Proton Precession Magnetometer PPMG4A

A low-cost, high-precision proton magnetometer with RS232 Control.

The PPMG4A is a scalar magnetometer that measures absolute magnetic field strength with very high precision and negligible drift.

The instrument is akin to an atomic clock in that its accuracy is determined by the physical properties of sub-atomic particles, in this case by the Larmor frequency of precessing hydrogen nuclei.

Since the properties of hydrogen nuclei are fixed, the magnetometer has zero theoretical drift and requires no calibration, making it ideal as a reference or for spot measurements over long intervals.

The PPMG4A is compact and portable and can measure fields with a standard deviation or sensitivity of just 0.5nT/sqrt(Hz) at a rate of one measurement per second.

This is sufficient sensitivity to survey and identify areas of disturbed soil from thousands of years ago.

Control and reading of the magnetometer is possible via serial port. This, along with additional hardware, could be used to record survey data or to enable remote sensor reading over a radio link or network.

If you require an instrument of this nature, but the PPMG4A does not appear to quite fit your requirement, please get in touch so we can quote for a custom version.

Features

- Compact Size
- Low Cost
- Backlit Display
- RS232 Serial Port Control
- Bluetooth module interface
- Battery or 19V adaptor operation
- No Calibration Required

Applications

- Magnetometer Calibration
- Environmental Monitoring
- Geological Survey
- Laboratory Measurements

Specifications

Unless Otherwise Stated: Supply = 19V, test field = uniform 50,000nT, Reading Rate = 1Hz, equipment temperature = 20ºC.

Parameter	Min	Typ	Max	Units
Range	25		100	µT
Standard Deviation (sensor fluid at 20ºC)		0.3	0.5	nT/sqrt(Hz)
Absolute Accuracy		3		+/- nT
Temperature Range a) Control Unit b) Sensor Ambient c) Sensor Fluid	 -10 -10 -10		 40 30 40	ºC
Measurement Rate			1	Hz
Average Sensor Power		15		Watts
7A Sensor Weight (full)		2.3		kg
Control Unit		180		grams
Supply Voltage	9	19	20	V

Note. Specifications are subject to change without notice.
External sensor cooling may be required to maintain sensitivity.