



ROBUST COMPACT ECONOMICAL BROADBAND SEISMOMETERS BB313, BB313-OBS



The **BB313** instruments are designed as extremely robust, versatile, compact, light-weight, broadband seismic sensors. Unlike traditional seismometers, they are based on proprietary electrochemical technology¹ that provides many advantages over the conventional electromechanical sensors. Each of the three identical sensor elements in **BB313** is equipped with an efficient electrodynamic force-balancing feedback. **BB313** is a more compact, lighter version of our **BB303** seismometer, the difference being in a slightly higher noise at longer periods. The instruments are offered in two application-dependent versions. The standard **BB313-(LN)** is the reduced noise version. The **BB313-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 **BB313** instruments have been recently redesigned. Also available are a single component version **BB313U**, a very low power customized lightweight, compact ocean-bottom seismometer (OBS) **BB313-OBS** (photo on the right above), and a narrow (83mm diameter) borehole model **BB313-BH**

The latest **BB313** seismometer 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 a logic level to the Calibration Enable input or via an 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 **BB313** 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 **BB313** seismometers provide a low cost of ownership, **REQUIRING no** maintenance over the life of the instrument. Three and five-year extended warranties are available.

¹ US patent No.6,576,103

Specifications subject to change without notice

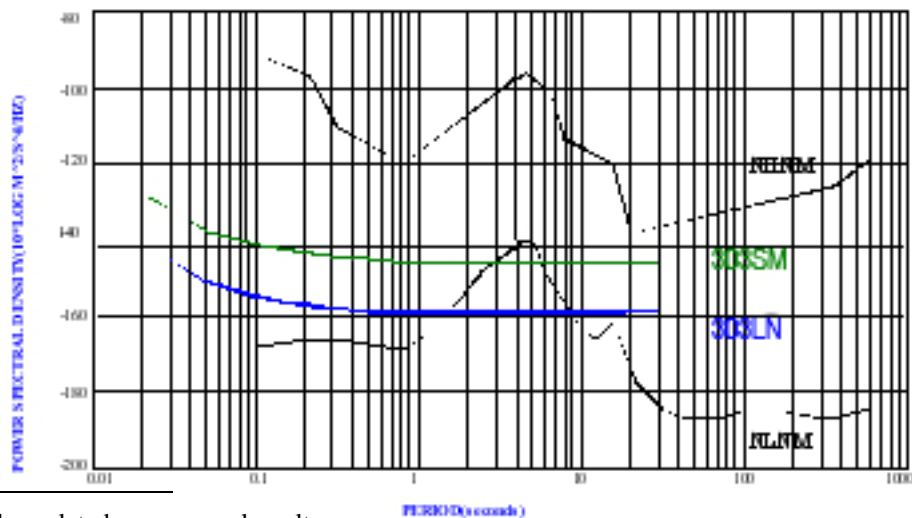
105-F West Dudleytown Road, Bloomfield, CT 06002 USA
Tel: 1-860-242-8177 Fax: 1-860-242-7812

e- mail:sales@pmdsci.com Web Site: www.pmdsci.com

BB313 Specifications

PARAMETER	BB313	BB313 -OBS
Operating principle	Force-balanced Proprietary Electrochemical Sensor <small>Error! Bookmark not defined.</small>	
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
Dynamic Range	$\pm(V_{cc}-1)$ single-ended; $\pm 2(V_{cc} - 1)$ p-p ²	
Bandwidth	135 dB	
Generator constant ³	0.033 – 50 Hz	
Calibration input	Standard: 2000 V/m/s; Optional: 350 – 20,000 V/m/s	
Mass Lock	Std: 1k Ω ; 1V in – 1V out; Optional – internally generated calibration waveforms initiated via optional serial port	
Mass centering	NONE REQUIRED	
Maximum installation tilt ⁴	NONE REQUIRED	
Mechanical resonances	$\pm 12^\circ$	
Environmental	Waterproof, submersible (1m)	Vacuum tight to 0.5 atm
Temperature range	>140 Hz	
Housing material	Aluminum	-12 to + 55 °C
Case diameter	155 mm	Custom
Case height	185 mm	Custom
Weight	5.5kg	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 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.

Specifications subject to change without notice

105-F West Dudleytown Road, Bloomfield, CT 06002 **USA**

Tel: 1-860-242-8177 Fax: 1-860-242-7812

e- mail:sales@pmdsci.com Web Site: www.pmdsci.com