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REV F ECN 13551 07/10/17

OPERATING INSTRUCTIONS

MODEL 3122C & 3122C2

HERMETICALLY SEALED

CHARGE MODE ACCELEROMETERS

NOTE
Models 3122C and 3122C2 are essentially similar instruments with the following exceptions: The upper temperature limit for Model 3122C is +375 degrees F while the upper temperature . for Model 3122C2 is +500 degrees F. The sensitivity of Model 3122C is 50 pC/g while the 3122C2 is 15 pC/g. Most other specifications are similar. (Check specification sheet for other differences).

This manual includes:
(1) Outline/installation drawing 127-3122C
(2) General Guide to Charge Mode Accelerometers

OPERATING INSTRUCTIONS
MODEL 3122C CHARGE MODE HERMETIC SEALED ACCELEROMETER

INTRODUCTION

Model series 3122C consists of two Models, the 50 pC/g Model 3122C and the 15 pC/g Model 3122C2. Model 3122C has an upper temperature limit of +375 ºF, while the Model 3122C2 has an upper temperature limit of +600 ºF. Both models feature hermetic sealing by use of hermetically-sealed 10-32 connectors and laser welded construction. The metal used for the housing and base is 316L stainless steel.

The seismic mass, made from a very dense tungsten alloy, is tightly preloaded against the piezoelectric crystals by means of a special preload screw under hundreds of pounds of force. This is so there is absolutely no relative motion between mass, crystals and base keeping the non-linearity low and the natural frequency high.

DESCRIPTION

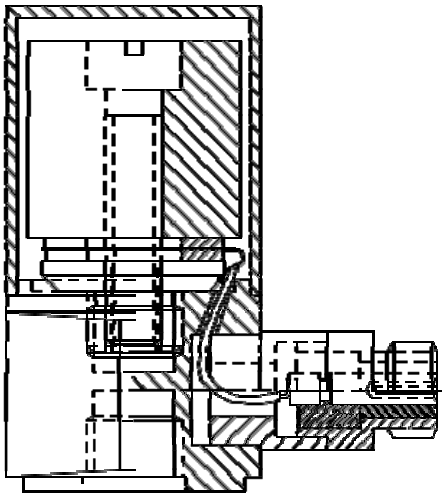

FIGURE 1 CROSS SECTION OF MODEL 3122C

Figure 1 is a representative cross section of Models 3122C. The seismic mass is heavily preloaded against the piezo crystals so the acceleration into the base is transferred directly the piezo crystals giving accurate transfer from acceleration to charge output.

INSTALLATION

Both Models are designed for mounting by use of a provided 10-32 Model 6200 mounting stud. To mount the 3122C/C2, it is necessary to drill and tap a 10-32 mounting hole to a minimum depth of .150 inch minimum perfect thread in the center of a circular mounting surface of at least .50 inches in diameter.

To install Model 3122C, it is necessary to select (or prepare) a flat surface to accept the 0.44 inch diameter mounting surface of the instrument. As a rule of thumb, the flatter the mounting surface, the better the high frequency response will be. A surface flat to .001 TIR will give excellent results for the high frequency measurements.

Use the provided mounting stud and torque the 3122C to 20 to 25 lb-inches of torque, applying the torque to the .50 inch hex.

OPERATION

To operate Model 3122C, it is necessary to use an electrostatic charge amplifier to convert the charge mode output signal from the accelerometer to a low-impedance voltage-mode signal which may then be fed directly to the data acquisition instrument(s).

For laboratory use, the 3122C may be connected to any vibration type charge amplifier and even with most electrostatic types. Use a low-noise cable such as the Dytran Model 6013Axx, 10-32 to 10-32 or the Model 6019Axx, 10-32 to BNC. (xx is the length in feet).

A recommended charge amplifier for field use is the Dytran Series 4751B. These instruments convert the 3122C to Low Impedance Voltage Mode (LIVM) operation. They are mounted in-line between the 3122C and the LIVM power unit and convert the pC/G signal to mV/G. These miniature charge amplifiers are available in four models with fixed sensitivities of 50, 20, 10 and 1 mV/pC. Again, use low noise cable to connect the 3122C to the input of the charge amplifier.

MAINTENANCE AND REPAIR

The only maintenance required is to keep the cables and connections free from moisture and other contaminants. Should a problem arise, contact the factory for assistance in trouble-shooting the system and for instructions in returning the instruments should this become necessary.

Do not return the instrument back to the factory without first calling the factory to obtain a Returned Material Authorization (RMA) number.