

CMG-3EX



Digital exploration seismometer

The CMG-3EX is a cutting edge broadband seismometer based upon the CMG-3ESP Compact sensor and the CMG-CD24 Digitizer. It is designed specifically for rapid deployment in temporary installations.

Designed for practicality and ease of use, the instrument is packaged in a compact and robust housing and all that is required for field deployment is to plug in a GPS receiver, place the instrument in the desired location and provide power. A large array can be up and running within a couple of hours, with each instrument having enough storage for a month of three-channel data at 100 samples per second. On retrieval, the data can be uploaded immediately onto a disk for rapid processing on a computer.

Key Features:

Flat, linear response from 1, 30, 60* or 120s to 50* or 100Hz (*standard). Optional hybrid response available.

Truly portable at less than 9.2 kg, with lifting handle and convenient access to connectors

RS-232, Ethernet and WiFi output options

Data transfer via Firewire, RS-232, Ethernet or WiFi

Robust mass suspension: locking only required for shipping.

Automatic mass locking /unlocking and centring.

Lock / Unlock / Center & Data-flush enable buttons on lid, with LED status indicators

High linearity: >107 dB horizontal, >111 dB vertical

Over 140 dB dynamic range; low self-noise over a wide frequency band

Cross-axis rejection > 62 dB; sensor axes orthogonal to within 0.1°

Adjustable feet allow for up to 4° tilt (8° optional)

Low power consumption (<1.4W from 10 – 30 V supply)

Integrated CD24 digitizer.



Specifications

GURALP

SYSTEMS

The sensor response is completely flat and linear across the entire passband. Its high-gain feedback loop eliminates mechanical non-linearity (the overall measured linearity exceeds 95 dB) and minimizes resonances in the spring system.

Low-frequency vibration modes are carefully avoided in the design. The lowest spurious vibration mode of the sensor is a barely measurable resonance above 300 Hz.

Standard velocity output band	<i>60 s – 50 Hz (Optional 1s, 30s or 120s LP and 100Hz HP)</i>
Mass position output band	<i>DC – 60 s</i>
Output sensitivity	<i>2 x 3 kV/ms⁻¹ (Options from 2 x 400 V/ms⁻¹ up to 2 x 10 kV/ms⁻¹)</i>
Lowest spurious resonance	<i>> 300 Hz (vertical)</i>
Linearity, vertical (USGS figures)	<i>> 111 dB</i>
Linearity, horizontal (USGS figures)	<i>> 107 dB</i>
Cross-axis rejection	<i>> 62 dB</i>
Dynamic range	<i>> 140 dB</i>
Self-noise below NLNM	<i>>30 s to 16 Hz</i>
Data output format	<i>GCF over RS232, Firewire, Ethernet or Wi-Fi</i>
Sample rates	<i>1 - 1,000 samples per second</i>
Digitizer resolution at 1 sample per second	<i>21 bits</i>
Storage capacity	<i>64 Mb internal Flash memory (Options to 16 Gb)</i>
Operating temperature	<i>-20 to +65 °C (-55 °C optional) Optional -20 to +50 °C range without recentring</i>
Mass recentring range	<i>± 4° from horizontal</i>
Mass levelling range	<i>± 4° from horizontal (optional feet give additional ±4° levelling)</i>
Materials	<i>Stainless steel base Hard anodised Aluminium casing Mil-spec connector (1500 psi waterproof connector or user connector optional)</i>
Case diameter	<i>168 mm</i>
Case height (with handle)	<i>317 mm</i>
Weight	<i>9.2 kg</i>
Isolating power supply	<i>10 - 28 V DC</i>
Current at 12 V DC	<i>@115 mA (GPS on duty cycle)</i>
Mass control	<i>Automatic, remotely operable</i>
Calibration controls	<i>Sine wave and Step calibration signals.</i>