Potassium Magnetometers

For High Precision Applications

Celebrating 35 Years

Leading the World of Magnetics

GEM Systems is the number one global leader in the manufacture and sale of high precision magnetometers.

GEM is the only commercial manufacturer of Overhauser magnetometers, that are accepted and used at Magnetic Observatories over the world.

Our Potassium Magnetometers are the most precise magnetometers in the world.

Our Proton sensors are considered the most practical and robust magnetometers for general field use.

Proven reliability based on 35 years of R&D

We deliver fully integrated systems with GPS and additional survey capability with VLF-EM for convenience and high productivity

Today we are creating the absolute best in airborne sensors and are leading the way in super sensitive potassium sensors specially designed for highly sensitive studies with super large sensors for research of Natural Hazards globally and now smaller and lighter sensors for practical UAV applications.

Our Leadership and Success in the World of Magnetics is **Your key to success** in applications from Archeology, Volcanology and UXO detection to Exploration and Magnetic Observation **Globally.**

Optically pumped Potassium Magnetometer with ruggedized console, backpack for electronics, light weight sensors and cables.

GEM - Potassium Magnetometers

The GEM GSMP-35 Magnetometer and the GSMP-35G Gradiometer are the most precise magnetometers on the market today.

Technically Superior

This GEM GSMP-35 is the result of 20 years of development and provides the highest availably sensitivity at .0003nT when operating at 1Hz. The Potassium technology allows for extreme gradient tolerance of up to 50,000nT.
Fast sampling of 20Hz (20 samples per second) Potassium magnetometers have the lowest heading error for precise airborne and UAV applications

GEM GSMP-35 Magnetometer
Highest Sensitivity and Absolute Accuracy provide highest quality results for multiple applications. Shown with optional GPS.

GEM GSMP 35 and 35G System Features

Our latest Potassium magnetometers offer practical features for end users:

- Display: Easy-to-read display with specific settings for presenting real time data on console
- GPS and Navigation: The industry's most versatile precise navigation technology for surveying without cutting grids for significant cost savings
- High Capacity Memory: 3,000,000 readings without concern for memory space or the need to dump memory during the survey
- Useability: Easy menu-driven operation using a rugged console
- Integrated backpack: convenience and high productivity
- Low power consumption up to 16 hours of continuous operation per charge
- Light weight and compact design

GEM can custom configure multiple sensor (systems for customers. In addition, the add-on VLF system provides a multiple parameter geophysical tool for imaging the earth.

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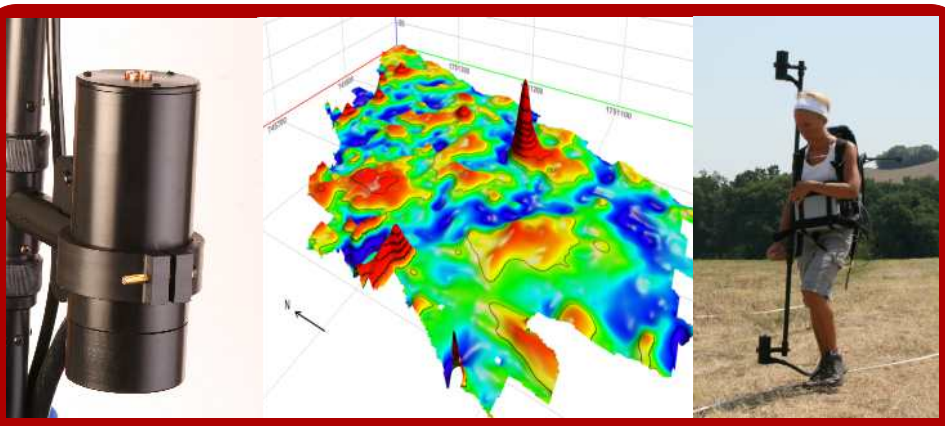
Our World is **Magnetics.**

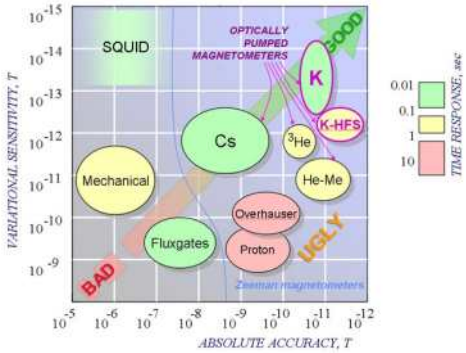
11/16/2015



Single sensor and gradiometer modes provide flexibility and fast sampling and are used for detecting subtle changes in the magnetic field. Applications include; alteration mapping, structural geology, archeology and UXO applications

Why use 'K' Magnetometers

Potassium magnetometers work within a **narrow spectral band** this means that when they are locked on signal the error due to heading mis alignment is extremely small. Other alkali vapor sensors, have a much broader spectral line, which translates to larger heading errors. For this reason repeatability between sensors is also the highest possible for Potassium magnetometers over Cs and others. This has significant benefits for high sensitivity gradient surveys, and multiple sensor array surveys for archeology and UXO applications.



When plotted with other magnetometers for the main metrological parameters Potassium is one of the most sensitive and has the highest absolute accuracy.(ref. Ioffe Phys.-Tech. Institute)

The GSMP 35 Potassium Magnetometer is packaged with the same attention to detail that all of GEM magnetometers are made. Robust and practical for real world use. A light weight version of this sensor is available for drone applications.

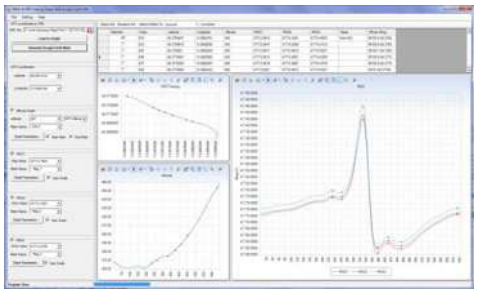
GPS and Navigation

Along with basic GPS tracking, GEM provides a Navigation feature with real-time coordinate transformation to UTM and local grid. A survey "lane" guidance system with cross track display coupled with automatic end-of-line flag and guidance to the next line allows the operator to navigate seamlessly while carrying out the magnetic survey. Professionals can define a complete survey on PC and download points to the magnetometer via RS-232 before leaving for the field.

GEMLink+

Software for Processing Magnetic Data

GEMLink+ processing software is provided with every GEM magnetometer system. GEMLink+ provides all of the data visualization features needed by the geoscientist to quickly assess the data quality in the field. The software provides diurnal correction, profile plotting, line path maps and some basic mapping and modeling functions. Files can be imported/exported to Google kmz format and coordinate transformations can be made.



GEMLink+ Data QAQC software with multi window data processing and plotting

Specifications

Performance

Sensitivity: 0.0003 nT @ 1 Hz
Resolution: 0.0001 nT
Absolute Accuracy: +/- 0.05 nT
Range: 15,000 to 120,000 nT*
Gradient Tolerance: 50,000 nT/m
Sampling Rate: 1, 5, 10, 20 Hz
* Low/High Field Options Available: 5,000 to 350,000 nT

Orientation

Sensor Angle: optimum angle 30° between sensor head axis & field vector
Orientation: 10° to 80° & 100° to 170°
Heading Error: +/- 0.05 nT @ 360° full rotation about axis

Storage (# of Readings)

Magnetometer: 3,303,000
Gradiometer: 2,359,000
Base Station: 8,257,000

Environmental

Operating Temperature: -40°C to +55°C
Storage Temperature: -70°C to +55°C
Humidity: 0 to 100%, splashproof

Dimensions and Weights

Console: 223 x 69 x 240 mm
Sensor: 161mm x 64mm (cylinder type); 1.0 kg
Electronics Box: 236mm x 56mm x 39mm; 0.60 kg

Power

Power Supply: 22 to 32 V DC
Power Consumption: 0.5 amp typical at 20°C
Warm-up time: <10 min. at 20°C

Standard Components

Console, electronics box, backpack, **GEMLink+** software, harness, charger, sensor with cable, 25,9V 4Ah Lithium battery, RS-232 cable with USB adapter, staff, instruction manual, and shipping case.

Options

Gradient Magnetometer, Walking Mode, VLF and Multi sensor applications, GPS
Standard GPS Option : 0.7m SBAS (WAAS, EGNOS, MSAS)
High resolution GPS Option D: 0.6m SBAS (WAAS, EGNOS, MSAS) / 0.6m OmniStar (VBS2 subscription)

The GSMP 35 and 35G systems come complete with an industry leading three year warranty

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