

GRL18S-P1036S03

GR18

PHOTOELECTRIC SENSORS





Ordering information

Туре	part no.
GRL18S-P1036S03	1069609

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

Illustration may differ



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		Axial
Sensing range max.		0.03 m 7.2 m $^{1)}$
Sensing range		0.06 m 6 m ¹⁾
Type of light		Visible red light
Light source		PinPoint LED ²⁾
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

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at T_U = +25 °C.

Special features

Connection cable tin-coated

Mechanics/electronics

Supply voltage U _B	10 V DC 30 V DC ¹⁾
Ripple	< 5 V _{pp} ²⁾
Current consumption	30 mA
Switching output	PNP
Output function	Complementary
Switching mode	Light/dark switching
Signal voltage PNP HIGH/LOW	V_S - ($\leq 3 V$) / approx. $0 V$
Output current I _{max.}	\leq 100 mA $^{3)}$
Response time	< 500 μs ⁴⁾
Switching frequency	1,000 Hz ⁵⁾
Connection type	Cable, 4-wire, 70 mm ⁶⁾
Cable material	Plastic, PVC
Circuit protection	A ⁷⁾ B ⁸⁾ D ⁹⁾
Protection class	III
Polarisation filter	√
Special device	✓
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Fastening nuts (2 x)
Electromagnetic compatibility (EMC)	EN 60947-5-2
Ambient operating temperature	-25 °C +55 °C ¹⁰⁾
Ambient temperature, storage	-40 °C +70 °C
UL File No.	NRKH.E348498 & NRKH7.E348498

 $^{^{1)}}$ Limit values. Operated in short-circuit protected network: max. 8 $\mbox{\rm A}.$

Certificates

EU declaration of conformity	J.
UK declaration of conformity	√

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at T_U = +25 °C.

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

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

 $^{^{4)}}$ Signal transit time with resistive load.

⁵⁾ With light/dark ratio 1:1.

 $^{^{6)}}$ Do not bend below 0 $^{\circ}\text{C}.$

 $^{^{7)}\,\}mathrm{A}=\mathrm{V}_{\mathrm{S}}$ connections reverse-polarity protected.

 $^{^{8)}}$ B = inputs and output reverse-polarity protected.

 $^{^{9)}}$ D = outputs overcurrent and short-circuit protected.

 $^{^{10)}}$ At $\rm U_{V}$ <=24V and $\rm I_{A}{<}50mA.$

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

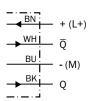
Classifications

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

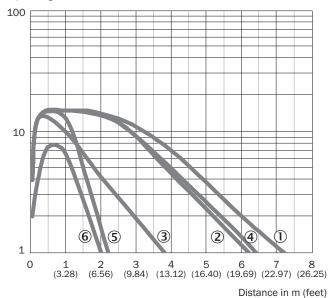


Connection diagram Cd-094



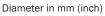
Characteristic curve GRL18S

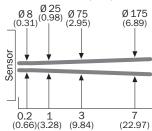




- ① Reflector PL80A
- ② Reflector PL40A
- 3 Reflector PL20A
- 4 Reflector P250
- ⑤ Reflector PL22
- ® Reflective tape REF-Plus 3436

Light spot size GRL18S





Distance in m (feet)

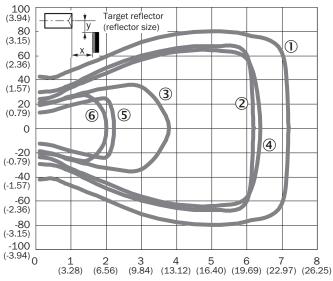
Sensing range diagram GRL18S

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	
(5)	0.03/0.06 1.9/2.2		
6	0.06/0.08 1.6/2.0		
(0 1 2 3 4 (3.28) (6.56) (9.84) (13.		7 8) (22.97) (26.25
		Distan	ce in m (fee

- Sensing range
- Sensing range max.
- ① Reflector PL80A
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Response range GRL18S

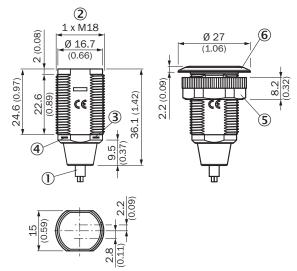
Parallel operating range y in mm (inch)



Distance x in m (feet)

- ① Reflector PL80A
- 2 Reflector PL40A
- 3 Reflector PL20A
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Dimensional drawing GR18S, plastic, cable, straight



Dimensions in mm (inch)

- ① Connection cable 2 m
- ② Threaded mounting hole M18 x 1
- 3 LED indicator yellow
- 4 LED indicator green
- (5) fastening nut; 22 mm hex, plastic
- 6 Mounting ring

Recommended accessories

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

	Brief description	Туре	part no.
connectors a	nd cables		
	 Connection type head A: Male connector, M12, 4-pin, straight, A-coded Description: Unshielded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² 	STE-1204-G	6009932
Mounting sys	tems		
40	 Description: Mounting bracket for M18 sensors Material: Steel Details: Steel, zinc coated Items supplied: Without mounting hardware Suitable for: GR18, V180-2, V18, W15, Z1, Z2 	BEF-WN-M18	5308446
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	 Description: Universal mounting bracket for reflectors Dimensions (W x H x L): 85 mm x 90 mm x 35 mm Material: Steel Details: Steel, zinc coated Suitable for: C110A, P250, PL20, PL30A, PL40A, PL80A 	BEF-WN-REFX	2064574

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	Brief description	Туре	part no.			
reflectors and	reflectors and optics					
	 Description: Rectangular, screw connection Dimensions: 51 mm 61 mm Ambient operating temperature: -30 °C +65 °C 	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."

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