GL-18H/18HL

Square-shaped Long Range Inductive Proximity Sensor

High Performance Sensing

CE Marked
Conforming to EMC Directive

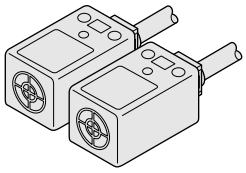
Low Price

It provides high performance at a low price.

Different Frequency Type

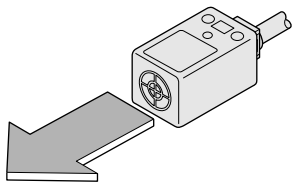
Two sensors can be mounted closely because different frequency types are available.

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



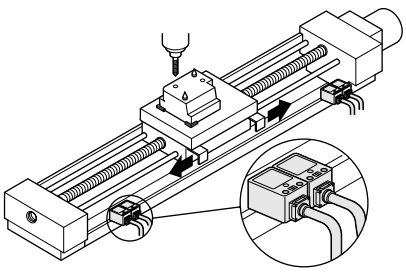
Long Sensing Range

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

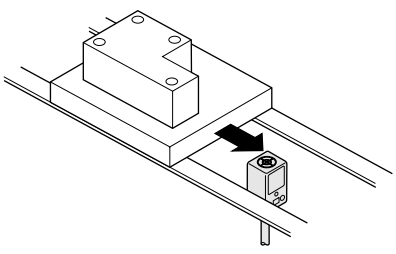


APPLICATIONS

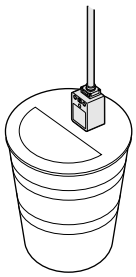
Detecting over-run of moving table



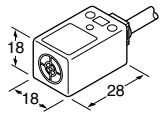
Positioning metal pallet



Detecting aluminum lid



ORDER GUIDE

Type	Appearance (mm)	Sensing range (Note 1)	Model No. (Note 2)	Output operation
Standard		Maximum operation distance 5mm (0 to 4mm) Stable sensing range	**GL-18H**	Normally open
			GL-18HI	
			GL-18HB	Normally closed
Long sensing range		12mm (0 to 10mm)	**GL-18HL**	Normally open
			GL-18HLI	
			GL-18HLB	Normally closed

Notes: 1) 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.
2) '**I**' in the model No. indicates a different frequency type.

SPECIFICATIONS

Item \ Type		Standard			Long sensing range		
			Different frequency			Different frequency	
Model No.		**GL-18H**	**GL-18HI**	**GL-18HB**	**GL-18HL**	**GL-18HLI**	**GL-18HLB**
Max. operation distance (Note)		5mm ± 10%			12mm ± 10%		
Stable sensing range (Note)		0 to 4mm			0 to 10mm		
Standard sensing object		Iron sheet 25 × 25 × t1mm			Iron sheet 40 × 40 × t1mm		
Hysteresis		15% or less of operation distance					
Supply voltage		10 to 30V DC Ripple P-P 10% or less					
Current consumption		10mA or less					
Output		NPN open-collector transistor • Maximum sink current: 100mA • Applied voltage: 30V DC or less (between output and 0V) • Residual voltage: 1.5V or less (at 100mA sink current) 0.4V or less (at 16mA sink current)					
	Utilization category	DC-12 or DC-13					
	Output operation	Normally open		Normally closed	Normally open		Normally closed
Max. response frequency		1kHz			500Hz		
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, Storage: − 25 to + 70°C					
	Ambient humidity	45 to 85% RH, Storage: 45 to 85% RH					
	EMC	Emission: EN50081-2, Immunity: EN50082-2					
	Voltage withstandability	1,000V AC for one min. between all supply terminals connected together and enclosure					
	Insulation resistance	50MΩ, or more, with 250V DC megger between all supply terminals connected together and enclosure					
	Vibration resistance	10 to 55Hz frequency, 1.5mm amplitude in X, Y and Z directions for two hours each					
	Shock resistance	1,000m/s² acceleration (100G approx.) in X, Y and Z directions for three times each					
Sensing range variation	Temperature characteristics	Over ambient temperature range − 25 to + 70°C: within ± 10% of sensing range at 20°C					
	Voltage characteristics	Within ± 2% for ± 10% fluctuation of the supply voltage					
Material		Enclosure: Polyalylate					
Cable		0.3mm² 3-core oil resistant cabtyre cable, 1m long					
Cable extension		Extension up to total 100m is possible with 0.3mm², or more, cable.					
Weight		45g approx.					
Accessory		———			**MS-GL18HL** (Sensor mounting bracket): 1 set		

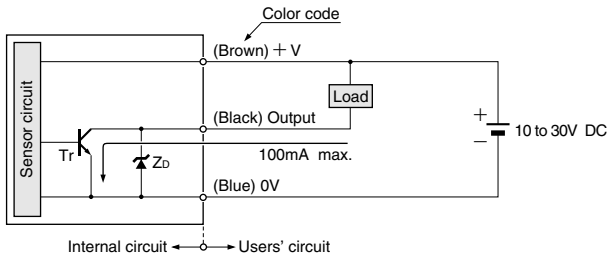
Note: The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object.
The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or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

GL-18H/18HL

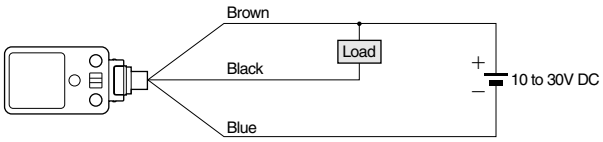
I/O CIRCUIT AND WIRING DIAGRAMS

GL-18H□
GL-18HL□

I/O circuit diagram



Wiring diagram

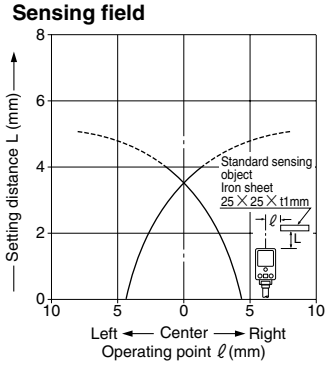


Symbols ... ZD: Surge absorption zener diode
Tr : NPN output transistor

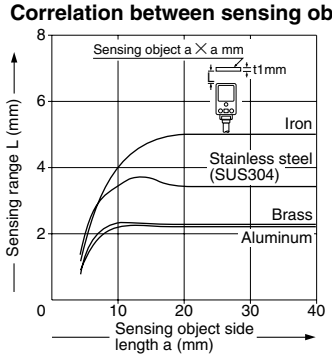
SENSING CHARACTERISTICS (TYPICAL)

GL-18H□

Sensing field



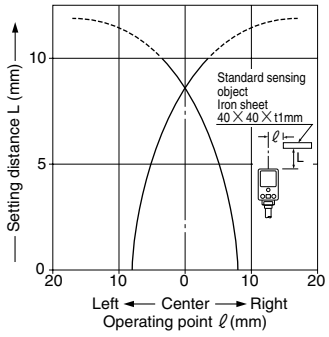
Correlation between sensing object size and sensing range



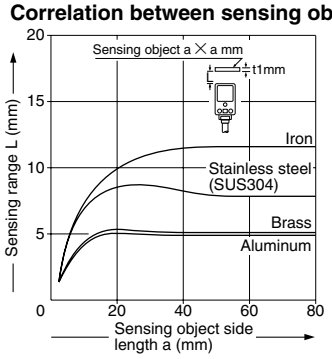
As the sensing object size becomes smaller than the standard size (iron sheet 25×25×t1mm), the sensing range shortens as shown in the left figure.

GL-18HL□

Sensing field



Correlation between sensing object size and sensing range



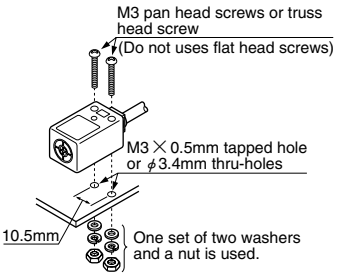
As the sensing object size becomes smaller than the standard size (iron sheet 40×40×t1mm), the sensing range shortens as shown in the left figure.

PRECAUTIONS FOR PROPER USE

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.

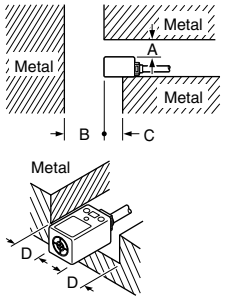
Mounting

- The tightening torque should be 0.5N·m or less.
- To mount the sensor with a nut, the thru-hole diameter should be ϕ3.4mm.
- 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.



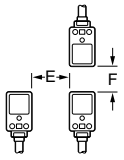
	GL-18H□	GL-18HL□
A	5mm	25mm
B	20mm	60mm
C	0mm	20mm (Note)
D	5mm	30mm

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	0mm (Note 2)	40mm	20mm (Note 2)	130mm
F	20mm	70mm	40mm	200mm



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 11mm.

Sensing range

- The sensing range is specified for the standard sensing object. With a non-ferrous metal, the sensing range is obtained by multiplying with the correction coefficient specified below. Further, the sensing range also changes if the sensing object is plated.

Correction coefficient

Model No. / Metal	GL-18H□	GL-18HL□
Iron	1	1
Stainless steel (SUS304)	0.68 approx.	0.65 approx.
Brass	0.45 approx.	0.42 approx.
Aluminum	0.43 approx.	0.41 approx.

Wiring

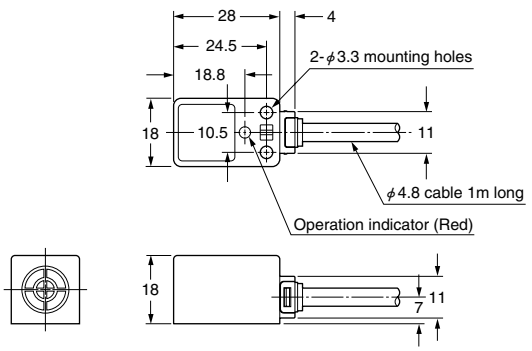
- The output is not incorporated with a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load.

Others

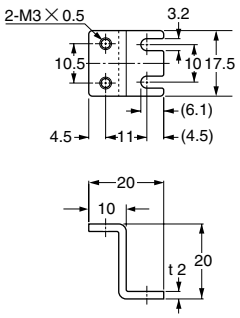
- Do not use during the initial transient time (50ms) after the power supply is switched on.

DIMENSIONS (Unit: mm)

GL-18H□ GL-18HL□ Sensor



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



Material: Aluminum
Two M3 pan head screws are attached.