

GRL18S-F235W GR18

**PHOTOELECTRIC SENSORS** 





### Ordering information

Туре	part no.
GRL18S-F235W	1064161

Included in delivery: P250 (1)

Other models and accessories → www.sick.com/GR18





#### Detailed technical data

#### **Features**

Functional principle		Photoelectric retro-reflective sensor
Functional principle detail		With minimum distance to reflector (dual lens system)
Dimensions (W x H x D)		18 mm x 18 mm x 38.1 mm
Housing design (light emission)		Cylindrical
Thread diameter (housing)		M18 x 1
Optical axis		Radial, fully flush
Sensing range max.		0.03 m 7.2 m <sup>1)</sup>
Sensing range		0.06 m 6 m <sup>1)</sup>
Type of light		Visible red light
Light source		PinPoint LED <sup>2)</sup>
Light spot size (distance)		Ø 175 mm (7 m)
Wave length		650 nm
Adjustment		None
Display		
	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> Reflector PL80A.

<sup>&</sup>lt;sup>2)</sup> Average service life: 100,000 h at  $T_U$  = +25 °C.

### Mechanics/electronics

Supply voltage U <sub>B</sub>	10 V DC 30 V DC <sup>1)</sup>
Ripple	< 5 V <sub>pp</sub> <sup>2)</sup>
Current consumption	30 mA
Switching output	PNP
Switching mode	Dark switching
Signal voltage PNP HIGH/LOW	$V_S$ - ( $\leq 3 \text{ V}$ ) / approx. 0 V
Output current I <sub>max.</sub>	$\leq$ 100 mA $^{3)}$
Response time	< 500 μs <sup>4)</sup>
Switching frequency	1,000 Hz <sup>5)</sup>
Connection type	Connector M12, 3-pin
Circuit protection	A <sup>6)</sup> B <sup>7)</sup> D <sup>8)</sup>
Protection class	III
Polarisation filter	<b>√</b>
Housing material	Metal, Nickel-plated brass and ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Fastening nuts (2 x), Reflector P250
Electromagnetic compatibility (EMC)	EN 60947-5-2
Ambient operating temperature	-25 °C +55 °C <sup>9)</sup>
Ambient temperature, storage	-40 °C +70 °C
UL File No.	NRKH.E348498 & NRKH7.E348498

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

#### Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

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

 $<sup>^{3)}</sup>$  At Uv > 24 V or ambient temperature > 49 °C, IA max. = 50 mA.

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

<sup>&</sup>lt;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  $\rm U_{V}\,{<}{=}24V$  and  $\rm I_{A}{<}50mA.$ 

### Classifications

ECLASS 5.0	27270902
ECLASS 5.1.4	27270902
ECLASS 6.0	27270902
ECLASS 6.2	27270902
ECLASS 7.0	27270902
ECLASS 8.0	27270902
ECLASS 8.1	27270902
ECLASS 9.0	27270902
ECLASS 10.0	27270902
ECLASS 11.0	27270902
ECLASS 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

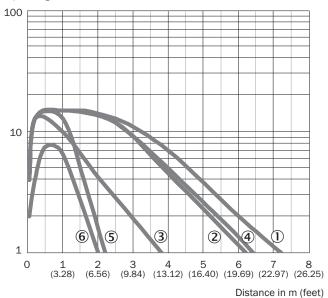
# Connection type



# Connection diagram Cd-045

#### Characteristic curve GRL18S

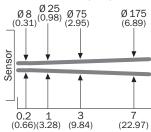




- ① Reflector PL80A
- ② Reflector PL40A
- 3 Reflector PL20A
- 4 Reflector P250
- ⑤ Reflector PL22
- ® Reflective tape REF-Plus 3436

### Light spot size GRL18S

### Diameter in mm (inch)



Distance in m (feet)

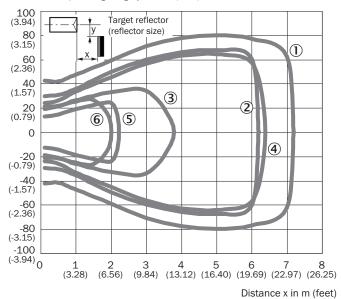
### Sensing range diagram GRL18S

1	0.03/0.06	6.0	7.2
2	0.03/0.06	5.2 6.2	
3	0.03/0.06 2.9 3.8		
4	0.03/0.06	5.4 6.4	
<u>(5)</u>	0.03/0.06 1.9/2.2		
6	0.06/0.08 1.6/2.0		
(	O 1 2 3 4 (3.28) (6.56) (9.84) (13.1		7 8 (22.97) (26.25) ce in m (feet

- Sensing range
- Sensing range max.
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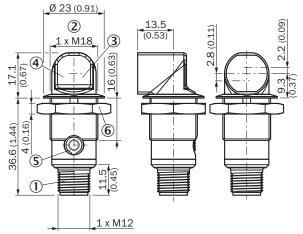
#### Response range GRL18S

Parallel operating range y in mm (inch)



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### Dimensional drawing GR18S, metal, connector, angled, fully flush



Dimensions in mm (inch)

- ① Connector M12, 3-pin
- ② Threaded mounting hole M18 x 1
- 3 LED indicator yellow
- ④ LED indicator green
- ⑤ Dummy plug
- 6 fastening nut; 24 mm hex, metal

#### Recommended accessories

Other models and accessories  $\rightarrow$  www.sick.com/GR18

	Brief description	Туре	part no.		
Mounting systems					
40	<ul> <li>Description: Mounting bracket for M18 sensors</li> <li>Material: Steel</li> <li>Details: Steel, zinc coated</li> <li>Items supplied: Without mounting hardware</li> <li>Suitable for: GR18, V180-2, V18, W15, Z1, Z2</li> </ul>	BEF-WN-M18	5308446		
0 0 A 10 0	<ul> <li>Description: Universal mounting bracket for reflectors</li> <li>Dimensions (W x H x L): 85 mm x 90 mm x 35 mm</li> <li>Material: Steel</li> <li>Details: Steel, zinc coated</li> <li>Suitable for: C110A, P250, PL20, PL30A, PL40A, PL80A</li> </ul>	BEF-WN-REFX	2064574		
	<ul> <li>Description: Mounting tool for "fully flush" variants</li> <li>Usable for: GR18</li> <li>Suitable for: GR18S, radial, fully flush</li> </ul>	BEF-TO-GR18S	4072132		
reflectors and optics					
	<ul> <li>Description: Rectangular, screw connection</li> <li>Dimensions: 51 mm 61 mm</li> <li>Ambient operating temperature: -30 °C +65 °C</li> </ul>	P250	5304812		

# 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

