



ROBUST MEDIUM PERIOD UNIAXIAL CONVERTIBLE SEISMOMETERS MP411



The **MP411** Series instruments are designed as versatile, very rugged medium period seismic sensors. Unlike traditional seismometers, they are based on proprietary electrochemical transducer technology¹. These instruments have many advantages over

conventional electromechanical sensors.

This truly *convertible* uniaxial seismometer, **MP411**, can be momentarily installed as either vertical or horizontal sensor without requiring any readjustments. Also available is a three-channel conventional instrument (**MP413**) with three identical sensors for its vertical and horizontal components. The efficient electrodynamic force-balancing feedback provides for excellent parameter stability and linearity.

The **MP411** 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 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.

MP411 seismometers are offered in two application-dependent versions: a higher clip level **MP411-SM**, and a reduced noise **MP411-RN**. Both versions have the same dynamic range, which is shifted up by approximately 10db toward stronger ground motions in the SM version.

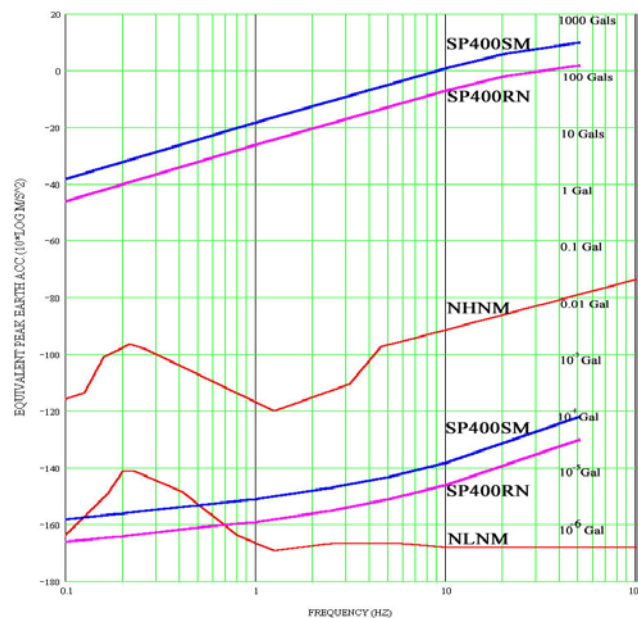
The **MP411** has an exceptionally rugged design, does not require mass lock or special installation equipment or procedures and stays operational in a wide range of installation tilts. These seismometers provide a low cost of ownership, *requiring no maintenance* over the life of the instrument. The instrument is also offered as an 83 mm diameter borehole seismometer (**MP411-BH**). Three and five-year extended warranties are available.

¹ US patent No.6,576,103

MP411 Specifications

PARAMETER	MP411
Operating principle	Proprietary Electrochemical Sensors; force-balanced
Output signal	Velocity flat response
Output swing:	±10 V single-ended; (±20 V p-p)
Dynamic Range	142 dB
Passband	0.1 – 50 Hz
Generator constant	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
Mechanical resonances	>140Hz
Mass Lock	NONE REQUIRED
Mass centering	NONE REQUIRED
Environmental	Waterproof, submersible (1m)
Temperature range	-12 to + 55 °C
Housing material	Aluminum
Dimensions	330x100x110 mm
Weight	~3.5 kg
Power Std. MP411U	9 – 30 Vdc; 12mA @ Nominal 12Vdc
Power – Low power version	5 – 15 Vdc; 5mA @ Nominal 12 Vdc
Connectors	Main: 14-pin circular ; Optional Serial Port: 3-pin circular

MP411 NOISE FLOORS AND CLIP LEVELS



Specifications subject to change without notice
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