3-COMPONENT MAGNETOMETER LEMI-039

Main features:

- **High resolution and precision**
- **Analog and digital versions available**
- **Low noise**
- **Low temperature offset**
- **Temperature channel**
- **Convenience of installation and service**
- **Very low power consumption**
- **3 years operational guarantee**

Analog version

The vector analog magnetometer LEMI-039 is destined for precise measurement of Earth's magnetic field and its variations in autonomous mode in stationary position at land and sea (at the photo above – with support for land use). It is produced on the base of flux-gate sensor, all three components of which are implemented in the same body. The electronics is implemented as "black box" PCB fixed in the same housing with analog output which has to be coupled with any analog registration unit. Very low power consumption of the magnetometer is convenient for long-term autonomous measurements.

MAIN TECHNICAL PARAMETERS

Measured range of magnetic field	**±70000 nT**
Frequency band for magnetometer	**DC-10 Hz**
Transformation factor of analog output	**25 μV/nT**
Noise level at 1 Hz	**≤ 10 pT/√Hz**
Temperature drift	**< 0.3 nT/°C**
Components orthogonality error	**< 30 min of arc**
Operating temperature range	**minus 20 to + 60° C**
Power supply	**5 V**
Power consumption	**< 0.5 W**
Weight: sensor with support and 10m cable	**3 kg**
Dimensions	**H=162 mm**
	D=90mm
Length of sensor connecting cable as manufactured	**6 m***

*** any other values up to 75 meters are possible to use.**

Digital version

The digital version of LEMI-039 magnetometer is specially adapted for the measurement of three components of Earth's magnetic field and its variations at sea bed for the needs of fundamental and applied geophysics. It has any housing being destined for the installation inside basic sea bed station (see photo above). Timing by internal clock provides high accuracy synchronization of sampling each second. It is possible to set internal clock and make it correction through RS232 interface. This version of digital magnetometer has two-component tiltmeter and does not contain GPS-receiver and nonvolatile memory. For data registration it has to be coupled with a basic station by a cable through RS-232 interface. Other version with autonomous registration in flash memory and USB channel also available. Using the developed software it is possible to reduce the magnetometer data collected in randomly oriented coordinate system at arbitrary position at the sea bed to the data in the geomagnetic frame system.

MAIN TECHNICAL PARAMETERS

Measured range of magnetic field	**± 70000 nT**
Resolution along each component	**10 pT**
Temperature drift	**<0.5 nT/°C**
Sample rate	**1 per s**
Noise level at 1Hz	**≤ 10 pT/√Hz**
Components orthogonality error	**<30 min of arc**
Interface cable length, max	**20m**
Digital output (baud rate 115200 bit/s)	**RS232**
Tiltmeter resolution, degrees	**0.01**
Tiltmeter measurement range, degrees	**±30**
Operating temperature range	**0 to +50°C**
Temperature sensors resolution	**0.05 °C**
Power supply	**5-20 V**
Power consumption	**<0.7 W**
Weight without platform	**<2 kg**
Dimensions	**H=280 mm**
	D=90 mm

5A Naukova St., Lviv, Ukraine, 79060. Lviv Centre of ISR,
Tel/Fax: +380-32-2639163; E-mail: vakor@isr.lviv.ua; Web-site: http://www.isr.lviv.ua