



ProFlex™ 800

powered by
ashtech



**Outstanding GNSS Performance
in Ultra Rugged Design**



FLEXIBLE
RELIABLE
PRODUCTIVE

MULTI GNSS





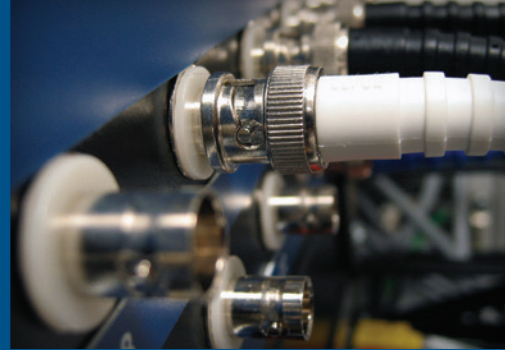
ProFlex™ 800 Powerful Positioning Solution

ProFlex 800 is a powerful positioning solution that delivers state-of-the-art RTK features in a rugged, highly integrated receiver design. The Z-Blade GNSS-centric technology uses all available GNSS signals equally (without preference to any particular constellation) to deliver fast and stable RTK solutions. Z-Blade helps ProFlex 800 achieve optimal results, even in environments where GPS coverage is insufficient, like urban canyons or under tree canopy.

The ProFlex 800 operates as either a base or a rover and is available with different application packages to suit your needs.

ProFlex 800 with Z-Blade technology is a perfect back-pack rover or reference station solution for precise land surveying. Its innovative design makes it ideal for onboard system integration - it can be mounted easily on a machine or vehicle for land or sea operations.

- Unique Z-Blade technology for outstanding GNSS performance in harsh environments
- Fast initialization and centimeter accuracy at long-range
- Wide variety of built-in communication features (including internal transceiver)
- Hot-Standby RTK feature automatically selects the best available position
- Rugged and waterproof design for harsh outdoor conditions
- Interoperability with any vendor's reference station transmitting GPS+GLONASS L1/L2 (VRS, FKP or MAC)
- Flexible GNSS receiver for multiple applications



New Z-Blade Technology

Z-Blade is new GNSS-centric signal processing technology from Ashtech. Z-Blade optimally processes all of the available satellite signals, maximizing your ability to obtain reliable GNSS position in tough conditions.

Z-Blade allows you to get and maintain RTK solutions even if GPS coverage is insufficient. In many work locations just a few GPS and GLONASS satellites may be visible due to obstacles such as trees or buildings. Thanks to Z-Blade technology, ProFlex 800 can still deliver high-quality positions to keep you working productively.

- The GNSS-centric signal processing technology from Ashtech
- Get and maintain RTK solutions even if GPS coverage is insufficient
- Achieve a rapid and reliable RTK fix, even in harsh environments like urban canyons or tree canopy



Flexibility & Ruggedness

The ProFlex 800 offers a unique design with various mounting capabilities. It includes a wide range of built-in communication options, internal removable battery, internal memory, specific kits per application and full compatibility with various software solutions.

The weatherproof, high-impact-resistant molded aluminum housing ensures your investment is safe in all conditions, which is especially important for onboard machine usage or base station applications.

Adaptable to most any specific positioning usage, the ProFlex 800 is the ideal solution for people looking for a single GNSS receiver for multiple applications.

Application Packages

Survey Backpack

Surveyors will appreciate ProFlex 800's ability to operate in tougher environments than ever before. The survey backpack kit includes a robust and comfortable water-resistant backpack, a UHF pole and cable, a GPS cable, a second Li-ion battery and office software for project and geoid management.

Onboard Machine Integration

Ready for system integration, ProFlex 800 is a great GNSS solution for OEM manufacturers and VARs needing precise positioning for machine guidance/control applications, such as agriculture, construction or mining. The kit includes all the cables (serial cables, USB cable, 10 m GPS and UHF cable, power cable to connect on an external battery) you need to build the right setup.

Base Station and Continuously Operating Reference Station

With its built-in Ethernet capability and embedded Web Server, you can access, control and monitor ProFlex 800 from any computer connected to the Internet. Use the capability for instant real-time multi-data streaming over Ethernet to build your own RTK corrections server without any additional software or equipment. If a cellular network is available, ProFlex 800 offers surveyors an efficient alternative to RTK networks (public or private) eliminating radio propagation issues.

Wireless communication

In addition to a 3.5G internal cellular modem, ProFlex 800 accommodates a wide variety of UHF kits (internal and external UHF modules) providing stable and reliable wireless communication between base and rover. ProFlex 800 even supports an internal transceiver for ultimate flexibility. It can then be used as a rover or a base without additional accessories in the field. Z-Blade long range RTK capability combined with industry-leading UHF expertise ensure you maximal productivity.

ProFlex 800 Technical Specifications

GNSS Characteristics

- 120 channels:
 - GPS L1 C/A, L1/L2 P, L2C, L5
 - GLONASS L1 and L2 C/A
 - GALILEO E1 and E5
 - SBAS (WAAS/EGNOS/MSAS/GAGAN)
 - Fully independent code and phase measurement
- Z-Blade technology for optimal GNSS performance
 - Ashtech GNSS-centric algorithm: fully independent GNSS signal tracking and processing
 - Quick signal detection engine for fast acquisition and re-acquisition of GNSS signals
 - Fast and stable RTK solution
- Up to 20 Hz real-time raw data and position output
- Advanced multi-path mitigation technique
- RTK base and rovers modes, post-processing

Real-Time Accuracy (RMS)^{2,3}

SBAS (WAAS/EGNOS/MSAS)

- Horizontal < 50 cm (1.64 ft)

Real-Time DGPS position

- Horizontal: 25 cm (0.82 ft) + 1 ppm⁴

RTK

- Horizontal: 1 cm (0.033 ft) + 1 ppm⁴
- Vertical: 2 cm (0.065 ft) + 1 ppm⁴

Flying RTK

- 5 cm (0.165 ft) + 1 ppm (steady state) horizontal for baselines up to 1000 km

Real-Time Performance

- Instant-RTK Initialization
 - Typically 2-second initialization for baselines < 20 km
 - Up to 99.9% reliability
- RTK Initialization range
 - > 40 km

Post Processing Accuracy (RMS)^{2,3}

Static & Fast Static

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

High-Precision Static⁵

- 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

Memory

- 128 MB internal memory
- Ring File Memory function offering unlimited use of the storage medium
- Memory is expandable through external USB sticks or hard drives

Sessions

- Up to 96 sessions per day
- Embedded RINEX converter
- Enhanced Automatic FTP push function

Embedded RINEX convertor

- RINEX 2.11 and 3.01 are supported
- Converting on-the-fly
- Up to two RINEX files with two different rates simultaneously

RTK Base

- RTCM-2.3 & RTCM-3.1
- CMR & CMR+
- ATOM™ & DBEN (proprietary formats)

RTK Rover

- Up to 20 Hz Fast RTK position output
- RTCM-2.3 & RTCM-3.1
- CMR & CMR+
- ATOM, DBEN & LRK (proprietary formats)
- Networks: VRS, FKP, MAC
- NTRIP protocol
- NMEA0183 messages output

Embedded Web Server

- Password-protected Web Server
- Full receiver monitoring and configuration
- FTP push function
- Embedded FTP server and NTRIP caster
- NTRIP Server and instant real-time multi-data streaming over Ethernet
- DHCP or manual configuration (static IP address)
- DynDNS® technology support

Full MET/TILT Sensor Integration

- Both sensor types can be connected simultaneously
- Met and Tilt data can be:
 - Logged and downloaded together with the GNSS data
 - Streamed in real time

I/O Interface (Rugged, Waterproof Connectors)

- 1 x RS232/RS422 up to 921.6 kbits/sec
- 2 x RS232 up to 115.2 kbits/sec
- USB 2.0 host and device
- Bluetooth 2.0 + EDR Class 2, SPP profile
- Ethernet (Full-Duplex, auto-negotiate 10 Base-TX / 100 Base-TX)
- PPS output
- Event marker input
- 12V/0.5A (1A peak) output available on serial port A
- Optically isolated I/O interface (except USB)
- Ready for CAN bus (NMEA200 compatible)

Physical Characteristics

Size

- Unit: 21.5x20x7.6 cm (8.46x7.87x2.99 in)

Weight

- GNSS receiver: from 2.1 kg (4.6 lb)

Environmental Characteristics

- Operating temperature: -30° to +65°C (-22° to +149°F)
- Storage temperature: -40° to +70°C (-40° to +158°F)
- Humidity: 100% condensing
- IP67 (waterproof and dustproof)
- Salt mist as defined in EN60945
- Shock: MIL-STD 810F, Fig. 516.5-10
- Vibration: MIL-STD 810F, Fig. 514.5C-17

Power Characteristics

- Li-ion battery, 32.5Wh (7.4Vx4.4Ah). Acts as a UPS in case of a power source outage
- Battery life time: > 6.5 hours @20°C (68°F) with UHF rover configuration
- 9-36 VDC input (Reverse polarity protected)
- Typical power consumption with GNSS antenna: < 5W
- Supporting transient voltage according to EN2282 with 28V input voltage
- Programmable sleep mode
- External DC power limits feature

Certifications

- R&TTE directive compliance (CE)
- FCC/IC

Complementary System Components

Internal UHF Kits

- Pacific Crest Tx/Rx (both base and rover)

External UHF transceiver Kits

- Pacific Crest Tx/Rx

Built-in 3.5 G Modem

- UMTS/HxDPA: 2100,1900,850MHz; Tri-Band
- GSM/GPRS/EDGE: 850,900,1800,1900,2100 MHz; Quad-Band
- GPRS/EDGE multislot class 12
- Automatic detection 2G-3G
- GCF and PTCRB approved

Antennas

- Geodetic: GNSS Survey antenna, 38dB gain
- Choke Ring: GNSS Choke Ring antenna, 39dB gain
- Onboard: GNSS Machine / Marine antenna, 38dB gain

Field software

- FAST Survey, Survey Pro

Office software

- GNSS Solutions, Survey Office, RTDS

¹ All the available GNSS signals are processed equally and combined without preference to any particular constellation for optimal performance in harsh environment.

² Accuracy and TTFB specifications may be affected by atmospheric conditions, signal multipath, and satellite geometry.

³ Performance values assume minimum of five satellites, following the procedures recommended in the product manual. High multi-path areas, high PDOP values and periods of severe atmospheric conditions may degrade performance.

⁴ Steady state value for baselines < 50 km after sufficient convergence time.

⁵ Depending on baselines, precise ephemeris and long occupations up to 24 hr may be required to achieve the high precision static specifications.

Contact Information:

AMERICAS

Spectra Precision Division
10355 Westmoor Drive, Suite #100
Westminster, CO 80021, USA
+1-720-587-4700 Phone
888-477-7516 (Toll Free in USA)

www.spectraprecision.com

EUROPE, MIDDLE EAST AND AFRICA

Spectra Precision Division
Rue Thomas Edison
ZAC de la Fleuriaye - BP 60433
44474 Carquefou (Nantes), France
+33 (0)2 28 09 38 00 Phone

ASIA-PACIFIC

Trimble Navigation
Singapore PTE Limited.
80 Marine Parade Road
#22-06, Parkway Parade
Singapore 449269, SINGAPORE
+65-6348-2212 Phone



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