

SA6350 HIGH-TEMPERATURE ACCELEROMETER

Installation Manual



OVERVIEW

The Metrix SA6350 is suitable for use in temperatures up to 325°C. The sensor's design separates the charge amplifier/line driver from the piezo-electric sensing element, using an armored, integral cable. This allows the sensing element to be mounted directly on the machine, but the charge amplifier to be mounted either 3m or 5m away, in a lower-temperature environment. The charge amplifier is rated up to 120°C; its mounting location will often expose it to moderately elevated temperatures, but these will normally be well below the surface temperatures encountered at the sensing element location, such as a gas turbine casing. The charge amplifier can then be connected to standard field wiring via its 2-pin MIL-style connector or optional integral shielded cable.

MECHANICAL INSTALLATION

Accelerometer and Cable Installation

The sensitive axis of the accelerometer can be mounted on any radial axis. When possible, to reduce temperature exposure as much as practical, mount the accelerometer on the side of the machine. To ensure a clean response to high frequency vibrations, the accelerometer must be securely mounted to a flat machined surface. If a bracket is required, it should be rigidly constructed to prevent spurious mechanical resonances in the specified frequency range. Due to the accelerometer cable temperature limitation of 260°C, the cable MUST be routed away from surfaces exceeding that temperature. To avoid cable noise, the accelerometer cable must be firmly secured every .3m (12 inches) to minimize cable movement. The minimum bending radius of the cable is 30 mm (1.2 inches). Please note that the armored cable between the accelerometer and the charge amplifier module is not removable in the field. DO NOT ATTEMPT TO DISCONNECT THE ARMORED CABLE.

Charge Amplifier

The charge amplifier module can be mounted in any convenient location relative to the accelerometer. Ensure that the maximum temperature the module is exposed to is within the limits specified (-40°C to +58°C/120°C). The module should be fastened to a supporting structure using customer supplied clamps or straps.

ELECTRICAL INSTALLATION

Accelerometer Grounding

Most machinery trains are grounded to earth. An accelerometer mounted on such a machine would then also be grounded. In some circumstances, electrical noise on the machine housing may be transferred to the accelerometer. In these cases, it may be necessary to provide an additional electrical ground connection to the plant instrument ground system. In extreme cases, it may be necessary to electrically isolate the accelerometer from the machine housing and connect only the accelerometer to the instrument ground system. The latter case requires precautions in order to maintain a proper mechanical mounting of the accelerometer without introducing mechanical resonances.

Charge Amplifier / Line Driver Wiring

The Charge Amplifier / Line Driver module is provided in output connector, terminal block and integral shielded cable versions. Connection to the module should be made with a shielded, twisted-pair cable suitably rated for the environmental conditions to be expected. The maximum wire size which may be used with the connector or terminal block is number 16 AWG (1.26 sq. mm). The cable shield is left floating at the Charge Amplifier / Line Driver end of the cable. The integral cable version of the Charge Amplifier / Line Driver is provided with number 20 AWG wires.

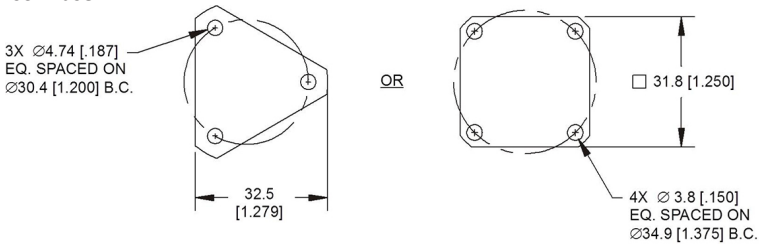
Metrix has connector versions of cables (20 AWG) available for use with the Charge Amplifier / Line Driver. Metrix P/N 9193-001 is to be used with the 58°C version of the Charge Amplifier / Line Driver and Metrix P/N 9193-002 is to be used with the 120°C version.

The shield at the far end of the output cable should be connected to the receiving monitor's, transmitter's, or PLC's circuit common. In addition, it may be necessary to connect that point to a low noise electrical ground system. The cable shield should be continued to within 25mm (1 inch) of the receiver's terminals and the shield connection should be as short as possible.

A practical limit on the cable length in voltage mode is 300 meters (1000 feet) based on a cable capacitance of 100 pF per meter (30 pF per foot). The cable forms a low pass filter. Long cables will attenuate the higher frequency components of vibration signals more than short cables. Consult the factory for additional information if this is of concern.

MOUNTING PATTERNS

Sensor Base "A"



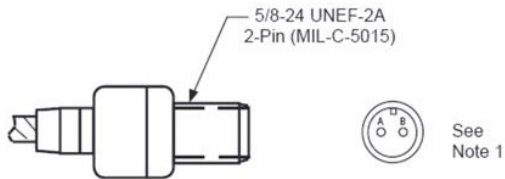
MOUNTING SPECIFICATIONS (inches)

Spot face $\varnothing 1.75''$,
 Drill $\varnothing .106''$ (No. 36) x $.62''$ DP.
 C'bore 90° x $\varnothing .14''$
 Tap 6-32 UNC x $.50''$ DP.

MOUNTING SPECIFICATIONS (mm)

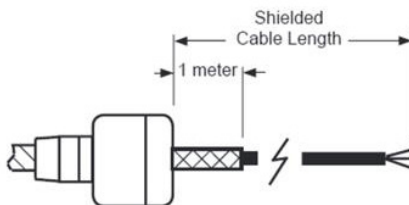
Spot face $\varnothing 45\text{mm}$,
 Drill $\varnothing 2.90\text{mm}$ x 16mm DP.
 C'bore 90° x $\varnothing 3.5\text{mm}$
 Tap M3.5 x $.60$ x 12mm DP.

Connector "C"

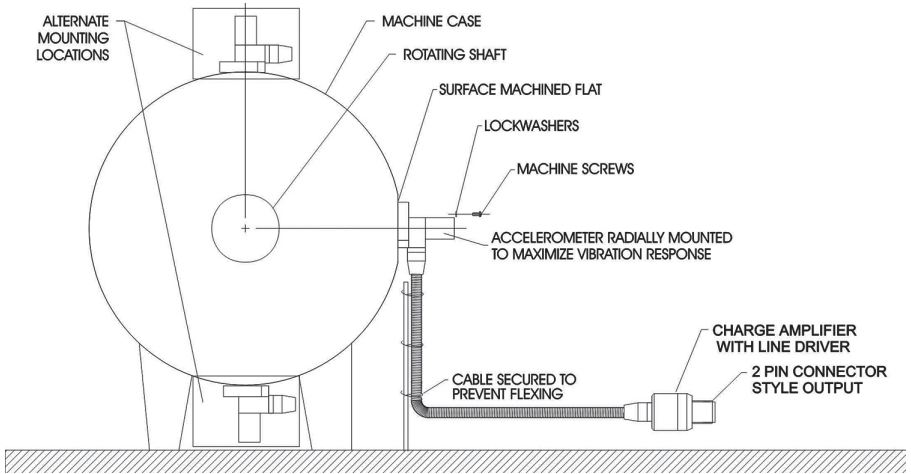


Note 1: Designation shown is industry standard. SA6350 will operate with A & B reversed.

MS 2-Pin Connector



Shielded Cable w/1 Meter Braided Armor



NOTES:

1. This apparatus cannot be repaired in the field and must be replaced by an equivalent unit.
2. This apparatus has been designed such that it does not give rise to physical injury or other harm due to contact, nor does it produce excessive surface temperature, infrared, electromagnetic or ionizing radiation. It also does not have non-electrical dangers.
3. Do not separate or disconnect unit when energized when used in a Zone 2 Area.

ENVIRONMENTAL INFORMATION



This electronic equipment was manufactured according to high quality standards to ensure safe and reliable operation when used as intended. Due to its nature, this equipment may contain small quantities of substances known to be hazardous to the environment or to human health if released into the environment. For this reason, Waste Electrical and Electronic Equipment (commonly known as WEEE) should never be disposed of in the public waste stream. The “Crossed-Out Waste Bin” label affixed to this product is a reminder to dispose of this product in accordance with local WEEE regulations. If you have questions about the disposal process, please contact Metrix Customer Services.

info@metrixvibration.com
 www.metrixvibration.com
 8824 Fallbrook Dr. Houston, TX 77064, USA
 Tel: 1.281.940.1802 • Fax: 1.713.559.9421
 After Hours (CST) Technical Assistance: 1.713.452.9703