

ProMark™ 500



Multi-constellation GNSS Receiver



The Winning Combination



ProMark™ 500

The new Magellan® ProMark 500 offers GPS+GLONASS+20 years of field-proven technologies for surveying and geodesy. Magellan's latest RTK survey solution delivers state-of-the-art GNSS in a smart, compact, light and cable-free design that gives you maximum mobility and flexibility in the field.

You will be able to not only take advantage of currently available GPS, GLONASS, and SBAS signals, but also be comfortable knowing that you can upgrade your receiver to meet the evolution to future constellations (Galileo).

With ProMark 500, Magellan brings to the market a unique blend of technologies which increases RTK availability. Embedded BLADE™ technology introduces a unique patented way to use multiple GNSS constellations for high-accuracy positioning, maximizing the benefit of adding extra satellites to its already stellar GPS performance. BLADE insures fast initialization, long-range accuracy, and extensive compatibility with other manufacturer's GNSS products. Our new technology provides robust signal tracking, advanced multipath mitigation, and high availability of satellites in difficult conditions.

The ProMark 500 innovative design, comprehensive user interface and wide range of communications will empower you to extend your survey horizons. Combined with the new FAST Survey field software on MobileMapper™ CX data controller, plus the highly regarded GNSS Solutions office software, the ProMark 500 system is the unique result of GPS+GLONASS+MAGELLAN.

Office Software

GNSS Solutions is a comprehensive software package with all of the tools required to successfully process GPS, GLONASS and SBAS survey data. Focusing on simplicity, the software guides you through mission preparation planning, processing, quality control, reporting and data exporting.

GNSS Solutions 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 extremely accurate and reliable results. New in GNSS Solutions is the ability to download data from multiple reference stations to provide a post-processed network solution for measurements quality control. The innovative approach to presenting survey data in graphical and tabular form makes post-processing with GNSS Solutions a simple and enjoyable experience.

Field Software

FAST Survey™ is a graphical field software for topography and construction, fully re-designed to optimize the functionality and performance of ProMark 500 GNSS system. The ability to collect single coordinate shots, full RTK vectors, raw GNSS data and all data types concurrently, provides a flexible solution for your changing needs. FAST Survey also works with your optical equipment allowing you to use one controller for both types of instrument.

FAST Survey is both powerful and easy to use. The 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 provides true field-to-finish capability, saving time and effort.



Competitive Advantages



Magellan Technology

Magellan has added new unique techniques to the already proven performance of its RTK engine: BLADE technology. In addition to the short time to fix, long-range RTK and solution reliability, ProMark 500 includes:

- Patented multi-constellation signal processing
- RTK solution maintained if data link is dropped
- Interoperability with any vendor's reference station using GPS+GLONASS L1/L2

All-in-one Flexibility

ProMark 500 offers all-in-one communication capabilities. It is the most flexible GNSS surveying system available, offering multiple operating modes, configurations and communication modules (UHF, GSM/GPRS/EDGE) and protocols.

Ultra Mobility and Lightweight Design

The ultra rugged and lightweight design of ProMark 500 is waterproof to IP67 and shock resistant (2-m pole drop on concrete), for maximum reliability in the field. With a total weight of less than 2 kg for the complete solution, including communications, batteries, controller and bracket, ProMark 500 offers a huge advantage for all-day intensive use.

Ergonomics

ProMark 500 has a comprehensive built-in interface for receiver monitoring. This interface is based on a graphical display and functional keys that enable the user to interact directly with the GNSS receiver. In addition, the MobileMapper CX field terminal with FAST Survey field software provides a rich feature set for high-end field operations.



Feature-rich Surveying Solution

Field Terminal

The ProMark 500 is available with a MobileMapper CX field terminal, a handheld sub-meter GPS receiver for additional work such as pre-survey and GIS data collection. Features such as color touch screen, SD-card, USB and Bluetooth™ wireless technology, are included to ensure a robust, easy-to-use, cable-free RTK rover solution.



ProMark 500 Technical Specifications

GNSS Characteristics

- 75 channels:
 - GPS L1 C/A L1/L2 P-code, L1/L2 full wavelength carrier
 - GLONASS L1 C/A, L2-P code, L1/L2 full wavelength carrier
 - SBAS: code & carrier (WAAS/EGNOS/MSAS)
 - Low-signal acquisition and tracking engines for signal detection in difficult environments
- Fully independent code and phase measurements
- Magellan BLADE™ technology for optimal performance
- Advanced multipath mitigation
- Update rate: 10 Hz

Real-Time Accuracy (rms)¹⁻²

SBAS (WAAS/EGNOS/MSAS)

- Horizontal: <3 m (10 ft)

Real-Time DGPS position

- < 0.8 m (2.62 ft)

Real-Time Kinematic Position (fine mode)

- Horizontal 10 mm (0.033 ft) + 1.0 ppm
- Vertical 20 mm (0.065 ft) + 1.0 ppm

Real-Time Performance

Instant-RTK® Initialization

- Typically 2-second initialization for baselines < 20 km
- 99.9% reliability

RTK Initialization range

- > 40 km

Post Processing Accuracy (rms)¹⁻²

Static, Rapid Static

- Horizontal 5 mm (0.016 ft) + 0.5 ppm
- Vertical 10 mm (0.033 ft) + 1 ppm

Post-Processed Kinematic

- Horizontal 10 mm (0.033 ft) + 1.0 ppm
- Vertical 20 mm (0.065 ft) + 1.0 ppm

Data logging Characteristics

Recording Interval

- 0.1 - 999 seconds

Physical Characteristics

Size

- Unit: 22.8x18.8x8.4 cm (9x7.4x3.3 in)

Weight

- GNSS receiver: 1.4 kg (3.1 lb)

Monitoring Screen

- Graphical OLED display

Memory

- 128 MB internal memory (expandable through USB)
- Up to 400 hours of 15 sec. raw GNSS data from 18 satellites

I/O Interface

- RS232, RS422, USB, Bluetooth
- PPS, Ext Event

Data Format

- RTCM 2.3, RTCM 3.1
- CMR, CMR+
- Magellan ATOM™
- NMEA 0183
- NTRIP protocol

Operation

- RTK rover/base, post-processing
- RTK Network rover: VRS, FKP, MAC

Environmental Characteristics

- Operating temperature: -30° to +55°C (-22° to +131°F)
- Storage temperature: -40° to +70°C (-40° to +158°F)
- Humidity: 100% condensing
- Waterproof
- Shock: ETS300 019, 2 m (6.56 ft) pole drop
- Vibration: EN60945

Power Characteristics

- Li-ion battery, 4400 mAh
- Battery life time: > 6hrs (UHF rover @ 20 °C)
- 6-28 VDC input

Optional System Components

- Rover Communication Module
 - Magellan UHF
 - Pacific Crest UHF
 - GSM/GPRS/EDGE (class 10) Quad-band
- Transmitter Kits
 - Magellan UHF
 - Pacific Crest UHF
- Rechargeable Battery kit
- Field Terminal kit with FAST Survey
 - MobileMapper CX
 - Allegro CX from Juniper

Office Software Suite - GNSS Solutions

Key software functions include:

- Network post-processing
- Integrated transformation and grid system computations
- Pre-defined datums along with user-defined capabilities
- Survey mission planning
- Automatic vector processing
- Least-squares network adjustment
- Data analysis and quality control tools
- Coordinate transformations
- Reporting
- Exporting
- Geoid03
- Language: English, Spanish, French, German, Portuguese, Italian, Russian

System Requirement

- Windows 2000 / XP / Vista
- Pentium® 133 or higher
- 32 MB RAM
- 90 MB disk space required for installation

Field Software Suite – FAST Survey

Key software functions include:

- ProMark 500 GNSS Support: configuration, monitoring and control
- Volume computation
- Background raster image
- Network connectivity
- Coordinate System Support: predefined grid systems, predefined datums, projections, Geoids, local grid
- Map view with colored lines

- Geodetic Geometry: intersection, azimuth/distance, offsetting, poly-line, curve, area
- Data import/Export: DXF, SHP, RW5, LandXML ...
- Survey Utilities: calculator, RW5 file viewing
- Optical Surveying Instruments (optional)
- Road Construction (optional)
- Robotic Total Stations (optional)

Supported Hardware³

- MobileMapper CX
- Juniper Allegro CX

¹⁾ Performance values assume minimum of five satellites, following the procedures recommended in the product manual. High-multipath areas, high PDOP values and periods of severe atmospheric conditions may degrade performance.

²⁾ Accuracy and TTFF specifications based on tests conducted in Nantes, France, and Moscow. Tests in different locations under different conditions may produce different results.

³⁾ Other field software & controllers are also compatible with ProMark 500.

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Magellan follows a policy of continuous product improvement; specifications and descriptions are thus subject to change without notice. Please contact Magellan for the latest product information.
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