

G-822A CESIUM MAGNETOMETER

- **Airborne and Vehicle Applications with Multi-Sensor Array Capability**
- **Automatic Hemisphere Switching**
- **Highest Sensitivity – 0.001 nT/ $\sqrt{\text{Hz}}$ RMS with RMS Instruments DAARC500 and AARC500**
- **Highest Versatility – Full Aircraft Compensation with RMS Instruments DAARC500 and AARC510. or optional G-823A configuration with CM-201 Internal Mini-Counter for post-acquisition compensation**
- **Very low heading error – ± 0.15 nT over entire 360° Equatorial and Polar spins**
- **Gradiometer arrays offering simultaneous operation of up to four separate sensors with the RMS Instruments DAARC500 and AARC510 or optional G-823A configuration with CM-201 Internal Mini-counter (up to 8 sensors)**
- **Geometrics offers complete turnkey systems including Birds, Stingers, Wingtip installation accessories as well as digital data acquisition systems, flight path recovery, GPS navigation, gamma ray spectrometers, VLF EM , post-acquisition data processing software and training**



The G-822A is designed for all airborne or mobile applications where the unique combination of high sensitivity and very rapid sampling of the earth's magnetic field are required. Applications include mapping geologic structure for mining, oil and gas exploration and the detection and delineation of target bodies in environmental, archaeological or military UXO ordnance type surveys. The unit consists of a high performance low heading error cesium vapor sensor with its associated cables and driver electronics

The G-822A sensor uses a precise well-proven design with carefully selected and tested components to insure the very best specifications in sensitivity, low noise, heading error and absolute accuracy. A proven record of stable and reliable operation over long periods is the hallmark of the industry standard G-822A. A single coaxial cable of up to a standard 10 meters length supplies both 28 VDC power and Larmor signal transmission from the sensor driver electronics to an RMS Instruments' AARC500 Automatic Digital Compensator, or customer supplied Larmor counter. Internal or external signal/power filter-decoupler assemblies are available to provide extremely low noise

operation.

The interconnect cable from the driver/electronics to the sensor may be supplied in various lengths (see specs on reverse) with a standard length of 13.5 ft. Tuning throughout the earth's field range is fully automatic and includes automatic hemisphere switching for equatorial surveys.

The sensor/electronics package is weatherproof; temperature controlled, and delivers full performance under extreme operating conditions. Accessories include special mounting clamps and orientation platforms for installation into a variety of vehicle or aircraft mounting configurations, as well as Birds, Stingers, Wing Tip fairings and complete integrated airborne geophysical survey systems with data logging and display.

MODEL G-822A 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 6° from the sensor's equator and greater than 6° away from the sensor's long axis. Automatic hemisphere switching.
SENSITIVITY:	< 0.001 nT/√Hz rms. Typically 0.003 nT P-P at a 0.1 second sample rate 0.02 nT P-P for CM-201
HEADING ERROR:	± 0.15 nT (over entire 360° polar and equatorial spin)
ABSOLUTE ACCURACY:	< 3 nT throughout range
OUTPUT:	Cycle of Larmor frequency = 3.498572 Hz/nT, 2 V P-P coupled through the sensor power input
MECHANICAL:	
Sensor:	2.375" (60.32 mm) diameter, 5.75" (146 mm) long, 12 oz. (339 g) - any orientation in 7" (177.8 mm) diameter stinger
Sensor Electronics:	2.5" (63.5 mm) diameter, 11" (279.4 mm) long, 22 oz. (623 g)
Cables:	
Sensor to electronics:	Standard 162 in. (13 ft. 6 in. or 4.1 m). Other lengths available from 2.4ft. (0.75 m) at 40 in. (1 m) increments with connector on electronics end. Note: Cable lengths are approximate due to cable dielectric variations
Sensor Electronics to Counter:	Standard 10 m, up to 165 ft. (50 m) (Coax with signal superimposed on power, requires decoupler board or box.)
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 rain or 100% humidity
POWER:	24 to 32 VDC, 1 amp at turn-on and 0.5 amp thereafter
ACCESSORIES:	
Standard:	Power/Larmor coaxial cable (electronics to counter), standard length 10m, maximum 50m, spare O rings, operation manual and carrying/storage case
Optional:	
Signal/Power Decoupler, board or multi-channel box:	Separates the Larmor signal from the power (28 V) to enable connection to Customer supplied counter
Internal Decoupler:	P/N 27504 - up to two sensor installation
External Decoupler:	P/N 27560 - three and four sensor installation
Internal CM-221 Counter	See G-823 A Data Sheet
Stinger, Wingtip, Bird	Contact Factory for complete system integration information

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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