



**GRTB18S-P241Z**

GR18S

**PHOTOELECTRIC SENSORS**

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
GRTB18S-P241Z	1076103

Other models and accessories → [www.sick.com/GR18S](http://www.sick.com/GR18S)

Illustration may differ



### Detailed technical data

#### Features

<b>Sensor/ detection principle</b>	Photoelectric proximity sensor, Background suppression
<b>Housing design (light emission)</b>	Cylindrical, straight, fully flush
<b>Thread diameter (housing)</b>	M18 x 1
<b>Optical axis</b>	Axial, fully flush
<b>Sensing range max.</b>	3 mm ... 300 mm <sup>1)</sup>
<b>Sensing range</b>	20 mm ... 150 mm <sup>1)</sup>
<b>Type of light</b>	Visible red light
<b>Light source</b>	PinPoint LED <sup>2)</sup>
<b>Light spot size (distance)</b>	Ø 7 mm (100 mm)
<b>Wave length</b>	650 nm
<b>Adjustment</b>	Potentiometer, 270°

<sup>1)</sup> Object with 90 % reflectance (referred to standard white, DIN 5033).

<sup>2)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

#### Mechanics/electronics

<b>Supply voltage</b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	± 5 V <sub>pp</sub> <sup>2)</sup>
<b>Power consumption</b>	≤ 30 mA

<sup>1)</sup> Limit values when operated in short-circuit protected network: max. 8 A.

<sup>2)</sup> May not exceed or fall below U<sub>v</sub> tolerances.

<sup>3)</sup> At U<sub>v</sub> > 24 V or ambient temperature > 49 °C, I<sub>A</sub> max. = 50 mA.

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

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

<sup>6)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>7)</sup> B = inputs and output reverse-polarity protected.

<sup>8)</sup> D = outputs overcurrent and short-circuit protected.

<sup>9)</sup> At U<sub>v</sub> ≤ 24V and I<sub>A</sub> < 50mA.

<b>Switching output</b>	PNP
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Signal voltage PNP HIGH/LOW</b>	$V_S - (\leq 3 \text{ V}) / \text{approx. } 0 \text{ V}$
<b>Output current <math>I_{\text{max}}</math></b>	100 mA <sup>3)</sup>
<b>Response time</b>	< 500 $\mu\text{s}$ <sup>4)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>5)</sup>
<b>Connection type</b>	Male connector M12, 4-pin
<b>Circuit protection</b>	A <sup>6)</sup> B <sup>7)</sup> D <sup>8)</sup>
<b>Protection class</b>	III
<b>Housing material</b>	Metal, Nickel-plated brass and ABS
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67
<b>Items supplied</b>	Fastening nuts (2 x)
<b>EMC</b>	EN 60947-5-2
<b>Ambient operating temperature</b>	-25 °C ... +55 °C <sup>9)</sup>
<b>Ambient storage temperature</b>	-40 °C ... +70 °C
<b>UL File No.</b>	NRKH.E348498 & NRKH7.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) At  $U_V > 24 \text{ V}$  or ambient temperature > 49 °C,  $I_A \text{ max.} = 50 \text{ mA}$ .

4) Signal transit time with resistive load.

5) With light/dark ratio 1:1.

6) A =  $V_S$  connections reverse-polarity protected.

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

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

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

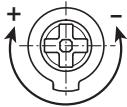
## Classifications

<b>ECl@ss 5.0</b>	27270904
<b>ECl@ss 5.1.4</b>	27270904
<b>ECl@ss 6.0</b>	27270904
<b>ECl@ss 6.2</b>	27270904
<b>ECl@ss 7.0</b>	27270904
<b>ECl@ss 8.0</b>	27270904
<b>ECl@ss 8.1</b>	27270904
<b>ECl@ss 9.0</b>	27270904
<b>ETIM 5.0</b>	EC002719
<b>ETIM 6.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

### Adjustments possible

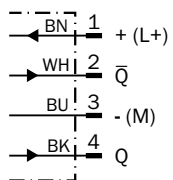
GRTB18(S), GRTE18(S), Sensing range setting: Potentiometer, 270°

Sensing range

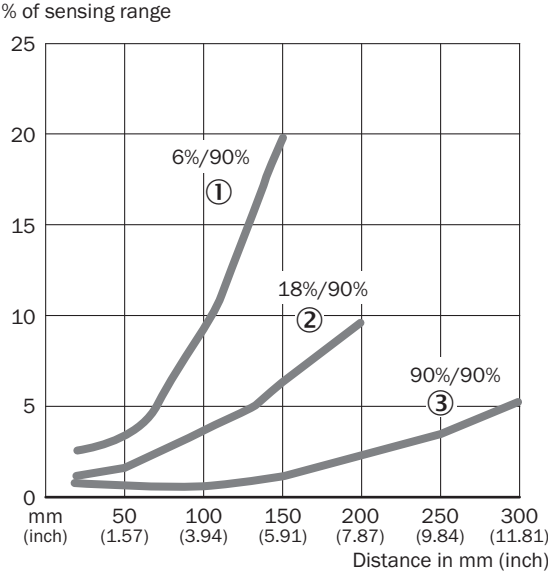


### Connection diagram

Cd-084

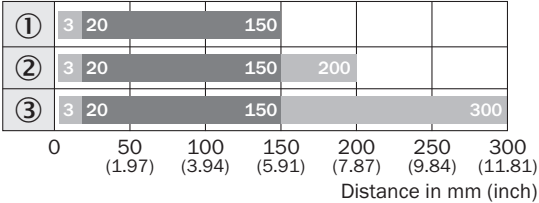


**Characteristic curve**



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

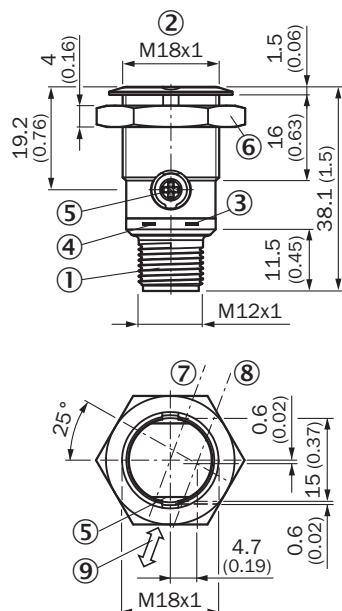
**Sensing range diagram**



- 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))

GRTB18S, metal, connector, straight, fully flush, adjustable



- ① Male connector M12, 4-pin
- ② Threaded mounting hole M18 x 1
- ③ LED indicator yellow
- ④ LED indicator green
- ⑤ Sensitivity control: potentiometer 270°
- ⑥ Fastening nut; 24 mm hex, metal
- ⑦ Optical axis receiver
- ⑧ Optical axis sender
- ⑨ Standard direction of the material being detected

## 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.”

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