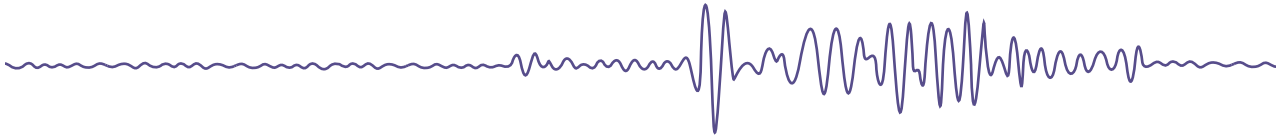


CMG-DM24



3 to 12 channel broadband digitisers



The Guralp Systems CMG-DM24 is a high-quality digitiser with full 24-bit resolution, designed for data quality and durability with models available for 3, 6, 9, or 12 channel recording.

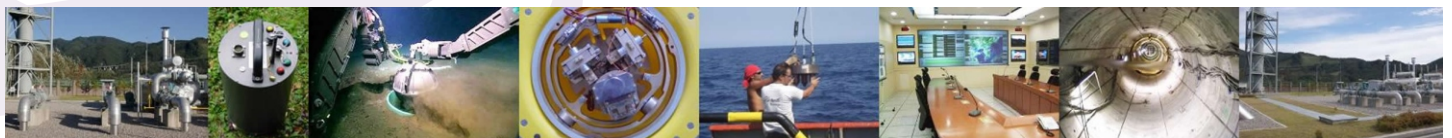
Key Features:

- 4 low-noise 24-bit ADCs (expandable to 7, 14)
- Fourth channel for user signals and calibration
- 8 environmental channels with 20-bit resolution (3 × mass position, 5 user)
- Low power 32-bit DSP and ARM processor (<1W recording 4 channels at 100 sps)
- Multiple concurrent data rates, up to 1000 sps

- STA/LTA, level, external and software triggering
- Simultaneous output of triggered and continuous streams
- Event selection and download over data port

- Full control of Guralp broadband sensors including remote lock, unlock and centre
- Calibration using on board sinewave, impulse or broadband signal generators
- Remotely configurable using Guralp data modules and software

- UTC time-stamped data using low power GPS
- Up to 8 Gb Flash storage (64 Mb standard)
- USB Flash drive memory storage option
- Optional LCD panel with status information
- Optional FireWire interface for external disk storage
- Ethernet and USB interface options
- Multiple storage and transmission modes
- Built-in modem support
- Available in surface, borehole and integrated packages or as a retro-fit to existing sensors for instant digital seismic stations



Specifications

CMG-DM24



Signal channels	3, 6, 9, 12 @ 24 bits
Auxiliary / calibration channels	1, 1, 2, 2 @ 24 bits
Input voltage range (surface)	± 10 V (± 20 V optional) differential
Input impedance (surface)	33 k Ω / 10 nF
Input impedance (cylindrical)	113 k Ω / 10 nF
Inputs (borehole and integrated)	matched to sensor
Environmental channels	8 @ 4 samples/s, 16-bit resolution
Environmental channel range	± 10 V single-ended
ADC converter type	5th-order single-bit low pass Δ - Σ
Output format	24-bit (32-bit low-noise option)
Dynamic range	137dB (141dB) @ 40 samples/s
Absolute accuracy	0.5% (0.1 %)
Common-mode rejection	120 dB @ 10 Hz
DSP sampling rate	32 kHz
Output rates available	1000 .. 1 samples/s
Highest output capability	3 channel: $3 \times 1000 + 1 \times 500$ 6 channel: $3 \times 1000 + 4 \times 500$
Decimation filters	2, 4, 5, 2x4, 2x5
Anti-alias filters	3-pole
Low pass filters	FIR (other options available)
Out-of-band rejection	140 dB
In-band ripple	-140 dB
DSP trigger modes	STA/LTA, level, external, software
Timing source precision	8×10^{-7}
Optional precision RTC	1.7×10^{-8} (30 mW power cost)
Calibration signal generator	Amplitude/frequency adjustable sine wave, step or broadband noise
Flash storage	64 Mb (options to 8 Gb), external flash memory stick option
Sensor control commands	Remote lock, unlock, centre
Optional smart sensor interface	SSI I2C/1-wire interface
Operating temperature	-40 to +60 °C
Power supply	10 – 28 V DC
Current at 12 V DC	3 channel: 77 mA = 0.92 W 6 channel: 120 mA = 1.44 W GPS: 35 mA = 0.42 W

