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OPERATING GUIDE

MODEL 3033B2

MINIATURE LOW PROFILE

LIVM™ QUARTZ SHEAR TRIAXIAL ACCELEROMETER

WITH 3 BNC CONNECTORS AT END OF INTEGRAL CABLE

NOTE: INCLUDED IN THIS MANUAL ARE:

1) OPERATING INSTRUCTIONS, MODEL 3033B2.
2) OUTLINE/INSTALLATION DRAWING, MODEL 3033B2,
3) SPECIFICATIONS, MODEL 3033B2.
4) PAPER, “LOW IMPEDANCE VOLTAGE MODE (LIVM) THEORY AND OPERATION”

NOTE: IEPE is an acronym for Integrated Electronics Piezoelectric types of low impedance voltage mode sensors with built-in amplifiers operating from constant current sources over two wires. **IEPE** instruments are compatible with other comparable systems labeled **LIVM**TM.

OPERATING INSTRUCTIONS
MODEL 3033B2 TRIAXIAL ACCELEROMETER

INTRODUCTION

Model 3033B2 triaxial accelerometer is a three-axis miniature quartz shear LIVM accelerometer. Three very tiny quartz shear seismic elements with self-contained impedance converting amplifiers are mounted orthogonally within a stainless steel housing. The latest quartz shear technology ensures excellent stability and freedom from base strain effects, extremely important in triaxial designs. The higher voltage sensitivity of quartz in the shear mode results in lower weight.

The low-profile housing is only .31 in. high and is .60 wide x .60 long. A through hole accepts a Model 6545A1 #4-40 socket head cap screw for convenient mounting to the test surface with The screw head is recessed into the housing resulting in no increase in height for the head of the mounting screw. The central screw mount allows the user to align the axes in exactly the direction where they are needed. This versatile accelerometer may also be adhesive mounted .

DESCRIPTION

See Outline/Installation drawing 127-3033B2 for dimensions and configuration details of this unit.

Model 3033B2 features a stainless steel housing for high rigidity for superior high frequency response. The hermetically sealed quartz shear elements are bonded into cavities in the housings and epoxied in place as modular building blocks and as such, cannot be removed from the housing. The elements are electrically insulated from power ground.

Electrical connections are by a single 4-wire molded cable assembly which is TIG welded to the body of the accelerometer and which terminates in 3 BNC plug connectors at the end of a 3ft. 8in. long cable. The cable projects radially from a 45° angled surface at one corner of the housing. This design keeps the profile low and provides a rugged electrical connection.

Each axis is identified with arrows and identifying numerals etched into the top surface of this unit. The arrows delineate the sense and direction of acceleration of each axis for positive-going output signal (voltage).

Refer to the accompanying specification sheet for acceleration ranges, sensitivities and other operational characteristics for this model.

INSTALLATION

Refer to the outline/installation drawing 127-3033B2 for installation details.

To mount the tri-ax, it is only necessary to prepare a flat area with 4-40 tapped hole at the center. Model 3033B2 requires a .58 x .58 flat area for mounting. Prepare this mounting surface by spot facing, grinding. turning, etc., controlling the flatness to ±.001 TIR over the entire area for best high frequency response.

At the center of the area, drill and tap the #4-40 hole for the Model 6545A1 mounting screw in accordance with instructions in the outline/installation drawing provided.

NOTE: before mounting the accelerometer, clean the mounting surface thoroughly to preclude the inclusion of foreign particles between mating surfaces. It is necessary that the accelerometer and mounting surfaces be in intimate contact for integrity of calibration and for accurate high frequency response.

Use mounting hardware supplied with the accelerometer to fasten the unit to its mounting surface. Torque the mounting screw in accordance with instructions in the Outline/Installation drawing.

For permanent installations, use thread locking compounds on the screw threads.

OPERATION

Connect the accelerometer to the constant power units in accordance with cable tags identifying the axes as outlined in the Outline/Installation drawing 127-3033B2.

Refer to the paper "**L**ow **I**mpedance **V**oltage **M**ode (**LIVM**) Theory and Operation" for a guide to operation of this accelerometer.