MOTUS 32-3



High Resolution Seismic Digitizer

ASTRIAL
REDEFINING COMMAND, CONTROL & INTELLIGENCE
MEMBER OF THE SATWAYS LTD. GROUP

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 smart phone). 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	9 to 36 VDC
Average Power Consumption	Less than 1W
Max power Consumption	Around 5W (GPS on, Disk on, Telemetry sending real time data)
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/√Hz
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 5VPP 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 Internal backup USB for redundancy
Recording mode Continuous	Programmable duration
Trigger	Programmable STA/LTA, threshold
Time Base	
Type	72-channel GNSS receiver (GPS, GLONASS, Galileo, QZSS,BeiDou)
Time pulse accuracy	≤ 20 ns (clear sky) or ≤ 500 ns (indoor)
Frequency accuracy	≤ 5 ppb (GNSS locked)
Hold-over, 24 hours with ≤ 100 ppb max. (< 25 ppb typ. under stable operating conditions)	
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	
Internal Supercpacitor to support proper system shutdown in case of power failure.	
Capability to update firmware remotely	
Hardware based watchdog	
Protected output voltage to sensor	

Committed to Excellence



ABOUT ASTRIAL

ASTRIAL is developing integrated Geospatial Command and Control solutions for Security and Public Safety applications for police, coast guard, emergency medical service, civil protection and fire & rescue operations, critical infrastructure protection, transportation security and border monitoring.

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