

GRSE18-N1142

GR18

PHOTOELECTRIC SENSORS



Ordering information

Туре	part no.
GRSE18-N1142	1066572

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

Illustration may differ



Detailed technical data

Features

Functional principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	18 mm x 18 mm x 71.5 mm
Housing design (light emission)	Cylindrical
Thread diameter (housing)	M18 x 1
Optical axis	Axial
Sensing range max.	0 m 15 m
Sensing range	0 m 10 m
Type of light	Visible red light
Light source	PinPoint LED ¹⁾
Light spot size (distance)	Ø 250 mm (10 m)
Wave length	650 nm
Adjustment	Potentiometer
Display	
LED green	Operating indicatorStatic on: power on
LED yellow	Status of received light beamStatic on: object not presentStatic off: object present

 $^{^{1)}}$ Average service life: 100,000 h at T_U = +25 °C.

Mechanics/electronics

Supply voltage U _B 10 ∨ D C 30 ∨ D C	•	
Current consumption 30 mA Switching output NPN Output function Complementary Switching mode Light/dark switching Signal voltage NPN HIGH/LOW Approx. V _S / ≤ 3 V Output current I _{max} . ≤ 100 mA ³l Response time < 500 µs ⁴l Switching frequency 1,000 Hz ⁵l Connection type Cable. 4-wire. 2 m ⁵l Cable material Plastic, PVC Circuit protection III Housing material Metal, Nickel-plated brass and ABS Optics material Plastic, PMMA Enclosure rating P67 Items supplied Fastening nuts (4 x) Electromagnetic compatibility (EMC) En 60947-5-2 Test input Sender OFF at "Test" 0 V Ambient operating temperature -25 °C +55 °C ¹lol Ambient temperature, storage -40 °C +70 °C UL File No. E348498	Supply voltage U _B	10 V DC 30 V DC ¹⁾
Switching output NPN Output function Complementary Switching mode Light/dark switching Signal voltage NPN HIGH/LOW Approx. Vs / ≤ 3 V Output current I _{max.} ≤ 100 mA ³¹ Response time < 500 μs ⁴¹	Ripple	< 5 V _{pp} ²⁾
Output function Complementary Switching mode Light/dark switching Signal voltage NPN HIGH/LOW Approx. V _S / ≤ 3 V Output current I _{max.} ≤ 100 mA ³) Response time < 500 μs ⁴) Switching frequency 1,000 Hz ⁵) Connection type Cable, 4-wire, 2 m ⁶) Cable material Plastic, PVC Circuit protection A ⁷ β ⁸ β	Current consumption	30 mA
Switching mode Light/dark switching Signal voltage NPN HIGH/LOW Approx. V _S / ≤ 3 V Output current I _{max} . ≤ 100 mA ³¹ Response time < 500 µs ⁴¹ Switching frequency 1,000 Hz ⁵¹ Connection type Cable, 4-wire, 2 m ⁶¹ Cable material Plastic, PVC Circuit protection A ⁻¹⟩	Switching output	NPN
Signal voltage NPN HIGH/LOW Approx. V _S / ≤ 3 V Output current I _{max} . ≤ 100 mA ³⁾ Response time < 500 μs ⁴⁾ Switching frequency 1,000 Hz ⁵⁾ Connection type Cable, 4-wire, 2 m ⁶⁾ Cable material Plastic, PVC Circuit protection A ⁷⁾	Output function	Complementary
Output current I _{max} . ≤ 100 mA ³⁾ Response time < 500 μs ⁴⁾ Switching frequency 1,000 Hz ⁵⁾ Connection type Cable, 4-wire, 2 m ⁶⁾ Cable material Plastic, PVC Circuit protection A ⁷⁾	Switching mode	Light/dark switching
Response time< 500 µs 4)Switching frequency1,000 Hz 5)Connection typeCable, 4-wire, 2 m 6)Cable materialPlastic, PVCCircuit protectionA 7) B 8) D 9)Protection classIIIHousing materialMetal, Nickel-plated brass and ABSOptics materialPlastic, PMMAEnclosure ratingIP67Items suppliedFastening nuts (4 x)Electromagnetic compatibility (EMC)EN 60947-5-2Test inputSender OFF at "Test" 0 VAmbient operating temperature-25 °C +55 °C 10)Ambient temperature, storage-40 °C +70 °CUL File No.E348498	Signal voltage NPN HIGH/LOW	Approx. $V_S / \leq 3 V$
Switching frequency Connection type Cable, 4-wire, 2 m 6) Plastic, PVC Circuit protection A 7) B 8) D 9) Protection class Housing material Metal, Nickel-plated brass and ABS Optics material Plastic, PMMA Enclosure rating Items supplied Fastening nuts (4 x) Electromagnetic compatibility (EMC) Electromagnetic compatibility (EMC) Test input Ambient operating temperature Ambient temperature, storage UL File No.	Output current I _{max.}	\leq 100 mA $^{3)}$
Cable, 4-wire, 2 m 6) Cable material Plastic, PVC Circuit protection A 7 B 8 D D 9) Protection class III Housing material Metal, Nickel-plated brass and ABS Optics material Plastic, PMMA Enclosure rating IP67 Items supplied Electromagnetic compatibility (EMC) Est input Ambient operating temperature -25 ° C +55 ° C 10) Ambient temperature, storage UL File No. Cable, 4-wire, 2 m 6) A 7 B Alsic, PVC Metal, Nickel-plated brass and ABS Discussion of the plate of the	Response time	< 500 µs ⁴⁾
Cable material Plastic, PVC Circuit protection A 7 B 8 B B B B B B B B B B B B B B B B B	Switching frequency	1,000 Hz ⁵⁾
Circuit protection A 7 B 8 B 8 D 9 9 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Connection type	Cable, 4-wire, 2 m ⁶⁾
Protection class Housing material Metal, Nickel-plated brass and ABS Optics material Plastic, PMMA Enclosure rating IP67 Items supplied Electromagnetic compatibility (EMC) Test input Ambient operating temperature Ambient temperature, storage UL File No. Besten in put perform the possible product of the p	Cable material	Plastic, PVC
Housing material Metal, Nickel-plated brass and ABS Plastic, PMMA Plastic, PMMA IP67 Items supplied Fastening nuts (4 x) Electromagnetic compatibility (EMC) EN 60947-5-2 Test input Sender OFF at "Test" 0 V Ambient operating temperature -25 °C +55 °C 10) Ambient temperature, storage UL File No. Metal, Nickel-plated brass and ABS Plastic, PMMA Fastening nuts (4 x) En 60947-5-2 En 60947-5-2 UV Sender OFF at "Test" 0 V -25 °C +75 °C 10) -25 °C +70 °C E348498	Circuit protection	B ⁸⁾
Optics material Enclosure rating IP67 Items supplied Fastening nuts (4 x) Electromagnetic compatibility (EMC) EN 60947-5-2 Test input Ambient operating temperature -25 ° C +55 ° C ¹⁰⁾ -40 ° C +70 ° C UL File No.	Protection class	III
Enclosure rating Items supplied Fastening nuts (4 x) Electromagnetic compatibility (EMC) EN 60947-5-2 Test input Sender OFF at "Test" 0 V Ambient operating temperature -25 °C +55 °C 10) Ambient temperature, storage UL File No. E348498	Housing material	Metal, Nickel-plated brass and ABS
Items supplied Fastening nuts (4 x) Electromagnetic compatibility (EMC) EN 60947-5-2 Test input Sender OFF at "Test" 0 V Ambient operating temperature -25 °C +55 °C ¹⁰⁾ -40 °C +70 °C UL File No. E348498	Optics material	Plastic, PMMA
Electromagnetic compatibility (EMC) EN 60947-5-2 Sender OFF at "Test" 0 V Ambient operating temperature -25 ° C +55 ° C ¹⁰⁾ -40 ° C +70 ° C UL File No. EN 60947-5-2 Sender OFF at "Test" 0 V -25 ° C +75 ° C ¹⁰⁾ -40 ° C +70 ° C	Enclosure rating	IP67
Test input Sender OFF at "Test" 0 V Ambient operating temperature -25 °C +55 °C ¹⁰⁾ Ambient temperature, storage -40 °C +70 °C UL File No. E348498	Items supplied	Fastening nuts (4 x)
Ambient operating temperature -25 °C +55 °C ¹⁰⁾ -40 °C +70 °C UL File No. E348498	Electromagnetic compatibility (EMC)	EN 60947-5-2
Ambient temperature, storage -40 °C +70 °C UL File No. E348498	Test input	Sender OFF at "Test" 0 V
UL File No. E348498	Ambient operating temperature	-25 °C +55 °C ¹⁰⁾
	Ambient temperature, storage	-40 °C +70 °C
Part number of individual components 2072235 GRS18-D1341 2072236 GRE18-N1132	UL File No.	E348498
	Part number of individual components	2072235 GRS18-D1341 2072236 GRE18-N1132

¹⁾ 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	✓

 $^{^{2)}}$ 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 °C.

 $^{^{7)}}$ A = V_S connections reverse-polarity protected.

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

⁹⁾ D = outputs overcurrent and short-circuit protected.

 $^{^{10)}}$ At U $_{\rm V}$ <=24V and I $_{\rm A}$ <50mA.

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PHOTOELECTRIC SENSORS

ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

Classifications

ECLASS 5.0	27270901
ECLASS 5.1.4	27270901
ECLASS 6.0	27270901
ECLASS 6.2	27270901
ECLASS 7.0	27270901
ECLASS 8.0	27270901
ECLASS 8.1	27270901
ECLASS 9.0	27270901
ECLASS 10.0	27270901
ECLASS 11.0	27270901
ECLASS 12.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
UNSPSC 16.0901	39121528

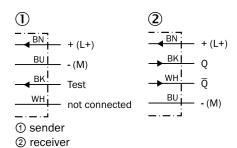
Adjustments GRL18(S), GRSE18(S), Sensitivity setting: Potentiometer, 270°

Sensitivity

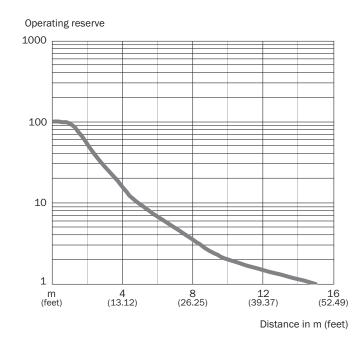




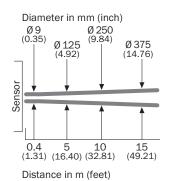
Connection diagram Cd-088



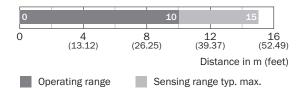
Characteristic curve GRSE18S



Light spot size GRSE18, red light

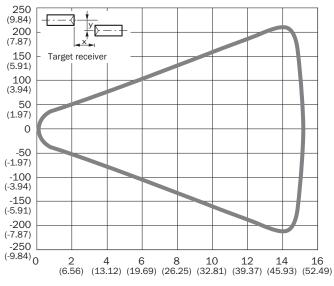


Sensing range diagram GRSE18S



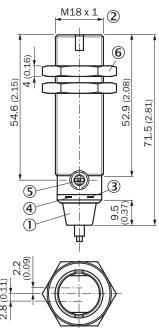
Response range GRSE18S

Parallel operating range y in mm (inch)



Distance x in m (feet)

Dimensional drawing GRTE18, GRL18, GRSE18, metal, 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 sensitivity control: potentiometer 270°
- (6) Fastening nuts (2x); width across 24, metal

Recommended accessories

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

	Brief description	Туре	part no.
Mounting systems			
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
connectors and cables			
1	 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

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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