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DATA SHEET

GRSE18S-P2421V

GR18
Photoelectric sensors

SICK
Sensor Intelligence



Illustration may differ

PHOTOELECTRIC SENSORS

GRSE18S-P2421V

ORDERING INFORMATION

Type	part no.
GRSE18S-P2421V	1085765

Further device versions and accessories at www.sick.com/GR18

DETAILED TECHNICAL DATA

FEATURES

Functional principle	Through-beam photoelectric sensor
Dimensions (W x H x D)	18 mm x 18 mm x 55.9 mm
Housing design (light emission)	Cylindrical
Housing length	55.9 mm
Thread length	31.7 mm
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	Infrared light
Light source	LED [1]
Light spot size (distance)	Ø 420 mm (10 m)
Wave length	850 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
Special applications	Hygienic and washdown zones

[1] Average service life: 100,000 h at T_U = +25 °C.

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 [3]
Signal voltage PNP HIGH/LOW	V_S - (≤ 3 V) / approx. 0 V
Output current $I_{max.}$	≤ 100 mA [4]
Response time	< 500 µs [5]
Switching frequency	1,000 Hz [6]
Connection type	Male connector M12, 4-pin
Circuit protection	A [7] B [8] D [9]
Protection class	III
Weight	85 g
Housing material	Metal, Stainless steel V4A (1.4404, 316L)
Optics material	Plastic, PMMA
Tightening torque, max.	90 Nm
Enclosure rating	IP67 IP68 [10] IP69K [11]
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 [12]
Ambient temperature, storage	–30 °C ... +75 °C
UL File No.	NRKH.E348498 & NRKH7.E348498
Part number of individual components	2091197 GRS18S-D2421V 2091193 GRE18S-P2411V

[1] Limit values. Operated in short-circuit protected network: max. 8 A.

[2] May not fall below or exceed U_v tolerances.

[3] Q = light switching; $\bar{Q}$ = dark switching.

[4] At Uv > 24 V or ambient temperature > 49 °C, IA max. = 50 mA.

[5] Signal transit time with resistive load.

[6] With light/dark ratio 1:1.

[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] According to EN 60529 (10 m water depth / 24 h).

[11] According to ISO 20653:2013-03.

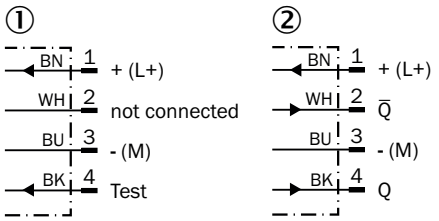
[12] At U_v <=24V and I_A<50mA.

CERTIFICATES

EU declaration of conformity	✓
UK declaration of conformity	✓

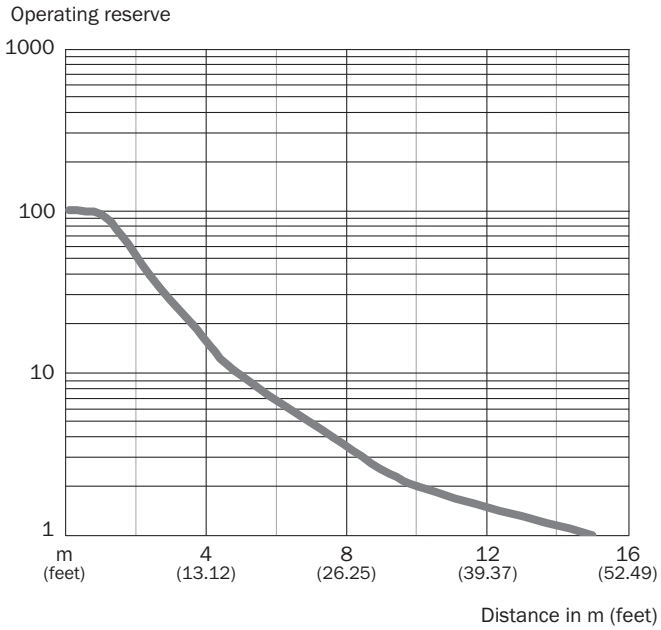
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
China Compulsory Product Certification (CCC) exempt	✓
ECOLAB certificate	✓
cULus certificate	✓
Photobiological safety (DIN EN 62471) certificate	✓

CONNECTION DIAGRAM CD-072

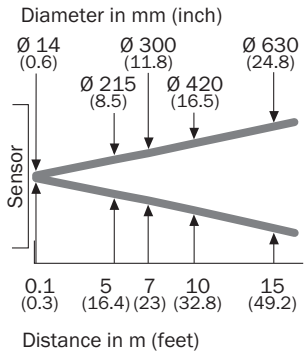


① sender
② receiver

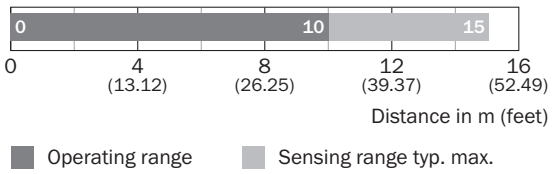
CHARACTERISTIC CURVE GRSE18S



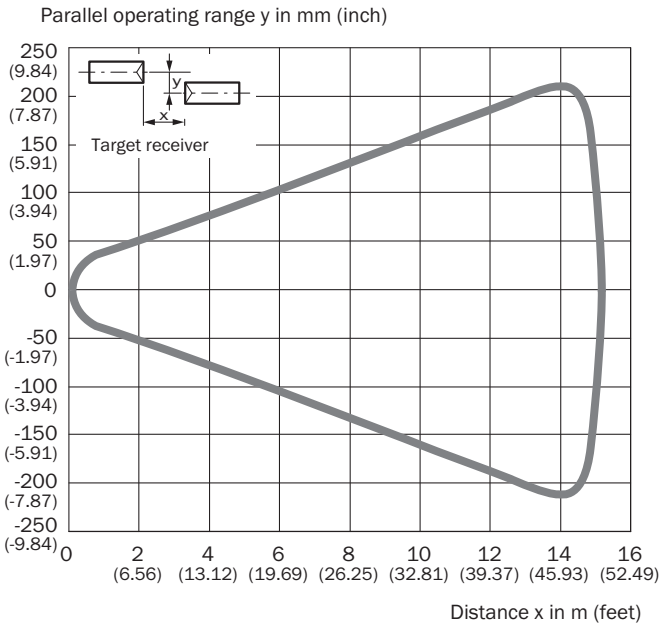
LIGHT SPOT SIZE GRSE18, INFRARED LIGHT



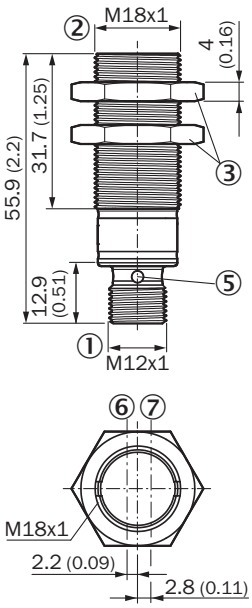
SENSING RANGE DIAGRAM GRSE18S



RESPONSE RANGE GRSE18S



DIMENSIONAL DRAWING GR18S INOX, CONNECTOR, STRAIGHT



Dimensions in mm (inch)
① Connection
② Threaded mounting hole M18 x 1
③ fastening nuts (2 x); width across 24, stainless steel
⑤ LED indicator (4 x)
⑥ optical axis, receiver
⑦ optical axis, sender

Further information as well as suitable accessories, example applications and downloads such as CAD dimensional models, operating instructions and software can be found at www.sick.com/1085765

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SICK AT A GLANCE

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SICK combines sensor intelligence with industry expertise and certified consulting services. We provide the ideal foundation for scalable as well as tailor-made automation solutions and create added value along the entire value chain. Our close partnerships with our customers are more than just a promise: Together, we optimize productivity, improve quality, protect health and safety, and help build a sustainable future. All with empathy and trust.

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