



GRTB18S-P1112V

GR18 Inox

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

| Type | Part no. |
|----------------|----------|
| GRTB18S-P1112V | 1085819 |

Other models and accessories → www.sick.com/GR18_Inox

Detailed technical data

Features

| | |
|--|--|
| Sensor/ detection principle | Photoelectric proximity sensor, Background suppression |
| Dimensions (W x H x D) | 18 mm x 18 mm x 55.9 mm |
| Housing design (light emission) | Cylindrical |
| Housing length | 55.9 mm |
| Thread length | 31.7 mm |
| Thread diameter (housing) | M18 x 1 |
| Optical axis | Axial |
| Sensing range max. | 3 mm ... 300 mm ¹⁾ |
| Sensing range | 20 mm ... 150 mm ¹⁾ |
| Type of light | Visible red light |
| Light source | PinPoint LED ²⁾ |
| Light spot size (distance) | Ø 7 mm (100 mm) |
| Wave length | 650 nm |
| Adjustment | Potentiometer, 270° |
| Special applications | Hygienic and washdown zones |

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 | $\pm 5 V_{pp}$ ²⁾ |
| Current consumption | 30 mA |
| Switching output | PNP |
| Output function | Complementary |
| Switching mode | Light/dark switching ³⁾ |
| Signal voltage PNP HIGH/LOW | $V_S - (\leq 3 V)$ / approx. 0 V |
| Output current I_{max} | 100 mA ⁴⁾ |
| Response time | < 500 μs ⁵⁾ |
| Switching frequency | 1,000 Hz ⁶⁾ |
| Connection type | Cable, 4-wire, 2 m ⁷⁾ |
| Cable material | PVC |
| Conductor cross-section | 0.14 mm ² |
| Cable diameter | 4.8 mm |
| Circuit protection | A ⁸⁾ B ⁹⁾ D ¹⁰⁾ |
| Protection class | III |
| Weight | 100 g |
| Housing material | Stainless steel, Stainless steel V4A (1.4404, 316L) |
| Optics material | Plastic, PMMA |
| Tightening torque, max. | 90 Nm |
| Enclosure rating | IP67 IP68 ¹¹⁾ IP69K ¹²⁾ |
| Items supplied | Fastening nuts (2 x) |
| EMC | EN 60947-5-2 |
| Ambient operating temperature | -25 °C ... +55 °C ¹³⁾ |
| Ambient storage temperature | -30 °C ... +75 °C |
| UL File No. | NRKH.E348498 & NRKH7.E348498 |

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

²⁾ May not exceed or fall below U_V tolerances.

³⁾ Q = light switching; \bar{Q} = dark switching.

⁴⁾ At $U_V > 24 V$ or ambient temperature > 49 °C, I_A max. = 50 mA.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ Do not bend below 0 °C.

⁸⁾ A = V_S connections reverse-polarity protected.

⁹⁾ B = inputs and output reverse-polarity protected.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

¹¹⁾ According to EN 60529 (10 m water depth / 24 h).

¹²⁾ According to ISO 20653:2013-03.

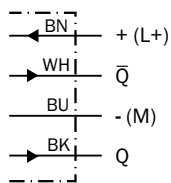
¹³⁾ At $U_V \leq 24V$ and $I_A < 50mA$.

Classifications

| | |
|-----------------------|----------|
| ECl@ss 5.0 | 27270904 |
| ECl@ss 5.1.4 | 27270904 |
| ECl@ss 6.0 | 27270904 |
| ECl@ss 6.2 | 27270904 |
| ECl@ss 7.0 | 27270904 |
| ECl@ss 8.0 | 27270904 |
| ECl@ss 8.1 | 27270904 |
| ECl@ss 9.0 | 27270904 |
| ECl@ss 10.0 | 27270904 |
| ECl@ss 11.0 | 27270904 |
| ETIM 5.0 | EC002719 |
| ETIM 6.0 | EC002719 |
| ETIM 7.0 | EC002719 |
| UNSPSC 16.0901 | 39121528 |

Connection diagram

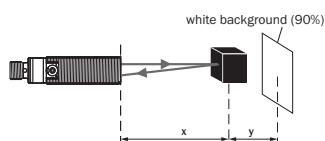
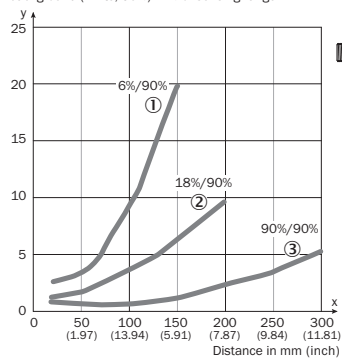
Cd-094



Characteristic curve

GRTB18(S) Inox

Minimum distance between set sensing range and background (white, 90%) in % of sensing range



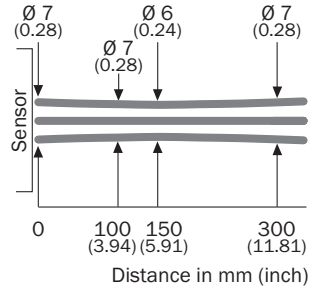
Example:
 Sensing range on black, 6%
 $x = 100 \text{ mm}$, $y = (10\% \text{ of } 100 \text{ mm}) = 10 \text{ mm}$

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

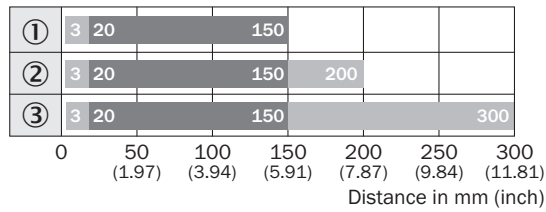
Light spot size

GRTB18(S)

mm (inch)



Sensing range diagram

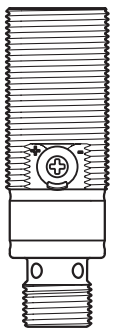
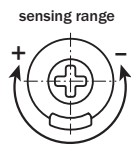


■ Sensing range ■ Sensing range max.

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

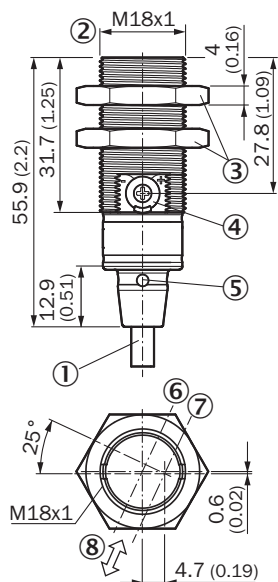
Adjustments

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



Dimensional drawing (Dimensions in mm (inch))



GRTB18S Inox, cable, straight



- ① Connection
- ② Threaded mounting hole M18 x 1
- ③ Fastening nuts (2 x); width across 24, stainless steel
- ④ Potentiometer, 270°
- ⑤ LED indicator (4 x)
- ⑥ Optical axis, receiver
- ⑦ Optical axis, sender
- ⑧ Standard direction

Recommended accessories

Other models and accessories → www.sick.com/GR18_Inox

| | Brief description | Type | Part no. |
|---|--|-------------|-----------------|
| Mounting brackets and plates | | | |
|  | Mounting bracket for M18 sensors, stainless steel, without mounting hardware | BEF-WN-M18N | 5320947 |
| Plug connectors and cables | | | |
|  | Head A: male connector, M12, 4-pin, straight Head B: - 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