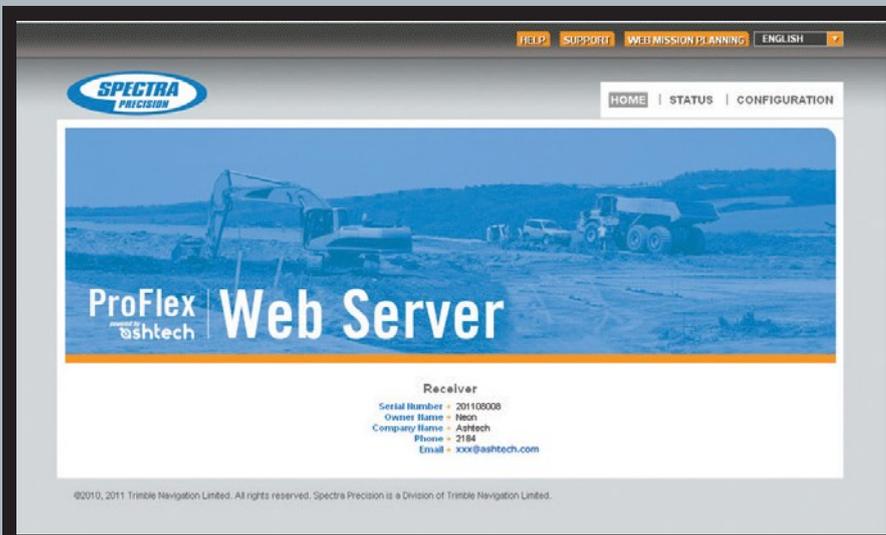# ProFlex™ 800 CORS

powered by **ashtech**

New Generation Reference Station

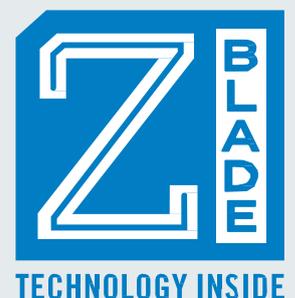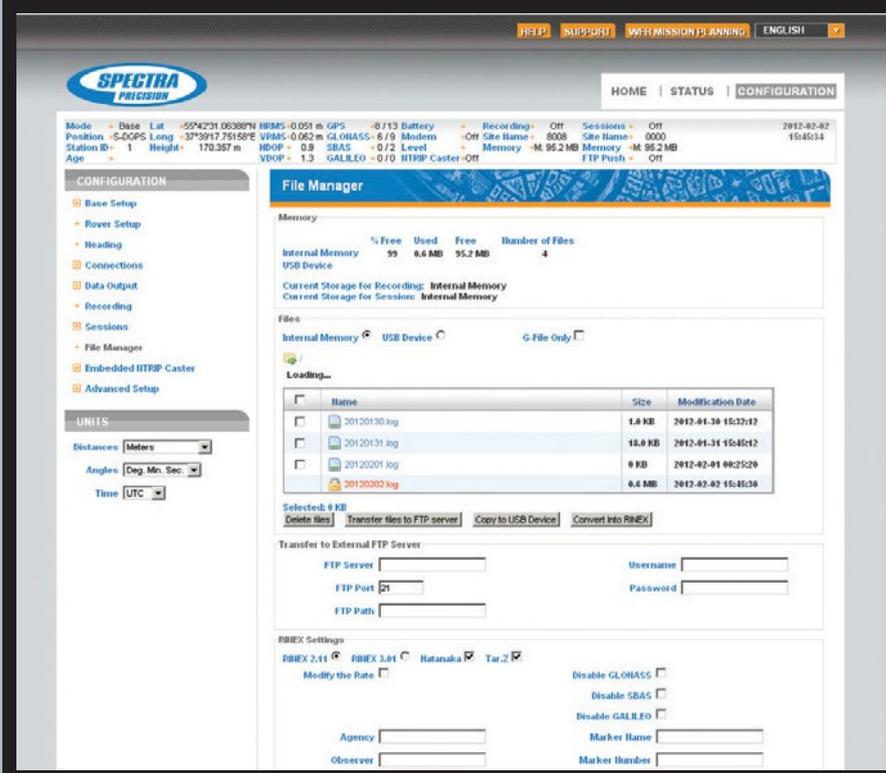**SPECTRA PRECISION**

Z BLADE
TECHNOLOGY INSIDE

New Generation Reference Station

ProFlex 800 CORS (Continuously Operating Reference Station) is the optimal solution when collecting, storing and transferring high quality GNSS raw data for post processing surveys, geodetic and other applications. Automatic sessions programming, user-friendly Web-interface, embedded RINEX converter, FTP push functionality and many other advanced CORS features make ProFlex 800 CORS a powerful, robust and easy-to-use solution. Rugged and IP67 rated, the receiver is made to withstand harsh environments.
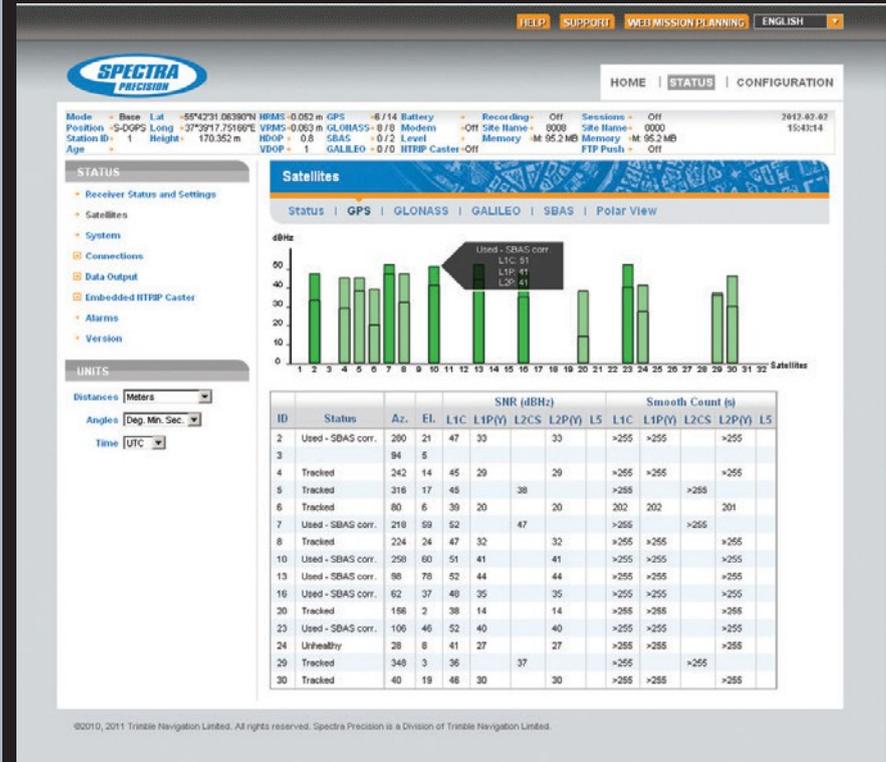
Z-Blade: High-Quality GNSS Raw Data

ProFlex 800 CORS - equipped with Ashtech Z-Blade technology - guarantees outstanding raw data quality, availability and reliability, providing the best possible measurements from four GNSS constellations: GPS (including L5), GLONASS, SBAS and GALILEO.

TECHNOLOGY INSIDE

Multi-application Campaign Receiver

The Spectra Precision ProFlex 800 CORS receiver has been optimized for operation as a CORS, but thanks to its innovative, flexible and ultra rugged design it can be used equally well as a campaign GNSS receiver, a portable / permanent base station for post processing or for other RTK applications. In addition to delivering raw data files in Ashtech ATOM or RINEX format, the ProFlex 800 CORS can simultaneously deliver real-time RTK corrections in a wide variety of formats and methods of communication, including Direct IP, NTRIP server, UHF, GSM and Ethernet.

Flexible ultra rugged multi-application receiver with various mounting capabilities

Key Features:

- Specially created and adapted for CORS applications
- Ultra rugged housing to withstand harsh environments
- Z-Blade GNSS technology for high-quality raw data
- Extended internal memory (8 GB) for data storage
- Comprehensive remote control of reference station via user-friendly Web interface
- Fast and advanced session programming
- Embedded RINEX convertor (RINEX 2.11 and 3.01 are supported)
- Up to two RINEX files with two different periods can be generated simultaneously
- RINEX conversion on the fly (RINEX file is available immediately after a session is finished to meet rapid and ultra-rapid IGS services requirements)
- Raw data files can be pushed automatically to an external FTP server
- Embedded NTRIP caster and server
- Automatic e-mail reporting about possible malfunctions detected by the receiver
- Meteorological and tilt sensors support
- Embedded FTP server

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
  - Highest quality of raw data (availability/reliability) to meet reference station applications
  - Ashtech GNSS-centric algorithm: fully independent GNSS signal tracking and processing[1]
  - 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 ppm in typical conditions[3,4]

RTK
- Horizontal: 1 cm (0.033 ft) + 1 ppm[4]
- Vertical: 2 cm (0.065 ft) + 1 ppm[4]

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 Static[5]
- 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

- 8 GB 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 together with the GNSS data
  - Streamed in real time

I/O Interface (Rugged, Waterproof Connectors)

- 1x RS232/RS422 up to 921.6 kbits/sec
- 2x 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)
- External reference clock input

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

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 some particular constellation for optimal performance in harsh environment

[2] Accuracy and TTFF 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.