



GRL18-P1131V

GR18

PHOTOELECTRIC SENSORS

SICK
Sensor Intelligence.

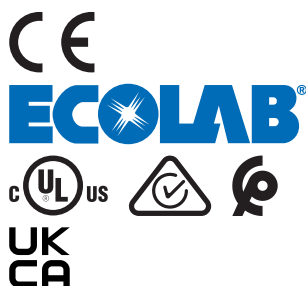


Ordering information

| Type | part no. |
|--------------|----------|
| GRL18-P1131V | 1085825 |

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

Illustration may differ



Detailed technical data

Features

| | | |
|--|---|--|
| Functional principle | Photoelectric retro-reflective sensor | |
| Functional principle detail | With minimum distance to reflector (dual lens system) | |
| Dimensions (W x H x D) | 18 mm x 18 mm x 73.5 mm | |
| Housing design (light emission) | Cylindrical | |
| Housing length | 73.5 mm | |
| Thread length | 49.3 mm | |
| 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 | None | |
| Display | | |
| | 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.

| | |
|-----------------------------|-----------------------------|
| Special applications | Hygienic and washdown zones |
|-----------------------------|-----------------------------|

¹⁾ Reflector PL80A.

²⁾ Average service life: 100,000 h at $T_U = +25 \text{ °C}$.

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 |
| Output function | Complementary |
| Switching mode | Light/dark switching ³⁾ |
| Signal voltage PNP HIGH/LOW | $V_S - (\leq 3 \text{ V}) / \text{approx. } 0 \text{ V}$ |
| Output current I_{max} | $\leq 100 \text{ mA}$ ⁴⁾ |
| Response time | $< 500 \mu\text{s}$ ⁵⁾ |
| Switching frequency | 1,000 Hz ⁶⁾ |
| Connection type | Cable, 4-wire, 2 m ⁷⁾ |
| Cable material | Plastic, PVC |
| Conductor cross section | 0.14 mm ² |
| Cable diameter | $\varnothing 4.8 \text{ mm}$ |
| Circuit protection | A ⁸⁾ B ⁹⁾ D ¹⁰⁾ |
| Protection class | III |
| Weight | 175 g |
| Polarisation filter | ✓ |
| Housing material | Metal, Stainless steel V4A (1.4404, 316L) |
| Optics material | Plastic, PMMA |
| Tightening torque, max. | 90 Nm |
| Enclosure rating | IP67 IP68 ¹¹⁾ IP69K ¹²⁾ |
| Items supplied | Fastening nuts (2 x) |

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

²⁾ May not fall below or exceed U_V tolerances.

³⁾ Q = light switching; \bar{Q} = dark switching.

⁴⁾ At $U_V > 24 \text{ V}$ or ambient temperature $> 49 \text{ °C}$, $I_A \text{ max.} = 50 \text{ mA}$.

⁵⁾ Signal transit time with resistive load.

⁶⁾ With light/dark ratio 1:1.

⁷⁾ Do not bend below 0 °C .

⁸⁾ A = V_S connections reverse-polarity protected.

⁹⁾ B = inputs and output reverse-polarity protected.

¹⁰⁾ D = outputs overcurrent and short-circuit protected.

¹¹⁾ According to EN 60529 (10 m water depth / 24 h).

¹²⁾ According to ISO 20653:2013-03.

¹³⁾ At $U_V \leq 24 \text{ V}$ and $I_A < 50 \text{ mA}$.

| | |
|--|----------------------------------|
| Electromagnetic compatibility (EMC) | EN 60947-5-2 |
| Ambient operating temperature | -25 °C ... +55 °C ¹³⁾ |
| Ambient temperature, storage | -30 °C ... +75 °C |
| UL File No. | E348498 |

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

2) May not fall below or exceed U_V tolerances.

3) Q = light switching; \bar{Q} = dark switching.

4) At $U_V > 24$ V or ambient temperature > 49 °C, I_A max. = 50 mA.

5) Signal transit time with resistive load.

6) With light/dark ratio 1:1.

7) Do not bend below 0 °C.

8) A = V_S connections reverse-polarity protected.

9) B = inputs and output reverse-polarity protected.

10) D = outputs overcurrent and short-circuit protected.

11) According to EN 60529 (10 m water depth / 24 h).

12) According to ISO 20653:2013-03.

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

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 | 27270902 |
| ECLASS 5.1.4 | 27270902 |
| ECLASS 6.0 | 27270902 |
| ECLASS 6.2 | 27270902 |
| ECLASS 7.0 | 27270902 |
| ECLASS 8.0 | 27270902 |
| ECLASS 8.1 | 27270902 |
| ECLASS 9.0 | 27270902 |
| ECLASS 10.0 | 27270902 |
| ECLASS 11.0 | 27270902 |
| ECLASS 12.0 | 27270902 |
| ETIM 5.0 | EC002717 |
| ETIM 6.0 | EC002717 |
| ETIM 7.0 | EC002717 |
| ETIM 8.0 | EC002717 |
| UNSPSC 16.0901 | 39121528 |

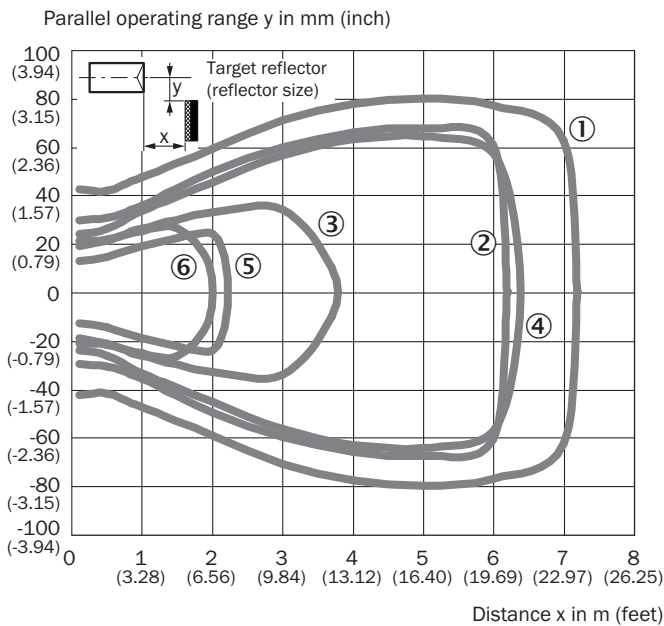
Sensing range diagram GRL18S



■ Sensing range ■ Sensing range max.

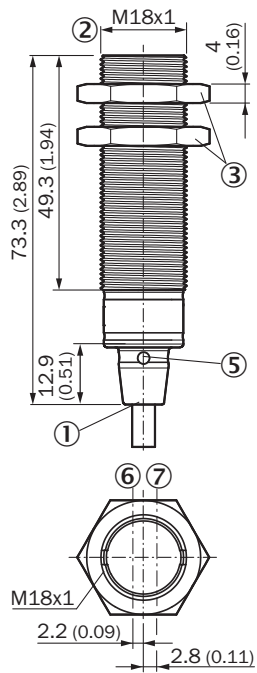
- ① Reflector PL80A
- ② Reflector PL40A
- ③ Reflector PL20A
- ④ Reflector P250
- ⑤ Reflector PL22
- ⑥ Reflective tape REF-Plus 3436

Response range GRL18S



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

Dimensional drawing GR18 Inox, cable, straight







Dimensions in mm (inch)

- ① Connection
- ② Threaded mounting hole M18 x 1
- ③ fastening nuts (2 x); width across 24, stainless steel
- ⑤ LED indicator (4 x)
- ⑥ optical axis, receiver
- ⑦ optical axis, sender

Recommended accessories

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

| | Brief description | Type | part no. |
|---|--|-------------|----------|
| Mounting systems | | | |
|  | <ul style="list-style-type: none"> • Description: Mounting bracket for M18 sensors • Material: Stainless steel • Details: Stainless steel • Items supplied: Without mounting hardware | BEF-WN-M18N | 5320947 |
|  | <ul style="list-style-type: none"> • Description: Universal mounting bracket for reflectors • Dimensions (W x H x L): 85 mm x 90 mm x 35 mm • Material: Steel • Details: Steel, zinc coated • Suitable for: C110A, P250, PL20, PL30A, PL40A, PL80A | BEF-WN-REFX | 2064574 |

| | Brief description | Type | part no. |
|---|--|------------|----------|
| reflectors and optics | | | |
|  | <ul style="list-style-type: none"> Description: Chemically resistant, screw connection Dimensions: 52 mm 61 mm Ambient operating temperature: -20 °C ... +140 °C | P250 CHEM | 5321097 |
| connectors and cables | | | |
|  | <ul style="list-style-type: none"> Description: Unshielded Connection type head A: Male connector, M12, 4-pin, straight, A-coded Connection systems: Screw-type terminals Permitted cross-section: ≤ 0.75 mm² | STE-1204-G | 6009932 |

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:

Contacts and other locations –www.sick.com