

Universal Seismic Recording System - Continuous Recording Nodes



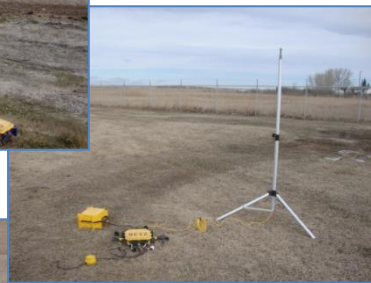
Excellent Data Quality

- Best 32 bit A/D
- High Resolution Clock

Superior Production

- Download Data While Recording
- No Lost Data (Internal Storage)
- Real-Time Spread Noise

Operating Mode	Status	Control	Data
Autonomous			
MRN	✓	✓	
AP/Station WiFi	✓	✓	✓
MESH WiFi	✓	✓	✓
Cellular	✓	✓	✓
Cabled	✓	✓	✓



Autonomous

- Shoot Blind
- Self-Test on Start-up for independent deployment
- **Simple: Plug it in and Record Data**

MRN (Mesh Radio Network)

- Low Power, Easy to Deploy & License Free Frequency
- Status & Control for All Nodes
- Sleep/Wake-up on Demand Saves Battery
- **Real Time RMS Spread Noise for Quick Decisions**

AP/Station Mode WiFi

- Real-Time Seismic Data
- Status & Control for All Nodes
- Good for Dense to Sparse Arrays
- **Ideal for Permanent or Long-Term Deployment**

MESH WiFi

- Real-Time Seismic Data
- Status & Control for All Nodes
- Good for Medium & High Density Arrays
- **Easy to Deploy / Hops from Station to Station**

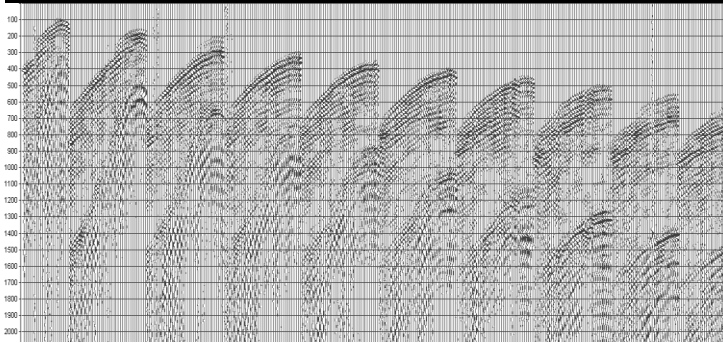
Cellular

- Real-Time Seismic Data
- Status & Control for All Nodes
- Use Any Cellular Vendor.
- **Connects Sigma to Server over the Internet from anywhere to anywhere in the world**

Cabled

- Real-Time Seismic Data
- Status & Control for All Nodes
- Cable Connections includes Network and Geophones
- **Useful where Vegetation or Culture affects WiFi signals**

Data Download



Superior Design

- Download Current or Historical Data
- **Does Not Interrupt Data Acquisition**

USB Data Offload

- Duplicates Data While Recording
- **Promotes Faster Station Visits**

Network Data Offload

- Cable, WiFi, Cellular, Satellite, etc.
- **Uses Standard Off-the-shelf Components.**

Sigma Works in All Environments



Jungle



Transition Zone



Mountains



Desert



Frac Monitoring

Sigma Specification

Electrical	
A/D	32 bit sigma delta converter
Anti-Alias Filters	85% of Nyquist frequency
Low Cut Filter	User Selectable – DC, 0.1 Hz, 2 Hz
Filter Type	User Selectable – Linear, Minimum Phase
Sample Rates	¼, ½, 1, 2, 4, 8 ms
Max Input @ High Gain	0.31 Volts peak to peak
Max Input @ Low Gain	5.00 Volts peak to peak
Power Wake/Sleep	0.48/0.01 watts per channel
Input Impedance	20k Ohms
Clock Sync	GPS or VHF/Wire
Sensor Types	Passive & Active
Performance	
Trigger Accuracy	± 1 µs at all sample rates
Dynamic Range	126 dB
% THD	0.0012 %
Crosstalk	Better than -125 dB
Common Mode Rejection	> 100 dB
Noise Floor	< 0.09 µV RMS @ 2ms

Physical	
# Channels	3
Temperature	-40°C to +85°C
Humidity	0 to 100%
Size	11½" x 13¼" x 4" (292 x 337 x 102 mm)
Weight	5 lbs (2.3 kg)
Data Storage (Internal 8GB CF)	480 hours (3 channels @ 2ms)
Data Storage (External 16GB USB)	960 hours (3 channels @ 2ms)
Data Format	32-bit float IEEE SEG-Y/SEG-D
LEDs	GPS/Recording LED, Battery LED

