



GRTE18-P2412

GR18

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ



### Ordering information

Type	Part no.
GRTE18-P2412	1066543

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

### Detailed technical data

#### Features

<b>Sensor/ detection principle</b>	Photoelectric proximity sensor, 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>Thread diameter (housing)</b>	M18 x 1
<b>Optical axis</b>	Axial
<b>Sensing range max.</b>	3 mm ... 115 mm <sup>1)</sup>
<b>Sensing range</b>	5 mm ... 100 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 8 mm (100 mm)
<b>Wave length</b>	650 nm
<b>Adjustment</b>	Potentiometer
<b>Indication</b>	
LED indicator green	Operating indicator Static: power on
LED indicator yellow	Status of received light beam Static on: object present Static off: object not present

<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>J</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>Current consumption</b>	30 mA
<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 <sub>S</sub> - (≤ 3 V) / approx. 0 V
<b>Output current I<sub>max</sub></b>	≤ 100 mA <sup>3)</sup>
<b>Response time</b>	< 1,000 μs <sup>4)</sup>
<b>Switching frequency</b>	500 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>Electromagnetic compatibility (EMC)</b>	EN 60947-5-2
<b>Ambient operating temperature</b>	-25 °C ... +55 °C <sup>9)</sup>
<b>Ambient temperature, storage</b>	-40 °C ... +70 °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 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.

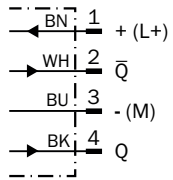
## Classifications

<b>ECl@ss 5.0</b>	27270903
<b>ECl@ss 5.1.4</b>	27270903
<b>ECl@ss 6.0</b>	27270903
<b>ECl@ss 6.2</b>	27270903
<b>ECl@ss 7.0</b>	27270903
<b>ECl@ss 8.0</b>	27270903
<b>ECl@ss 8.1</b>	27270903
<b>ECl@ss 9.0</b>	27270903
<b>ECl@ss 10.0</b>	27270904

<b>ECI@ss 11.0</b>	27270904
<b>ETIM 5.0</b>	EC001821
<b>ETIM 6.0</b>	EC001821
<b>ETIM 7.0</b>	EC002719
<b>UNSPSC 16.0901</b>	39121528

### Connection diagram

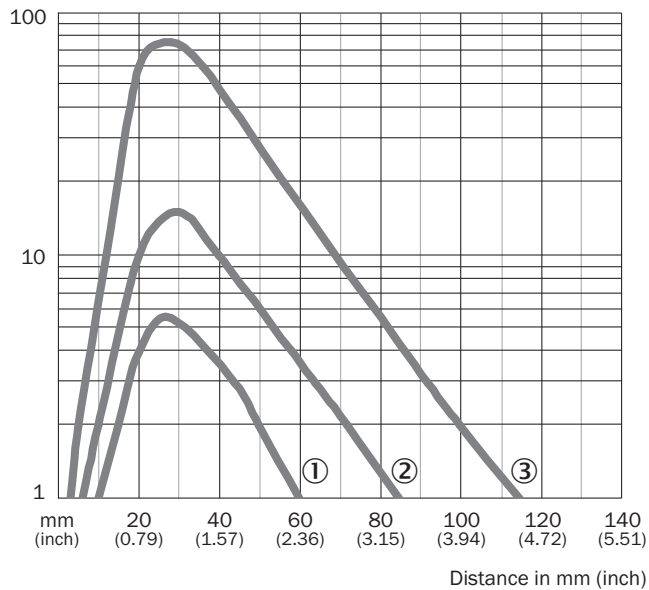
Cd-084



### Characteristic curve

GRTE18S, 100 mm

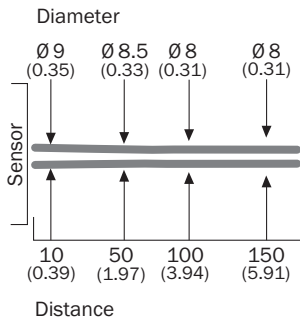
Operating reserve



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

## Light spot size

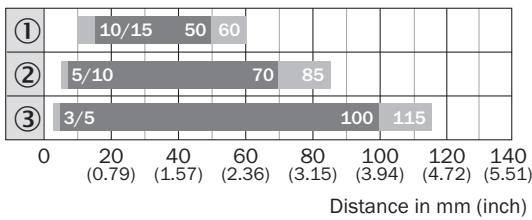
GRTE18S, 100 mm



Dimensions in mm (inch)

## Sensing range diagram

GRTE18S, 100 mm



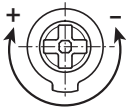
■ Sensing range    ■ Sensing range max.

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

## Adjustments

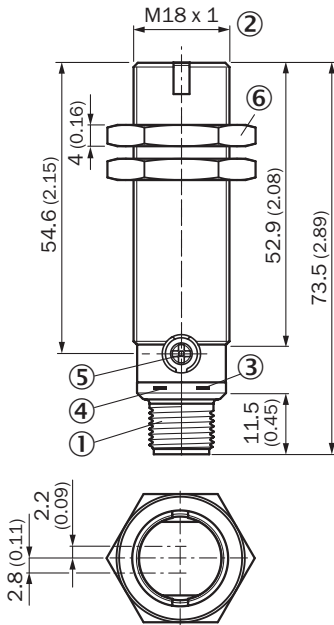
GRTB18(S), GRTE18(S), Sensing range setting: Potentiometer, 270°

Sensing range



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




GRTE18, GRL18, GRSE18, metal, connector, straight



- 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 nuts (2x); width across 24, metal

**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>			
	<ul style="list-style-type: none"> <li>• <b>Description:</b> Mounting bracket for M18 sensors</li> <li>• <b>Material:</b> Steel</li> <li>• <b>Items supplied:</b> Without mounting hardware</li> <li>• <b>Suitable for:</b> GR18, V180-2, V18, W15, Z1, Z2</li> </ul>	BEF-WN-M18	5308446
<b>Plug connectors and cables</b>			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 4-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Authorizations:</b> CE, UL</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 5 m, 4-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Zones with chemicals</li> </ul>	YF2A14-050VB3XLEAX	2096235
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Male connector, M12, 4-pin, straight</li> <li>• <b>Connection type head B:</b> -</li> <li>• <b>Authorizations:</b> UL</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)