

GRTB18S-N2412V

GR18

PHOTOELECTRIC SENSORS





Ordering information

Туре	part no.
GRTB18S-N2412V	1085743

Other models and accessories → www.sick.com/GR18

Illustration may differ



Detailed technical data

Features

1 Garange	
Functional principle	Photoelectric proximity sensor
Functional principle detail	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°
Display	
LED gree	Operating indicator Static on: power on
LED yello	w Status of received light beam Static on: object present Static off: object not present

 $^{^{1)}}$ Object with 90% remission (based on standard white, DIN 5033).

²⁾ Average service life: 100,000 h at $T_U = +25$ °C.

Special applications

Hygienic and washdown zones

Mechanics/electronics

Supply voltage \mathbf{U}_{B}	10 V DC 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current 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 μs ⁵⁾
Switching frequency	1,000 Hz ⁶⁾
Connection type	Male connector M12, 4-pin
Circuit protection	A ⁷⁾ B ⁸⁾ D ⁹⁾
Protection class	III
Weight	45 g
Housing material	Metal, 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)
Electromagnetic compatibility (EMC)	EN 60947-5-2
Ambient operating temperature	-25 °C +55 °C ¹²⁾
Ambient temperature, storage	-30 °C +75 °C
UL File No.	NRKH.E348498 & NRKH7.E348498

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

 $^{^{1)}}$ Object with 90% remission (based on standard white, DIN 5033).

 $^{^{2)}}$ Average service life: 100,000 h at $\rm T_U$ = +25 °C.

 $^{^{2)}\,\}mbox{May}$ not fall below or exceed $\mbox{U}_{\mbox{\sc V}}$ tolerances.

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

 $^{^{4)}}$ At Uv > 24 V or ambient temperature > 49 °C, IA max. = 50 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.

 $[\]overset{\cdot}{\text{10)}}$ According to EN 60529 (10 m water depth / 24 h).

¹¹⁾ According to ISO 20653:2013-03.

 $^{^{12)}}$ At U_{V} <=24V and $\text{I}_{\text{A}}\!\!<\!\!50\text{mA}.$

GRTB18S-N2412V | GR18

PHOTOELECTRIC SENSORS

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

Classifications

Classifications	
ECLASS 5.0	27270904
ECLASS 5.1.4	27270904
ECLASS 6.0	27270904
ECLASS 6.2	27270904
ECLASS 7.0	27270904
ECLASS 8.0	27270904
ECLASS 8.1	27270904
ECLASS 9.0	27270904
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC002719
ETIM 6.0	EC002719
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

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

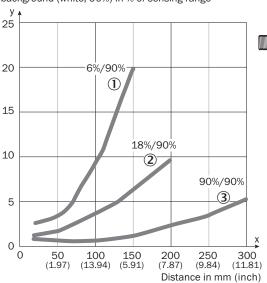


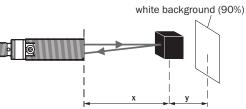


Connection diagram Cd-084

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 mm, y = (10% of 100 mm) =10 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)

Ø 7
(0.28)
Ø 7
(0.24)
Ø 7
(0.28)

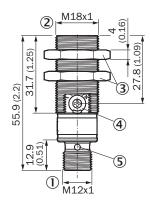
Distance in mm (inch)

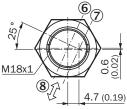
Sensing range diagram



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

Dimensional drawing GRTB18S Inox, connector, straight





Dimensions in mm (inch)

- ① Connection
- ② Threaded mounting hole M18 x 1
- $\ensuremath{\ensuremath{\mbox{3}}}$ 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
- Standard direction

Recommended accessories

Other models and accessories → www.sick.com/GR18

	Brief description	Туре	part no.			
Mounting systems						
40	Description: Mounting bracket for M18 sensors Material: Stainless steel Details: Stainless steel Items supplied: Without mounting hardware	BEF-WN-M18N	5320947			
connectors ar	connectors and cables					
	Connection type head A: Female connector, M12, 4-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PVC Description: Sensor/actuator cable, unshielded Connection systems: Flying leads Note: This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other Kind., Not resistant against lactic acid & hydrogen peroxide (H2O2) Application: Hygienic and washdown zones	DOL-1204-G05MNI	6052615			
	Connection type head A: Female connector, M12, 4-pin, straight Connection type head B: Flying leads Signal type: Sensor/actuator cable Cable: 5 m, 4-wire, PP Description: Sensor/actuator cable, unshielded Connection systems: Flying leads Note: This product is generally resistant to chemical cleaning agents (see ECOLAB) and other chemical compounds such as H2O2 and CH2O2. Before permanent installation is carried out, the material's resistance to the cleaning agent being used must be checked., Resistant against lactic acid & hydrogen peroxide (H2O2) Application: Hygienic and washdown zones, Drag chain operation	DOL-1204-G05MRN	6058476			

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

