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MBAS- Multistation Borehole Geophone Data Sheet

The Multistation Borehole Acquisition System (MBAS) is a digital three-component geophone string used to receive P- and S-waves in dry or water filled boreholes. Up to ten individual stations with tri-axial sensors can be connected. The stations are aligned to ensure that all horizontal sensors are oriented in same direction. The system can be oriented from the surface by a torsionally stiff hose. Each station is clamped to the borehole wall by two pneumatic cylinders. An external trigger can be plugged into the USB interface on surface which is connected to a laptop. The operation is entirely controlled by the acquisition software. A separate seismograph is not required.



7 station MBAS array with 1m geophone interval. Image courtesy of Geotomographie

Undertaking downhole and crosshole tomography shear wave inventions with a single 3 component borehole geophone are time consuming and costly. Much of the survey time is spent correctly orientating the borehole geophone or downhole source. As a result shear wave downhole and crosshole investigations for near surface ground investigations have been predominantly specified for large infrastructure projects. The MBAS is designed to increase downhole and crosshole tomography shear wave productivity by offering an array of up to 10 three component stations. With a station interval of 1 or 2m the stiff hose permits the operator to easily control the alignment of every station.

The system incorporates a 24bit A/D offering 256 to 32768Hz sampling and a maximum record length of 4s.

Technical Specifications

Sensor frequency:	10 Hz
Sensor arrangement:	Tri-axial
Operational depth:	Up to 100 m
Max. number of stations:	10
Station interval:	1 or 2 m
Station length:	735 mm
Station diameter:	65 mm
Station weight:	2.5 kg
Cable weight per metre:	460 g

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Borehole diameter:	75 mm
Clamping system:	Pneumatic cylinders
Orientation:	Torsionally stiff hose
Depth indicator:	Cable marking every 2 m
Storage:	On drum and in
Power supply:	PC USB interface
A/D conversion:	24 bit
Sampling frequencies:	256 to 32768 Hz
Trace length:	Max. 4 s
Trigger:	TTL, geophone

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