

GL-18H/18HL

Rectangular-shaped Top Sensing Inductive Proximity Sensor **Amplifier Built-in**



High performance sensing at a low price



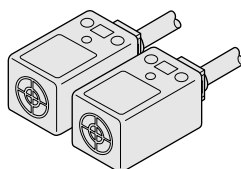
Low price

It provides high performance at a low price.

Different frequency type

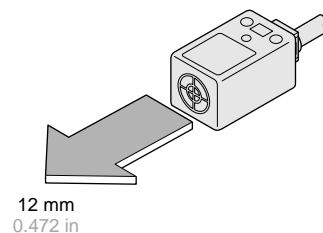
Two sensors can be mounted close together because different frequency types are available.

(The long sensing range type, **GL-18HL(B)**, and its different frequency type, **GL-18HLI**, can be mounted 20 mm 0.787 in away from each other.



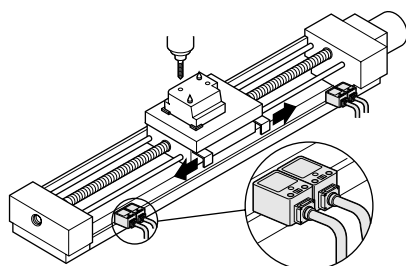
Long sensing range

GL-18HL offers a long sensing range of 12 mm 0.472 in. (**GL-18H**: 5 mm 0.197 in.)

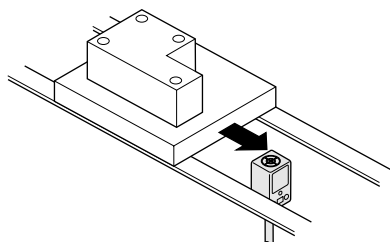


APPLICATIONS

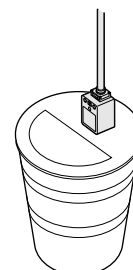
Detecting over-run of moving table



Positioning metal pallet



Detecting aluminum lid

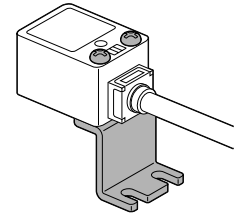


ORDER GUIDE

| Type | Appearance (mm in) | Sensing range (Note) | Model No. | Output | Output operation |
|--------------------|--------------------|---|-----------------|-------------------------------|------------------|
| Standard | | Maximum operation distance 5 mm 0.197 in | GL-18H | NPN open-collector transistor | Normally open |
| | | Stable sensing range (0 to 4 mm 0 to 0.157 in) | GL-18HI | | Normally closed |
| | | | GL-18HB | | Normally open |
| Long sensing range | | 12 mm 0.472 in (0 to 10 mm 0 to 0.394 in) | GL-18HL | | Normally open |
| | | | GL-18HLI | | Normally closed |
| | | | GL-18HLB | | Normally open |

Accessory

- **MS-GL18HL** (Sensor mounting bracket)



Two M3 (length 25 mm 0.984 in) pan head screws are attached.

Note: The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object.
 The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or supply voltage fluctuation.

SPECIFICATIONS

| Item | Type Model No. | Standard | | | Long sensing range | | |
|--------------------------------|---|--|-----------------|---------|--|--|----------|
| | | GL-18H | GL-18HI | GL-18HB | GL-18HL | GL-18HLI | GL-18HLB |
| Max. operation distance (Note) | | 5 mm 0.197 in ± 10 % | | | 12 mm 0.472 in ± 10 % | | |
| Stable sensing range (Note) | | 0 to 4 mm 0 to 0.157 in | | | 0 to 10 mm 0 to 0.394 in | | |
| Standard sensing object | | Iron sheet 25 × 25 × t 1 mm 0.984 × 0.984 × t 0.039 in | | | Iron sheet 40 × 40 × t 1 mm 1.575 × 1.575 × t 0.039 in | | |
| Hysteresis | | 15 % or less of operation distance | | | | | |
| Supply voltage | | 10 to 30 V DC Ripple P-P 10 % or less | | | | | |
| Current consumption | | 10 mA or less | | | | | |
| Output | | NPN open-collector transistor | | | | | |
| | | <ul style="list-style-type: none"> • Maximum sink current: 100 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Residual voltage: 1.5 V or less (at 100 mA sink current) 0.4 V or less (at 16 mA sink current) | | | | | |
| Utilization category | | DC-12 or DC-13 | | | | | |
| Output operation | | Normally open | Normally closed | | Normally open | Normally closed | |
| Max. response frequency | | 1 kHz | | | 500 Hz | | |
| Operation indicator | | Red LED (lights up when the output is ON) | | | | | |
| Environmental resistance | Pollution degree | 3 (Industrial environment) | | | | | |
| | Protection | IP67 (IEC), IP67g (JEM) | | | | | |
| | Ambient temperature | − 25 to + 70 °C − 13 to + 158 °F, Storage: − 25 to + 70 °C − 13 to + 158 °F | | | | | |
| | Ambient humidity | 45 to 85 % RH, Storage: 45 to 85 % RH | | | | | |
| | EMC | EN 50081-2, EN 50082-2, EN 60947-5-2 | | | | | |
| | Voltage withstandability | 1,000 V AC for one min. between all supply terminals connected together and enclosure | | | | | |
| | Insulation resistance | 50 MΩ, or more, with 250 V DC megger between all supply terminals connected together and enclosure | | | | | |
| | Vibration resistance | 10 to 55 Hz frequency, 1.5 mm 0.059 in amplitude in X, Y and Z directions for two hours each | | | | | |
| Shock resistance | 1,000 m/s ² acceleration (100 G approx.) in X, Y and Z directions for three times each | | | | | | |
| Sensing range variation | Temperature characteristics | Over ambient temperature range − 25 to + 70 °C − 13 to + 158 °F: within ± 10 % of sensing range at 20 °C + 68 °F | | | | | |
| | Voltage characteristics | Within ± 2 % for ± 10 % fluctuation of the supply voltage | | | | | |
| Material | | Enclosure: Polyarylate | | | | | |
| Cable | | 0.3 mm ² 3-core oil resistant cabtyre cable, 1 m 3.281 ft long | | | | | |
| Cable extension | | Extension up to total 100 m 328.084 ft is possible with 0.3 mm ² , or more, cable. | | | | | |
| Weight | | 45 g approx. | | | | | |
| Accessory | | | | | | MS-GL18HL (Sensor mounting bracket): 1 set | |

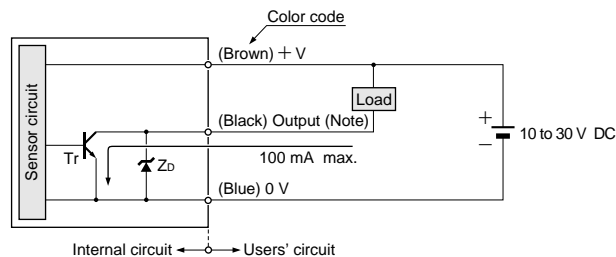
Note: The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object.
 The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or supply voltage fluctuation.

GL-18H/18HL

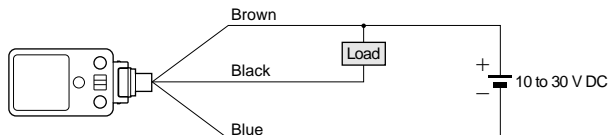
I/O CIRCUIT AND WIRING DIAGRAMS

GL-18H □
GL-18HL □

I/O circuit diagram



Wiring diagram



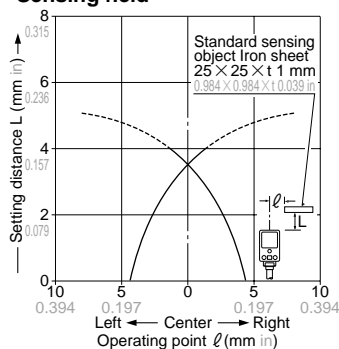
Note: Please carry out the wiring carefully since protection circuit against reverse power supply connection is not incorporated. Further, the output is not incorporated with a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load.

Symbols ... Z_d: Surge absorption zener diode
Tr: NPN output transistor

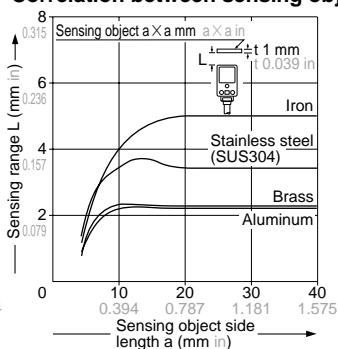
SENSING CHARACTERISTICS (TYPICAL)

GL-18H □

Sensing field



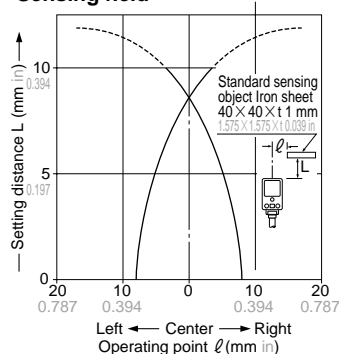
Correlation between sensing object size and sensing range



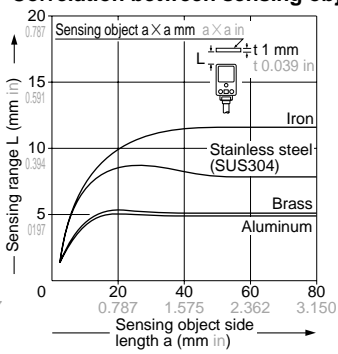
As the sensing object size becomes smaller than the standard size (iron sheet 25 × 25 × t 1 mm 0.984 × 0.984 × t 0.039 in), the sensing range shortens as shown in the left figure.

GL-18HL □

Sensing field




Correlation between sensing object size and sensing range



As the sensing object size becomes smaller than the standard size (iron sheet 40 × 40 × t 1 mm 1.575 × 1.575 × t 0.039 in), the sensing range shortens as shown in the left figure.

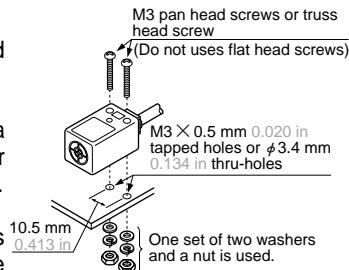
PRECAUTIONS FOR PROPER USE

Refer to p.1152~ for general precautions.

 This product is not a safety sensor. Its use is not intended or designed to protect life and prevent body injury or property damage from dangerous parts of machinery. It is a normal object detection sensor.

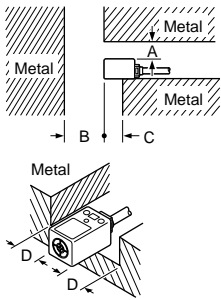
Mounting

- The tightening torque should be 0.5 N·m or less.
- To mount the sensor with a nut, the thru-hole diameter should be $\phi 3.4$ mm $\phi 0.134$ in.
- Screws, nuts or washers are not supplied. Please arrange them separately.



Influence of surrounding metal

- When there is a metal near the sensor, keep the minimum separation distance specified below.



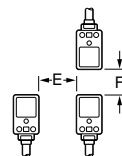
| | GL-18H□ | GL-18HL□ |
|---|----------------|-----------------------|
| A | 5 mm 0.197 in | 25 mm 0.984 in |
| B | 20 mm 0.787 in | 60 mm 2.362 in |
| C | 0 mm 0 in | 20 mm 0.787 in (Note) |
| D | 5 mm 0.197 in | 30 mm 1.181 in |

Note: When the GL-18HL□ is mounted on an insulator, or seated on the attached aluminum mounting bracket, the distance 'C' can be zero.

Mutual interference prevention

- When two or more sensors are installed in parallel or face to face, keep the minimum separation distance specified below to avoid mutual interference.

| | GL-18H□ | | GL-18HL□ | |
|---|-----------------------------------|--|-----------------------------------|--|
| | Between 'I' type and non 'I' type | Between two 'I' types or two non 'I' types | Between 'I' type and non 'I' type | Between two 'I' types or two non 'I' types |
| E | 0 mm (Note 2) | 40 mm 1.575 in | 20 mm 0.787 in | 130 mm 5.118 in |
| F | 20 mm 0.787 in | 70 mm 2.756 in | 40 mm 1.575 in | 200 mm 7.874 in |

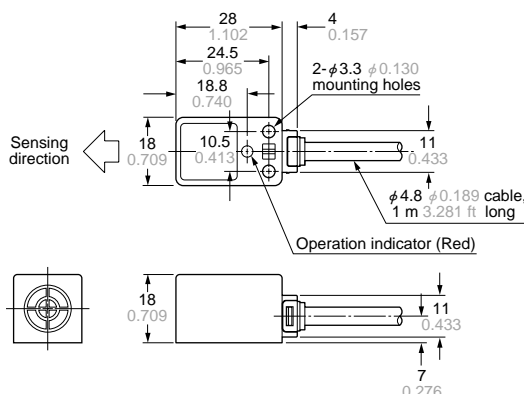


Notes: 1) 'I' in the model No. specifies the different frequency type.
2) Close mounting is possible for up to two sensors.

When mounting three sensors or more, at an equal spacing, in a row, the minimum value of dimension 'E' should be 11 mm 0.433 in.

DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from the SUNX website: <http://www.sunx.co.jp/>

GL-18H□ GL-18HL□ Sensor



MS-GL18HL Sensor mounting bracket for GL-18HL□ (Accessory)

