DMT

Engineering Performance

SUMMIT X One

Unique flexibility for seismic experts

The SUMMIT X One is a distributed seismic system specially designed for high resolution 2D/3D seismic surveys. Its unique data telemetry with SNAP-On technology enables easy and most flexible field deployment even in rough terrain and with complex field layouts. The modular and scalable system ensures high field productivity for both smaller systems with less than 50 channels for near surface investigations as well as for larger field deployments with >3000 channels for 2D/3D seismic reflection surveys.

Application

- High resolution 2D/3D reflection surveys
- Refraction / LVL-surveys
- Seismic tomography surveys
- MASW and REMI
- Passive seismic applications

Key-Features

- Unique SNAP-On technology: connect Remote Units to telemetry line wherever needed
- Scalable system from just a few to >3000 channels
- Extremely lightweight: 175 g per Remote Unit
- Central power supply to Remote Units over telemetry cable
- 2-wire telemetry cable can be repaired easily in the field
- Option for continuous passive recording



SUMMIT X One Snap-On Connector



Field deployment for High-Resolution Vibro-Seis Survey

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SUMMIT X One Acquisition Software

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Record LengthUp to 120 K samples in active shot mode or continuous passivePreamp Gain0 dB, 20 dB or 40 dBSample resolution32 BitInput Signal range20 kOhmInput Impedance20 kOhmİnstantaneous Oynamic Range2132 dB (0 2 ms sampling intervalİngut Noise2145 dBFquivalent DistortionLess than 0.2 µV RMS (0 2 ms sampling intervalRange2100 dBİon Accuracy Distortion2100 dBFassbandDC (0 Hz) to 0.8 x NyquistPassband Ripple-120 dBPassband Ripple-120 dBPassband Ripple-120 dBPassband Ripple5.120 kBAnalogue Riti-Alias9.270 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias-120 kBShalogue Riti-Alias	Sample Interval	1/16, 1/8, 1/4, 1/2, 1, 2, 4, 8 ms
Preamp Gain0 dB, 20 dB or 40 dBSample resolution32 BitInput Signal range± 5 Volt 10 V peak to peakInput Impedance20 kOhmInstantaneous Dynamic Range≥ 132 dB @ 2 ms sampling intervalSystem Dynamic Range≥ 145 dBEquivalent Input NoiseLess than 0.2 μV RMS @ 2 ms sampling intervalTotal Harmonic Distortion≤ 110 dBCommon Mode Rejection≥ 100 dBGain Accuracy Inditi-Alias FilterTypical 1% between all channels)Digital Anti-Alias Filter-120 dBPassband Ripple+/- 0.05 dBAnalogue chiti-Alias5,2 kHz 6 dB/octave	Record Length	Up to 120 K samples in active shot mode or continuous passive recording
Sample resolution32 BitInput Signal range $\frac{1}{10}$ V peak to peakInput Impedance20 kOhmInstantaneous Dynamic Range \geq 132 dB (\odot 2 ms sampling intervalSystem Dynamic Range \geq 145 dBEquivalent Input Noise \geq 145 dBTotal Harmonic Distortion \leq 110 dBCommon Mode Rejection Accuracy $1200 dB$ PassbandDC (0 Hz) to 0.8 x NyquistDigital Anti-Alias Filter $3 dB @ 0.8 x Nyquist$ Passband Ripple $+/- 0.05 dB$ Analogue Anti-Alias $7.2 \text{kHz} 6 \text{dB/octave}$	Preamp Gain	0 dB, 20 dB or 40 dB
Input Signal range± 5 Volt 10 V peak to peakInput Impedance20 kOhmInstantaneous Dynamic Range≥ 132 dB @ 2 ms sampling intervalSystem Dynamic Range≥ 145 dBEquivalent Input NoiseLess than 0.2 µV RMS @ 2 ms sampling interval and 40 dB preamp gainTotal Harmonic Distortion≤ 110 dBCommon Mode Rejection≥ 100 dBGain AccuracyTypical 1 % (between all channels)PassbandDC (0 Hz) to 0.8 x NyquistRejection at Nyquist-120 dBPassband Ripple+/- 0.05 dBPanalogue Anti-Alias5.2 kHz 6 dB/octave	Sample resolution	32 Bit
Input Impedance20 kOhmInstantaneous Dynamic Range≥ 132 dB @ 2 ms sampling intervalSystem Dynamic Range≥ 145 dBEquivalent Input NoiseLess than 0.2 µV RMS @ 2 ms sampling interval and 40 dB preamp gainTotal Harmonic Distortion≤ 110 dBCommon Mode Rejection≥ 100 dBGain AccuracyTypical 1 % (between all channels)PassbandDC (0 Hz) to 0.8 x NyquistDigital Anti-Alias Filter.120 dBPassband Ripple+/- 0.05 dBAnalogue Filter7.2 kHz 6 dB/octave	Input Signal range	± 5 Volt 10 V peak to peak
Instantaneous Dynamic Range≥ 132 dB (@ 2 ms sampling intervalSystem Dynamic Range≥ 145 dBEquivalent 	Input Impedance	20 kOhm
System Dynamic Range≥ 145 dBEquivalent Input NoiseLess than 0.2 µV RMS @ 2 ms sampling interval and 40 dB preamp gainTotal Harmonic Distortion≤ 110 dBCommon Mode Rejection≥ 100 dBGain AccuracyTypical 1 % (between all channels)PassbandDC (0 Hz) to 0.8 x NyquistDigital Anti-Alias Filter3 dB @ 0.8 x NyquistRejection at Nyquist-120 dBPassband Ripple+/- 0.05 dBAnalogue Anti-Alias7.2 kHz 6 dB/octave	Instantaneous Dynamic Range	≥ 132 dB @ 2 ms sampling interval
Equivalent Input NoiseLess than 0.2 μV RMS @ 2 ms sampling interval and 40 dB preamp gainTotal Harmonic Distortion≤ 110 dBCommon Mode Rejection≥ 100 dBGain AccuracyTypical 1 % (between all channels)PassbandDC (0 Hz) to 0.8 x NyquistDigital 	System Dynamic Range	≥ 145 dB
Total Harmonic Distortion $\leq 110 \text{ dB}$ Common Mode Rejection $\geq 100 \text{ dB}$ Gain AccuracyTypical 1% (between all channels)PassbandDC (0 Hz) to 0.8 x NyquistDigital 	Equivalent Input Noise	Less than 0.2 µV RMS @ 2 ms sampling interval and 40 dB preamp gain
Common Mode Rejection \geq 100 dBGain AccuracyTypical 1 % (between all channels)PassbandDC (0 Hz) to 0.8 x NyquistDigital Anti-Alias Filter 3 dB @ 0.8 x NyquistRejection at Nyquist-120 dBPassband Ripple+/- 0.05 dBAnalogue Anti-Alias Filter 7.2 kHz 6 dB/octave	Total Harmonic Distortion	≤ 110 dB
Gain AccuracyTypical 1% (between all channels)PassbandDC (0 Hz) to 0.8 x NyquistDigital Anti-Alias Filter3 dB @ 0.8 x NyquistRejection at Nyquist-120 dBPassband Ripple+/- 0.05 dBAnalogue Anti-Alias 	Common Mode Rejection	≥ 100 dB
PassbandDC (0 Hz) to 0.8 x NyquistDigital Anti-Alias Filter3 dB @ 0.8 x NyquistRejection at Nyquist-120 dBPassband Ripple+/- 0.05 dBAnalogue Anti-Alias Filter-22 kHz 6 dB/octave	Gain Accuracy	Typical 1 % (between all channels)
Digital Anti-Alias Filter3 dB @ 0.8 x NyquistRejection at Nyquist-120 dBPassband Ripple+/- 0.05 dBAnalogue Anti-Alias Filter7.2 kHz 6 dB/octave	Passband	DC (0 Hz) to 0.8 x Nyquist
Rejection at Nyquist Frequencies-120 dBPassband Ripple+/- 0.05 dBAnalogue Anti-Alias Filter7.2 kHz 6 dB/octave	Digital Anti-Alias Filter	3 dB @ 0.8 x Nyquist
Passband Ripple+/- 0.05 dBAnalogue Anti-Alias Filter7.2 kHz 6 dB/octave	Rejection at Nyquist Frequencies	-120 dB
Analogue Anti-Alias Filter 7.2 kHz 6 dB/octave	Passband Ripple	+/- 0.05 dB
	Analogue Anti-Alias Filter	7.2 kHz 6 dB/octave

Status (Automatic update)	- Battery status - Sensor noise level
System Check (Report)	- Equivalent input noise - Total harmonic distortion - Instantaneous dynamic range - Common mode rejection
Geophone Check (Report)	- Connection Status - Impedance - Damping - Natural frequency
Mechanical Speci	fications
Power Supply	External 12 V or 24 V batteries Connected to Data Collector Units
Dimensions	RU: 16 x 7 x 4 cm DC: 30 x 30 x 13 cm
Weight	RU: 175 g DC: 5,3 kg
Environmental Sp	ecifications
Operation Temperature	-25°C to + 60°C
Humidity Range	0 – 95 %
Case	Solid waterproof housing deployable in any surface environment
System Requirem	ents for controlling PC
Operating System	Windows 7 / 10
Communication	Ethernet LAN
Processor	Minimum i5 or equivalent ≥ 2 GHz
RAM	8 GB or more

System Status and in-field test functions

Subject to technical changes



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Am TÜV 1 45307 Essen, Germany

T +49 201 172-1441 F +49 201 172-1693

info.summit@dmt-group.com summit-system.de Disposal information: Our products are subject to the WEEE directive. DMT has committed itself to take back all electrical and electronic components sold and to dispose of them professionally. Please contact: products@dmt-group.com