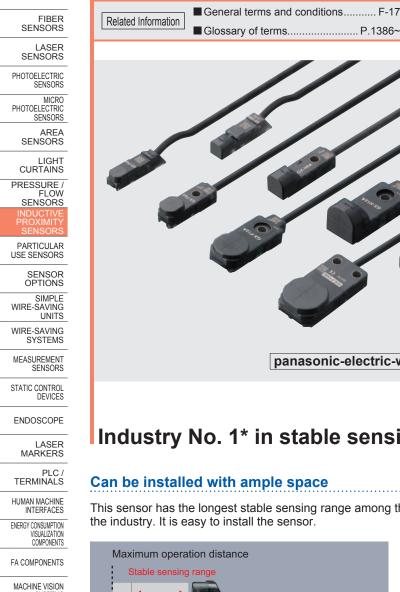
# Rectangular-shaped Inductive Proximity Sensor Amplifier Built-in SERIES



SYSTEMS

Selection Guide

Amplifier Built-in

Amplifier-separated

GXL

GL

GX

GX-U/GX-FU/ GX-N

UV CURING SYSTEMS

# Industry No. 1\* in stable sensing



### \* Based on research conducted by Panasonic Electric Works SUNX as of August 2010 among equivalent rectangular inductive sensors.

Sensor selection guide ..... P.757~

General precautions ..... P.1405

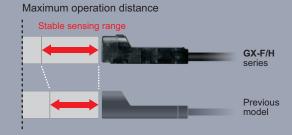
CE

Conforming to EMC Directive

# 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.

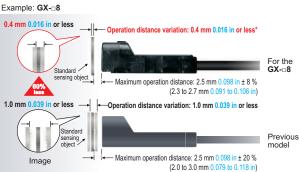
panasonic-electric-works.net/sunx



# 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.

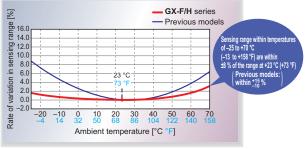


	Maximum	Stable sen	ising range						
Туре	operation distance	GX-F/H series	Previous model						
GX-□6	1.6 mm 0.063 in	0 to 1.3 mm 0.051 in	0 to 1.2 mm 0.047 in						
GX-□8	2.5 mm 0.098 in	0 to 2.1 mm 0.083 in	0 to 1.8 mm 0.709 in						
GX-⊡12	4.0 mm 0.157 in	0 to 3.3 mm 0.130 in	0 to 3.0 mm 0.118 in						
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

\* Not including temperature characteristics

PARTICULAR USE SENSORS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING

STATIC CONTROL DEVICES

ENDOSCOPE

LASER MARKERS

PLC / TERMINALS

HUMAN MACHINE INTERFACES

ENERGY CONSUMPTION VISUALIZATION

FA COMPONENTS

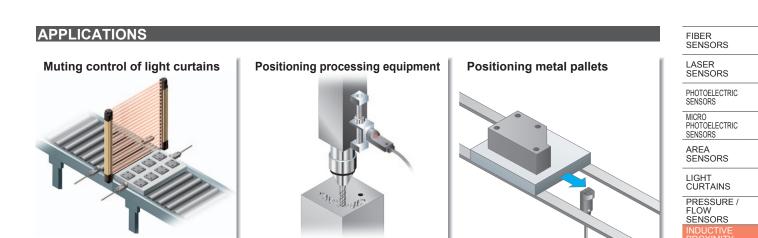
MACHINE VISION SYSTEMS

UV CURING SYSTEMS

COMPONENTS

SYSTEMS MEASUREMENT SENSORS

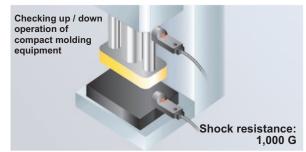
SENSOR OPTIONS



# ENVIRONMENTAL RESISTANCE

# 10 times the durability! (Compared to previous models)

The new integrated construction method used provides shock resistance of 10,000 m/s<sup>2</sup> (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 amplitude in X, Y and Z directions for 2 hours each). In addition, resistance to impulse noise is approx. three times greater than for previous models.



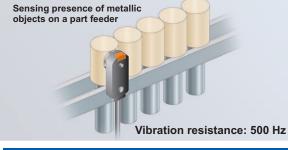
# Highly resistant to water or oil! **IP68g\*** protective construction

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".





# **FUNCTIONS**

# Indicators are easy to see over a wide field of view

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



GX-F





# MOUNTING

Tightening strength increased with no damage! (excluding GX-06)

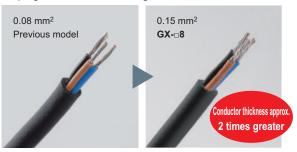
A metal sleeve has been inserted. It prevents the sensor from being damaged by tightening

too much.



# Conductor thickness doubled to make wiring much easier! (GX-06/08 only)

The conductor's thickness was doubled for the GX-\_6/\_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.



### Selection Guide Amplifier Built-in Amplifierseparated

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

**ORDER GUIDE** 

LASER SENSORS	GX-6 type									
PHOTO- ELECTRIC SENSORS MICRO	Туре		ype Appearance (mm in) Sensing range (Note 1)		Model No. (Note 2)	Output	Output operation			
MICRO PHOTO- ELECTRIC SENSORS		Б	~/7		GX-F6A		Nerrollinerer			
AREA		Front sensing			GX-F6AI		Normally open			
	Ħ	ont s	6 0.236		GX-F6B		Normally closed			
LIGHT CURTAINS	outpu	Ē	6 0.236 C 0.965	_	GX-F6BI	NPN open-collector				
PRESSURE / FLOW SENSORS	NPN output	b	$\sim$		GX-H6A	transistor	Normally open			
	2	6 0.236 6 0.236 0 0.984	Maximum	GX-H6AI						
INDUCTIVE PROXIMITY SENSORS			25	operation distance 1.6 mm 0.063 in	GX-H6B		Normally closed			
PARTICULAR USE SENSORS		-	6 0.236 0.984		GX-H6BI					
		bu	$\sim$	(0 to 1.3 mm 0 to 0.051 in)	GX-F6A-P	_	Normally open			
SENSOR		Buisues 6 0.236	6 0.236		GX-F6AI-P					
SIMPLE WIRE-SAVING UNITS	t	Front :	24.5	Stable sensing range	GX-F6B-P	_	Normally closed			
	output	Ē	6 0.236	_	GX-F6BI-P	PNP open-collector				
WIRE-SAVING SYSTEMS	PNP	БЦ	$\sim$		GX-H6A-P	transistor	Normally open			
MEASURE- MENT SENSORS	ensir	6 0.236			GX-H6AI-P	-				
STATIC			25		GX-H6B-P		Normally closed			
CONTROL DEVICES			6 0.236 🔨 0.984		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

MACHINE											
INTERFACES ENERGY CONSUMPTION VISUALIZATION COMPONENTS			Appearance (mm in)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation				
		b	- 4		GX-F8A		Name				
FA COMPONENTS		sensing	7.4 0.291		GX-F8AI		Normally open				
MACHINE VISION SYSTEMS	t	Front se	8 0.315 0.906		GX-F8B						
	utpu	Top sensing Fro	0.313		GX-F8BI	NPN open-collector	Normally closed				
UV CURING SYSTEMS	NPN output		~	Maximum operation distance 2.5 mm 0.098 in	GX-H8A	transistor	N II				
	z		t and the second s		GX-H8AI		Normally open				
			8.2 0.323 8.0 315 8.0 315 0.984		GX-H8B		Normally closed				
Selection Guide		Ĭ	8 0.315		GX-H8BI						
Amplifier Built-in		Ð	~	(0 to 2.1 mm 0 to 0.083 in)	GX-F8A-P						
Amplifier- separated		sensing	7.4 0.291		GX-F8AI-P		Normally open				
	t	Front se	8 0.315 0.906	Stable sensing range	GX-F8B-P	-					
GX-F/H	output	Fro	0.315		GX-F8BI-P	PNP open-collector	Normally closed				
GXL	PNP 0	5	~		GX-H8A-P	transistor					
GL GX-U/GX-FU/	PN	sensing			GX-H8AI-P	1	Normally open				
GX-N GX		p se	8.2 0.323		GX-H8B-P						
		To	To	To	Top	Top	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

	Vpe         Appearance (mm in)         Sensing range (Note 1)         Model No.         Output         Output operation         PHOT SENS									
Ту	/pe	Appearance (mm in)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation				
	٥			GX-F12A		Normally anon				
	Top sensing Front sensing	7.1 0.280		GX-F12AI		Normally open				
Ŧ		12 27.8 1.094		GX-F12B	NPN open-collector transistor	Normally closed				
outpu		12 0.472		GX-F12BI						
IPN 6				GX-H12A		Normally open				
2			4.0 mm 0.157 in (0 to 3.3 mm 0 to 0.130 in)	GX-H12AI						
		27.4		GX-H12B		Normally closed				
		12 0.472		GX-H12BI						
	bu			GX-F12A-P	_	Normally open				
	sensing	7.1 0.280		GX-F12AI-P						
rt	Front s	12 27.8	Stable sensing range	GX-F12B-P		Normally closed				
outpi	Ē	0.472	_	GX-F12BI-P	PNP open-collector					
PNP output	Ð			GX-H12A-P	transistor	Normally open				
4	Top sensing	12 0.472		GX-H12AI-P						
		27.4		GX-H12B-P		Normally closed				
		12 0.472		GX-H12BI-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-15 type

T	/pe	Appearance (mm in)	Sensing range (Note 1)	Model No.	Output	Output operation	MACHINE INTERFACES ENERGY CONSUMPTION
				(Note 2)			VISUALIZATION COMPONENTS
	Ð	$\sim$		GX-F15A		Normally open	FA
	sensing	8 0.315		GX-F15AI			
ŧ	NPN output ng Front se	31.5		GX-F15B		Normally closed	MACHINE VISION SYSTEMS
outpi		15 0.591		GX-F15BI	NPN open-collector transistor		UV CURING
PN	D			GX-H15A		Normally open	SYSTEMS
z	NP Top sensing	16.5 0.650 29.5 15 0.591 1.161	Maximum	GX-H15AI		Normally open	
			5.0 mm 0.197 in	GX-H15B		Normally algood	
				GX-H15BI		Normally closed	Selection Guide
	p		(0 to 4.2 mm 0 to 0.165 in)	GX-F15A-P			Amplifier Built-in Amplifier-
	sensing	8 0.315		GX-F15AI-P	- - - PNP open-collector	Normally open	separated
ц.	Front s	31.5	Stable sensing range	GX-F15B-P			01/ 5/11
utpu	L L	15 0.591		GX-F15BI-P		Normally closed	GX-F/H
PNP output	5		-	GX-H15A-P	transistor	Nemellu en en	GL
٩.	sensing	16.5 0.650		GX-H15AI-P		Normally open	GX-U/GX-FU/
	Top se	29.5		GX-H15B-P		Normally closed	GX-N GX
		15 0.591		GX-H15BI-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.

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FIBER SENSORS

LASER SENSORS

OTO-ECTRIC NSORS CRO DTO-ECTRIC NSORS EA NSORS

HT RTAINS

SSURE / ISORS

TICULAR

SORS NSOR TIONS

LE E-SAVING

E-SAVING TEMS

SURE-

ISORS ATIC NTROL VICES

ENDOSCOPE

LASER MARKERS

PLC / TERMINALS

HUMAN

LASER SENSORS

PHOTO-ELECTRIC SENSORS MICRO PHOTO-ELECTRIC SENSORS AREA SENSORS

LIGHT PRESSURE / SENSORS

PARTICULAR USE SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS MEASURE-MENT SENSORS

STATIC CONTROL DEVICES

ENDOSCOPE

LASER MARKERS

PLC / TERMINALS

HUMAN MACHINE INTERFACES

ENERGY VISUALIZATION COMPONENTS

COMPONENTS

GX-U/GX-FU/ GX-N

GX

# **ORDER GUIDE**

### GX-15 (Long sensing range) type

Туре		Appearance (mm in)	Sensing range (Note 1)	Model No. (Note 2)	Output	Output operation	
	ng	$\sim$		GX-FL15A		Normally open	
	ensi	8 0.315 15 0.591 1.240		GX-FL15AI			
Ŧ	Front sensing			GX-FL15B	NPN open-collector transistor	Normally closed	
outpu	Ē			GX-FL15BI		Normally closed	
NPN output	D	16.5 0.650	Maximum	GX-HL15A		Normally open	
	Top sensing			GX-HL15AI			
		29.5	operation distance	GX-HL15B		Normally closed	
	Ĕ	15 0.591	8.0 mm 0.315 in	GX-HL15BI			
	βĽ	(0 to 6.7 mm 0 to 0.264 in)	GX-FL15A-P		Normally open		
	sensing	8 0.315		GX-FL15AI-P		Normally open	
t	Front s	31.5	Stable sensing range	GX-FL15B-P	PNP open-collector	No	
output	ц Е	15 0.591	-	GX-FL15BI-P		Normally closed	
PNP 0	6			GX-HL15A-P	transistor	N	
P	sensing	16.5 0.650		GX-HL15AI-P	1	Normally open	
	pp se	29.5		GX-HL15B-P			
	Top	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, flexible cable type

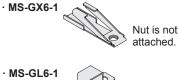
5 m 16.404 ft cable length type (standard: 1 m 3.281 ft) and flexible cable (excluding 5 m 16.404 ft cable length type) are available. However, long sensing range type is not available. When ordering 5 m 16.404 ft cable length type, suffix "-**C5**" to the model No. When ordering flexible cable type, 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". Flexible cable type of GX-F15AI-P is "GX-F15AI-P.R".

# **OPTIONS**

MACHINE		3						
VISION SYSTEMS								
UV CURING SYSTEMS	Designation	Model No.	Description					
Selection	Sensor	MS-GX6-1	Mounting bracket for <b>GX-6</b> type (recommended). Sensors can be mounted closely together for space-saving.					
Guide Amplifier Built-in		MS-GL6-1	Mounting brackets for <b>GX-6</b> typ	ounting brackets for <b>GX-6</b> type ensor mounting brackets for <b>GL-6</b> can be used. Interchange is				
Amplifier-	mounting bracket	MS-GL6-2	possible.	<b>L-6</b> can be used. Interchange is				
separated		MS-GXL8-4	Mounting bracket for GX-8 type					
GX-F/H		MS-GXL15	Mounting bracket for GX-15 type					
GXL	Aluminum	MS-A15F	For <b>GX-FL15</b> □( <b>-P</b> )	Mounting example when				
GL	GXL Aluminum	MS-A15H	For GX-HL15□(-P) mounted onto a steel or stainless steel plate					

### Sensor mounting bracket









· MS-GXL8-4

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



· MS-GXL15



· MS-A15F · MS-A15H



· MS-GL6-2







# SPECIFICATIONS

### GX-6 type

	Туре	NPN	output	PNP c	output		
	2 (7) Front sensing	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		
Max. oper	ration distance (Note 3)		1.6 mm 0.0	063 in ± 8 %			
Stable se	nsing range (Note 3)		0 to 1.3 mm	0 to 0.051 in			
Standard	sensing object		Iron sheet 12 × 12 × t 1 mr	n 0.472 × 0.472 × t 0.039 in			
Hysteresi	s		20 % or less of operation distan	ce (with standard sensing object)			
Repeatab	pility	Along	sensing axis, perpendicular to s	ensing axis: 0.04 mm 0.0016 in o	r less		
Supply vo	oltage		12 to 24 V DC <sup>+10</sup> <sub>-15</sub> %	Ripple P-P 10 % or less			
Current co	onsumption		15 mA	or less			
Output		NPN open-collector transistor • Maximum sink current: 100	0 mA	PNP open-collector transistor • Maximum source current: 1	100 mA		
Ουιρυι		Applied voltage: 30 V DC o     Residual voltage: 2 V or le	or less (between output and 0 V) ss (at 100 mA sink current)		r less (between output and +V) ss (at 100 mA source current)		
Utiliz	zation category		DC-12 (	or DC-13			
Out	put operation	Normally closed	Normally closed	Normally closed	Normally closed		
Max. resp	oonse frequency		400	) Hz			
Operation	n indicator	Orange LED (lights up when the output is ON)					
Poll	ution degree		3 (Industrial environment)				
e Prot	tection		IP68 (IEC), IP68g	(JEM) (Note 4, 5)			
Amt	pient temperature	-2	5 to +70 °C –13 to +158 °F, Stor	rage: -40 to +85 °C -40 to +185	°F		
Amt	pient humidity		35 to 85 % RH, Sto	rage: 35 to 95 % RH			
EMO	C		EN 60	947-5-2			
Environmental resistance EMC FMD FMD FMD FMD FMD FMD FMD FMD FMD FMD	age withstandability	1,000 V AC	for one min. between all supply	terminals connected together and	d enclosure		
Insu	lation resistance	50 MΩ, or more, wi	50 M $\Omega$ , or more, with 500 V DC megger between all supply terminals connected together and enclosure				
	ation resistance	10 to 500 Hz freque	ncy, 3 mm 0.118 in amplitude (M	lax. 20 G) in X, Y and Z directions	s for two hours each		
Sho	ck resistance	10,000 m/s	<sup>2</sup> acceleration (1,000 G approx.)	in X, Y and Z directions for three	times each		
Sensing range	Temperature characteristics	Over ambient temperat	ure range –25 to +70 °C –13 to -	+158 °F: Within ± 8 % of sensing	range at +23 °C +73 °F		
variation	Voltage characteristics		Within $\pm 2$ % for $^{+10}_{-15}$ % fluct	uation of the supply voltage			
Material			Enclosure: PBT, Ind	icator part: Polyester			
Cable		0.15	mm <sup>2</sup> 3-core oil, heat and cold res	sistant cabtyre cable, 1 m 3.281 ft	long		
Cable ext	tension	Extens	ion up to total 100 m <u>328.084</u> ft i	s possible with 0.3 mm <sup>2</sup> , or more,	cable.		
Net weigh	nt		15 g a	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 Electric Works SUNX's IP68 test method

() 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 range 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.

Selection Guide Amplifier Built-in Amplifierseparated

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FIBER SENSORS

LASER SENSORS

GX-F/H GXL

GL

GX

GX-U/GX-FU/ GX-N

LASER SENSORS

Amplifier

separated

# **SPECIFICATIONS**

### GX-8 type

PHOTO- ELECTRIC SENSORS	$\sim$		Туре	NPN	output	PNP	output		
MICRO			Front sensing	GX-F8A(I)	GX-F8B(I)	GX-F8A(I)-P	GX-F8B(I)-P		
PHOTO- ELECTRIC SENSORS	Item		Top sensing	GX-H8A(I)	GX-H8B(I)	GX-H8A(I)-P	GX-H8B(I)-P		
AREA SENSORS	Max.	operati	on distance (Note 3)		2.5 mm 0.0	98 in ± 8 %			
LIGHT	Stab	le sens	ing range (Note 3)		0 to 2.1 mm 0 to 0.083 in				
	Stan	dard se	ensing object		Iron sheet 15 × 15 × t 1 mm 0.591 × 0.591 × t 0.039 in				
RESSURE / FLOW SENSORS	Hysteresis				20 % or less of operation distance (with standard sensing object)				
NDUCTIVE ROXIMITY SENSORS	Repeatability		y	Along	sensing axis, perpendicular to se	ensing axis: 0.04 mm 0.0016 in o	or less		
ARTICULAR	Supp	oly volta	age		12 to 24 V DC <sup>+10</sup> <sub>-15</sub> % F	Ripple P-P 10 % or less			
USE SENSORS	Curr	ent con	sumption		15 mA	or less			
SENSOR OPTIONS	Output			NPN open-collector transistor • Maximum sink current: 100 • Applied voltage: 30 V DC of	) mA or less (between output and 0 V)	PNP open-collector transistor • Maximum source current: • Applied voltage: 30 V DC of	100 mA or less (between output and +V)		
VIRE-SAVING UNITS				Residual voltage: 2 V or leader			ss (at 100 mA source current)		
IRE-SAVING SYSTEMS	Utilization category		tion category		DC-12 o	r DC-13			
EASURE- MENT SENSORS		Outpu	t operation	Normally open	Normally closed	Normally open	Normally closed		
STATIC	Max	respor	nse frequency		500	Hz			
ONTROL	Ope	ration ir	ndicator	Orange LED (lights up when the output is ON)					
DOSCOPE			on degree		3 (Industrial environment)				
LASER	e	Protec	tion		IP68 (IEC), IP68g				
LASER IARKERS	istan		nt temperature	-25 to +70 °C -13 to +158 °F, Storage: -40 to +85 °C -40 to +185 °F					
PLC / ERMINALS	Environmental resistance		nt humidity	35 to 85 % RH, Storage: 35 to 95 % RH					
HUMAN MACHINE	Jenta	EMC			EN 609				
TERFACES	ironn		e withstandability		for one min. between all supply				
INSUMPTION SUALIZATION OMPONENTS	Env		tion resistance		th 500 V DC megger between all				
FA			on resistance		ncy, 3 mm 0.118 in amplitude (M <sup>2</sup> acceleration (1,000 G approx.)				
ACHINE	Sens		Temperature characteristics		ure range –25 to +70 °C –13 to +				
VISION	rang varia	e -	Voltage characteristics		Within ±2 % for $^{+10}_{-15}$ % fluctu	0			
UV CURING SYSTEMS	Mate				Enclosure: PBT, Indi				
	Cabl	е		0.15 1	mm <sup>2</sup> 3-core oil, heat and cold res	istant cabtyre cable, 1 m 3.281 f	t long		
	Cabl	e exten	sion	Extensi	ion up to total 100 m 328.084 ft is	s possible with 0.3 mm <sup>2</sup> , or more	, cable.		
election Guide	Net	weight			Front sensing type: 15 g approx.	Top sensing type: 20 g approx.			
Amplifier Built-in	Notes	s: 1) Wł	nere measurement o	onditions have not been specifie	d 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 Electric Works 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.
 5) If using the sensor in an environment where cutting oil droplets splatter, the sensor may deteriorate due to added substances in the oil.

GX

# SPECIFICATIONS

### GX-12 type

	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	
Max. oper	ration distance (Note 3)		4.0 mm 0.1	57 in ± 8 %		
Stable se	ensing range (Note 3)		0 to 3.3 mm	0 to 0.130 in		
Standard sensing object			Iron sheet 20 × 20 × t 1 mm 0.787 × 0.787 × t 0.039 in 20 % or less of operation distance (with standard sensing object)			
Hysteresi	is		20 % or less of operation distan	ce (with standard sensing object	)	
Repeatab	bility	Along		ensing axis: 0.04 mm 0.0016 in	or less	
Supply vo	oltage		12 to 24 V DC <sup>+10</sup> <sub>-15</sub> %	Ripple P-P 10 % or less		
Current c	onsumption		15 mA	or less		
0.1.1		NPN open-collector transistor • Maximum sink current: 100	) mA	PNP open-collector transistor • Maximum source current:	100 mA	
Output		<ul> <li>Applied voltage: 30 V DC c</li> <li>Residual voltage: 2 V or le</li> </ul>	r less (between output and 0 V) ss (at 100 mA sink current)		or less (between output and +V) ess (at 100 mA source current)	
Utili	zation category	DC-12 or DC-13				
Out	put operation	Normally open	Normally closed	Normally open	Normally closed	
Max. resp	oonse frequency		500	) Hz		
Operatior	n indicator	Orange LED (lights up when the output is ON)				
Poll	ution degree		3 (Industrial	environment)		
e Prot	tection		IP68 (IEC), IP68g	(JEM) (Note 4, 5)		
Amt	bient temperature	-2	5 to +70 °C -13 to +158 °F, Stor	rage: -40 to +85 °C -40 to +185	)°F	
Amt	bient humidity		35 to 85 % RH, Sto	rage: 35 to 95 % RH		
EMG EMG	С		EN 60	947-5-2		
Volt	age withstandability	1,000 V AC	for one min. between all supply	terminals connected together ar	nd enclosure	
Amt Lesistance	lation resistance	50 MΩ, or more, wi	th 500 V DC megger between al	I supply terminals connected tog	ether and enclosure	
	ration resistance	10 to 500 Hz freque	ncy, 3 mm 0.118 in amplitude (M	lax. 20 G) in X, Y and Z direction	is for two hours each	
Sho	ock resistance	10,000 m/s	<sup>2</sup> acceleration (1,000 G approx.)	in X, Y and Z directions for three	e times each	
Sensing range	Temperature characteristics	Over ambient temperat	ure range –25 to +70 °C –13 to	+158 °F: Within ±8 % of sensing	range at +23 °C +73 °F	
variation	Voltage characteristics		Within $\pm 2$ % for $^{+10}_{-15}$ % fluctuation of the supply voltage			
Material			Enclosure: PBT, Ind	icator part: Polyester		
Cable		0.15 mm <sup>2</sup> 3-core oil, heat and cold resistant cabtyre cable, 1 m 3.281 ft long				
Cable ext	tension	Extens	ion up to total 100 m 328.084 ft i	s possible with 0.3 mm <sup>2</sup> , or more	e, cable.	
Net weigh	at		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 Electric Works 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. 5) If using the sensor in an environment where cutting oil droplets splatter, the sensor may deteriorate due to added substances in the oil.

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FIBER SENSORS

LASER SENSORS

GL

GX

GX-U/GX-FU/ GX-N

LASER SENSORS

# SPECIFICATIONS

### GX-15 type

Type		Time		NPN	output		PNP output			
		Туре			Long sens	sing range			Long sens	sing range
	$\backslash$	2 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
Iten	n 🔪	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
Max	. opera	tion distance (Note 3)	5.0 mm 0.1	97 in ± 8 %	8.0 mm 0.315 ii	n ± 8 % (Note 4)	5.0 mm 0.1	97 in ± 8 %	8.0 mm 0.315 ir	1 ± 8 % (Note 4)
Stab	ole sen	sing range (Note 3)	0 to 4.2 mm	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)
Star	Standard sensing object		Iron sheet 20 0.7874 × 0.78	× 20 × t 1 mm 74 × t 0.039 in		× 30 × t 1 mm 1 × t 0.039 in		× 20 × t 1 mm 74 × t 0.039 in		× 30 × t 1 mm 1 × t 0.039 in
Hyst	teresis				20 % or less of o	operation distance	ce (with standard	sensing object	)	
Rep	eatabil	ity		Along	sensing axis, pe	erpendicular to s	ensing axis: 0.04	4 mm 0.0016 in (	or less	
Sup	ply volt	age			12 to 24	4 V DC <sup>+10</sup> <sub>-15</sub> %	Ripple P-P 10 %	or less		
Curr	ent co	nsumption				15 mA	or less			
Outp	Output		<ul> <li>Maximum</li> <li>Applied vol</li> </ul>	N open-collector transistor       PNP open-collector transistor         • Maximum sink current: 100 mA       • Maximum source current: 100 mA         • Applied voltage: 30 V DC or less (between output and 0 V)       • Maximum source current: 100 mA         • Residual voltage: 2 V or less (at 100 mA sink current)       • Residual voltage: 2 V or less (at 100 mA			or less (between			
	Utiliza	ation category				DC-12 c	or DC-13			
	Outpu	ut operation	Normally open	Normally closed	Normally open	Normally closed	Normally open	Normally closed	Normally open	Normally closed
Max	. respo	inse frequency	250 Hz 150 Hz (Note 5)		(Note 5)	250	) Hz	150 Hz	(Note 5)	
Ope	ration i	ndicator	Orange LED (lights up when the output is ON)							
	Pollut	ion degree	3 (Industrial environment)							
ė	Prote	ction	IP68 (IEC), IP68g (JEM) (Note 6, 7)							
Environmental resistance	Ambi	ent temperature	–25 to +70 °C –13 to +158 °F, Storage: –40 to +85 °C –40 to +185 °F							
resis	Ambi	ent humidity	35 to 85 % RH, Storage: 35 to 95 % RH							
ental	EMC					EN 609	947-5-2			
onme	Volta	ge withstandability		1,000 V AC	for one min. bet	ween all supply	terminals conne	cted together an	nd enclosure	
Envir	Insula	ation resistance	50	MΩ, or more, wi	th 500 V DC me	gger between all	supply terminal	s connected tog	ether and enclos	ure
ш	Vibra	tion resistance	10 to	500 Hz freque	ncy, 3 mm 0.118	in amplitude (N	lax. 20 G) in X, `	Y and Z direction	ns for two hours	each
	Shoc	k resistance		10,000 m/s	<sup>2</sup> acceleration (1	,000 G approx.)	in X, Y and Z dir	ections for three	e times each	
Sena		Temperature characteristics	Over ar	mbient temperat					range at +23 °C	+73 °F
varia		Voltage characteristics			Within ±2	% for <sup>+10</sup> / <sub>-15</sub> % fluct	uation of the sup	ply voltage		
Mate	erial			Enclosure: PBT, Indicator part: Polyester						
Cab	le			0.15	mm <sup>2</sup> 3-core oil, h	neat and cold res	sistant cabtyre ca	able, 1 m 3.281	ft long	
Cab	le exte	nsion		Extens	ion up to total 10	00 m 328.084 ft i	s possible with 0	.3 mm <sup>2</sup> , or more	e, cable.	
Net	weight					20 g a	pprox.			

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 insulant plate. 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 insulant plate. When mounted onto a metallic plate, max. response frequency will decrease. 6) Panasonic Electric Works 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.

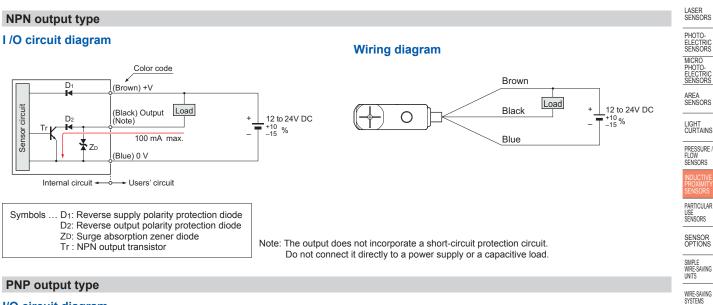
③ Leave in water at a depth of 1 m 3.281 ft in water for 500 hours.

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

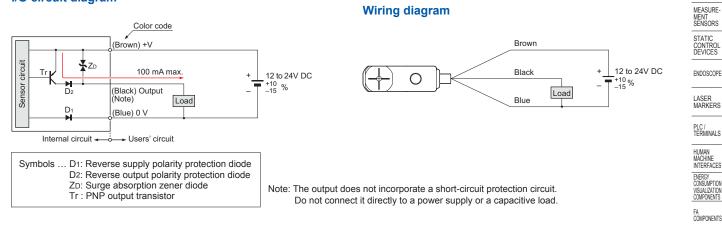
7) If using the sensor in an environment where cutting oil droplets splatter, the sensor may be deteriorated due to added substances in the oil.

Selection Guide Amplifier Built-in Amplifier-

# I/O CIRCUIT DIAGRAMS



### I/O circuit diagram



FIBER SENSORS

MACHINE VISION SYSTEMS

UV CURING SYSTEMS

Selection Guide

Amplifie separate

GXL GL GX-U/GX-FU/ GX-N GX

LASER SENSORS

LIGHT

PRESSURE /

# SENSING CHARACTERISTICS (TYPICAL)

# GX-6 type Sensing field

### Correlation between sensing object size and sensing range

Iron

Aluminur

20

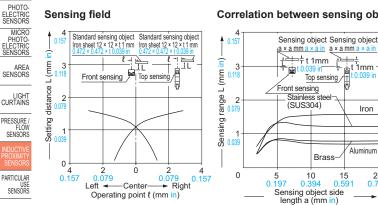
0.78

Correlation between sensing object size and sensing range

Brass-

15 0.591

10 0.39/



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

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)

2 0.079

Right

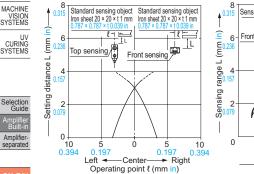
l-Ħ

#### Standard sensing object Iron sheet 15 × 15 × t 1 mm 0.591 × 0.591 × t 0.039 in Sensina object Sensing object a × a mm a × a → + t 1 mm <u>a × a mm a × a</u> theta ± 1 mm 0.591 × 0.591 ∧ 0.000 ange L (mm in) ġ D.039 in 3 /Front sensing Iron 2 Stainless steel (SUS304) Sensing I Brass Aluminum 0 10 0.39 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.

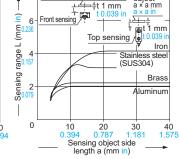
# GX-12 type

### Sensing field



#### Sensing Sensing object a × a mm a × a in object a × a mm a × a in <u>+</u><u></u>+<u></u>+<u></u>+<u></u>t 1 mm

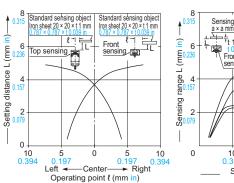
Correlation between sensing object size and sensing range



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 × a mm a × a im a × a mm a × a in to the tail object a × a mm a × a im a × a mm a × a in to tail to ta Top sensing t 0.0. Front Iron Stainless stee (SUS304) Brass Áluminum 30 1.181 40 1.575 10 20 0.787 0.39 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.

Amplifier

GXL

GL

GX

GX-U/GX-FU/ GX-N

1.181 × 1.181 × t 0.039 in), the sensing

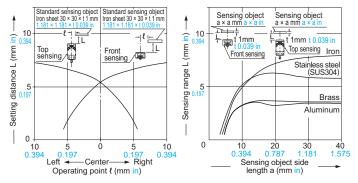
shortens as shown in the left figure.

# 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.

### Mounting

### GX-6 type

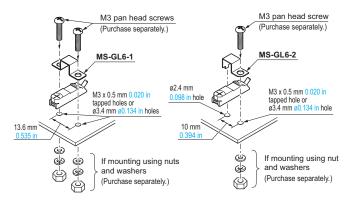
· Use the optional sensor mounting bracket when installing.

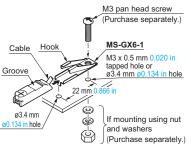
### <When using MS-GX6-1 (recommended)>

- · 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 / MS-GL6-2>

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





• Make sure to use a M3

GX-8 type

(length: 12 mm 0.472 in or more) truss head screw. 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

- 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 torque 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.

**Maren** 

ø2.4 m

(Depth

9 mm

41

Ā 南

ø2.5 mm ø0.098 in hole (Depth: 3 mm 0.118 in or more)



(Sensor mounting bracket)



FIBER SENSORS

LASER SENSORS

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ELECTRIC

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Selectio Guide

LASER SENSORS

PHOTO-ELECTRIC SENSORS

MICRO

PHOTO-ELECTRIC SENSORS

AREA SENSORS

LIGHT PRESSURE FL OW SENSORS

PARTICULAR USE SENSOR OPTIONS

SIMPLE WIRE-SAVING UNITS

WIRE-SAVING SYSTEMS

MEASURE-MENT SENSORS

STATIC

CONTROL DEVICES

ENDOSCOPE

LASER MARKERS

PLC / TERMINALS

HUMAN MACHINE INTERFACES ENERGY VISUALIZATION COMPONENTS

COMPONENTS

MACHINE

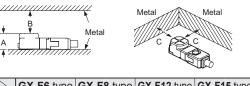
VISION SYSTEMS

# **PRECAUTIONS FOR PROPER USE** FIBER SENSORS

# Influence of surrounding metal

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

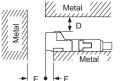
# Front sensing type

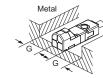


$\geq$	GX-F6 type	GX-F8 type	GX-F12 type	GX-F15 type	GX-FL15 type
А	6 mm 0.236 in (Note 1)	7.4 mm 0.291 in	7.1 mm 0.280 in	8 mm 0.315 in	8 mm 0.315 in (Note 2)
В	8 mm 0.315 in	8 mm 0.315 in	20 mm 0.787 in	20 mm 0.787 in	30 mm 1.181 in
С	3 mm 0.118 in	3 mm 0.118 in	7 mm 0.276 in	7 mm 0.276 in	10 mm 0.394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

- Notes: 1) When using MS-GX6-1 (recommended mounting bracket), 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





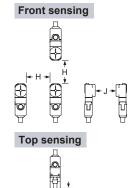
$\nearrow$	GX-H6 type	GX-H8 type	GX-H12 type	GX-H15 type	GX-HL15 type
D	3 mm 0.118 in	4 mm 0.157 in	7 mm 0.276 in	6 mm 0.236 in	12 mm 0.472 in
Е	10 mm 0.394 in	10 mm 0.394 in	20 mm 0.787 in	20 mm 0.787 in	30 mm 1.181 in
F	2 mm 0.079 in	3 mm 0.118 in	3 mm 0.118 in	0 mm 0 in	10 mm 0.394 in (Note)
G	2 mm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

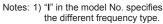
Note: When GX-HL15 type is mounted on an insulator or seated on the enclosed aluminum sheet, the distance "F" can be zero.

# **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.

UV CURING SYSTEMS	below to avoid mutual interferen				
		Н	J		
	GX-F6	Between "I" type	0 mm	15 mm	
	GX-H6	and non "I" type	(Note 2)	0.591 ir	
Selection	type	Between two "I" types	13 mm	25 mm	
Guide		or two non "I" types	0.512 in	<mark>0.984 ir</mark>	
Amplifier	GX-F8	Between "I" type	0 mm	15 mm	
Built-in	GX-H8	and non "I" type	(Note 2)	0.591 ir	
Amplifier-	type	Between two "I" types	20 mm	35 mm	
separated		or two non "I" types	0.787 in	1.378 ir	
	GX-F12	Between "I" type and non "I" type	0 mm (Note 2)	25 mm 0.984 ir	
GX-F/H	GX-H12	Between two "I" types	25 mm	50 mm	
GXL	type	or two non "I" types	0.984 in	1.969 ir	
GL	GX-F15	Between "I" type	0 mm	25 mm	
	GX-H15	and non "I" type	(Note 2)	0.984 ir	
GX-U/GX-FU/	type	Between two "I" types	45 mm	70 mm	
GX-N		or two non "I" types	1.772 in	2.756 ir	
GX	<b>GX-FL15</b> <b>GX-HL15</b> type	Between "I" type and non "I" type	0 mm (Note 2)	25 mm 0.984 ir	
		Between two "I" types or two non "I" types	110 mm 3.059 in	170 mm <mark>6.693 ir</mark>	
Nistees (1) "I" is the second of Nis second for					





2) 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: 3.5mm 0.138 GX-F8 / H8 type: 6mm 0.236 in

GX-F12 / H12 type: 6.5mm 0.256 in

GX-F15 / H15 type: 15mm 0.591 in

GX-FL15 / HL15 type: 47.5mm 1.870 in

### Refer to General precautions.

### 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.

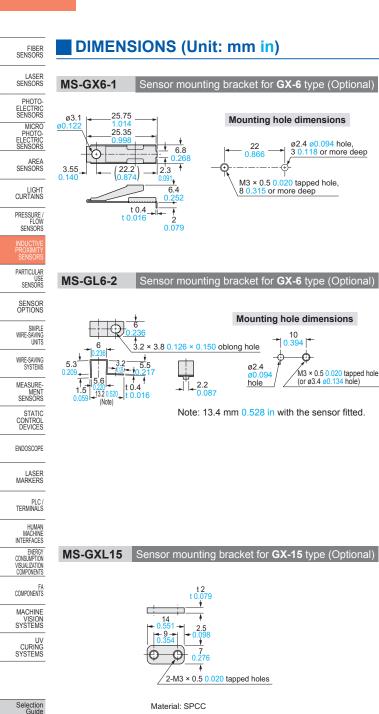
#### DIMENSIONS (Unit: mm in) The CAD data in the dimensions can be downloaded from our website. FIBER SENSORS LASER SENSORS GX-F6□ GX-H6 PHOTO-ELECTRIC SENSORS MICRO PHOTO-ELECTRIC SENSORS Sensing direction ø3 ø0.118 cable, 1 m 3.281 ft long Operation indicator (Orange) AREA SENSORS 0 11. 6 ø3 ø0.118 cable, 1 m 3.281 ft long 25 Sensing direction 0.5 LIGHT CURTAINS 0 公 2.6 0.5 PRESSURE FLOW SENSORS ł Ъ 0. ł Operation indicator (Orange) PARTICULAR USE SENSORS GX-F8□ GX-H8 SENSOR OPTIONS ø3.1 ø0.122 mounting hole Operation indicator (Orange) Operation indicator (Orange) ŧ Sensing direction SIMPLE WIRE-SAVING UNITS - 5.4 0.213 6.3 0.248 2.95 0.116 8 ø3 ø0.118 cable, 1 m 3.281 ft long 18.5 WIRE-SAVING SYSTEMS Sensing 8.55 [D]direction 🖓 6.8 -2 0.079 11.5 0.453 7.7 3.7 0.146 MEASURE-MENT SENSORS 23 0.906 7 R4.25 22.5 ø9 <mark>ø0.354</mark> 3.85 0 2.4 <u>†</u> 6.5 ø3.1 ø0.12 mounting hole 9.75 Ð (Ŧ) ŧ **♦** 8.2 0.323 9.1 0.358 STATIC CONTROL DEVICES <u>-</u>4.8 0.189 5.3 0.209 4 ۲ ø3 ø0.118 cable, 1 m 3.281 ft long 2.5 0.098 4 4 -2.65 0.104 8.6 0.339 4.6 0.181 5.4 .8 25 0.98 5 0.315 0.039 0.213 ENDOSCOPE 0.19 0.039 + 6.3 5.3 LASER MARKERS Sensor GX-F12 GX-H12 Sensor PLC / TERMINALS Operation indicator (Orange) ø3 ø0.118 cable, 1 m 3.281 ft long HUMAN MACHINE INTERFACES ENERGY CONSUMPTION 7 H Sensing 6.8 0.268 7.8 0.307 Œ direction VISUALIZATION COMPONENTS 7.1 Operation indicator (Orange) ø3.1 ø0.122 mounting hole - 3.3 0.130 22.2 FA COMPONENTS 12 -1.5 0.059 ø6 ø0.236 screw seat, 1.4 0.055 deep 8.65 0.341-12 4.8 0.189 → 3 0.118 → MACHINE VISION SYSTEMS Sensing 12 45.5 H ø2.3 R6.25 R0.246 direction 27 Ø0.0 1 UV CURING SYSTEMS 11.05 27.8 13 12.5 1512 0.492 16 16 12 ŧ ø12.5 <mark>ø0.492</mark> 0. 6.2 6.5 0.256 ļ Ł ø3.1 ø0.12 ŧ (⊕ Œ ł 1.5 0.059 3.1 5.8 0.12 0.228 mounting hole 124 5 0.197 —16 — 0.630 ø2.3 ø0.091 2.5 0.098 ø6 ø0.236 screw seat, 0.8 0.032 deep 4.4 0.173 4 + 27.4 4.4 LL 1 079 6.8 0.26 ø3 ø0.118 cable, 1 m 3.281 ft long 0.173 2.8 0 110 5.2 7.8 0 5.6 0.22 **GX-F(L)15** Sensor **GX-H(L)15** Sensor GXL GL Operation indicator (Orange) 2-ø3.1 ø0.122 holes 31.5 ø3 ø0.118 cable, 1 m 3.281 ft long GX-U/GX-FU/ GX-N ø3 ø0.118 cable, 1 m 3.281 ft long 20.5 7.5 $\Theta$ GX 9 0.354 Ð Sensing direction < 9 0.354 đ 15 0.591 26 1.024 21.5 0.846 11.95 1-11.95 1-11.95 $\oplus$ . 2-ø3.1 ø0.122 holes Sensing direction ø15.5 <mark>ø0.610</mark> ø15.5 ø0.610 <sup>3</sup> 0.118 → 14.15 5.3 5.3 0.20 16.5 15.65 0.650 0.616 14.15 8 8.5 2.3 0.09 ŧ 4 ↓ 15 0.591 -3.7 0.146 Operation indicator (Orange) 5.7 0.224 2.8 2.8 0.110 29.5 1.161 7.2 0.283

Selectior Guide

Amplifier-separate

10

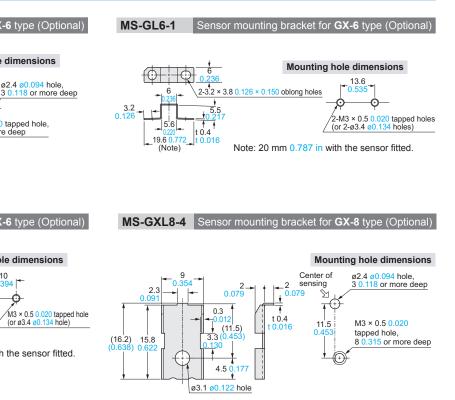
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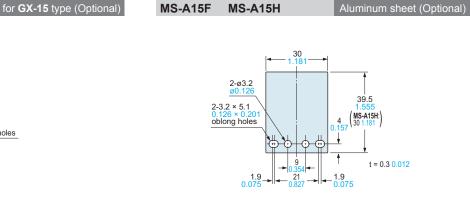
Material: SPCC

The CAD data in the dimensions can be downloaded from our website.



Material: Stainless steel (SUS304)

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



GX

Amplifier Built-in

# MEMO

