LASER SENSORS

PHOTOELECTRIC SENSORS PHOTOELECTRIC SENSORS AREA SENSORS SAFETY COMPONENTS PRESSURE / FLOW SENSORS

PARTICULAR USE SENSORS OPTIONS SIMPLE WIRE-SAVING UNITS WIRE-SAVING SYSTEMS

MEASUREMENT SENSORS

> STATIC CONTROL DEVICES LASER MARKERS

> > PLC

ENERGY MANAGEMENT SOLUTIONS

HUMAN MACHINE INTERFACES

FA COMPONENTS

MACHINE VISION SYSTEMS

UV CURING SYSTEMS

> Selection Guide

Amplifier Built-in

Amplifierseparated Other

Products

GXL

GL

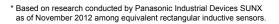
GX

GX-M GX-U/GX-FU/ GX-N

Rectangular-shaped Inductive Proximity Sensor Amplifier Built-in **GX-F/H SERIES**

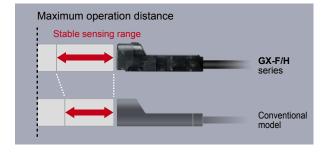


Industry No. 1* in stable sensing



Can be installed with ample space

This sensor has the longest stable sensing range among the same level of rectangular inductive proximity sensors in the industry. It is easy to install the sensor.



Variation at the maximum operation distance is within ±8 %

Thorough adjustment and control of sensing sensitivity greatly reduces individual sensor differences and variations.

The work of adjusting sensor positions when using multiple sensors and when sensors have been replaced is much easier.

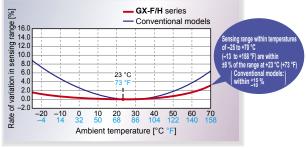
Example: GX-08 0.4 mm 0.016 in or less Operation distance variation: 0.4 mm 0.016 in or less For the GX-D8 sensing object -- Maximum operation distance: 2.5 mm 0.098 in ± 8 % (2.3 to 2.7 mm 0.091 to 0.106 in) -Operation distance variation: 1.0 mm 0.039 in or less 1.0 mm n or less Standard Conventional model Maximum operation distance: 2.5 mm 0.098 in ± 20 % Image (2.0 to 3.0 mm 0.079 to 0.118 in) * Not including temperature characteristics

	Maximum	Stable sensing range			
Туре	operation distance	GX-F/H series	Conventional model		
GX-⊡6	1.6 mm 0.063 in	0 to 1.3 mm 0.051 in	0 to 1.2 mm 0.047 in		
GX-□8	2.5 mm 0.098 in	0 to 2.1 mm 0.083 in	0 to 1.8 mm 0.709 in		
GX-⊔12	4.0 mm 0.157 in	0 to 3.3 mm 0.130 in	0 to 3.0 mm 0.118 in		
GX-⊡15	5.0 mm 0.197 in	0 to 4.2 mm 0.165 in	0 to 4.0 mm 0.157 in		
Long sensing range	8.0 mm 0.315 in	0 to 6.7 mm 0.264 in	0 to 6.4 mm 0.252 in		

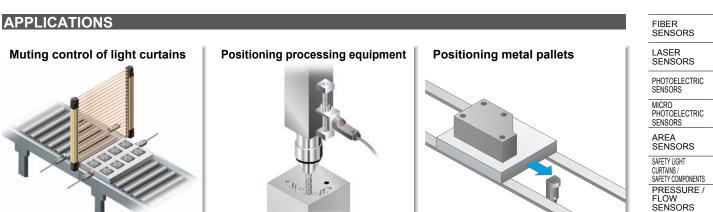
* With standard sensing object

Temperature characteristics vary within ±8 %

Components such as the sensor coil and core and product design have been totally revised to provide excellent temperature characteristics. Stable sensing can be obtained regardless of the time of day or the yearly season.



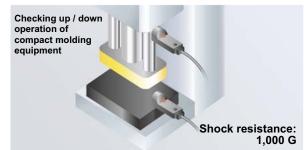
* Typical



ENVIRONMENTAL RESISTANCE

10 times the durability! (Compared to conventional models)

The new integrated construction method used provides shock resistance of 10,000 m/s² (approx. 1,000 G in X, Y and Z directions for three times each), and vibration resistance clears durability tests of between 10 and 500 Hz (3 mm 0.118 in double amplitude in X, Y and Z directions for 2 hours each). In addition, resistance to impulse noise is approx. three times greater than for conventional models.



Highly resistant to water or oil! **IP68G*** protective construction

The new integrated construction method used improves environmental resistance performance. The IP68G prevents damage to the sensor by stopping

water and oil getting inside.

* For details, refer to the "SPECIFICATIONS (p.790~)".



Indicators are easy to see over a wide field of view

FUNCTIONS

Sensing presence of metallic

objects on a part feeder

A prism with a wide field of view has been developed. This has greatly improved the visibility of the operation indicators. GX-H

Vibration resistance: 500 Hz





MOUNTING

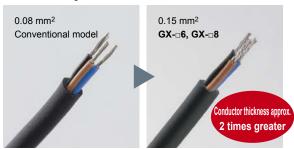
Tightening strength increased with no damage! (excluding GX-D6)

A metal sleeve has been inserted. It prevents the sensor from being damaged by tightening too much.



Conductor thickness doubled to make wiring much easier! (GX-D6 / GX-D8 only)

The conductor's thickness was doubled for the GX-□6 / GX-□8. This makes it easier to handle and perform crimping work on the cables. In addition, the tensile strength of the crimping area has become higher.



SENSORS

PARTICULAR USE SENSORS

SENSOR OPTIONS SIMPLE WIRE-SAVING UNITS WIRE-SAVING

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Selection Guide Amplifier Built-in Amplifier-Other Products

GX-F/H
GXL
GL
GX-M
GX-U/GX-FU/ GX-N
GX

ORDER GUIDE

LASER SENSORS	GX	-6 ty	уре					
PHOTO- ELECTRIC SENSORS MICRO	Ту	ре	Appearance (mm in)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation	
MICRO PHOTO- ELECTRIC SENSORS		þ	~/7		GX-F6A		Nemelle en er	
AREA SENSORS		Front sensing			GX-F6AI		Normally open	
SAFETYLIGHT	Ŧ	onts	6 0.236 24.5 0.965		GX-F6B		Normally closed	
CURTAINS / SAFETY COMPONENTS	output	6 0.236 C 0.965		GX-F6BI	NPN open-collector	Normally closed		
PRESSURE / FLOW SENSORS	NPN	þ			GX-H6A	transistor	Normally open	
	2	sensing		Maximum	GX-H6AI			
INDUCTIVE PROXIMITY SENSORS		Top s	6 0.236	operation distance	GX-H6B		Normally closed	
PARTICULAR USE SENSORS		-	6 0.236	1.6 mm 0.063 in	GX-H6BI			
		bu	\sim	(0 to 1.3 mm 0 to 0.051 in)	GX-F6A-P		Normally open	
SENSOR		sensing	eusi		GX-F6AI-P			
SIMPLE WIRE-SAVING UNITS	ŧ	Front s	6 0.236	Stable sensing range	GX-F6B-P		Normally closed	
	output	Ē	6 0.236		GX-F6BI-P	PNP open-collector		
WIRE-SAVING SYSTEMS	PNP (þ	~ 1		GX-H6A-P	transistor	Normally open	
MEASURE- MENT SENSORS	P Susin			GX-H6AI-P				
		Top s(6 0.236		GX-H6B-P		Normally closed	
STATIC CONTROL DEVICES			6 0.236		GX-H6BI-P			

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.

GX-8 type

MANAGEMENT SOLUTIONS FA COMPONENTS	Туре		Appearance (mm in)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation		
MACHINE VISION SYSTEMS		bu	\sim		GX-F8A		Normally open		
		Front sensing	7.4 0.291		GX-F8AI				
UV CURING SYSTEMS	Ŧ		8 0.315 0.906		GX-F8B		Normally closed		
	NPN output				GX-F8BI	NPN open-collector	Normally closed		
	PN	g			GX-H8A	transistor	Normally on an		
	z	ensin	sensing		Maximum	GX-H8AI		Normally open	
Selection Guide		Top se	8.2 0.323	2.5 mm 0.098 in (0 to 2.1 mm 0 to 0.083 in)	GX-H8B		Normally alogad		
Amplifier Built-in		Ĕ	8 0.315		GX-H8BI		Normally closed		
Amplifier- separated		sensing	- 4		GX-F8A-P		Nemelle		
Other Products			ensin	7.4 0.291	Γ. Υ	GX-F8AI-P		Normally open	
	t	Front s	8 0.315	Stable sensing range	GX-F8B-P	PNP open-collector	No		
GX-F/H	output	Free	0.010		GX-F8BI-P		Normally closed		
GXL	PNP c	5	~		GX-H8A-P	transistor			
GL GX-M	Ę	sensing			GX-H8AI-P		Normally open		
GX-U/GX-FU/		Top se	8.2 0.323		GX-H8B-P				
GX-N GX		T	8 0.315		GX-H8BI-P		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.

GX	-12	type					LASER SENSORS
Ту	/pe	Appearance (mm in)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation	PHOTO- ELECTRIC SENSORS MICRO
	sensing			GX-F12A		Normally open	MICRO PHOTO- ELECTRIC SENSORS
		7.1 0.280		GX-F12AI		Normally open	AREA SENSORS
ŧ	Front s	12 27.8	GX-F12B		Normally closed	SAFETY LIGHT	
outpu	NPN output Top sensing Fro	0.472		GX-F12BI	NPN open-collector	Normally closed	SAFETY COMPONENTS
N				GX-H12A	transistor	Normally open	PRESSURE / FLOW
z		12 0.472	Maximum	Maximum GX-H12AI		SENSORS	
		27.4 12 0.472 1.079	operation distance	GX-H12B		Normally closed	INDUCTIVE PROXIMITY SENSORS
	Ĕ		4.0 mm 0.157 in	GX-H12BI			PARTICULAR
	βL		(0 to 3.3 mm 0 to 0.130 in)	GX-F12A-P		Normally anon	- SENSORS
	sensing	7.1 0.280		GX-F12AI-P		Normally open	SENSOR OPTIONS
Ŧ	Front s	27.8	Stable sensing range	GX-F12B-P		Normally alogad	SIMPLE WIRE-SAVING
output	ц Ц	0.472		GX-F12BI-P	PNP open-collector	Normally closed	UNITS
PNP 0	6			GX-H12A-P	transistor		 WIRE-SAVING SYSTEMS
٩.	PN Top sensing	12 0.472			-	Normally open	MEASURE- MENT SENSORS
		27.4		GX-H12B-P		Normally alaged	
	Ĕ	12 0.472		GX-H12BI-P	1	Normally closed	STATIC CONTROL DEVICES

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.

GX-15 type

GX	-15 1	уре					ENERGY MANAGEMENT
Ту	pe	Appearance (mm in)	Sensing range (Note 1)	Sensing range (Note 1) Model No. (Note 2) Output		Output operation	FA COMPONENTS
	þ			GX-F15A		Namalkianan	MACHINE
	ensir	8 0.315		GX-F15AI	-	Normally open	VISION SYSTEMS
ŧ	Front sensing	31.5		GX-F15B	-	Normally closed	UV CURING SYSTEMS
outpr	NPN output Top sensing Froi	15 0.591		GX-F15BI	NPN open-collector		
PN		16.5 0.650 15 0.591 1.161		GX-H15A	transistor	Normally open	-
z			Maximum	GX-H15AI			
			operation distance	GX-H15B	-	Normally closed	Selection Guide
			5.Ó mm 0.197 in	GX-H15BI		Normally closed	Amplifier Built-in
	БĽ	8 0.315	(0 to 4.2 mm 0 to 0.165 in)	GX-F15A-P	_	Normally open	Amplifier- separated
	sensing			GX-F15AI-P			Other Products
Ŧ	Front s	31.5	Stable sensing range	GX-F15B-P		Normally aloged	-
outpu	Ъ	15 0.591		GX-F15BI-P	PNP open-collector	Normally closed	GX-F/H
PNP output	6			GX-H15A-P	transistor	Normally open	GXL GL
٩.	PN Top sensing	16.5 0.650		GX-H15AI-P			GX-M
		29.5		GX-H15B-P		Nermally sleeped	GX-U/GX-FU/
		15 0.591	1.161		1	Normally closed	GX-N GX

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.

FIBER SENSORS

LASER MARKERS

HUMAN MACHINE INTERFACES

PLC

LASER SENSORS

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HUMAN MACHINE

ENERGY MANAGEMENT SOLUTIONS

FA COMPONENTS

MACHINE VISION SYSTEMS

ORDER GUIDE

GX-15 (Long sensing range) type

			(-							
PHOTO- ELECTRIC SENSORS MICRO	Туре		Appearance (mm in) Sensing range (Note 1)		Model No. (Note 2)	Output	Output operation				
PHOTO- ELECTRIC SENSORS			GX-FL15A								
AREA SENSORS		ensir	8 0.315		GX-FL15AI		Normally open				
	Ŧ	Front sensing	31.5		GX-FL15B		Nermally deced				
SAFETY LIGHT CURTAINS / SAFETY COMPONENTS	outpu	Fre	15 0.591		GX-FL15BI	NPN open-collector	Normally closed				
PRESSURE / FLOW	NPN		GX-HL15A	transistor							
SENSORS		ensin	ensin	ensin	ensin	16.5 0.650	Maximum	GX-HL15AI		Normally open	
INDUCTIVE PROXIMITY SENSORS		Top se	29.5	8.0 mm 0.315 in	GX-HL15B		Normally closed				
PARTICULAR		Ĕ	15 0.591 1.161		GX-HL15BI		Normally closed				
SENSORS		Front sensing	(0 to 6.7 mm 0 to 0.264 in) (0 to 6.7 mm 0 to 0.264 in) GX-FL15A-P GX-FL15A-P	GX-FL15A-P		Normally open					
SENSOR OPTIONS				ĺ` ∖	GX-FL15AI-P		Normally open				
SIMPLE WIRE-SAVING	ŧ		ont s	ont se	ont se	ont se	31.5	Stable sensing range	GX-FL15B-P	-	Normally aloand
UNITS	output	ц	15 0.591		GX-FL15BI-P	PNP open-collector	Normally closed				
WIRE-SAVING SYSTEMS	PNP 0	g			GX-HL15A-P	transistor	Normally open				
MEASURE- MENT SENSORS	E i	sensing	16.5 0.650		GX-HL15AI-P]	Normally open				
		Top se	29.5		GX-HL15B-P		Normally closed				
STATIC CONTROL DEVICES		Ť	15 0.591		GX-HL15BI-P		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.

5 m 16.404 ft cable length type, bending-resistant cable type

5 m 16.404 ft cable length type (standard: 1 m 3.281 ft) and bending-resistant cable (excluding 5 m 16.404 ft cable length type) are available. However, long sensing range type is not available. When ordering 5 m 16.404 ft cable length type, suffix "-C5" to the model No. When ordering bending-resistant cable type, suffix "-R" to the model No.

(e.g.) 5 m 16.404 ft cable length type of GX-F15AI-P is "GX-F15AI-P-C5". Bending-resistant cable type of GX-F15AI-P is "GX-F15AI-P-R".

OPTIONS

Designation	Model No.	Description				
	MS-GX6-1	Mounting bracket for GX-6 type (recommended). Sensors can be mounted closely together for space-saving.				
Sensor mounting bracket	MS-GL6-1	Mounting brackets for GX-6 type Sensor mounting brackets for GL-6 can be used. Interchange is possible.				
	MS-GL6-2					
	MS-GXL8-4	Mounting bracket for GX-8 type				
	MS-GXL15	Mounting bracket for GX-15 type				
Aluminum	MS-A15F	For GX-FL15 □(- P)	Mounting example when mounted onto a steel or			
sheet	MS-A15H	For GX-HL15 □(-P)	stainless steel plate			
Mounting sleeve	MS-GX8-1×10 10 pcs. per set	Mounting sleeve for GX-8 type Screw, nut, bracket of GXL-8 series can be used by inserting the bracket into the mounting hole of GX-8 type when replacing 3-wire type GXL-8 series (discontinued model) with GX-8 type.				
	Sensor mounting bracket Aluminum sheet Mounting	Sensor mounting bracketMS-GX6-1MS-GL6-1 MS-GL6-2MS-GL6-2MS-GXL8-4 MS-GXL15MS-GXL15Aluminum sheetMS-A15FMS-A15HMS-A15HMountingMS-GX8-1×10	MS-GX6-1 Mounting bracket for GX-6 typ Sensors can be mounted close MS-GL6-1 Mounting brackets for GX-6 typ Sensor mounting brackets for GX-6 typ MS-GL6-2 MS-GL6-2 Mounting bracket for GX-8 type MS-GXL15 MS-GXL15 Mounting bracket for GX-15 typ MS-A15F For GX-FL15□(-P) MS-A15F MS-GX8-1×10 Mounting sleeve for GX-8 type Screw, nut, bracket of GXL-8 the bracket into the mounting h			

nsor mounting bracket IS-GX6-1 Screw is not attached. IS-GL6-1 Screw is not

IS-GL6-2

S-GXL8-4

· MS-GXL15

1pc. each of M3 (length: 12 mm 0.472 in) truss head screw, nut, spring washer and plain washer is attached.

attached.

Screw is not attached.

Screw is not

attached.

Aluminum sheet

· MS-A15F · MS-A15H



SPECIFICATIONS

GX-6 type

	Туре	NDN	output	DNID	output		
2 R Front sensi		GX-F6A(I)	GX-F6B(I)	GX-F6A(I)-P	GX-F6B(I)-P		
Item	Top sensing	GX-H6A(I)	GX-H6B(I)	GX-H6A(I)-P	GX-H6B(I)-P		
	ing directive compliance	(-)		RoHS Directive			
Max. operation distance (Note 3) 1.6 mm 0.063 in ± 8 %							
Stable s	ensing range (Note 3)		0 to 1.3 mm	0 to 0.051 in			
Standard	d sensing object		Iron sheet 12 × 12 × t 1 mm	n 0.472 × 0.472 × t 0.039 in			
Hysteres	sis		20 % or less of operation distance	ce (with standard sensing objec	t)		
Repeata	bility	Alon	g sensing axis, perpendicular to	sensing axis: 0.04 mm 0.002 in	or less		
Supply v	voltage		12 to 24 V DC ⁺¹⁰ 15 %	Ripple P-P 10 % or less			
Current	consumption		15 mA	or less			
Output		NPN open-collector transistor • Maximum sink current: 10 • Applied voltage: 30 V DC	0 mA or less (between output and 0 V)	PNP open-collector transistor • Maximum source current: • Applied voltage: 30 V DC	100 mA or less (between output and +V)		
		Residual voltage: 2 V or less (at 100 mA sink current) Residual voltage: 2 V or less (at 100 mA source current)					
	lization category			-12 or DC-13			
	tput operation	Normally open	Normally closed	Normally open	Normally closed		
	ponse frequency) Hz			
·	on indicator			when the output is ON)			
	Ilution degree	3 (Industrial environment) IP68 (IEC), IP68G (Note 4, 5)					
	bient temperature						
resis	bient humidity	-25 to +70 °C -13 to +158 °F, Storage: -40 to +85 °C -40 to +185 °F 35 to 85 % RH, Storage: 35 to 95 % RH					
ental	Itage withstandability	1 000 V A0	· · · ·		nd enclosure		
	ulation resistance	1,000 V AC for one min. between all supply terminals connected together and enclosure 50 MΩ, or more, with 500 V DC megger between all supply terminals connected together and enclosure					
Vib	pration resistance	10 to 500 Hz frequency, 3 mm 0.118 in double amplitude (Max. 20 G) in X, Y and Z directions for two hours each					
	ock resistance		n/s ² acceleration (1,000 G approx				
Sensing	Temperature characteristics	Over ambient tempera	ture range –25 to +70 °C –13 to +	158 °F: Within ± 8 % of sensing	g range at +23 °C +73 °F		
range variation	Voltage characteristics	Within ± 2 % for $^{+10}_{-15}$ % fluctuation of the supply voltage					
Material		Enclosure: PBT, Indicator part: Polyester					
Cable		0.15 mm ² 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long					
Cable ex	ktension	Extens	sion up to total 100 m <u>328.084</u> ft i	s possible with 0.3 mm ² , or mor	e, cable.		
Net weig	pht		15 g a	ipprox.			

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73 °F.

2) " I " in the model No. indicates a different frequency type.

3) 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.

4) Panasonic Industrial Devices SUNX's IP68 test method

① Immerse at 0 m below 0 °C +32 °F water surface and leave for 30 min. Then, immerse at 0 m below +70 °C +158 °F water surface and leave for 30 min. Regard the heat shock test in ① as one cycle and perform 20 cycles.

③ Leave in water at a depth of 1 m 3.281 ft in water for 500 hours.

④ After tests ① to ③, insulation resistance, voltage withstandability, current consumption, and sensing ranges must meet the standard values. 5) If using the sensor in an environment where cutting oil droplets splatter, the sensor may be deteriorated due to added substances in the oil.

Please check the resistivity of the sensor against the cutting oil you are using beforehand.

Selection Guide Amplifier-separated Other Product:



FIBER SENSORS

LASER SENSORS

LASER SENSORS

Amplifier-separated

Other Products

SPECIFICATIONS

GX-8 type

PHOTO- ELECTRIC SENSORS	$ \subset $		Туре	NPN	output	PNP o	output		
MICRO			Front sensing	GX-F8A(I)	GX-F8B(I)	GX-F8A(I)-P	GX-F8B(I)-P		
PHOTO- ELECTRIC SENSORS	Iten		Top sensing	GX-H8A(I)	GX-H8B(I)	GX-H8A(I)-P	GX-H8B(I)-P		
AREA SENSORS	CE r	narking o	directive compliance		EMC Directive,	RoHS Directive			
SAFETY LIGHT CURTAINS /	Max	operatio	on distance (Note 3)		2.5 mm 0.098 in ± 8 %				
COMPONENTS	Stat	le sensi	ing range (Note 3)		0 to 2.1 mm	0 to 0.083 in			
PRESSURE / FLOW SENSORS	Star	dard se	nsing object		Iron sheet 15 × 15 × t 1 mn	n 0.591 × 0.591 × t 0.039 in			
	Hysteresis				20 % or less of operation distance	ce (with standard sensing object)			
INDUCTIVE PROXIMITY SENSORS	Rep	eatabilit	у	Along	sensing axis, perpendicular to s	sensing axis: 0.04 mm 0.002 in o	r less		
PARTICULAR USE SENSORS	Sup	oly volta	ige		12 to 24 V DC ⁺¹⁰ ₋₁₅ % I	Ripple P-P 10 % or less			
SENSOR	Current consumption				15 mA	or less			
SIMPLE WIRE-SAVING UNITS	Output			NPN open-collector transistor • Maximum sink current: 100 • Applied voltage: 30 V DC o • Residual voltage: 2 V or le:	or less (between output and 0 V)		100 mA or less (between output and +V) ss (at 100 mA source current)		
WIRE-SAVING SYSTEMS					· · ·				
MEASURE- MENT SENSORS	Utilization category				DC-12 or DC-13				
			operation	Normally open	Normally closed	Normally open	Normally closed		
STATIC CONTROL DEVICES			ise frequency) Hz			
LASER MARKERS	Ope	ration in		Orange LED (lights up when the output is ON)					
	Φ		on degree	3 (Industrial environment) IP68 (IEC), IP68G (Note 4, 5)					
PLC	tance	Protec				(, , , ,	٥ ٢		
HUMAN MACHINE INTERFACES	resis		nt temperature	-2	· · · · · · · · · · · · · · · · · · ·	age: -40 to +85 °C -40 to +185	r		
	ntal		nt humidity	1 000 1/ 40	35 to 85 % RH, Stor				
ENERGY MANAGEMENT SOLUTIONS	nme		e withstandability			terminals connected together an			
FA COMPONENTS	Environmental resistance		ion resistance			supply terminals connected toge			
MACHINE	ш		resistance		· · · · · · · · · · · · · · · · · · ·	e (Max. 20 G) in X, Y and Z direc			
VISION SYSTEMS	Sen	. [Temperature characteristics			-158 °F: Within ± 8 % of sensing			
UV CURING SYSTEMS	rang	e –			Within $\pm 2\%$ for $^{+10}_{-15}\%$ fluct				
3131EMS	Mate		Voltage characteristics			icator part: Polyester			
	Cab			0.15	· · · · ·	sistant cabtyre cable, 1 m 3.281 f	tlong		
		le exten	sion			s possible with 0.3 mm ² , or more			
Selection Guide		weight			· ·	•	-		
Amplifier Built-in				Front sensing type: 15 g approx., Top sensing type: 20 g approx					

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73 °F. 2) "I" in the model No. indicates a different frequency type.

3) 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.

4) Panasonic Industrial Devices SUNX's IP68 test method

① Immerse at 0 m below 0 °C +32 °F water surface and leave for 30 min. Then, immerse at 0 m below +70 °C +158 °F water surface and leave for 30 min. $\widecheck{2}$ Regard the heat shock test in 1 as one cycle and perform 20 cycles.

③ Leave in water at a depth of 1 m 3.281 ft in water for 500 hours.

4 After tests ① to ③, insulation resistance, voltage withstandability, current consumption, and sensing ranges must meet the standard values.

5) If using the sensor in an environment where cutting oil droplets splatter, the sensor may be deteriorated due to added substances in the oil

Please check the resistivity of the sensor against the cutting oil you are using beforehand.



GX-N GΧ

SPECIFICATIONS

GX-12 type

\sim	Туре	NPN	output	PNP output			
	Pront sensing	GX-F12A(I)	GX-F12B(I)	GX-F12A(I)-P	GX-F12B(I)-P		
Item	Top sensing	GX-H12A(I)	GX-H12B(I)	GX-H12A(I)-P	GX-H12B(I)-P		
CE mar	king directive compliance		EMC Directive,	RoHS Directive	•		
Max. op	peration distance (Note 3)		4.0 mm 0.1	57 in ± 8 %			
Stable	sensing range (Note 3)		0 to 3.3 mm	0 to 0.130 in			
Standa	rd sensing object		Iron sheet 20 × 20 × t 1 mm	n 0.787 × 0.787 × t 0.039 in			
Hystere	esis		20 % or less of operation distance	ce (with standard sensing object)		
Repeat	ability	Alon	g sensing axis, perpendicular to s		or less		
Supply	voltage		12 to 24 V DC ⁺¹⁰ ₋₁₅ % I	Ripple P-P 10 % or less			
Current	t consumption		15 mA	or less			
Output			 PNP open-collector transistor Maximum sink current: 100 mA Applied voltage: 30 V DC or less (between output and 0 V) PNP open-collector transistor Maximum source current: 100 mA Applied voltage: 30 V DC or less (between output and 0 V) 				
		Residual voltage: 2 V or less (at 100 mA sink current) Residual voltage: 2 V or less (at 100 mA source cur					
U	tilization category		DC-12 or DC-13				
0	utput operation	Normally open	Normally closed	Normally open	Normally closed		
/lax. re	sponse frequency		500	Hz			
Operati	on indicator	Orange LED (lights up when the output is ON)					
	ollution degree	3 (Industrial environment)					
P auce	rotection	IP68 (IEC), IP68G (Note 4, 5)					
A	mbient temperature	-25 to +70 °C -13 to +158 °F, Storage: -40 to +85 °C -40 to +185 °F					
A	mbient humidity	35 to 85 % RH, Storage: 35 to 95 % RH					
	oltage withstandability	1,000 V AC for one min. between all supply terminals connected together and enclosure					
	sulation resistance	50 M Ω , or more, with 500 V DC megger between all supply terminals connected together and enclosure					
	ibration resistance	. ,	r, 3 mm 0.118 in double amplitude				
	hock resistance		n/s ² acceleration (1,000 G approx.				
Sensing range	9 Temperature characteristics	Over ambient tempera	ture range -25 to +70 °C -13 to +		range at +23 °C +73 °F		
variatio	-	Within ± 2 % for $^{+10}_{-15}$ % fluctuation of the supply voltage					
Materia	1	Enclosure: PBT, Indicator part: Polyester					
Cable		0.15 mm ² 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long					
Cable e	extension	Extens	sion up to total 100 m 328.084 ft is	s possible with 0.3 mm ² , or more	e, cable.		
Net we	ight		Front sensing type: 20 g approx.	, Top sensing type: 20 g approx.			

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73 °F.

2) " I " in the model No. indicates a different frequency type.

3) 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.

4) Panasonic Industrial Devices SUNX's IP68 test method

① Immerse at 0 m below 0 °C +32 °F water surface and leave for 30 min. Then, immerse at 0 m below +70 °C +158 °F water surface and leave for 30 min. Regard the heat shock test in ① as one cycle and perform 20 cycles.
 Leave in water at a depth of 1 m 3.281 ft in water for 500 hours.

(4) After tests (1) to (3), insulation resistance, voltage withstandability, current consumption, and sensing ranges must meet the standard values. 5) If using the sensor in an environment where cutting oil droplets splatter, the sensor may be deteriorated due to added substances in the oil.

Please check the resistivity of the sensor against the cutting oil you are using beforehand.

Selection Guide Amplifier-separated Other Product:

FIBER SENSORS

LASER SENSORS

LASER SENSORS

SPECIFICATIONS

GX-15 type

PHOTO- ELECTRIC SENSORS	\wedge		Turne		NPN	output			PNP	output	
MICRO		$\langle \ \rangle$	Туре			Long sen:	sing range			Long sens	sing range
PHOTO- ELECTRIC SENSORS			Front sensing	GX-F15A(I)	GX-F15B(I)	GX-FL15A(I)	GX-FL15B(I)	GX-F15A(I)-P	GX-F15B(I)-P	GX-FL15A(I)-P	GX-FL15B(I)-P
AREA SENSORS	Iten	ו \ <u>ז</u>	Top sensing	GX-H15A(I)	GX-H15B(I)	GX-HL15A(I)	GX-HL15B(I)	GX-H15A(I)-P	GX-H15B(I)-P	GX-HL15A(I)-P	GX-HL15B(I)-P
	CE r	narking	directive compliance		EMC Directive,		RoHS Directive				
SAFETY LIGHT CURTAINS / SAFETY COMPONENTS	Max	. operati	ion distance (Note 3)	5.0 mm 0.1	5.0 mm 0.197 in ± 8 % 8.0 mm 0.315 in ± 8 % (Note 4)		5.0 mm 0.197 in ± 8 %		8.0 mm 0.315 ir	± 8 % (Note 4)	
PRESSURE / FLOW SENSORS	Stat	le sens	ing range (Note 3)	0 to 4.2 mm	m 0 to 0.165 in 0 to 6.7 mm 0 to 0.264 in (Note 4)		0 to 4.2 mm	0 to 0.165 in	0 to 6.7 mm 0 to	0.264 in (Note 4)	
INDUCTIVE PROXIMITY SENSORS	Standard sensing object		Iron sheet 20 0.787× 0.787			× 30 × t 1 mm 1 × t 0.039 in	Iron sheet 20 × 20 × t 1 mm 0.787 × 0.787 × t 0.039 in		Iron sheet 30 1.181 × 1.18		
PARTICULAR USE SENSORS	Hys	teresis				20 % or less of	operation distand	ce (with standard	sensing object)	
	Repeatability				Along	g sensing axis, p	erpendicular to s	sensing axis: 0.0	4 mm 0.002 in o	or less	
SENSOR OPTIONS	Supply voltage					12 to 2	4 V DC ⁺¹⁰ ₋₁₅ %	Ripple P-P 10 %	or less		
SIMPLE WIRE-SAVING UNITS	Current consumption						15 mA	or less			
WIRE-SAVING SYSTEMS	Output		Maximum	IPN open-collector transistor • Maximum sink current: 100 mA • Applied voltage: 30 V DC or less (between output and 0 V) • Applied voltage: 30 V DC or less (between output and 0 V)				source current:	rent: 100 mA		
MEASURE- MENT SENSORS				oltage: 2 V or le				•	or less (between ess (at 100 mA so	• • •	
STATIC CONTROL DEVICES		Utiliza	tion category	DC-12 or DC-13							
		Outpu	t operation	Normally open	Normally closed	Normally open	Normally closed	Normally open	Normally closed	Normally open	Normally closed
LASER MARKERS	Max	. respoi	nse frequency	250	Hz	150 Hz	(Note 5)	250) Hz	150 Hz	(Note 5)
PLC	Ope	ration ir	ndicator	Orange LED (lights up when the output is ON)							
HUMAN		Polluti	on degree	3 (Industrial environment)							
MACHINE	nce	Protec	tion				IP68 (IEC), IP6	68G (Note 6, 7)			
ENERGY MANAGEMENT	sista	Ambie	ent temperature		-2	5 to +70 °C –13	to +158 °F, Stor	rage: -40 to +85	°C -40 to +185	°F	
SOLUTIONS	al re	Ambie	ent humidity			35 1	o 85 % RH, Sto	rage: 35 to 95 %	RH		
COMPONENTS	ment	Voltag	e withstandability		1,000 V AC	for one min. be	ween all supply	terminals conne	cted together an	d enclosure	
MACHINE VISION SYSTEMS	Environmental resistance	Insula	tion resistance	50	MΩ, or more, wi	th 500 V DC me	gger between al	I supply terminal	s connected tog	ether and enclos	ure
LIV	En	Vibrat	ion resistance	10 to 50	0 Hz frequency,	3 mm 0.118 in o	louble amplitude	e (Max. 20 G) in	X, Y and Z direc	ctions for two hou	irs each
CURING SYSTEMS		Shock	resistance		10,000 m/	s ² acceleration (1,000 G approx	.) in X, Y and Z d	lirections three t	imes each	
	Sen		Temperature characteristics	Over ar	mbient temperati	ure range –25 to	+70 °C –13 to +	+158 °F: Within ±	8 % of sensing	range at +23 °C	+73 °F
	rang varia	ation	Voltage characteristics			Within ±2 9	% for ⁺¹⁰ % fluct	uation of the sup	ply voltage		
Selection	Mate	erial				Enc	losure: PBT, Ind	icator part: Polye	ester		
Guide	Cab	le			0.15 ו	mm ² 3-core oil, h	neat and cold res	sistant cabtyre ca	able, 1 m 3.281 f	ft long	
Amplifier Built-in Amplifier-	Cab	le exter	ision		Extensi	ion up to total 10	00 m 328.084 ft i	s possible with 0	.3 mm ² , or more	, cable.	
separated Other	Net	weight					20 g a	approx.			
Products	Note	s: 1) W	here measurement c	onditions have n	ot been specifie	d precisely, the	conditions used	were an ambient	t temperature of	+23 °C +73 °F.	

Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +23 °C +73 °F.

2) "I" in the model No. indicates a different frequency type.

3) 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.

4) This is the numerical value which the sensor mount onto an insulator. When mounted onto a steel or stainless steel plate, insert the optional aluminum sheet between the sensor and the plate.

5) This is the numerical value which the sensor mount onto an insulator. When mounted onto a metallic plate, max. response frequency will decrease. 6) Panasonic Industrial Devices SUNX's IP68 test method

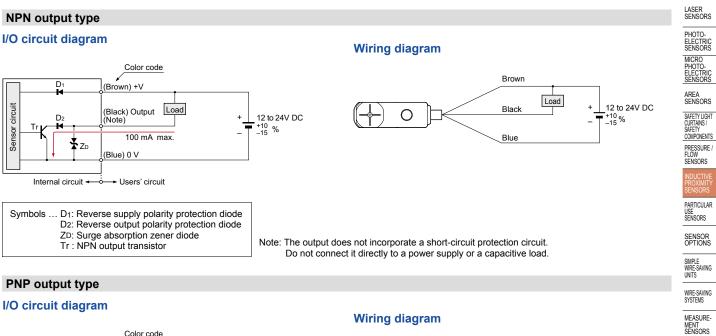
① Immerse at 0 m below 0 °C +32 °F water surface and leave for 30 min. Then, immerse at 0 m below +70 °C +158 °F water surface and leave for 30 min. 2 Regard the heat shock test in 1 as one cycle and perform 20 cycles.

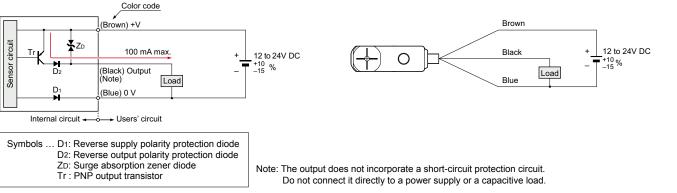
③ Leave in water at a depth of 1 m 3.281 ft in water for 500 hours.

(4) After tests (1) to (3), insulation resistance, voltage withstandability, current consumption, and sensing ranges must meet the standard values.

7) If using the sensor in an environment where cutting oil droplets splatter, the sensor may be deteriorated due to added substances in the oil. Please check the resistivity of the sensor against the cutting oil you are using beforehand.

I/O CIRCUIT DIAGRAMS





FIBER SENSORS

STATIC CONTROL DEVICES

LASER MARKERS

HUMAN MACHINE INTERFACES

ENERGY MANAGEMENT SOLUTIONS

FA COMPONENTS

MACHINE VISION SYSTEMS UV CURING SYSTEMS

Selection Guide

Amplifier separate Other Products

GXL GL GX-M GX-UGX-FU/ GX-N GX

PLC

LASER SENSORS

PRESSURE / FLOW

SENSING CHARACTERISTICS (TYPICAL)

GX-6 type Sensing field

Correlation between sensing object size and sensing range

Iron

Aluminu

20

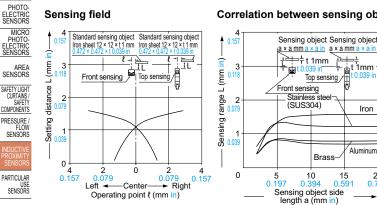
0.78

Correlation between sensing object size and sensing range

Brass-

15 0.591

10 0.39/



Standard sensing object Iron sheet 15 × 15 × t 1 mm 0.591 × 0.591 × t 0.039 in

0.591 × 0.591 × 10.000

2 0.079

+ Right

As the sensing object size becomes smaller than the standard size (iron sheet 12 × 12 × t 1 mm $0.472 \times 0.472 \times t \ 0.039$ in), the sensing range shortens as shown in the left figure.

GX-8 type

4 0.157

3 118

2)79

0

4

0.157

슽

distance L (mm i

Setting 1

Sensing field

Standard sensing object Iron sheet 15 × 15 × t 1 mm

Front sensing

2 079

Left

Ò

-Center-

Operating point *l* (mm in)

2ħ

Sensing object <u>a × a mm a × a in</u> <u>+</u> t 1 mm t 0 039 in Sensina object a × a mm a × a → + t 1 mm range L (mm in) ģ, Top sensing 3 /Front sensing Iron 2 Stainless steel (SUS304) Sensing I Brass Aluminum 0 10 0.394 15 0.591 20 0.787 4 5 0.197 0.157

Sensing object side length a (mm in)

As the sensing object size becomes smaller than the standard size (iron sheet 15 × 15 × t 1 mm $0.591 \times 0.591 \times t \ 0.039$ in), the sensing range shortens as shown in the left figure.

GX-12 type

Sensing field

د 10.315€ Standard sensing object Standard sensing object Iron sheet 20 × 20 × t1 mm Iron sheet 20 × 20 × t1 mm Setting distance L (mm in) 6 6 Top sensing range L (mm 南 Front sensing 4 Sensing 2 079 2 0↓ 10 35 5 197 ò 5 0 10 0.197 0.394 → Right Left -Center Operating point { (mm in)

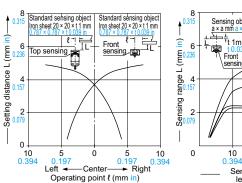
Correlation between sensing object size and sensing range

Sensing object a × a mm a × a in Sensing object a × a mm a × a in <u>+</u>4 + t 1 mm ŗ, t <u>10.039</u> in t <u>1</u> mm t <u>1</u> mm <u>Top sensing</u> t <u>10.039</u> in <u>t mt</u> <u>1</u> mm Front sensing Iron Stainless stee (SUS304) Brass Aluminum 10 20 0.78 30 40 0 1.181 1.575 Sensing object side length a (mm in)

As the sensing object size becomes smaller than the standard size (iron sheet 20 × 20 × t 1 mm $0.787 \times 0.787 \times t \ 0.039$ in), the sensing range shortens as shown in the left figure.

GX-15 type

Sensing field



Correlation between sensing object size and sensing range

Sensing object Sensing object a x a mm a x a im a x a mm a x a in the transformed to the Top sensing Iron Stainless stee (SUS304) Brass Aluminum 30 1.181 40 1.575 20 0.787 Sensing object side length a (mm in)

As the sensing object size becomes smaller than the standard size (iron sheet 20 × 20 × t 1 mm $0.787 \times 0.787 \times t \ 0.039$ in), the sensing range shortens as shown in the left figure.

GXL

GL

GX-N

GX

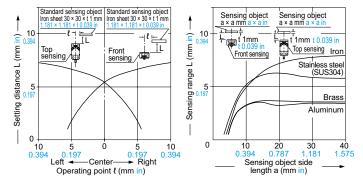
GX-M GX-U/GX-FU/

SENSING CHARACTERISTICS (TYPICAL)

GX-15 (Long sensing range) type

Sensing field

Correlation between sensing object size and sensing range



PRECAUTIONS FOR PROPER USE

· Never use this product as a sensing device for personnel protection.

 In case of using sensing devices for personnel protection, use products which meet laws and standards, such as OSHA, ANSI or IEC etc., for personnel protection applicable in each region or country.

> Cable Hoo

Groove

É

ø2.4 mm

0.094 in hole

(Depth: 3 mm

0.118 in or more)

Mounting

GX-6 type

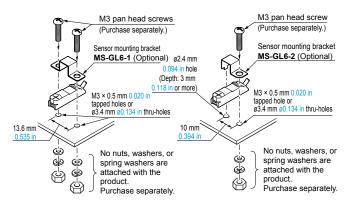
· Use the optional sensor mounting bracket when installing.

<When using MS-GX6-1 (Optional / recommended)>

- · To mount the sensor with a nut, the mounting hole diameter should be ø3.4 mm ø0.134 in.
- ① Insert the sensor into the bracket as shown on the right.
- 2 Push the sensor until the bracket hook is lodged in the groove on the upper portion of the sensor.
- ③ Fix the bracket in place with M3 pan head screw.

<When using MS-GL6-1 (Optional) / MS-GL6-2 (Optional)>

· To mount the sensor with a nut, the mounting hole diameter should be ø3.4 mm ø0.134 in.



Refer to p.1579~ for general precautions.

As the sensing object size becomes smaller than

the standard size (iron sheet 30 × 30 × t 1 mm

 $1.181 \times 1.181 \times t \ 0.039$ in), the sensing range

shortens as shown in the left figure.

GX-8 type

<When using MS-GXL8-4 (Optional)>

 Make sure to use a M3 (length: 12 mm 0.472 in or more) truss head screw (accessory for MS-GXL8-4). The tightening torque should be 0.7 N·m or less. Do not use a flat head screw or a pan head screw.

GX-12 type

M3 pan head screw

(Purchase separately.)

Sensor mounting bracket **MS-GX6-1** (Optional)

M3 × 0.5 mm 0.020 in tapped hole (Depth: 8 mm 0.315 in or more) or ø3.4 mm ø0.134 in thru-hole

No nuts, washers, or

spring washers are

product. Purchase separately.

attached with the

22 mm

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- The tightening torque should be 0.7 N·m or less.
- · To mount the sensor with a nut, the mounting hole diameter should be ø3.4 mm ø0.134 in. Further, the hole in which the boss is inserted should be ø2.5 mm ø0.098 in and 3 mm 0.118 in, or more, deep.

GX-15 type

- The tightening torgue should be 1 N·m or less.
- To mount the sensor with a nut, the mounting hole diameter should be ø3.4 mm ø0.134 in.
- When installing the long sensing range type on iron or stainless steel plate, put the optional aluminum sheet in between the sensor and the plate.



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FIBER SENSORS

LASER SENSORS

PHOTO-

ELECTRIC MICRO PHOTO-ELECTRIC SENSORS

AREA SENSORS

SAFETY LIGH

CURTAINS / SAFETY COMPONENTS

PRESSURE FLOW SENSORS

PARTICULAR

USE SENSORS

SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS

MEASURE

MENT SENSORS

STATIC

CONTROL

VISION SYSTEMS UV CURING SYSTEMS

No nuts, washers, or spring washers are attached with the product. Purchase separately. ø2.5 mm ø0.098 in hole (Depth: 3 mm 0.118 in or more)

M3 pan head screws or

Do not use flat head

M3 × 0.5 mm 0.020 ir

tapped holes or ø3.4 mm

134 in thru-holes

truss head screws

screws

XIIII

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9 mm . 9 In. 0.354 in 0.354 in 0.354 in 0.354 in



GXL

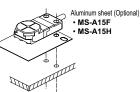
GL GX-M GX-U/GX-FU GX-N

GX No nuts, washers, or spring wash

MS-GXL15 (Sensor mounting bracket)

are attached with the product.

Purchase separately,



M3 (length 12 mm 0.472 in) truss head screw (Accessory for MS-GXL8-4)

Sensor mounting bracket MS-GXL8-4 (Optional) M3 × 0.5 mm 0.020 n tapped hole (Depth: 8 mm 0.315 in or more) or ø3.4 mm ø0.134 in thru-hole

 $\times 115 \text{ mm} 0.453 \text{ in}$ The nut, washer, and spring washer are attached with the MS-GXL8-4.

ø2 4 mm ø0 094 in hole

(Depth: 3 mm 0.118 in or more)

16 mm 0.630 in

¢

M3 (length 12 mm 0.472 in or more) pan head screw pan head screw (Purchase separately.)

M3 × 0.5 mm 0.020 in tapped hole (Depth: 10 mm 0.394 in or more) or ø3.4 mm ø0.134 in thru-hole

Selectio Guide Amplifi Built-in

PRECAUTIONS FOR PROPER USE FIBER SENSORS LASER SENSORS

PHOTO-ELECTRIC SENSORS

MICRO

PHOTO-ELECTRIC SENSORS

AREA SENSORS

SAFETY LIGH CURTAINS SAFET

COMPONENTS PRESSURE SENSORS

PARTICULAR USE SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS

MEASURE

MENT

STATIC

CONTROL DEVICES

LASER MARKERS

MACHINE VISION SYSTEMS

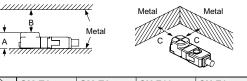
CURING SYSTEMS

PLC HUMAN MACHINE ENERGY MANAGEMEN SOLUTIONS FA COMPONENTS

Influence of surrounding metal

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

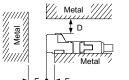
Front sensing type

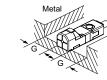


\geq	GX-F6 type GX-F8 type GX-F12 t		GX-F12 type	GX-F15 type	GX-FL15 type	
А	6 mm 0.236 in (Note 1)	7.4 mm 0.291 in	7.1 mm 0.280 in	8 mm 0.315 in	8 mm 0.315 in (Note 2)	
В	8 mm 0.315 in	8 mm 0.315 in	20 mm 0.787 in	20 mm 0.787 in	30 mm 1.181 in	
С	3 mm 0.118 in	3 mm 0.118 in	7 mm 0.276 in	7 mm 0.276 in	10 mm 0.394 in	

- Notes: 1) When using MS-GX6-1 (recommended mounting bracket, optional), the distance "A" including the thickness of mounting bracket will be 6.4 mm 0.2
 - 2) The GXL-FL15 type should be mounted on an insulator. To mount it on an iron or stainless steel, use the enclosed aluminum sheet.

Top sensing type





	\geq	GX-H6 type	GX-H8 type	GX-H12 type	GX-H15 type	GX-HL15 type
	D	3 mm 0.118 in	4 mm 0.157 in	7 mm 0.276 in	6 mm 0.236 in	12 mm 0.472 in
	Е	10 mm 0.394 in	10 mm 0.394 in	20 mm 0.787 in	20 mm 0.787 in	30 mm 1.181 in
	F	2 mm 0.079 in	3 mm 0.118 in	3 mm 0.118 in	0 mm 0 in	10 mm 0.394 in (Note)
-	G	2 mm 0.079 in	3 mm 0.118 in	3 mm 0.118 in	3 mm 0.118 in	10 mm 0.394 in

Note: When GX-HL15 type is mounted on an insulator or seated on the enclosed aluminum sheet, the distance "F" can be zero.

Mutual interference prevention

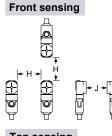
· When two or more sensors are installed in parallel or face to face, keep the minimum separation distance specified below to avoid mutual interference.

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Selection Guide
Amplifier Built-in
Amplifier- separated
Other Products
GX-F/H
GXL

GX-F6	Between "I" type	0 mm	15 mm
GX-H6	and non "I" type	(Note 2)	0.591 in
type	Between two "I" types	13 mm	25 mm
	or two non "I" types	0.512 in	0.984 in
GX-F8	Between "I" type	0 mm	15 mm
GX-H8	and non "I" type	(Note 2)	0.591 in
type	Between two "I" types	20 mm	35 mm
	or two non "I" types	0.787 in	1.378 in
GX-F12	Between "I" type	0 mm	25 mm
GX-H12	and non "I" type	(Note 2)	0.984 in
type	Between two "I" types	25 mm	50 mm
	or two non "I" types	0.984 in	1.969 in
GX-F15	Between "I" type	0 mm	25 mm
GX-H15	and non "I" type	(Note 2)	0.984 in
type	Between two "I" types	45 mm	70 mm
	or two non "I" types	1.772 in	2.756 in
GX-FL15	Between "I" type	0 mm	25 mm
GX-HL15	and non "I" type	(Note 2)	0.984 in
type	Between two "I" types or two non "I" types	110 mm 3.059 in	





Notes: 1) "I" in the model No. specifies the different frequency type.

Close mounting is possible for up to two sensors. When mounting three sensors or more at an equal spacing, align the model with "I" and the model without "I" alternately. The minimum value of dimension "H" should be as given below. GX-F6/H6 type: 3.5 mm 0.138 in GX-F8/H8 type: 6 mm 0.236 in

GX-F12/H12 type: 6.5 mm 0.256 in

GX-F15/H15 type: 15 mm 0.591 in GX-FL15/HL15 type: 47.5 mm 1.870 in

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 smaller than the standard sensing object or if the sensing object is plated.

Correction coefficient

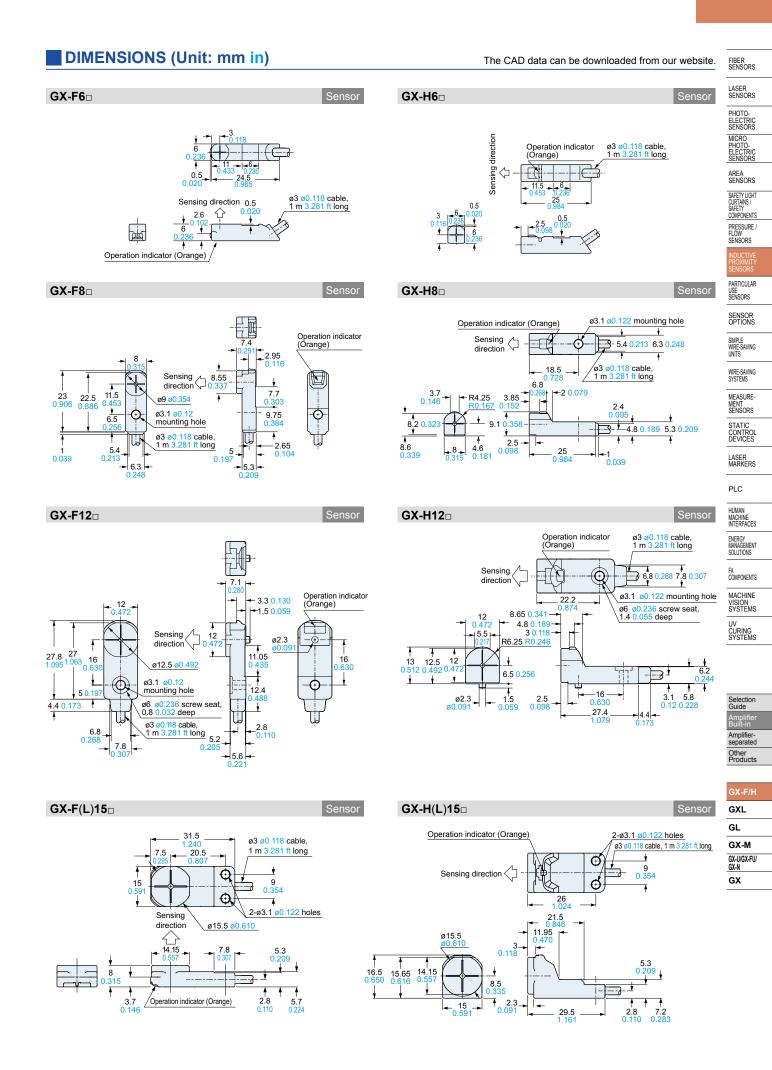
Model No. Metal	GX-F6 GX-H6 type	GX-F8 GX-H8 type	GX-F12 GX-H12 type	GX-F15 GX-H15 type	GX-FL15 type	GX-HL15 type
Iron	1	1	1	1	1	1
Stainless steel (SUS304)	0.76 approx.	0.76 approx.	0.79 approx.	0.68 approx.	0.70 approx.	0.76 approx.
Brass	0.50 approx.	0.50 approx.	0.56 approx.	0.47 approx.	0.45 approx.	0.50 approx.
Aluminum	0.48 approx.	0.48 approx.	0.53 approx.	0.45 approx.	0.43 approx.	0.48 approx.

Wiring

 The output does not incorporate 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 (50 ms) after the power supply is switched on.



Mounting hole dimensions

M3 × 0.5 0.020 tapped hole,

Mounting hole dimensions

10 0.394

ø

M3 × 0.5 0.020 tapped hole (or ø3.4 ø0.134 thru-hole)

8 0.315 or more deep (or ø3.4 ø0.134 thru-hole)

22

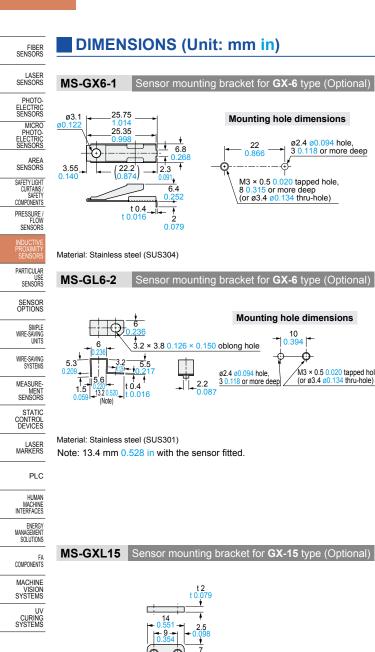
0.866

ø2.4 ø0.094 hole

3 0.118 or more de

0.087

ø2.4 ø0.094 hole, 3 0.118 or more deep



Mounting hole dimensions ſÐ-2-3.2 × 3.8 0.126 × 0.150 oblong holes 6 5.5

13.6 0.535 2-M3 × 0.5 0.020 tapped holes (or 2-ø3.4 ø0.134 thru-holes)

The CAD data can be downloaded from our website.

Sensor mounting bracket for **GX-6** type (Optional)

Material: Stainless steel (SUS301) Note: 20 mm 0.787 in with the sensor fitted.

t 0.4

MS-GL6-1

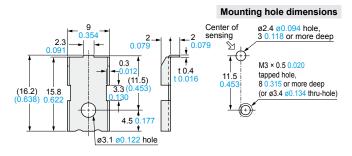
5.6

19.6 0

(Note)

3.2 0.126

MS-GXL8-4 Sensor mounting bracket for **GX-8** type (Optional)



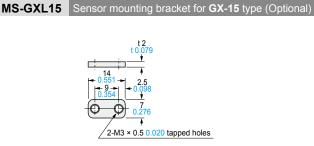
Material: Stainless steel (SUS304)

MS-A15F

1 pc. each of M3 (length 12 mm 0.472 in) truss head screw,

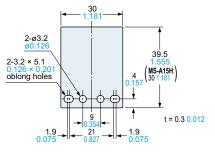
nut, spring washer and plain washer is attached.

MS-A15H



Material: Cold rolled carbon steel (SPCC)

Aluminum sheet (Optional)



GX-F/H
GXL
GL
GX-M
GX-U/GX-FU/ GX-N
GX

MEMO

