

# MODEL SA6200A IPT™ SEISMIC ACCELEROMETER SENSOR

Installation Manual



IPT™ (Independent Polarity Terminal) is a registered trademark of Metrix Instrument Co.

8824 Fallbrook Dr.  
Houston, TX 77064, USA  
Tel: 1-281-940-1802

After Hours Technical Assistance: 1-713-702-8805

Fax: 1-713-559-9421

E-mail: [info@metrixvibration.com](mailto:info@metrixvibration.com)

[www.metrixvibration.com](http://www.metrixvibration.com)

**METRIX**  
Experience Value

Revision: E

The SA600A is capable of sensing a wide range of vibration frequencies, this accelerometer is ideal for use on a variety of machines. A built-in amplifier provides a high level, low impedance output for connection to a signal conditioner for 4-20 mA output or to a vibration monitor. It consists of a temperature stabilized piezo-electric sensor and amplifier, packaged in a stainless steel case. It is designed to operate continually in a wet, corrosive environment of 121°C (250°F). The sensing circuit is electrically isolated to 500vrms. Although shipped standard with a 1/4-28 to 1/4-28 mounting stud, other mounting configurations are available. Refer to the accessories table of this manual for alternative mounting adaptors.

**Dynamics:**

Accuracy: 2% (Repeatability)  
 Sensitivity (±5%): 100 mV/g  
 Frequency Response:  
 2 to 5,000 Hz (± 5%)  
 1.5 Hz to 7,500 Hz (±10%)  
 0.7 Hz to 10,000 Hz (±3dB)  
 Resonant Frequency: 13 KHz  
 Cross Axis Sensitivity: <5%  
 Measurement Range: >50 g  
 Resolution: 0.002 g

**Electrical:**

Case Isolation: 108 ohms  
 Excitation Current: 2 to 10 mA  
 Excitation Voltage: 18 to 28 VDC, Polarity Indifferent  
 Full Scale Output Voltage: ±5 volts  
 Output Bias: 8 to 12 volts  
 Settling Time: 5 seconds max.  
 Transient Protection: RFI & ESD

**Mechanical:**

Case Material: 303 SS  
 Connector Type: See "How to Select C"  
 Hermetic Seal: Welded  
 Mounting Stud: 1/4-28 UNF or M6 X 1.0 (P/N 3719-007)  
 Sensing Element: Quartz  
 Weight: 91 gm (3.1 oz)

**Environmental:**

Shock Limit: 5,000 g  
 Temperature Range: -54°C to +121°C  
 Electromagnetic Compatibility: CE Certified  
 Hazardous Area Certification: See How To Select "A"

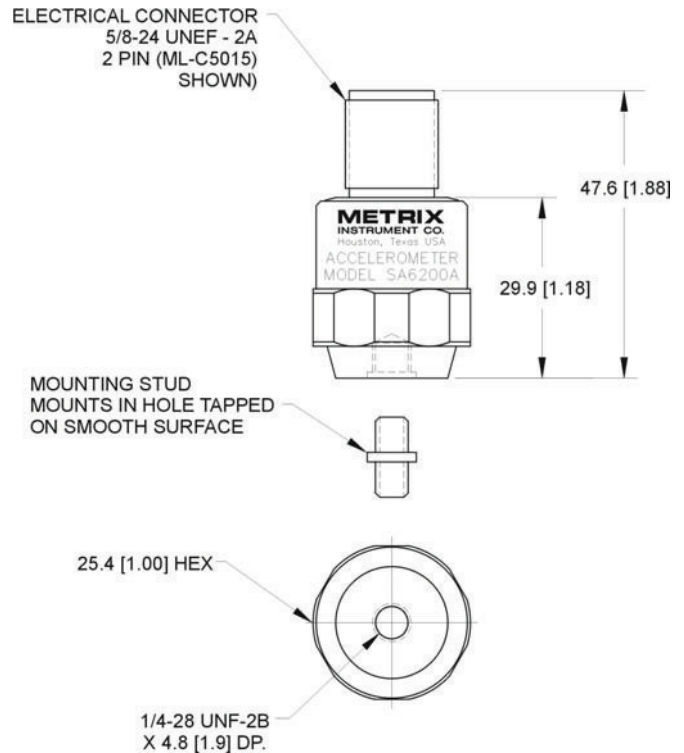
**Features**

- Wide Frequency Response
- Hermetic S.S. Case
- Polarity Indifferent

**Applications**

- Motors
- Gear Boxes
- Paper Machines
- Process Pumps
- Large Fans
- Rotor Blade Pass Sensing
- Turbocharger Engine Vibration
- Cooling Tower Fans

**Outline & Dimensions**



## How to Select

A B C

SA6200A -

### A Hazardous Area Rating

1 = CSA intrinsically safe\* for Class I,  
Div. 1, Grps A-D; Temp. Code T4

2 = CENELEC intrinsically safe\*;  
Ex ia IIC T4, ATEX

\* When wired using approved barrier (not included).

### B Mounting Stud

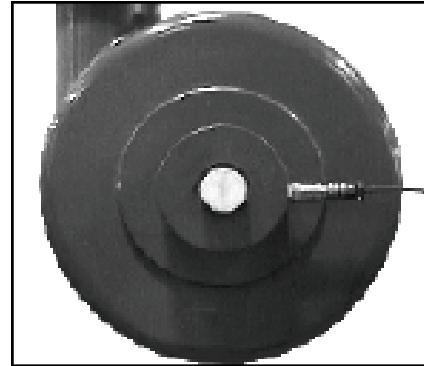
0 = 1/4-28 UNF

1 = M6 x 1.0

3 = NONE

### C Connector Type

1 = 2 pin Hermetic Plug



Typical Mounting

## Accessories for SA6200A



### 8978-111-XXXX, Splash proof Cable Assembly

Two (2) pin socket connector with integral, molded splash proof boot with 6.4 mm (0.25") diameter polyurethane jacketed cable with twisted shielded pair wires. xxx.x = Cable length in meters.



### 9334-111-XXXX-YYYY, Splash proof Cable Assembly w/SST armor

Two (2) pin socket connector with integral, molded splash proof boot with 7.1 mm (0.28") diameter, SST armored jacket with cable, twisted shielded pair wires. xxx.x = Cable length in meters. yyy.y = Armor length in meters.



### 8978-211-XXXX, Cable Assembly

Two (2) pin socket connector with cable strain relief with 6.4 mm (0.25") diameter polyurethane jacketed cable with twisted shielded pair wires. xxx.x = Cable length in meters.

Note: All 8978 connector/cable assemblies rated to 121°C (250°F) max.



### 9334-211-XXXX-YYYY, Cable Assembly, w/Stainless Steel Armor

Two (2) pin socket connector with 7.1 mm (0.28") diameter, SST armored jacket with cable, twisted shielded pair wires. xxx.x = Cable length in meters. yyy.y = Armor length in meters.



### 8978-200-0000, Connector Assembly

Two (2) pin socket connector with cable strain relief, no cable.



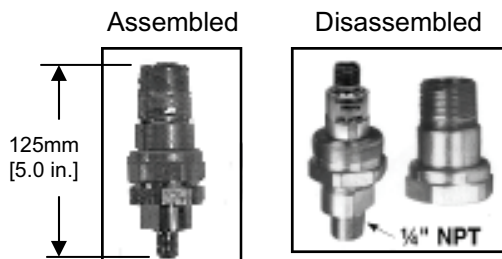
3719-002, Mounting Stud  
1/4-28 UNF to 1/4-28 UNF



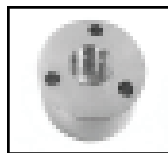
3719-007, Mounting Stud  
1/4-28 UNF to M6 x 1.0

PART NO.	NAME	MODELS USED WITH	DESCRIPTION	HOUSING MATERIAL
7295-002	Accelerometer EP Housing	SA6200A-X0X	Physical protection and access to 1/4"-28 mount accelerometers. Rain tight & ex-proof for CSA Class 1, Grps A-D, Div.1. 1/4" NPT stud for mounting to machine case. 1" NPT top conduit union.	Zinc Plated Steel
7084-002	Flange Mount Adaptor	7295-002	For surface mounting of 7295 housing. 1/4" NPT center hole. 3 equally spaced 6.6 (.26) dia. mount holes on 38 (1.50) dia. circle.	Stainless Steel
99506-020	Magnetic Mount Adaptor	SA6200A-X0X	Strong rare earth magnet provides up to 16 kg [35 lbs] pull force for temporary mounting of 1/4"-28 tapped accelerometers. Housing has 1/4"-28 center hole & includes sensor mounting stud.	Stainless Steel
99506-021	Magnetic Mount Adaptor	SA6200A-X1X	Same as 99506-020 except metric version. Housing has M6X1 center hole and comes with matching sensor mounting stud.	Stainless Steel
9061-XXXX	Bulk Cable	8978-200-0000	.250" dia. bulk cable with twisted, shielded pair wires. For customer attachment to mating connector P/N 8978-200-0000. Specify -XXXX in 0.1 m increments (e.g. 9061-0250=25.0 m).	Polyurethane Jacketed
6400	Sensor Switch Box	SA6200A-XXX	Switch selectable BNC with up to 12 inputs for connection to a portable data collector/FFT analyzer. NEMA 4X (IP 65) enclosure.	Non-metallic Composite
9338-101	Spot Facing Kit	SA6200A-X0X	Spot facing kit consist of a 1" HS air-craft counter bore with 3/16" guide pin, two each, along with 3/16" drill bits, two each, #3 drill bits, two each, 1/4-28 tapered taps and 1/4-28 bottom taps, two each.	

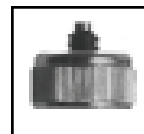
### 7295



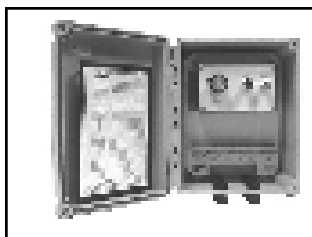
### 7084



### 99605-02X

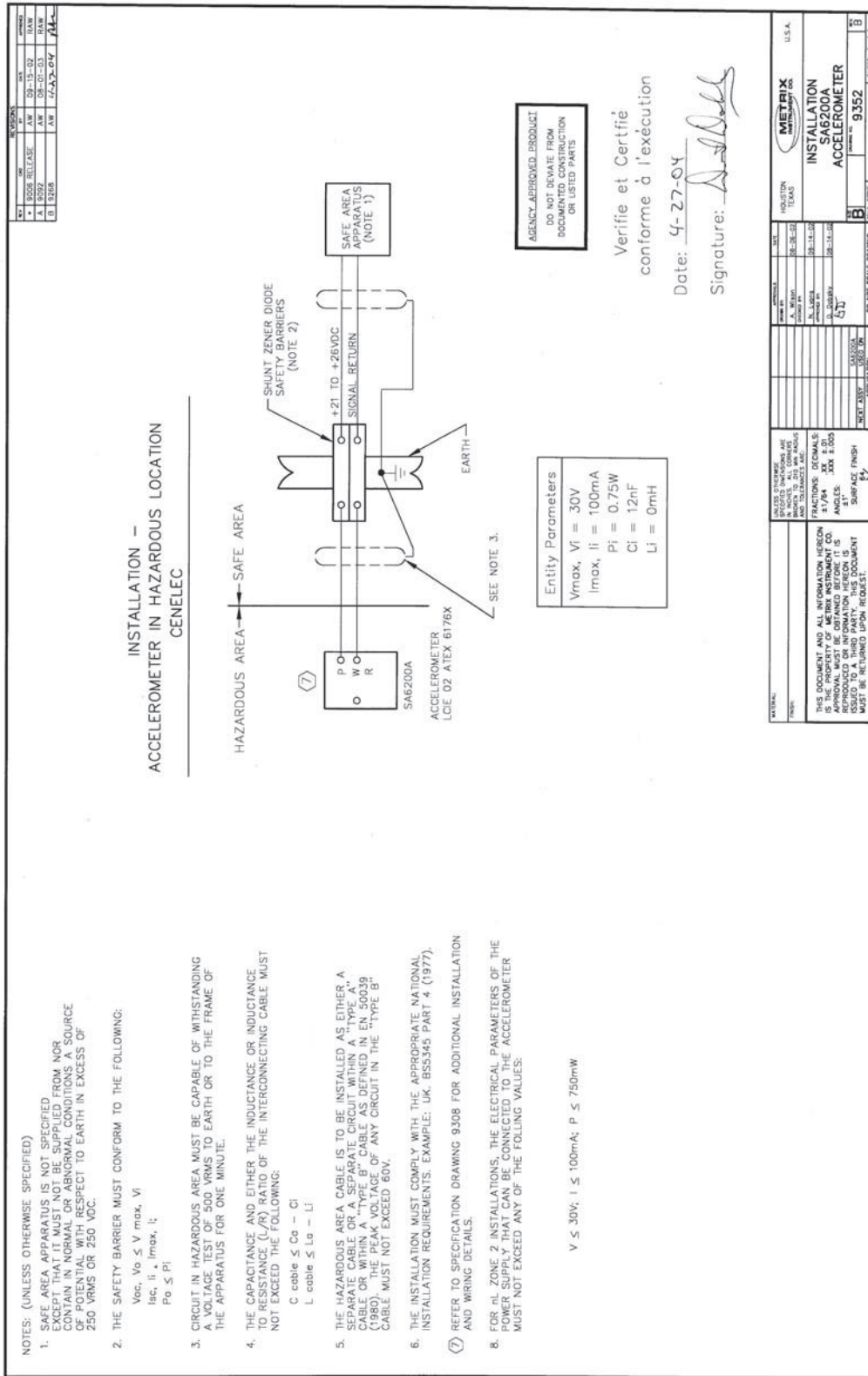


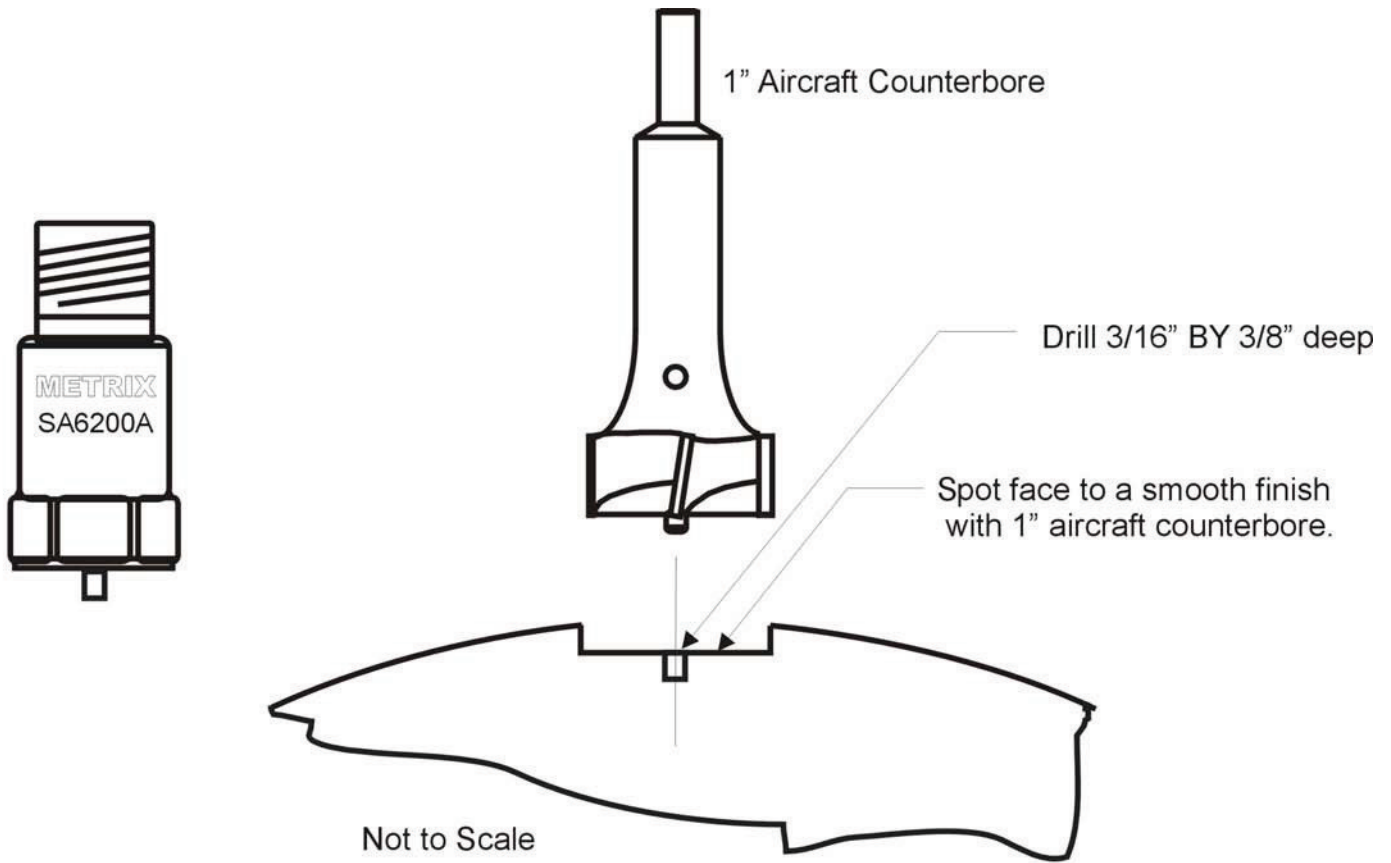
### 6400 Switchbox



**Baseefa Special Conditions for Safe Use:**

In order to ensure temperature classification and safety, the power supply should adhere to the following:  
 $U_o \leq 30V$ ,  $I_o \leq 100mA$ , and  $P_o \leq 0.75W$   
 Ambient Operating Temperature:  $-54^{\circ}C$  to  $+121^{\circ}C$





### TOOL LIST FOR STUD MOUNTING THE SA 6200 ACCELEROMETER

- 1) Half inch variable speed Drill Motor.
- 2) 3/16" (#12) drill bit.
- 3) 7/32" (#3) drill bit.
- 4) 1" Aircraft Counterbore with 3/16" pilot.
- 5) 3/32" Allen Wrench.
- 6) Cutting fluid, Tap Magic or equal.
- 7) Torque wrench calibrated in inch pounds.
- 8) 1/4"-28 UNF taper and bottom tap.
- 9) 7/8" crow foot attachment.
- 10) Tap handle.
- 11) Small ball peen hammer.
- 12) Center punch.
- 13) Light Oil.

### INSTALLATION PROCEDURE

- 1) Center punch hole location.
- 2) Drill 3/16" diameter by 1/2" deep hole on punch mark.
- 3) Remove metal shavings.
- 4) Using the 3/16" hole as a guide, spot face to the depth required for a flat mounting surface.
- 5) Drill out the center hole using the 7/32" (#3) drill bit
- 6) Tap hole with 1/4-28 UNF tapered tap.
- 7) Remove tap and metal shavings.
- 8) Continue tapping 1/4-28 UNF bottom tap.
- 9) Remove tap and deburr.
- 10) Remove metal shavings.
- 11) Apply a light oil to accelerometer stud and mating surface.
- 12) Install accelerometer, torque between 18 and 22 in/lbs.