

### Induction Coil Magnetometers

LEMI-118  
LEMI-120  
LEMI-121  
LEMI-123  
LEMI-134

### Fluxgate Magnetometers

LEMI-011  
LEMI-018  
LEMI-019  
LEMI-022  
LEMI-024  
LEMI-025  
**LEMI-029**  
LEMI-031

### Electrodes & E-field Measurements

LEMI-701

### Magnetic and Magnetotelluric Stations

LEMI-030  
LEMI-417  
LEMI-418

### Calibration Systems

LEMI-901  
LEMI-931

### Special Products

LEMI-017  
LEMI-204  
LEMI-301

### Product description

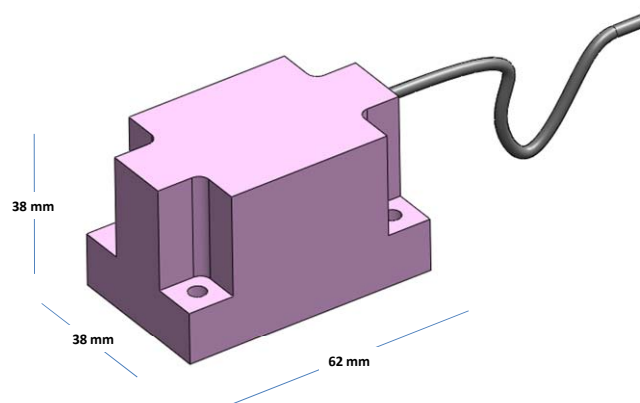
The LEMI-029 fluxgate magnetometer is based on three orthogonal fluxgate sensor elements combined with low noise excitation and registration electronics, automatic digital static field compensation and exceptional three channel 32 bit digitization. The sensor can be controlled and operated using standard RS-232 or SPI interfaces. Optional external timing signals allow for precise time synchronization of multiple LEMI-029 and enable the use of this sensor in distributed sensor networks. In addition to the magnetic measurements the LEMI-029 senses three components of static acceleration to enable the calculation of its orientation and of Euler angles. This feature makes the LEMI-029 particularly useful in applications where the placement of the sensor cannot be controlled by the user.

### Application description

LEMI-029 fluxgate magnetometers are used for measurements of magnetic fields in the frequency range from DC to 180 Hz. Their wide bandwidth and low noise make them the ideal sensor for a wide variety of applications. The sensor can be placed in any orientation without the use of a gimbal system.

### Highlights

- Low noise (6 pT/ $\sqrt{\text{Hz}}$  @ 1 Hz)
- Exceptional low-frequency stability
- Static field compensation
- 32 bit ADC
- RS-232 and SPI output
- Timing, synchronization of multiple units



LEMI-029 dimensional drawing (sensor element only)




### Mail:

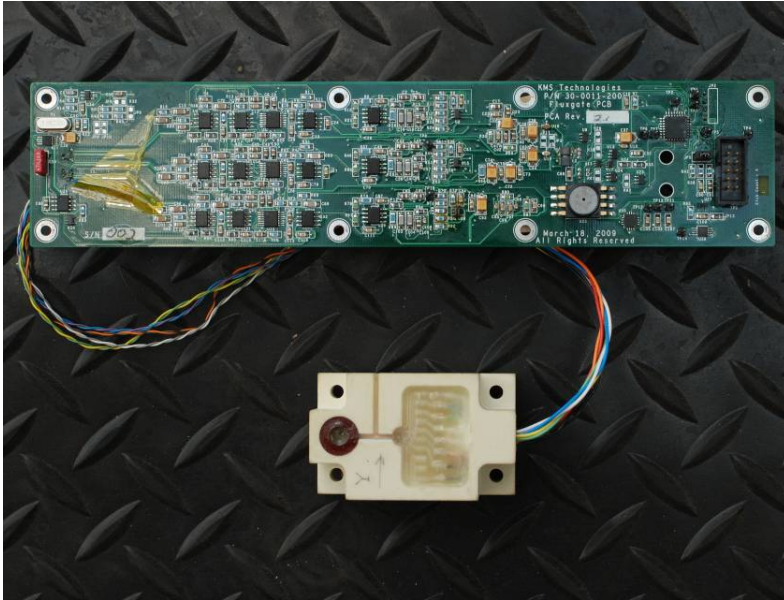
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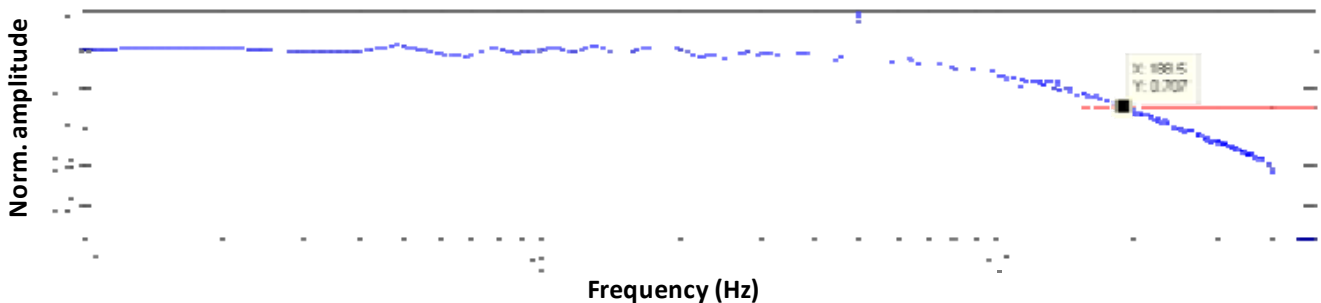


LEMI-029 Digital Fluxgate Magnetometer

### Specifications

<b>Sensor elements</b>	3 orthogonal elements
<b>Length</b>	62 mm (sensor)
<b>Width</b>	38 mm (sensor)
<b>Height</b>	38 mm (sensor)
<b>Weight</b>	≤ 85 g (sensor)
<b>Sensor assembly</b>	Screw mount
<b>Frequency range</b>	DC to 180 Hz
<b>3 dB points of frequency band</b>	180 Hz
<b>Total dynamic range</b>	± 78,000 nT
<b>Dynamic range after compensation</b>	± 5,400 nT
<b>Noise level @ 1 Hz</b>	≤ 6 pT/√ Hz
<b>Compensation</b>	Digital feedback
<b>ADC output</b>	3 channel, 24 bit (32 bit optional)
<b>Digital output</b>	RS-232, SPI
<b>Construction material</b>	Syntactic foam
<b>Power consumption</b>	425 mW
<b>Power supply voltage</b>	± 5 V & + 3.3 V
<b>Temperature rating</b>	0°C to 70°C
<b>Shock resistance</b>	100 G, 3.5 ms
<b>Vibration resistance</b>	4.8 G rms
<b>Auxiliary sensors</b>	3-component acceleration, temperature, pressure

### Frequency response



Frequency response of the LEMI-029 Digital Fluxgate Magnetometer




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