

MODEL 7270A SHOCK ACCELEROMETER INSTALLATION TIPS

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Model 7270A Shock Accelerometer Installation Tips

To optimize the performance of the Model 7270A Shock Accelerometer, several installation and power supply requirements must be observed. Being a DC-coupled device, it is imperative that a stable zero measurand output (ZMO) is maintained throughout its operation. Here are some important tips to follow:

Power Supply

- Sensitivity is determined with 10.00 Vdc excitation voltage at the bridge. Since the sensing elements are arranged in a Wheatstone bridge configuration, the output is approximately ratiometric to its supplied power, (therefore, any error in the excitation value will cause the same error in the output. If another value of excitation is to be used, have the unit calibrated at that value). Make sure the power source is as clean and stable as possible.
- Allow 1 minute of warm-up prior to taking data.

Mounting

- Mounting surface preparation:
Surface flatness -- 0.0003" TIR
Surface roughness -- 32 micro inches
Perpendicularity of tapped holes -- 1 degree $\pm 0.5^\circ$
Tap class -- 2
- Mount the accelerometer flat side down with the supplied screws and washers (P/N EH137 and 17147).
- It is recommended that a thread locking adhesive be applied to the screws.
- Recommended mounting torque is 8 ± 2 lbf-in (0.9 N-m). Make sure both screws are torqued to the same value. Uneven torque preloads the sensor with small amount of static strain, which may be released under shock loading, resulting in a shift in ZMO.
- A clean contact patch is imperative. Any small particle or debris trapped between the mounting surfaces will preload the accelerometer case with unwanted static strain, resulting in zeroshift during a shock measurement.
- Apply a thin film of machinist oil as couplant between the mounting surfaces to enhance transmissibility.
- For permanent installation, applying adhesive between the mounting surfaces in addition to the above screw mounting procedure (less the machinist oil) is recommended. If the accelerometer is to be mounted on aluminum, an epoxy adhesive between the mounting surfaces (and the mounting screws) is imperative.
- Tape or glue cable securely, (using a bead of RTV) leaving 0.5 inches (1 cm) of strain relief from the body of the accelerometer.
- Check the mounting torque on the screws after each measurement. A loose screw may cause a change in the preload condition, which can cause a shift in ZMO.

