

# ProMark™ 3



Breaking New GPS Survey Ground



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## ProMark3

### Get More Than Centimeter Accuracy

The leader in L1 GPS surveying introduces ProMark3. ProMark3 extends the Magellan philosophy of offering an easy-to-use turnkey system to the surveyor. All the required hardware and software are included to perform accurate static, stop & go and kinematic surveys as well as GIS/mapping projects.

ProMark3 easily beats all the limits optical instruments have in terms of portability and range, its ease of use and cost-effectiveness make it the must-have GNSS system for post-processed survey.

ProMark3 empowers surveyors to offer both survey and GIS/mapping services to customers without a substantial investment in equipment and training. With this unique combination of capabilities, ProMark3 lets users survey more efficiently and productivity and offers customers valuable GIS services.



### Reduce Survey Time by 33%

ProMark3 includes the state-of-the-art Prism™ technology. Prism reduces the survey data collection occupation time by as much as 33% and allows reliable GNSS Survey even under poor satellite tracking conditions.<sup>1</sup>

ProMark3 is built around a next-generation GNSS engine that offers two ranges of accuracy:

- Centimeter in post-processing for accurate surveying
- Sub-meter in real-time for mapping and navigation

ProMark3 keeps working even in urban canyons and dense foliage using optimized multipath mitigation.

## Rugged Professional Survey Solution

ProMark3 is designed for surveyors:

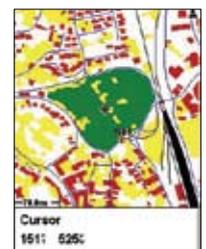
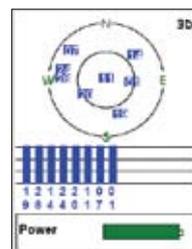
- Shock and water resistant so it performs in the toughest survey environment
- Ergonomic features for enhanced comfort
- Embedded monitoring, diagnostics and quality control tools to qualify the job before you leave the field



## Enjoy the Renowned ProMark Ease of Use

ProMark3 offers a user-friendly interface that capitalizes on the ProMark2 and MobileMapper™ ease of use. Its integrated design allows maximum portability, and the simple interface, large color touch screen and full alphanumeric keypad make it easy to use. ProMark3 allows you to:

- Learn GPS operation quickly and easily
- Complete jobs fast, both in the field and in the office
- Let the intuitive GUI and bundled GNSS Solutions™ software walk you through seamless data collection and data processing



## Breaking the Barriers

ProMark3 GNSS survey system delivers a unique combination of centimeter-level survey accuracy and sub-meter GIS/mapping capabilities.

With ProMark3, Magellan is once again breaking the barriers of performance, complexity, and cost to bring the newest solutions to the survey community.

# Powerful Surveying

## Find a Point and Survey It

The ProMark3 system performs powerful surveys, in static, stop & go or kinematic modes. With centimeter-accurate control and range far beyond that of an optical instrument, ProMark3 sets a new standard for ease of use and performance.



Locating and surveying hard-to-find points is a snap with the navigation and data collection capabilities of ProMark3. After navigating to a point using the unit's base map, transitioning to survey mode requires only a single keystroke.

Once set up over a point, the unit prompts the user for attribute information and indicates when sufficient data has been collected.

## Maximum Survey Flexibility

ProMark3's USB port, Bluetooth® wireless technology, SD-card and long-life rechargeable battery provide the latest in expandability and functionality.

The user-interface can be localized into the language of your choice<sup>2</sup> and color background maps can be uploaded from .SHP, .MIF, .DXF and .CSV files.

ProMark3 can also be used in conjunction with optical instruments in cases where both are needed.



## GNSS Solutions Office Software

### Survey Data Processing Made Easy

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 the user through mission preparation planning, processing, quality control, reporting, exporting.

### Accuracy and Reliability

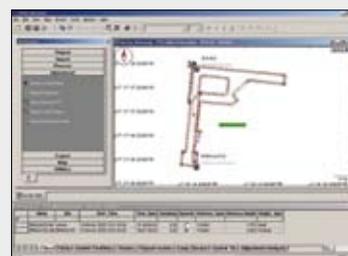
GNSS Solutions includes advanced error detection and quality analysis tools to ensure accurate and reliable results. Loop closures, automatic repeat, observation analysis, automatic control analysis, and least-squares adjustments are integral components of GNSS Solutions.

### Intuitive Handling of Graphical Data

Magellan Professional products present survey data in graphical and tabular form, making post-processing with GNSS Solutions simple. Any collection of data can be viewed in different forms through simple drag and drop operations. Importing raster or vector map formats lets surveyors combine background projects with land survey projects.

## Adapts Easily to User Requirements

GNSS Solutions can be installed by the user in several languages. Numerous mapping projections and local coordinate transformations are available to let users create individual report files that comply with national standards.



# Integrated Mapping Solution

## Expand Your Service Offer with GIS

ProMark3 is also a mobile mapping system combining full GIS data collection and navigation software. Backed by powerful office software for easy data display, editing and export, ProMark3 delivers affordable, sub-meter accurate GIS data.

With ProMark3, surveyors can now perform true GIS projects and offer customers additional services such as mapping and asset management.

## Turnkey Mapping

Both the field and office software, included with ProMark3, are specially designed for ease of use so that minimum data collection and processing training is required. The brilliant, full-color display brings maps to life in full sunlight, making it easier to work with unfamiliar GIS data sets.

## Accurate GIS Data Collection

ProMark3 delivers sub-meter real-time accuracy using SBAS or RTCM corrections. Mapping functions include powerful yet easy-to-use features such as:

- Point, line and area mapping
- Area calculation for real-time area determination
- Offset measurement for all feature types, including point, line and area



## MobileMapper Office Software

### Connecting Field Assets with Geographic Information Systems

MobileMapper Office links the ProMark3 receiver to your GIS. Using this software, users can import GIS data into job files to be updated in the field. It also provides convenient features such as:

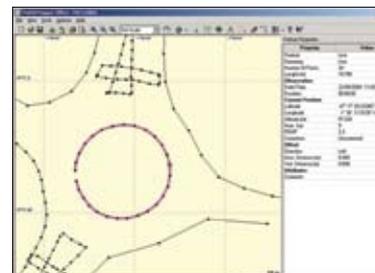
- Quick and easy editing and exporting of data. Includes support for .SHP, .MIF, .DXF and .CSV files
- Uploading or creation of vector background maps for use in the field
- Raster image support
- Post-processing



## Mapping Made Easy

The software also includes a Feature Library Editor that creates lists of features and attributes for describing GIS assets in the field. It can even generate the feature libraries automatically by reading imported .SHP and .MIF files.

ProMark3's mapping features combined with MobileMapper Office is a turnkey solution for the operator who wants to create or maintain GIS maps or feature in the field.



With ProMark3 mapping is a service surveyors can offer without investing in additional dedicated GIS equipment.

## Survey Applications

With the new Prism technology, ProMark3 allows centimeter-level static surveys to be performed faster than ever as the occupation time can be reduced by up to 33%.<sup>1</sup>



Stop & go surveys are simplified with ProMark3. The portability and the user-friendly interface enable a one-man crew to perform quick and reliable surveys.

ProMark3 eliminates line-of-sight a one-man survey requirements and enables survey of larger areas. Survey firms using the ProMark3 system will see their operational downtime reduced and will save personnel costs.

For kinematic data collection, ProMark3 records data at different rates, allowing surveyors to match the recorded details to the speed of the rover. With its 1 Hz recording rate, ProMark3 is an unparalleled productivity tool.



## GIS/Mapping Applications

ProMark3 lets users take any supported GIS file into the field. Now surveyors can navigate to field infrastructure, map or update the GIS data and easily transfer the file back to the office GIS.



Traditional survey customers are using geographical information more and more. To keep their GIS data live and accurate, cities, utilities or civil engineering companies need a continuous data update that surveyors can easily perform with ProMark3.



# ProMark3 Technical Specifications

## GNSS Characteristics

- 14 parallel channels
- L1 C/A code and carrier
- Integrated real-time WAAS/EGNOS
- Update rate: 1 Hz
- Protocol: NMEA0183
- RTCM SC-104 version 2.1

## Accuracy Specifications<sup>1</sup>

### Static Survey Performance (rms)

- Horizontal: 0.005 m + 1 ppm (0.016 ft + 1 ppm)
- Vertical: 0.01 m + 2 ppm (0.032 ft + 2 ppm)
- Azimuth: < 1 arc second
- Observation Time: Ranges from 4 to 40 minutes depending on distance between ProMark3 receivers and other environmental factors<sup>3</sup>

### Kinematic Survey Performance

- Horizontal: 0.012 m + 2.5 ppm (0.039 ft + 2.5 ppm)
- Vertical: 0.015 m + 2.5 ppm (0.049 ft + 2.5 ppm)
- Recommended Initializer Bar Occupation: 5 minutes

## Real-Time Performance<sup>2</sup>

### SBAS (WAAS/EGNOS) (rms)

- Horizontal: <1m (3ft)

### DGPS (Beacon or RTCM) (rms)

- Horizontal: <1m (3ft)

## Datalogging Characteristics

### Recording Interval

- 1 - 30 seconds

### Internal Memory Capacity

- Up to 72 hours of 10 satellite data @ 1 second interval

## Physical Characteristics

### Size

- Unit: 19.5 x 9 x 4.6 cm (7.7 x 4.6 x 1.8 in)
- Antenna: 19 x 9.6 cm (7.5 in DIA x 3.8 in H)

### Weight

- Unit: 0.48 kg (1.05 lb) with battery
- Antenna: 0.45 kg (1.00 lb)

### User Interface

- Full color advanced TFT liquid crystal display with backlight
- 320 x 240 resolution with 262,144 colors
- Resistive touch panel
- Keyboard with backlight 20 buttons
- Audio: built-in speaker

### Memory

- 128 MB SDRAM, 128 NAND Flash memory
- Removable SD Card: up to 1 GB

## Interface

- RS232
- USB: host and slave
- Bluetooth wireless technology
  - Specification 1.2 compliant
  - Point-to-point and point-to-multi-point
  - Profiles: serial port, OBEX, dial up networking

## Environmental Characteristics

### Receiver

- Operating Temp: -10°C to 60°C (14°F to 140°F)
- Storage Temp: -20°C to 70°C (-4°F to 158°F)
- Weather: Water-resistant
- Shock: 1.5 m (4.9 ft) drop on concrete

### Antenna

- Operating Temp: -55°C to 85°C (-67°F to 185°F)
- Weather: Waterproof
- Shock: 2 m (6.6 ft) drop on concrete

## Power Characteristics

- Battery type: 3.7 V Li-Ion, 3900 mAh
- Battery life: 8 hours (typical operation)
- External power for extended operation time

## Field Software Tools

- GPS utilities
- Bluetooth Manager
- System / Data Back-up / Restore

## Receiver Language Support

- English, French, German, Spanish, Italian, Portuguese, Finnish, Swedish, Dutch, Custom language<sup>2</sup>
- Russian
- Chinese

## Accessories

### Standard System Accessories

- Clip-on I/O Module with power, USB and RS232 ports
- Universal AC adapter
- Stylus (2)
- Hand strap
- Carrying case
- USB data cable
- 32 MB SD memory card
- Padded field bag
- HI measurement device

## Optional Accessories

- External Power kit
- Dual-slot battery charger
- USCG/IALA Beacon receiver

## Emissions Certification

- Immunity (EN 55022 Class B)
- Susceptibility (EN 50082-1)
- FCC and CE certified

## Office Software Suite

### Survey: GNSS Solutions Software

Key software functions include:

- Integrated transformation and grid system computations allow for processing, adjusting, reporting, and exporting point positions in user-selected or user-defined systems
- Pre-defined datums along with user-defined capabilities using the 7-parameter method of computing and applying datum transformation parameters
- Survey mission planning
- Automatic vector processing
- Least-squares network adjustment
- Data analysis and quality control tools
- Coordinate transformations
- Geoid 03

### GIS: MobileMapper Office

Key software functions include:

- Feature Library Editor
- Background Map Creation
- Job Creation and Editing
- Differential Correction
- GIS Data Display and Editing
- GIS Import/Export: ESRI .SHP, MapInfo .MIF and AutoDesk .DXF import/export and .CSV export

## System Requirements

- Windows® 2000 / XP
- Pentium® 233 min
- 64 MB RAM min, 128 MB recommended
- 200 MB hard disk space required for installation

<sup>1</sup> Prism technology impact varies on satellite conditions and may not apply at all time in all area in the world.

<sup>2</sup> Limitations based on character availability may apply. Localization is under distributor's responsibility.

<sup>3</sup> Accuracies assume minimum of five satellites, following the procedures recommended in the product manual. High-multipath areas, poor satellite geometry, and periods of high-activity atmospheric conditions will degrade accuracy. Post-processing with GNSS Solutions Software. Accuracy and TTFF specifications based on tests conducted in Nantes and Moscow. Tests in different locations under different conditions may produce different results.

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