GEOTRON

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# Geotron Model G5 Proton Memory Magnetometer

**Unparalleled ease of use in a sophisticated instrument**

**To maximize both the quality and quantity of the geophysical data obtained during your surveys, you need an instrument which is designed to increase operator productivity. The G5 magnetometer from Geotron is just such an instrument. Not only does it measure and display the total magnetic field of the earth plus the difference between the present and previous reading. It also stores readings taken, as well as other information, in it's own non-volatile memory.**


**Long term experience and customer feedback enabled the Geotron design team to produce a magnetometer which offers specifications equal to any other proton precession instrument. Apart from the technical excellence, however, the G5 is one of the simplest memory magnetometers to operate. Conceived, designed and produced with increased operator productivity as our main goal, the G5 magnetometer incorporates the following ergonomic design features:**

**USER FRIENDLY**

**The front panel incorporates an 80 character, 2 line alpha numeric liquid crystal display, easy to read even in brilliant sunlight.**

**Switch-on and -off is by inserting the sensor or download cable in it's socket. This means that the instrument cannot easily be left on by accident and run the batteries down.**

**MENU DRIVEN**

**Operation of the magnetometer is via menus. There are no complicated set-up or other procedures to remember. Nor are there any codes or abbreviations used to confuse the operator. The main menu structure is as follows:**

**Read = 1, Tune = 2, Position = 3, Recall = 4, Dump = 5,**

**Erase = 6, Mode = 7, Set clock = 8, Stats = 9.**

All menu choices are made via numeric entries. Where the operator is required to enter data, for example a line number, the prompt message is clear and unambiguous. A standard keystroke sequence is used to enter all data. To return to the main menu, a "MENU" key is provided.

The keyboard on the front panel is a 15-key membrane pad with tactile feedback, so that the operator is sure whether or not a key has been pressed. The following keys are provided: Digits from zero to nine, minus, CLEAR, STORE, MENU, and READ.

## EASE OF OPERATION

At the start of every reading cycle, the G5 displays the battery level and the tuning level. This allows the operator to monitor these critical factors continuously. When a low battery condition does occur, this fact is immediately brought to the attention of the operator. No data will be lost as a result of battery replacement in the middle of a survey.

For every reading taken, the signal strength and the change from the previous reading is displayed on the front panel. This enables the operator to check the quality of the data obtained.

( In manual mode, the operator has to make an explicit selection whether or not to store a reading. This prevents the inadvertent recording of "noisy" or invalid data. Only once a reading has been accepted does the G5 increment or decrement the station number, ready for the next reading. Until such time, multiple readings may be taken at the same station.

## AUTOMATIC

The G5 offers the option of automatic tuning to the signal received. Using this option enables the operator to obtain maximum signal strength despite sharp changes in magnetic gradient. When the instrument is used in auto mode, the automatic tuning option ensures that data quality remains high.

In auto mode, readings will only commence at a time which is an integral multiple of the reading interval chosen. The data is stored automatically,

obviating the need for an operator to be in attendance when using the G5 as a base station during a survey.

DATA STORED

By selecting the "Stats" option, the operator may at any time see the following: The date, time, line number, station number and inter-station spacing, mode (manual/auto), auto time interval, current tuning level, Julian day, number of stored readings and the total memory capacity.

For every reading taken in manual mode, the operator may store an "Electronic Notepad Index" value. This facility allows the operator to record geological, environmental or cultural features without the need to carry a notebook or clipboard.

For every reading, the G5 stores the reading number, line and station numbers, date and time, reading, signal strength and "Notepad Index" value.

The data storage algorithm used allows for a minimum of 7500 readings to be stored. Up to 14000 readings can be stored depending upon the relative changes in stored values.

The data stored in the G5's memory may be downloaded via an RS-232 port to a microcomputer. Geotron's proprietary software (provided free of charge with every instrument sold) is used to control the download and to arrange the data in either "GEOSOFT" or standard format on the computer's disk.

After downloading of data, the memory has to be explicitly erased by the operator. This ensures that data cannot be lost if the computer develops a problem during downloading.

APPLICATIONS

The GEOTRON model G5 proton magnetometer is an advanced portable instrument, both technically and ergonomically. It is well suited to its principle applications in:

Mineral and Petroleum exploration

Groundwater and geohydrological surveys

Geological mapping

Engineering geology work

Ground follow-up of airborne surveys

Mine planning and control

Archeological searches

Educational and Research institutes

Diurnal drift monitoring

Ecological Studies

The usefulness and application of the G5 is enhanced by the following technical design features:

0,1 gamma sensitivity and accuracy for scientific work

the total field strength is displayed in nanoteslas (gammas)

light, compact, reliable and rugged design

low power consumption

short time required to take a measurement

absolute calibration, cannot drift

**All in all, the GEOTRON G5 is a rugged instrument capable of giving you reliable and repeatable data at a high acquisition rate for many years to come.**

## SPECIFICATIONS

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| Range | 20 to 100 microtesla (kilogamma) |
| Resolution | 0,1 nanotesla (gamma) |
| Accuracy | 0,1 nanotesla (gamma) |
| Sensor type | Dual coil, omnidirectional above 10° inclination |
| Tolerable external gradient | 4000 nanotesla (gamma) per meter |
| Cycle time | Manual mode: 2 sec minimum<br>Auto mode: 4 to 999 Sec, 1 to 999 mm |
| Tuning | Automatic or manual |
| Display | 80 character, 2-line, alphanumeric, liquid crystal |
| Temperature range | -10 0 C to 50 0 C |
| Power requirements | 18 Volts DC |
| Power supply | Lead-acid rechargeable batteries, 6 volt, 3 Ah |
| Charger | Constant current - constant voltage system with 220/110V AC and 10-15V DC inputs. |
| Physical - Instrument | Height: 220 mm<br>Width: 230 mm<br>Length: 110 mm<br>Mass: 2.5 kg |
| Physical - Sensor | Diam: 75 mm<br>Length: 160 mm<br>Mass: 1.2 kg |
| Physical - Six sensor poles | Diam: 25 mm with 0.625 inch WW thread<br>Length: 400 mm each<br>Mass: 0.113 kg each |
| Physical - Charger | Height: 160 mm<br>Width: 80 mm<br>Length: 80 mm<br>Mass: 0.75 kg |
| Maximum memory capacity | 14 000 readings depending upon field conditions |
| Digital data output | Via RS-232 (serial) port at 9600 baud |
| Finishes | Instrument: Anodized and painted aluminum<br>Sensor poles: Anodized aluminum<br>Sensor: PVC case |
| In/Output connection | Plug-in switch-on type |
| Harness | Canvas with front pouch for instrument housing, back pouch for sensor |
| Standard Package | Sensor, sensor poles, instrument, harness, batteries, spare sensor cable, download cable, operator's manual and diskette with PC software in a foam-lined rigid aluminum case |
| Options | "D" type rechargeable batteries with charger<br>5m base station sensor cable<br>Sensor pole stay assembly |

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| Warranty | One year from delivery date |

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