

GRTB18S-F1417

GR18

PHOTOELECTRIC SENSORS





Ordering information

Туре	part no.
GRTB18S-F1417	1081695

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

Illustration may differ



Detailed technical data

Features

Functional principle		Photoelectric proximity sensor
Functional principle detail		Background suppression
Dimensions (W x H x D)		18 mm x 18 mm x 38.1 mm
Housing design (light emission)		Cylindrical
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 green	Operating indicator Static on: power on
	LED yellow	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.

Mechanics/electronics

•	
Supply voltage U _B	10 V DC 30 V DC ¹⁾
Ripple	$< 5 V_{pp}^{2)}$
Current consumption	30 mA
Switching output	PNP
Switching mode	Dark switching
Signal voltage PNP HIGH/LOW	$V_S - (\le 3 \text{ V}) / \text{approx. } 0 \text{ V}$
Output current I _{max} .	\leq 100 mA $^{3)}$
Response time	< 500 µs ⁴⁾
Switching frequency	1,000 Hz ⁵⁾
Connection type	Cable, 3-wire, 5 m ⁶⁾
Cable material	Plastic, PVC
Circuit protection	A ⁷⁾ B ⁸⁾ D ⁹⁾
Protection class	III
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Fastening nuts (2 x)
Electromagnetic compatibility (EMC)	EN 60947-5-2
Ambient operating temperature	-25 °C +55 °C ¹⁰⁾
Ambient temperature, storage	-40 °C +70 °C
UL File No.	NRKH.E348498 & NRKH7.E348498

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

Safety-related parameters

MTTF _D	985 years
DC _{avg}	0 %

Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
ECOLAB certificate	✓

 $^{^{2)}}$ May not fall below or exceed 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⁾ Do not bend below 0 °C.

 $^{^{7)}}$ A = V_S connections reverse-polarity protected.

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

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

 $^{^{10)}}$ At U $_{\text{V}}$ <=24V and I $_{\text{A}}$ <50mA.

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cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

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
ECLASS 12.0 ETIM 5.0 ETIM 6.0 ETIM 7.0 ETIM 8.0	EC002719 EC002719 EC002719 EC002719

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

Sensing range



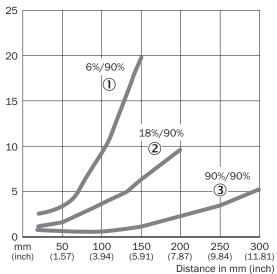


Connection diagram Cd-044



Characteristic curve

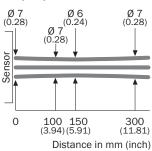
% of sensing range



- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- $\ensuremath{\mathfrak{G}}$ Sensing range on white, 90% remission factor

Light spot size GRTB18(S)

mm (inch)

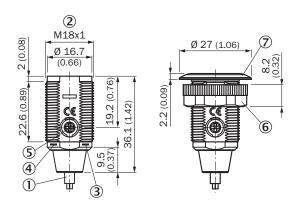


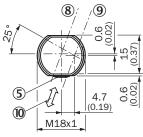
Sensing range diagram



- 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, plastic, cable, straight, adjustable





Dimensions in mm (inch)

- ① Connection cable 2 m
- 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
- ® optical axis, receiver
- optical axis, sender
- ® Standard direction of the material being detected

Recommended accessories

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

	Brief description	Туре	part no.
connectors ar	nd cables		
	 Connection type head A: Male connector, M8, 3-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: 0.14 mm² 0.5 mm² 	STE-0803-G	6037322
Mounting syst	tems		
40	 Description: Mounting bracket for M18 sensors Material: Steel Details: Steel, zinc coated Items supplied: Without mounting hardware Suitable for: GR18, V180-2, V18, W15, Z1, Z2 	BEF-WN-M18	5308446

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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."

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