



This product is to inspect (discriminate/measure) sensing objects. Never use this product for prevention of accidents which damage a human life or properties or for safety maintenance.

1 MAJOR SPECIFICATIONS

Type	φ 3.8mm type	φ 5.4mm type	φ 8mm type	M10 type	M12 type	φ 22mm	
Item	Model No.	GP-X3SE	GP-X5SE	GP-X8S	GP-X10M	GP-X12ML	GP-X22KL
Model No. of combination set	GP-XC3SE GP-XC3SE-P	GP-XC5SE GP-XC5SE-P	GP-XC8S GP-XC8S-P	GP-XC10M GP-XC10M-P	GP-XC12ML GP-XC12ML-P	GP-XC22KL GP-XC22KL-P	
Sensing range (Note 2)	0 to 0.8mm	0 to 1mm	0 to 2mm		0 to 5mm	0 to 10mm	
Standard sensing object	Stainless steel (SUS304)/ Iron sheet [Cold rolled carbon steel (SPCC)] 60 x 60 x t 1 mm						
Temperature characteristics (Note 3)	0.07%F.S./°C or less						
Protection	IP67 (IEC), IP67G (Note 6)						
Ambient temperature	-10 to +55°C, Storage: -20 to +70°C						
Ambient humidity	35 to 85% RH, Storage: 35 to 85% RH						
Material	Enclosure	Stainless steel (SUS303)			Brass (Nickel plated)		
	Sensing surface	ABS	PAR	ABS	PA		
	Cable protector	—	PP				
Cable	Connector attached high frequency coaxial cable, 3m long (Note 4)						
Cable extension	Extension up to 10m is possible with the optional cable						
Weight (Note 5)	40g approx.	40g approx.	40g approx.	50g approx.	45g approx.	80g approx.	

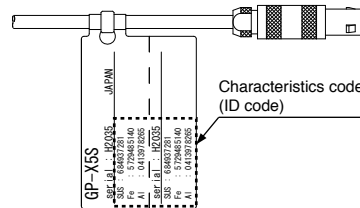
Notes: 1) Where measurement conditions have not been specified precisely, the conditions used were an ambient temperature of +20 °C.
 2) The sensing range is specified for the standard sensing object.
 3) The value represents 20 to 60% of the maximum sensing distance when combining the sensor head and controller.
 4) For the flexible cable type, please contact our office.
 5) The given weight of the threaded type sensor head is value including the weight of the nut and toothed lock washer.
 6) 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.

2 SENSOR HEAD REPLACEMENT SETTING

- When the sensor head for replacement is connected to the controller, be sure to enter the characteristics code (ID code) of the sensor head to the controller. Using the ID type linearity correction function having been developed for the current application, high accuracy identical to that of the factory shipment setting can be maintained. The characteristics code is a 10-digit number and written on the tag attached to the sensor head cable. For the entering procedure, refer to 'Sensor Head Replacement Setting' in the GP-X series user's manual.

Note: The tag attached to the sensor head cable can be split into two. Use the split tag as a copy.

- After entering the characteristic code (ID code), be sure to perform three-point calibration. For the calibration, refer to 'Three-Point Calibration (Linearity adjustment)' in the GP-X series user's manual.



Thank you very much for using our products. Please read this Instruction Manual carefully and thoroughly for the correct and optimum use of this product. Kindly keep this manual in a convenient place for quick reference. For the details, please refer to the GP-X user's manual.

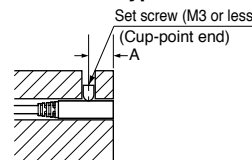
3 PRECAUTIONS

- This product has been developed / produced for industrial use only.
- The GP-X series is configured to satisfy the specification with the combination of the sensor head and the controller. Use the sensor head and controller in combination without fail; with other combinations, not only may the specifications may not be satisfied but also failure may result.
- Turn the controller off before mounting or removing the sensor head and controller.
- Note that the cables will be damaged if they are pulled.

4 MOUNTING

- Tighten the sensor head to the torque specified below.
- Mounting with set screw**
 - Make sure to use an M3, or less, set screw with a cup-point end.

< Column type >

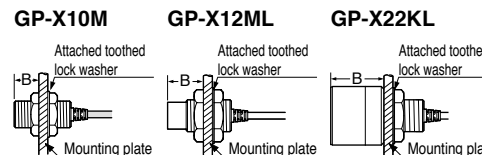


Model No.	A (mm)	Tightening torque
GP-X3SE	4 to 16	0.1N·m or less
GP-X5SE	5 to 16	0.44N·m or less
GP-X8S		0.58N·m or less

Note: Take care not to tighten excessively.

- Mounting with nut**

< Screw type >



Model No.	B (mm)	Tightening torque
GP-X10M	7 or more	9.8N·m or less
GP-X12ML	14 or more	20N·m or less
GP-X22KL	20 or more (Note1)	20N·m or less

Notes: 1) The dimension is for mounting with a nut. If two nuts, or more, are mounted, the dimension becomes 23.5mm, or more.
 2) Mount such that the nuts do not protrude from the threaded portion.

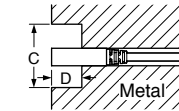
- Distance from surrounding metal**

- As metal around the sensor may affect the detection, take care of the following.
- Embedding of the sensor in metal**
Measurement value or analogue voltage output may be changed if the sensor is completely embedded in metal. Keep the minimum distance specified in the table below.

Model No.	C (mm)	D (mm)
GP-X3SE	φ 10	3 or more
GP-X5SE		
GP-X8S		
GP-X10M	φ 14	14 or more
GP-X12ML	φ 50	
GP-X22KL		20 or more



The diagram illustrates a cross-section of a metal plate with a hole. A pin is inserted into the hole. The distance from the top surface of the metal to the top of the pin is labeled C. The diameter of the hole is labeled D. The diameter of the pin is labeled φ. The metal is labeled 'Metal'.



- Sensing range**

- The sensing range is specified for the standard sensing object (Stainless steel / iron). With a metal other than the metals specified in the specifications, multiply with the correction coefficient shown in the table below. Check the effect with the actual machine.

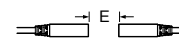
< Correction coefficient >

Sensor head	GP-X3SE, GP-X5SE GP-X8S, GP-X10M GP-X12ML, GP-X22KL
Metal	
Stainless steel (SUS304)	1
Iron	
Aluminum	0.5 approx.

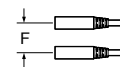
- In case the interference prevention function is not used**
 - If sensor heads are mounted close together without using the interference prevention function, keep the distance specified below.

Model No.	E (mm)	F (mm)
GP-X3SE	15	9
GP-X5SE	30	11
GP-X8S	40	15
GP-X10M	40	15
GP-X12ML	170	50
GP-X22KL	200	200

Face to face mounting



Parallel mounting



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