

GRTE18S-P231X

GR18

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
GRTE18S-P231X	1059440

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

Illustration may differ



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	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 °
Indication	
	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_J = +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	$V_S - (\leq 3 V)$ / approx. 0 V
Output current I_{max}	$\leq 100 mA$ ³⁾
Response time	$< 1,000 \mu s$ 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)
Electromagnetic compatibility (EMC)	EN 60947-5-2
Ambient operating temperature	$-25 \text{ }^\circ\text{C} \dots +55 \text{ }^\circ\text{C}$ ⁹⁾
Ambient temperature, storage	$-40 \text{ }^\circ\text{C} \dots +70 \text{ }^\circ\text{C}$
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 $U_V > 24 V$ or ambient temperature $> 49 \text{ }^\circ\text{C}$, $I_A \text{ max.} = 50 mA$.

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 $U_V \leq 24V$ and $I_A < 50mA$.

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

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ECLASS 12.0	27270903
ETIM 5.0	EC001821
ETIM 6.0	EC001821
ETIM 7.0	EC002719
ETIM 8.0	EC002719
UNSPSC 16.0901	39121528

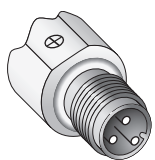
Adjustments

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

Sensing range

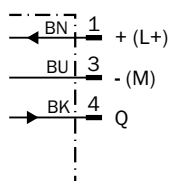


Connection type



Connection diagram

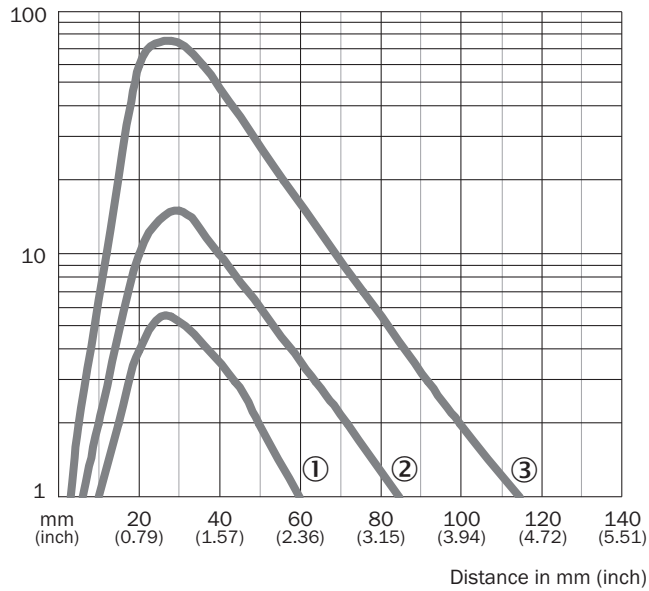
Cd-045



Characteristic curve

GRTE18S, 100 mm

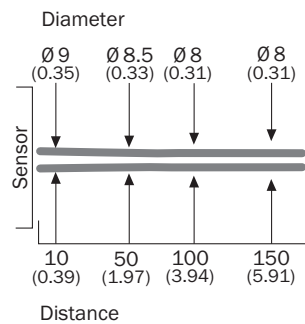
Operating reserve



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

Light spot size

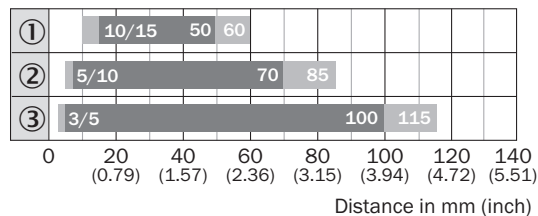
GRTE18S, 100 mm



Dimensions in mm (inch)

Sensing range diagram

GRTE18S, 100 mm

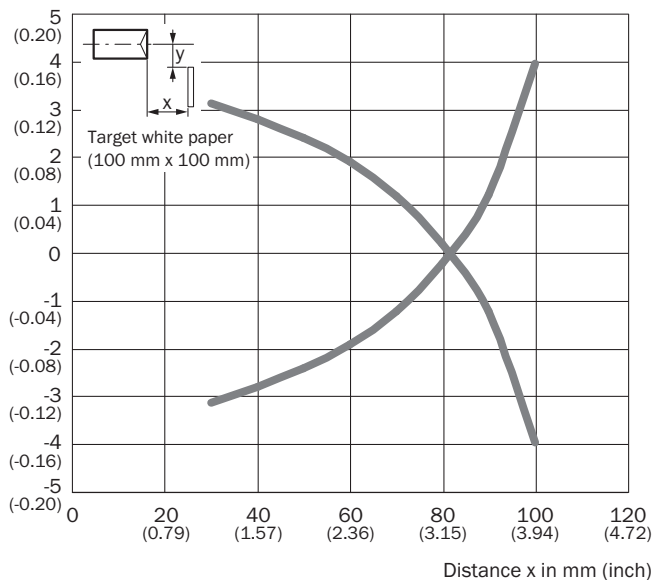


- Sensing range
- Sensing range max.
- ① Sensing range on black, 6% remission factor
- ② Sensing range on gray, 20% remission
- ③ Sensing range on white, 90% remission factor

Response range

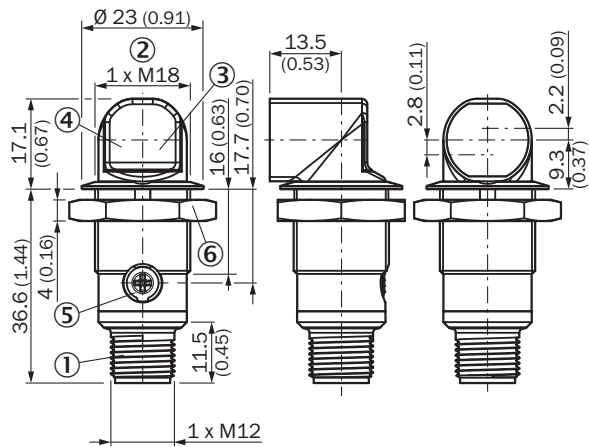
GRTE18S, 100 mm

Parallel operating range y in mm (inch)



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/GR18

	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
Others			
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 3-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 5 m, 3-wire, PUR, halogen-free • Description: Sensor/actuator cable, unshielded • Application: Zones with oils and lubricants, Drag chain operation, Robot 	YF2A13-050UB1XLEAX	2095605

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.”

WORLDWIDE PRESENCE:

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