



COMPACT ROBUST MEDIUM PERIOD SEISMOMETERS MP413

The [MP413](#) Series instruments are designed as versatile, very rugged broadband seismic sensors. Unlike traditional seismometers, they are based on proprietary electrochemical transducer technology¹. These instruments have many advantages over conventional electromechanical sensors. [MP413](#) is a smaller, lighter version of our popular medium period seismometers. They have characteristics almost identical to those of the [MP403](#) except for a very slightly higher noise near the low frequency cutoff.

This seismometer is available as a three-channel conventional instrument ([MP413](#)) with three identical sensors for its vertical and horizontal components or as a convertible single-channel seismometer ([MP411](#)) which can be momentarily installed as either vertical or horizontal sensor. The efficient electrodynamic force-balancing feedback provides for excellent parameter stability and linearity.

All [MP413](#) seismometers contain microcontrollers which maintain exceptionally accurate parameter stability over the full operating temperature range and over the life of the instruments. 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.

[MP413](#) seismometer is offered in two application-dependent versions: a higher clip level [MP413-SM](#) and a reduced noise [MP413-RN](#). Both versions have the same dynamic range, which is shifted up by approximately 10db toward stronger ground motions in the SM version.

The [MP413](#) 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. This instrument is also offered as an 83 mm diameter borehole seismometer ([MP413-BH](#) or [MP411-BH](#)).

Three and five-year extended warranties are available.

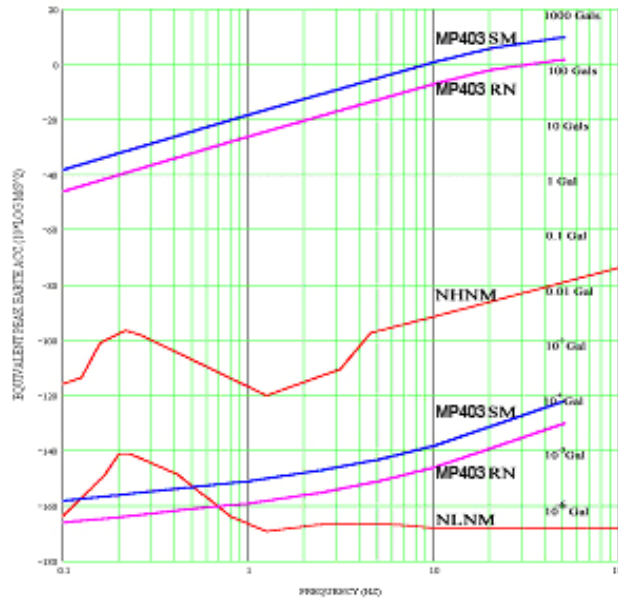


¹ US patent No.6,576,103

MP413 Specifications

PARAMETER	MP413
Operating principle	Proprietary Electrochemical Sensors; force-balanced
Output signals	2 horizontal, 1 vertical; velocity flat response
Output swing:	±10 V single-ended; (±20 V p-p)
Dynamic Range	142 dB
Passband	0.1 – 50 Hz
Generator constant ²	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 ³	±12 °
Mechanical resonances	>140Hz
Environmental	Waterproof, submersible (1m)
Temperature range	-12 to + 55 °C
Housing material	Aluminum
Case diameter	155 mm
Case height	185 mm
Weight	5.5 kg
Power – Std. MP400c/400cU	5 – 30 Vdc; 28mA @ Nominal 12Vdc
Power – Low power version	5 – 15 Vdc; 12mA @ Nominal 12 Vdc
Connectors	Main 14-pin circular Optional Serial Port: 3-pin circular

MP413 NOISE FLOORS AND CLIP LEVELS



² Factory preset or selected via an optional serial port

³ All three sensors stay fully operational; however their sensitivity axes will rotate in accordance with the tilt.

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