GL-18H/18HL

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





High performance sensing at a low price



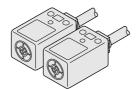
Low price

It provides high performance at a low price.

Different frequency type

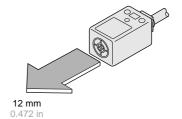
Two sensors can be mounted close together because different frequency types are available.

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.



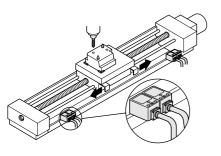
Long sensing range

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

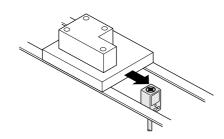


APPLICATIONS

Detecting over-run of moving table



Positioning metal pallet



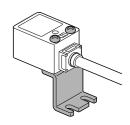
Detecting aluminum lid



Туре	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
Different frequency		(0 to 4 mm 0 to 0.157 in)	GL-18HI		
	18 0.709 18 0.709 1.102	Stable sensing range	GL-18HB		Normally closed
Long sensing range		12 mm 0.472 in -	GL-18HL		Normally open
Different frequency			GL-18HLI		
			GL-18HLB		Normally closed

Accessory · MS-GL18HL Sensor mounting bracket

GL-18H/18HL



Two M3 (length 25 mm 0.948 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

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

ORDER GUIDE

	Туре	Standard		Long sensing range			
	1,700		Different frequency			Different frequency	
Item	Model No.	GL-18H	GL-18HI	GL-18HB	GL-18HL	GL-18HLI	GL-18HLB
Max. op	peration distance (Note)	5 mm 0.197 in \pm 10 %			12 mm 0.472 in \pm 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 \times 25 \times t 1 mm $0.984 \times 0.984 \times$ t 0.039 in Iron sheet 40 \times 40 \times t 1 mm $1.575 \times 1.575 \times$ t 0.00			1.575 imes 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)					
Util	lization 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)					
Pol	llution degree	3 (Industrial environment)					
을 Pro	otection	IP67 (IEC), IP67g (JEM)					
Ambient temperature		-25 to $+70$ °C -13 to $+158$ °F, Storage: -25 to $+70$ °C -13 to $+158$ °F					
<u>ĕ</u> Am	bient humidity	45 to 85 % RH, Storage: 45 to 85 % RH					
EMC		EN 50081-2, EN 50082-2, EN 60947-5-2					
E Vol	Itage withstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure					
Protection Ambient temperature Ambient humidity EMC Voltage withstandability Insulation resistance Vibration resistance		50 M Ω , 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 ra	ange Temperature characteristics	Over ambient temperature range $-$ 25 to $+$ 70 °C $-$ 13 to $+$ 158 °F: within \pm 10 % of sensing range at 20 °C $+$ 68 °F					
variation	Voltage characteristics	Within $\pm2\%$ for $\pm10\%$ fluctuation of the supply voltage					
Material		Enclosure: Polyalylate					
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					racket): 1 set		

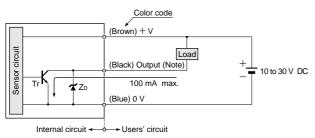
Note: The maximum operation distance stands for the maximum distance for which the sensor can detect the standard sensing object. The stable sensing range stands for the sensing range for which the sensor can stably detect the standard sensing object even if there is an ambient temperature drift and/or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

GL-18H/18HL

I/O CIRCUIT AND WIRING DIAGRAMS

GL-18H□ GL-18HL□

I/O circuit diagram



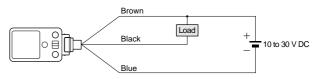
Note: Please carry out the wiring carefully since protection circuit against reverse power supply connection is not incorporated.

Further, the output is not incorporated with a short-circuit protection

Do not connect it directly to a power supply or a capacitive load.

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

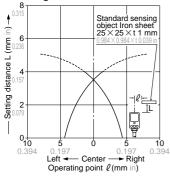
Wiring diagram



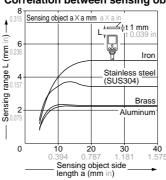
SENSING CHARACTERISTICS (TYPICAL)

GL-18H□

Sensing field



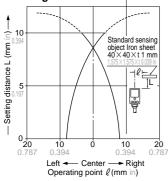
Correlation between sensing object size and sensing range



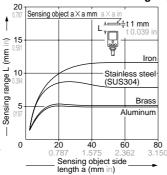
As the sensing object size becomes smaller than the standard size (iron sheet $25\times25\times t$ 1 mm $0.984\times0.984\times t$ 0.039 in), the sensing range shortens as shown in the left figure.

GL-18HL

Sensing field



Correlation between sensing object size and sensing range 20 Sensing object a X a mm a X a in the standard size (iron the sta



As the sensing object size becomes smaller than the standard size (iron sheet $40\times40\times t$ 1 mm $1.575\times1.575\times t$ 0.039 in), the sensing range shortens as shown in the left figure.

GL-18H/18HL

PRECAUTIONS FOR PROPER USE

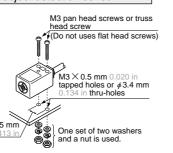
Refer to p.1152~ for general precautions.



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.

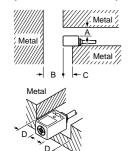
Mounting

- The tightening torque should be 0.5 N·m or less.
- . To mount the sensor with a nut, the thru-hole diameter should be $\phi 3.4 \text{ mm } \phi 0.134 \text{ in.}$
- \bullet Screws, nuts or washers $^{10.5\,\text{mm}}_{_{0.413\,\text{in}}}$ 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□
Α	5 mm 0.197 in	25 mm 0.984 in
В	20 mm 0.787 in	60 mm 2.362 in
С	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-1	8H□	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

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

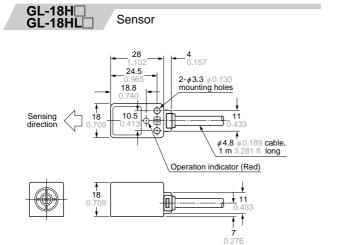
Model No. Metal	GL-18H□	GL-18HL□	
Iron	1	1	
Stainless steel (SUS304)	0.68 approx.	0.65 approx.	
Brass	0.45 approx.	0.42 approx.	
Aluminum	0.43 approx.	0.41 approx.	

Wiring

- 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.

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

DIMENSIONS (Unit: mm in)



MS-GL18HL

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

