

G-882TVG

Transverse Gradiometer



Geometrics' model G-882TVG Transverse Gradiometer system is an advanced integrated magnetometer system providing unmatched versatility and performance. It has a 1.5m-wide sensor separation for maximum target detection efficiency and survey cost effectiveness.

The system's high performance is excellent for the detection and delineation of cables, pipelines, and environmental, archaeological or military UXO and EOD targets. Objects as small as a 5-inch screwdriver are readily detected provided that the sensor is close to the seafloor and within practical detection range (refer to table on back).

The G-882TVG comprises a transverse wing and two G-882 Cesium vapor magnetometer fish with stabilizer weights and fins. Tow cables may be up to 150m in length with standard power supply or up to 800m with a high-capacity voltage supply. Depth sensors provide gradiometer depth information to the operator, and an echo-sounder altimeter provides height above sea floor for proper system flight control.

Dual sensors are synchronized to 1ms sampling and data is transmitted serially for recording by any standard PC using our industry standard MagLog™ software. High sample and data transmission rates (up to 20 samples per second) are standard.

MagLog™ software computes the transverse difference, or gradient, for display and analysis in real time, using the customer-supplied GPS for interpolation and target positioning.

FEATURES & BENEFITS

- **Convertible** – Go from a gradiometer survey to a single sensor survey with a quick swap of a nose piece.
- **Gradient Measurements** – Small, shallow targets are better detected by removal of background field and through creation of Analytical Signal (QAS) maps.
- **Cesium Vapor High Performance** – Highest detection range and high probability of detecting all-sized ferrous targets.
- **Real-time QC** – CM-221 counter conducts internal diagnostics to catch any functional problems as they occur.
- **High Sensor Stability** – No need to send back to the factory for periodic calibration.
- **Sensor Can be Rotated for Optimal Signal** – Can be used worldwide.
- **Sample at up to 20 Hz** – Unparalleled data density while also covering larger areas per day.
- **Export Version Available** – Use anywhere in the world without need for an export license (except embargoed countries). See specifications.

SOFTWARE

Geometrics supplies MagMap™ and MagPick™ with each system for analysis and interpretation of total field and gradient data. Analytical signal is computed from the transverse gradient, longitudinal time gradient and computed vertical gradient to give a time-variation free data set for contouring and plotting of anomaly targets. Simultaneous dual inversion routines in MagPick™ produce a located target worksheet with models including object latitude-longitude and depth of burial.

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 6° away from the sensor's long axis. Automatic hemisphere switching.

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

Max Sample Rate: 20 Hz.

Heading Error: $<0.25 \text{ nT}$ over entire 360° equatorial and polar spins.

Output: Cycle of Larmor frequency = 3.498572 Hz/nT, RS-232 data at 115K baud, concatenated data streams.

Power: 115/220 VAC, 120 watts at power-on and 80 watts thereafter.

MECHANICAL

Sensor Fish

DIA: 7 cm; L: 137 cm (2.75x54 in) (with fin assembly).
Weight: 18 kg (40 lb).

Includes sensor and electronics and one main weight and bracket.
Optional dive weight brackets for adding up to twelve 5lb non-magnetic weights.

Tow Cable

DIA: 12 mm; L: 800 m (48 in x 2,625 ft).
Weight: 7.7 kg (17 lb) with terminations.
Break strength: 1,630 kg (3,600 lb).
Bend diameter: 30 cm (12 in).

Frame Weight: 5 kg

Total System Weight: 31 kg

Typical Detection Range for Common Objects

1. Ship: 1000 tons	0.5 to 1 nT at 800 ft (244 m)
2. Anchor: 20 tons	0.8 to 1.25 nT at 400 ft (120 m)
3. Automobile	1 to 2 nT at 100 ft (30 m)
4. Light Aircraft	0.5 to 2 nT at 40 ft (12 m)
5. Pipeline (12 inch)	1 to 2 nT at 200 ft (60 m)
6. Pipeline (6 inch)	1 to 2 nT at 100 ft (30 m)
7. Iron: 100 kg	1 to 2 nT at 50 ft (15 m)
8. Iron: 100 lb	0.5 to 1 nT at 30 ft (9 m)
9. Iron: 10 lb	0.5 to 1 nT at 20 ft (6 m)
10. Iron: 1 lb	0.5 to 1 nT at 10 ft (3 m)
11. Screwdriver: 5-inch	0.5 to 2 nT at 12 ft (4 m)
12. Bomb: 1000 lb	1 to 5 nT at 100 ft (30 m)
13. Bomb: 500 lb	0.5 to 5 nT at 50 ft (16 m)
14. Grenade	0.5 to 2 nT at 10 ft (3 m)
15. Shell: 20 mm	0.5 to 2 nT at 5 ft (1.8 m)

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).

Depth: 2,730 m (8,956 ft).

ACCESSORIES

Standard: Power/RS-232 multiconductor cable (electronics to power/data junction box with 9-pin RS-232 connector and power lugs), operation manual and reusable shipping and storage containers, MagMap™, MagPick™, shipkit with tools and hardware.

Optional:

Logging Software: MagLog™ (Logs GPS and Mag, shows trackplot, mag profile, other data), dive weight bracket.

Specifications subject to change without notice. G-882TVG_v1 (1123)