

# OPERATION MANUAL

## MODEL 805M1 ACCELEROMETER

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### WARRANTY

Measurement Specialties, Inc. accelerometers are warranted during a period of one year from date of shipment to original purchaser to be free from defects in material and workmanship. The liability of Seller under this warranty is limited to replacing or repairing any instrument or component thereof which is returned by Buyer, at his expense, during such period and which has not been subjected to misuse, neglect, improper installation, repair, alteration, or accident. Seller shall have the right to final determination as to the existence and cause of a defect. In no event shall Seller be liable for collateral or consequential damages. This warrant is in lieu of any other warranty, expressed, implied, or statutory; and no agreement extending or modifying it will be binding upon Seller unless in writing and signed by a duly authorized officer.

### RECEIVING INSPECTION

Every Measurement Specialties, Inc. accelerometer is carefully inspected and is in perfect working condition at the time of shipment. Each accelerometer should be checked as soon as it is received. If the unit is damaged in any way, or fails to operate, a claim should immediately be filed with the transportation company.

### SERVICE CONCERNS

If a Measurement Specialties, Inc. instrument requires service, first contact the nearest Measurement Specialties, Inc. representative. They may be able to solve the problem without returning the unit to the factory. If it is determined that factory service is required, call Customer Service at the regional headquarters for an RMA number before return.

### RETURNS

All units being returned to the factory require an RMA (Return Material Authorization) number before they will be accepted. This number may be obtained by calling Customer Service at the regional headquarters with the following information; model number(s), quantity, serial number(s), and symptoms of the problem, if being returned for service. You must include the original purchase order number if under warranty.

### RECALIBRATION SERVICES

The Vibration Sensors Design Center and its two manufacturing facilities in China and France offer factory re-calibration services for Piezoresistive, Piezoelectric and Integrated Electronics Piezoelectric (IEPE, ISOTRON, ICP, etc.) accelerometers. NIST (US), DKD (Germany), COFRAC (France) traceable calibration services on sensitivity at 100 Hz (102 or 120 Hz in Europe) and full frequency sweeps are offered. Contact the regional headquarters for pricing information.

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## DESCRIPTION

The Model 805M1 is a miniature voltage output accelerometer designed for OEM embedded applications. Packaged in a 3-Pin TO-5 header, the accelerometer is available in  $\pm 20g$  and  $\pm 200g$  dynamic ranges and offers a flat frequency response to 12kHz. The accelerometer is offered in two configurations; one for adhesive mounting and one for stud mounting.

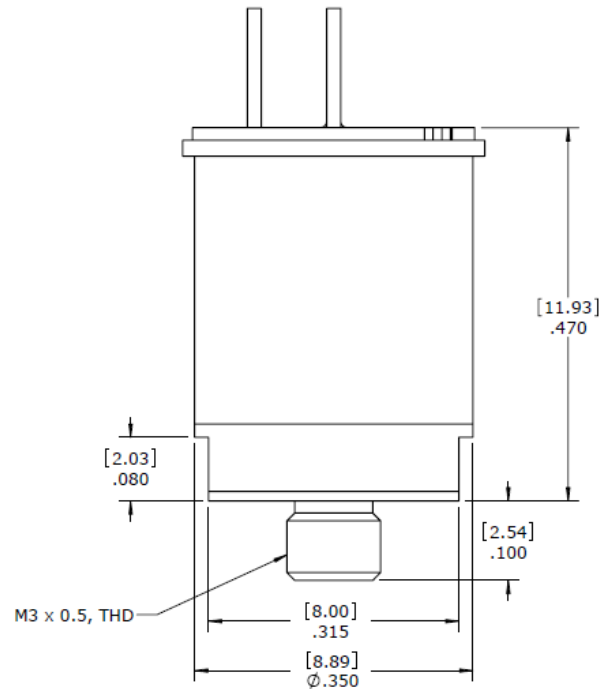
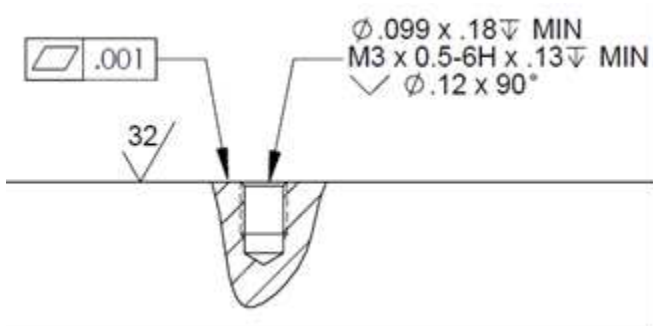
## INSTALLATION

The model 805M1 accelerometers are offered in adhesive mount and stud mount configurations. For stud mount option the -01 suffix is added to end of part number.

Stud Mounting (model 805M1-GGGG-01 stud mount option)

For stud mounting the following guidelines should be followed:

- The mounting surface should be clean and free of any residue or foreign material.
- The mounting surface should be smooth, flat, and with a maximum surface roughness of 32 micro-inches rms.
- Apply a light coating of coupling fluid (machine oil or silicone grease) on the mating surface to maximize the usable frequency range.
- Torque mounting stud to 5.3 in-lbs (0.6 N-m)



Adhesive Mounting (805M1-GGGG standard)

For adhesively mounting of accelerometers the following guidelines should be followed:

- The mounting surface should be clean and free of any residue or foreign material.
- The mounting surface should be smooth, flat, and with a maximum surface roughness of 64 micro-inches rms.
- For best high frequency performance a cyanoacrylate adhesive is recommend. A thin layer offers best frequency response.
- Soften adhesive cured adhesive with a chemical debonder (eg. acetone) prior to removal. Gently shear accelerometer loose from the mounting surface after waiting a few minutes for the debonding agent to penetrate the epoxy. Make sure not to use excessive force as this may damage the accelerometer.
- Note that the outer casing of the 805M1 accelerometer is connected to circuit ground. If ground isolation is required then a layer of adhesive or epoxy encapsulant should isolate the sensor casing from mounting surface.

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### EXCITATION

Although the model 805M1 is ideally designed to be operated by 5Vdc excitation, the accelerometer can also be powered by excitation voltages (ExcV) ranging from 3.3 to 5.5Vdc. However, excitation voltages other than 5Vdc will affect the full scale range of the accelerometer since the bias voltage is a function of excitation voltage.

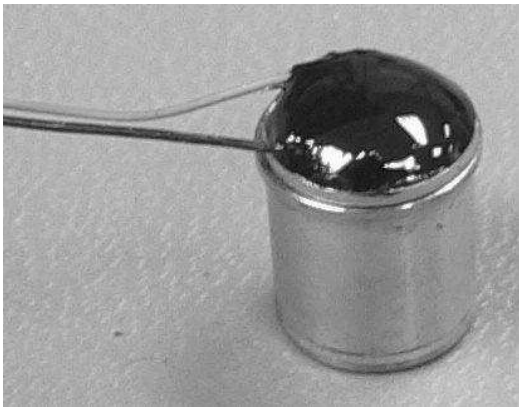
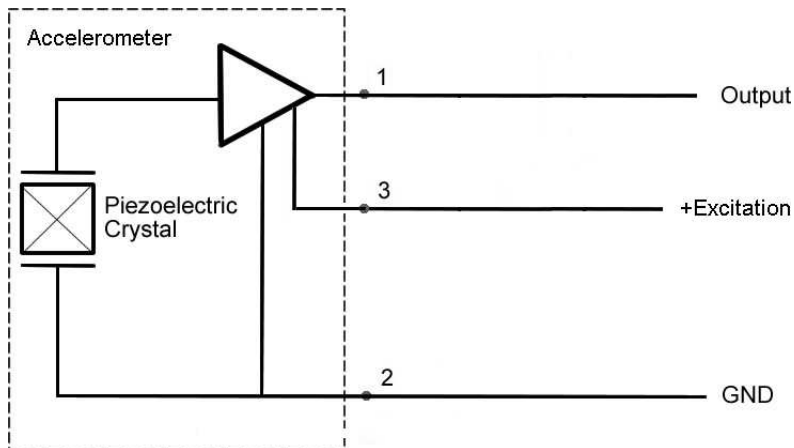
The following formula can be used to calculate the full scale range of the accelerometer when using different excitation voltages other than 5Vdc.

$$\text{Full scale range (g)} = [\text{ExcV} - 0.3\text{V} - (\text{ExcV} / 2)] / \text{Sensitivity (V/g)}$$

### WIRING

For attaching wires to the header pins of the model 805M1, the following guidelines should be followed.

- Solder small lead wires to the header pins. The gage should be no larger than #32 AWG.
- Encapsulate the header pins with an encapsulant or silicon RTV to protect the pins from damage during operational usage.



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