

# MOTUS 32-3



## High Resolution Seismic Digitizer

# All-in One Field Solution

## Overview

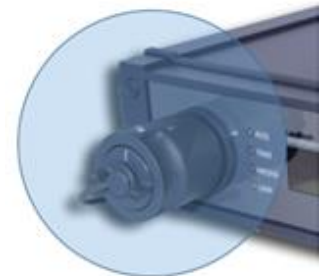
MOTUS 32-3 is an all-in-one 3-channel high resolution (32bit) low noise digitizer with selectable gain, embedded computing, communication modules, GPS receiver that synchronize a high accuracy RTC and IP68 environmental protection especially designed to meet the harsh field conditions of several seismic related applications.

The digitizer has an external USB adaptor for data retrieval in the field and an internal USB module; data are stored in both devices for redundancy in order to eliminate the possibility of losing valuable data. There are several built-in communication module options and an Ethernet port as well for possible additional external communication options. A night readable LCD screen along with 4 control buttons enable the user to see the digitizer status and perform control functionalities as well, in the field without the need of an additional external control equipment (laptop or PDA). There is though a web interface for remote and local setup, command and control.

The embedded Computing module with linux OS host a seedlink server to enable real-time data acquisition and telemetry. Miniseed data are stored in both USB devices for local archive.

## Applications

- Passive Tomography Deployments
- Earthquake Early Warning
- Aftershock Studies
- Micro-zonation Surveys
- Site Noise Surveys
- Structural Monitoring



## Features

- ✓ Modular and Expandable Design
- ✓ High Resolution and Accuracy
- ✓ Low Power Consumption
- ✓ Selectable Gain
- ✓ Outstanding Low Noise
- ✓ Compact and light-weight
- ✓ Various Communications Options
- ✓ Easy removable mass data storage
- ✓ Backup storage to avoid data loss

# Specifications

| Mechanical/Environmental  |   |
|---|---|
| Dimensions  | 190x150x58mm  |
| Weight  | 1,2Kg   |
| Watertight Integrity  | IP68  |
| Shock   | Survives a 1 meter drop   |
| Operating Temperature   | -20° to +70°C   |
| Powering  |   |
| Operating power voltage   | 7 to 28 VDC   |
| Average Power Consumption   | Less than 1W  |
| Power input protection  | Over voltage, ESD, Over current and Inverse polarity protections                                  |
| Communications  |   |
| Interfaces  | Ethernet,RS232  |
| Optional modules  | 3G, 4G/LTE, WiFi (mesh/star topology)   |
| ADC   |   |
| A/D Converter 3channels   | Delta-Sigma, 32bits (one per channel)   |
| Digital filtering   | FIR, IIR  |
| Ultra Low Noise   | 5 nV/VHz  |
| SNR   | 138 dB @ 250 sps  |
| High Accuracy   | THD: -122 dB  |
| Sampling rates  | 1 up to 1000sps   |
| Gain selection  | 1 up to 64  |
| Input Full Scale  | Selectable from 10VPP to 40VPP differential   |
| Embedded Processing Unit  |   |
| Powerful Quad-core processor with 1GB RAM; Linux based OS, hosting seedlink acquisition server; web server for remote set-up and control; capability for onsite customized analysis |   |
| Recording   |   |
| Media recording (Data & SOH)  | External IP68 USB up to 64GBytes for easy field replacement<br>Internal backup USB for redundancy |
| Recording mode Continuous   | Programmable duration   |
| Trigger   | Programmable STA/LTA, threshold   |
| Time Base   |   |
| Type  | GPS receiver  |
| Accuracy with GPS   | +/-1usec  |
| Free-Running Accuracy   | 0.5 ppm over the temp. range of 0° to 70°C  |
| Support of continuous and cycle mode  |   |
| Capability to time sync other digitizers through built-in NTP server  |   |
| Additional capabilities   |   |
| LCD screen 2x16 characters (night readable)   |   |
| 4buttons for basic control in the field   |   |
| Capability to update firmware remotely  |   |
| Hardware based watchdog   |   |
| Protected output voltage to sensor  |   |

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