

G-822A

Cesium Magnetometer with Larmor Output



GEOMETRICS

Simplify your search



The G-822A Cesium magnetometer is designed for airborne or land magnetometer applications where the combination of high sensitivity and fast sample rate are required. The G-822A sensor uses a precise, proven design with carefully selected and tested components to ensure the very best specifications in sensitivity, noise, heading error and absolute accuracy. With a proven record of stable and reliable operation over long periods, the G-822A is the industry standard.

The G-822A magnetometer outputs a Larmor frequency that corresponds to the strength of the local magnetic field. This Larmor frequency is counted by a user-supplied counter or a professional compensator such as the RMS Instruments DAARC500 Automatic Digital Compensator.

Applications for this instrument include mapping geologic structures for mining, oil and gas exploration and environmental applications. This magnetometer is typically used in an airborne platform where the size and scope of the objects are too large for a walking survey to be economical or feasible. The combination of high sample rate and sensitivity also allows the G-822A Cesium magnetometer to be useful in UXO, utility and archaeological surveys.

The sensor and electronics package is weatherproof, temperature controlled, and delivers full performance under extreme operating conditions. Optional accessories include special mounting clamps and orientation platforms for installation into a variety of vehicle or aircraft mounting configurations.

FEATURES & BENEFITS

- **Multi-Sensor Array Capability** – Versatility is the name of the game! Use this instrument in fixed wing, helicopter or in land applications to fit any surveyor's needs.
- **Highest Sensitivity** – Pick up the smallest changes in magnetic field.
- **Fast Sampling** – Save money and time on large-scale surveys; detect the smallest objects.
- **Low AC Field Interference** – Survey next to power lines when necessary.
- **Very Low Heading Error** – Get very clean, repeatable measurements without fear of instrument noise impacting the data.
- **Rugged and Reliable** – Weatherproof. Survives three-foot drop onto hard surface.
- **Ultra-stable** – No need to calibrate sensors.
- **Export Version Available** – Use anywhere in the world without need for an export license (except embargoed countries). See specifications.



GEOMETRICS

Simplify your search

MAGNETOMETER / ELECTRONICS

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.

Noise/Sensitivity: $< 0.001 \text{ nT}/\sqrt{\text{Hz}}_{\text{rms}}$. (SX (export) version: $< 0.02 \text{ nT}/\sqrt{\text{Hz}}_{\text{rms}}$).

Heading Error: $\pm 0.15 \text{ nT}$ over entire 360° polar and equatorial spin.

Output: Cycle of Larmor frequency = 3.498572 Hz/nT, 2 V P-P coupled through the sensor power input.

Power: 24 to 32 VDC, 1 A at turn-on and 0.5 A thereafter.

MECHANICAL

Sensor: Diameter: 60.32 mm (2.375 in); Length: 146 mm (5.75 in)
Weight: 0.34 kg (12 oz).

Sensor Electronics: Diameter 63.5 mm (2.5 in); Length: 279.4 mm (11 in);
Weight: 0.62 kg (22 oz).

Cables:

Sensor to Electronics: Standard 4.1 m (13 ft. 6 in). Other lengths available from 0.75 m (2.4ft) at 1 m (40 in) increments with connector on electronics end. Lengths approximate due to cable dielectric variations.

Sensor Electronics to Counter: Standard 10 m (33 ft); optional length up to 50 m (165 ft). Coax with signal superimposed on power, requires decoupler board or box.

ENVIRONMENTAL

Operating Temperature: -35°C to +50°C (-30°F to +122°F).

Storage Temperature: -45°C to +70°C (-48°F to +158°F).

Altitude: Up to 9,000 m (30,000 ft).

Weatherproof: O-Ring sealed for operation in rain or 100% humidity.

ACCESSORIES

Standard: Power/Larmor coaxial cable (electronics to counter), standard length 10m, optional length up to maximum 50m, spare O-Rings, carrying/storage case and a USB Flash drive with user software and manuals.

Optional:

Logging Software: MagLog (Logs GPS and Mag, shows track plot, mag profile, other data).

Mounting Clamps and Orientation Platform

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: Up to two sensor installation.

External Decoupler: Three and four sensor installation.