



# ProMark™ 800

powered by  
**ashtech**



**The Full GNSS Productivity**



FLEXIBLE  
RELIABLE  
PRODUCTIVE

RTK

MULTI GNSS





## ProMark 800

ProMark™ 800 is an extremely productive and reliable RTK survey solution delivering precise GNSS positioning in a smart, rugged and cable-free design. The new Z-Blade GNSS-centric technology optimally uses GNSS signals and takes advantage of each GNSS constellation to deliver fast and stable RTK positions, even when GPS coverage is insufficient, like in dense urban canyons or heavy tree canopy.

ProMark 800 receiver includes extended wireless network communications modules, for maximum mobility and flexibility in the field. Combined with either the advanced FAST Survey™ field software or the comprehensive Spectra Precision® Survey Pro field software, ProMark 800 is a complete multi-frequency and multi-constellation survey solution. Its exceptional RTK performance and compact design makes the ProMark 800 an extremely powerful and appealing RTK system for demanding professional land surveyors.

### Advanced Z-Blade Technology

- New Z-Blade GNSS-centric signal processing
- Outstanding reliability in urban canyons and under tree canopy
- Short time-to-fix, and long-range RTK positioning
- Multi-frequency and multi-constellation ready

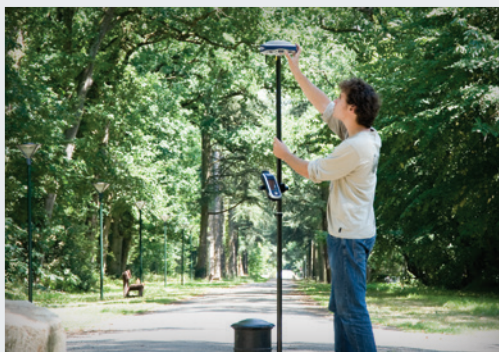
### All-in-one Flexibility

- UHF and GSM/GPRS/3.5G built-in communication modules
- Multiple operating modes and configurations
- Extended support of protocols and data formats
- Choice of state-of-the-art field terminals

### Built for Intensive Use

- Waterproof and shock resistant
- All-day battery life
- Field-proven ergonomic design
- Total weight under 2 kg





## Feature-rich Surveying Solution

The ProMark 800's offer includes field and office software as well as field terminal choice to ensure you get a robust, ready-to-use, cable-free RTK solution. Such features as large, color touch screen, SDHC memory card, WLAN and Bluetooth™ wireless technologies, are included in:

- The ProMark 120 field terminal, a rugged GNSS handheld that can also be used for additional work such as pre-survey and GIS data collection.
- The Ranger™ 3, an ultra-rugged field terminal with full alphanumeric keyboard, for use in tough outdoor environment.

- The T41™ Data Collector, a rugged, connected, slim and compact, offering high performance with a high-resolution outdoor readable display.
- The MM10 Data Collector, a very lightweight but rugged design, with extremely long battery life (over 20 hours) making it a perfect tool for long surveying works.

## FAST Survey Field Software

Advanced FAST Survey field software meets the most demanding survey requirements. It includes topographic features typically associated with dual-frequency, and provides extensive data formats and local coordinate system support. Added options make it possible to interact with a wide range of survey instruments and accessories to run complete survey jobs, including site calibration, stake out, and survey projects where total stations are used.

## Survey Pro Field Software

Spectra Precision Survey Pro field software provides you with a complete set of capabilities for all your survey projects. It's fast, reliable and easy to use. It provides unparalleled integration, data integrity, and efficiency. Survey Pro software is offered in a variety of modules to best fit the job, and features can be added as needed. Survey Pro is unmatched in its capabilities and is one of the reasons it has been a top choice of surveyors for more than 20 years.



ProMark 120



Ranger 3

# ProMark 800 Technical Specifications\*

## GNSS Characteristics

- 120 GNSS channels
  - GPS L1 C/A L1/L2 P-code, L2 C, L5, L1/L2/L5 full wavelength carrier
  - GLONASS L1 C/A and L2 C/A, L1/L2 full wavelength carrier
  - GALILEO E1 and E5
  - SBAS: code and carrier (WAAS/EGNOS/MSAS/GAGAN)
- New Z-Blade technology for optimal GNSS performance
  - New Ashtech GNSS-centric algorithm: Fully independent GNSS satellites tracking and processing<sup>1</sup>
  - Fully independent code and phase measurements
  - Quick signal detection engines for fast acquisition and re-acquisition of GNSS signals
  - Advanced multi-path mitigation
- Up to 20 Hz real-time raw data (code and carrier) and position output
- Supported data formats: ATOM (Ashtech Optimized Messaging), RTCM 2.3, RTCM 3.1, CMR, CMR+, DBEN, LRK
- NMEA 0183 messages output
- RTK networks: VRS, FKP, MAC

## Real-Time Accuracy (RMS) <sup>2 3</sup>

### SBAS (WAAS/EGNOS/MSAS)

- Horizontal < 50 cm (1.64 ft)

### Real-Time DGPS position

- Horizontal: 25 cm (0.82 ft) + 1 ppm in typical conditions<sup>3</sup>

### Real-Time Kinematic Position (fine mode)

- Horizontal: 10 mm (0.033 ft) + 1 ppm
- Vertical: 20 mm (0.065 ft) + 1 ppm

## Real-Time Performance

### Instant-RTK® Initialization

- Independent of GPS availability when other GNSS signals are available<sup>1</sup>

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

## RTK Initialization range

- > 40 km

## Post-Processing Accuracy (RMS) <sup>2 3</sup>

### Static & Fast Static

- Horizontal: 3 mm (0.009 ft) + 0.5 ppm
- Vertical: 5 mm (0.016 ft) + 0.5 ppm

### High-Precision Static<sup>4</sup>

- Horizontal: 3 mm (0.009 ft) + 0.1 ppm
- Vertical: 3.5 mm (0.011 ft) + 0.4 ppm

### Kinematic

- Horizontal: 10 mm (0.033 ft) + 1 ppm
- Vertical: 20 mm (0.065 ft) + 1 ppm

## Data logging Characteristics

### Recording Interval

- 0.05 - 999 seconds

## Physical Characteristics

### Size

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

### Weight

- GNSS receiver: 1.4 kg (3.1 lb)

## User Interface

- Graphical OLED display

## I/O Interface

- RS232, RS422, USB, Bluetooth
- PPS

## Memory

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

## Operation

- RTK rover/base, post-processing
- RTK network rover: VRS, FKP, MAC
- Point-to-point through Real-Time Data Server (RTDS) software
- Limited RTK in standard (baseline 3 km)
- RTC Bridge
- NTRIP protocol

## Environmental Characteristics

- Operating temperature: -30° to +60°C (-22° to +140°F)
- Storage temperature: -40° to +70°C (-40° to +158°F)
- Humidity: 100% condensing
- Waterproof, sealed against sand and dust
- Drop: 2m pole drop on concrete
- Shock: ETS300 019
- Vibration: EN60945

## Power Characteristics

- Li-Ion battery, 4600 mAh
- Battery life time: 8 hrs (GSM and UHF off)
- 6-28 VDC input

## Optional System Components

- Communication Modules
  - Pacific Crest UHF
  - GSM/GPRS/EDGE/3.5G quad-band
- Transmitter Kits
  - Pacific Crest UHF
- Rechargeable battery kit
- Data Collectors
  - ProMark 120
  - Ranger 3
  - T41
  - MM10
  - Nomad

## FAST Survey Field Software

### Key software functions include:

- ProMark 800 GNSS support
- 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)

## Survey Pro Field Software

### Key software functions include:

- Complete GPS/GNSS instrument support
- Complete mechanical instrument support
- All data collection features
- Basic point stakeout
- Basic COGO including inverses, intersections, manual traverse, area and much more
- Advanced COGO and curve solutions including station offsets,
- Average points, and spiral tools
- Advanced stakeout including offset staking, slope staking and stake to a DTM
- Road Layout – Complete road layout and staking tool set
- Extensive data collection routines with easy to use, step-by-step setup features
- All GNSS staking routines are supported

- Support for RTK, network RTK, static and PPK surveys
- Survey Pro Robotic (optional)

<sup>(1)</sup> Including all available options

<sup>1</sup> Each GNSS constellation is processed equally, individually and combined for optimal performance

<sup>2</sup> Accuracy and TTFF specifications may be affected by atmospheric conditions, signal multipath, satellite geometry and corrections availability and quality.

<sup>3</sup> 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.

<sup>4</sup> Depending on baselines, precise ephemeris and long occupations up to 24 hr may be required to achieve the high precision static specifications.

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