



**WTE280-2P2431**  
W280-2

**COMPACT PHOTOELECTRIC SENSORS**

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

| Type          | Part no. |
|---------------|----------|
| WTE280-2P2431 | 6044728  |

**Included in delivery:** BEF-W280 (1)

Other models and accessories → [www.sick.com/W280-2](http://www.sick.com/W280-2)

### Detailed technical data

#### Features

|                                        |                                                          |
|----------------------------------------|----------------------------------------------------------|
| <b>Functional principle</b>            | Photoelectric proximity sensor                           |
| <b>Functional principle detail</b>     | Energetic                                                |
| <b>Dimensions (W x H x D)</b>          | 23.5 mm x 74.5 mm x 63 mm                                |
| <b>Housing design (light emission)</b> | Rectangular                                              |
| <b>Sensing range max.</b>              | 10 mm ... 2,000 mm <sup>1)</sup>                         |
| <b>Sensing range</b>                   | 10 mm ... 1,500 mm                                       |
| <b>Type of light</b>                   | Visible red light                                        |
| <b>Light source</b>                    | LED <sup>2)</sup>                                        |
| <b>Light spot size (distance)</b>      | Ø 45 mm (1,500 mm)                                       |
| <b>Adjustment</b>                      | Potentiometer<br>adjustable via sensing range adjustment |

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

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

#### Mechanics/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>          | 20 mA <sup>3)</sup>               |

<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> B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

<sup>10)</sup> The AC/DC devices (-2Rxxx only) comply with the Radio Safety Requirements for the industrial sector (Radio Safety Class A). They may cause radio interference if used in a residential area.

|                                             |                                                                          |
|---------------------------------------------|--------------------------------------------------------------------------|
| <b>Switching output</b>                     | PNP                                                                      |
| <b>Switching mode</b>                       | Light/dark switching                                                     |
| <b>Switching mode selector</b>              | Selectable via light/dark rotary switch                                  |
| <b>Output current <math>I_{\max}</math></b> | $\leq 100 \text{ mA}$                                                    |
| <b>Response time</b>                        | $\leq 0.5 \text{ ms}^{4)}$                                               |
| <b>Switching frequency</b>                  | $1,000 \text{ Hz}^{5)}$                                                  |
| <b>Connection type</b>                      | Male connector M12, 4-pin                                                |
| <b>Circuit protection</b>                   | A <sup>6)</sup><br>B <sup>7)</sup><br>C <sup>8)</sup><br>D <sup>9)</sup> |
| <b>Protection class</b>                     | III                                                                      |
| <b>Weight</b>                               | 150 g                                                                    |
| <b>Housing material</b>                     | Plastic, ABS                                                             |
| <b>Optics material</b>                      | Plastic, PMMA                                                            |
| <b>Enclosure rating</b>                     | IP66<br>IP67                                                             |
| <b>Items supplied</b>                       | Mounting bracket BEF-W280                                                |
| <b>Electromagnetic compatibility (EMC)</b>  | EN 60947-5-2 <sup>10)</sup>                                              |
| <b>Ambient operating temperature</b>        | $-25 \text{ °C} \dots +55 \text{ °C}$                                    |
| <b>Ambient temperature, storage</b>         | $-40 \text{ °C} \dots +70 \text{ °C}$                                    |
| <b>UL File No.</b>                          | NRKH2.E300503 & NRKH8.E300503                                            |

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

<sup>2)</sup> May not exceed or fall below  $U_V$  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 =  $V_S$  connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> C = interference suppression.

<sup>9)</sup> D = outputs overcurrent and short-circuit protected.

<sup>10)</sup> The AC/DC devices (-2Rxxx only) comply with the Radio Safety Requirements for the industrial sector (Radio Safety Class A). They may cause radio interference if used in a residential area.

## Safety-related parameters

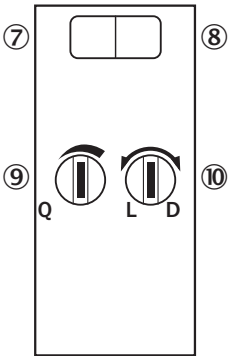
|                         |             |
|-------------------------|-------------|
| <b>MTTF<sub>D</sub></b> | 1,440 years |
| <b>DC<sub>avg</sub></b> | 0 %         |

## Classifications

|                     |          |
|---------------------|----------|
| <b>ECLASS 5.0</b>   | 27270903 |
| <b>ECLASS 5.1.4</b> | 27270903 |
| <b>ECLASS 6.0</b>   | 27270903 |
| <b>ECLASS 6.2</b>   | 27270903 |
| <b>ECLASS 7.0</b>   | 27270903 |
| <b>ECLASS 8.0</b>   | 27270903 |
| <b>ECLASS 8.1</b>   | 27270903 |

|                |          |
|----------------|----------|
| ECLASS 9.0     | 27270903 |
| ECLASS 10.0    | 27270904 |
| ECLASS 11.0    | 27270904 |
| ECLASS 12.0    | 27270903 |
| ETIM 5.0       | EC001821 |
| ETIM 6.0       | EC001821 |
| ETIM 7.0       | EC002719 |
| ETIM 8.0       | EC002719 |
| UNSPSC 16.0901 | 39121528 |

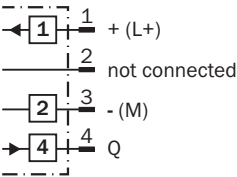
Adjustments



- ⑦ LED indicator green: Stability indicator
- ⑧ LED indicator yellow: Status of received light beam
- ⑨ Sensing range adjustment: potentiometer
- ⑩ Light/dark selector

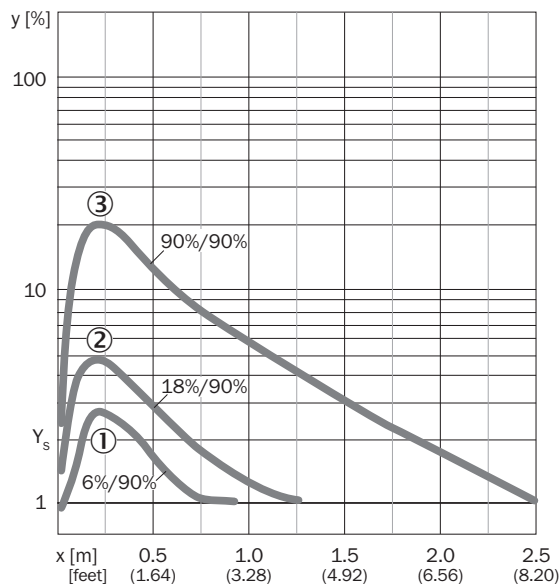
Connection diagram

Cd-068



## Characteristic curve

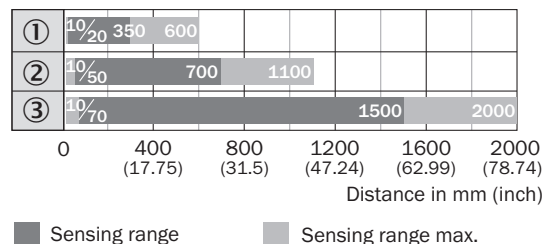
WTE280-2



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

## Sensing range diagram

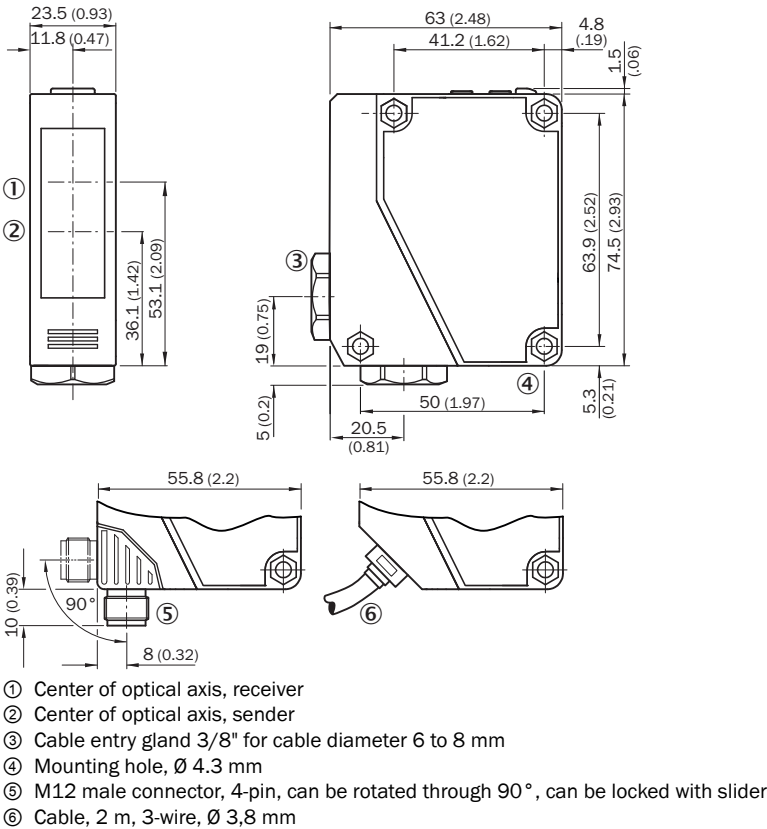
WTE280-2



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

Dimensional drawing (Dimensions in mm (inch))

WTE280-2, WL280-2, DC



- ① Center of optical axis, receiver
- ② Center of optical axis, sender
- ③ Cable entry gland 3/8" for cable diameter 6 to 8 mm
- ④ Mounting hole, Ø 4.3 mm
- ⑤ M12 male connector, 4-pin, can be rotated through 90°, can be locked with slider
- ⑥ Cable, 2 m, 3-wire, Ø 3,8 mm

Recommended accessories

Other models and accessories → [www.sick.com/W280-2](http://www.sick.com/W280-2)

|                                                                                     | Brief description                                                                                                                                                                                                                                                                                                                                                                                      | Type               | Part no. |
|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------|
| Plug connectors and cables                                                          |                                                                                                                                                                                                                                                                                                                                                                                                        |                    |          |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Female connector, M12, 4-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, 4-wire, PVC</li><li>• <b>Description:</b> Sensor/actuator cable, unshielded</li><li>• <b>Application:</b> Zones with chemicals</li></ul> | YF2A14-050VB3XLEAX | 2096235  |
|  | <ul style="list-style-type: none"><li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight</li><li>• <b>Description:</b> Unshielded</li><li>• <b>Connection systems:</b> Screw-type terminals</li><li>• <b>Permitted cross-section:</b> ≤ 0.75 mm²</li></ul>                                                                                                                          | 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)