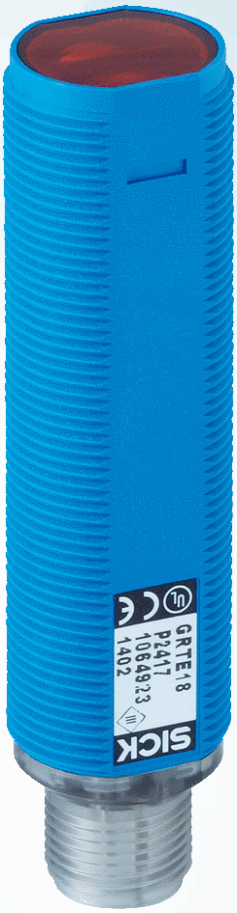
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Product data sheet



GRL18-P2457

GR18

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

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GRL18-P2457 | GR18

CYLINDRICAL PHOTOELECTRIC SENSORS



Illustration may differ

Ordering information

Type	Part no.
GRL18-P2457	1076981

Included in delivery: P250 (1)

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

Detailed technical data

Features

Functional principle	Photoelectric retro-reflective sensor
Functional principle detail	Dual lens
Dimensions (W x H x D)	18 mm x 18 mm x 73.5 mm
Housing design (light emission)	Cylindrical
Thread diameter (housing)	M18 x 1
Optical axis	Axial
Sensing range max.	0.03 m ... 7.2 m [1]
Sensing range	0.06 m ... 6 m [1]
Type of light	Visible red light
Light source	PinPoint LED [2]
Light spot size (distance)	Ø 175 mm (7 m)
Wave length	650 nm
Adjustment	Potentiometer
Indication	
LED green	Operating indicator Static on: power on
LED yellow	Status of received light beam Static on: object not present Static off: object present

[1] Reflector PL80A.

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

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Mechanics/electronics

Supply voltage	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
Signal voltage PNP HIGH/LOW	V_S - (≤ 3 V) / approx. 0 V
Output current $I_{max.}$	≤ 100 mA [3]
Response time	< 500 µs [4]
Switching frequency	1,000 Hz [5]
Connection type	Male connector M12, 4-pin
Circuit protection	A [6] B [7] D [8]
Protection class	III
Polarisation filter	✓
Housing material	Plastic, ABS
Optics material	Plastic, PMMA
Enclosure rating	IP67
Items supplied	Fastening nuts (2 x), Reflector P250
Electromagnetic compatibility (EMC)	EN 60947-5-2
Ambient operating temperature	–25 °C ... +55 °C [9]
Ambient temperature, storage	–40 °C ... +70 °C
UL File No.	E348498

[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.

Safety-related parameters

$MTTF_D$	2,412 years
DC_{avg}	0 %

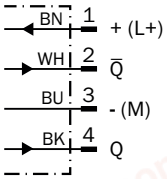
Classifications

eCl@ss 5.0	27270902
eCl@ss 5.1.4	27270902
eCl@ss 6.0	27270902
eCl@ss 6.2	27270902

eCl@ss 7.0	27270902
eCl@ss 8.0	27270902
eCl@ss 8.1	27270902
eCl@ss 9.0	27270902
eCl@ss 10.0	27270902
eCl@ss 11.0	27270902
eCl@ss 12.0	27270902
ETIM 5.0	EC002717
ETIM 6.0	EC002717
ETIM 7.0	EC002717
ETIM 8.0	EC002717
UNSPSC 16.0901	39121528

Connection diagram

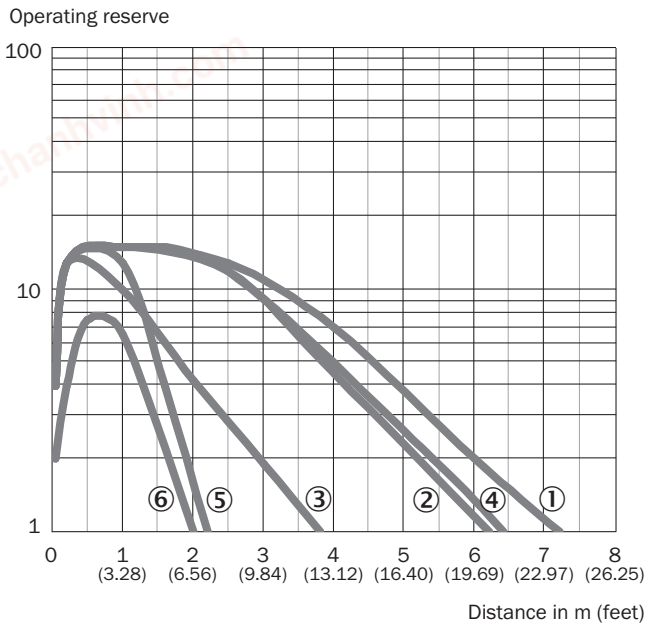
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Characteristic curve

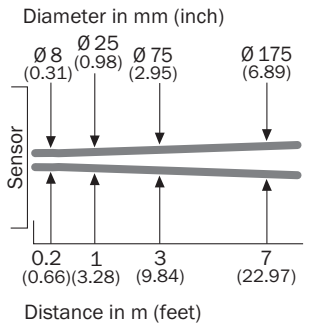
GRL18S



① Reflector PL80A
② Reflector PL40A
③ Reflector PL20A
④ Reflector P250
⑤ Reflector PL22
⑥ Reflective tape REF-Plus 3436

Light spot size

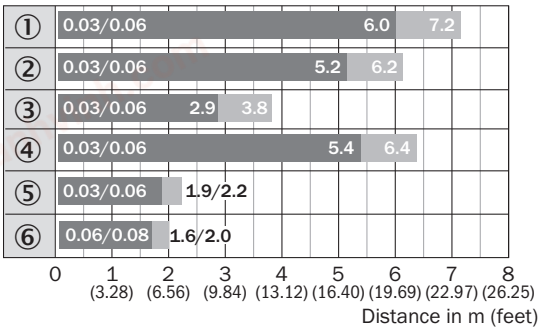
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Sensing range diagram

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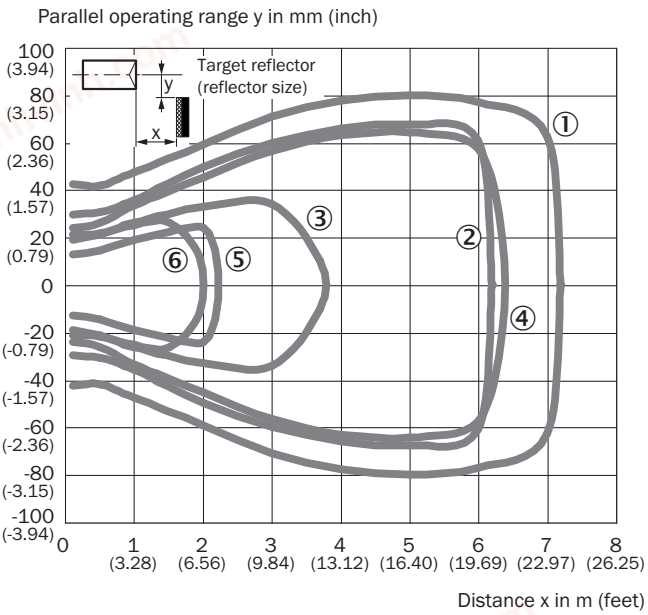


Sensing range Sensing range max.

① Reflector PL80A
② Reflector PL40A
③ Reflector PL20A
④ Reflector P250
⑤ Reflector PL22
⑥ Reflective tape REF-Plus 3436

Response range

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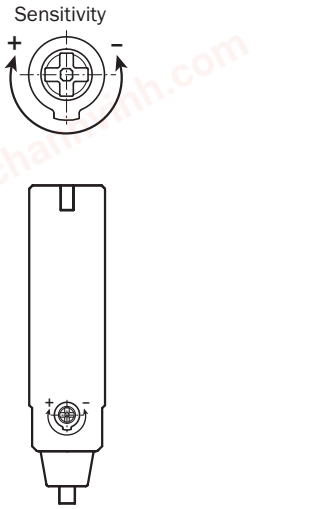


① Reflector PL80A
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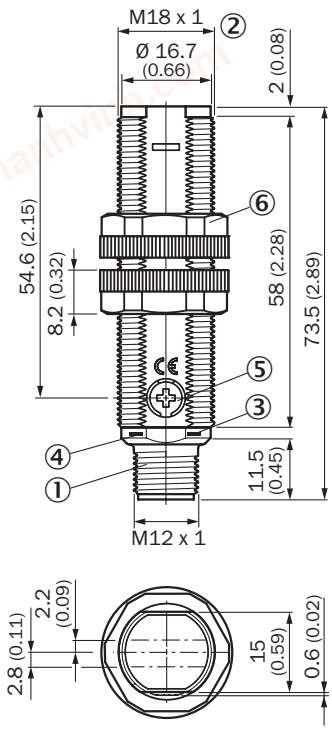
Adjustments

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



Dimensional drawing (Dimensions in mm (inch))

GRTE18, GRL18, GRSE18, plastic, connector, straight



① Male connector M12, 4-pin
② Threaded mounting hole M18 x 1
③ LED indicator yellow
④ LED indicator green
⑤ Sensitivity control: potentiometer 270°
⑥ Fastening nuts (2 x); width across 22, plastic

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
	Universal mounting bracket for reflectors, steel, zinc coated	BEF-WN-REFX	2064574
Plug connectors and cables			
	Head A: female connector, M12, 4-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 5 m	YF2A14-050VB3XLEAX	2096235
	Head A: male connector, M12, 4-pin, straight Cable: unshielded	STE-1204-G	6009932

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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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Contacts and other locations –www.sick.com

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