

Magnetotelluric (MT) Survey System



Portable data acquisition for magnetotellurics and microseism



Figure 1: KMS-820 data acquisition unit.

The KMS-820 Data Acquisition Unit (DAU) is developed for ElectroMagnetic (EM) and seismic applications to obtain subsurface resistivity and velocity structure for oil and gas exploration. It can also be used in general purpose acquisition, microseismic monitoring, and long term monitoring services.

Product features

- Low-power design to increase battery life
- Long-range wireless (up to 5 miles line-of-sight or unlimited distance in mesh network mode)
- Bluetooth
- Bandwidth : DC - 50 kHz
- Up to 100 kHz sampling rate
- Six 24-bit GPS synchronized channels
- Low noise & low drifting channels
- Customizable digital interface for digital sensors and other devices
- Portable and lightweight
- Ruggedized design for field application
- Accompanied with MT processing software
- Acquisition and monitoring software provided
- Low cost

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Product applications

Land EM

- EM transmitter synchronization and monitoring
- System response recording (time domain and induced polarization)
- EMSurvey in array configuration

Marine EM

- Transition zone transmitter and monitor
- Source controller and environmental monitor (current and one field component)

Land seismic

- Seismic survey of subsurface structure for hydrocarbon, minerals and geothermal energy exploration
- Passive microseismic monitoring for regional and local seismic activities

General lab measurement

- Coil calibrations
- Electrode long term stability study

Product specifications

Number of channels	6
A/D resolution	24 bit
Signal bandwidth	DC to 50 kHz with three selectable low pass filters (10 Hz, 1 kHz, and 20 kHz), additional low pass filter with half of the sampling rate is implemented inside 24-bit sigma -delta A/D
Sampling rate	Up to 100 kHz with customizable sampling frequency
Input impedance	> 1.0 M Ω
Input signal level	Signal dynamic range of -2.5 V ~ +2.5 V with input signal level from -9.0 V ~ +9.0 V
Signal gain	12 different gain settings from 1 to 2,560 (customizable)
DC offset removal	Each channel has its own 16-bit D/A to remove external DC offset from -9.0 V to +9.0 V
Timing control	GPS synchronized
Wireless	Long range wireless up to 8 km (5 miles) line-of-sight or unlimited distance in mesh network mode. Bluetooth.
Data saving and retrieving	Data is saved to SD card; the files can be retrieved from SD card or directly copied to PC through USB mass storage mode without removing the SD card
Data monitoring	Data can be streamed to PC through USB port or wireless network for real-time status monitoring
On-board temperature measurement	Yes
Power supply	External +7.5 ~ 32 V dc supply or internal 12 V battery; typical power consumption about 5 W
Temperature rating	-20°C to 50°C
Digital interface	Customizable digital interface for digital sensors and other devices