# ProFlex 800 CORS 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 (including GIOVE-A and GIOVE-B test satellites)
  - SBAS (WAAS / EGNOS / MSAS)
  - 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, Rapid Static**

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

**Long Static[5]**

- Horizontal 3 mm (0.009 ft) + 0.5 ppm
- Vertical 6 mm (0.019 ft) + 0.5 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**

- 0.05 - 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)
- U-Link Rx (rover only)

**External UHF transceiver Kits**

- Pacific Crest Tx/Rx
- U-Link 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. Position accuracy specifications are for horizontal positioning. Vertical error is typically < 2 times horizontal error.

[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] Long baselines, long occupations, precise ephemeris used.

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