SONEMAT

STANDALONE AMPLIFIER SAA1000

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Product Features

- 2-Channel EMAT Amplifier
- Compatible with Sonemat's guided wave probes
- Variable gain up from 20dB - 80dB
- Custom options available

The SAA1000 Standalone Amplifier is designed for operation of electromagnetic acoustic transducers (EMATs) in a laboratory or light industrial environment. It can also be used with Piezoelectric Ultrasonic Transducers if high gain is required – although this depends on the impedance properties of the device.

The amplifier is complementary to Sonemat's High Power Pulser HPP2000.

Examples of typical usage include:
•Guided wave generation and detection (such as Rayleigh or Lamb waves) using a pair of EMATs
•Bulk or guided Shear Horizontal (SH) wave generation and detection using a matched pair of EMATs.

Output from the system is analogue and suitable for passing to third party hardware for display, processing or storage.

Applications

Energy Generation | Nuclear | Tanks and vessels | Pipelines | Oil and Gas

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UK CA

MADE IN BRITAIN

Specifications

Feature	Description
Operation Mode	2 x Amplifier for receiving probe (probe in pitch-catch)
Dimensions	220 x 225 x 76mm (L x W x D) approx.
Weight	1.9kg
Storage Temp.	-10°C TO +60°C
Operating Temp.	0°C TO +40°C
Variable Gain	20dB - 80dB
Cut-off Frequency	Approx. 1MHz
Power	UK Mains Power Socket (220-240V at 50Hz)
Connections	4 x BNC (50Ω) coaxial
Compatibility	Most oscilloscopes or data capture devices

Safety:

High voltage components are present within the system. Do not remove any panelling while any of these systems are connected to the mains. High voltage output to EMAT can have voltages of up to 800V. Do not operate the pulser unit unless attached to an EMAT, and do not operate if the EMAT or cables are damaged.

Electromagnetic Considerations:

EMATs are intrinsically sensitive to electromagnetic noise, and unless properly managed this can lead to poor performance in a high electrical noise environment. Most EMATs come with internal electromagnetic shielding to reduce high frequency noise. This noise can further be reduced by electrically connecting the case of the detection EMAT to the sample. The generation EMAT conversely should not normally be electrically connected to the sample as this will increase the "paralysis" time after signal generation. Most generation EMATs have their cases electrically isolated from the generation circuit for this reason.

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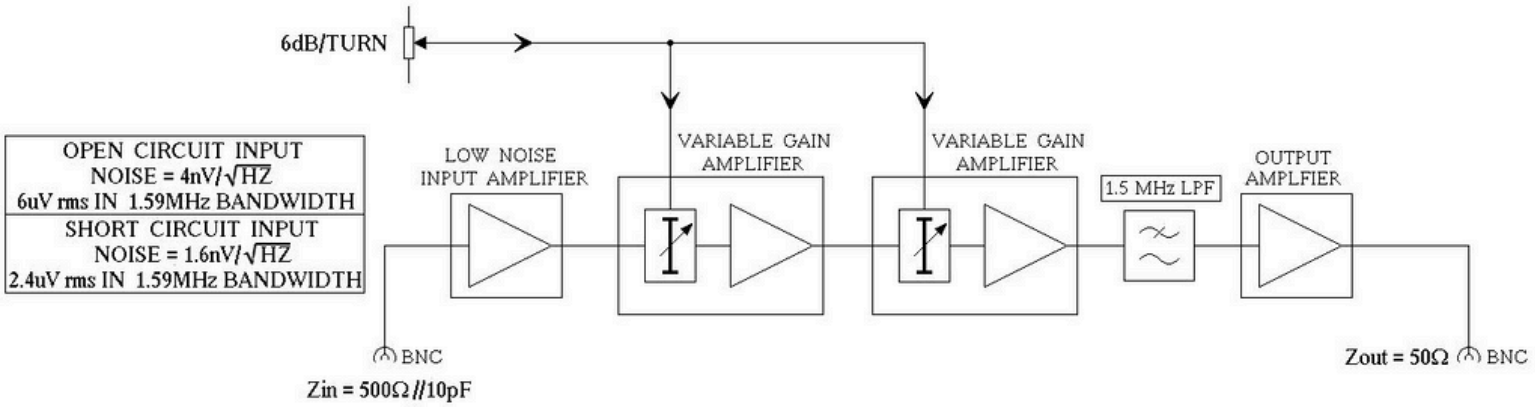
Block Diagram

	VOLTAGE GAIN	
	MIN GAIN	MAX GAIN
50Ω LOAD	20dB	80dB
1MΩ LOAD	26dB	86dB

FREQUENCY RESPONSE	
-6dB	30 kHz
-3dB	43 kHz
-1dB	70 kHz
0dB	300 kHz
-1dB	1.26 MHz
-3dB	1.59 MHz
-6dB	1.87 MHz

OUTPUT LEVEL	
50Ω LOAD	±1.5V Pk
1MΩ LOAD	±3.0V Pk

MAX INPUT NO DISTORTION	100mV RMS
MAX INPUT NO DAMAGE	2.5V RMS



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