

Sigma 4+ Recording System

	Gain	Sigma 4-3	Sigma 4-4	Sigma 4-3+	Sigma 4-4+
Input Channels		3	4	3	4
Convertor Circuit		Sigma 3	DAQ4	Sigma 3	DAQ4
PreAmp Gains		Low x1 (0 dB) High x16 (24 dB)	Low x1 (0 dB) Mid x4 (12 dB) High x16 (24 dB)	Low x1 (0 dB) High x16 (24 dB)	Low x1 (0 dB) Mid x4 (12 dB) High x16 (24 dB)
Maximum Input	Low	5 volts P2P	7 volts P2P	5 volts P2P	7 volts P2P
	Mid	-	1.662 Volts P2P	-	1.662 Volts P2P
	High	0.313 volts P2P	0.4375 volts P2P	0.313 volts P2P	0.4375 volts P2P
Typical Dynamic Range @500sps	Low	126 dB	125 dB	126 dB	125 dB
	Mid	-	124 dB	-	124 dB
	High	122 dB	120 dB	122 dB	120 dB
Typical Harmonic Distortion @500sps	Low	0.0001%	0.0001%	0.0001%	0.0001%
	Mid	0.0001%	-	0.0001%	-
	High	0.0001%	0.0001%	0.0001%	0.0001%
Typical Noise Floor @500sps	Low	0.8 uVolts RMS	1.2 microvolts RMS	0.8 uVolts RMS	1.2 microvolts RMS
	Mid	-	-	-	-
	High	0.08 microvolts RMS	0.15 microvolts RMS	0.08 microvolts RMS	0.15 microvolts RMS
Sample Rates		125, 250, 500, 1000, 2000 & 4000 sps	125, 250, 500, 1000, 2000, 4000, 8000, 16000, 32,000 and 64,000 sps	125, 250, 500, 1000, 2000 & 4000 sps	125, 250, 500, 1000, 2000, 4000, 8000, 16000, 32,000 and 64,000 sps
Sample Intervals		8000, 4000, 2000, 1000, 500 & 250 µSecs	8000, 4000, 2000, 1000, 500, 250, 125, 62.5, 31.25, 15.625 µSecs	8000, 4000, 2000, 1000, 500 & 250 µSecs	8000, 4000, 2000, 1000, 500, 250, 125, 62.5, 31.25, 15.625 µSecs
Low Cut Filters		Digital	Digital	Digital	Digital
High Curt Filter		85% Nyquist	85% Nyquist	85% Nyquist	85% Nyquist
Bandwidth		DC to 85% Nyquist	DC to 85% Nyquist	DC to 85% Nyquist	DC to 85% Nyquist
Maximum Trace Length		Continuous Recording	Continuous Recording	Continuous Recording	Continuous Recording
Input Impedance		20 kOhm	100 KOhm	20 kOhm	100 KOhm
Features	External USB	Ruggized 19-pin	Ruggized 19-pin	Ruggized 19-pin	Ruggized 19-pin
	Mesh Radio Network	Optional	Optional	Optional	Optional
	100Base-Tx Ethernet	Rugged 10 pin MS style	Rugged 10 pin MS style	Rugged 10 pin MS style	Rugged 10 pin MS style
	External Trigger	Yes	Yes	Yes	Yes
	Internal Memory	8 Gbytes	8 Gbytes	8 Gbytes	8 Gbytes
	Internal Battery	Optional	Optional	Optional	Optional
	Internal Coprocessor	No	Optional	No	Optional
	Internal Sensor	Optional	Optional	Optional	Optional
	Power Requirement	0.4 watts/channel	0.4 watts/channel	0.4 watts/channel	0.4 watts/channel
	Voltage Requirement	9-28 volts	9-28 volts	9-28 volts	9-28 volts
Physical	Case Type	Aluminum	ABS	Aluminum	ABS
	Size	393x140x57 mm 15.5x5.5x2.25 in	353x140x66 mm 13.9x5.5x2.6 in	393x140x57 mm 15.5x5.5x2.25 in	353x140x66 mm 13.9x5.5x2.6 in
	Weight (with options)	7.1 lbs (3.7 kg)	5.8 lbs (2.5 kg)	7.1 lbs (3.7 kg)	5.8 lbs (2.5 kg)
	Temperature Range	-40 C to 80 C	-40 C to 80 C	-40 C to 80 C	-40 C to 80 C

Original Sigma 4



New Sigma 4+



Sigma 4+ Recording System

The Robust & Versatile Nodal Seismograph

Sigma 4+ Improvements

- New Streamlined Case Design
- Less Weight (33% less)
- Same excellent performance as Sigma 4
- Optional Internal Co-Processing RABBIT Board

Hardware Features

- Continuous Recording Standard - For Monitoring and Autonomous Operation
- Internal or External GPS - For clock discipline and location information
- Optional Mesh Radio Network - A low-power network for deployment, plus command and control, of nodes
- Cable, Wi-Fi, or Cellular Ethernet - Provides "in the field" data offloading while recording
- Hot-Swap External Storage Option - For collecting data while recording
- Optional Internal Battery (99 watt/hour) - Provides about 48 hours of operation
- Optional Internal Sensor (2 Hz geophones)
- Sensor By-Pass Connector - For calibration of ADC or internal sensors, also connection of other external sensors
- Trigger connector - Trigger via hammer switch or voltage level change
- Rugged IP67 Case

Available Software

- Event Monitor (Local Monitoring)
- Tremor Cloud (Remote Monitoring)
- Optional Active Acquisition Package
- Plus all necessary utilities

Acquire Active Data

- Vibroseis w/ Force 3
- Dynamite w/ BoomBox 3
- Impulsive w/ RTM 3

Acquire Passive Data

- Hydraulic Fracture Monitoring
- Surface Wave Acquisition
- Long-term Permanent Monitoring
- Earthquake Monitoring

