

Transverse Gradiometer (TVG) Frame

Geomatrix Earth Science Ltd are proud to offer a robust, stable marine magnetometer frame for acquiring transverse gradient data as part of unexploded ordnance mitigation or pipe line tracing. From our experience renting Geometrics G-882 Caesium vapour marine magnetometers, and the significant feedback we have received from our customers, we have independently developed a TVG frame which simplifies the mobilisation and acquisition of transverse gradient data.

FEATURES:



The Geomatrix TVG frame is designed to support the standard G-882, with or without altimeter.

The long A-frame arms permit wire line clevis to be connected directly to the frame removing the need for a soft umbilical cable. Trials have shown that there is minimal egress of noise induced into the data, $\leq \pm 0.2 \text{ nT}$.

The tow point offers attachments for the Geometrics telemetry system, or positioning beacons, increasing the operators confidence in determining the layback and position of the TVG frame. Which is particularly important when deploying two frames simultaneously.

In addition by integrating the wet end telemetry electronics onto the TVG frame the deployment and retrieval of the system becomes considerably simpler and reduces the risk of damaging the instrumentation. A video showing the recovery of the TVG frame can be seen at <http://www.geomatrix.co.uk/g-882.php>.



TECHNICAL SPECIFICATIONS:

Traverse gradient: 1.5m

Layback ratio: 10:1

Inline drag on the TVG frame:

4 knots = 40kg

8 knots = 70kg

Clevis (tow point) to sensor distance: $\approx 3.3 \text{ m}$

Maximum tow cable length:

300m soft tow cable with 30V power supply

6km steel tow cable with Geometrics telemetry system.



WEIGHTS & DIMENSIONS

Weight: 40kg

Shipping dimensions: 1.83m x 0.51m x 0.16m



GEOMETRICS

Innovation • Experience • Results

G-882 MARINE MAGNETOMETER

- **CESIUM VAPOR HIGH PERFORMANCE** – Highest detection range and probability of detecting all sized ferrous targets
- **NEW STREAMLINED DESIGN FOR TOW SAFETY** – Low probability of fouling in fishing lines or rocks
- **NEW QUICK CONVERSION FROM NOSE TOW TO CG TOW** – Simply remove an aluminum locking pin, move tow point and reinsert. Now with built in easy carry handle!
- **NEW INTERNAL HIGH PERFORMANCE CM-221 COUNTER MODULE** – UP TO 40 HZ – Provides Flash Memory for storage of default parameters set by user
- **NEW ECHOSOUNDER / ALTIMETER OPTION**
- **DEPTH RATING** – 4,000 psi (2,700M)!
- **HIGHEST SENSITIVITY IN THE INDUSTRY** – 0.004 nT/Hz RMS with the internal CM-221 Mini-Counter
- **EASY PORTABILITY & HANDLING** – no winch required, single man operation, only 44 lbs with 200 ft cable (without weights)
- **COMBINE TWO SYSTEMS FOR INCREASED COVERAGE** – Internal CM-221 Mini-Counter provides multi-sensor sync and data concatenation allowing side by side coverage which maximizes detection of small targets and reduces noise

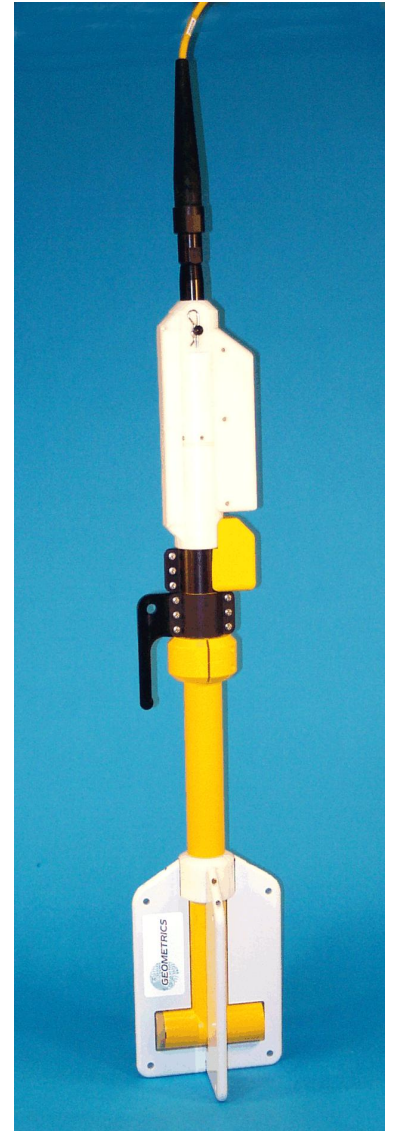
Very high resolution Cesium Vapor performance is now available in a low cost, small size system for professional surveys in shallow or deep water. High sensitivity and sample rates are maintained for all applications. The well proven Cesium sensor is combined with a unique and new CM-221 Larmor counter and ruggedly packaged for small or large boat operation. Use your computer and standard printer with our MagLogLite™ software to log, display and print GPS position and magnetic field data. The G-882 is the lowest priced, high performance, full range marine magnetometer system ever offered.

The G-882 offers flexibility for operation from small boat, shallow water surveys as well as deep tow applications (4,000 psi rating, telemetry over steel coax available to 10 km). The G-882 also directly interfaces to all major Side Scan manufacturers for tandem tow configurations. Being small and lightweight (44 lbs net, without weights) it is easily deployed and operated by one person. But add several streamlined weight collars and the system can quickly weigh more than 100 lbs. for deep tow applications. Power may be supplied from a 24 to 30 VDC battery power or the included 110/220 VAC power supply. The tow cable employs high strength Kevlar strain member with a standard length of 200 ft. (61 m).

The maximum useable cable length with the standard power supply is 300 m; 800 m with a Mini-Xantrex voltage sense power supply; and up to 6000 m with telemetry over coax.

A rugged fiber-wound fiberglass housing is designed for operation in all parts of the world allowing sensor rotation for work in equatorial regions. The shipboard end of the tow cable is attached to an included junction box or optional on-board cable for quick and simple hookup to power and output of data into any Windows 98, ME, NT, 2000 or XP computer equipped with RS-232 serial ports.

The G-882 Cesium magnetometer provides the same operating sensitivity and sample rates as the larger deep tow model G-880. MagLogLite™ Logging Software is offered with each magnetometer and allows recording and display of data and position with Automatic Anomaly Detection and automatic anomaly printing on Windows™ printer! Additional options include: MagMap2000 plotting and contouring software and post acquisition processing software MagPick™ (free from our website.)



**G-882 with Weight Collar
Depth Option & Altimeter**

The G-882 system is particularly well suited for the detection and mapping of all sizes of ferrous objects. This includes anchors, chains, cables, pipelines, ballast stone and other scattered shipwreck debris, munitions of all sizes (UXO), aircraft, engines and any other object with magnetic expression. 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 at right).

The design of this high sensitivity G-882 marine unit is directed toward the largest number of user needs. It is intended to meet all marine requirements such as shallow survey, deep tow through long cables, integration with Side Scan Sonar systems and monitoring of fish depth and altitude.

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.	100 KG of iron	1 to 2 nT at 50 ft (15 m)
8.	100 lbs of iron	0.5 to 1 nT at 30 ft (9 m)
9.	10 lbs of iron	0.5 to 1 nT at 20 ft (6 m)
10.	1 lb of iron	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.	1000 lb bomb	1 to 5 nT at 100 ft (30 m)
13.	500 lb bomb	0.5 to 5 nT at 50 ft (16 m)
14.	Grenade	0.5 to 2 nT at 10 ft (3 m)
15.	20 mm shell	0.5 to 2 nT at 5 ft (1.8 m)

MODEL G-882 CESIUM MARINE MAGNETOMETER SYSTEM 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 6E away from the sensor's long axis. Automatic hemisphere switching.
CM-221 COUNTER SENSITIVITY:	<0.004 nT/ π Hz rms. Up to 20 samples per second
HEADING ERROR:	< 1 nT (over entire 360° spin)
ABSOLUTE ACCURACY:	<2 nT throughout range
OUTPUT:	RS-232 at 1,200 to 19,200 Baud
MECHANICAL:	
Sensor Fish:	Body 2.75 in. (7 cm) dia., 4.5 ft (1.37 m) long with fin assembly (11 in. cross width), 40 lbs. (18 kg) Includes Sensor and Electronics and 1 main weight. Additional collar weights are 14lbs (6.4kg) each, total of 5 capable
Tow Cable:	Kevlar Reinforced multiconductor tow cable. Breaking strength 3,600 lbs, 0.48 in OD, 200 ft maximum. Weighs 17 lbs (7.7 kg) with terminations.
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)
WATER TIGHT:	O-Ring sealed for up to 4,000 psi (9000 ft or 2750 m) depth operation
POWER:	24 to 32 VDC, 0.75 amp at turn-on and 0.5 amp thereafter
ACCESSORIES:	
Standard:	Operation manual, shipping storage container and ship kit with tools and hardware
Optional:	Telemetry to 6Km coax, gradiometer (longitudinal or transverse TVG), aluminum reusable shipping case
MagLog Lite™ Software:	Logs, displays and prints Mag and GPS data at full sample rate. Automatic anomaly detection and single sheet Windows printer support

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

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