



GRTB18-N1112V

GR18 Inox

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Illustration may differ



Ordering information

Type	Part no.
GRTB18-N112V	1085936

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	≤ 30 mA
Switching output	NPN
Output function	Complementary
Switching mode	Light/dark switching ³⁾
Signal voltage NPN HIGH/LOW	Approx. $V_S / \leq 3$ V
Output current I_{max}	100 mA ⁴⁾
Response time	$< 500 \mu s$ ⁵⁾
Switching frequency	$\pm 1,000$ 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	175 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	$-25 \text{ }^\circ\text{C} \dots +55 \text{ }^\circ\text{C}$ ¹³⁾
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 $U_V > 24$ V or ambient temperature $> 49 \text{ }^\circ\text{C}$, $I_A \text{ max.} = 50$ mA.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ Do not bend below $0 \text{ }^\circ\text{C}$.

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.

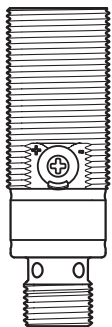
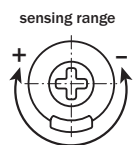
¹³⁾ At $U_V \leq 24$ V and $I_A < 50$ mA.

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
ETIM 5.0	EC002719
ETIM 6.0	EC002719
UNSPSC 16.0901	39121528

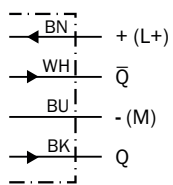
Adjustments possible

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



Connection diagram

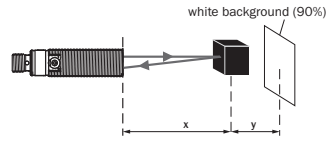
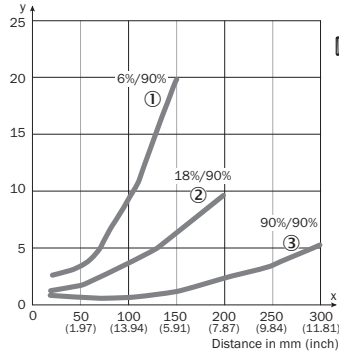
Cd-094



Characteristic curve

GRTB18(S) Inox

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



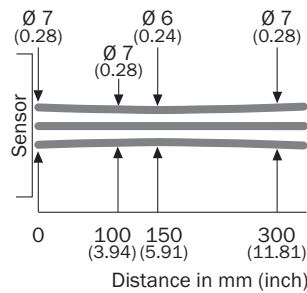
Example:
Sensing range on black, 6%
 $x = 100 \text{ mm}$, $y = (10\% \text{ of } 100 \text{ mm}) = 10 \text{ mm}$

- 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

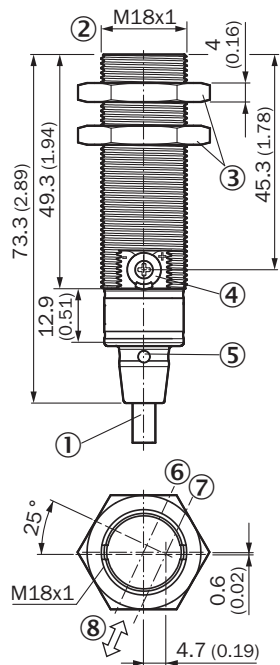


■ Sensing range ■ Sensing range max.

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

Dimensional drawing (Dimensions in mm (inch))

GRTB18 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

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.

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