



# WTT12S-M2569

## WTT12 PowerProx

## TIME-OF-FLIGHT SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
WTT12S-M2569	1136647

Other models and accessories → [www.sick.com/WTT12\\_PowerProx](http://www.sick.com/WTT12_PowerProx)

Illustration may differ



## Detailed technical data

## Features

<b>Functional principle</b>	Photoelectric proximity sensor
<b>Functional principle detail</b>	Object between sensor and reference object or reference surface
<b>Housing design (light emission)</b>	Rectangular
<b>Safety-related detection zone</b>	150 mm ... 2,000 mm, Target with 6% remission or higher. The laser beam hits the target surface at an angle of incidence of 90°, the light spot is covered fully by the target. Distance front of sensor to reference surface: 150 mm ... 2,000 mm, distance front of surface/object surface: > 50 mm, distance object surface/reference surface: > 85 mm <sup>1)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	Laser <sup>2)</sup>
<b>Light spot size (distance)</b>	Ø 15 mm (within the sensing range)
<b>Maximum pulse power</b>	< 250 mW
<b>Wave length</b>	658 nm
<b>Pulse duration</b>	0.004 µs
<b>Laser class</b>	1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11)
<b>Adjustment</b>	Single teach-in button (1 x)
<b>Safety-related parameters</b>	
Safety integrity level	SIL 1 (IEC 61508)
Performance class SRS/SRSS	C (IEC TS 62998-1)
Performance level	PL c (ISO 13849-1)
Category	Category 2 (ISO 13849-1)
MTTF <sub>D</sub>	138 years (ISO 13849-1)

<sup>1)</sup> Customer may vary incident angle and target remission but needs to ensure effective reserve is within corridor as stated (the lower incident angle, the farther the distance the lower the reserve).

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

PFH <sub>D</sub> (mean probability of a dangerous failure per hour)	3,3 x 10 <sup>-7</sup>
DC <sub>avg</sub>	60 %
T <sub>M</sub> (mission time)	20 years (ISO 13849-1)
	Rate of use: 60 %
Maximum demand rate	36 /h
Test rate (external test)	At least 100 times the average expected demand rate (ISO 13849-1)

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2) Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Electronics

<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> <sup>2)</sup>
<b>Current consumption</b>	≤ 25 mA <sup>3)</sup>
<b>Switching output</b>	Push-pull: PNP/NPN
<b>Switching output (voltage)</b>	LOW ≤ 3 V HIGH ≥ U <sub>V</sub> - 2 V
<b>Output function</b>	Modulated 10 Hz ± 2% square wave, 50% duty cycle
<b>Number of switching outputs</b>	1
<b>Switching mode</b>	Light switching
<b>Response time</b>	
Digital output to object	5 ms
Digital output to test input	10 ms
<b>Test input behavior</b>	Low: Offset switchover from -35 mm to +35 mm
<b>Test input voltage</b>	LOW ≤ 3 V HIGH ≥ U <sub>V</sub> - 4 V
<b>Number of digital inputs</b>	1
<b>Input function</b>	Diagnostics
<b>Circuit protection</b>	A <sup>4)</sup> B <sup>5)</sup> C <sup>6)</sup>
<b>Protection class</b>	III
<b>Enclosure rating</b>	IP67
<b>Warm-up time</b>	< 15 min <sup>7)</sup>
<b>Initialization time</b>	< 300 ms

1) Limit values. Operated in short-circuit protected network: max. 8 A.

2) May not fall below or exceed U<sub>V</sub> tolerances.

3) Without load. At U<sub>S</sub> = 24 V.

4) A = U<sub>S</sub> connections reverse-polarity protected.

5) B = inputs and output reverse-polarity protected.

6) C = interference suppression.

7) Below T<sub>U</sub> = -10 °C a warm-up time is necessary.

## Mechanics

<b>Dimensions (W x H x D)</b>	20 mm x 49.6 mm x 44.2 mm
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<b>Housing material</b>	Plastic, VISTAL®
<b>Optics material</b>	Plastic, PMMA
<b>Weight</b>	48 g
<b>Connection type</b>	Plug, M12, 5-pin

## Ambient data

<b>Ambient operating temperature</b>	-35 °C ... +50 °C <sup>1)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C
<b>Typ. Ambient light immunity</b>	Artificial light: 50 klx Sunlight: 50 klx
<b>Shock resistance</b>	30 g (3 positive and 3 negative shocks along X, Y, Z axes, 18 total shocks (EN60068-2-27)) 11 ms 25 g (1,000 positive and 1,000 negative shocks along X, Y, Z axes, 6000 shocks in total (EN60068-2-27)) 6 ms
<b>Vibration resistance</b>	20 Hz ... 1,000 Hz (1 g, for X, Y, Z axes, 1 octave/min (EN60068-2-6)) 20 Hz ... 2,000 Hz (10 g, RMS/axis (EN 60068-2-64))

<sup>1)</sup> As of  $T_a = 45$  °C, a max.load current  $I_{max} = 50$  mA is permitted.

## Certificates

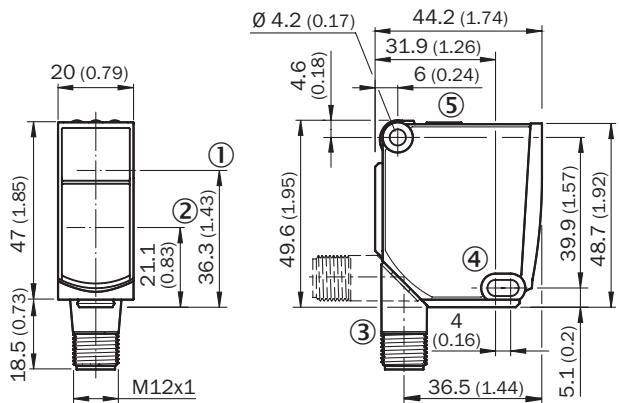
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China-RoHS</b>	✓
<b>cULus certificate</b>	✓
<b>TÜV approval</b>	✓
<b>TÜV approval annex</b>	✓
<b>EC-Type-Examination approval</b>	✓
<b>Laser safety (IEC 60825-1) certificate</b>	✓

## 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

ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

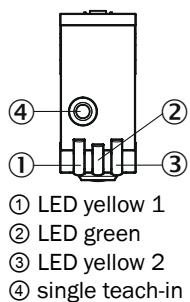
## Dimensional drawing



Dimensions in mm (inch)

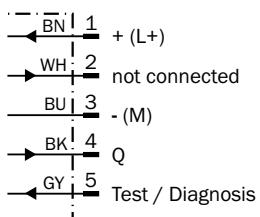
- ① Center of optical axis, sender
- ② Center of optical axis, receiver
- ③ Connection
- ④ Mounting hole, Ø 4.2 mm
- ⑤ display and adjustment elements

## display and adjustment elements

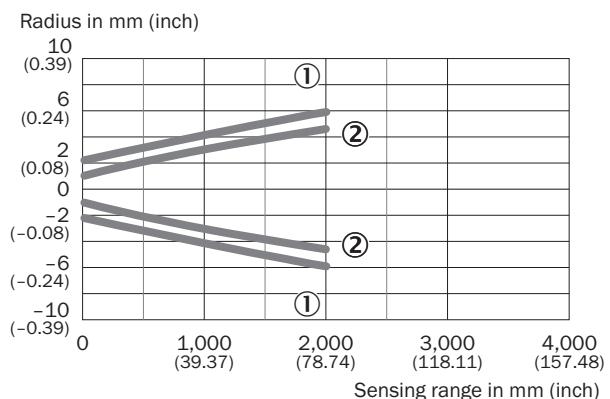


- ① LED yellow 1
- ② LED green
- ③ LED yellow 2
- ④ single teach-in button

## Connection diagram

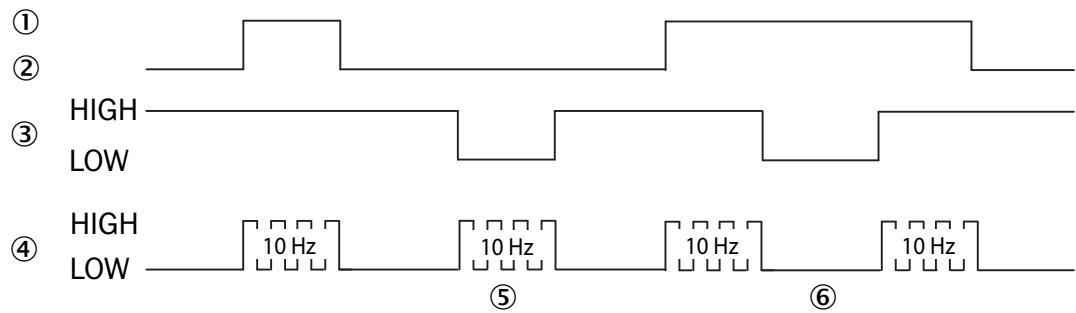


## Light spot size



① Light spot horizontal  
 ② Light spot vertical

## Functional principle



① Object  
 ② Reference  
 ③ Test input  
 ④ output  
 ⑤ Test for reference, object is simulated  
 ⑥ Test for object, reference is simulated

## 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)