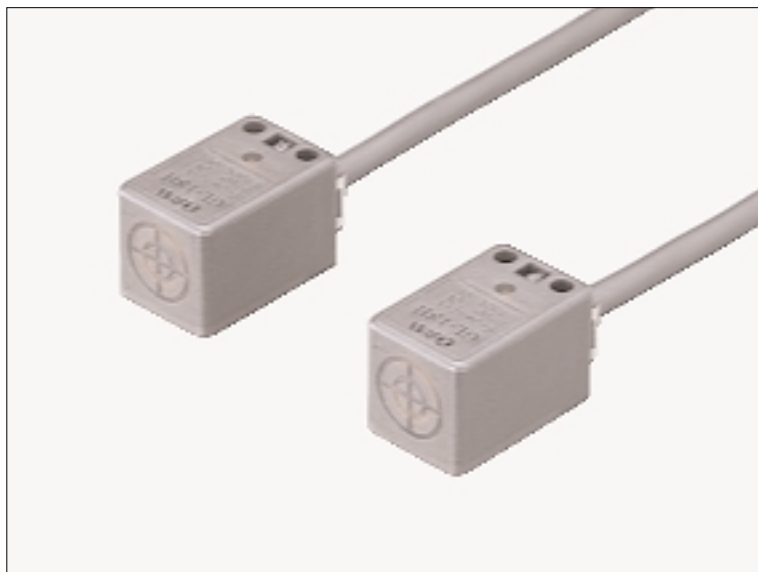
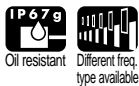


# GL-18H/18HL

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



High performance sensing at a low price



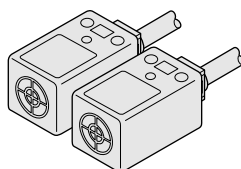
### Low price

It provides high performance at a low price.

### Different frequency type

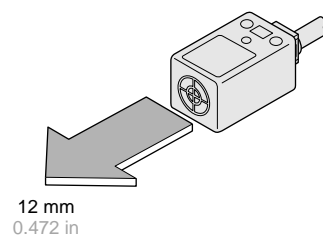
Two sensors can be mounted close together because different frequency types are available.

(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.



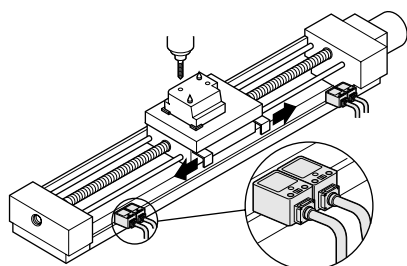
### Long sensing range

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

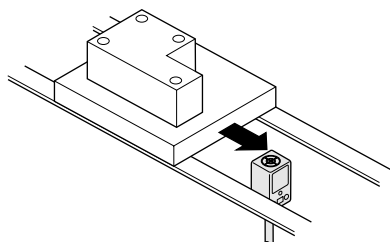


## APPLICATIONS

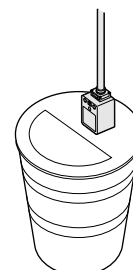
### Detecting over-run of moving table



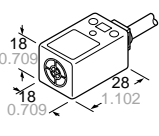
### Positioning metal pallet



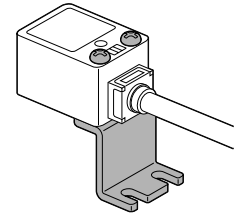
### Detecting aluminum lid



## ORDER GUIDE

Type	Appearance (mm in)	Sensing range (Note)	Model No.	Output	Output operation
Standard		Maximum operation distance	<b>GL-18H</b>	NPN open-collector transistor	Normally open
		5 mm 0.197 in	<b>GL-18HI</b>		
		Stable sensing range	<b>GL-18HB</b>		
Long sensing range		12 mm 0.472 in (0 to 10 mm) (0 to 0.394 in)	<b>GL-18HL</b>		Normally open
			<b>GL-18HLI</b>		Normally closed
			<b>GL-18HLB</b>		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		
		Different frequency			Different frequency		
		<b>GL-18H</b>	<b>GL-18HI</b>	<b>GL-18HB</b>	<b>GL-18HL</b>	<b>GL-18HLI</b>	<b>GL-18HLB</b>
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 • 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 <sup>2</sup> 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 <sup>2</sup> 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 <sup>2</sup> , or more, cable.					
Weight		45 g approx.					
Accessory						<b>MS-GL18HL</b> (Sensor mounting bracket): 1 set	

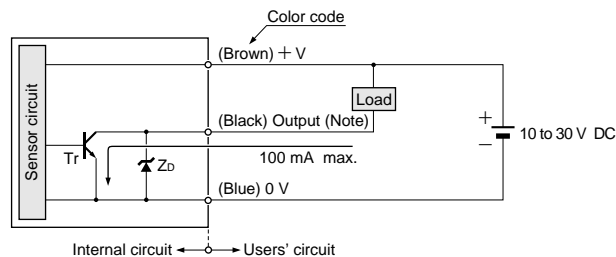
Note: The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object.  
The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or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

# GL-18H/18HL

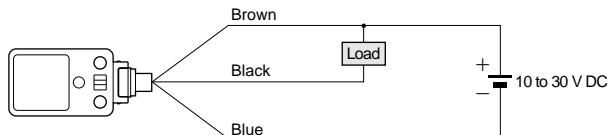
## I/O CIRCUIT AND WIRING DIAGRAMS

GL-18H □  
GL-18HL □

### I/O circuit diagram



### Wiring diagram



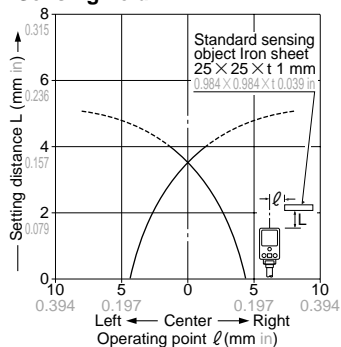
Note: Please carry out the wiring carefully since protection circuit against reverse power supply connection is not incorporated.  
Further, the output is not incorporated with a short-circuit protection circuit.  
Do not connect it directly to a power supply or a capacitive load.

Symbols ... Z<sub>d</sub>: Surge absorption zener diode  
Tr: NPN output transistor

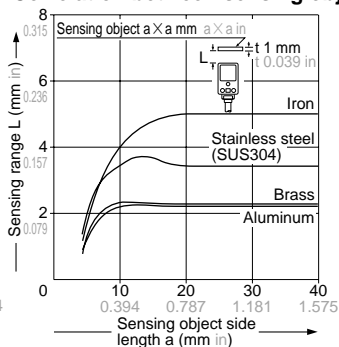
## SENSING CHARACTERISTICS (TYPICAL)

### GL-18H □

#### Sensing field



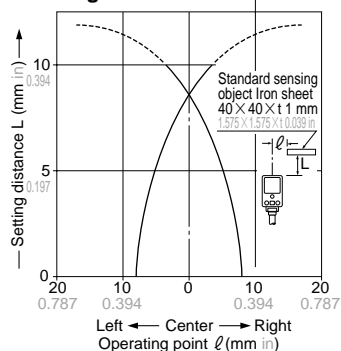
#### Correlation between sensing object size and sensing range



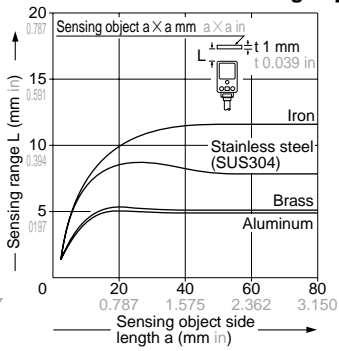
As the sensing object size becomes smaller than the standard size (iron sheet 25 × 25 × t 1 mm 0.984 × 0.984 × t 0.039 in), the sensing range shortens as shown in the left figure.

### 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

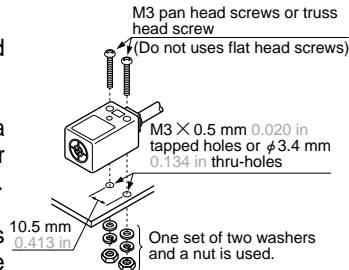
Refer to [p.1152](#)~ for general precautions.



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.

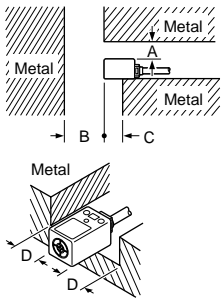
### Mounting

- 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.



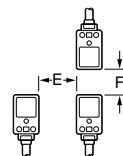
	GL-18H□	GL-18HL□
A	5 mm 0.197 in	25 mm 0.984 in
B	20 mm 0.787 in	60 mm 2.362 in
C	0 mm 0 in	20 mm 0.787 in (Note)
D	5 mm 0.197 in	30 mm 1.181 in

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

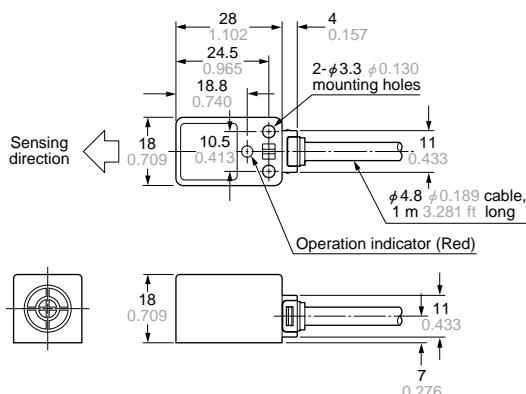


Notes: 1) 'I' in the model No. specifies the different frequency type.  
2) Close mounting is possible for up to two sensors.

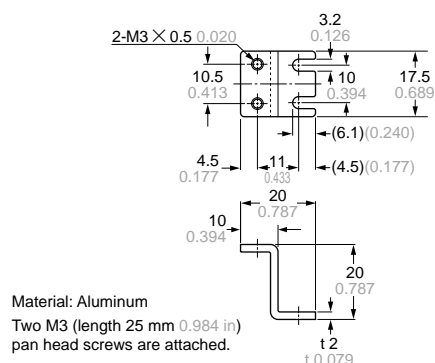
When mounting three sensors or more, at an equal spacing, in a row, the minimum value of dimension 'E' should be 11 mm 0.433 in.

**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)



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