


MB3d

DIGITAL INFRASOUND SENSOR

The MB3d sensor was developed by the CEA (Commissariat à l'Énergie Atomique). This digital version of the well-known MB3a embedded a 24 bits digitizer. 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 MB3d digital 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 MB3d is remarkable for an extremely low level of instrumental noise (< -80 dB.Pa / \square Hz @ 1 Hz) allowing the sensor to resolve more than 10 dB the Low Noise Model.

ONBOARD 24 BITS DIGITIZER

The Mb3d encapsulates a low-noise 24 bit digitizer (ADC), with a calibration board, a time card and a storage capacity of 1 Go.

DIONISOS SOFTWARE INCLUDED

Dionisos software has been specifically developed for the MB3d digital infrasound sensor:, it allows

- Graphic visualization of data , in real time as in deferred time.
- Calibration
- Configuration and visualization of the states of health of the sensor



KEY FEATURES

TRANSDUCER BLOCK

Bandwidth Pressure output: 0,01 - 28 Hz
(f -3 db) Pressure derived output: DC - 28 Hz

BLDR 111 dB @ f < 106 Hz
(Band Limited Dynamic 109 dB @ f = 4 Hz
Range) [0,02 ; 4 Hz]

Self-noise 0,13 mPa/√Hz @ 1 Hz < 10 dB under LNM (Low Noise Model)

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

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]°C, 10 mV/°C, ±0,2°C
Atmospheric pressure • [150 ; 1150] hPa, 1 mV/Pa
Sensor • Offset stability: 0,25% full scale /
uncertainty: 1,5% full scale

DIGITAL HOOD

Clipping level & ± min (12 000 [Pa/s] / 2.π.f[Hz] ; 1000 [Pa])
output range Pressure derived: ± 10 000 (Pa/s)

Sampling rate 20, 50, 100 Hz

Nominal sensitivity 1,178 10-4 Pa/lsb or 1,178 10-3 Pa/lsb @ gain = 1

Built-in gain 1, 2, 4, 8 (Digitizer gain)

Data storage / communication 1 GB / miniSEED

Power requirements 12 V DC (7-20 V) - 840 wW

ENVIRONMENTAL SPECIFICATIONS

Operating temperature -20°C to +50°C

Storage temperature -30°C to +70°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)

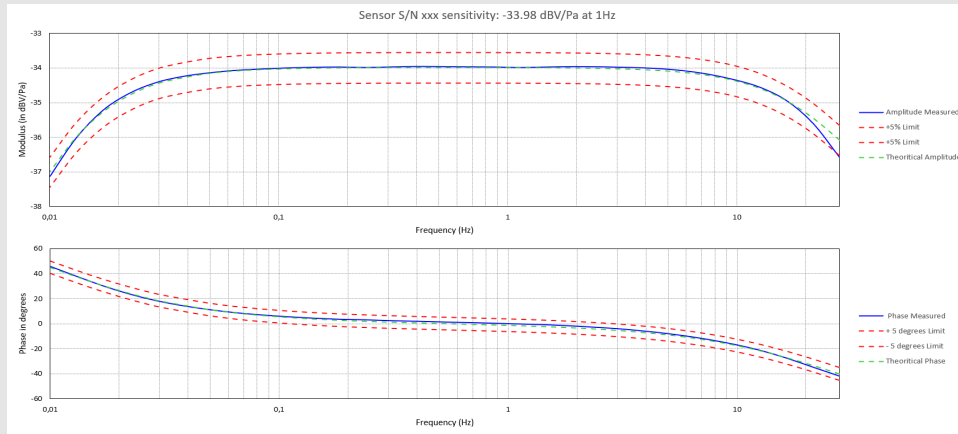
PHYSICAL CHARACTERISTICS

Weight 3.4 kg

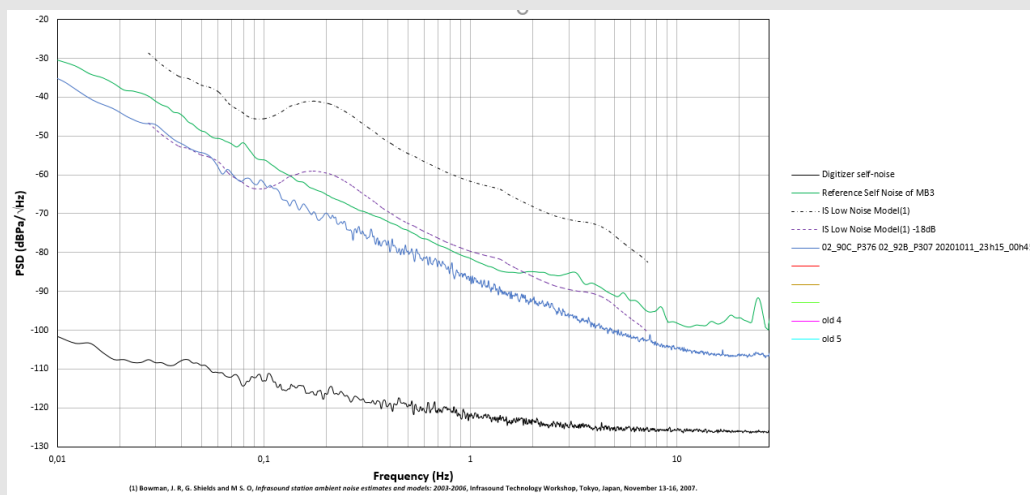
Diameter 110 mm

Height 205 mm

SENSOR SENSITIVITY RESPONSE



SENSOR SELF-NOISE



RELATED PRODUCTS



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.