



ProMark 500

Multi-constellation RTK surveying
by Magellan

ERIC MOISSET

Magellan's new ProMark 500 is a survey-class receiver that can track GPS, Glonass and Space-Based Augmentation Systems. By adding Glonass to the GPS signal, ProMark500 can increase its performance in difficult environments.

To maximise mobility and flexibility in the field, it uses a compact, light and cable-free design. Its modular architecture means that users are able to take advantage of currently available GPS, Glonass and augmentation signals, but will also be able to upgrade for future constellations such as Galileo.

ProMark 500 presents a blend of technologies designed to increase RTK availability. The Base Line Accurate Determination Engine (BLADE) introduces a way to use multiple constellations for high accuracy positioning, maximising the benefit of adding extra satellites. BLADE ensures fast initialisation, long range accuracy and extensive compatibility with other manufacturers' GNSS products.

Magellan's new technology provides robust signal tracking, advanced multipath mitigation and high availability of satellites in difficult conditions. This technology combines with compact design to deliver a lightweight product with a comprehensive user interface and a wide range of communications capabilities.

MAXIMUM BENEFIT FROM GLONASS

A growing number of available satellites are providing significantly improved performance. However, Glonass signal quality is not always stable. GNSS receivers must be able to overcome such situations to ensure high quality RTK results for surveyors. ProMark 500 has that ability – one of the key differentiators offered by the BLADE technology.

The receiver itself makes all the checks and preparations needed to mitigate any negative effects of Glonass.

The technology also allows the elimination of hardware biases inherent in Glonass signal processing. These exist because Glonass uses a Frequency Division Multiple Access (FDMA) technique instead of the Code Division Multiple Access (CDMA) technique used with GPS. Because the satellites operate on different frequencies, the signals pass through different parts of the front-end RF, which inserts frequency-dependent hardware delays to code and carrier. BLADE detects and eliminates these biases in real time.

Finally, the receiver can work with other manufacturers' base or reference stations to get the full benefit of any available Glonass corrections. Biases in the base station corrections are automatically calculated and eliminated.

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RTK NETWORK SOLUTION

Network deployment, whether local or national, is increasingly important to the surveyor in all regions of the world. Although access to the corrections broadcasted usually requires a subscription fee, networks are generally successful and the number of surveyors subscribing is increasing.

This success is mainly due to known or controlled reference points, easier operational tasks, and the possibility of a smaller investment for a rover-only configuration, i.e: no base to set up. As the network coverage improves and communication links become easier to set up, users are increasingly likely to buy single GNSS rover systems.

Magellan helps surveyors to adapt and take full advantage of the operational changes linked to these networks' deployments. ProMark 500 is available as a base or rover, and a base + rover system can easily be converted into two rovers as local network corrections become available.

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ProMark 500 features for network RTK surveying:

- It supports NTRIP and Direct IP network connections.
- It offers multi-network standard compatibility: FKP, VRS, and MAC networks, using CMR, CMR+ and RTCM 3.x formats.
- It has a built-in GPRS modem: every unit is delivered with an embedded GPRS module. Activation simply requires option activation, but no hardware upgrade.
- It can work with any third party reference station and take full advantage of any available Glonass signals.
- It is a light and well balanced all-on-the-pole rover solution, weighing about 2 kg for a complete rover configuration, including the controller.

FEATURE-RICH SURVEYING SOLUTION

ProMark 500 is not only a GNSS receiver; it comes with a full set of field and office software, communication capabilities and accessories to cover all user needs in the field and at the office.

Office Software

GNSS Solutions is a comprehensive software package with all the tools required to successfully process GPS, Glonass and SBAS survey data.

The software guides users through mission preparation, processing, quality control, reporting and data exporting. It can handle both real time and post-processing data within the same project.

The software includes advanced blunder detection and quality analysis tools to ensure accurate and reliable results. It can download data from multiple reference stations to provide a post-processed network solution for measuring quality control.

An innovative approach to presenting survey data in graphical and tabular form makes post-processing a simple and enjoyable experience.

Field Software

FAST Survey is graphical field software for topography and construction. The latest version is fully redesigned to optimise the functionality and performance of the ProMark 500. The ability to collect single co-ordinate shots, full RTK vectors, raw GNSS data and all data types concurrently provides a flexible solution for the surveyor's changing needs.

The software also works with optical equipment to allow the use of one controller for both types of instrument.

Its scalable map view screen displays points and lines as they are surveyed, offering large print controls for rapid, reliable data collection. Rich attributing, full editing in the field, and export to industry standard data formats provide true field-to-finish capability, saving time and effort.

Field Terminal

The receiver is available with a Magellan MobileMapper CX as a controller. FAST Survey software is pre-loaded. A colour touch screen, alpha-numeric keyboard, and USB and Bluetooth wireless technology ensure an easy to use, cable-free RTK rover solution.

Moreover, as an open platform GPS receiver, MobileMapper CX supports other field applications for additional L1 GPS work such as pre-survey and GIS data collection.

INCREASED RTK AVAILABILITY

The Magellan ProMark 500 increases RTK availability by extending operational coverage and delivering better results in poor conditions. It takes full advantage of currently available signals (GPS, Glonass and SBAS), and offers rich communication in a lightweight compact design.

To learn more, watch the video online at www.pro.magellangps.com or email professionalsales@magellanGPS.com

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