KMS Technologies

Innovating Solutions

Vector magnetometer calibration system

LEMI-901

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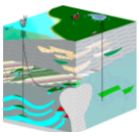
LEMI-901 Vector magnetometer

Vector magnetometer Calibration System is intended for the calibration of different types of vector magnetometers positioned inside the three-component coil system. Calibration system supports high accuracy regulation and measurement of currents in the coils and high precision magnetic fields in the magnetic sensor volume correspondingly, measurement and recording of the corresponding magnetometer readings for each component both for analog and digital output according to the input data file, in manual or in automatic mode. The system performs the correction of natural magnetic field variations as well as temperature correction of own parameters. As a result of calibration procedure the following parameters are calculated with special software and printed to the Test Certificate: transformation coefficients; angles between the magnetometer components axes; angles between the axes of magnetometer and axes of the coils; angle and transformation factor correction matrix for tested magnetometer; zero offsets; linearity errors.

The special thermal tests subsystem is available intended for the automatic determination of thermal dependency factors of both electronic and sensor of the tested magnetometer.



Product description

Coil system parameters

- Coil constants:
  - X-direction 84.8 nT/mA
  - Y-direction 96.5 nT/mA
  - Z-direction 73,9 nT/mA
  - Accurate values measured after installation
- Coil orthogonality:
  - Angles between the magnetic directions measured after installation
  - Design accuracy better than ±1 minute of arc in a sphere of 30 cm diameter
- Coil homogeneity:
  - Design accuracy is better than 10-5 in a sphere of 30 cm diameter

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KJT Enterprises Inc.
11999 Katy Freeway Suite 160
Houston, TX 77079
USA

Tel: +1.713.532.8144

Email: info@KMSTechnologies.com
www.KMSTechnologies.com

Product specifications

Ranges of currents measurement and control, by each component	±2
Relative error of currents measurement and control	<0.01
Temperature error of reference resistors with temperature	Regulation time for the current in one coil component, <2 s
Discrepancy between given and real temperature in the whole range	±0.5 °C
Maximal speed of heating	10 °C/hour
Weight: control electronics (scaling amplifiers and pre-amplifiers)	3 kg
Weight: reference resistors	3.5 kg
Weight: thermal subsystem	4 kg
Weight: heater unit	9.5 kg
Power supply	220 VAC, 50 Hz
Power consumption	350 W