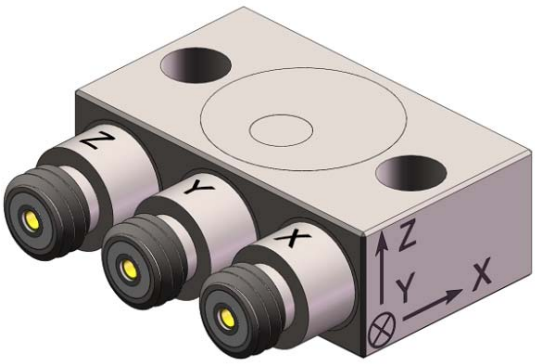
Dynamic Transducers and Systems
21592 Marilla St. • Chatsworth, CA 91311 • Phone 818-700-7818
www.dytran.com • e-mail: info@dytran.com

OG3443C
REV A , 03/11/14, ECN 10420
REV B, 10/08/15, ECN 12236

OPERATING GUIDE

MODEL 3443C

CHARGE MODE TRIAXIAL ACCELEROMETER



Model 3443C is a charge mode triaxial accelerometer featuring 3 separate 10-32 connectors mounted in a titanium housing for low mass. Model 3443C produces a high impedance charge mode signal, measured in pC/g.

This manual contains:
1) Performance Specifications, Model 3443C
2) Outline/Installation Drawing 127-3443C
3) General Guide to Charge Mode Accelerometers.

OPERATING GUIDE

MODEL 3443C TRIAXIAL ACCELEROMETER

INTRODUCTION

Model 3443C is a charge mode triaxial accelerometer with nominal sensitivity of 2.7 pC/g. The exact sensitivities are provided on the calibration sheet supplied with each accelerometer.

This accelerometer contains three miniature piezoceramic planar shear mode elements mounted in a titanium housing.The three elements are mounted orthogonally to each other so that they can measure the complete motion of a point. Model 3443C is hermetically sealed using laser welds and glass-to-metal sealed connectors.

Model 3443C is mounted using two 6-32 mounting screws, Model 6247A2, (supplied).

All three elements are electrically grounded to the titanium outer housing for best noise immunity.

DESCRIPTION

Refer to the outline/installation drawing 127-3443C for the dimensions of model 3443C.

The electrical connections from the elements are brought out, individually, to a 10-32 hermetic coaxial connector. The three connectors extend radially from the housing.

The performance specifications and criteria for model 3443C are delineated on the performance specification sheet included with this operating guide.

INSTALLATION

This accelerometer is designed to be mounted using two 6-32 mounting screws, model 6247A2, supplied with each accelerometer.

Select a smooth surface at least .85 in x .50 in. and clean off all oil, debris and any contaminants or foreign matter that would preclude good contact between mating surfaces. This is important for best frequency response. Drill and tap two 6-32 mounting ports in accordance with instructions provided on outline/installation drawing 127-3443C.

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.

Connect the three connectors to the charge amplifiers using only low noise miniature coaxial cable such as Dytran's Model 6013A (10-32 to 10-32).

If a fair amount of motion is expected during the test, it is good practice to tie the cables 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 3443C to the power charge amplifier.

OPERATION

Model 3443C is intended for use with charge amplifiers to condition the charge mode outputs to voltage mode signals which can then utilize normal coaxial cable to transport the signal to the readout instrumentation with minimal line loss. Contact Dytran for suggestions pertaining to specific charge amplifiers available for this accelerometer.

Apply power to the charge amplifiers and allow several seconds for coupling capacitors to fully charge. You are now ready to take data.

Be sure to check the orientation and polarity of each axis with the markings on the accelerometer side surface and/or the 127-3443C outline drawing supplied with this Operating Guide. The arrows indicate the direction and sense of motion of the accelerometer that will produce negative-going output signals. The vertical axis, axis Z, produces negative-going output voltage when the accelerometer is accelerated upward, i.e., away from the mounting surface. The protocol for negative-going outputs is dictated by the fact that charge amplifiers are essentially inverting amplifiers so the output signal from the charge amplifiers will be positive-going.

MAINTENANCE AND REPAIR

This instrument is not field repairable. The only field maintenance required, or possible is the cleaning of contaminated connectors should this become necessary.

If a problem occurs, contact the factory for help. You will be assigned a Returned Material Authorization (RMA) number should the instrument need 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.