

G-823RBS CESIUM-VAPOR BASE-STATION MAGNETOMETER

A Complete high-performance base station magnetometer system that includes:

- High sensitivity cesium vapor magnetometer with the CM-201 Mini-Counter providing 0.004 nT/√Hz RMS performance.
- Automatic measurement triggering by integrated NovAtel V1 GPS antenna/ receiver. Each magnetometer reading is concatenated with the GPS trigger time.
- Magnetometer data and GPS time coordinates recorded as ASCII data file on high capacity removal compact flash card.
- Low power consumption (30w) and operable from 10-36 VDC or 110-240 VAC 50-60hz external power sources.
- System includes nonmagnetic, collapsible tripod sensor stand with attachment hardware for magnetometer sensor, sensor driver/counter module, GPS antenna/receiver, and data logger.
- System comprised entirely of weatherproof components and packed in a durable watertight shipping/storage case ready for immediate use.



The high performance of the G-823 and its multi-function capability are well suited for many mobile survey applications and also for applications that require stationary monitoring of the total magnetic field. In addition to providing magnetic field measurements, the electronic circuits included in the G-823 also accept an external input for synchronizing its measurements and the ability to concatenate its measurement data with the output of other RS-232 serial devices. These features permit the G-823 to be integrated with other digital devices and to merge this combined data into a single digital stream for efficient transmission and storage. The default data transmission format of the G-823 is also selectable by external software command and may be customized for specific needs. These features are utilized in the design of our model G-823RBS which combines Geometrics high performance G-823B magnetometer with a NovAtel V1 GPS receiver and a serial data logger to provide a high performance Recording Base Station (RBS) magnetometer system. The model G-823B cesium-vapor magnetometer provides sensitivities of 0.002 nT at 1 Hz up to 0.22 nT at 40 Hz. The default configuration of the G-823RBS provides 0.02 nT P-P performance (0.004 nT/√Hz RMS)

at 10 samples per second where each measurement is triggered by the GPS time value as it arrives from the NovAtel receiver. These time-stamped magnetic field measurements are presented as a serial data stream in the RS-232 ASCII format and logged by serial data logger included in the G-823RBS and are also available for recording by other external devices.

Because the G-823RBS's measurements are timed stamped and GPS synchronized they are automatically synchronized with a similarly configure magnetometer system – whether it is stationary or mobile. The precise, synchronous records obtained from a mobile magnetic survey system and a stationary G-823RBS will permit the recognition and removal of both the diurnal variation of the Earth's field as well as the higher frequency magnetic signal due to spherics. The magnetometer and GPS time value are synchronized to within 1ms and the Cesium-vapor technology used in the G-823RBS is stable, not requiring adjustment or periodic factory recalibration. After years of operation, full conformity with original stringent specifications can be expected. A full one-year warranty is offered with every system.

MODEL G-823RBS RECORDING BASESTATION MAGNETOMETER SPECIFICATIONS

MAGNETOMETER:	Self-oscillating split-beam Cesium Vapor (non-radioactive)
MAGNETOMETER OPERATING RANGE:	20,000 to 100,000 nT
OPERATING ZONES:	The earth's field vector should be at an angle greater than 10° from the sensor's equator and greater than 10° from the sensor's long axis. Automatic hemisphere switching.
SENSITIVITY:	<0.004 nT/√Hz rms. Typically 0.02 nT P-P at a 0.1 second sample rate (90% of all readings falling within the P-P envelope)
ABSOLUTE ACCURACY:	<3 nT throughout range
GPS RECEIVER	Time accuracy; 20ns, RMS, max. data rate; 20hz
DATA LOGGER	Serial logger, removable flash data storage card.
DATA FORMAT	ASCII, MS Windows PC compatible, FAT16 file format.
CAPACITY	44 days using 2Gbyte Flash card while recording at 10hz rate with GPS receiver output set to provide GPZDA data sentence (UTC). Logger will accept 64Gbyte Flash card with FAT32 file format.
MECHANICAL / ENVIRONMENTAL	Shipping weight: 12.7kg (28Lbs.)
OPERATING TEMPERATURE:	-30° F to +122° F (-35° C to +50° C)
STORAGE TEMPERATURE:	-48° F to +158° F (-45° C to +70° C)
ALTITUDE:	Up to 30,000 ft (9,000 m)
WEATHERPROOF:	O-Ring sealed for operation in the rain and/or 100% humidity
POWER:	10 to 36 VDC, 30 Watt. or 110-220VAC (50-60hz)
STANDARD ACCESSORIES:	110-220 VAC (50-60hz) power supply, Flash card reader, shipping/storage case, Geometrics MagMap2000 data processing and display software.

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

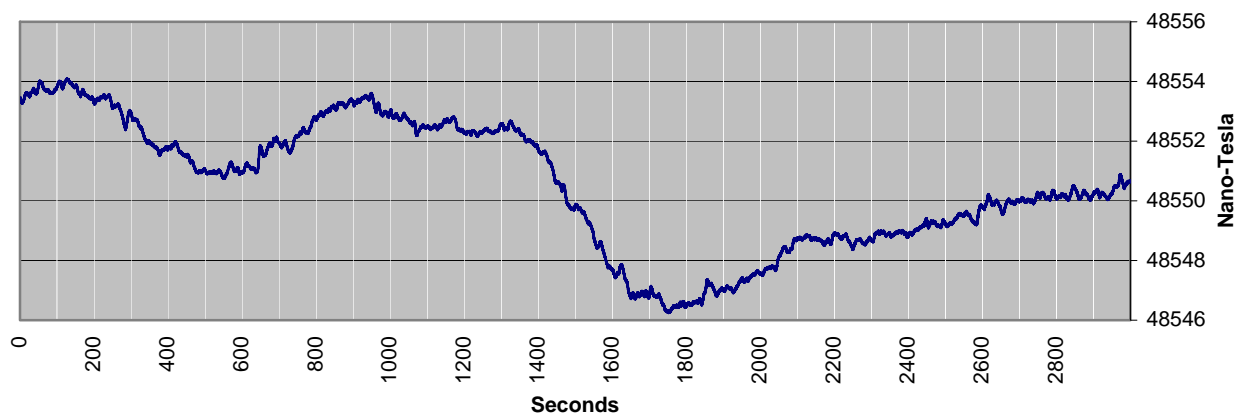
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Record of magnetic field variation measured with G-823RBS at 10hz rate.