GSM-90 OVERHAUSER

OBSERVATORY MAGNETOMETER

Description

The GSM-90 is a scalar magnetometer of high absolute accuracy (0.2nT) and low long term drift (0.05nT/year) intended for magnetic observatories, long term monitoring arrays in volcanology, and many other areas where long term stability and higher accuracy are at premium and where the high resolution and lowest noise (0.02nT) are required.

In contrast to a standard proton magnetometer sensor, where only proton rich liquid is required to produce procession signal, Overhauser Effect sensor has also a free radical added to the liquid. The free radical ensures a presence of free, unbound electrons that couple with protons producing a two spin system. A strong RF magnetic field is used to disturb the electron-proton coupling. By saturating free eletron resonance lines, the polarization of protons in sensor liquid is strongly increased. Overhauser Effect offers superior method of proton polarization. Stronger signals are achieved from smaller sensors with less power.

The GSM-90 electronics is packaged in a thick, waterproof aluminum box especially designed to operate reliably in a harsh environment, remotely controlled. Simple RS232C link is used to control the magnetometer and collect its measurements.

The GSM-90 is a low power* instrument requiring only about 2Ws per reading or about 0.5W average power consumption for 1 reading per 5 seconds.

Specifications

Resolution: 0.01 nT (gamma)
Absolute Accuracy: 0.2 nT
Dynamic range: 20,000 - 120,000 nT
Long term stability: <0.05 nT/year
Sampling rate, minimum interval: 3 sec
Sensor size: 70mm dia. X 150mm
Power requirements: 12V 200mA maximum, 40mA average
RS232C parameters: programmable

* For the ultimate in low power operation, consider our GSM-90L requiring only 100mW for 1 reading in 5 seconds or 300mW for 1 reading per second.

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