



## Press Release. Built-In GPS Positioning

GEM Systems recently became the only magnetometer manufacturer to deliver internal GPS for its line of magnetometer / gradiometer and VLF products. Developed as part of its ongoing R&D efforts, GEM's GPS technology enhancements offer increased positioning accuracy and survey effectiveness. As well, built-in GPS minimizes weight and removes bulky components that can be damaged through normal survey procedures.

Some of the new capabilities include:

- **Sub-metre positioning accuracy.** Final positioning accuracy depends upon the customer's application requirements and GEM optimally selects technologies from major suppliers to meet these needs. Currently, the company is focusing on systems that deliver low-cost high-reliability positioning performance with lower power requirements. Integrated components are designed to provide high reliability, outstanding performance under severe conditions (foliage, canyons, etc.), and to operate with either an active or a passive GPS antenna, at the lowest system cost.
- **Pre-programming of up to 1000 way points.** Customers can now define a complete survey before reaching the field on their Personal Computer and download this information directly to the magnetometer via RS-232 connection. Operators then simply perform the survey using the way points as their survey guide – with a resulting decrease in survey errors as well as improved efficiency and more rapid survey completion.
- **Post processing of GPS data.** For customers who are using differential GPS methods, GEM's DGPS option enables data transfer of original GPS data for post-processing and data merging via 3<sup>rd</sup> party way point software (for example, GrafNav from Waypoint Consulting).
- **Real time DGPS.** GEM has delivered real-time accurate DGPS positioning -- complete with base GPS units and radio modems -- and is working on other solutions (including OmniSTAR™ and other satellite providers).
- **Precise time synchronization of field and base station units.** This capability is particularly important for working in noisy magnetic field conditions and delivers the highest data reduction accuracy possible. It also eliminates the previous need to physically connect and synchronize base station and field (roving) units. Times are based on UTC (GMT) standard time acquired directly via GPS satellite.

GEM Systems, Inc.  
135 Spy Court  
Markham, ON CANADA L3R 5H6  
Ph. 905 752-2202 Fax 905 752-2205  
info@gemsys.ca www.gemsys.ca



- **Implementation of GPS datums.** The system implements the standard WGS-84 datum and custom-defined datums can be implemented on a per-request basis. This type of functionality was most recently implemented for a Swedish-based group that required a local datum for its exploration work.
- **Integrated VLF with GPS positioning.** GEM's 15 to 30 kHz VLF system is now fully GPS enabled – allowing rapid acquisition of integrated magnetometer, gradiometer and VLF data.

GEM Systems delivers magnetometers and gradiometers with built-in GPS for accurately-positioned ground, airborne and stationary data acquisition. Key products include the QuickTracker Proton Precession™, Overhauser and SuperSenser™ Optically-Pumped Potassium instruments. Each system offers unique benefits in terms of sensitivity, sampling rates and acquisition of high-quality data. These core benefits are complemented by GPS technologies that provide positioning accuracy to metre or sub-metre resolution depending on geophysical survey requirements.

In addition to almost 30 years history of innovation in design and manufacturing, GEM is known for its customer support and responsiveness. The company is headquartered in Markham, Canada and maintains a strong network of global agents and representatives, including an active interest in Terraplus Inc. – a leading global supplier of geophysical instrumentation systems.

For more details, visit [www.gemsys.ca](http://www.gemsys.ca).