

AS-THH Triaxial Head Acceleration Transducer AS-THC Triaxial Chest Acceleration Transducer

INSTRUCTION MANUAL

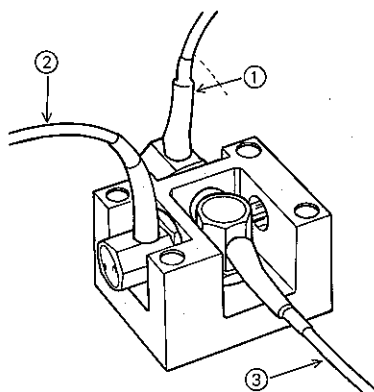
1. Handling Precautions

- 1.1 Do not disassemble the transducer.
- 1.2 Carefully avoid dropping the transducer onto the floor, etc. or an overload will occur to result in damage to the transducer.
- 1.3 Do not apply a spanner to the octagonal base of the transducer.

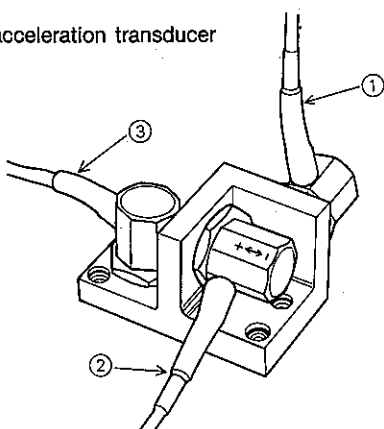
2. Mounting

- 2.1 Using the attached countersunk screws (M5 × 8), each with a hexagonal hole, fix the three uniaxial acceleration transducers respectively to the head bracket (DH-3A) or to the chest bracket (DC-3A).
- 2.2 Mount the acceleration transducers in the order of their numbers, 1 to 3, shown in the figures below. If not, the assembly of all the three transducers will become impossible.

Head acceleration transducer



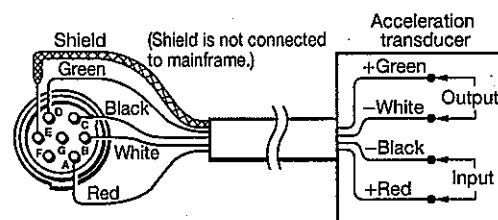
Chest acceleration transducer



- 2.3 Prevent the rubber sleeve of the cable from contacting the edge of each bracket.
- 2.4 To mount the transducers to the dummy, use the bolts attached to the dummy. The bolts for this purpose are not attached to the transducers.

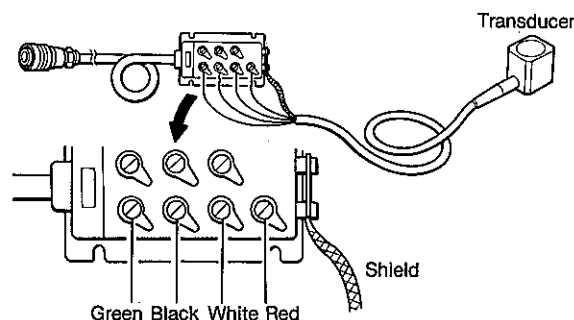
3. Connection

- 3.1 Connect the transducers to a strain amplifier.
- 3.2 Observe the pin assignment illustrated below when using an NDIS connector.



Note: The cable's shield wire is not connected to the acceleration transducer's mainframe.

- 3.3 When using a KYOWA bridge box, make connection according to the illustration below.



4. Conversion

- 4.1 For conversion, use the calibration factor described in the calibration sheet.
- 4.2 When a strain amplifier is used, a measurement value is read out in $\epsilon \times 10^{-6}$ strain. To calculate acceleration, multiply this reading by the calibration factor, i.e. the acceleration value equivalent to 1×10^{-6} strain which is described in the calibration sheet.

$$\text{Acceleration} = (\text{Reading of strain amplifier, } \epsilon \times 10^{-6}) \times (\text{Calibration factor, m/s}^2 / 1 \times 10^{-6})$$

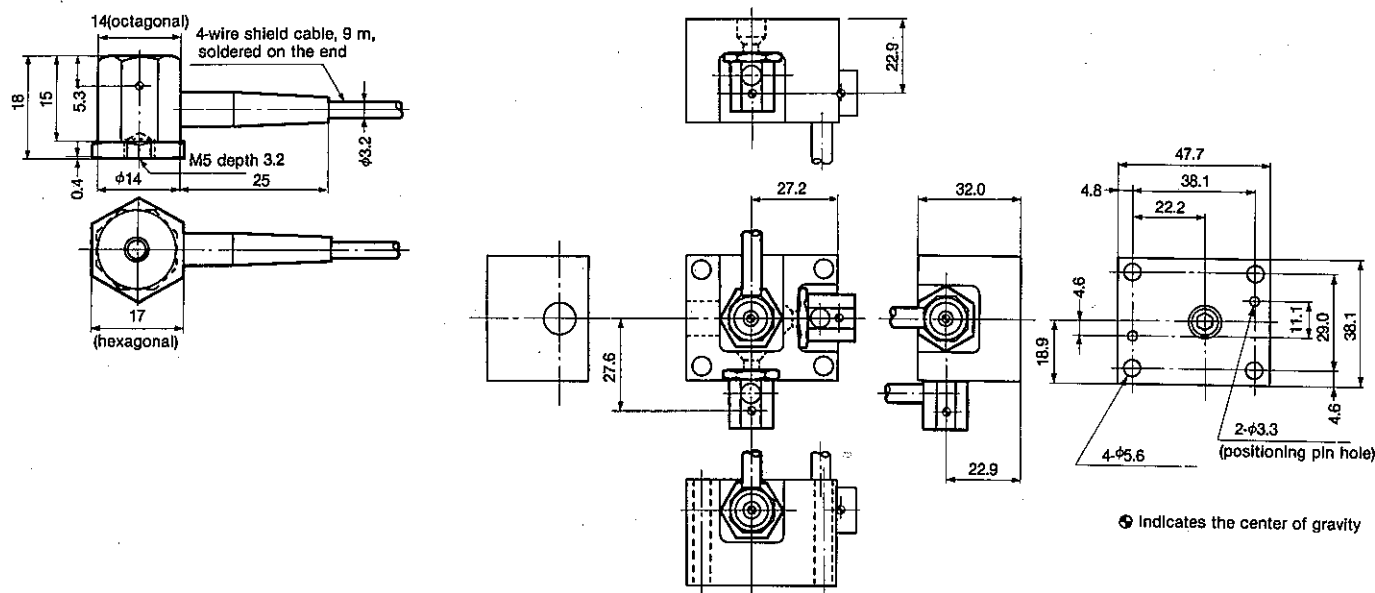
- 4.3 If you use an amplifier of other type or a recorder, it is necessary to know the exact bridge voltage which has been applied.

Pressure equivalent to output of $1\mu\text{V}$, which will be generated by application of 1V bridge excitation, is described in the calibration sheet. To find acceleration, multiply your reading in μV by the calibration factor.

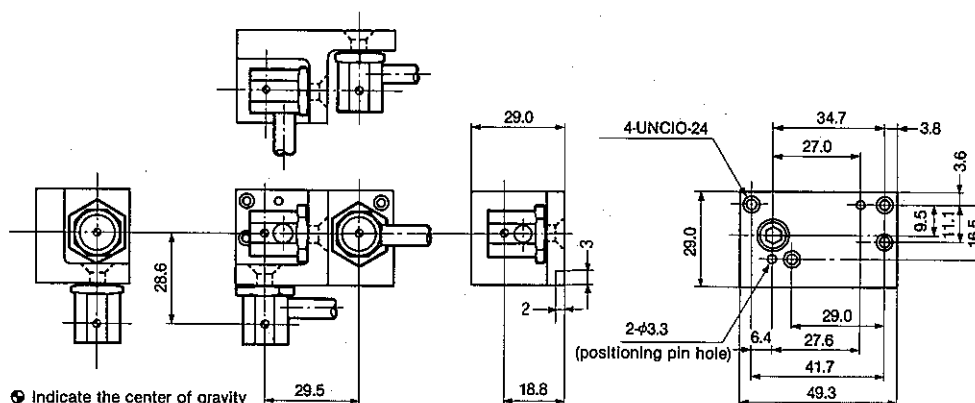
$$\text{Acceleration} = \frac{\text{Bridge output voltage, } \mu\text{V}}{\text{Bridge excitation voltage, V}} \times (\text{Calibration factor, m/s}^2 / 1 \mu\text{V/V})$$

5. Dimensional Drawings

5.1 Acceleration transducer AS-HAM40 — 5.2 Head bracket DH-3A



5.3 Chest bracket DC-3A



6. Specifications

Model, rated capacity	In all X, Y and Z directions: • AS-500THH $\pm 4903\text{m/s}^2$ ($\pm 500\text{G}$) • AS-200THH $\pm 1961\text{m/s}^2$ ($\pm 200\text{G}$) • AS-500THC $\pm 4903\text{m/s}^2$ ($\pm 500\text{G}$) • AS-200THC $\pm 1961\text{m/s}^2$ ($\pm 200\text{G}$)	• AS-200HAM40 only DC to 3500Hz (sensitivity deviation: $\pm 5\%$) • AS-500HAM40 only DC to 5000Hz (sensitivity deviation: $\pm 10\%$)	
Rated output	0.5mV/V (1000×10^{-6} strain) $\pm 20\%$		
Non-linearity	$\pm 1\% \text{R0}$	Lateral sensitivity factor	$\pm 2\%$
Hysteresis	$\pm 1\% \text{R0}$	Safe temperature range	-15 to 65°C
Input/output resistance	120Ω $\pm 10\Omega$	Safe overload rating	300%
Recommended bridge voltage	1 to 3V, AC or DC	Weight	• AS-200, 500THH Approx. 540g (acceleration transducer mainframe 13.5g x 3, cable 135g x 3, bracket 94g) • AS-200, 500THC Approx. 492g (acceleration transducer mainframe 13.5g x 3, cable 135g x 3, bracket 46g)
Safe bridge voltage	6V, AC or DC	Cable	0.08mm ² , 4-conductor shielded vinyl cable 9m, $\phi 3.2\text{mm}$, terminated in exposed wires
Response frequency range (at 23°C)	• AS-200, 500THH DC to 1000Hz(sensitivity deviation: -10% to +5%) when incorporated in bracket • AS-200, 500THC DC to 180Hz(sensitivity deviation: -10% to +5%) when incorporated in bracket	NOTE: The units and numerical values in brackets in the above rated capacity column depend on the conventional expression method just for reference.	

■ Construction

Model	Acceleration transducer	Dedicated bracket	Mounting screw
			Hexagon socket head countersunk screw
AS-500THH	AS-500HAM40 × 3	DH-3A	(M5 × 8) × 3
AS-200THH	AS-200HAM40 × 3	DH-3A	(M5 × 8) × 3
AS-500THC	AS-500HAM40 × 3	DC-3A	(M5 × 8) × 3
AS-200THC	AS-200HAM40 × 3	DC-3A	(M5 × 8) × 3

■ Accessories

Inspection sheet	3
Guarantee	1
Instruction manual	1

Export precautions

This product falls under the export regulations on strategic commodities as provided for in the Foreign Exchange Law and the Foreign Trade Control Law. The necessary legal procedures should therefore be taken, including acquisition of an export license from the Government of Japan, if this product is to be taken abroad.