# Mounting & Accessories

## Sensor Mounting

When using Piezoelectric sensors to measure vibration, the sensor must directly contact the machine surface. The more intimate and stiff the contact between sensor and the machine, the better the ability to couple and measure high frequency signals.

The sensor should be mounted at a location that minimizes the vibration transmission route from the item being monitored (bearing) through the machine to the sensor. Avoid mounting the sensor on thin sections or vibration-free areas (antinodes).

## Mounting Configurations

There are multiple mounting configurations that are used to couple the sensors to the machine surface. Figure 1 illustrates the various types of mounting configurations.

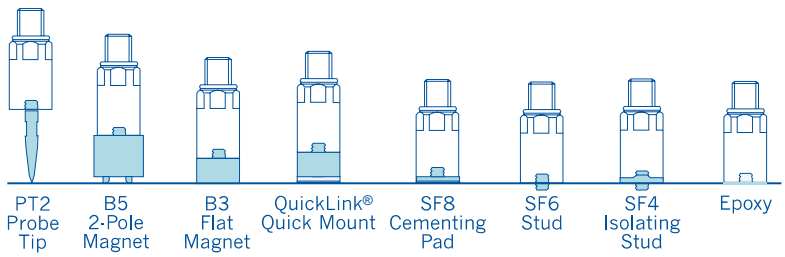



*Figure 1: Types of Mounting Configuration*

## Temporary Mounting

The use of magnet bases or probe tips connection is convenient and quick for many applications, but they produce a significantly different response at higher frequencies compared to stud and cemented pad measurements. Attaching magnetic bases or probe tip (stingers) allow the sensor to be easily moved from point to point. Quick mounts, however, combine the capabilities of a stud with the speed of a magnet. The most significant disadvantage of the magnet base or probe tip is the lower resonant frequency of the coupled system. The more intimate the contact between sensor and the machine, the better the ability to couple and measure high frequency signals.

TECH TIP

### Mounting Resonance

As discussed previously, a sensor's high frequency usable limit is a function of the resonance of the accelerometer. Sensors with a higher resonance will generally be small, light weight and specially designed. These transducers will then be usable to read high frequency vibration signals. However, the mounting method of the sensor will have a significant impact on its "as installed" resonance and high frequency limit. As shown in Figure 1, each mounting method has an associated resonance. If the mounting resonance is less than the sensor resonance, the high frequency limit of the sensor will be compromised. In general, the more intimate the contact between the sensor and machine surface, the less chance of a low "as installed" resonance and a decreased high end response.

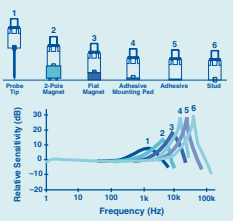



**Figure 1: Mounting Method of a Sensor**



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*Probe Tips*

Probe tips require very little surface preparation and are easy to use. Tips should be slightly rounded at the point and maintained free of burrs.

*Magnets*

In all applications, the machine surface must be magnetically attractive and free of paint chips and scale. Painted surfaces are acceptable, but should be clean and well maintained. The magnet must be clean and free of metal particles and burrs. Magnets are available for flat and curved surfaces. Coupling fluids, such as oil, greatly improve measurements with flat bottom magnets and should be used wherever possible.

*Quick Mounts*

Quick mounts allow the sensor to be mounted rapidly with little effort. The coupling resonance approaches cementing pad and stud mounted configurations. Quick mounts consist of a special adapter mounted to the sensor and multiple mating pads on the machine. The mating pad can be stud mounted or cemented to the mounting location. The Quick*LINK*® system requires a less than one turn to mount the sensor, making walkaround collection faster without compromising repeatability. Quick*LINK*® is only offered by Wilcoxon.

## Permanent Mounting

Direct stud mounting, epoxy, and cementing pads are used for permanent installations. The sensor can be directly mounted by tapping a hole into the structure and attaching the sensor with a threaded stud. Stud mounting is viewed by users as the most reliable way to mount a vibration sensor. Stud mounting will attain the maximum sensor frequency range. Cementing pads can be epoxied in place of the tapped hole; the sensor is then mounted to the pad. Cementing pads approach the capabilities of stud mounts when used properly. Procedures should be evaluated with respect to frequency response, sensor/shield grounding, and installation requirements. In some cases, the sensor can be mounted directly to the machine using epoxy. Adhesive selection is critical for long-term reliability.

*Threaded Stud*

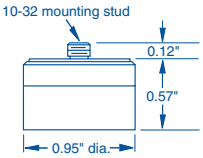
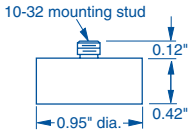
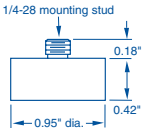
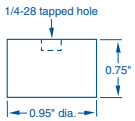
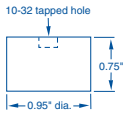
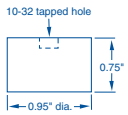
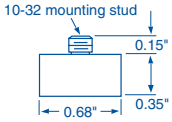
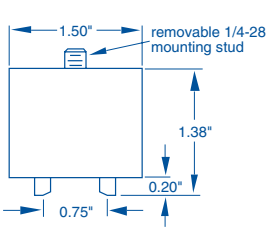
Stud mounting requires a tapped hole drilled directly into the structure. A threaded stud provides electrical and mechanical connection between the sensor and machine. The sensor requires a flat spot faced surface with a perpendicular tapped hole.

*Cementing Pad*

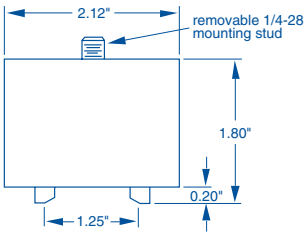
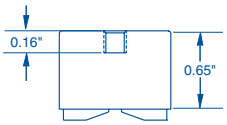
Cementing pads eliminate tapping into the structure, but provide high frequency capability approaching stud mounts. The flat side is bonded to the machine with an appropriate adhesive. The opposite side contains a 1/4-28 stud for mounting the sensor. The proper installation leaves the pad and the sensor housing electrically isolated from ground.

**Request *Technical Note 21, Mounting Considerations* for detailed procedures.**

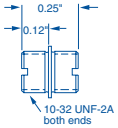
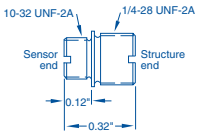
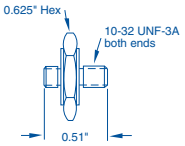
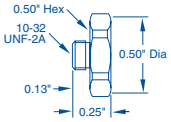
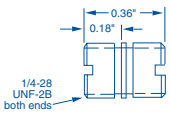
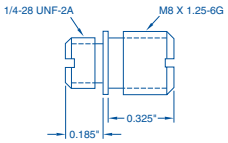
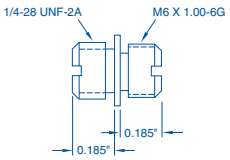
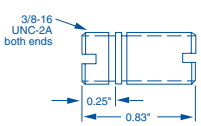
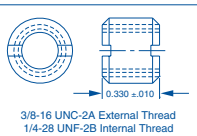
# MOUNTING / ACCESSORIES

| MODEL | IMAGE | DRAWING | DESCRIPTION |
|---|---|---|---|
| B1A |  |   | Rare earth magnetic mounting base, 10-32 stud, isolated, 0.95" diameter, 40 lbs. force. Electrically isolates the sensor from ground to prevent ground loops. |
| B2A |  |   | Rare earth magnetic mounting base, 10-32 stud, non-isolated, 0.95" diameter, 40 lbs. force. |
| B3 |  |   | Rare earth magnetic mounting base, 1/4-28 stud, non-isolated, 0.95" diameter, 40 lbs. force. |
| B3-1 |  |   | Rare earth magnetic mounting base, 1/4-28 tapped hole, non-isolated, 0.95" diameter, 40 lbs. force. |
| B3-2 |  |   | Rare earth magnetic mounting base, 10-32 tapped hole, non-isolated, 0.95" diameter, 40 lbs. force. |
| B3-3 |  |   | Rare earth magnetic mounting base, 10-32 tapped hole , keyed, non-isolated, 0.95” diameter, 40 lbs. force. |
| B4 |  |   | Rare earth magnetic mounting base, 10-32 stud, non-isolated, 0.68" diameter, 40 lbs. force. |
| B5 |  |   | Two-pole magnetic mounting base, 1.5" diameter, 30 lbs. force. Removable mounting stud for use with bolt thru sensors. Specify 1/4-28 mounting stud or 10-32 adaptor stud when ordering. Use on curved surfaces. Recommended for low frequency measurements or where other mounting methods are not practical. **Note: B5 is shipped with a protective washer. Washer must be removed before using the magnet.* |

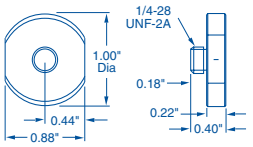
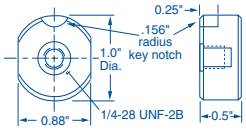
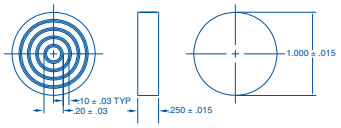
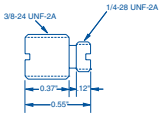
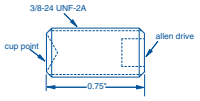
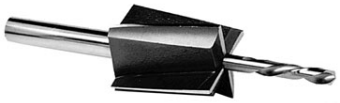
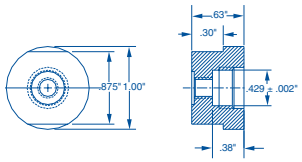
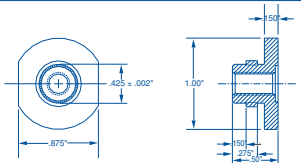
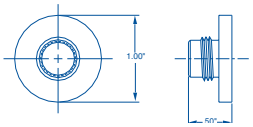
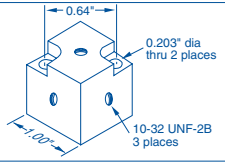
# MOUNTING / ACCESSORIES

| MODEL | IMAGE | DRAWING | DESCRIPTION |
|---|---|---|---|
| B6 |  |   | Two-pole magnetic mounting base, 2.12" diameter, 70 lbs. force. Removable mounting stud for use with bolt thru sensors. Specify 1/4-28 mounting stud or 10-32 adaptor stud when ordering. Use on curved surfaces. Recommended for low frequency measurements or where other mounting methods are not practical. **Note: B6 is shipped with a protective washer. Washer must be removed before using the magnet.* |
| B11 |  |   | Magnetic mounting base for Model 712F, 8-32 mounting thread |
| FM101 |   | | Fin mount, 0.500” thick, 1.25” long |
| FM102 | | | Fin mount, 0.500” thick, 2.00” long |
| FM103 | | | Fin mount, 0.250” thick, 1.75” long |
| FM104 | | | Fin mount, 0.250” thick, 1.00” long |
| GFA18 |  | | Zerkometer™ grease fitting adapter 1/4-28 taper to 1/8 NPT female 90º |

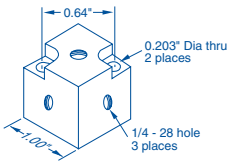
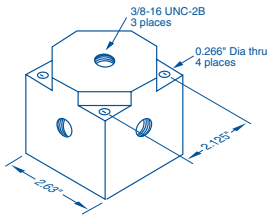
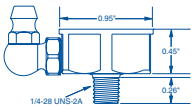
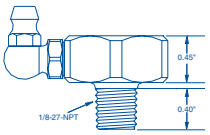
# MOUNTING / ACCESSORIES

| MODEL | IMAGE | DRAWING | DESCRIPTION |
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| SF1 |  |  | Mounting stud, 10-32 UNF both ends, stainless steel, recommended mounting torque 18 in-lbs. |
| SF3 |  |  | Mounting stud adapter, adapts 10-32 UNF to 1/4-28 UNF, stainless steel, recommended mounting torque 18 in-lbs. |
| SF4 |  |  | Mounting stud, 10-32 UNF both ends, isolated, stainless steel with non-conductive layer of epoxy to prevent ground loops, recommended mounting torque 18 in-lbs. |
| SF5 |  |  | Epoxy mounting stud, 10-32 thread, 0.50" hex, anodized aluminum, recommended mounting torque 18 in-lbs. |
| SF6 |  |  | Mounting stud, 1/4-28 UNF both ends, stainless steel, recommended mounting torque 24 in-lbs. |
| SF6M |  |  | Mounting stud, 1/4-28 UNF to M8 x 1.25 (metric), recommended mounting torque 24 in-lbs. |
| SF6M-1 |  |  | Mounting stud, 1/4-28 UNF to M6 x 1.00 (metric), recommended mounting torque 24 in-lbs. |
| SF7 |  |  | Mounting stud, 3/8-16 thread both ends, stainless steel, see specification sheet of instrumentation being used for recommended mounting torque. |
| SF7B |  |  | Threaded inserts (helical inserts), 1/4-28 internal to 3/8-16 externall |

# MOUNTING / ACCESSORIES

| MODEL | IMAGE | DRAWING | DESCRIPTION |
|---|---|---|---|
| SF8 |  |   | Cementing pad, 1/4-28 integral stud, 1" diameter, stainless steel, recommended mounting torque 24 in-lbs. |
| SF8-2 |  |   | Cementing pad, 1/4-28 tapped hole, 1" diameter, stainless steel, recommended mounting torque 24 in-lbs. Includes key notch for consistant axis orientation; use with 993B Series Triaxial Accelerometers. |
| SF11 |  |   | Magnetic mounting pad, stainless steel. Epoxy this pad to a structure surface to provide a place for magnetic mount sensors. |
| SF20-1 |  |   | Mounting stud, 1/4-28 to 3/8-24. |
| SF20-2 |  |   | Mounting stud, 3/8-24 to 3/8-24. |
| ST101 |  | | Spot face tool, 1.25” diameter, pilot drill for 1/4-28 hole. Drill depth is adjustable. |
| QB-1 |  |   | Quick*LINK*® Sensor Base, adapter mates to 1/4-28 sensor, stainless steel. Adapts to sensor for walkaround data collection. Attaches sensor to any QuickLINK mounting pad in less than one turn. |
| QP-1 |  |   | Quick*LINK*® Stud Mounting Pad, 1/4-28 tapped hole base, stainless steel. Allows quick mount of sensors in less than one turn. Use of one QB-1 on sensor required. Easy conversion to permanently mounted sensors. |
| QP-2 |  |   | Quick*LINK*® Cementing Pad, flat base, stainless steel. Allows quick mount of sensors in less than one turn. Use of one QB-1 on sensor required. Easy conversion to permanently mounted sensors. |
| TC1 |  |   | One inch triaxial mounting cube, 10-32 tapped holes, anodized aluminum, non-conductive coating prevents ground loops.Weight 36 grams. |

# MOUNTING / ACCESSORIES

| MODEL | IMAGE | DRAWING | DESCRIPTION |
|---|---|---|---|
| TC1B |  |  | One inch triaxial mounting cube, 1/4-28 tapped holes, anodized aluminum, non-conductive coating prevents ground loops.Weight 36 grams. |
| TC2 |  |  | Triaxial mounting cube for 731A, 3/8-16 tapped holes, anodized aluminum, non-conductive coating prevents ground loops.Weight 500 grams. |
| ZB14 |  |  | Zerkometer™ mounting base, 1/4-28 tapered thread |
| ZB18 |  |  | Zerkometer™ mounting base, 1/8-27 NPT |
| A48038 |  | | Crimp Tool for use with R6Q or R6SL/R6GSLI connectors. |
| A61059 |  | | Epoxy, Nozzle, EPX |
| SILPAK |  | | Silicone Grease, 1.5 cc tube, Dow Corning [DC 111] for use with splash proof connectors. |
| SILGREASE |  | | Silicone Grease, 5.3 ounce tube, Dow Corning [DC 111] for use with splash proof connectors. |
| VERSIL406 |  | | Epoxy, Versilox, A-Paks, 406 / ACC. #17 |