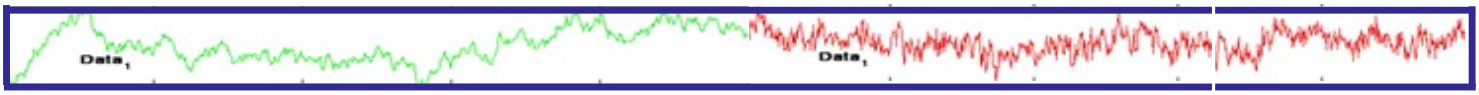
KMS Technologies

Innovating Solutions

Mini Magnetotelluric (MT) system

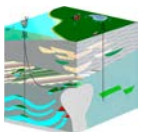


Mini MT system

Low-cost Mini MT system

Mini MT system includes

- KMS-820 acquisition unit
- 4 electrodes for electric field measurements
- 3C digital fluxgate KMS-029
  - *3–axis magnetic field measurement*
  - *32-bit ADC resolution*
- Software processing & 1D inversion



Product applications

- Geothermal exploration & monitoring
- Hydrocarbon exploration & monitoring
- Earthquake monitoring/prediction
- Sub-basalt, sub-salt, overthrust, reef exploration
- Deep crustal research

System and applications are protected by patent US 9,057,801

Product features

- Complete low-cost EM system
- Cost saving operation
- Light weight and small
- Easy sensor set up
- Broad band (DC-180 Hz)
- Extremely low noise at low frequencies

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Product specifications

KMS-820	***Number of channels***	*6 analog unlimited digital*
	A/D resolution	*24-bit, 32- bit with fluxgate KMS-029*
	Signal bandwidth	*DC to 40 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, KMS-029 up to 1 kHz at 32 bits*
	Sampling rate	*Up to 80 kHz with customizable sampling frequency per channel; combine up to 500 kHz*
	Input impedance	*> 1.0 MΩ* standard; customizable for sensors
	Input signal level	*Signal dynamic range of –2.5 V ~ +2.5 V* *Internal system calibration incl. sensors* *Selectable waveform calibration*
	Signal gain	*12 different gain settings from 1 to 2,560 (customizable), Auto-gain and auto scale standard*
	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 (patented)*
	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, webserver, Wi-FI optional*
	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 and quality check*
	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 sensors & others; KMS-831(sub-acquisition controller) or KMS-029 (fluxgate)*
KMS-029	***Frequency bandwidth***	*32 bit ADC: DC ~ 2 KHz* *Fluxgate sensor: DC – 180 Hz*
	Sampling rate	*Up to 4 KHz customizable & selectable; 1 kHz standard*
	A/D resolution	*32 bit*
	Supply voltage	*+5V DC*
	Power consumption	*Typical 1 W (fluxgate)*
	Operating temperature range	*-25° to 85° C*
	Packaging	*Ruggedized PVC box*
	Length, width, height	*12 * 7 * 3 inch*
	Noise level	*6 pT/SQRT(Hz) @ 1 Hz*
KMS-200 software	**QAQC**	*Real time acquisition QAQC*
	Robust processing and inversion	*1D/2D inversion, 3D inversion (ModEM) run on cluster*
	Modeling	*3D modeling MAXAMIS*

Patent reference: Jiang, J., Aziz, A.A., Liu, Y., and Strack. K.M., 2015, Geophysical acquisition system, **US 9,057,801**.