



# WTT12L-A2533

WTT12 PowerProx

TIME-OF-FLIGHT SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type         | part no. |
|--------------|----------|
| WTT12L-A2533 | 1082472  |

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

### Detailed technical data

#### Features

|  |   |
|--|---|
| <b>Functional principle</b>            | Photoelectric proximity sensor                  |
| <b>Functional principle detail</b>     | Background suppression, Optical time-of-flight  |
| <b>Housing design (light emission)</b> | Rectangular                                     |
| <b>Sensing range max.</b>              | 50 mm ... 2,500 mm <sup>1)</sup>                |
| <b>Sensing range</b>                   | 100 mm ... 2,500 mm <sup>2)</sup>               |
| <b>Distance value</b>                  |   |
| Measuring range                        | 100 mm ... 2,500 mm <sup>1)</sup>               |
| Resolution                             | 1,000 µm  |
| Repeatability                          | 2,3 mm ... 6,1 mm <sup>3) 4) 5)</sup>           |
| Accuracy                               | Typ. ± 15 mm                                    |
| <b>Type of light</b>                   | Visible red light                               |
| <b>Light source</b>                    | Laser <sup>6)</sup>                             |
| <b>Light spot size (distance)</b>      | Ø 14 mm (2,500 mm)                              |
| <b>Wave length</b>                     | 658 nm  |
| <b>Laser class</b>                     | 1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11) |
| <b>Adjustment</b>                      | Single teach-in button (2 x)                    |
| <b>Safety-related parameters</b>       |   |
| MTTF <sub>D</sub>                      | 124 years                                       |

<sup>1)</sup> Object with 6 ... 90% remission (based on standard white, DIN 5033).

<sup>2)</sup> Adjustable.

<sup>3)</sup> Equivalent to 1 σ.

<sup>4)</sup> See characteristic curves repeatability.

<sup>5)</sup> 6% ... 90% remission factor.

<sup>6)</sup> Average service life: 100,000 h at T<sub>J</sub> = +25 °C.

|                               |          |
|-------------------------------|----------|
| DC <sub>avg</sub>             | 0 %      |
| T <sub>M</sub> (mission time) | 20 years |

1) Object with 6 ... 90% remission (based on standard white, DIN 5033).

2) Adjustable.

3) Equivalent to 1  $\sigma$ .

4) See characteristic curves repeatability.

5) 6% ... 90% remission factor.

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

## Electronics

|  |  |
|--|--|
| <b>Supply voltage U<sub>B</sub></b>    | 12 V DC ... 30 V DC <sup>1) 2)</sup>                           |
| <b>Ripple</b>                          | < 5 V <sub>pp</sub> <sup>3)</sup>                              |
| <b>Current consumption</b>             | 70 mA <sup>4)</sup>  |
| <b>Switching output</b>                | Push-pull: PNP/NPN <sup>5)</sup>                               |
| <b>Number of switching outputs</b>     | 1 (Q <sub>1</sub> ) <sup>5)</sup>                              |
| <b>Switching mode</b>                  | Light switching <sup>5)</sup>                                  |
| <b>Output current I<sub>max.</sub></b> | ≤ 50 mA  |
| <b>Response time</b>                   | ≤ 0.5 ms <sup>6)</sup>   |
| <b>Switching frequency</b>             | 1,000 Hz <sup>7)</sup>   |
| <b>Analog output</b>                   | 4 mA ... 20 mA (≤ 450 Ω) / 0 V ... 10 V (≥ 50 kΩ) / switchable |
| <b>Resolution of analog output</b>     | 12 bit   |
| <b>Output time</b>                     | ≤ 3 ms   |
| <b>Input</b>                           | Sender off   |
| <b>Circuit protection</b>              | A <sup>8)</sup><br>B <sup>9)</sup><br>C <sup>10)</sup>         |
| <b>Protection class</b>                | III  |
| <b>Enclosure rating</b>                | IP67   |
| <b>Warm-up time</b>                    | < 15 min <sup>11)</sup>  |
| <b>Initialization time</b>             | < 300 ms   |

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

2) V<sub>s</sub> min when using the voltage output = 13 V.

3) May not fall below or exceed U<sub>y</sub> tolerances.

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

5) Q<sub>1</sub> = 1 switching threshold, light switching.

6) Signal transit time with resistive load.

7) With light/dark ratio 1:1.

8) A = V<sub>S</sub> connections reverse-polarity protected.

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

10) C = interference suppression.

11) 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 |
| <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               |

<sup>1)</sup> For  $V_s \leq 24$  V. When  $T_u = 45$  °C or above, a maximum load resistance of 300 Ω ... 450 Ω is permitted on QA.

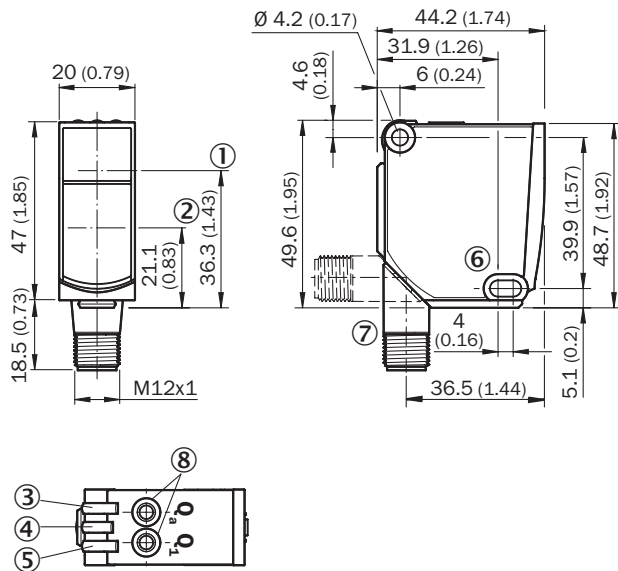
### Classifications

|                       |          |
|-----------------------|----------|
| <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 |

### 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>Laser safety (IEC 60825-1) certificate</b> | ✓ |

Dimensional drawing

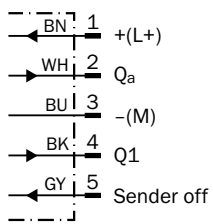


Dimensions in mm (inch)

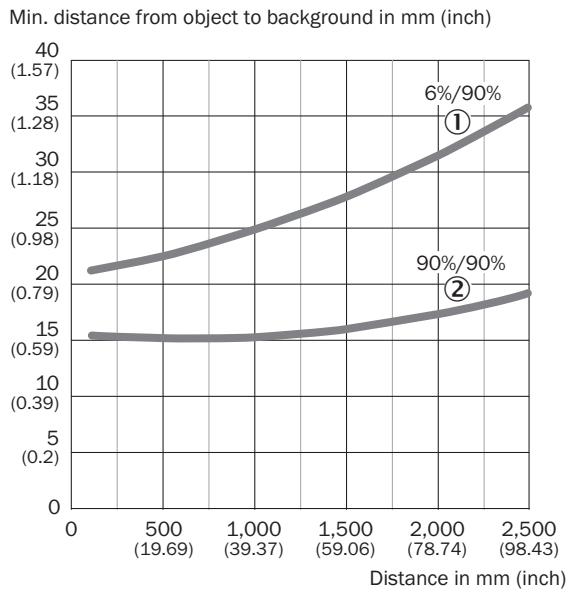
- ① optical axis, sender
- ② optical axis, receiver
- ③ LED indicator yellow: Status of analog output
- ④ LED indicator green: power on
- ⑤ Status indicator LED, yellow: Status switching output
- ⑥ Mounting hole,  $\varnothing$  4.2 mm
- ⑦ Connection
- ⑧ single teach-in button



Connection diagram Cd-375

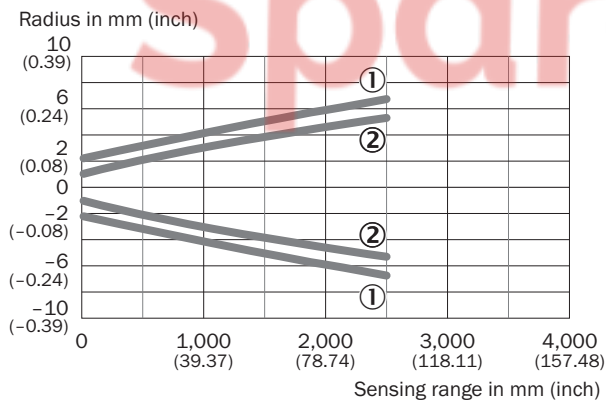


Characteristic curve



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

Light spot size

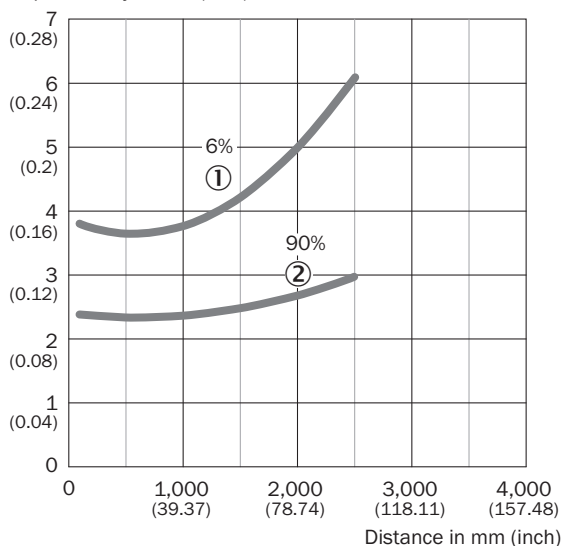


- ① Light spot horizontal
- ② Light spot vertical



### Repeatability

Repeatability in mm (inch)

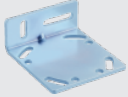




- ① 6 % remission, on black
- ② 90 % remission, on white



### Recommended accessories

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

|   | Brief description   | Type               | part no. |
|---|---|--------------------|----------|
| <b>Mounting systems</b>   |   |                    |          |
|  | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting brackets</li> <li><b>Suitable for:</b> PowerProx</li> </ul>   | BEF-WTT12L         | 2078538  |
| <b>connectors and cables</b>  |   |                    |          |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Male connector, M12, 5-pin, straight, A-coded</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> <li><b>Note:</b> For field bus technology</li> </ul>   | STE-1205-G         | 6022083  |
|  | <ul style="list-style-type: none"> <li><b>Connection type head A:</b> Female connector, M12, 5-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, 5-wire, PVC</li> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul> | YF2A15-050VB5XLEAX | 2096240  |

## 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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