



# WTV18-2P420S02

## W18-2

SMALL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

## Ordering information

| Type           | Part no. |
|----------------|----------|
| WTV18-2P420S02 | 1047134  |

Other models and accessories → [www.sick.com/W18-2](http://www.sick.com/W18-2)

## Detailed technical data

### Features

|  |                                   |
|--|-----------------------------------|
| <b>Functional principle</b>            | Photoelectric proximity sensor    |
| <b>Functional principle detail</b>     | Background suppression            |
| <b>Dimensions (W x H x D)</b>          | 20 mm x 76 mm x 31.5 mm           |
| <b>Housing design (light emission)</b> | Rectangular                       |
| <b>Sensing range max.</b>              | 10 mm ... 1,600 mm <sup>1)</sup>  |
| <b>Sensing range</b>                   | 300 mm ... 1,400 mm <sup>2)</sup> |
| <b>Type of light</b>                   | Infrared light                    |
| <b>Light source</b>                    | LED <sup>3)</sup>                 |
| <b>Light spot size (distance)</b>      | Ø 8 mm (200 mm)                   |
| <b>Wave length</b>                     | 880 nm                            |
| <b>Adjustment</b>                      | Potentiometer, 9 turns            |
| <b>Special features</b>                | V-optics                          |

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

<sup>2)</sup> Object with 6 % remission.

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

### Mechanics/electronics

|                            |                                   |
|----------------------------|-----------------------------------|
| <b>Supply voltage</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> | 30 mA <sup>3)</sup>               |
| <b>Switching output</b>    | PNP                               |

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

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

<sup>3)</sup> Without load.

<sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> C = interference suppression.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

|                                       |   |
|---------------------------------------|---|
| <b>Switching mode</b>                 | Light/dark switching                                  |
| <b>Output current I<sub>max</sub></b> | ≤ 100 mA  |
| <b>Response time</b>                  | < 2,000 μs <sup>4)</sup>                              |
| <b>Switching frequency</b>            | 250 Hz <sup>5)</sup>                                  |
| <b>Connection type</b>                | Male connector M12, 4-pin                             |
| <b>Circuit protection</b>             | A <sup>6)</sup><br>C <sup>7)</sup><br>D <sup>8)</sup> |
| <b>Weight</b>                         | 60 g  |
| <b>Special device</b>                 | ✓   |
| <b>Housing material</b>               | Plastic, ABS  |
| <b>Optics material</b>                | Plastic, PMMA   |
| <b>Enclosure rating</b>               | IP67  |
| <b>Shock and vibration resistance</b> | According to EN 60068                                 |
| <b>Ambient operating temperature</b>  | -40 °C ... +75 °C                                     |
| <b>Ambient temperature, storage</b>   | -25 °C ... +60 °C                                     |

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

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

3) Without load.

4) Signal transit time with resistive load.

5) With light/dark ratio 1:1.

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

7) C = interference suppression.

8) D = outputs overcurrent and short-circuit protected.

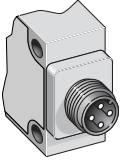
### Safety-related parameters

|                         |           |
|-------------------------|-----------|
| <b>MTTF<sub>D</sub></b> | 700 years |
| <b>DC<sub>avg</sub></b> | 0 %       |

### Classifications

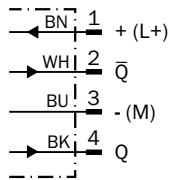
|                     |          |
|---------------------|----------|
| <b>eCl@ss 5.0</b>   | 27270904 |
| <b>eCl@ss 5.1.4</b> | 27270904 |
| <b>eCl@ss 6.0</b>   | 27270904 |
| <b>eCl@ss 6.2</b>   | 27270904 |
| <b>eCl@ss 7.0</b>   | 27270904 |
| <b>eCl@ss 8.0</b>   | 27270904 |
| <b>eCl@ss 8.1</b>   | 27270904 |
| <b>eCl@ss 9.0</b>   | 27270904 |
| <b>eCl@ss 10.0</b>  | 27270904 |
| <b>eCl@ss 11.0</b>  | 27270904 |
| <b>eCl@ss 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 |

### Connection type

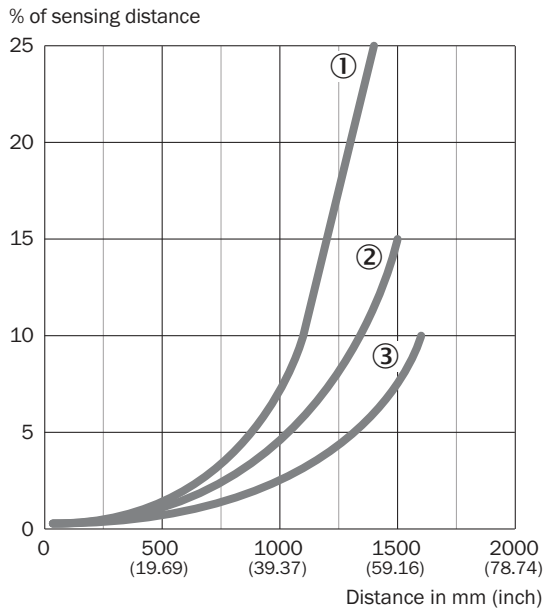


### Connection diagram

Cd-083

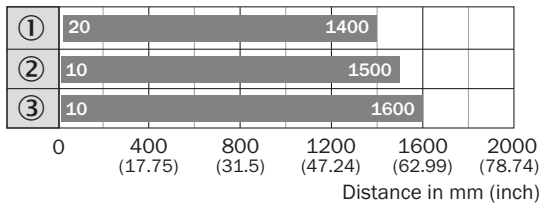


### Characteristic curve



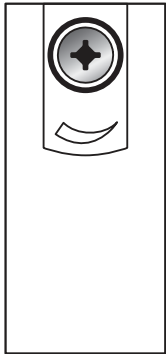
- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18 % remission
- ③ Sensing range on white, 90% remission

## Sensing range diagram

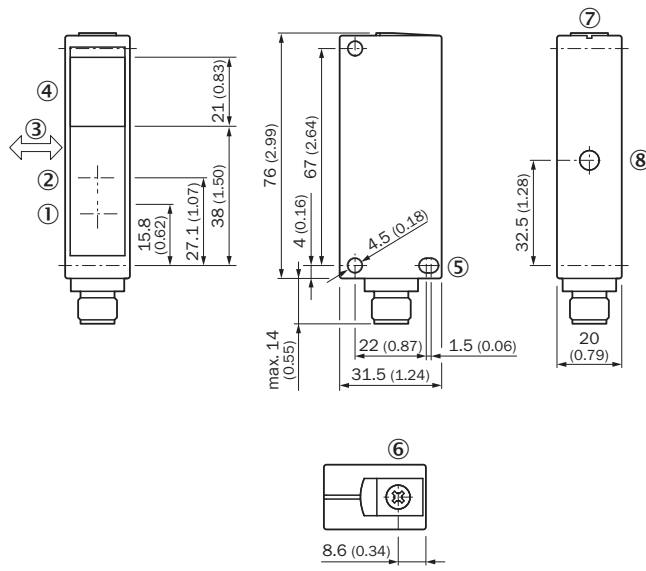


- Sensing range
- ① Sensing range on black, 6% remission
- ② Sensing range on gray, 18% remission
- ③ Sensing range on white, 90% remission

## Adjustments





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



- ① Center of optical axis, sender
- ② Center of optical axis, sender
- ③ Standard direction of the material being detected
- ④ Receiving range
- ⑤ Mounting hole,  $\varnothing$  4.5 mm
- ⑥ Adjustment of sensing range
- ⑦ Alignment sight
- ⑧ Function indicator

**Recommended accessories**

Other models and accessories → [www.sick.com/W18-2](http://www.sick.com/W18-2)

|   | Brief description   | Type               | Part no. |
|---|---|--------------------|----------|
| <b>Plug connectors and cables</b>   |   |                    |          |
|  | Head A: female connector, M12, 4-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PVC, unshielded, 5 m | YF2A14-050VB3XLEAX | 2096235  |
|  | Head A: male connector, M12, 4-pin, straight<br>Cable: unshielded   | STE-1204-G         | 6009932  |

## 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)