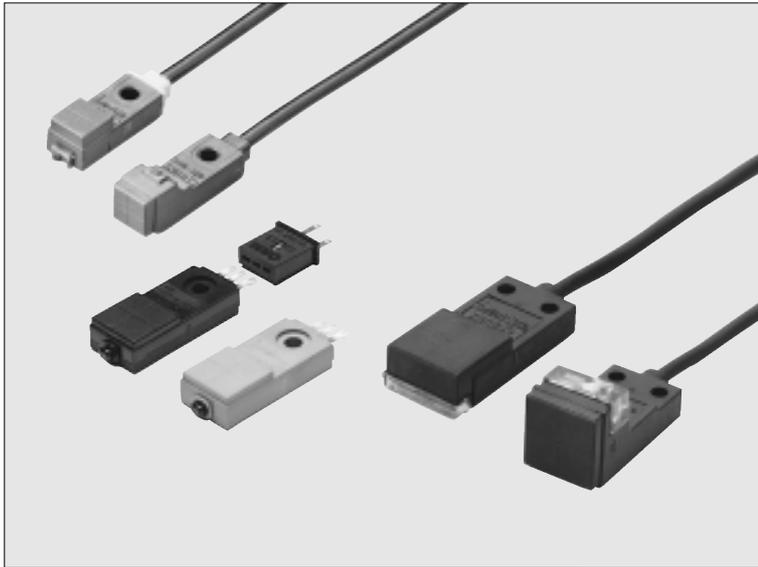


GXL SERIES

Micro-size Inductive Proximity Sensor



High Performance
in Micro-size Design

CE Marked
Conforming to EMC Directive

Wide Model Variety

Models ranging from extremely compact type to long sensing range type are available to suit various applications.

Versatile Mounting

Since the sensor is fingertip size, it can be mounted in a tight space.

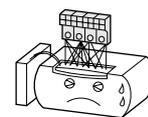


Reduced Wiring Operation

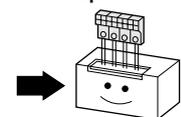
The wiring cost of the DC 2-wire type is 2/3 that of a conventional model. Besides, the possibility of miswiring is reduced.

Particularly convenient when many sensors are used.

Wiring of the 3-wire type is cumbersome.

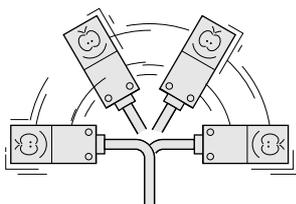


Wiring of the 2-wire type is simple and neat.



Inflection Resistant Cable Type

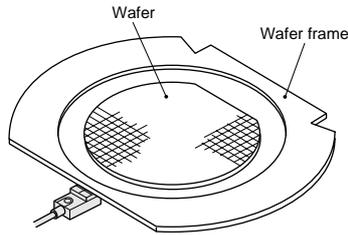
The inflection resistance of its cable is ten times that of the conventional model. The sensor can be mounted on a moving table or a robot arm.



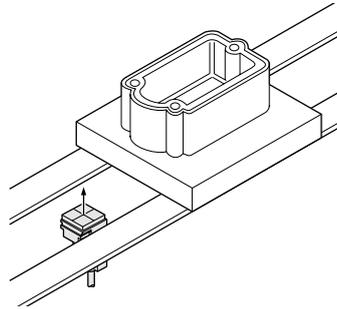
※ Except PNP output type and 5m cable attached NPN output type

APPLICATIONS

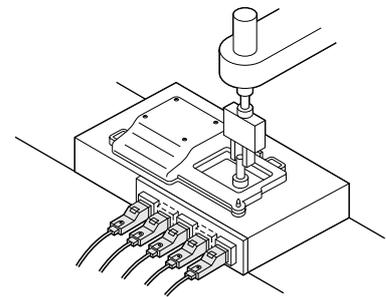
Detecting wafer frame



Detecting aluminum pallet



Code reading



ORDER GUIDE

GXL-8 type

Type	Appearance (mm)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation
DC 2-wire	Front sensing 	Maximum operation distance 2.5mm Stable sensing range (0 to 1.8mm)	GXL-8FU	Non-contact DC 2-wire type	Normally open
			GXL-8FUI		Normally closed
			GXL-8FUB		Normally open
	GXL-8FUIB		Normally closed		
	Top sensing 		GXL-8HU		Normally open
			GXL-8HUI		Normally closed
GXL-8HUB		Normally open			
NPN output	Front sensing 	Maximum operation distance 2.5mm Stable sensing range (0 to 1.8mm)	GXL-8F	NPN open-collector transistor	Normally open
			GXL-8FI		Normally closed
			GXL-8FB		Normally open
			GXL-8FIB		Normally closed
			Top sensing 		GXL-8H
	GXL-8HI				Normally closed
	GXL-8HB				Normally open
	GXL-8HIB				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.

GXL-N12 type

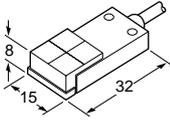
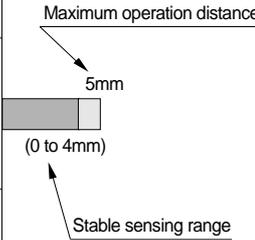
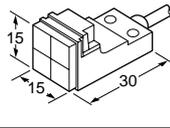
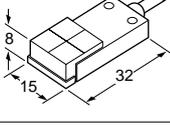
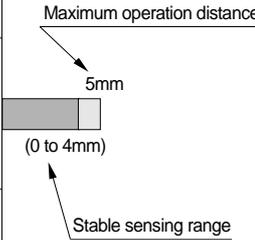
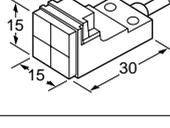
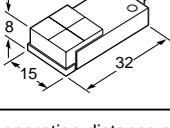
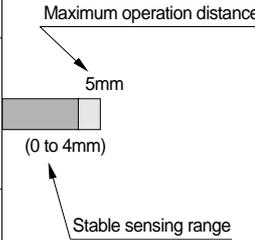
Type	Appearance (mm)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation
NPN output	Cable type 	Maximum operation distance 3mm Stable sensing range (0 to 2mm)	GXL-N12F (Note 3)	NPN open-collector transistor	Normally open
			GXL-N12FI (Note 3)		Normally closed
			GXL-N12FB		Normally open
	GXL-N12FIB		Normally closed		
	Terminal type 		GXL-N12FT (Note 3)		Normally open
			GXL-N12FTI (Note 3)		Normally closed
GXL-N12FTB		Normally open			
PNP output	Cable type 	Maximum operation distance 3mm Stable sensing range (0 to 2mm)	GXL-N12FTB	PNP open-collector transistor	Normally closed
			GXL-N12FTIB		Normally open
			GXL-N12F-P		Normally closed
			GXL-N12FI-P		Normally open
	Terminal type 		GXL-N12FB-P		Normally closed
			GXL-N12FIB-P		Normally open
			GXL-N12FT-P		Normally closed
			GXL-N12FTI-P		Normally open
			GXL-N12FTB-P		Normally closed
			GXL-N12FTIB-P		Normally open

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.
 3) These models, with normally open NPN output, are also available as 5V supply voltage type. Please contact our office for details.

GXL

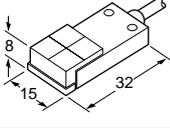
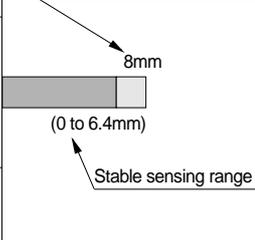
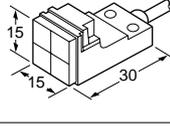
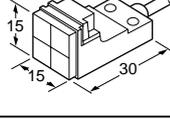
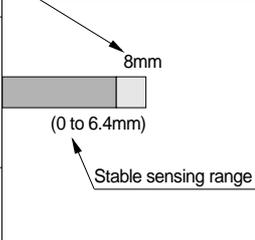
ORDER GUIDE

GXL-15 (Standard) type

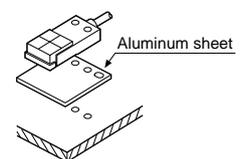
Type	Appearance (mm)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation
DC 2-wire	Front sensing 		GXL-15FU	Non-contact DC 2-wire type	Normally open
			GXL-15FUI		Normally closed
			GXL-15FUB		Normally open
	GXL-15FUIB		Normally closed		
	Top sensing 		GXL-15HU		Normally open
			GXL-15HUI		Normally closed
GXL-15HUB		Normally open			
NPN output	Front sensing 		GXL-15HF	NPN open-collector transistor	Normally open
			GXL-15HFI		Normally closed
			GXL-15HFB		Normally open
	Top sensing 		GXL-15HFI		Normally open
			GXL-15HUI		Normally closed
			GXL-15HUB		Normally open
PNP output	Front sensing 		GXL-15HF-P	PNP open-collector transistor	Normally open
			GXL-15HFI-P		Normally closed
			GXL-15HFB-P		Normally open

- 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.

GXL-15 (Long sensing range) type --- For mounting on non-magnetic material (Note 3)

Type	Appearance (mm)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation
DC 2-wire	Front sensing 		GXL-15FLU	Non-contact DC 2-wire type	Normally open
			GXL-15FLUI		Normally closed
			GXL-15FLUB		Normally open
	Top sensing 		GXL-15FLUIB		Normally closed
			GXL-15HLU		Normally open
			GXL-15HLUI		Normally closed
NPN output	Top sensing 		GXL-15HLUB	NPN open-collector transistor	Normally open
			GXL-15HLUIB		Normally closed
			GXL-15HL		Normally open
			GXL-15HLI		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.
- 3) To mount the long sensing range **GXL-15** on a magnetic body, such as iron, the enclosed aluminum sheet, or any other aluminum sheet having a minimum size of 30×39.5×0.3mm (**GXL-15HLU**□ / **GXL-15HL**□: 30×30×0.3mm), should be inserted between the sensor and the magnetic body.
However, it is not necessary to use the aluminum sheet when mounting on a non-magnetic body, such as, aluminum or an insulator.



ORDER GUIDE

Inflection resistant cable type and 5m cable length type

Inflection resistant cable type and 5m cable length type are also available.

• **Table of Model Nos.**

Type	Standard	Inflection resistant cable type	5m cable length type	Inflection resistant cable & 5m cable length type	
DC 2-wire	Front sensing	GXL-8FU	GXL-8FU-R	GXL-8FU-C5	GXL-8FU-R-C5
		GXL-8FUI	GXL-8FUI-R	GXL-8FUI-C5	GXL-8FUI-R-C5
		GXL-8FUB	GXL-8FUB-R	GXL-8FUB-C5	GXL-8FUB-R-C5
	Top sensing	GXL-8FUIB	GXL-8FUIB-R	GXL-8FUIB-C5	GXL-8FUIB-R-C5
		GXL-8HU	GXL-8HU-R	GXL-8HU-C5	GXL-8HU-R-C5
		GXL-8HUI	GXL-8HUI-R	GXL-8HUI-C5	GXL-8HUI-R-C5
	Front sensing	GXL-8HUB	GXL-8HUB-R	GXL-8HUB-C5	GXL-8HUB-R-C5
		GXL-8HUIB	GXL-8HUIB-R	GXL-8HUIB-C5	GXL-8HUIB-R-C5
		GXL-15FU	GXL-15FU-R	GXL-15FU-C5	GXL-15FU-R-C5
	Top sensing	GXL-15FUI	GXL-15FUI-R	GXL-15FUI-C5	GXL-15FUI-R-C5
		GXL-15FUB	GXL-15FUB-R	GXL-15FUB-C5	GXL-15FUB-R-C5
		GXL-15FUIB	GXL-15FUIB-R	GXL-15FUIB-C5	GXL-15FUIB-R-C5
	Front sensing	GXL-15HU	GXL-15HU-R	GXL-15HU-C5	GXL-15HU-R-C5
		GXL-15HUI	GXL-15HUI-R	GXL-15HUI-C5	GXL-15HUI-R-C5
		GXL-15HUB	GXL-15HUB-R	GXL-15HUB-C5	GXL-15HUB-R-C5
	Top sensing	GXL-15HUIB	GXL-15HUIB-R	GXL-15HUIB-C5	GXL-15HUIB-R-C5
		GXL-15FLU	GXL-15FLU-R	GXL-15FLU-C5	GXL-15FLU-R-C5
		GXL-15FLUI	GXL-15FLUI-R	GXL-15FLUI-C5	GXL-15FLUI-R-C5
	Front sensing	GXL-15FLUB	GXL-15FLUB-R	GXL-15FLUB-C5	GXL-15FLUB-R-C5
		GXL-15FLUIB	GXL-15FLUIB-R	GXL-15FLUIB-C5	GXL-15FLUIB-R-C5
		GXL-15HLU	GXL-15HLU-R	GXL-15HLU-C5	GXL-15HLU-R-C5
	Top sensing	GXL-15HLUI	GXL-15HLUI-R	GXL-15HLUI-C5	GXL-15HLUI-R-C5
		GXL-15HLUB	GXL-15HLUB-R	GXL-15HLUB-C5	GXL-15HLUB-R-C5
		GXL-15HLUIB	GXL-15HLUIB-R	GXL-15HLUIB-C5	GXL-15HLUIB-R-C5
NPN output	Front sensing	GXL-8F	GXL-8F-R	GXL-8F-C5	_____
		GXL-8FI	GXL-8FI-R	GXL-8FI-C5	_____
		GXL-8FB	GXL-8FB-R	GXL-8FB-C5	_____
	Top sensing	GXL-8FIB	GXL-8FIB-R	GXL-8FIB-C5	_____
		GXL-8H	GXL-8H-R	GXL-8H-C5	_____
		GXL-8HI	GXL-8HI-R	GXL-8HI-C5	_____
	Front sensing	GXL-8HB	GXL-8HB-R	GXL-8HB-C5	_____
		GXL-8HIB	GXL-8HIB-R	GXL-8HIB-C5	_____
		GXL-N12F	GXL-N12F-R	GXL-N12F-C5	_____
	Top sensing	GXL-N12FI	GXL-N12FI-R	GXL-N12FI-C5	_____
		GXL-N12FB	GXL-N12FB-R	GXL-N12FB-C5	_____
		GXL-N12FIB	GXL-N12FIB-R	GXL-N12FIB-C5	_____
	Front sensing	GXL-N12FT	_____	_____	_____
		GXL-N12FTI	_____	_____	_____
		GXL-N12FTB	_____	_____	_____
	Top sensing	GXL-N12FTIB	_____	_____	_____
		GXL-15F	GXL-15F-R	GXL-15F-C5	_____
		GXL-15FI	GXL-15FI-R	GXL-15FI-C5	_____
	Front sensing	GXL-15FB	GXL-15FB-R	GXL-15FB-C5	_____
		GXL-15FIB	GXL-15FIB-R	GXL-15FIB-C5	_____
		GXL-15H	_____	_____	_____
	Top sensing	GXL-15HI	_____	_____	_____
		GXL-15HB	_____	_____	_____
		GXL-15HIB	_____	_____	_____
Front sensing	GXL-15HL	_____	_____	_____	
	GXL-15HLI	_____	_____	_____	
	GXL-15HLB	_____	_____	_____	
Top sensing	GXL-15HLIB	_____	_____	_____	
	GXL-N12F-P	_____	GXL-N12F-P-C5	_____	
	GXL-N12FI-P	_____	GXL-N12FI-P-C5	_____	
Front sensing	GXL-N12FB-P	_____	GXL-N12FB-P-C5	_____	
	GXL-N12FIB-P	_____	GXL-N12FIB-P-C5	_____	
	GXL-N12FT-P	_____	_____	_____	
Top sensing	GXL-N12FTI-P	_____	_____	_____	
	GXL-N12FTB-P	_____	_____	_____	
	GXL-N12FTIB-P	_____	_____	_____	
Front sensing	GXL-15F-P	_____	GXL-15F-P-C5	_____	
	GXL-15FI-P	_____	GXL-15FI-P-C5	_____	
	GXL-15FB-P	_____	GXL-15FB-P-C5	_____	
Top sensing	GXL-15FIB-P	_____	GXL-15FIB-P-C5	_____	
	GXL-15H-P	_____	_____	_____	
	GXL-15HI-P	_____	_____	_____	
Front sensing	GXL-15HB-P	_____	_____	_____	
	GXL-15HIB-P	_____	_____	_____	
	GXL-15HL-P	_____	_____	_____	
Top sensing	GXL-15HLI-P	_____	_____	_____	
	GXL-15HLB-P	_____	_____	_____	
	GXL-15HLIB-P	_____	_____	_____	

GXL

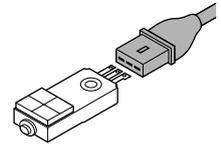
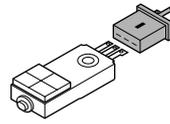
OPTIONS

Designation	Model No.	Description
Connector	CN-13	Connector for the terminal type
	CN-13-C1	Length: 1m
	CN-13-C3	Length: 3m
Sensor mounting bracket	MS-GXL8-3	Mounting bracket for NPN output of GXL-8 type
	MS-GXL12-2	Mounting bracket for GXL-N12 type
	MS-GXL15	Mounting bracket for GXL-15 type
	MS-GXL15-2	Mounting bracket for GXL-15F type

Connector

• CN-13

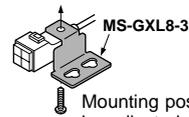
• CN-13-C1
• CN-13-C3



Sensor mounting bracket

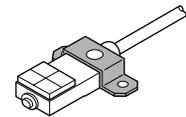
• MS-GXL8-3

• MS-GXL12-2



Mounting position can be adjusted. It is rust-free, being stainless steel.

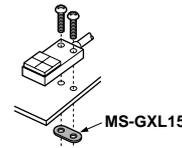
A set of one pan head screw and two screws with washers is attached.



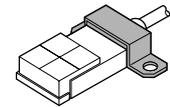
Screws are not supplied.

• MS-GXL15

• MS-GXL15-2



Screws are not supplied.



SPECIFICATIONS

DC 2-wire type

Item	Standard Model No.	GXL-8 type		GXL-15 type				
		Front sensing	Top sensing	Standard		Long sensing range (For mounting on non-magnetic body) (Note 1)		
				Front sensing	Top sensing	Front sensing	Top sensing	
		GXL-8FU	GXL-8HU	GXL-15FU	GXL-15HU	GXL-15FLU	GXL-15HLU	
Max. operation distance (Note 2)		2.5mm ± 20%		5mm ± 10%		8mm ± 10%		
Stable sensing range (Note 2)		0 to 1.8mm		0 to 4mm		0 to 6.4mm		
Standard sensing object		Iron sheet 15 × 15 × t1mm		Iron sheet 20 × 20 × t1mm		Iron sheet 30 × 30 × t1mm		
Hysteresis		20% or less of operation distance						
Repeatability		Along sensing axis, perpendicular to sensing axis: 0.04mm or less						
Supply voltage		12 to 24V DC ± 10% Ripple P-P 10% or less						
Current consumption (Note 3)		0.8mA or less						
Output		Non-contact DC 2-wire type • Load current: 3 to 70mA (Note 4) • Residual voltage: 3V or less (Note 5)		Non-contact DC 2-wire type • Load current: 3 to 100mA (Note 4) • Residual voltage: 3V or less (Note 5)				
Utilization category		DC-12 or DC-13						
Short-circuit protection		Incorporated						
Max. response frequency		1kHz						
Operation indicator		Normally closed type: Red LED (lights up when the output is ON)						
2-color indicator		Normally open type: Lights up in green under stable sensing condition Lights up in red under unstable sensing condition						
Environmental resistance	Pollution degree		3 (Industrial environment)					
	Protection		IP67 (IEC), IP67g (JEM)					
	Ambient temperature		- 25 to + 70°C, Storage: - 30 to + 80°C					
	Ambient humidity		45 to 85% RH, Storage: 35 to 95% 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/s ² 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 $\pm \frac{15}{10}$ % of sensing range at 20°C					
	Voltage characteristics		Within ± 2% for ± 10% fluctuation of the supply voltage					
Material		Enclosure: PBT, Indicator part: Polyallylate			Enclosure: PET (Glass fiber reinforced) Indicator part: Polyallylate	Enclosure: PBT Indicator part: Polyallylate	Enclosure: PET (Glass fiber reinforced) Indicator part: Polyallylate	
Cable (Note 6)		0.15mm ² 2-core oil, heat and cold resistant cable, 1m long		0.2mm ² 2-core oil, heat and cold resistant cable, 1m long				
Cable extension		Extension up to total 50m is possible with 0.3mm ² , or more, cable.						
Weight		12g approx.		20g approx.				
Accessory		MS-GXL8-4 (Sensor mounting bracket): 1 set					MS-A15F (Aluminum sheet): 1 No.	MS-A15H (Aluminum sheet): 1 No.

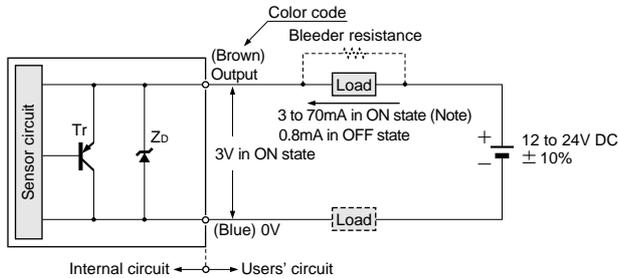
- Notes: 1) To mount the long sensing range **GXL-15** type on a magnetic body, such as iron, the enclosed aluminum sheet, or any other aluminum sheet having a minimum size of 30 × 39.5 × t0.3mm (**GXL-15HLU** type: 30 × 30 × t0.3mm), should be inserted between the sensor and the magnetic body. However, it is not necessary to use the aluminum sheet when mounting on a non-magnetic body, such as, aluminum or an insulator.
- 2) 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.
- 3) It is the leakage current when the output is in the OFF state.
- 4) The maximum load current varies with the ambient temperature. Refer to 'I/O CIRCUIT AND WIRING DIAGRAMS' for more details.
- 5) When the cable is extended, the residual voltage becomes larger according to the resistance of the cable. The residual voltage of 5m cable length type increases by 0.1V.
- 6) The inflection resistant cable type (model No. with suffix '-R') has a 0.15mm² (**GXL-15** type: 0.2mm²) inflection, oil, heat and cold resistant cable, 1m long.

I/O CIRCUIT AND WIRING DIAGRAMS

DC 2-wire type

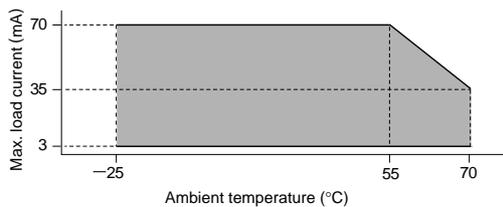
GXL-8FU/GXL-8HU type

I/O circuit diagram

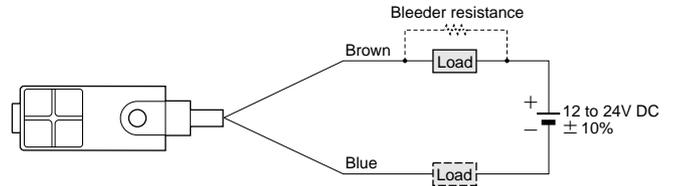


Symbols ... Zd: Surge absorption zener diode
Tr: PNP output transistor

Note: The maximum load current varies depending on the ambient temperature.



Wiring diagram

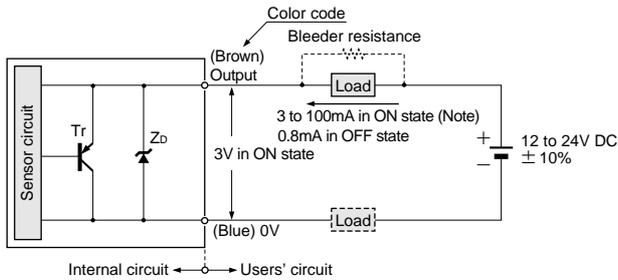


Conditions for the load

- 1) The load should not be actuated by the leakage current (0.8mA) in the OFF state.
- 2) The load should be actuated by (supply voltage - 3V) in the ON state.
- 3) The current in the ON state should be between 3 to 70mA DC.
[In case the current is less than 3mA, connect a bleeder resistance]
[in parallel to the load so that a current of 3mA, or more, flows.]

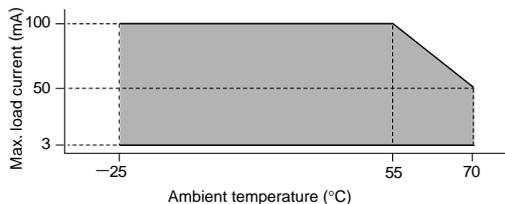
GXL-15FU/GXL-15HU/GXL-15FLU/GXL-15HLU type

I/O circuit diagram

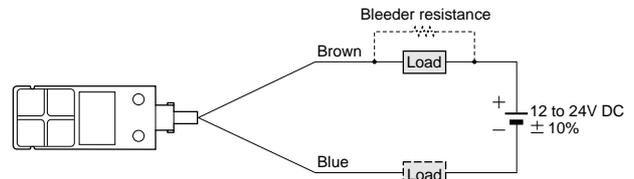


Symbols ... Zd: Surge absorption zener diode
Tr: PNP output transistor

Note: The maximum load current varies depending on the ambient temperature.



Wiring diagram



Conditions for the load

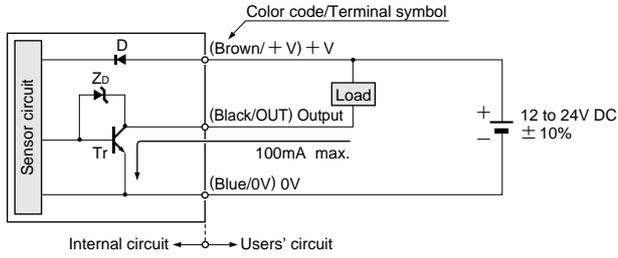
- 1) The load should not be actuated by the leakage current (0.8mA) in the OFF state.
- 2) The load should be actuated by (supply voltage - 3V) in the ON state.
- 3) The current in the ON state should be between 3 to 100mA DC.
[In case the current is less than 3mA, connect a bleeder resistance]
[in parallel to the load so that a current of 3mA, or more, flows.]

GXL

I/O CIRCUIT AND WIRING DIAGRAMS

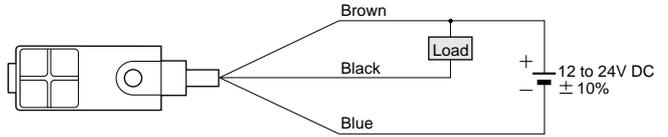
NPN output type

I/O circuit diagram



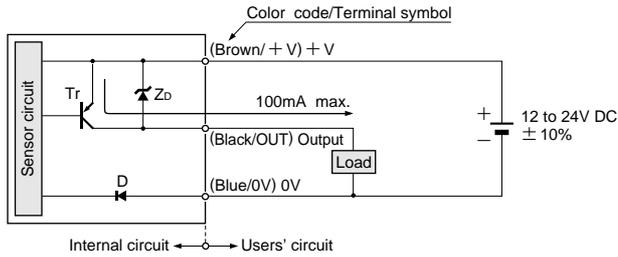
Symbols ... D: Reverse supply polarity protection diode
Zd: Surge absorption zener diode
Tr: NPN output transistor

Wiring diagram



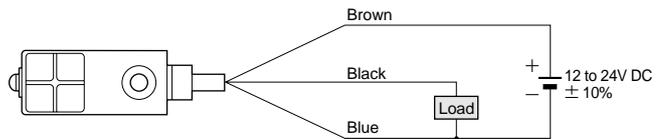
PNP output type

I/O circuit diagram



Symbols ... D: Reverse supply polarity protection diode
Zd: Surge absorption zener diode
Tr: PNP output transistor

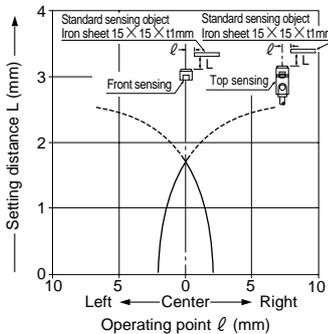
Wiring diagram



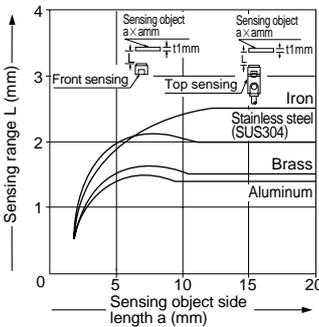
SENSING CHARACTERISTICS (TYPICAL)

GXL-8 type

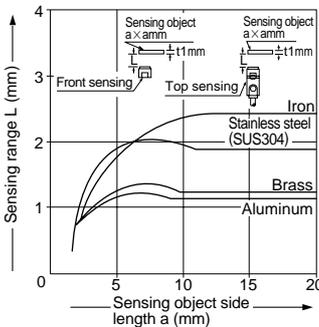
Sensing field (common)



Correlation between sensing object size and sensing range (DC 2-wire type)



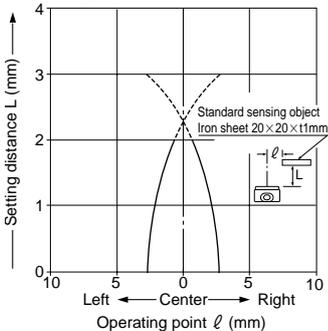
Correlation between sensing object size and sensing range (NPN output type)



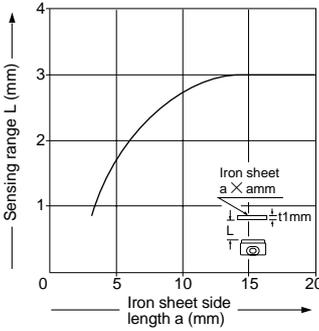
As the sensing object size becomes smaller than the standard size (iron sheet 15 x 15 x 1mm), the sensing range shortens as shown in the left figures.

GXL-N12 type

Sensing field



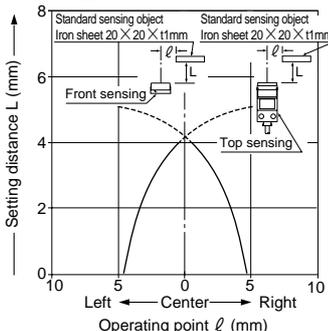
Correlation between sensing object size and sensing range



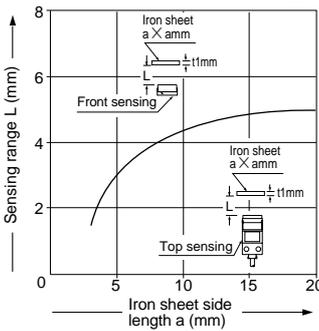
As the sensing object size becomes smaller than the standard size (iron sheet 20 x 20 x 1mm), the sensing range shortens as shown in the left figure.

GXL-15 (Standard) type

Sensing field



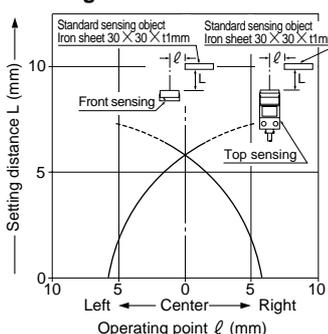
Correlation between sensing object size and sensing range



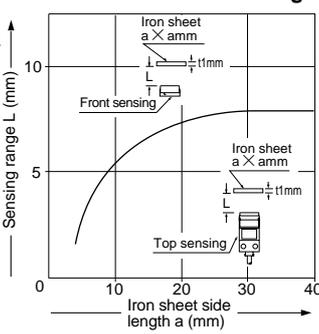
As the sensing object size becomes smaller than the standard size (iron sheet 20 x 20 x 1mm), the sensing range shortens as shown in the left figure.

GXL-15 (Long sensing range) type

Sensing field



Correlation between sensing object size and sensing range



As the sensing object size becomes smaller than the standard size (iron sheet 30 x 30 x 1mm), the sensing range shortens as shown in the left figure.

GXL

PRECAUTIONS FOR PROPER USE

Refer to P.836~ for general precautions.

All models



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

GXL-8 (DC 2-wire) type

The tightening torque should be 0.5N·m or less.

To mount the sensor with a nut, the thru-hole diameter should be $\phi 3.4$ mm. With the attached mounting screw and nut, take care that the thickness of the mounting plate should be 2.3mm or less.

If a screw other than the attached screw is used, make sure to use a M3 truss head screw.

(Do not use a flat head screw) or a pan head screw.

GXL-8 (NPN output) type

The tightening torque should be 0.5N·m or less.

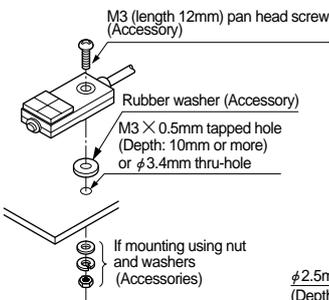
To mount the sensor with a nut, the thru-hole diameter should be $\phi 3$ mm. With the attached mounting screw and nut, take care that the thickness of the mounting plate should be 2.3mm or less.

If a screw other than the attached screw is used, make sure to use a M2.6 truss head screw.

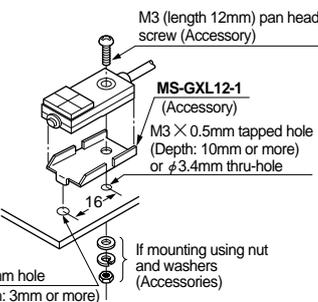
Note: Do not use a M3 screw.

GXL-N12 type

<One point fixing>



<Two point fixing>



The tightening torque should be 0.49N·m or less.
To mount the sensor with a nut, the thru-hole diameter should be $\phi 3.4$ mm.

GXL-15 type

The tightening torque should be 1N·m or less.

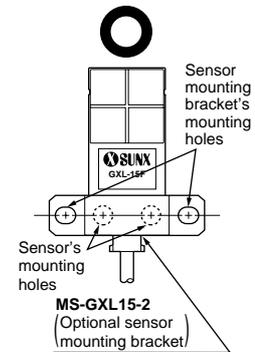
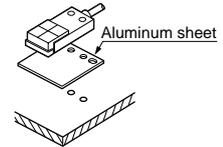
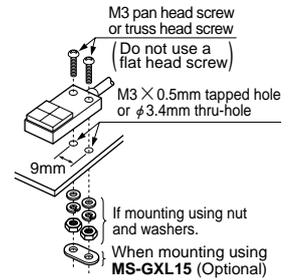
To mount the sensor with the optional sensor mounting bracket **MS-GXL15**, the thru-hole diameter should be $\phi 3.4$ mm.

Screw, nut or washers are not supplied. Please arrange them separately.

To mount the long sensing range **GXL-15** type on a magnetic body, such as iron, the enclosed aluminum sheet, or any other aluminum sheet having a minimum size of $30 \times 39.5 \times t0.3$ mm (**GXL-15HLU**□/ **GXL-15HL**□: $30 \times 30 \times t0.3$ mm), should be inserted between the sensor and the magnetic body.

However, it is not necessary to use the aluminum sheet when mounting on a non-magnetic body, such as, aluminum or an insulator.

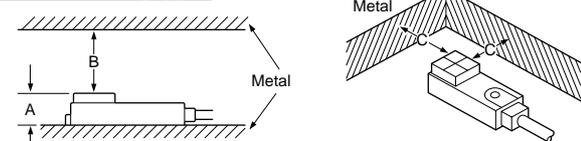
When mounting the inductive proximity sensor with the optional sensor mounting bracket **MS-GXL15-2**, if the bracket is mounted close to the sensing part, the bracket itself gets sensed and the operation becomes unstable. Make sure to mount such that the mounting holes of the sensor and those of the mounting bracket are in one horizontal straight line.



Influence of surrounding metal

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

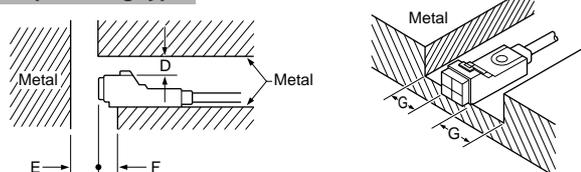
Front sensing type



	GXL-8F type	GXL-N12F type	GXL-15FU/GXL-15F type	GXL-15FLU type
A	7mm	7mm	8mm	8mm (Note)
B	8mm	20mm	20mm	30mm
C	3mm	10mm	7mm	10mm

Note: The **GXL-15FLU** type should be mounted on an insulator or a non-magnetic body. To mount it on a magnetic body, such as iron, use the enclosed aluminum sheet.

Top sensing type



	GXL-8H type	GXL-15HU/GXL-15H type	GXL-15HLU/GXL-15HL type
D	4mm	6mm	12mm
E	10mm	20mm	30mm
F	3mm	0mm	10mm (Note)
G	3mm	3mm	10mm

Note: When **GXL-15HLU/GXL-15HL** type is mounted on an insulator or a non-magnetic body, or seated on the enclosed aluminum sheet, the distance 'F' can be zero.



PRECAUTIONS FOR PROPER USE

Refer to P.836~ for general precautions.

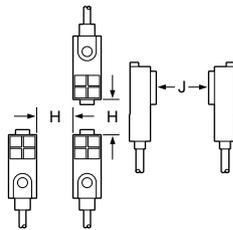
All models

Mutual interference prevention

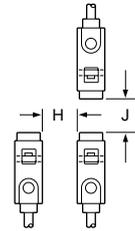
- When two or more sensors are installed in parallel or face to face, keep the minimum separation distance specified below to avoid mutual interference.

		H	J
GXL-8 type	Between 'I' type and non 'I' type	0mm (Note 2)	15mm
	Between two 'I' types or two non 'I' types	12mm	30mm
GXL-N12 type	Between 'I' type and non 'I' type	0mm (Note 2)	15mm
	Between two 'I' types or two non 'I' types	20mm	40mm
GXL-15F GXL-15FU GXL-15HU type	Between 'I' type and non 'I' type	0mm (Note 2)	25mm
	Between two 'I' types or two non 'I' types	30mm	60mm
GXL-15H type	Between 'I' type and non 'I' type	0mm (Note 2)	25mm
	Between two 'I' types or two non 'I' types	40mm	60mm
GXL-15FLU GXL-15HLU type	Between 'I' type and non 'I' type	0mm (Note 2)	25mm
	Between two 'I' types or two non 'I' types	75mm	90mm
GXL-15HL type	Between 'I' type and non 'I' type	0mm (Note 2)	25mm
	Between two 'I' types or two non 'I' types	80mm	95mm

Front sensing



Top sensing



- 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 H should be as given below.
GXL-8 type: 2mm, **GXL-N12 type:** 4mm
GXL-15 (Standard type): 7.5mm (**GXL-15H type:** 12.5mm)
GXL-15 (Long sensing range) type: 30mm (**GXL-15HL type:** 32.5mm)

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.	GXL-8FU GXL-8HU type		GXL-8F GXL-8H type		GXL-N12 type		GXL-15FU GXL-15FLU GXL-15HLU type		GXL-15F GXL-15H type		GXL-15HL type	
	Metal											
Iron	1	1	1	1	1	1	1	1	1	1	1	1
Stainless steel (SUS304)	0.82 approx.	0.76 approx.	0.7 approx.	0.74 approx.	0.75 approx.	0.68 approx.	0.76 approx.					
Brass	0.59 approx.	0.5 approx.	0.4 approx.	0.53 approx.	0.53 approx.	0.47 approx.	0.5 approx.					
Aluminum	0.57 approx.	0.48 approx.	0.35 approx.	0.52 approx.	0.51 approx.	0.45 approx.	0.48 approx.					

Others

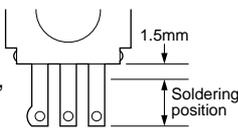
- Do not use during the initial transient time (50ms) after the power supply is switched on.
- The output is not incorporated with a short-circuit protection circuit. Do not connect it directly to a power supply or a capacitive load (excluding the DC 2-wire type).

GXL-N12FT type

Soldering

- To solder the terminals of the sensor, observe the following conditions.

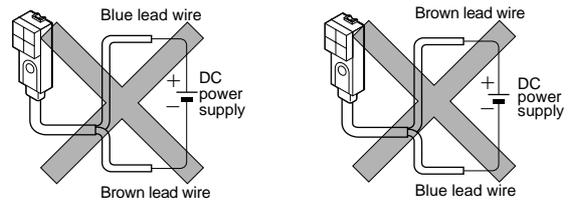
Soldering temperature: 260°C or less
 Soldering time: 5 sec. or less
 Soldering position: 1.5mm, or more, away from the sensor body.



DC 2-wire type

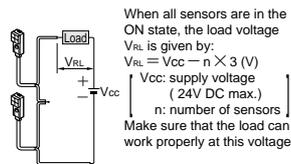
Wiring

- The sensor must be connected to a power supply via a load. If the sensor is connected to a power supply without a load, the short-circuit protection makes the sensor inoperable. (The output stays in the OFF state and the indicator does not light up.) In this case, rectify by connecting the power supply via a load. Now, the sensor becomes operable. Further, take care that if the power supply is connected with reverse polarity without a load, the sensor will get damaged.



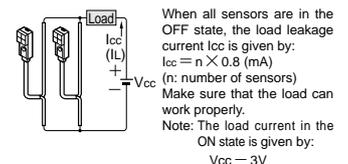
- For series connection (AND circuit) or parallel connection (OR circuit) of sensors, take care of the following.

Series connection (AND circuit)



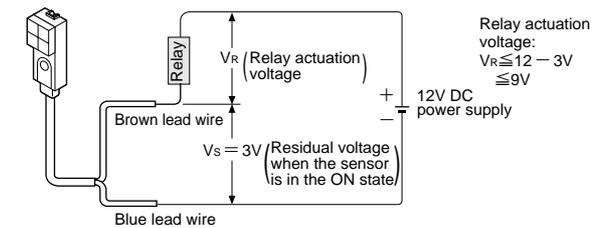
Note: The output is generated normally even if the indicator does not light up properly.

Parallel connection (OR circuit)



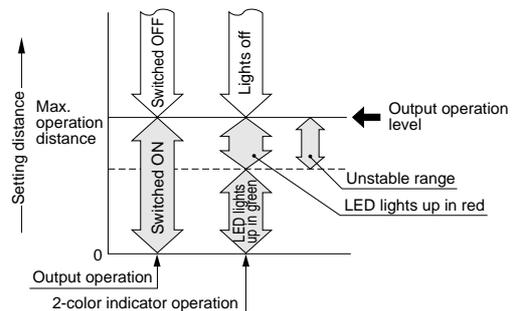
GXL-8 type:
 $3\text{mA} \times n \leq I_L \leq 70\text{mA}$
 (n: number of sensors) turned ON
GXL-15 type:
 $3\text{mA} \times n \leq I_L \leq 100\text{mA}$
 (n: number of sensors) turned ON

- The residual voltage of the sensor is 3V. Before connecting a relay at the load, take care of its actuation voltage. (Some 12V relays may not be usable.)



2-color indicator (Normally open type only)

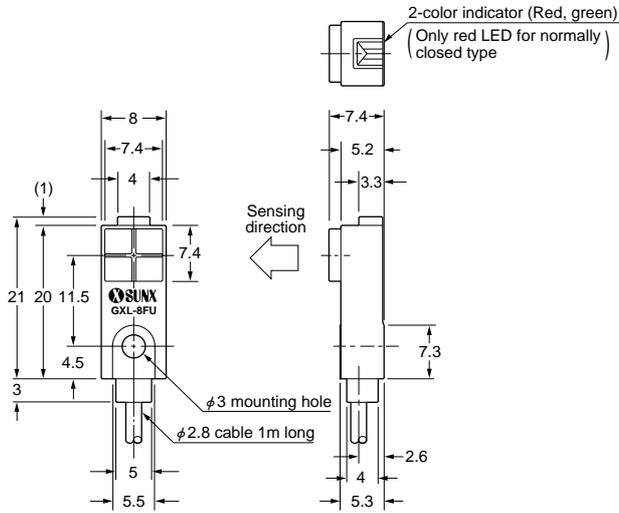
- When the sensing object is in the stable sensing range, the LED lights up in green, and when the sensing object is in the unstable sensing range, the LED lights up in red. While the LED lights up in green, the sensing is performed stably without being affected by temperature drifts or voltage fluctuations.



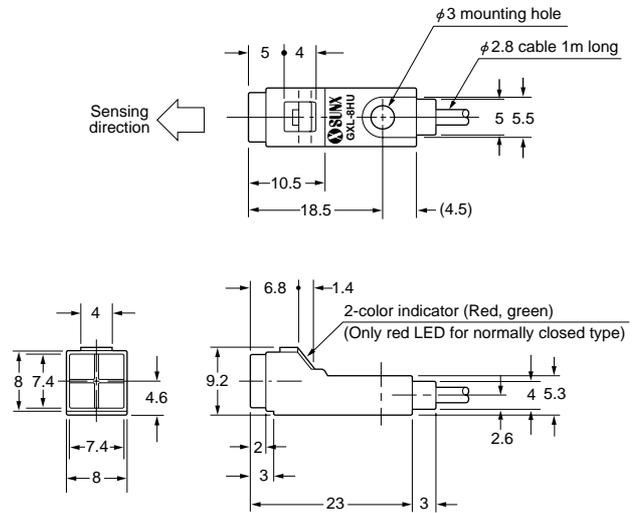
GXL

DIMENSIONS (Unit: mm)

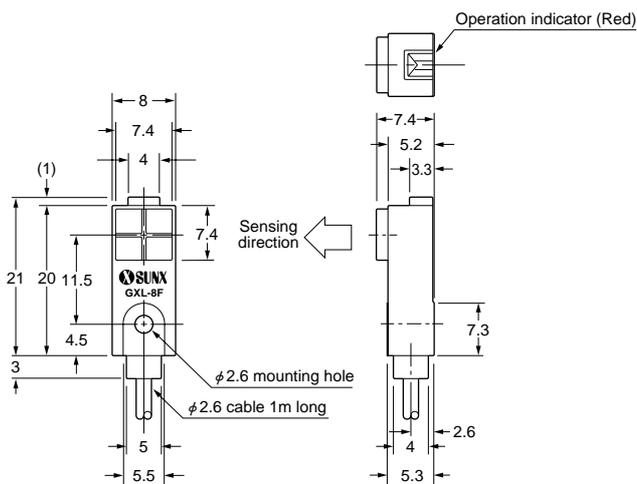
GXL-8FU type Sensor



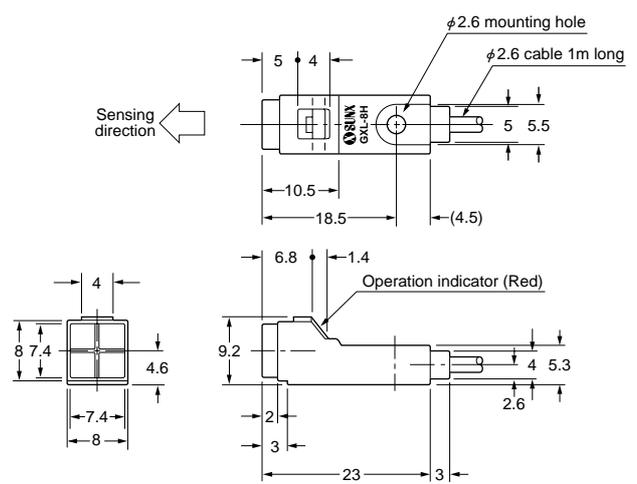
GXL-8HU type Sensor



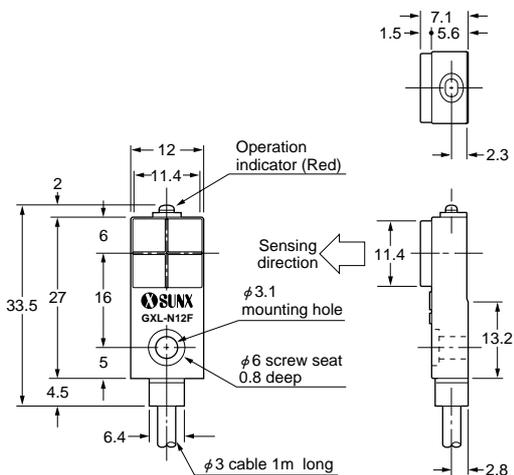
GXL-8F type Sensor



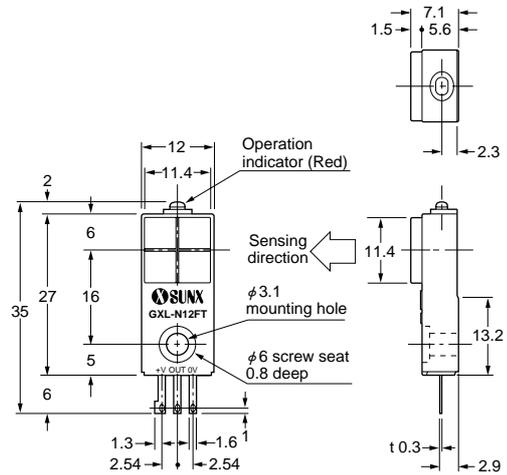
GXL-8H type Sensor



GXL-N12F type Sensor

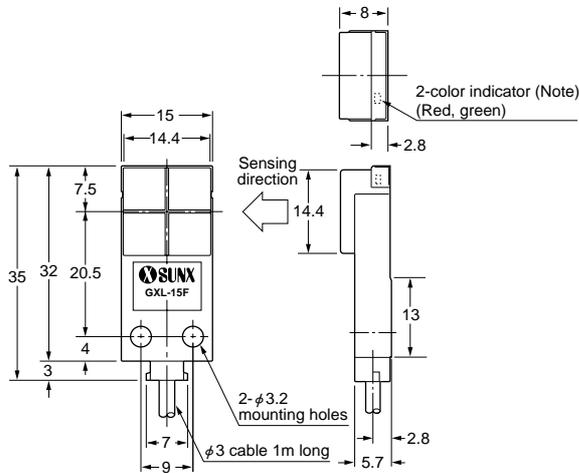


GXL-N12FT type Sensor



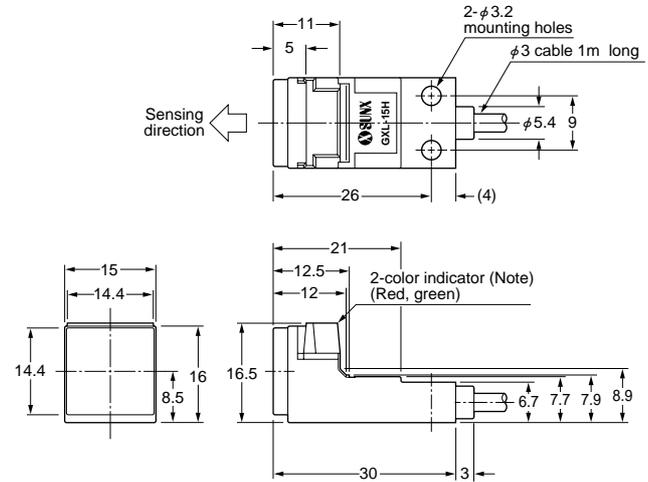
DIMENSIONS (Unit: mm)

GXL-15F type Sensor



Note: Normally closed DC 2-wire type, NPN output type and PNP output type have an operation indicator (red) instead of the 2-color indicator.

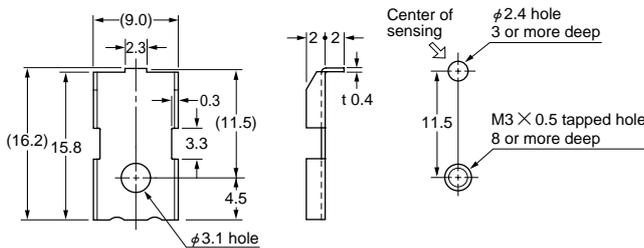
GXL-15H type Sensor



Note: Normally closed DC 2-wire type and NPN output type have an operation indicator (red) instead of the 2-color indicator.

MS-GXL8-4 Sensor mounting bracket for GXL-8FU/GXL-8HU type (Accessory)

Mounting hole dimensions

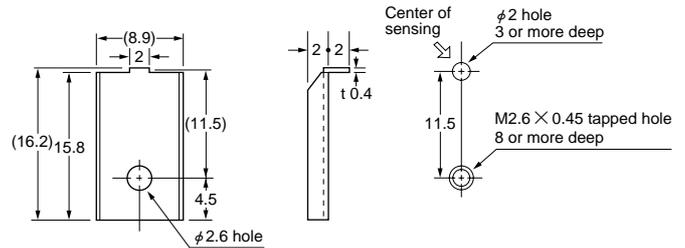


Material: Cold rolled carbon steel (SPCC)
(Nickel plated)

1 No. each of M3 (length 12mm) truss head screw, nut, spring washer and plain washer is attached.

MS-GXL8 Sensor mounting bracket for GXL-8F/GXL-8H type (Accessory)

Mounting hole dimensions

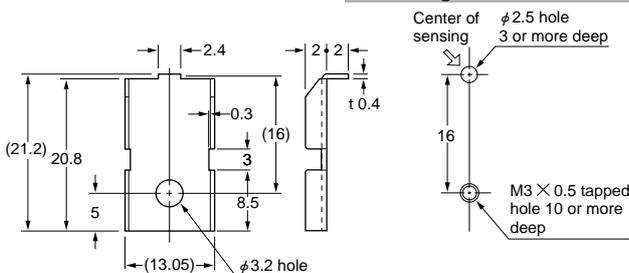


Material: Cold rolled carbon steel (SPCC)
(Nickel plated)

1 No. each of M2.6 (length 12mm) truss head screw, nut, spring washer and plain washer is attached.

MS-GXL12-1 Sensor mounting bracket for GXL-N12 type (Accessory)

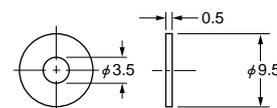
Mounting hole dimensions



Material: Cold rolled carbon steel (SPCC)
(Nickel plated)

1 No. each of M3 (length 12mm) pan head screw, plain washer, spring washer and rubber washer (φ9.5 x t0.5mm) is attached.

MS-R1 Rubber washer for GXL-N12 type (Accessory)

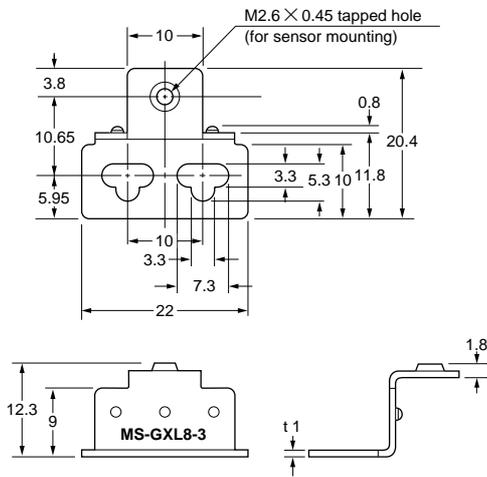


Material: NBR

GXL

DIMENSIONS (Unit: mm)

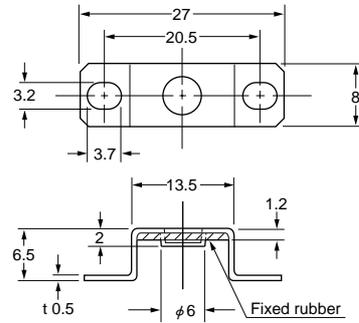
MS-GXL8-3 Sensor mounting bracket for **GXL-8F/GXL-8H** type (Optional)



Material: Stainless steel (SUS304)

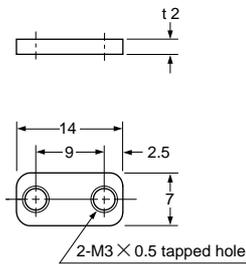
One M2.6 (length 8mm) pan head screw and two M3 (length 8mm) screws with washers are attached.

MS-GXL12-2 Sensor mounting bracket for **GXL-N12** type (Optional)



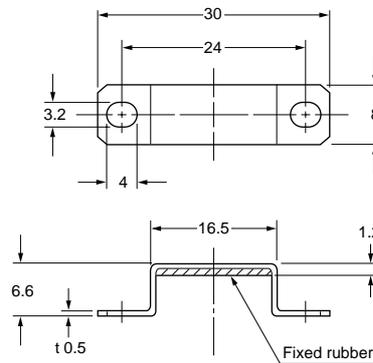
Material: Bracket ... stainless steel (SUS304)
Fixed rubber ... FKM (Fluorine rubber)

MS-GXL15 Sensor mounting bracket for **GXL-15** type (Optional)



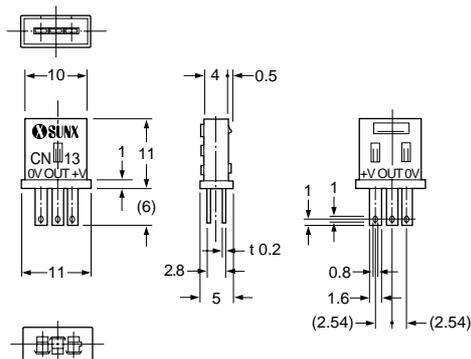
Material: Cold rolled carbon steel (SPCC)

MS-GXL15-2 Sensor mounting bracket for **GXL-15F** type (Optional)



Material: Bracket ... stainless steel (SUS304)
Fixed rubber ... FKM (Fluorine rubber)

CN-13 Connector for terminal type (Optional)



MS-A15F
MS-A15H Aluminum sheet (Accessory for **GXL-15FLU**, **GXL-15HLU** and **GXL-15HL** type)

