



Digital triaxial magnetometer with high resolution

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Triaxial magnetometer with analog and digital output features detachable sensor head and isolated power supply. As opposed to available instruments, it features 100 Hz bandwidth, and not only analogue output can be used, but also the digital output of the 24-bit, simultaneously sampled A/D converter. Two versions of sensor heads are available – **S** (standard) and (**L** – low noise). The serial communication uses simple ASCII protocol which is easily processed (demonstration program is available on request).

The instrument has been developed in joint collaboration of Czech Technical University in Prague and Czech Space Research Centre s.r.o.

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Magnetometer with triaxial probe and 2-m cabling

Power requirements	11-14 V DC, 0.14A
Temperature range	-40 to +85°C
Measurement range	±75000 nT (typ.), 100 Hz bandwidth
Outputs:	- 3 analog outputs ±10V max. - RS232 115200 bps ASCII - 3x ±8388608 LSB
Sensitivity:	Outputs available on Canon-9, USB/232 converter can be supplied 133 000 V/T nominally (analog out)
Sampling speed	250 SPS (standard, can be adjusted)
Dimensions	57x34x110 mm head, 159x41x62 mm magnetometer
EMC compliance	EN 55022, 6100-3-2, 4-2, 4-3, 4-4, 4-5, 4-6 and 4-11
Mechanical compliance	MIL-STD-810G version available on request

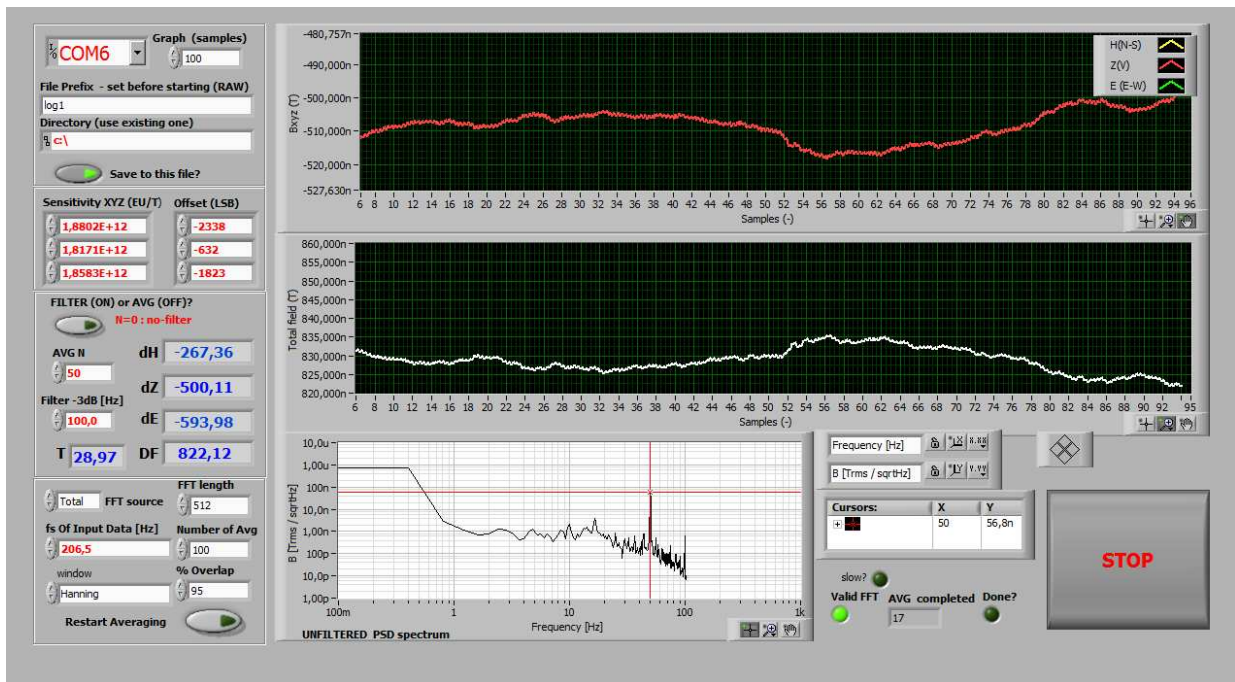
Magnetometer key parameters

Noise:	analog output	S: <10pT/vHz@1Hz typ. L: <5pT/vHz@1Hz typ.
	digital data	<20pT/vHz@1Hz typ. (ADC limitation)
Linearity	analog output	10 ppm
	digital data	50 ppm (ADC INL, DNL)
Offsets		<40 nT typ.
Offset temperature coefficient		<0.1 nT / °C typ.
Sensor head material		Glass-fiber, PP GF 6 or Al – on request
Pricing		S: 2150 € L: on request

Detached sensor head allows measurements of weak magnetic fields, not disturbed by the magnetic response of magnetometer electronics, connectors etc. as opposed to available instruments.

Pre-selected, low-noise sensors in the version **L** allow for $\sim 5\text{pT/VHz}@1\text{Hz}$ noise on analog outputs.

Calibration coefficients are available for every magnetometer; **traceable calibration** (< 400 ppm) can be obtained from Czech Metrological Institute. Evaluation acquisition software in **Labview** is available.



High sampling rate of the magnetometer and detachable sensor head is the basic advantage of the instrument. It for example allows to shorten the time required for **magnetic mapping** – it is possible to measure continuously while walking and post-process the data afterwards (with GPS coordinates etc.). Below is the magnetic mapping results done at a sub-urban location. Red-blue transients indicate the position of the magnetic anomalies found. The colormap scale of the calculated *total field* is ± 30 nT.

