



# WTT12L-B2531

PowerProx

MULTITASK PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type         | Part no. |
|--------------|----------|
| WTT12L-B2531 | 1072609  |

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

Detailed technical data

Features

|                                 |                                                        |
|---------------------------------|--------------------------------------------------------|
| Sensor/ detection principle     | Photoelectric proximity sensor, Background suppression |
| Dimensions (W x H x D)          | 20 mm x 49.6 mm x 44.2 mm                              |
| Housing design (light emission) | Rectangular                                            |
| Sensing range max.              | 50 mm ... 2,500 mm <sup>1)</sup>                       |
| Sensing range                   | 100 mm ... 2,500 mm <sup>2)</sup>                      |
| Type of light                   | Visible red light                                      |
| Light source                    | Laser <sup>3)</sup>                                    |
| Light spot size (distance)      | Ø 14 mm (2,500 mm)                                     |
| Wave length                     | 658 nm                                                 |
| Laser class                     | 1 (IEC 60825-1 / CDRH 21 CFR 1040.10 & 1040.11)        |
| Adjustment                      | Potentiometer, 4 turns (1 x)                           |

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

<sup>2)</sup> Adjustable.

<sup>3)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/electronics

|                                                   |                                                       |
|---------------------------------------------------|-------------------------------------------------------|
| <b>Supply voltage</b>                             | 10 V DC ... 30 V DC <sup>1)</sup>                     |
| <b>Ripple</b>                                     | $\leq 5 \text{ V}_{\text{pp}}$ <sup>2)</sup>          |
| <b>Current consumption</b>                        | 70 mA <sup>3)</sup>                                   |
| <b>Switching output</b>                           | Push-pull: PNP/NPN <sup>4)</sup>                      |
| <b>Number of switching outputs</b>                | 2 (Q, /Q) <sup>4)</sup>                               |
| <b>Switching mode</b>                             | Light/dark switching <sup>4)</sup>                    |
| <b>Output current <math>I_{\text{max}}</math></b> | $\leq 100 \text{ mA}$                                 |
| <b>Response time</b>                              | $\leq 0.5 \text{ ms}$ <sup>5)</sup>                   |
| <b>Switching frequency</b>                        | 1,000 Hz <sup>6)</sup>                                |
| <b>Analog output</b>                              | -                                                     |
| <b>Input</b>                                      | Sender off                                            |
| <b>Connection type</b>                            | Male connector M12, 5-pin                             |
| <b>Circuit protection</b>                         | A <sup>7)</sup><br>B <sup>8)</sup><br>C <sup>9)</sup> |
| <b>Protection class</b>                           | III                                                   |
| <b>Weight</b>                                     | 48 g                                                  |
| <b>Housing material</b>                           | Plastic, VISTAL®                                      |
| <b>Optics material</b>                            | Plastic, PMMA                                         |
| <b>Enclosure rating</b>                           | IP67                                                  |
| <b>Ambient operating temperature</b>              | -35 °C ... +50 °C <sup>10)</sup>                      |
| <b>Ambient storage temperature</b>                | -40 °C ... +70 °C                                     |
| <b>Warm-up time</b>                               | < 15 min <sup>11)</sup>                               |
| <b>Initialization time</b>                        | < 300 ms                                              |
| <b>UL File No.</b>                                | NRKH.E181493                                          |

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

<sup>2)</sup> May not exceed or fall below  $U_V$  tolerances.

<sup>3)</sup> Without load. At  $V_S = 24 \text{ V}$ .

<sup>4)</sup> Q, /Q = 1 switching threshold, light/dark switching (complementary).

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> A =  $V_S$  connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

<sup>9)</sup> C = interference suppression.

<sup>10)</sup> As of  $T_a = 45 \text{ °C}$ , a max.load current  $I_{\text{max}} = 50 \text{ mA}$  is permitted.

<sup>11)</sup> Below  $T_a = -10 \text{ °C}$  a warm-up time is required.

## Safety-related parameters

|                         |           |
|-------------------------|-----------|
| <b>MTTF<sub>D</sub></b> | 133 years |
| <b>DC<sub>avg</sub></b> | 0%        |

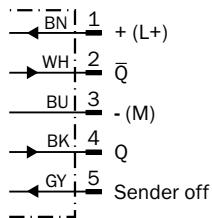
## Classifications

|                   |          |
|-------------------|----------|
| <b>ECI@ss 5.0</b> | 27270904 |
|-------------------|----------|

|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.1.4</b>   | 27270904 |
| <b>ECI@ss 6.0</b>     | 27270904 |
| <b>ECI@ss 6.2</b>     | 27270904 |
| <b>ECI@ss 7.0</b>     | 27270904 |
| <b>ECI@ss 8.0</b>     | 27270904 |
| <b>ECI@ss 8.1</b>     | 27270904 |
| <b>ECI@ss 9.0</b>     | 27270904 |
| <b>ECI@ss 10.0</b>    | 27270904 |
| <b>ECI@ss 11.0</b>    | 27270904 |
| <b>ETIM 5.0</b>       | EC002719 |
| <b>ETIM 6.0</b>       | EC002719 |
| <b>ETIM 7.0</b>       | EC002719 |
| <b>UNSPSC 16.0901</b> | 39121528 |

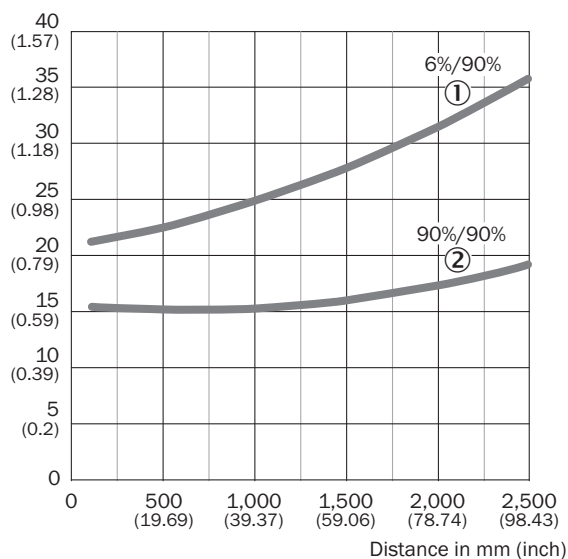
## Connection diagram

Cd-282



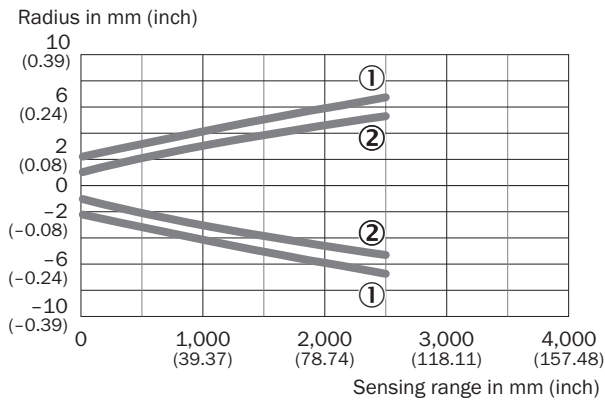
## Characteristic curve

Min. distance from object to background in mm (inch)



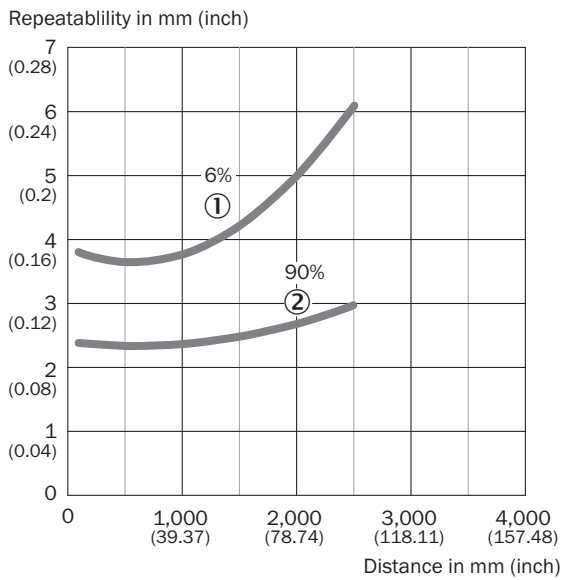
- ① Sensing range on black, 6% remission
- ② Sensing range on white, 90% remission

## Light spot size



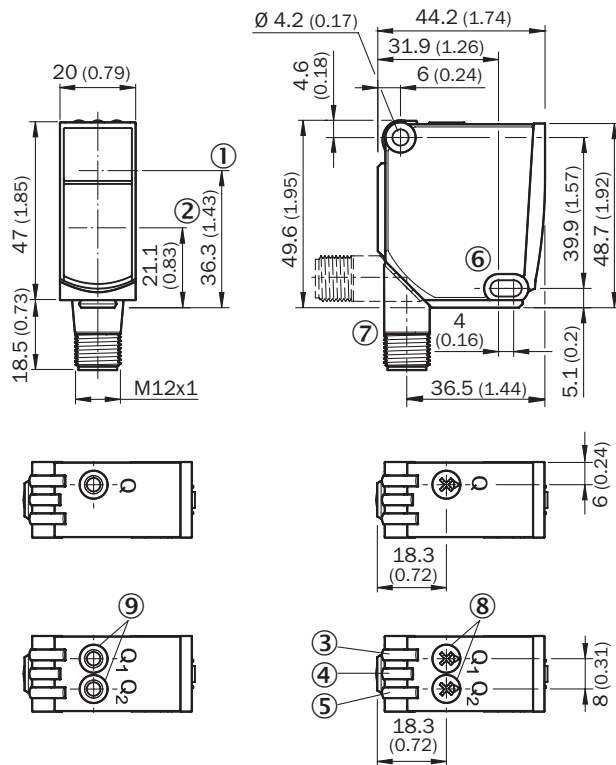
- ① Light spot horizontal
- ② Light spot vertical

## Reproducibility



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

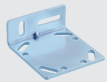
## Dimensional drawing (Dimensions in mm (inch))



- ① Optical axis, sender
- ② Optical axis, receiver
- ③ LED indicator yellow: Status of received light beam
- ④ LED indicator green: power on
- ⑤ LED indicator yellow: Status of received light beam
- ⑥ Mounting hole, Ø 4.2 mm
- ⑦ Connection
- ⑧ Potentiometer
- ⑨ Single teach-in button

## Recommended accessories

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

|                                                                                     | Brief description                                                                                                                     | Type               | Part no. |
|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Mounting brackets and plates                                                        |                                                                                                                                       |                    |          |
|  | BEF-WTT12L                                                                                                                            | BEF-WTT12L         | 2078538  |
| Plug connectors and cables                                                          |                                                                                                                                       |                    |          |
|  | Head A: female connector, M12, 5-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A15-050VB5XLEAX | 2096240  |
|  | Head A: male connector, M12, 5-pin, straight<br>Cable: unshielded<br>For field bus technology                                         | STE-1205-G         | 6022083  |

## 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)