

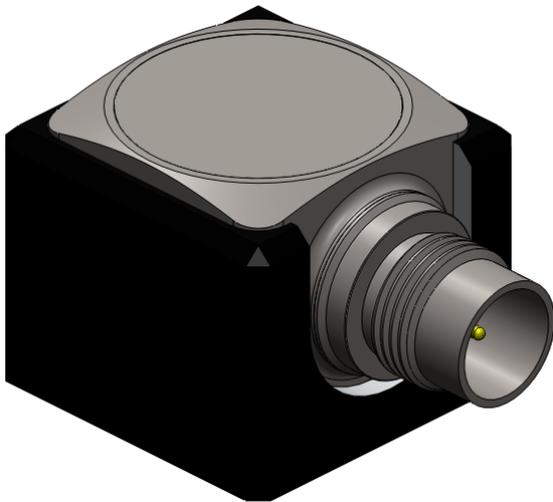


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OPERATING GUIDE

3333MT SERIES MINIATURE TRIAXIAL LIVM ACCELEROMETERS WITH SINGLE MINIATURE 4-PIN CONNECTOR AND BASE-ISOLATION



3333MT series are miniature, **LIVM** triaxial accelerometers featuring a single, side mounted miniature 4-pin electrical connector and isolated case. These features allows the accelerometer to be used in situations where vertical space is limited and where “off ground” performance is needed to prevent any signal transmission problems usually associated with ground loops. The series covers wide range of sensitivities.

This Guide contains:

- 1) Specifications, 3333MT Series
- 2) Outline/Installation Drawing 127-3333MT
- 3) Operating Instructions for 3333MT series

NOTE: **LIVM™** is Dytran's trademark for its line of **Low Impedance Voltage Mode** sensors with built-in amplifiers operating from constant current sources over two wires. **LIVM** instruments are compatible with other manufacturers' comparable systems labeled **IEPE**.

OPERATING INSTRUCTIONS

3333MT SERIES TRIAXIAL ACCELEROMETER

INTRODUCTION

3333MT series are miniature three-axis accelerometers using the latest in ceramic shear technology coupled with 2-wire internal LIVM electronics.

This instrument contains three miniature ceramic planar shear mode accelerometer elements mounted to a single support and welded into a titanium housing. The three elements are mounted orthogonally to each other so that they can measure the complete motion of a point.

3333MT series features an anodized aluminum housing that weighs only 1 gram. This instrument mounts with adhesives into very small spaces since its vertical dimension is .35 in. It weighs only 2.8 grams.

LIVM (Low Impedance Voltage Mode) design means that three miniature IC amplifiers are built into the instrument, one for each axis, to lower the impedance of the ceramic seismic elements by many orders of magnitude. This technique allows the driving of long cables without affecting sensitivity and the use of very simple constant current type power units.

DESCRIPTION

Refer to the outline/installation drawing 127-3333MT for the dimensions of 3333MT series.

This novel accelerometer features three modular style ceramic elements mounted to a single vertical post. Each planar shear mode element is connected to a miniature LIVM amplifier. The element assembly is mounted in titanium housing.

The electrical connections from the elements are brought out to the contacts of a four-pin connector located sideways to a vertical face of the housing. The three signal/power connections to the elements are connected to three separate pins while the three ground returns for the elements are tied together to one common pin of the four-pin connector. The case of this instrument is connected to electrical ground.

Ground isolation of the mounting surface is achieved by means of an anodized aluminum cup. The cup helps prevent any signal transmission problems usually associated with ground loops.

The performance specifications and criteria for 3333MT series are delineated on the specification sheet included with this operating guide.

INSTALLATION

Select a smooth surface approx. .50 in. diameter and clean off all oil, debris and any contaminants or foreign matter which would preclude a good bond. Various adhesives may be used to mount 3333MT series, but the adhesives of choice for ease of use are any of the cyanoacrylate "instant" adhesives. They are tough and they set almost instantly. They also do not need a thick bond line which is good for high frequency response. The selected (or prepared) mounting area should be flat to within .001 in TIR for best high frequency response.

NOTE: Before mounting, be sure to clean the mounting surface thoroughly to avoid inclusion of machining chips and other debris between mating surfaces. Intimate contact between mating surfaces is important for best performance.

Spread a light layer of adhesive on the mounting surface and apply the 3333MT series to the mounting area in the desired orientation and press and hold firmly for several seconds.

If a fair amount of motion is expected during the test, it is good practice to tie the cable down to a stationary point as close as possible to the accelerometer (but not closer than 1 inch) to avoid potentially damaging cable whip. You are now ready to connect the 3333MT series to the power unit.

OPERATION

Be sure to check the orientation of each axis with the markings on the instrument upper surface and/or the outline/installation drawing supplied with the Operating Guide. The polarity of each axis is also defined with letters marked on the side surface of the 3333MT series and again, on the outline/installation drawing 127-3333MT. The letters indicate the directions and sense of motion of the accelerometer that will produce positive-going output signals. The vertical axis, axis 3, produces positive-going output voltage when the accelerometer is accelerated upward, i.e., away from the mounting surface.

REMOVAL

It is very important when removing this instrument to remember that, although it is built to be very rugged, it is a sensitive measuring instrument and as such should be treated gently when being removed from its installation. Never strike the unit to break it free from its mounting surface. Simply grip two opposing flats with an adjustable or open-end wrench and gently twist the instrument until the adhesive bond fails in shear. This method avoids any trauma to the instrument and will help ensure a long life for the accelerometer.

MAINTENANCE AND REPAIR

This instrument is not field repairable. No maintenance is required, or possible. If a problem occurs, contact the factory for help. You will be assigned a Returned Material Authorization (RMA) number should the instrument have to be returned to the factory for evaluation. A short note describing the problem will facilitate the repair procedure.

There is no charge for evaluation of the instrument and we will perform no repair work until you are notified of any charges.

It is good practice to return the instrument to the factory for recalibration from time to time with frequency of recalibration dependent on usage intensity and frequency.