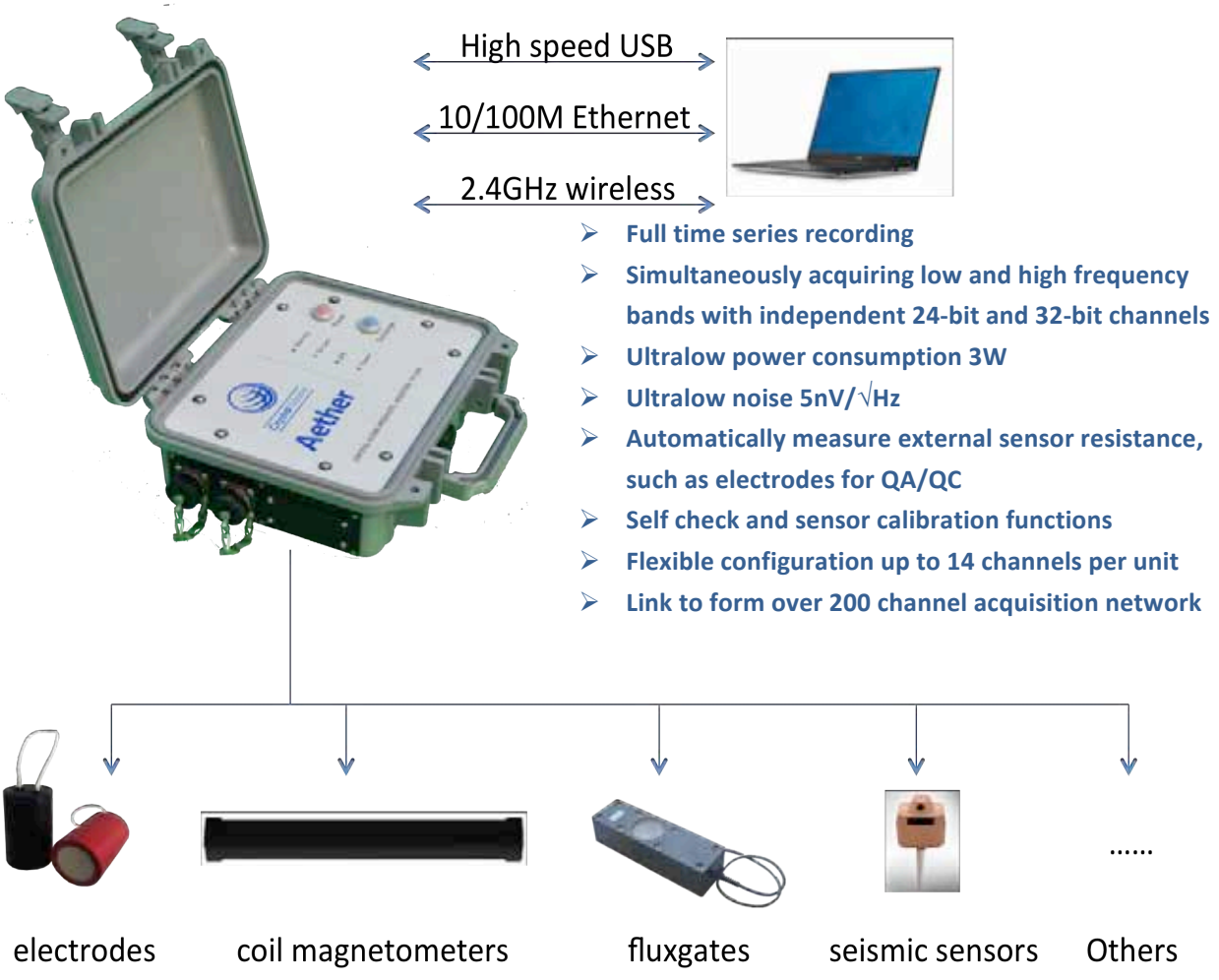
Crystal Globe Geophysical Research & Services

10700 Richmond Ave. STE#220
Houston, Texas, 77042 U.S.A.
Phone: 713.977.0440
Fax: 713.977.0440

Aether Multifunction Geophysical Acquisition Station

Aether is a new generation multi-functional acquisition system developed by Crystal Globe with latest technologies, featuring high precision, low noise, low power consumption, flexible channel configuration, and remote accessibility. It is the only product in the market capable of acquiring both low and high frequency full time series data simultaneously. It has compact, lightweight and ruggedized design for harsh environment. The system can be used for any of the traditional methods, such as MT, ATM, CSAMT, TEM, LOTEM, SIP, TDIP, and also other methods, such as PRBS, EM environment monitoring, etc.. Its applications include deep prospecting, tectonic research, remote monitoring, oil field, mining, railway system, seismic monitoring, geological and metallurgy survey, engineering survey and scientific research.



- Full time series recording
- Simultaneously acquiring low and high frequency bands with independent 24-bit and 32-bit channels
- Ultralow power consumption 3W
- Ultralow noise 5nV/√Hz
- Automatically measure external sensor resistance, such as electrodes for QA/QC
- Self check and sensor calibration functions
- Flexible configuration up to 14 channels per unit
- Link to form over 200 channel acquisition network

Aether geophysical acquisition station

Crystal Globe Geophysical Research & Services

10700 Richmond Ave. STE#220
Houston, Texas, 77042 U.S.A.
Phone: 713.977.0440
Fax: 713.977.0440

Aether high resolution acquisition station specification

Power supply	8V ~ 25V DC, internal or external battery
Number of Channels	Standard 6 channels, up to 14 channel configuration
A/D conversion	24-bit and/or 32-bit
D/A signal generator	32-bit DAC, for external resistance measurement and seismic sensor function verification with sinusoidal signal
Sampling frequency	32-bit: 1, 5, 10, 25, 50, 62.5, 80, 100, 125, 200, 250, 500, 1K, 2K, 4KHz 24-bit: 1, 5, 10, 37.5, 50, 62.5, 80, 100, 200, 250, 500, 1K, 2K, 4K, 6K, 12K, 24K, 48K, 96KHz (optional: up to 256KHz) The low frequency channels and high frequency channels are working fully independently; this is the only product in the market which can acquire lower frequency and higher frequency simultaneously, eliminating the necessity to exchange low/high frequency coils and maintaining continuously record without losing low frequency data during high frequency measurement.
Analog gain	L-channels: 1/9, 1, 4, 16, 64 H-channels: 1/2, 1, 5, 25
Input impedance	10M Ohm
Signal bandwidth	32-bit channels: DC ~ 1.65KHz 24-bit channels: DC ~ 48 KHz
System noise	Lowest in the industry: about 5 nV/√Hz for L-ch at gain of 16, 6nV/√Hz for H-ch at gain of 25
Input range	-10V ~ +10V differential with high voltage protection
Automatic system self test function	Check gain and noise level of each channel; measure the environmental DC and AC signals before survey starts
Automatic sensor calibration function	Calibrate and verify sensors, such as coils, by applying multi-frequency signals, and obtaining the amplitude and phase response of sensors; this process generates sensor calibration file in ASCII format
Acquisition timing	GPS synchronized and extremely low power, highly stable oscillator (for marine and ground applications even without GPS signal)
GPS positioning accuracy	2.5 meters (std.)
Data file	Stored in SD card (eg. 4GB, 8GB, 16GB, 32G, 64GB) of the unit; low frequency and high frequency channel data are simultaneously stored in two different files, with identical Crystal Globe full time series format; the files can be converted to ASCII format using acquisition software
Communication interface	High speed USB, 10M/100M Ethernet, and mesh network wireless

10700 Richmond Ave. STE#220
Houston, Texas, 77042 U.S.A.
Phone: 713.977.0440
Fax: 713.977.0440

Firmware upgrade	Aether firmware can be updated for the unit using USB
Sensors	Can be connected to all type of sensors, such as electrodes, coil magnetometers, fluxgates, geophones, etc. using respective adapter cables; eg. Crystal Globe electrode and coils, LEMI, Zonge and Phoenix coils or any other type of customer sensors
External sensor resistance measurement	Useful feature for external sensors, such as electrode contact resistance measurement for QA/QC
On-board positioning/motion sensors	On-board 3-axis digital magnetometer and 3-axis accelerometer for unit orientation, tilt angle, and vibration measurements
Power supply to external sensors	± 12 VDC
Build-in LOTEM and Pseudorandom noise transmitter driver	0 & 12V logic, transmitter on/off and polarity control with programmable sequence synchronized with GPS
Acquisition scheduler	Useful feature for easy field operation without computer and operator interference; the station performs acquisition tasks according to the preprogrammed settings at different time in the scheduler file saved in SD card
Acquisition, QA/QC, processing software	Acquisition and QA/QC software comes with unit; Crystal Globe proprietary MT or other methods processing software available with specific applications
Power consumption	Lowest power consumption in the industry, about 3W during acquisition, much lower than nearest competitors
High channel count central station configuration	(Optional for high channel count station) Stacked for high channel count station up to over 200 GPS synchronized channels, controlled by single PC with one Ethernet cable for real-time monitoring and data processing
Serial Ethernet cable linked networking configuration	The units can be connected in serial cascade mode with Ethernet cable and controlled by single PC for real-time monitoring and data processing
Remote SD card file access over Ethernet	Useful feature for real-time processing and remote monitoring or networked applications with Ethernet; SD card files in remote units can be accessed and copied to local PC through Ethernet, even when remote unit acquisition is still in progress and streaming back the real-time data
Packaging	Compact, lightweight and ruggedized enclosure
Size and Weight	27L x 24.6W x 12.4H (cm); 3.4 Kg
Warranty	2 year warranty for electronics; 1year for cables

Crystal Globe Geophysical Research & Services

10700 Richmond Ave. STE#220
Houston, Texas, 77042 U.S.A.
Phone: 713.977.0440
Fax: 713.977.0440

Electric and magnetic sensors

EG-MT: Low noise non-polarizable electrode

- Excellent long term stability
- Matched pair potential difference < ±1mV
- Contact resistance < 300 Ohm
- Bandwidth DC ~ 50KHz
- Weight 500g

CMT-03: MT low frequency coil

- Frequency: 0.00005Hz ~ 1000Hz
- Noise: 100 pT/√Hz at 0.001Hz
  10pT/√Hz at 0.01Hz
  0.1 pT/√Hz at 1Hz
  0.01pT/√Hz at 100Hz

CMT-04: AMT high frequency coil

- Frequency: 1Hz ~ 20KHz
- Noise: 5 pT/√Hz at 1Hz
  0.2pT/√Hz at 10Hz
  0.005 pT/√Hz at 10KHz

CMTS-10: MT+AMT coil with chopper circuits

- Frequency: 0.0001Hz ~ 10KHz
- Noise: 100 pT/√Hz at 0.001Hz
  10pT/√Hz at 0.01 Hz
  0.1 pT/√Hz at 1 Hz
  0.01pT/√Hz at 100 Hz
  0.005 pT/√Hz at 10KHz

CFG-13: 3-axis fluxgate

- Frequency: DC ~ 3KHz
- Noise: < 6pT rms/√Hz
- Measurement range: ±100u

Company introduction

Crystal Globe is a geophysical equipment manufacturer for oil & gas exploration, geological and mineral industries. With latest and innovative technologies, the company focuses on research & development, manufacturing of geophysical sensors and high precision equipment, such as proton magnetometers, low noise electrodes, geophysical data loggers, ultra-low noise marine system, gravimeters, logging tools, and new seismometer sensors, etc..