



# GRSE18-P2421V

GR18

CYLINDRICAL PHOTOELECTRIC SENSORS

**SICK**  
Sensor Intelligence.



Illustration may differ

## Ordering information

Type	Part no.
GRSE18-P2421V	1085784

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



## 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 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>	0 m ... 15 m				
<b>Sensing range</b>	0 m ... 10 m				
<b>Type of light</b>	Infrared light				
<b>Light source</b>	LED <sup>1)</sup>				
<b>Light spot size (distance)</b>	Ø 420 mm (10 m)				
<b>Wave length</b>	850 nm				
<b>Adjustment</b>	None				
<b>Indication</b>	<table border="0"> <tbody> <tr> <td style="vertical-align: top;">LED green</td> <td>Operating indicator Static on: power on</td> </tr> <tr> <td style="vertical-align: top;">LED yellow</td> <td>Status of received light beam Static on: object not present Static off: object present</td> </tr> </tbody> </table>	LED green	Operating indicator Static on: power on	LED yellow	Status of received light beam Static on: object not present Static off: object present
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<b>Special applications</b>	Hygienic and washdown zones				

<sup>1)</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>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>	< 500 μs <sup>5)</sup>
<b>Switching frequency</b>	1,000 Hz <sup>6)</sup>
<b>Connection type</b>	Male connector M12, 4-pin
<b>Circuit protection</b>	A <sup>7)</sup> B <sup>8)</sup> D <sup>9)</sup>
<b>Protection class</b>	III
<b>Weight</b>	85 g
<b>Housing material</b>	Stainless steel, 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>10)</sup> IP69K <sup>11)</sup>
<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>12)</sup>
<b>Ambient temperature, storage</b>	-30 °C ... +75 °C
<b>UL File No.</b>	E348498
<b>Part number of individual components</b>	2091360 GRS18-D2421V 2091361 GRE18-P2411V

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

<sup>11)</sup> According to ISO 20653:2013-03.

<sup>12)</sup> At U<sub>v</sub> ≤ 24V and I<sub>A</sub> < 50mA.

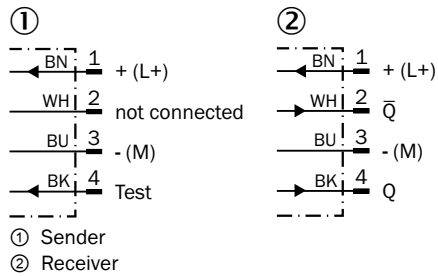
## Classifications

<b>eCl@ss 5.0</b>	27270901
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<b>eCl@ss 5.1.4</b>	27270901
<b>eCl@ss 6.0</b>	27270901
<b>eCl@ss 6.2</b>	27270901
<b>eCl@ss 7.0</b>	27270901
<b>eCl@ss 8.0</b>	27270901
<b>eCl@ss 8.1</b>	27270901
<b>eCl@ss 9.0</b>	27270901
<b>eCl@ss 10.0</b>	27270901
<b>eCl@ss 11.0</b>	27270901
<b>eCl@ss 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

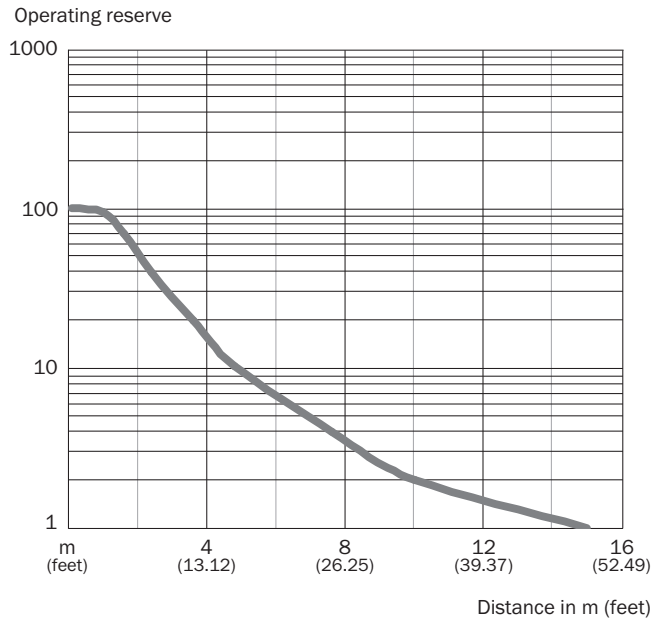
### Connection diagram

Cd-072



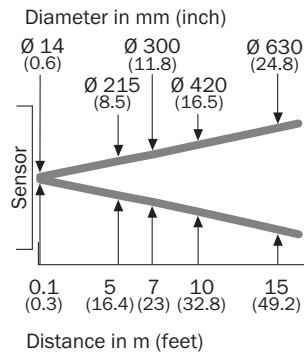
### Characteristic curve

GRSE18S



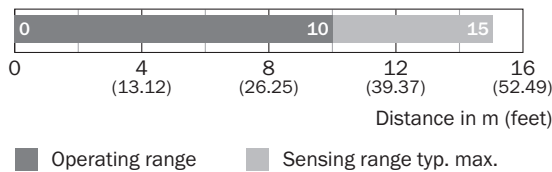
### Light spot size

GRSE18, infrared light



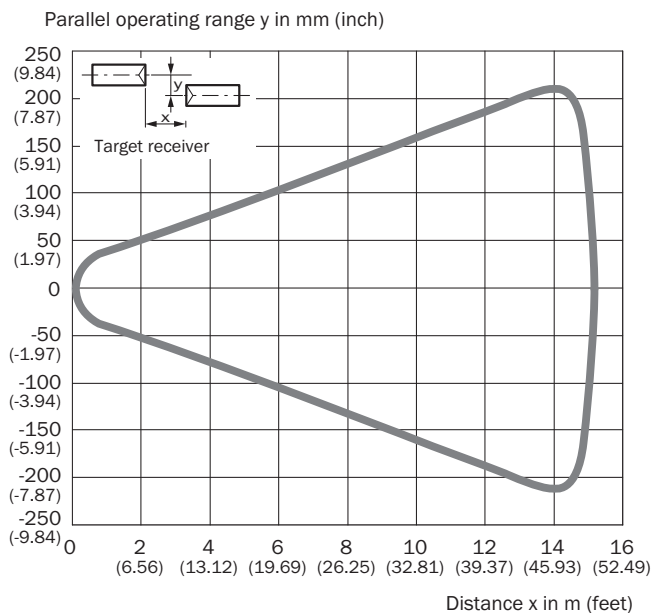
### Sensing range diagram

GRSE18S



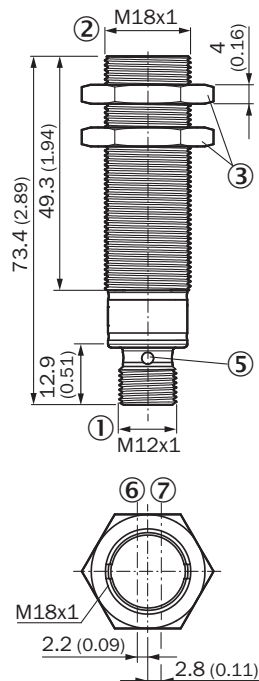
## Response range

GRSE18S



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



GR18 Inox, connector, straight



- ① Connection
- ② Threaded mounting hole M18 x 1
- ③ Fastening nuts (2 x); width across 24, stainless steel
- ④ LED indicator (4 x)
- ⑤ Optical axis, receiver
- ⑥ Optical axis, sender

### 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, stainless steel, without mounting hardware	BEF-WN-M18N	5320947
<b>Plug connectors and cables</b>			
	Head A: female connector, M12, 4-pin, straight Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m This product is generally resistant to chemical cleaning agents (see ECOLAB). Please do not use cleaning agents of any other kind., Not resistant against lactic acid & hydrogen peroxide (H2O2)	DOL-1204-G05MNI	6052615

## 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)