

G-823A CESIUM MAGNETOMETER

- **Airborne and Vehicle Applications with Multi-Sensor Array Capability**
- **High Sensitivity – 0.004 nT/√Hz RMS with the CM-201 Mini-Counter**
- **Very Low Heading Error – ±0.15nT over 360° Equatorial and Polar spins. Systems supplied with spin curves for gradiometer installation curve matching**
- **Versatility – CM-201 counter includes 6 channel 12 bit A to D converters for digitization of altimeter or other analog signals, digital data stream concatenation**
- **Reliability and Ruggedness – Cesium magnetometers never need be returned to factory for calibration or tuning!**
- **Gradiometer arrays offering simultaneous operation of up to 8 separate sensors using the designed-in concatenation of the CM-201 Internal Mini-counter**
- **Geometrics offers complete turnkey systems including Birds, Stingers, Wingtip installation accessories as well as Digital Data Acquisition Systems, Post Acquisition Magnetic Compensation Software, Flight Path Recovery, GPS Navigation, Gamma Ray Spectrometers, VLF EM and Post Acquisition Data Processing Software and training.**



Model G-823A includes the well proven high performance G-822A sensor with the ultra-small size CM-201 Larmor counter. This advanced model (G-823A) provides unmatched versatility of performance, size, function, and cost effectiveness. The system has two outputs: the standard Larmor sine wave superimposed on 28 VDC power (uncounted for RMS AADCII or 822A Super-Counter) or the Larmor signal counted, converted into nT(γ) and output as RS-232 for recording by any standard computer. This powerful combination is also the basis for new specialized models such as G-823B Base Station.

The G-823A provides sensitivities of 0.002 nT at 1 Hz up to 0.22 nT at 40 Hz which are selectable via software command. Default configuration provides 0.02 nT P-P (0.004 nT/√Hz RMS) at 10 samples per second. In addition to the magnetometer measurement, the CM-201 Counter also includes Julian / Time / Date, a provision to accept an external sync pulse and six A/D converters for

digitizing and recording signal amplitude, radar/ barometric altimeter, EM or other analog data. The transmission format of all functions is also selected by software command and may be customized for each different job.

The system's high performance and multi-function capability are excellent for mapping geologic structure, for mining, oil and gas exploration and the detection and delineation of target bodies for environmental, archaeological or military surveys. Detection ranges, target classification and precision mapping are enhanced by the G-823A performance and in some cases provide results not achievable by any other means. The G-823A meets the highest standards for airborne, land or marine surveys meeting rigorous vibration and temperature environmental testing standards. Custom length cables and special packaging are available for each of these applications. Critical heading error performance is documented and supplied for each G-823A system.

Gradiometer sensor arrays are particularly effective for geologic mapping and target identification. The G-823A provides ability to concatenate RS-232 outputs from up to 8 sensor/counter assemblies into a single digital stream, transmitted up a single cable and recorded on a single computer port. Each of these sensors is synchronized to within 1ms for simultaneous measurement at high sample rates. The specialized Cesium components are stable and do not require factory calibration. After years of operation, full conformance with original stringent specifications can be expected. A full one year warranty is offered with every system.

G-823B

Producing sensors with extremely low heading error is an expensive and time consuming process. Sensors that do not meet our exacting heading error standards are designated as G-823B's. These units are identical in all performance and reliability standards except for heading error where typical system specs (heading errors specs are not supplied with the 823B). These systems are offered for base station use (where heading error is not an issue) at a significantly lower price. Systems come complete with interconnect cables, power/data splitter box and optional tripod with nylon support wires.

MODEL G-823A AIRBORNE CESIUM MAGNETOMETER SENSOR SPECIFICATIONS

OPERATING PRINCIPLE:	Self-oscillating split-beam Cesium Vapor (non-radioactive)
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 WITH CM-201:	<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) using CM-201 Mini-Counter
HEADING ERROR:	±0.15 nT over entire 360° equatorial and polar spins Not specified on 823B
ABSOLUTE ACCURACY:	<3 nT throughout range
OUTPUT:	Cycle of Larmor frequency = 3.498572 Hz/nT, RS-232 data at 9600 baud, concatenated data streams from up to 6 sensors
MECHANICAL:	See G-822A Data Sheet
CABLES: Sensor to electronics: Electronics to Junction Box:	Standard 109 in. (9 ft or 2.77 m) with connector on electronics end. Other lengths available from 2.4 ft (0.75m) to 12.75ft (3.75m) at 40 inch (1 m) increments. Lengths approx. due to cable variations. RS-232 to Computer, standard 8m, 60m max. Larmor to external counter with coupler over Coax, standard 10m, 50m max
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:	24 to 32 VDC, 0.75 amp at turn-on and 0.5 amp thereafter
ACCESSORIES:	
Standard:	Power/RS-232 multiconductor cable (electronics to power/data junction box with 9 pin RS-232 connector and power lugs), lengths to be specified, spare O rings, operation manual and carrying case
Optional:	
Logging Software	MagLog (Logs GPS and Mag, shows trackplot, mag profile, other data)
Accessories	Birds, Stingers, Wingtips, Avionics, GPS, Gamma Ray, Logging Computer

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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