GRTE18S-F231X

GR18S

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

Ordering information

Type	Part no.
GRTE18S-F231X	1059438

Other models and accessories ➜ www.sick.com/GR18S

Illustration may differ

Detailed technical data

Features

Sensor/ detection principle	Photoelectric proximity sensor, 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	Radial, fully flush
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 °

[1] Object with 90 % reflectance (referred to standard white, DIN 5033).

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

Mechanics/electronics

Supply voltage	10 V DC ... 30 V DC [1]
Ripple	± 5 V_{pp} [2]

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

[2] May not exceed or fall below 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] A = V_S connections reverse-polarity protected.

[7] B = inputs and output reverse-polarity protected.

[8] D = outputs overcurrent and short-circuit protected.

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

Current consumption	30 mA
Switching output	PNP
Switching mode	Dark 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	Connector M12, 3-pin
Circuit protection	A [6] B [7] D [8]
Protection class	III
Housing material	Metal, Nickel-plated brass and ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Fastening nuts (2 x)
EMC	EN 60947-5-2
Ambient operating temperature	–25 °C ... +55 °C [9]
Ambient storage temperature	–40 °C ... +70 °C
UL File No.	NRKH.E348498 & NRKH7.E348498

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[8] D = outputs overcurrent and short-circuit protected.

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

Classifications

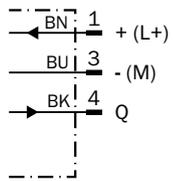|	
ECl@ss 5.0	27270903
ECl@ss 5.1.4	27270903
ECl@ss 6.0	27270903
ECl@ss 6.2	27270903
ECl@ss 7.0	27270903
ECl@ss 8.0	27270903
ECl@ss 8.1	27270903
ECl@ss 9.0	27270903
ECl@ss 10.0	27270904
ECl@ss 11.0	27270904
ETIM 5.0	EC001821
ETIM 6.0	EC001821
ETIM 7.0	EC002719

UNSPSC 16.0901	39121528

Connection diagram

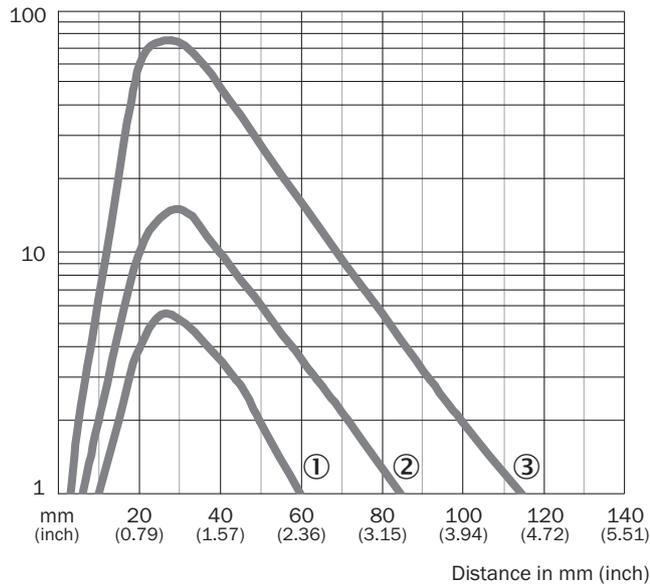Cd-045

BN 1 + (L+)
BU 3 - (M)
BK 4 Q

Characteristic curve

GRTE18S, 100 mm

Operating reserve

Distance in mm (inch)
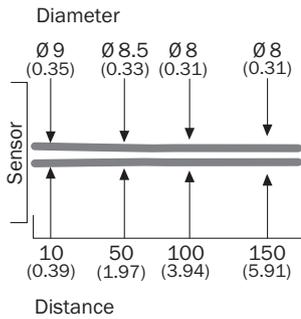
① Sensing range on black, 6% remission
② Sensing range on gray, 20 % remission
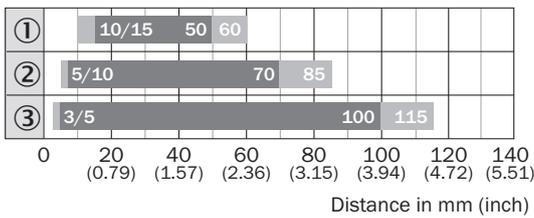③ Sensing range on white, 90% remission

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)
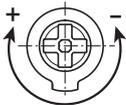
Distance in mm (inch)

■ Sensing range   ■ Sensing range max.

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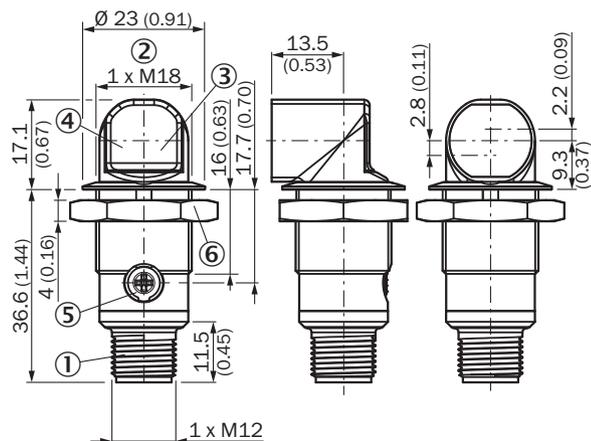③ Sensing range on white, 90% remission

Adjustments possible

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

Sensing range

+ −

Dimensional drawing (Dimensions in mm (inch))

GR18S, metal, connector, angled, fully flush, adjustable

① Connector M12, 3-pin
② Threaded mounting hole M18 x 1
③ LED indicator yellow
④ LED indicator green
⑤ Sensitivity control: potentiometer 270°
⑥ Fastening nut; 24 mm hex, metal

Recommended accessories

Other models and accessories ➜ www.sick.com/GR18S

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket for M18 sensors, steel, zinc coated, without mounting hardware	BEF-WN-M18	5308446
Other mounting accessories			
	Mounting tool for "fully flush" variants	BEF-TO-GR18S	4072132

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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