

LEMI-019 Low Noise Miniature Flux-gate Magnetometer

Miniature one-component flux-gate magnetometer LEMI-019 is intended for the measurement of one component of the magnetic field vector in land conditions. The instrument has two outputs: low-sensitivity unfiltered output for rough estimation of magnetic field intensity and high-sensitivity filtered output for measuring of its weak fluctuation in the frequency band 0.02 - 5 Hz. Its peculiarities are low noise together with very low power consumption.



Innovative Aspect and Main Advantages

The developed magnetometer has numerous know-hows implemented and allows reaching minimal possible sensitivity threshold in comparison with other known versions on the market. Other major advantage is that simultaneously lowest possible consumed power of the magnetometer is provided what makes these devices indispensable for autonomous systems. Another serious advantage is its price— no more than 70% of regular market price for competitive devices.

Areas of Application

- Detection of slowly varying magnetic field whose variations is in 0.02-15 Hz frequency range, which is Earth's magnetic field natural fluctuations.
- Detection of metallic objects movement
- Gradiometric measurements
- Systems of tracking
- Intrusion alarm systems

Technical Specifications

Measurement range: at the unfiltered output at the filtered output	± 60000 nT ± 15 nT
Frequency band of received signals: at the unfiltered output at the filtered output	DC - 15 Hz 0.02 – 5 Hz
Transformation coefficient value: at the unfiltered output at the filtered output	0.05 mV/nT 270 mV/nT
Transformation coefficient error (both outputs)	± 5 %
Magnetic noise level at 1.0 Hz	≤ 15 pT/ $\sqrt{\text{Hz}}$
Noise rejection at 50 Hz (only at the filtered output)	≥ 60 dB
Power supply voltage	$\pm (3.5 \pm 0.3)$ V
Power consumption	≤ 30 mW
Temperature range of operation	0°C - + 70°C
Dimensions: sensor electronics box	L= 60 mm, d = 17 mm 100 x 20 x 40 mm
Weight	≤ 0.16 kg

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