GRTE18S-P1312

GR18

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

GRTE18S-P1312 | GR18
PHOTOELECTRIC SENSORS

Illustration may differ
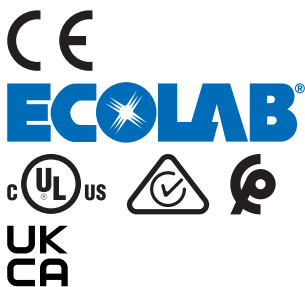
Ordering information

Type	part no.
GRTE18S-P1312	1058203

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

Detailed technical data

Features

Functional principle	Photoelectric proximity sensor
Functional principle detail	Energetic
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.	3 mm ... 115 mm [1]
Sensing range	5 mm ... 100 mm [1]
Type of light	Visible red light
Light source	PinPoint LED [2]
Light spot size (distance)	Ø 8 mm (100 mm)
Wave length	650 nm
Adjustment	Potentiometer, 270 °
Display	
LED green	Operating indicator Static on: power on
LED yellow	Status of received light beam Static on: object present Static off: object not present

[1] Object with 90% remission (based on standard white, DIN 5033).
[2] 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
Switching mode	Light switching
Signal voltage PNP HIGH/LOW	V_S - (≤ 3 V) / approx. 0 V
Output current $I_{max.}$	≤ 100 mA [3]
Response time	< 1,000 µs [4]
Switching frequency	500 Hz [5]
Connection type	Cable, 3-wire, 2 m [6]
Cable material	Plastic, PVC
Circuit protection	A [7] B [8] D [9]
Protection class	III
Housing material	Metal, Nickel-plated brass and 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 A.

[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_V <=24V and I_A<50mA.

Safety-related parameters

$MTTF_D$	1,930 years
DC_{avg}	0 %

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	✓

Classifications

ECLASS 5.0	27270903
ECLASS 5.1.4	27270903
ECLASS 6.0	27270903
ECLASS 6.2	27270903
ECLASS 7.0	27270903
ECLASS 8.0	27270903
ECLASS 8.1	27270903
ECLASS 9.0	27270903
ECLASS 10.0	27270904
ECLASS 11.0	27270904
ECLASS 12.0	27270903
ETIM 5.0	EC001821
ETIM 6.0	EC001821
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

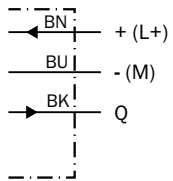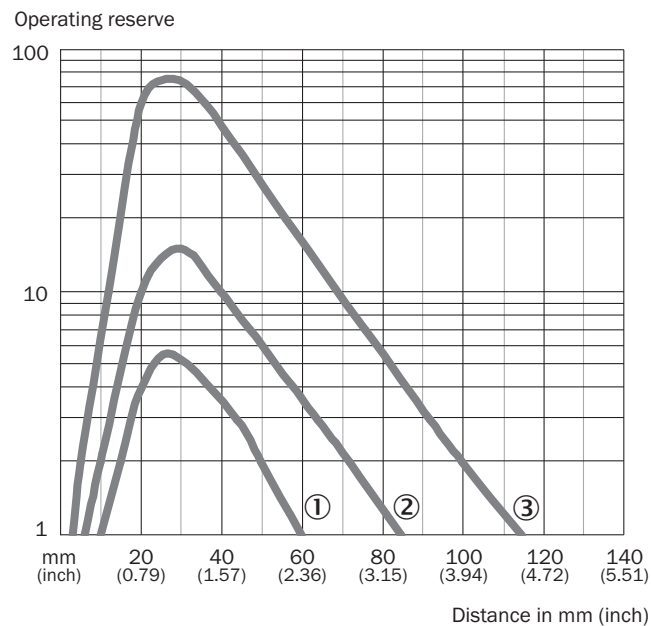## Adjustments GRTB18(S), GRTE18(S), Sensing range setting: Potentiometer, 270°

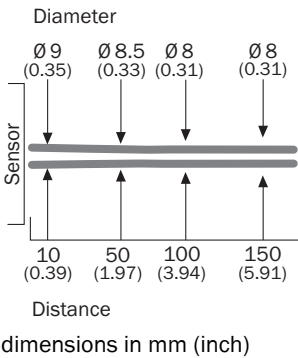Sensing range
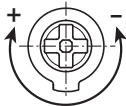
Connection type
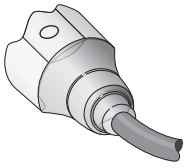
Connection diagram Cd-044

```
  BN         + (L+)
  BU         - (M)
  BK         Q
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Characteristic curve GRTE18S, 100 mm
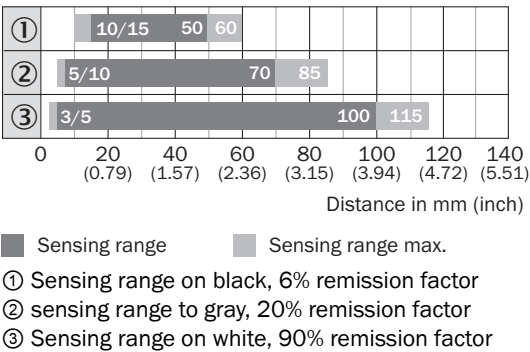
Operating reserve

Distance in mm (inch)

① Sensing range on black, 6% remission factor
② sensing range to gray, 20% remission factor
③ Sensing range on white, 90% remission factor

Light spot size GRTE18S, 100 mm

Diameter

Ø 9 (0.35) Ø 8.5 (0.33) Ø 8 (0.31) Ø 8 (0.31)

Sensor

10 (0.39) 50 (1.97) 100 (3.94) 150 (5.91)

Distance

dimensions in mm (inch)

Sensing range diagram GRTE18S, 100 mm

①	10/15	50	60
②	5/10	70	85
③	3/5	100	115

0   20 (0.79)   40 (1.57)   60 (2.36)   80 (3.15)   100 (3.94)   120 (4.72)   140 (5.51)

Distance in mm (inch)

■ Sensing range   ■ Sensing range max.

① Sensing range on black, 6% remission factor
② sensing range to gray, 20% remission factor
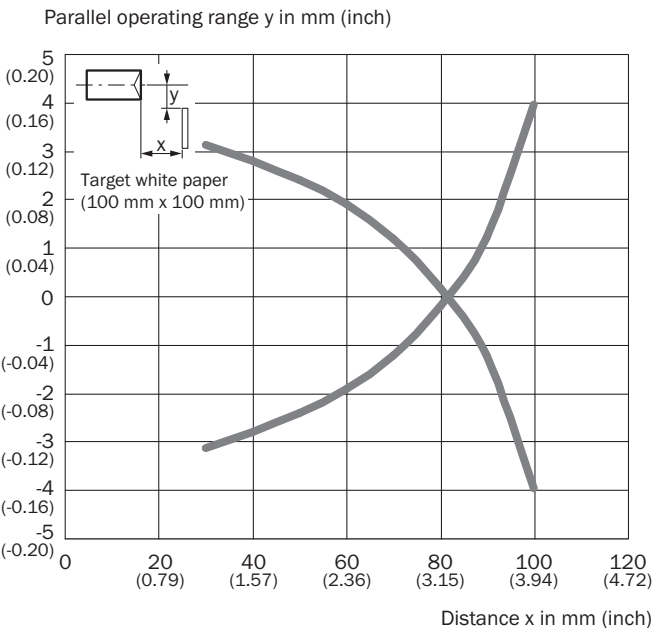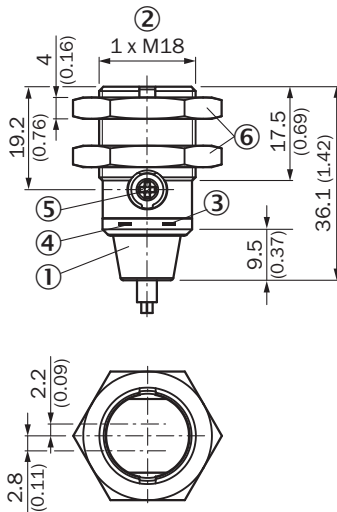③ Sensing range on white, 90% remission factor

Response range GRTE18S, 100 mm

Parallel operating range y in mm (inch)

Target white paper (100 mm x 100 mm)

5 (0.20)
4 (0.16)
3 (0.12)
2 (0.08)
1 (0.04)
0
-1 (-0.04)
-2 (-0.08)
-3 (-0.12)
-4 (-0.16)
-5 (-0.20)

0   20 (0.79)   40 (1.57)   60 (2.36)   80 (3.15)   100 (3.94)   120 (4.72)

Distance x in mm (inch)

Dimensional drawing GR18S, metal, cable, straight, adjustable

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		Type	part no.
Mounting systems			
	• **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			
	• **Connection type head A:** Male connector, M8, 3-pin, straight, A-coded • **Description:** Unshielded • **Connection systems:** Screw-type terminals • **Permitted cross-section:** 0.14 mm² ... 0.5 mm²	STE-0803-G	6037322

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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