



# GRTE18-P1142V

GR18

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
GRTE18-P1142V	1085689

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

Illustration may differ



### Detailed technical data

#### Features

<b>Functional principle</b>	Photoelectric proximity sensor	
<b>Functional principle detail</b>	Energetic	
<b>Dimensions (W x H x D)</b>	18 mm x 18 mm x 73.5 mm	
<b>Housing design (light emission)</b>	Cylindrical	
<b>Housing length</b>	73.5 mm	
<b>Thread length</b>	49.3 mm	
<b>Thread diameter (housing)</b>	M18 x 1	
<b>Optical axis</b>	Axial	
<b>Sensing range max.</b>	5 mm ... 550 mm <sup>1)</sup>	
<b>Sensing range</b>	10 mm ... 400 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 9 mm (400 mm)	
<b>Wave length</b>	650 nm	
<b>Adjustment</b>	Potentiometer, 270°	
<b>Indication</b>	LED green	Operating indicator Static on: power on
	LED yellow	Status of received light beam Static on: object present Static off: object not present
<b>Special applications</b>	Hygienic and washdown zones	

<sup>1)</sup> Object with 90% remission (based on 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 <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>	PNP
<b>Output function</b>	Complementary
<b>Switching mode</b>	Light/dark switching <sup>3)</sup>
<b>Signal voltage PNP HIGH/LOW</b>	V <sub>S</sub> - (≤ 3 V) / approx. 0 V
<b>Output current I<sub>max.</sub></b>	≤ 100 mA <sup>4)</sup>
<b>Response time</b>	< 1,000 μs <sup>5)</sup>
<b>Switching frequency</b>	500 Hz <sup>6)</sup>
<b>Connection type</b>	Cable, 4-wire, 2 m <sup>7)</sup>
<b>Cable material</b>	Plastic, PVC
<b>Conductor cross section</b>	0.14 mm <sup>2</sup>
<b>Cable diameter</b>	Ø 4.8 mm
<b>Circuit protection</b>	A <sup>8)</sup> B <sup>9)</sup> D <sup>10)</sup>
<b>Protection class</b>	III
<b>Weight</b>	175 g
<b>Housing material</b>	Metal, Stainless steel V4A (1.4404, 316L)
<b>Optics material</b>	Plastic, PMMA
<b>Tightening torque, max.</b>	90 Nm
<b>Enclosure rating</b>	IP67 IP68 <sup>11)</sup> IP69K <sup>12)</sup>
<b>Items supplied</b>	Fastening nuts (2 x)
<b>Electromagnetic compatibility (EMC)</b>	EN 60947-5-2
<b>Ambient operating temperature</b>	-25 °C ... +55 °C <sup>13)</sup>
<b>Ambient temperature, storage</b>	-30 °C ... +75 °C
<b>UL File No.</b>	E348498

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

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

<sup>3)</sup> Q = light switching;  $\bar{Q}$  = dark switching.

<sup>4)</sup> At U<sub>v</sub> > 24 V or ambient temperature > 49 °C, I<sub>A</sub> max. = 50 mA.

<sup>5)</sup> Signal transit time with resistive load.

<sup>6)</sup> With light/dark ratio 1:1.

<sup>7)</sup> Do not bend below 0 °C.

<sup>8)</sup> A = V<sub>S</sub> connections reverse-polarity protected.

<sup>9)</sup> B = inputs and output reverse-polarity protected.

<sup>10)</sup> D = outputs overcurrent and short-circuit protected.

<sup>11)</sup> According to EN 60529 (10 m water depth / 24 h).

<sup>12)</sup> According to ISO 20653:2013-03.

<sup>13)</sup> At U<sub>v</sub> ≤ 24V and I<sub>A</sub> < 50mA.

Classifications

<b>ECLASS 5.0</b>	27270903
<b>ECLASS 5.1.4</b>	27270903
<b>ECLASS 6.0</b>	27270903
<b>ECLASS 6.2</b>	27270903
<b>ECLASS 7.0</b>	27270903
<b>ECLASS 8.0</b>	27270903
<b>ECLASS 8.1</b>	27270903
<b>ECLASS 9.0</b>	27270903
<b>ECLASS 10.0</b>	27270904
<b>ECLASS 11.0</b>	27270904
<b>ECLASS 12.0</b>	27270903
<b>ETIM 5.0</b>	EC001821
<b>ETIM 6.0</b>	EC001821
<b>ETIM 7.0</b>	EC002719
<b>ETIM 8.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

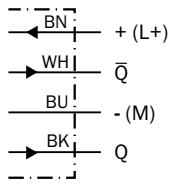
Adjustments

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



### Connection diagram

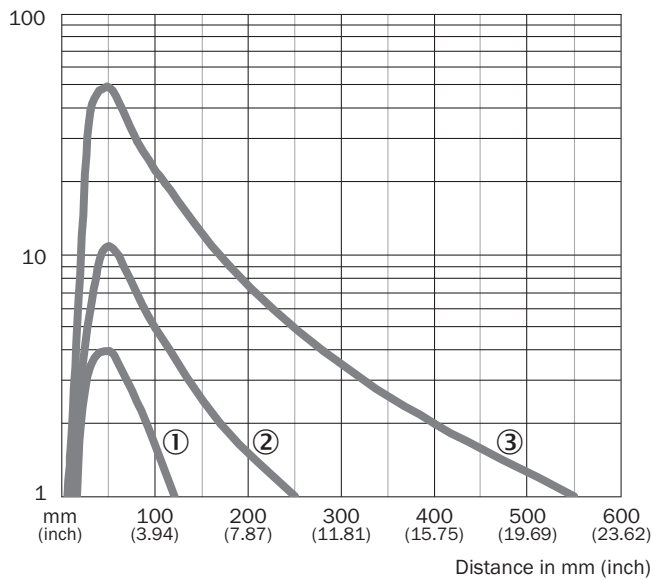
Cd-094



### Characteristic curve

GRTE18S, 400 mm

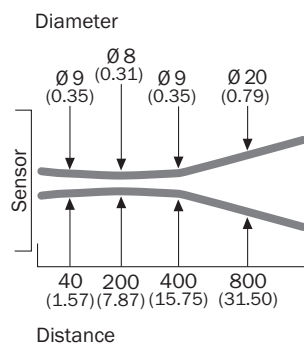
Operating reserve



- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 20% remission
- ③ Sensing range on white, 90% remission factor

### Light spot size

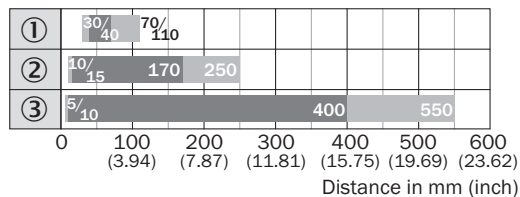
GRTE18S, 400 mm



Dimensions in mm (inch)

### Sensing range diagram

GRTE18(S) Inox, 400 mm

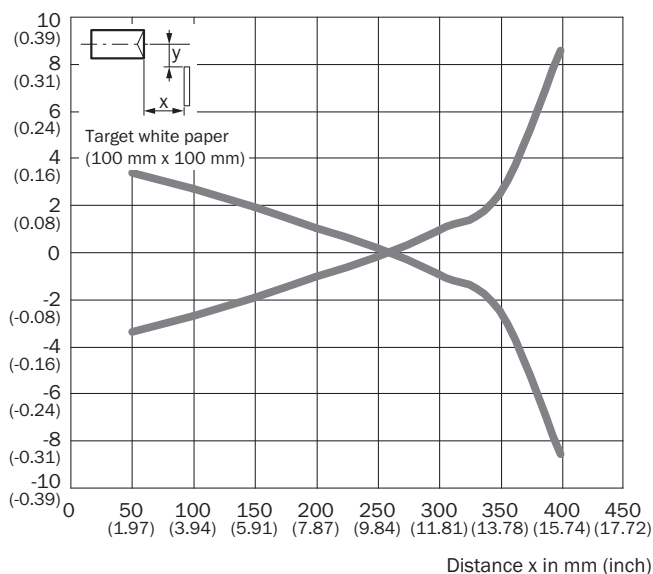


- Sensing range
- Sensing range max.
- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 20% remission
- ③ Sensing range on white, 90% remission factor

### Response range

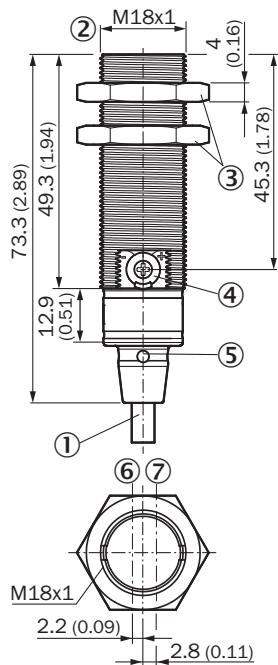
GRTE18S, 400 mm

Parallel operating range y in mm (inch)



Dimensional drawing (Dimensions in mm (inch))



GR18 Inox, cable, straight



- ① Connection
- ② Threaded mounting hole M18 x 1
- 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

Recommended accessories

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

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket for M18 sensors, stainless steel, without mounting hardware	BEF-WN-M18N	5320947
Others			
	<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)