270904
<b>ECLASS 6.2</b>	27270904
<b>ECLASS 7.0</b>	27270904
<b>ECLASS 8.0</b>	27270904
<b>ECLASS 8.1</b>	27270904
<b>ECLASS 9.0</b>	27270904
<b>ECLASS 10.0</b>	27270904

<b>ECLASS 11.0</b>	27270904
<b>ECLASS 12.0</b>	27270903
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>ETIM 7.0</b>	EC002719
<b>ETIM 8.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

### Dimensional drawing (Dimensions in mm (inch))

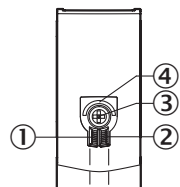
Dimensional drawing, sensor



- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Mounting hole,  $\varnothing$  5.2 mm
- ④ Connection
- ⑤ Display and adjustment elements

### Adjustments

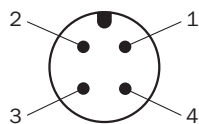
Display and adjustment elements



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

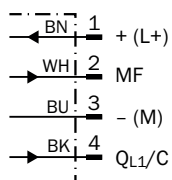
## Connection type

M12 male connector, 4-pin



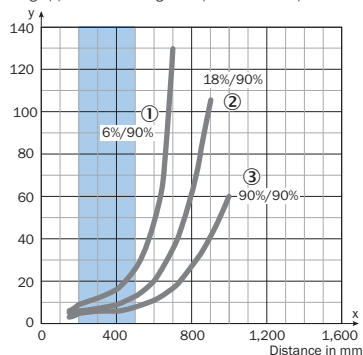
## Connection diagram

Cd-390



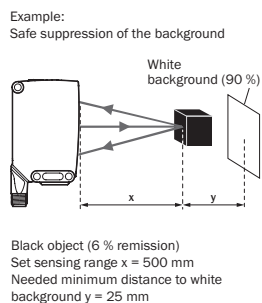
## Characteristic curve

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



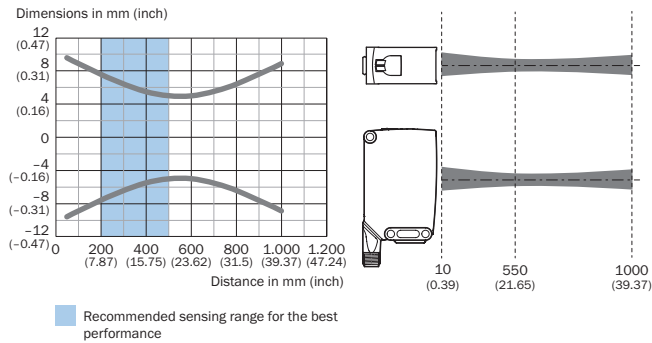
Recommended sensing range for the best performance

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

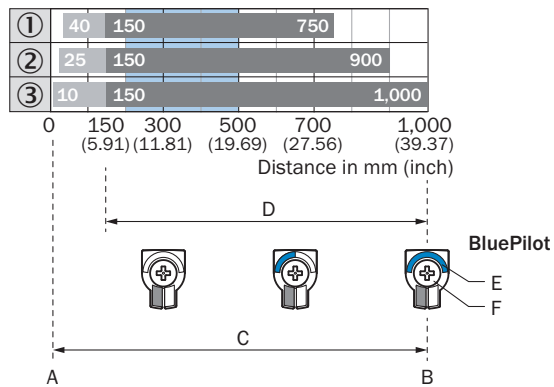


### Light spot size

WTS26P-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



## Recommended accessories

Other models and accessories → [www.sick.com/W26](http://www.sick.com/W26)

	Brief description	Type	Part no.
Universal bar clamp systems			
	Plate N12 for universal clamp. For mounting PL30A, P250 reflectors, W27 and WTR2 sensors., Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (2022726), mounting hardware	BEF-KHS-N12	2071950
Plug connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>	STE-1204-G	6009932

## Recommended services

Additional services → [www.sick.com/W26](http://www.sick.com/W26)

	Type	Part no.
Function Block Factory		
<ul style="list-style-type: none"> <li>• <b>Description:</b> The Function Block Factory supports common programmable logic controllers (PLCs) from various manufacturers, such as Siemens, Beckhoff, Rockwell Automation and B&amp;R. More information on the FBF can be found <a _blank"="" href="https://fbf.cloud.sick.com target=">here</a>.</li> <li>• <b>Note:</b> You can configure your function block at <a _blank"="" href="https://fbf.cloud.sick.com target=">Function Block Factory</a>. As a login please use your SICK ID.</li> </ul>	Function Block Factory	On request

## 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:

Contacts and other locations –[www.sick.com](http://www.sick.com)