DM24SxEAM-U

CAPTURE. PROCESS. DISTRIBUTE.

Sophisticated and adaptable digital acquisition system

The Güralp DM24S3EAMU and DM24S6EAMU combine three- and six-channel digitisers with storage and communications modules into flexible and expandable tools for connecting analogue and digital instruments to your network. A USB memory interface beneath the lid allows for simple bulk data storage and easy retrieval in deployments without telemetry.

Inside the robust, waterproof casing is a 24-bit, high fidelity digitiser with a GPS-synchronised timing system. Designed for data quality and durability, the Güralp DM24SxEAM includes a stable and robust Linux-powered acquisition system with on-board storage and networking facilities.

The Güralp DM24SxEAM can be fully controlled and accessed via a web interface suitable for both expert and non-expert field staff.

Applications

> Borehole
> Vault
> Networked Arrays
> Earthquake Early Warning systems

Images show the Güralp DM24S6EAM-U. DM24S3EAM-U uses the same casing.

Key features

Four or seven low-noise 24-bit analogue-to-digital conversion (ADC) channels (three or six primary plus one auxiliary)

Low-noise: 137 dB of dynamic range at 40 samples per second

Eight environmental channels with 20-bit resolution (3 for mass position and 5 for user applications)

Triggering/events subsystem capabilities including STA/LTA, level (threshold), software triggers, per-channel voting and peer-to-peer network voting

Four concurrent output sample rates (continuous or triggered) up to 1,000 samples per second

UTC time-stamped data using a low-power GPS receiver

Multi-user Linux operating system with full network support

On-board Web server (HTTP and HTTPS) allows full remote configuration of digitizer parameters and broadband sensors, including remote lock, unlock and centre

Additional, external USB storage connection

Built in calibration signal generator: step, sine or broadband

Supports multiple data formats, including GCF, GDI, miniSEED and CD1.1

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SPECIFICATIONS

PRIMARY SENSOR INPUTS	
Number of channels	3 + 1 or 6 + 1
Input voltage	Differential input: 40 V peak-to-peak (± 20 V) Also compatible with single-ended inputs: 20 V peak-to-peak (± 10 V)
Sample rates available	1 to 1,000 samples per second
Gain	Unity
DIGITISER PERFORMANCE	
Digitiser type	Fourth-order sigma-delta
Digitiser resolution	24-bit
Dynamic range	>137 dB at 40 samples per second
Digital filter types	FIR (other options available)
Decimation filters	2, 4, 5, 2×4, 2×5
Anti-aliasing filter at Nyquist frequency	> 160 dB
Absolute accuracy	0.50%
Input impedance	117 kΩ
Crosstalk (out of band rejection)	140 dB
Linearity	>110 dB at 80 SPS
Common-mode rejection	> 80 dB
USER INTERFACE	
Digitiser control and configuration	Digitiser control via Platinum software (accessible via web browser), Güralp Scream! software (free download) and command line
External indicators	Optional integrated LCD display
SOFTWARE	
Operating system	Linux
Triggering modes	STA/LTA, level, external, software, per-channel voting, network voting
REAL-TIME DATA COMMUNICATION	
Interfaces / Connections	RS-232 serial, Ethernet
Protocols	Scream!, SEEDlink, CD1.1, GDI
Internet technologies	TCP/IP, PPP, SSH, HTTP, HTTPS (others on request) Firewall and routing capabilities

ON-BOARD DATA STORAGE	
Data storage file formats	GCF, GDI and MiniSEED
Internal storage capacity	Hot-pluggable external USB - 16 GB, 32 GB, 64 GB and 128 GB options Unlimited external NAS (network-accessible storage)
TIMING	
Timing sources	GPS and NTP
Timing accuracy when GPS locked	8×10^{-7}
CALIBRATION CONTROLS	
Signal source	Sine, step or broadband. Adjustable amplitude and frequency.
POWER	
Power supply voltage	12 to 28 V DC
Power consumption at 12 V DC	2.55 W without GPS 2.85 W with GPS
ENVIRONMENTAL / PHYSICAL	
Operating temperature range	-25 to +60 °C
Enclosure material	Copolymer Polypropylene. IP67
Dimensions (length x width x depth)	265 × 245 × 120 mm, excluding connectors and cables
SUPPORTING DOCUMENTATION	
Calibration values	Digitiser sensitivity and test results enclosed

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