AMA-A Acceleration Transducer INSTRUCTION MANUAL

Thank you for purchasing KYOWA's product AMA-A Small-sized Low Capacity Triaxial Acceleration Transducers (hereinafter referred to as the AMA-A). Before using the product, please read this Instruction Manual carefully. Also, keep the manual within easy reach so that you can refer to it whenever necessary.

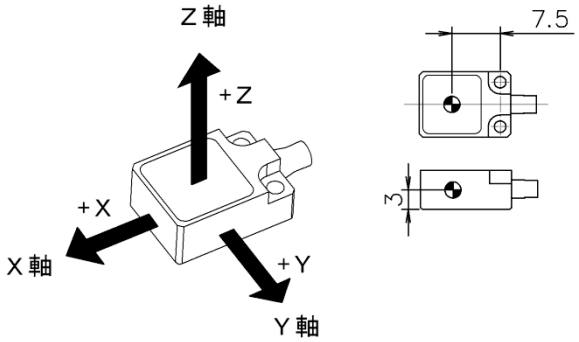
1. CALLING THE OPERATOR'S ATTENTION

Notes	In order to avoid instrument failure or malfunction, be sure to observe the accompanying instructions.

2. INSTALLATION

2.1 Sensitive axis

When installing the transducer, make sure of the model name and install it to provide a proper sensitive axis.

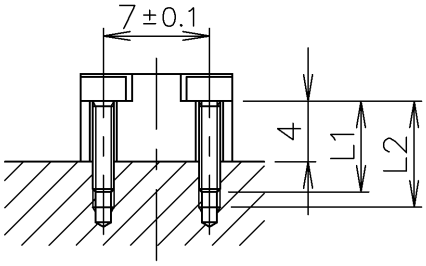


◓ Indicates the center of element

Figure 2-1

2.2 How to install

(1) To install, use M1.6 screw (recommended tensile strength ranking [12.9], longer than 6 mm*). Drill holes in the measuring object. The holes' effective screw depth should be longer than the mounting screws, L1≦L2. The distance between the holes should be 7±0.1 mm. (Figure 2-2)



*To install the AMA-A into the 3-axis angular rate gyro GSAT-A, use M1.6 screw (length: 6 to 8 mm).

Figure 2-2

(2) Clean the mounting area.

(3) Also clean the mounting surface of the transducer.

(4) Apply the silicone grease lightly between the transducer and measuring object. The tightening torque is 0.1 to 0.12 N・m (approx. 1.0 to 1.2 kgf・cm).

Notes
● Do not disassemble the transducer. ● This transducer is extra sensitive to impact. Avoid, therefore, dropping it or hitting against a hard matter. Avoid impact in excess of its safe overload rating (19,613m/s^2). If not, the transducer may be damaged. Take great care to handle it properly. ● When installing, carefully avoid external force such as bending or twisting on the transducer. It is ideal that when installed, the transducer is in complete close contact with the measuring object. ● If the transducer is installed using an adhesive, excessive force applied to remove it may deform the transducer's cabinet or cause failure of the transducer. If the transducer is to be used repeatedly, be sure to install it using screws. ● The grounding is an effective measures against noise and failure of the transducer caused by electric charge. (Figure 2-3)

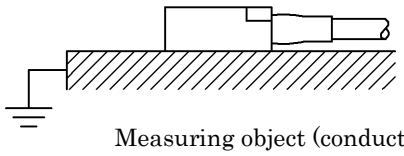


Figure 2-3

● The transducer's connector area is not waterproof. Take care to avoid water and highly humid (over 85%) environment.

3. CONNECTION

3.1 Connect the transducer to the measuring instrument via an optional relay cable (approx. length: 30 cm).

3.2 Label colors on the connector to measuring instrument of the relay cable indicate axes (X: Yellow, Y: Green, or Z: Blue). Before connecting the transducer to the measuring instrument, check label colors.

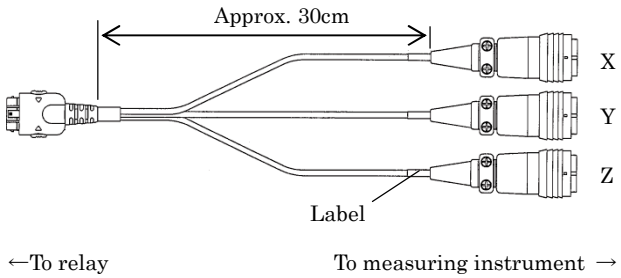
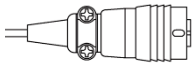
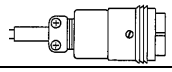
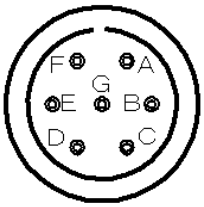


Figure 3-1

3.3 The "connector to measuring instrument" varies with the model of the relay cable.

Model	Cable length	Connector
TE-55	Approx. 30 cm	PRC03-12A10-7M 
TE-56	Approx. 30 cm	PRC05-P8M 

3.4 The connector is wired as illustrated below. (Figure 3-2)



A: Input +
B: Output -
C: Input -
D: output +
E: Shield
F: TEDS (+)
G: TEDS (COM)
(H: Open *)

* The above figure indicates the TE-55. Only the TE-56 has the terminal "H". Note that the terminal "H" is open.

Figure 3-2

Notes
Take great care for proper connection. Do not connect the A: Input (+) or C: Input (-) wire to D: Output (+) or B: Output (-). It may cause the transducer to be damaged.

3.5 The AMA-A mounts the Internal Memory TEDS IC, storing no data, inside the relay. The TEDS-installed version can be manufactures with your request in advance.

3.6 Do not connect the C: Input (-) to B: Output (-) when you use the single supply as the bridge excitation. At this time, open the B: OUTPUT (-) as illustrated below. In addition, the no-load output indicates the middle value of the power supply voltage. (Figure 3-3)

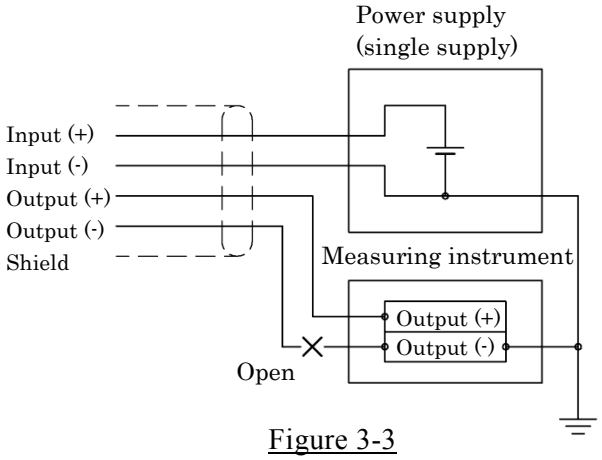


Figure 3-3

3.7 After turning ON the power, the Power LED on the relay lights up. While pressing the Sensor Check button, the Sensor Check LED lights up and the AMA-A outputs voltage at random. If the AMA-A does not output voltage at random while pressing the Sensor Check button, the AMA-A might be failure. (Figure 3-4)

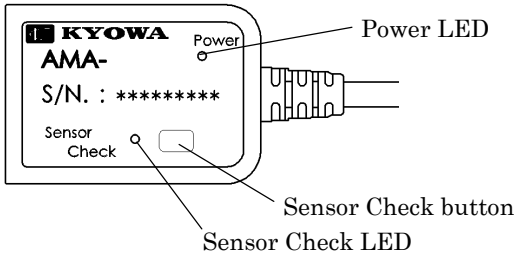


Figure 3-4

4. CONVERSION

Use the calibration constant described on the Test Data Sheet to convert a measured value into an acceleration value. (Not required when the TEDS function is adopted.)

Acceleration (m/s^2) ＝ Measured value (V) ×Calibration constant (m/s^2／V)

5. STORAGE AND MAINTENANCE PRECAUTIONS

5.1 After use, clean the transducer, with a cloth, and store in the storing case, together with the cable.

5.2 Take care to avoid high and low temperatures, high humidity and vibration.

5.3 If an abnormal initial value or measured value appears, contact KYOWA or our representatives.

6. SPECIFICATIONS, ACCESSORIES

6.1 Specifications

1.	Model	AMA-A-2	AMA-A-5
2.	Rated capacity	±19.61m/s^2 (±2G)	±49.03m/s^2 (±5G)
3.	Rated output	±2.0 V ±0.2 V	
4.	Nonlinearity	Within ±1%RO	
5.	Hysteresis	Within ±1%RO	
6.	Frequency response range	DC to 500Hz (Sensitivity deviation: Within ±10%)	
7.	Transverse sensitivity	4% or less	
8.	Peak-to-peak sensitivity error	4%RO or less	
9.	Safe temperature range	-20 to 80℃ (noncondensing)	
10.	Compensated temperature range	-10 to 60℃ (noncondensing)	
11.	Temperature effect on zero balance	Within ±0.5%RO/℃	
12.	Temperature effect on output	Within ±1%/℃	
13.	Safe excitation voltage	Dual supply: ±7 VDC Single supply: 14 VDC	
14.	Recommended excitation voltage	Dual supply: ±2.5 to ±6 VDC Single supply: 5 to 12 VDC	
15.	Electrostatic discharge	4kV	
16.	Current consumption	10mA or less	
17.	Cable	6-conductor (0.04mm^2) vinyl shielded cable, 2.5 mm diameter by 5 m long (Shield wire is not connected to the main body.)	
18.	Safe overload rating	±19,613m/s^2 (±2000G)	
19.	Weight	Approx. 3 g (excluding cable)	

NOTE: The units and numerical values in parentheses, in the rated capacity column and safe overload rating, depend on the conventional unit expression just for reference.

6.2 Accessories

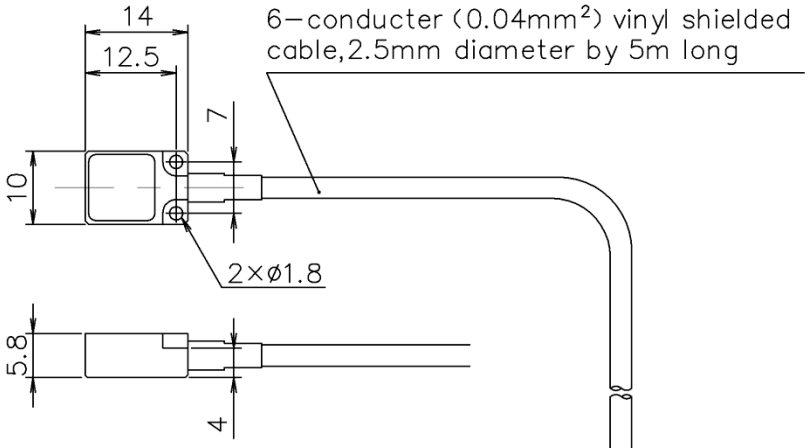
Test data sheet	1
Warranty	1
Instruction manual	1

6.3 Optional accessories

Relay cable	TE-55,TE-56

○Dimensions

[Sensor]



[Relay]