



# GRSE18S-P233Y

GR18

PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



Ordering information

| Type          | part no. |
|---------------|----------|
| GRSE18S-P233Y | 1062420  |

Other models and accessories → [www.sick.com/GR18](http://www.sick.com/GR18)

Detailed technical data

Features

|                                 |  |
|---------------------------------|--|
| Functional principle            | Through-beam photoelectric sensor  |
| Dimensions (W x H x D)          | 18 mm x 18 mm x 38.1 mm  |
| Housing design (light emission) | Cylindrical  |
| Thread diameter (housing)       | M18 x 1  |
| Optical axis                    | Axial, fully flush   |
| Sensing range max.              | 0 m ... 15 m   |
| Sensing range                   | 0 m ... 10 m   |
| Type of light                   | Visible red light  |
| Light source                    | PinPoint LED <sup>1)</sup>   |
| Light spot size (distance)      | Ø 250 mm (10 m)  |
| Wave length                     | 650 nm   |
| Adjustment                      | None   |
| Display                         |  |
|                                 | LED green    Operating indicatorStatic on: power on  |
|                                 | LED yellow    Status of received light beamStatic on: object not presentStatic off: object present |

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

## Mechanics/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>                  | 30 mA   |
| <b>Switching output</b>                     | PNP   |
| <b>Switching mode</b>                       | Light switching                                       |
| <b>Signal voltage PNP HIGH/LOW</b>          | V <sub>S</sub> - (≤ 3 V) / approx. 0 V                |
| <b>Output current I<sub>max.</sub></b>      | ≤ 100 mA <sup>3)</sup>                                |
| <b>Response time</b>                        | < 500 μs <sup>4)</sup>                                |
| <b>Switching frequency</b>                  | 1,000 Hz <sup>5)</sup>                                |
| <b>Connection type</b>                      | Connector M12, 3-pin                                  |
| <b>Circuit protection</b>                   | A <sup>6)</sup><br>B <sup>7)</sup><br>D <sup>8)</sup> |
| <b>Protection class</b>                     | III   |
| <b>Housing material</b>                     | Metal, Nickel-plated brass and ABS                    |
| <b>Optics material</b>                      | Plastic, PMMA   |
| <b>Enclosure rating</b>                     | IP67  |
| <b>Items supplied</b>                       | Fastening nuts (4 x)                                  |
| <b>Electromagnetic compatibility (EMC)</b>  | EN 60947-5-2  |
| <b>Ambient operating temperature</b>        | -25 °C ... +55 °C <sup>9)</sup>                       |
| <b>Ambient temperature, storage</b>         | -40 °C ... +70 °C                                     |
| <b>UL File No.</b>                          | NRKH.E348498 & NRKH7.E348498                          |
| <b>Part number of individual components</b> | 2068238 GRS18S-D233Y 2068239 GRE18S-P233Y             |

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

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

<sup>3)</sup> At U<sub>v</sub> > 24 V or ambient temperature > 49 °C, I<sub>A</sub> max. = 50 mA.

<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> D = outputs overcurrent and short-circuit protected.

<sup>9)</sup> At U<sub>v</sub> ≤ 24V and I<sub>A</sub> < 50mA.

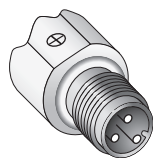
## Certificates

|  |   |
|--|---|
| <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>ECOLAB certificate</b>                                | ✓ |
| <b>cULus certificate</b>                                 | ✓ |
| <b>Photobiological safety (DIN EN 62471) certificate</b> | ✓ |

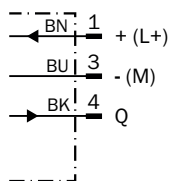
Classifications

|                       |          |
|-----------------------|----------|
| <b>ECLASS 5.0</b>     | 27270901 |
| <b>ECLASS 5.1.4</b>   | 27270901 |
| <b>ECLASS 6.0</b>     | 27270901 |
| <b>ECLASS 6.2</b>     | 27270901 |
| <b>ECLASS 7.0</b>     | 27270901 |
| <b>ECLASS 8.0</b>     | 27270901 |
| <b>ECLASS 8.1</b>     | 27270901 |
| <b>ECLASS 9.0</b>     | 27270901 |
| <b>ECLASS 10.0</b>    | 27270901 |
| <b>ECLASS 11.0</b>    | 27270901 |
| <b>ECLASS 12.0</b>    | 27270901 |
| <b>ETIM 5.0</b>       | EC002716 |
| <b>ETIM 6.0</b>       | EC002716 |
| <b>ETIM 7.0</b>       | EC002716 |
| <b>ETIM 8.0</b>       | EC002716 |
| <b>UNSPSC 16.0901</b> | 39121528 |

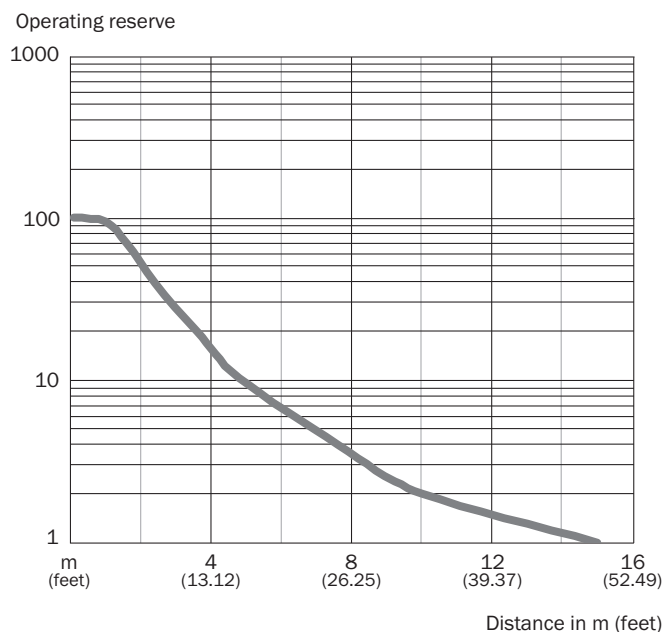
Connection type



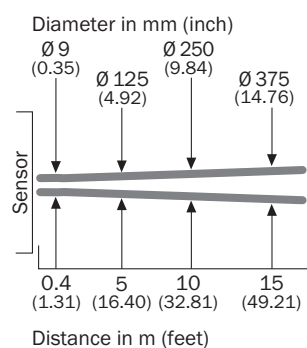
Connection diagram Cd-045



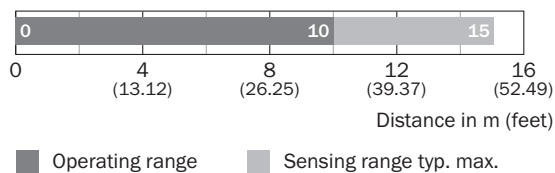
## Characteristic curve GRSE18S



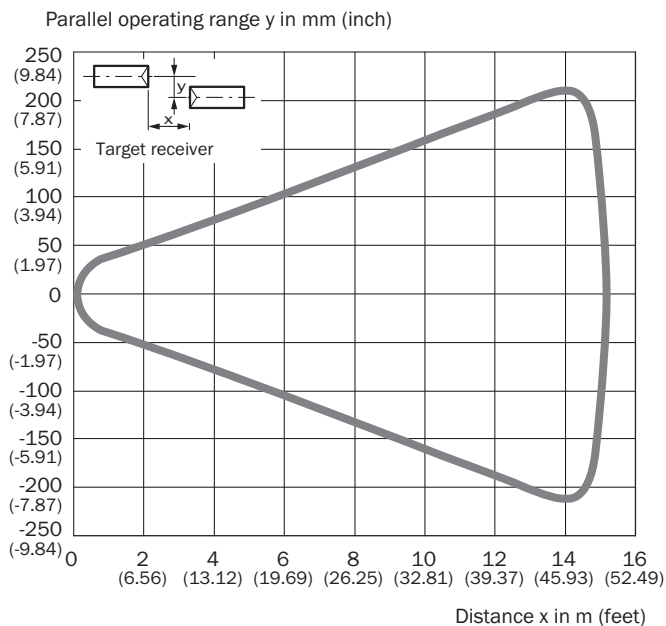
## Light spot size GRSE18, red light



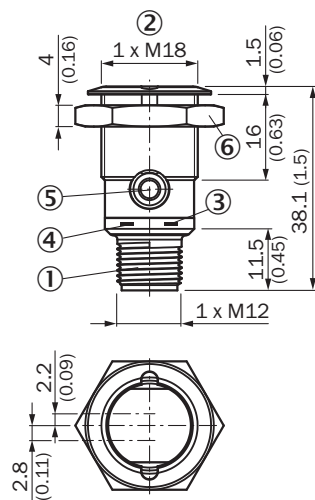
## Sensing range diagram GRSE18S



## Response range GRSE18S



## Dimensional drawing GR18S, metal, connector, straight, fully flush





Dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- ⑥ fastening nut; 24 mm hex, metal

## Recommended accessories

Other models and accessories → [www.sick.com/GR18](http://www.sick.com/GR18)

|   | Brief description   | Type         | part no. |
|---|---|--------------|----------|
| Mounting systems  |   |              |          |
|   | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket for M18 sensors</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Without mounting hardware</li> <li><b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li> </ul> | BEF-WN-M18   | 5308446  |
|   | <ul style="list-style-type: none"> <li><b>Description:</b> Mounting tool for "fully flush" variants</li> <li><b>Usable for:</b> GR18</li> <li><b>Suitable for:</b> GR18S, radial, fully flush</li> </ul>  | BEF-TO-GR18S | 4072132  |

## 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)