



# GRSE18-N1147

GR18

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
GRSE18-N1147	1066558

Other models and accessories → [www.sick.com/GR18](http://www.sick.com/GR18)

Illustration may differ



### Detailed technical data

#### Features

<b>Functional principle</b>	Through-beam photoelectric sensor
<b>Dimensions (W x H x D)</b>	18 mm x 18 mm x 71.5 mm
<b>Housing design (light emission)</b>	Cylindrical
<b>Thread diameter (housing)</b>	M18 x 1
<b>Optical axis</b>	Axial
<b>Sensing range max.</b>	0 m ... 15 m
<b>Sensing range</b>	0 m ... 10 m
<b>Type of light</b>	Visible red light
<b>Light source</b>	PinPoint LED <sup>1)</sup>
<b>Light spot size (distance)</b>	Ø 250 mm (10 m)
<b>Wave length</b>	650 nm
<b>Adjustment</b>	Potentiometer
<b>Indication</b>	
	LED green Operating indicator Static on: power on
	LED yellow Status of received light beam Static on: object not present Static off: object present

<sup>1)</sup> Average service life: 100,000 h at T<sub>U</sub> = +25 °C.

Mechanics/electronics

<b>Supply voltage <math>U_B</math></b>	10 V DC ... 30 V DC <sup>1)</sup>
<b>Ripple</b>	< 5 V <sub>pp</sub> <sup>2)</sup>
<b>Current consumption</b>	30 mA
<b>Switching output</b>	NPN
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching
<b>Signal voltage NPN HIGH/LOW</b>	Approx. $V_S / \leq 3 V$
<b>Output current <math>I_{max}</math></b>	$\leq 100 mA$ <sup>3)</sup>
<b>Response time</b>	< 500 $\mu s$ <sup>4)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>5)</sup>
<b>Connection type</b>	Cable, 4-wire, 2 m <sup>6)</sup>
<b>Cable material</b>	Plastic, PVC
<b>Circuit protection</b>	A <sup>7)</sup> B <sup>8)</sup> D <sup>9)</sup>
<b>Protection class</b>	III
<b>Housing material</b>	Plastic, ABS
<b>Optics material</b>	Plastic, PMMA
<b>Enclosure rating</b>	IP67
<b>Items supplied</b>	Fastening nuts (4 x)
<b>Electromagnetic compatibility (EMC)</b>	EN 60947-5-2
<b>Test input</b>	Sender OFF at "Test" 0 V
<b>Ambient operating temperature</b>	-25 °C ... +55 °C <sup>10)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °C
<b>UL File No.</b>	E348498
<b>Part number of individual components</b>	2072233 GRS18-D1346 2072234 GRE18-N1137

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

2) May not fall below or exceed  $U_V$  tolerances.

3) At  $U_V > 24 V$  or ambient temperature > 49 °C,  $I_A$  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  $U_V \leq 24V$  and  $I_A < 50mA$ .

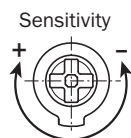
Classifications

<b>ECLASS 5.0</b>	27270901
<b>ECLASS 5.1.4</b>	27270901
<b>ECLASS 6.0</b>	27270901
<b>ECLASS 6.2</b>	27270901
<b>ECLASS 7.0</b>	27270901

<b>ECLASS 8.0</b>	27270901
<b>ECLASS 8.1</b>	27270901
<b>ECLASS 9.0</b>	27270901
<b>ECLASS 10.0</b>	27270901
<b>ECLASS 11.0</b>	27270901
<b>ECLASS 12.0</b>	27270901
<b>ETIM 5.0</b>	EC002716
<b>ETIM 6.0</b>	EC002716
<b>ETIM 7.0</b>	EC002716
<b>ETIM 8.0</b>	EC002716
<b>UNSPSC 16.0901</b>	39121528

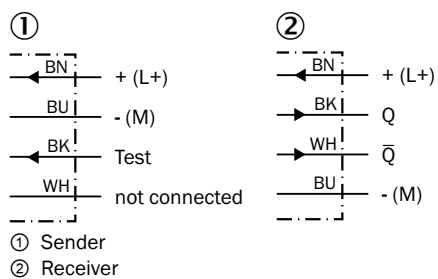
## Adjustments

GRL18(S), GRSE18(S), Sensitivity setting: Potentiometer, 270°



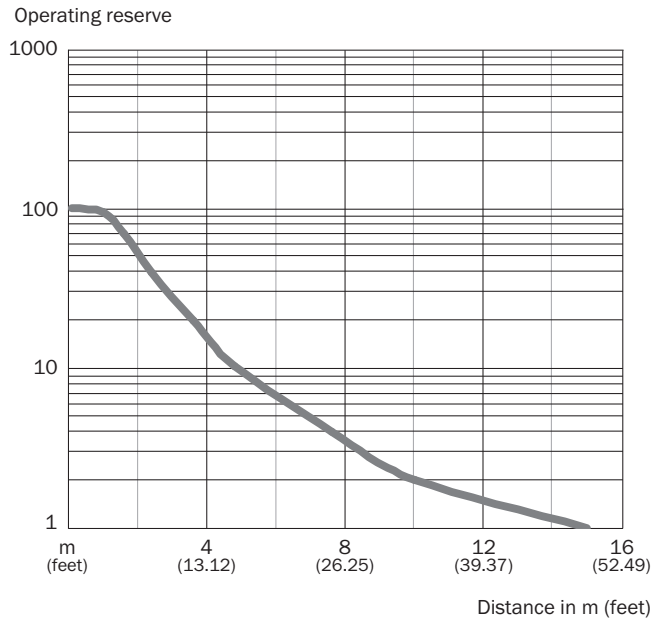
## Connection diagram

Cd-088



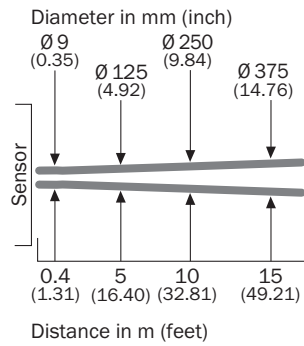
### Characteristic curve

GRSE18S



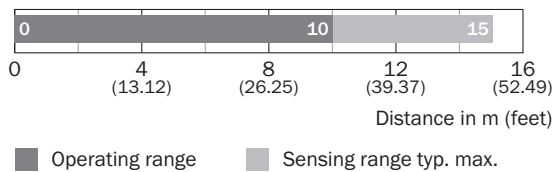
### Light spot size

GRSE18, red light



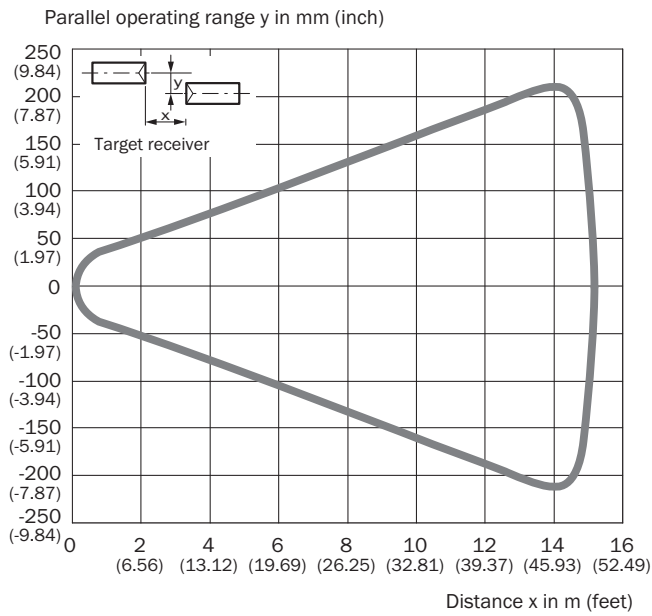
### Sensing range diagram

GRSE18S



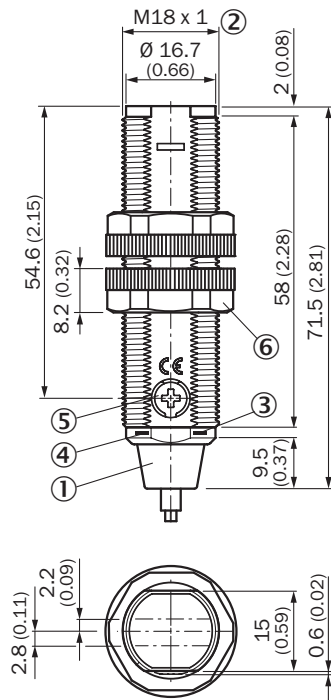
Response range

GRSE18S



**Dimensional drawing** (Dimensions in mm (inch))



GRTE18, GRL18, GRSE18, plastic, cable, straight



- 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

**Recommended accessories**

Other models and accessories → [www.sick.com/GR18](http://www.sick.com/GR18)

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M18	5308446
<b>Others</b>			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Description:</b> Unshielded</li> <li>• <b>Connection systems:</b> Screw-type terminals</li> <li>• <b>Permitted cross-section:</b> ≤ 0.75 mm<sup>2</sup></li> </ul>	STE-1204-G	6009932

## 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](http://www.sick.com)