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## **SAM-3 Single Channel AC Magnetic Field Sensor Signal Conditioner**

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### **Portable Battery Powered AC Sensor Signal Conditioner**

The SAM-3 is a portable single channel signal conditioner specifically tailored to provide power to and process the signals from MEDA's line of AC magnetic field sensors. The unit operates from either its internal battery or the power line. It incorporates two sets of power line rejection filters, switch selectable for 50 or 60 Hz and the corresponding first four harmonics.

The SAM-3 AC couples and buffers the signals from the sensor probe, provides a switch selectable choice of notch filters, a 500 Hz 5-pole high pass filter, or no filtration. A level control potentiometer allows continuous attenuation of the signal ahead of the final amplifier. The final amplifier provides switch selected gains of 1, 3, 10, 30, 100.

Overload lamps on the front panel alert the operator to saturation signal conditions on the input and the output.

The SAM-3 will operate for 8 to 10 hours on internal batteries which are field replaceable with freshly charged batteries. It switches over automatically to line power when it is present. An indicator light signals the operator that the batteries are nearly discharged and that line power or fresh batteries are required.

Both nickel-cadmium rechargeable and two types of single-use batteries are available. The unit does not provide for internal recharging of the NiCad batteries; a separate charger is required (see specifications for battery and charger recommendations).



A rear panel connector allows powering the unit from an external battery for extended periods of battery operation.

An aluminum valise case is available as an option for carrying the SAM-3, a magnetic field sensor and a pair of spare batteries.

### **Features**

- Wide Bandwidth: 2.5 Hz to 100 kHz.
- Power Line Notch Filters: 60, 120, 180, 240,300 Hz or 50, 100, 150, 200, 250 Hz.
- Portable Battery Powered.
- Five Gain Settings: 1, 3, 10, 30, 100.
- Input and Output Overload Indicators.
- Battery Low Indicator.
- Selectable 500 Hz 5-Pole High Pass Input Filter.

**For more information**

**Voice:** (703) 996-8990 **FAX:** (703) 996-8770 **e-mail:** sales@meda.com

## SPECIFICATIONS

### Input

<i>Mating Connector</i>	6 pin LEMO Model FGG.1B.306.CNAD62
<i>Voltage Range</i>	20 Volts peak-to-peak
<i>Coupling</i>	AC (-3dB @ 2.5 Hz)
<i>Magnetic Field Sensor Power</i>	$\pm 12$ to $\pm 16$ VDC @ 10 mA nominal

### Transfer Function

<i>Gain</i>	Selectable x1, x3, x10, x30, x100
<i>Gain Accuracy</i>	$\pm 1\%$ with level control at x1
<i>Level</i>	Continuous adjustment from 0 to x1

### Power Line Filters

<i>Frequencies</i>	First five (5) harmonics of selected power line frequency
<i>Notch Attenuation</i>	40 dB nominal
<i>Notch Bandwidth</i>	$0.1 f_n$ (-3dB bandwidth)

### High Pass Input Filter

<i>Type</i>	Five pole Butterworth
<i>Corner Frequency</i>	500 Hz nominal

### Output

<i>Connector</i>	BNC
<i>Impedance</i>	$< 10 \Omega$
<i>Range</i>	20 Volts peak-to-peak for loads $\geq 2K\Omega$

### Batteries

<i>Rechargeable</i>	Two (2) 15 Volt 500 mAH NiCad (Alexander H4463B)
<i>Non-rechargeable</i>	Two (2) 15 Volt 1800 mAH Alkaline (Alexander H568) or two (2) 15 Volt 2500 mAH Mercury (Alexander H568M)
<i>NiCad Battery Charger</i>	Alexander SM 32000 "Smart Charger"

### Power Requirements

<i>Battery Replacement</i>	Through rear panel hatch doors
<i>Battery Drain Current</i>	60 mA with power line filters in 30 mA with power line filters out
<i>Battery Voltage Indicator</i>	Turns on when total battery voltage is less than 25 VDC
<i>Internal Line Supply</i>	117 VAC $\pm 5\%$ @ 40 mA, 40-400Hz

### Physical

<i>Size</i>	3 5/8" H x 8 3/8" W x 11 1/4" D
<i>Weight</i>	6 lbs.