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Product data sheet



# GRTE18S-F231X

## GR18

CYLINDRICAL PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

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# GRTE18S-F231X | GR18

CYLINDRICAL PHOTOELECTRIC SENSORS



Illustration may differ

## Ordering information

| Type | Part no. |
|---|---|
| GRTE18S-F231X | 1059438 |

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** | 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<br>Static on: power on |
| LED yellow | Status of received light beam<br>Static on: object present<br>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.

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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 |
| **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]<br>B [7]<br>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 °C ... +55 °C [9] |
| **Ambient temperature, storage** | –40 °C ... +70 °C |
| **UL File No.** | NRKH.E348498 & NRKH7.E348498 |

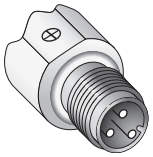
[1] Limit values. Operated in short-circuit protected network: max. 8 A.
[2] May not exceed or fall below $U_V$ tolerances.
[3] At Uv > 24 V or ambient temperature > 49 °C, IA max. = 50 mA.
[4] Signal transit time with resistive load.
[5] With light/dark ratio 1:1.
[6] A = $V_S$ connections reverse-polarity 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.

## 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 |

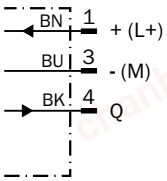
| | |
|---|---|
| **eCl@ss 12.0** | 27270903 |
| **ETIM 5.0** | EC001821 |
| **ETIM 6.0** | EC001821 |
| **ETIM 7.0** | EC002719 |
| **ETIM 8.0** | EC002719 |
| **UNSPSC 16.0901** | 39121528 |

## Connection type



## Connection diagram

Cd-045

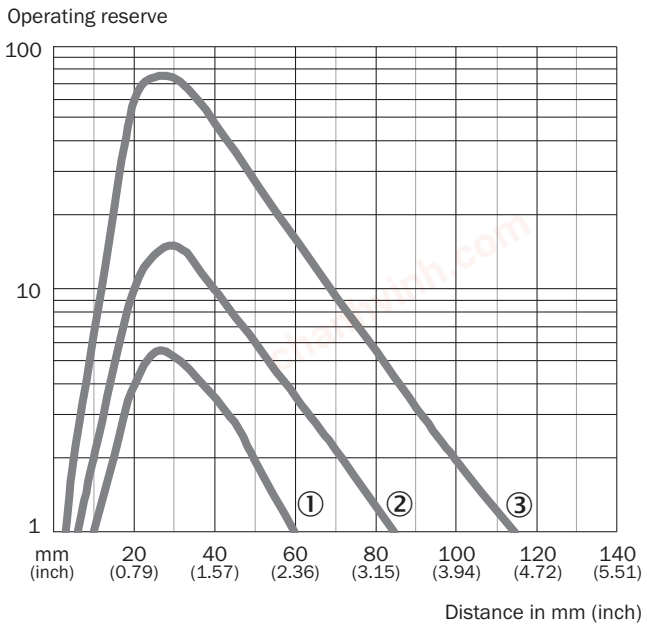


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## Characteristic curve

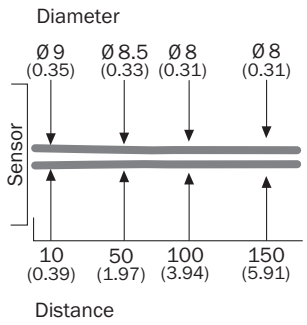
GRTE18S, 100 mm




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



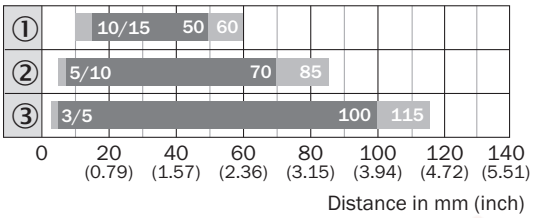

Dimensions in mm (inch)

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## Sensing range diagram

GRTE18S, 100 mm

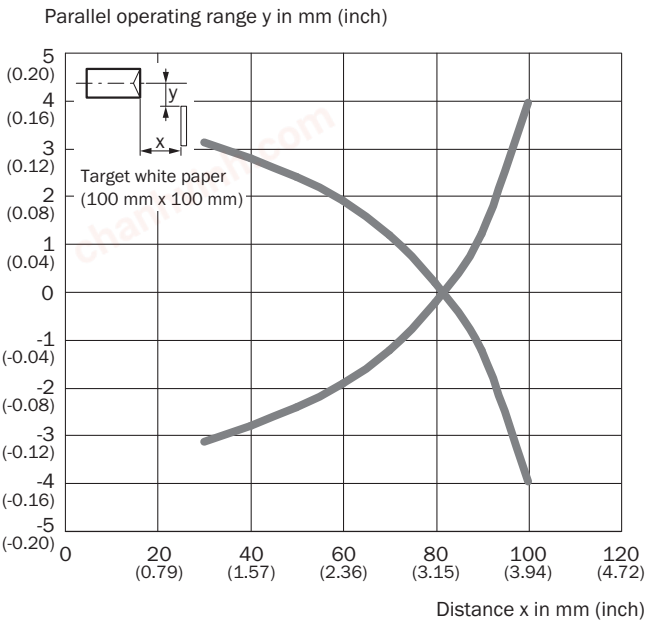



Sensing range  Sensing range max.

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

## Response range

GRTE18S, 100 mm



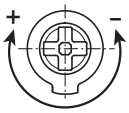
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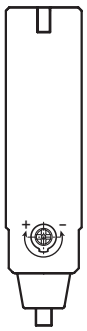


## Adjustments

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

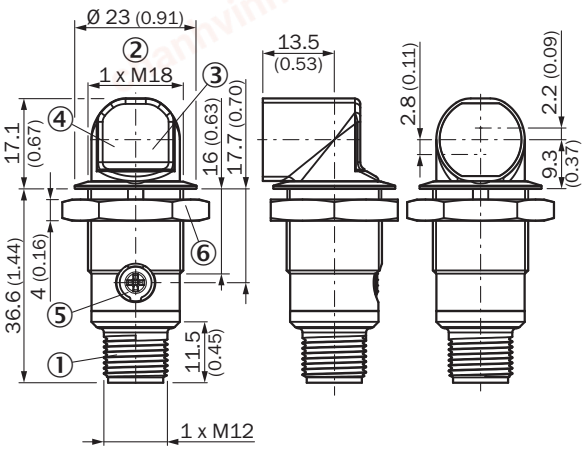
Sensing range



## 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/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 |
| Plug connectors and cables | | | |
|  | Head A: female connector, M12, 3-pin, straight, A-coded<br>Head B: Flying leads<br>Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 5 m | YF2A13-050UB1XLEAX | 2095605 |

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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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