



## WTT190L-P3531

WTT190 PowerProx

TIME-OF-FLIGHT SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

| Type          | part no. |
|---------------|----------|
| WTT190L-P3531 | 6055955  |

**Included in delivery:** BEF-W190 (1)

Other models and accessories → [www.sick.com/WTT190\\_PowerProx](http://www.sick.com/WTT190_PowerProx)

Illustration may differ



## 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>              | 200 mm ... 2,500 mm <sup>1)</sup>                             |
| <b>Sensing range</b>                   | 200 mm ... 2,500 mm <sup>2)</sup><br>1)                       |
| <b>Type of light</b>                   | Visible red light   |
| <b>Light source</b>                    | Laser <sup>3)</sup>   |
| <b>Light spot size (distance)</b>      | Ø 10 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) <sup>4)</sup> |
| <b>Adjustment</b>                      | Potentiometer, 4 turns (1 x)                                  |
| <b>Items supplied</b>                  | BEF-W190 mounting bracket                                     |
| <b>Safety-related parameters</b>       |   |
| MTTF <sub>D</sub>                      | 215 years   |
| DC <sub>avg</sub>                      | 0 %   |

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

<sup>2)</sup> Adjustable.

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

<sup>4)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

## Electronics

|   |   |
|---|---|
| <b>Supply voltage <math>U_B</math></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>                  | 75 mA <sup>3)</sup>                                   |
| <b>Switching output</b>                     | PNP <sup>4)</sup>                                     |
| <b>Number of switching outputs</b>          | 1 ( $Q_1$ ) <sup>4)</sup>                             |
| <b>Switching mode</b>                       | Light/dark switching <sup>4)</sup>                    |
| <b>Switching mode selector</b>              | Selectable via light/dark selector                    |
| <b>Output current <math>I_{max.}</math></b> | ≤ 100 mA  |
| <b>Response time</b>                        | ≤ 0.5 ms <sup>5)</sup>                                |
| <b>Switching frequency</b>                  | 1,000 Hz <sup>6)</sup>                                |
| <b>Analog output</b>                        | -   |
| <b>Input</b>                                | Sender off  |
| <b>Circuit protection</b>                   | A <sup>7)</sup><br>B <sup>8)</sup><br>C <sup>9)</sup> |
| <b>Protection class</b>                     | III   |
| <b>Enclosure rating</b>                     | IP67  |
| <b>Warm-up time</b>                         | < 5 min <sup>10)</sup>                                |
| <b>Initialization time</b>                  | < 300 ms  |

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

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

<sup>3)</sup> Without load. At  $V_S = 24$  V.

<sup>4)</sup>  $Q_1 = 1$  switching threshold, light/dark switching selectable via light/dark selector.

<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> For optimum performance observe max. warm-up time of 5 minutes.

## Mechanics

|                               |                                   |
|-------------------------------|-----------------------------------|
| <b>Dimensions (W x H x D)</b> | 17.6 mm x 46.5 mm x 34.1 mm       |
| <b>Housing material</b>       | Plastic, ABS                      |
| <b>Optics material</b>        | Plastic, PMMA                     |
| <b>Weight</b>                 | 45 g                              |
| <b>Connection type</b>        | Cable with plug M12, 5-pin, 0.3 m |
| <b>Connection type Detail</b> |                                   |
| Conductor cross section       | 0.14 mm <sup>2</sup>              |
| Cable material                | Plastic, PVC                      |

## Ambient data

|                                      |                   |
|--------------------------------------|-------------------|
| <b>Ambient operating temperature</b> | -10 °C ... +50 °C |
| <b>Ambient temperature, storage</b>  | -40 °C ... +70 °C |

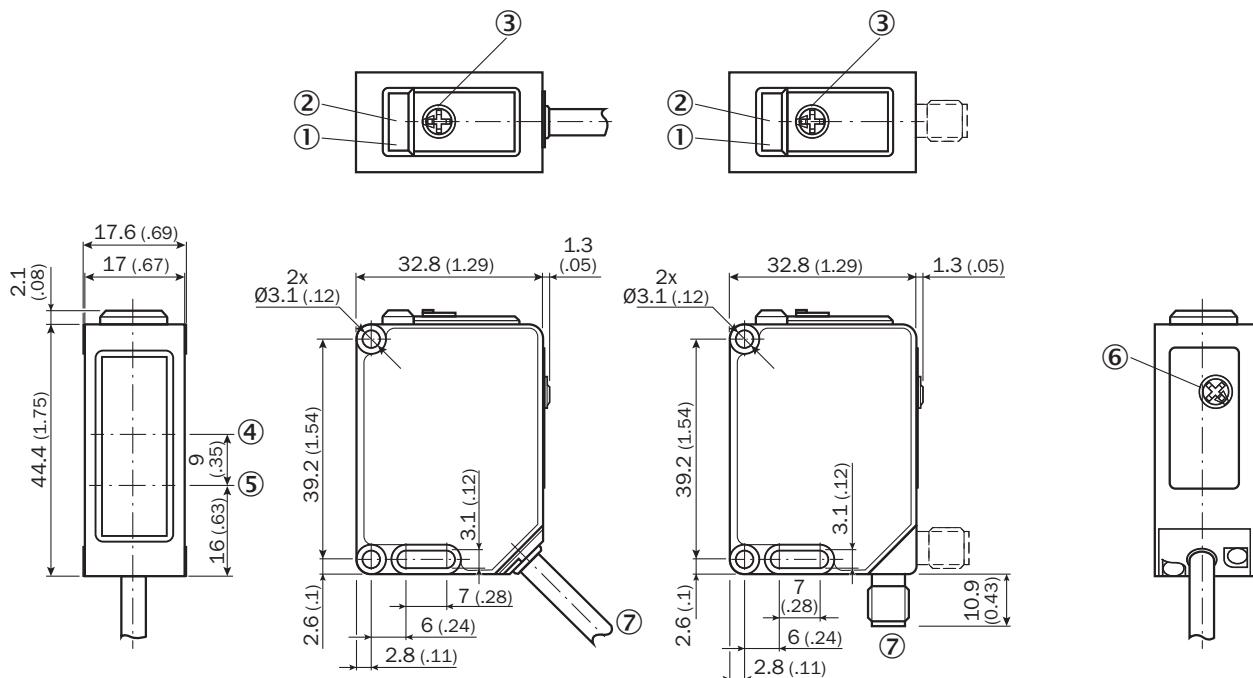
## Classifications

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

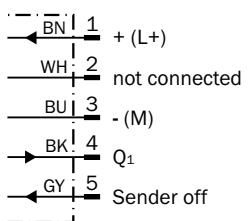
Dimensional drawing



Dimensions in mm (inch)

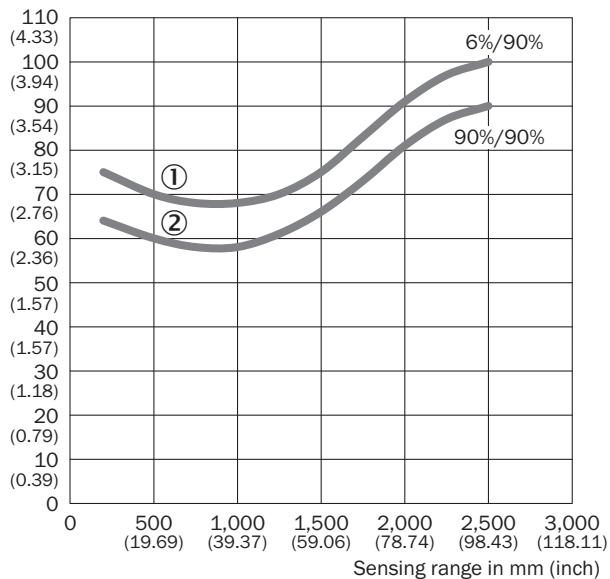
- ① Status indicator LED, yellow: Status of output Q1
- ② Status indicator LED, green/red: power on / stability indicator
- ③ Potentiometer
- ④ optical axis, receiver
- ⑤ optical axis, sender
- ⑥ Light/dark selector
- ⑦ Connection

Connection diagram Cd-294



## Characteristic curve

Min. distance object to background in mm (inch)

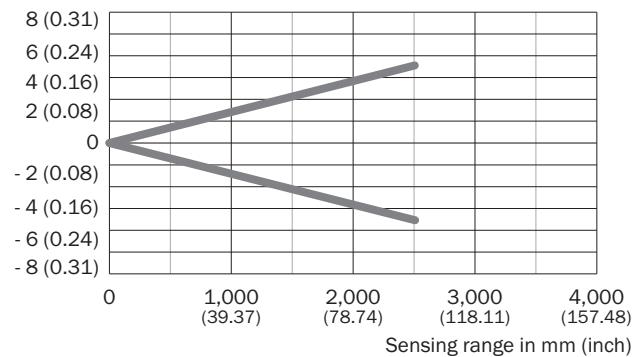


① Sensing range on black, 6% remission factor

② Sensing range on white, 90% remission factor

## Light spot size

Radius mm (inch)



## Recommended accessories

Other models and accessories → [www.sick.com/WTT190\\_PowerProx](http://www.sick.com/WTT190_PowerProx)

|   | <b>Brief description</b>  | <b>Type</b>        | <b>part no.</b> |
|---|---|--------------------|-----------------|
| connectors and cables   |   |                    |                 |
|  | <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> Uncontaminated zones, Zones with chemicals</li> </ul> | YF2A15-050VB5XLEAX | 2096240         |
|  | <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         |

## 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)