

LEMI

A KMS Technologies company

Laboratory for ElectroMagnetic Innovation



LEMI-418 Wide Band Magnetotelluric Station

Wide band magnetotelluric station LEMI-418 is intended for the study of Earth's crust electromagnetic structure in frequency band (DC-200) Hz in field conditions in wide temperature range. The station maintains automatically measurements and digitizing data from the flux-gate and search-coil magnetometers, 4 telluric channels and temperatures of sensor and electronics. The real time acquisition, recording and visualization of current and previously recorded data are executed at an external computer to which digital data are transferred through serial RS-422 port. The operation is synchronized with GPS timing.



Main Features

- Modular construction
- 3 + 3 magnetic field components measurements
- 4 telluric field channels
- 2 types of magnetometers (flux-gate and search—coil)
- Wide frequency range (DC—200 Hz)
- Satellite timing
- Excellent temperature stability
- High suppression of industrial noise
- Low noise level
- Special software and calibration
- Rea-time data acquisition and visualization
- Digital interface RS-422

Technical Parameters

Flux-gate magnetometer	
Full measuring range	± 68000 nT
Frequency band	DC-0.3 Hz
Noise level at flat part of frequency response	< 8 pT _{rms}
Temperature drift	< 0.2 nT/°C
Weight of the sensor with 10 m cable	1.8 kg
Search-coil magnetometer	
Frequency band	0.0001-200 Hz
Shape of transfer function	linear-flat
Corner frequency (or other on demand)	1 Hz
Transfer factor at flat part (or other on demand)	20 mV/nT
Noise level: at 0.001 Hz at 0.01 Hz at 1 Hz at 100 Hz	< 100 pT/ $\sqrt{\text{Hz}}$ < 10 pT/ $\sqrt{\text{Hz}}$ < 0.1 pT/ $\sqrt{\text{Hz}}$ < 0.01 pT/ $\sqrt{\text{Hz}}$
Weight of the sensor	5.8 kg
Electric field meter	
Frequency band	DC-200 Hz
Measuring ranges (for measuring base 1 m): at gain=1 at gain=10 at gain=100 at gain=1000	± 7500 mV ± 750 mV ± 75 mV ± 7.5 mV
Offset compensation range	± 7500 mV
Noise level in frequency band (0.01- 0.3 Hz)	0.1 μV rms
Power supply voltage	10-18 V
Power consumption	6 W
Weight of the electronic unit	< 4 kg
Operation temperature range	-20 °C to +60 °C