



INSTRUCTION MANUAL

High-Speed·High-Accuracy Eddy Current Digital Displacement Sensor GP-X Series

GP-X□

Thank you very much for using SUNX 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.



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.

For the details of High-speed·high-accuracy eddy current digital displacement sensor GP-X series, refer to the instruction manual enclosed with the GP-X series.

1 SPECIFICATIONS

Type	φ 3.8mm type		φ 5.4mm type		φ 8mm type	M10 type	M12 type	φ 22mm	
Item	Model No. (Note 1)	GP-X3S	GP-X3SE	GP-X5S	GP-X5SE	GP-X8S	GP-X10M	GP-X12ML	GP-X22KL
Model No. of combination set (Note 2)		GP-XC3S GP-XC3S-P	GP-XC3SE GP-XC3SE-P	GP-XC5S GP-XC5S-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 3)		0 to 0.8mm		0 to 1mm		0 to 2mm		0 to 5mm	0 to 10mm
Standard sensing object		Stainless steel (SUS304)/iron (60 × 60 × 11mm)							
Temperature characteristics (Note 4)		0.07%F.S./°C or less							
Protection		IP67 (IEC), IP67g (JEM)							
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							
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) The sensor head GP-X3S and GP-X5S are applicable to export regulations specified in 'Foreign Exchange and Foreign Trade Control Law'. Exportation of them or carrying them outside Japan requires an export permit from the Japanese government. However, GP-X3SE and GP-X5SE which are not applicable to export regulations are also available.

2) This is not a model No. of the controller on its own.

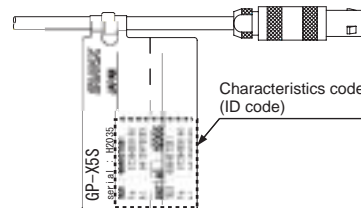
3) The sensing range is specified for the standard sensing object.

4) The value represents 20 to 60% of the maximum sensing distance when combining the sensor head and controller.

5) The weight of the GP-X10M, GP-X12ML and GP-X22KL is value including the weight of the nut and toothed lock washer.

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 '5.4 Sensor Head Replacement Setting' in the instruction manual enclosed with the GP-X series.



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 '4.2 Three-Point Calibration (Linearity adjustment)' in the instruction manual enclosed with the GP-X series.

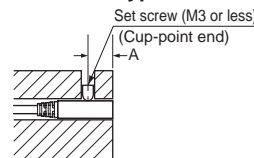
3 CAUTIONS

- 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>



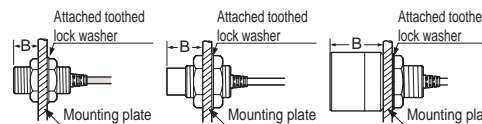
Model No.	A (mm)	Tightening torque
GP-X3S (E)	4 to 16	0.1N·m or less
GP-X5S (E)	5 to 16	0.44N·m or less
GP-X8S		0.58N·m or less

Note: Take care not to tighten excessively.

● Mounting with nut

<Screw type>

GP-X10M GP-X12ML GP-X22KL



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.

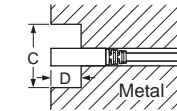
If two nuts, or more, are mounted, the dimension becomes 23.5mm, or more.

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-X3S (E)	φ 10	3 or more
GP-X5S (E)		
GP-X8S		
GP-X10M	φ 14	14 or more
GP-X12ML	φ 50	
GP-X22KL		20 or more



● 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>

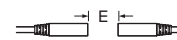
Sensor head / Metal	GP-X3S (E), GP-X5S (E) GP-X8S, GP-X10M GP-X12ML, GP-X22KL
Stainless steel (SUS304)	1
Iron	
Aluminum	

● In case the interference prevention function is not used

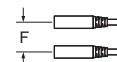
- If sensor heads are mounted close together without using the interference prevention function, keep the distance specified below.

Model No.	E (mm)	F (mm)
GP-X3S (E)	15	9
GP-X5S (E)	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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