

MB3a

ANALOG INFRASOUND SENSOR

The MB3a sensor was developed by the CEA (Commissariat à l'Energie Atomique), following the MB2000 and MB2005 series. This microbarometer has been designed especially to meet the requirements of infrasound stations of the IMS network (International Monitoring System) and is installed as part of the CTBT (Comprehensive nuclear Test Ban Treaty). The transducer is an aneroid capsule coupled with a magnet & coil transducer.



Under
licence of 

RECORDING OF LOW-FREQUENCY ACOUSTIC SIGNALS FROM 0.01 TO 28HZ

The MB3a analog infrasound sensor allows the recording of very low-frequency acoustic signals over a broad frequency band, with an excellent resolution and a large dynamic range.

REMOTE CALIBRATION

Thanks to a secondary coil wrapped around the principal, the MB3d allows remote calibration of your sensor using MLS, pulse or sine waves.

LOW LEVEL OF INSTRUMENTAL NOISE

The MB3a is remarkable for an extremely low level of instrumental noise, allowing the sensor to resolve more than 18 dB the Low Noise Model at 1 Hz.

NEW ! AVAILABLE IN 2 PRESSURE OUTPUT VERSION FOR A WIDER DYNAMIC RANGE

Seismo Wave has developed a new version of the MB3a analog infrasound sensor in order to records high amplitude atmospheric events. The two pressure outputs are respectively set at 2mV/Pa and 20mV/Pa. At 2mV/Pa, the dynamic range of the pressure output reaches +/- 10 550 Pa.

VOLCANOLOGY



METEOROLOGY



CIVIL SECURITY



MILITARY SECURITY



KEY FEATURES

TRANSDUCER BLOCK

Bandwidth (f -3 db) Pressure output: 0.01 - 28 Hz
Pressure derived output: DC - 28 Hz

BLDR 117 dB @ f < 1,6 Hz
(Band Limited Dynamic Range) [0,02 ; 4 Hz] 109 dB @ f= 4 Hz

Self-noise 80 μ Pa/VHz @ 1 Hz < 18 dB under LNM (Low Noise Model)

Resolution 1,75 mPaRMS
[0,02 ; 4 Hz]

MB3a Nominal sensitivity (adjustable gain) • Pressure output: 20 mV/Pa
• Pressure derived output: 2 mV/Pa.s-1
• Calibration output: 6 Pa/V

Auxiliary outputs
Temperature sensor • [-40 ; +110] $^{\circ}$ C, 10 mV/ $^{\circ}$ C, \pm 0,2 $^{\circ}$ C
Atmospheric pressure Sensor • [150 ; 1150] hPa, 1 mV/Pa
• Offset stability: 0,25% full scale /
uncertainty: 1,5% full scale

ANALOG HOOD

Output range 24 V pp

Output type Differential (symmetric)

Output impedance 2 \times 50 Ω

Dynamic range Output P (Pa) : \pm 1200 Pa
Output dP: \pm 12000 (Pa/s)

Power requirements 12 V DC (9-20 V) - 290 mW

ENVIRONMENTAL SPECIFICATIONS

Operating temperature -20 $^{\circ}$ C to +50 $^{\circ}$ C

Storage temperature -30 $^{\circ}$ C to +70 $^{\circ}$ C

Seismic sensitivity < 30 Pa/m.s-2

Sealing CEI 60529-IP67 (with sealed acoustic inlets)

Shock / Drop NF EN 60721-3-1, 2M1 (free fall, impact, shock)

Transport NF EN 60721-3-2, 2M3 (vibration)

EMC NF EN 55024 classes A & B (immunity)
NF EN 55022 class B (emission)

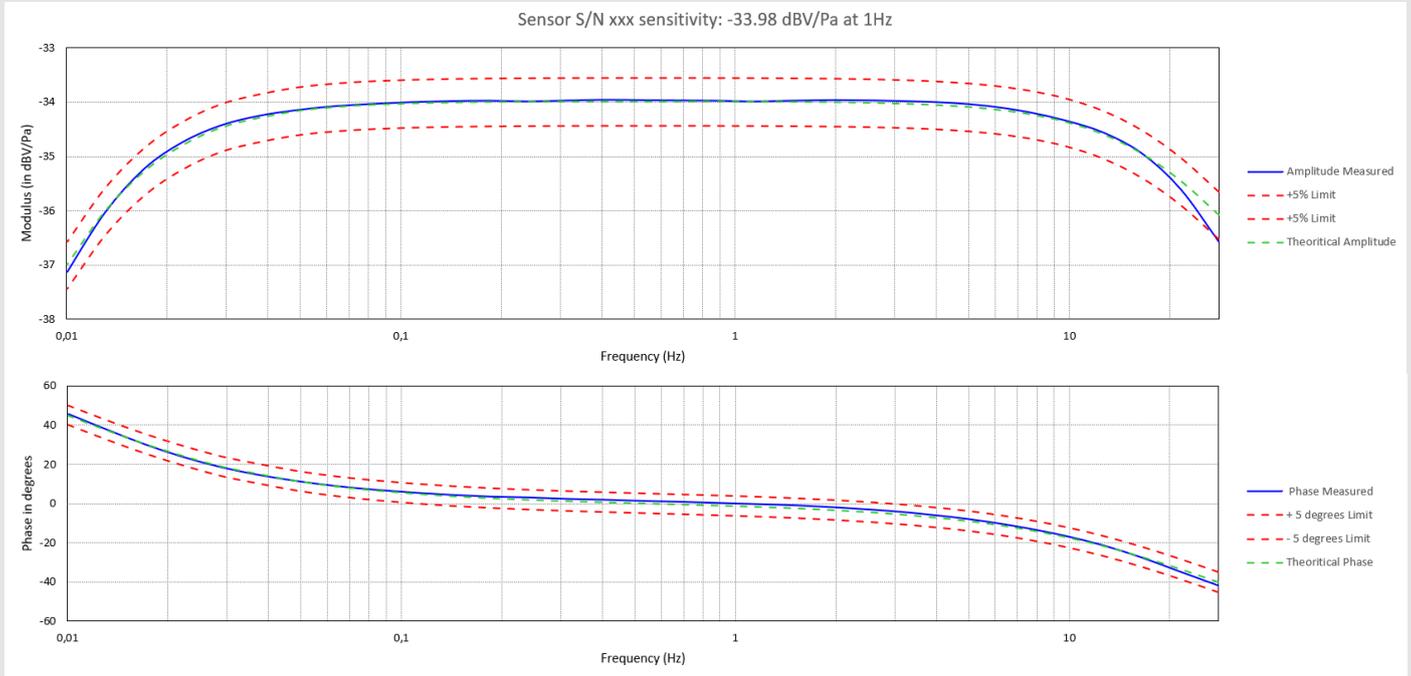
PHYSICAL CHARACTERISTICS

Weight 3 Kg

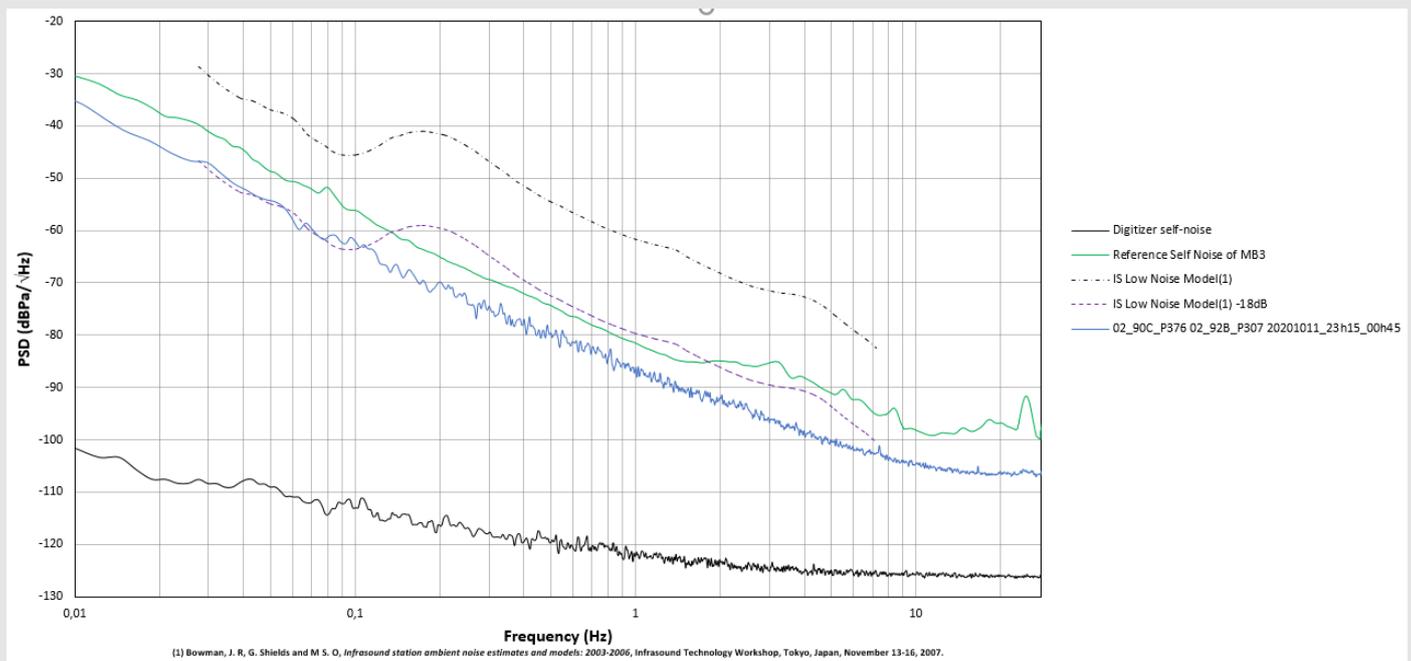
Diameter 110 mm

Height 140 mm

SENSOR SENSITIVITY



SENSOR SELF-NOISE



In the interests of continual improvement with respect to design, reliability, function or otherwise, all product specifications and data are subject to change without prior notice.