



GRTB18-P2412V

GR18 Inox

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
GRTB18-P2412V	1085749

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

Detailed technical data

Features

Sensor/ detection principle	Photoelectric proximity sensor, Background suppression
Housing design (light emission)	Cylindrical, straight
Housing length	73.5 mm
Thread length	49.3 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°

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⁾
Power consumption	$\leq 30 \text{ mA}$
Switching output	PNP
Output function	Complementary
Switching mode	Light/dark switching ³⁾
Signal voltage PNP HIGH/LOW	$V_S - (\leq 3 \text{ V}) / \text{approx. } 0 \text{ V}$
Output current $I_{max.}$	100 mA ⁴⁾
Response time	$< 500 \mu\text{s}$ ⁵⁾
Switching frequency	$\pm 1,000 \text{ Hz}$ ⁶⁾
Connection type	Male connector M12, 4-pin
Circuit protection	A ⁷⁾ B ⁸⁾ D ⁹⁾
Protection class	III
Weight	65 g
Housing material	Stainless steel, Stainless steel V4A (1.4404, 316L)
Optics material	Plastic, PMMA
Tightening torque, max.	90 Nm
Enclosure rating	IP67 IP68 ¹⁰⁾ IP69K ¹¹⁾
Items supplied	Fastening nuts (2 x)
EMC	EN 60947-5-2
Ambient operating temperature	$-25 \text{ }^\circ\text{C} \dots +55 \text{ }^\circ\text{C}$ ¹²⁾
Ambient storage temperature	$-30 \text{ }^\circ\text{C} \dots +75 \text{ }^\circ\text{C}$
UL File No.	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⁾ Q = light switching; \bar{Q} = dark switching.

⁴⁾ At $U_V > 24 \text{ V}$ or ambient temperature $> 49 \text{ }^\circ\text{C}$, $I_A \text{ max.} = 50 \text{ mA}$.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ A = V_S connections reverse-polarity protected.

⁸⁾ B = inputs and output reverse-polarity protected.

⁹⁾ D = outputs overcurrent and short-circuit protected.

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

¹¹⁾ According to ISO 20653:2013-03.

¹²⁾ At $U_V \leq 24\text{V}$ and $I_A < 50\text{mA}$.

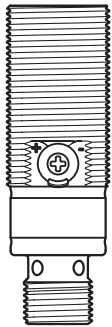
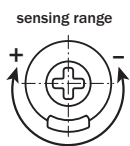
Classifications

ECI@ss 5.0	27270904
ECI@ss 5.1.4	27270904
ECI@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
ETIM 5.0	EC002719
ETIM 6.0	EC002719
UNSPSC 16.0901	39121528

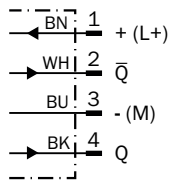
Adjustments possible

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



Connection diagram

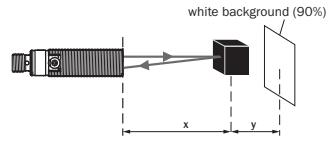
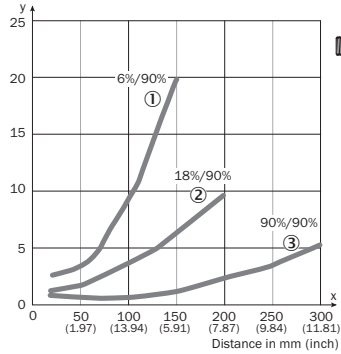
Cd-084



Characteristic curve

GRTB18(S) Inox

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



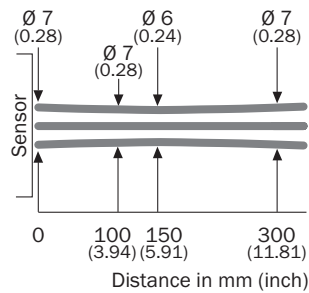
Example:
Sensing range on black, 6%
 $x = 100 \text{ mm}$, $y = (10\% \text{ of } 100 \text{ mm}) = 10 \text{ mm}$

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

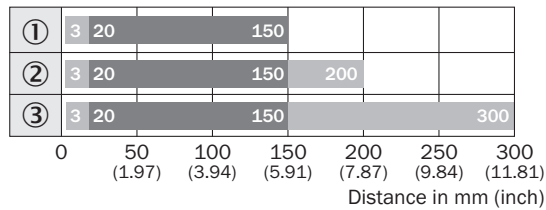
Light spot size

GRTB18(S)

mm (inch)



Sensing range diagram

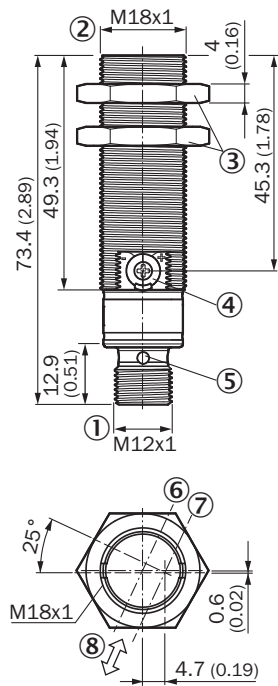


■ Sensing range ■ Sensing range max.

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

Dimensional drawing (Dimensions in mm (inch))

GRTB18 Inox, connector, 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

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