PMD SCIENTIFIC, INC

ROBUST ECONOMICAL BROADBAND SEISMOMETERS

BB303, BB303-OBS

The BB303 instruments are designed as extremely robust, versatile, broadband seismic sensors. Unlike traditional seismometers, they are based on proprietary electrochemical technology[1] that provides many advantages over the conventional electromechanical sensors. In particular, BB303 noise curve is essentially flat starting from about 1Hz to the low-f cutoff. Each of the three identical sensor elements in BB303 is equipped with an efficient electrodynamic force-balancing feedback.

The instruments are offered in two application-dependent versions. The standard BB303-(LN) is the reduced noise version. The BB303-SM has a higher clip level and is used for strong motion applications. Both versions have the same dynamic range, which is shifted up by approximately 10db in the '*SM*' relatively to the standard '*LN*' version. The BB303 instruments have been recently redesigned. Also available are a single component version BB303U, a very low power customized ocean-bottom seismometer (OBS) BB303-OBS (photo on the right above), and a narrow (83 to 128mm diameter) borehole model BB303-BH – BB313-BH.

BB303 contains a microcontroller which maintains exceptionally accurate parameter stability over the full operating temperature range and over the life of the instrument. Optionally, the microcontroller can also generate internally calibrating sine or other waveform signals. The calibration can be initiated by applying logic level to the Calibration Enable input or via optional serial port. If the latter is provided, the user can also select and set the Generator Constant value in the 350-20,000 V/m/s range.

The BB303 has an exceptionally rugged design and does not require mass lock, mass centering across the full operating temperature range, special installation equipment, or technical installation procedures. The units are operational over a wide range of installation tilts. Optional inclinometers may be installed. The BB303 seismometers provide a low cost of ownership, REQUIRING no maintenance over the life of the instrument.
For a more compact, lighter weight version refer to model BB313.
Three and five-year extended warranties are available.

[1] US patent No.6,576,103

Specifications subject to change without notice 02/07

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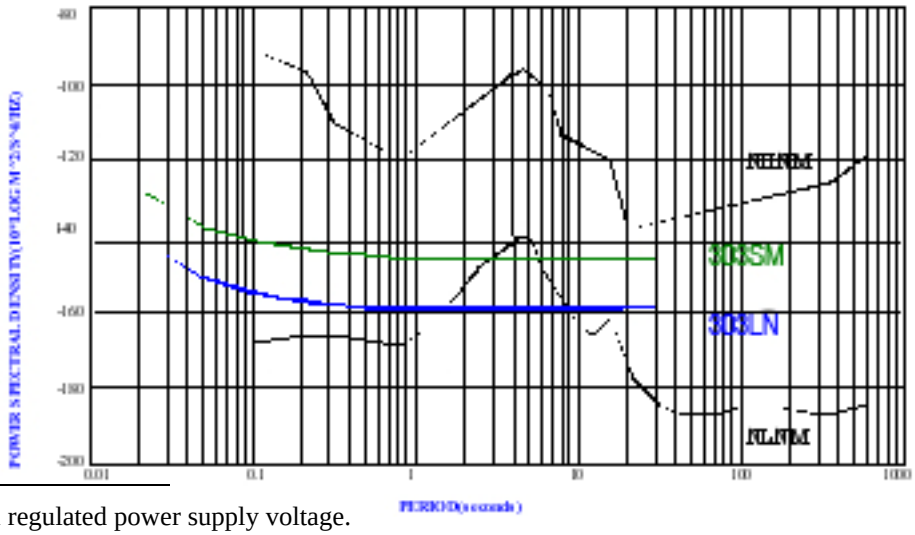
BB303 SPECIFICATIONS

PARAMETER	BB303	BB303 -OBS
Operating principle	Force-balanced Proprietary Electrochemical Sensor[Error! Bookmark not defined.]	
Output signals	2 horizontal, 1 vertical; broad band, velocity flat response	
Standard output swing: Same, Low Power Version	±10 V single-ended; (±20 V p-p)	See Low Power Version below
	±(Vcc-1) single-ended; ±2(Vcc – 1) p-p[2]	
Dynamic Range	135 dB	
Bandwidth	0.033 – 50 Hz	
Generator constant[3]	Standard: 2000 V/m/s; Optional: 350 – 20,000 V/m/s	
Calibration input	Std: 1kΩ; 1V in – 1V out; Optional – internally generated calibration waveforms initiated via optional serial port	
Mass Lock	NONE REQUIRED	
Mass centering	NONE REQUIRED	
Maximum installation tilt[4]	±12 °	
Mechanical resonances	>140Hz	
Environmental	Waterproof, submersible (1m)	Vacuum tight to 0.5 atm
Temperature range	-12 to + 55 °C	
Housing material	Aluminum	Custom
Case diameter	200 mm	Custom
Case height	220 mm	Custom
Weight	~9kg	Custom
Mounting connection	n/a	Custom
Power – Regular	9 – 30 Vdc; (Nominal 12Vdc); 28mA	
Power – Low power[5]	5 – 15 Vdc; 12mA @ 12 Vdc	
Connectors	Main:14-pin circular Optional Serial Port: 3-pin circular	Custom

NOISE CURVES



[2] Vcc is the external regulated power supply voltage.
[3] Factory preset or user selected via an optional serial port
[4] All three sensors stay fully operational; however their sensitivity axes will rotate in accordance with the tilt.
[5] Low-power option requires external battery or a regulated power source.

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