

ACCELEROMETER BASICS

VIBRATION SENSORS

TE Connectivity 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.



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