

G-823A

Cesium Magnetometer



The model G-823A includes the proven high-performance G-822A cesium sensor with the ultra-small sized CM-201 Larmor counter. This advanced magnetometer provides unmatched versatility of performance, size, function, and cost effectiveness.

The system's high performance and multi-function capability are excellent for mapping geologic structures, 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.

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 job.

The system has two outputs: the standard Larmor sine wave superimposed on 28 VDC power (uncounted for RMS DAARC500 and AARC510) or the Larmor signal counted, converted into nT and output as serial data for recording by any standard computer.

The G-823A meets the highest vibration and temperature standards for airborne, land or marine surveys. 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.

FEATURES & BENEFITS

- **Multi-Sensor Array Capability** – Versatility is the name of the game! This instrument can be used 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.

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 10° from the sensor's equator and greater than 10° from the sensor's long axis. Automatic hemisphere switching.

Noise/Sensitivity: $<0.004 \text{ nT}/\sqrt{\text{Hz}}_{\text{rms}}$. (SX (export) version: $<0.02 \text{ nT}/\sqrt{\text{Hz}}_{\text{rms}}$).

Max Sample Rate: 20 Hz.

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

Output: Cycle of Larmor frequency = 3.498572 Hz/nT, RS-232 data at 9600 baud, concatenated data streams from up to 6 sensors.

Power: 24 to 32 VDC, 0.75 A at power-on and 0.5 A thereafter.

MECHANICAL

Sensor: Diameter: 60.32 mm (2.375 in); Length: 146 mm (5.75 in)
Weight: 0.45 kg (16 oz).

Sensor Electronics: Diameter 63 mm (2.5 in); Length: 279 mm (11 in);
Weight: 0.62 kg (48 oz)

Cables:

Sensor to electronics: Standard 2.77 m (9 ft) with connector on electronics end. Other lengths available from 0.75 m to 3.75 m (2.4 ft to 12.75 ft) at 1 m (40-in) increments. Lengths approximate due to cable variations.

Electronics to Junction Box: RS-232 to Computer, standard 8 m, 60 m max (26.26 ft, 196.85 ft max). Larmor to external counter with coupler over Coax, standard 10m (32.81 ft); optional length up to 50 m (165 ft).

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 the rain and/or 100% humidity.

Gradient Tolerance: 500 nT/in.

Temperature Drift: $<0.05 \text{ nT}/^\circ\text{C}$.

ACCESSORIES

Standard: Power/RS-232 multi-conductor cable (electronics to power/data junction box with 9 pin RS-232 connector and power lugs), lengths to be specified, 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).

Contact us if you wish to discuss additional specifications or accessories.

OTHER MODELS

G-823B: Enjoys all of the same specifications and performance as the G-823A, with the exception of a confirmed/tested heading error specification.

G-823AWL: The Larmor output capability is removed for installations that don't utilize an external counter. "B" version also available in this model.

G-823AWL-SX: The SX designates that this model is our "Special Export" version which has a reduced sensitivity specification of $0.02 \text{ nT}/\sqrt{\text{Hz}}_{\text{rms}}$. This model does not require an export license prior to shipping.



Specifications subject to change without notice. G-823A_v1 (0723)