

# GRTB18-N1187

GR18

**PHOTOELECTRIC SENSORS** 





# Ordering information

Туре	part no.
GRTB18-N1187	1130501

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 71.5 mm	
Housing design (light emission)	Cylindrical	
Thread diameter (housing)	M18 x 1	
Optical axis	Axial	
Sensing range max.	3 mm 300 mm <sup>1)</sup>	
Sensing range	20 mm 150 mm <sup>1)</sup>	
Type of light	Visible blue light	
Light source	LED <sup>2)</sup>	
Light spot size (distance)	Ø 7 mm (100 mm)	
Wave length	445 nm	
Adjustment	Potentiometer	
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	

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

 $<sup>^{2)}</sup>$  Average service life: 100,000 h at  $T_{U}$  = +25  $^{\circ}\text{C}.$ 

# Mechanics/electronics

Supply voltage $\mathbf{U}_{\mathrm{B}}$	10 V DC 30 V DC <sup>1)</sup>
Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>
Current consumption	30 mA
Switching output	NPN
Output function	Complementary
Switching mode	Light/dark switching
Signal voltage NPN HIGH/LOW	$V_S$ - ( $\leq 3 \text{ V}$ ) / approx. 0 V
Output current I <sub>max.</sub>	$\leq$ 100 mA $^{3)}$
Response time	< 500 µs <sup>4)</sup>
Switching frequency	1,000 Hz <sup>5)</sup>
Connection type	Cable, 4-wire, 2 m <sup>6)</sup>
Cable material	Plastic, PVC
Circuit protection	A <sup>7)</sup> B <sup>8)</sup> D <sup>9)</sup>
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 <sup>10)</sup>
Ambient temperature, storage	-40 °C +70 °C
UL File No.	E348498

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

## Certificates

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

 $<sup>^{2)}\,\</sup>mathrm{May}$  not fall below or exceed  $\mathrm{U}_{\mathrm{V}}$  tolerances.

 $<sup>^{3)}</sup>$  At Uv > 24 V or ambient temperature > 49 °C, IA max. = 50 mA.

<sup>&</sup>lt;sup>4)</sup> Signal transit time with resistive load.

<sup>5)</sup> With light/dark ratio 1:1.

<sup>6)</sup> Do not bend below 0 °C.

 $<sup>^{7)}</sup>$  A = V<sub>S</sub> connections reverse-polarity protected.

<sup>8)</sup> B = inputs and output reverse-polarity protected.

 $<sup>^{9)}</sup>$  D = outputs overcurrent and short-circuit protected.

 $<sup>^{10)}</sup>$  At U  $^{<}$  =24V and I  $_{A}$  <50mA.

Photobiological safety (DIN EN 62471) cer-	✓
tificate	

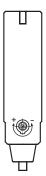
# Classifications

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), GRTE18(S), Sensing range setting: Potentiometer, 270 $^\circ$

## Sensing range



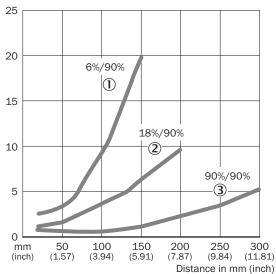


# Connection diagram Cd-094



#### Characteristic curve

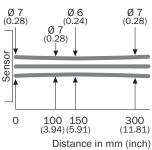
% of sensing range



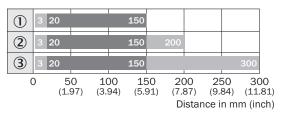
- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 18% remission factor
- $\ensuremath{\mathfrak{G}}$  Sensing range on white, 90% remission factor

# Light spot size GRTB18(S)

mm (inch)

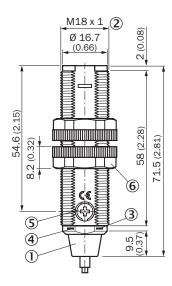


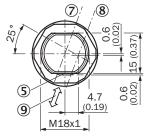
#### Sensing range diagram



- 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 GRTB18, plastic, cable, straight





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 nuts (2 x); width across 22, plastic
- 7 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.
Mounting systems			
40	<ul> <li>Description: Mounting bracket for M18 sensors</li> <li>Material: Steel</li> <li>Details: Steel, zinc coated</li> <li>Items supplied: Without mounting hardware</li> <li>Suitable for: GR18, V180-2, V18, W15, Z1, Z2</li> </ul>	BEF-WN-M18	5308446
connectors and cables			
	<ul> <li>Connection type head A: Male connector, M12, 4-pin, straight, A-coded</li> <li>Description: Unshielded</li> <li>Connection systems: Screw-type terminals</li> <li>Permitted cross-section: ≤ 0.75 mm²</li> </ul>	STE-1204-G	6009932

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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."

# **WORLDWIDE PRESENCE:**

Contacts and other locations -www.sick.com

