Accelerometer Basics

Measurement Specialties' Vibration Design Center offers these general suggestions for accelerometer use across most applications:

> The maximum frequency range of an accelerometer is 1/3 of its natural frequency.

> A two inch fall of a metal object onto a workbench can generate 2,000 g's.

> Choose accelerometers to allow sufficient room for spikes.

> The higher the frequency, the smaller the accelerometer required while the lower the frequency the larger the accelerometer that can be used.

> In explosive applications, the closer the accelerometer is to the source the greater the g level.

> Accelerometers can measure position and displacement. At higher frequencies they may provide more reliable data than sensing technologies based on position and displacement.

> A correctly installed accelerometer will have one natural frequency and a flat frequency response where accurate measurements can be made.

> A thermal isolator, such as a piece of polymer inserted between the base of an accelerometer and a hot surface may reduce the conducted heat sufficiently to allow the accelerometer to operate within its specified temperature range.

> Compared to strain-gage accelerometers, piezoresistive MEMS designs offer advantages of smaller size, lighter weight, higher output and greater frequency range.

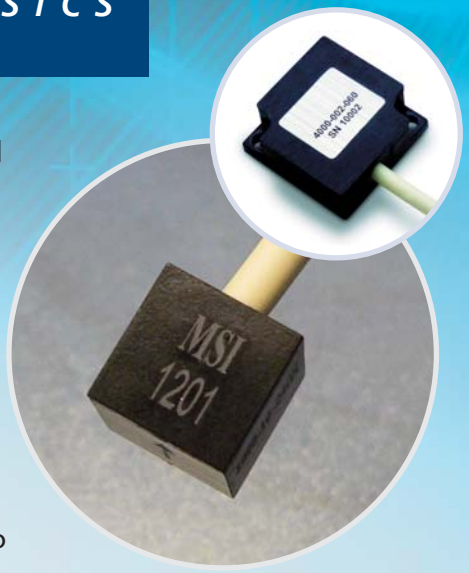
> High frequency measurements usually end up being made with accelerometers with low sensitivity.

> For permanent installations of stud mounted accelerometers also apply an adhesive to the mounting surface.

> Tape or glue cable securely leaving only enough room for any cable movement that may occur.

> Use a thread locking adhesive when installing stud mounted accelerometers.

> Case grounded, insulated mounted accelerometers provide the best protection against ground loops.



Accelerometer models 4000 (top) 1201 (bottom)

Measurement Specialties Vibration Design Center (VDC) in Aliso Viejo, California spearheads the company's global initiative to expand its accelerometer and vibration sensing businesses among customers in the automotive, medical, military, aerospace and consumer goods industries. VDC builds on the application capabilities of Measurement Specialties' sensing technologies based on silicon MEMS, piezoelectric polymer film, piezoelectric ceramic and bonded gage.

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