Online data sheet



# GRTE18S-P2347

## GR18S

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| GRTE18S-P2347 | 1058193 |

Other models and accessories → www.sick.com/GR18S

## Detailed technical data

### Features

| | |
|---|---|
| **Sensor/ detection principle** | Photoelectric proximity sensor, energetic |
| **Housing design (light emission)** | Cylindrical, straight |
| **Thread diameter (housing)** | M18 x 1 |
| **Optical axis** | Axial |
| **Sensing range max.** | 5 mm ... 550 mm [1] |
| **Sensing range** | 10 mm ... 400 mm [1] |
| **Type of light** | Visible red light |
| **Light source** | PinPoint LED [2] |
| **Light spot size (distance)** | Ø 9 mm (400 mm) |
| **Wave length** | 650 nm |
| **Adjustment** | Potentiometer, 270° |

[1] Object with 90 % reflectance (referred to standard white, DIN 5033).
[2] Average service life: 100,000 h at $T_U$ = +25 °C.

### Mechanics/electronics

| | |
|---|---|
| **Supply voltage** | 10 V DC ... 30 V DC [1] |
| **Ripple** | ± 5 $V_{pp}$ [2] |
| **Power consumption** | ≤ 30 mA |

[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below $U_V$ tolerances.
[3] At Uv > 24 V or ambient temperature > 49 °C, IA max. = 50 mA.
[4] Signal transit time with resistive load.
[5] With light/dark ratio 1:1.
[6] A = $V_S$ connections reverse-polarity protected.
[7] B = inputs and output reverse-polarity protected.
[8] D = outputs overcurrent and short-circuit protected.
[9] At $U_V$ <=24V and $I_A$<50mA.

| | |
|---|---|
| **Switching output** | PNP |
| **Switching mode** | Light switching |
| **Signal voltage PNP HIGH/LOW** | $V_S$ - (≤ 3 V) / approx. 0 V |
| **Output current $I_{max.}$** | 100 mA [3] |
| **Response time** | < 1,000 µs [4] |
| **Switching frequency** | 500 Hz [5] |
| **Connection type** | Connector M12, 3-pin |
| **Circuit protection** | A [6]<br>B [7]<br>D [8] |
| **Protection class** | III |
| **Housing material** | Plastic, ABS |
| **Optics material** | Plastic, PMMA |
| **Enclosure rating** | IP67 |
| **Items supplied** | Fastening nuts (2 x) |
| **EMC** | EN 60947-5-2 |
| **Ambient operating temperature** | –25 °C ... +55 °C [9] |
| **Ambient storage temperature** | –40 °C ... +70 °C |
| **UL File No.** | NRKH.E348498 & NRKH7.E348498 |

[1] Limit values when operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below $U_V$ tolerances.
[3] At Uv > 24 V or ambient temperature > 49 °C, IA max. = 50 mA.
[4] Signal transit time with resistive load.
[5] With light/dark ratio 1:1.
[6] A = $V_S$ connections reverse-polarity protected.
[7] B = inputs and output reverse-polarity protected.
[8] D = outputs overcurrent and short-circuit protected.
[9] At $U_V$ <=24V and $I_A$<50mA.

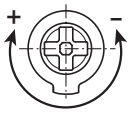
## Classifications

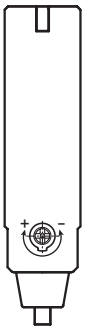
| | |
|---|---|
| **ECl@ss 5.0** | 27270903 |
| **ECl@ss 5.1.4** | 27270903 |
| **ECl@ss 6.0** | 27270903 |
| **ECl@ss 6.2** | 27270903 |
| **ECl@ss 7.0** | 27270903 |
| **ECl@ss 8.0** | 27270903 |
| **ECl@ss 8.1** | 27270903 |
| **ECl@ss 9.0** | 27270903 |
| **ETIM 5.0** | EC001821 |
| **ETIM 6.0** | EC001821 |
| **UNSPSC 16.0901** | 39121528 |

## Adjustments possible

GRTB18(S), GRTE18(S), Sensing range setting: Potentiometer, 270°

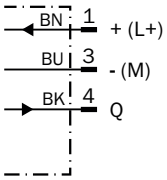
Sensing range



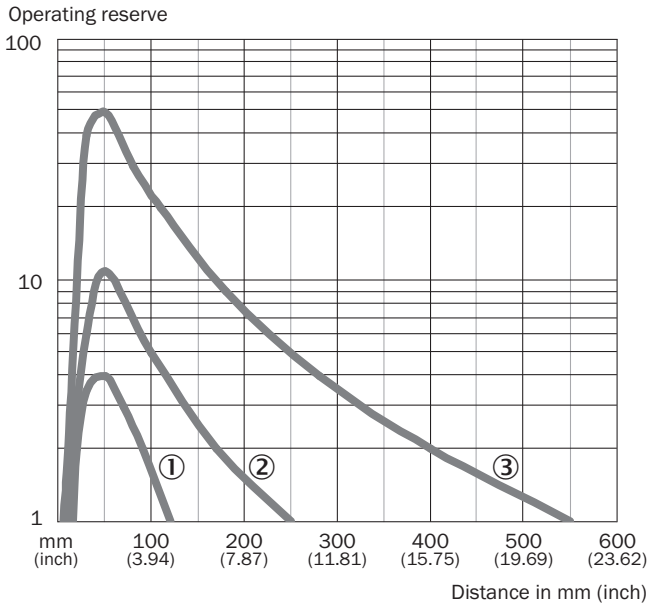
## Connection diagram

Cd-045



## Characteristic curve

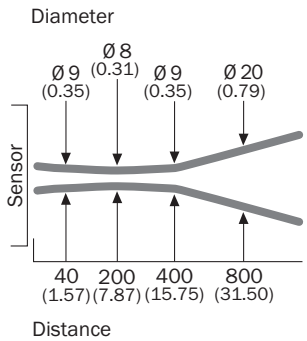
GRTE18S, 400 mm




① Sensing range on black, 6% remission
② Sensing range on gray, 20 % remission
③ Sensing range on white, 90% remission

## Light spot size

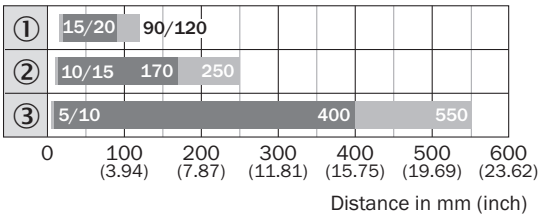
GRTE18S, 400 mm




Dimensions in mm (inch)

## Sensing range diagram

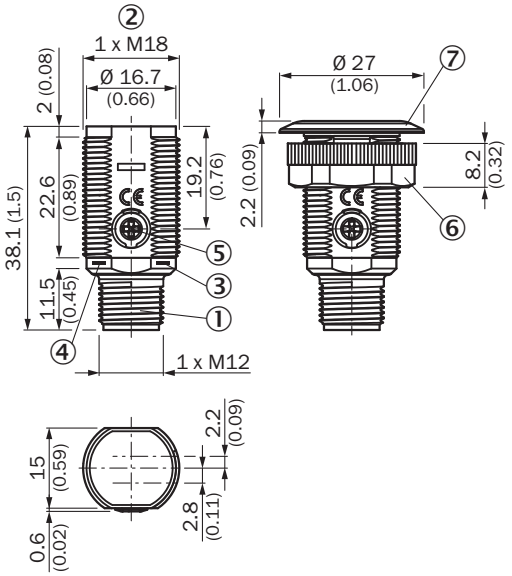
GRTE18S, 400 mm




① Sensing range on black, 6% remission
② Sensing range on gray, 20 % remission
③ Sensing range on white, 90% remission

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

GR18S, plastic, connector, straight, adjustable




① Connector M12, 3-pin
② Threaded mounting hole M18 x 1
③ LED indicator yellow
④ LED indicator green
⑤ Sensitivity control: potentiometer 270°
⑥ Fastening nut; 22 mm hex, plastic
⑦ Mounting ring

## Recommended accessories

Other models and accessories ➜ www.sick.com/GR18S

| | Brief description | Type | Part no. |
|---|---|---|---|
| Plug connectors and cables | | | |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: open cable ends<br>Cable: PVC, unshielded, 2 m | DOL-1204-G02M | 6009382 |
| | Head A: female connector, M12, 4-pin, straight<br>Head B: open cable ends<br>Cable: PVC, unshielded, 5 m | DOL-1204-G05M | 6009866 |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: open cable ends<br>Cable: PVC, unshielded, 2 m | DOL-1204-W02M | 6009383 |
| | Head A: female connector, M12, 4-pin, angled<br>Head B: open cable ends<br>Cable: PVC, unshielded, 5 m | DOL-1204-W05M | 6009867 |
|  | Head A: female connector, M12, 4-pin, straight<br>Head B: -<br>Cable: unshielded | DOS-1204-G | 6007302 |
|  | Head A: female connector, M12, 4-pin, angled<br>Head B: -<br>Cable: unshielded | DOS-1204-W | 6007303 |
|  | Head A: male connector, M12, 4-pin, straight<br>Head B: -<br>Cable: unshielded | STE-1204-G | 6009932 |
|  | Head A: male connector, M12, 4-pin, angled<br>Head B: -<br>Cable: unshielded | STE-1204-W | 6022084 |

# 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