Surveying and Positioning Systems

GNSS RTK RTKITE RECEIVER

MAXIMUM PERFORMANCE AND ACCURACY AT YOUR HANDS

Powerful, Flexible and Compact

444 channel Double Frequency GNSS RTK
- Bluetooth for Navigation and Configuration
- Integrated SD Card, SIM Card and Mobile Modem
- Lightweight and compact ready for UAV integration
- Ready for Pixhawk, DJI A2 and other autopilots
- Rugged and precise for Industrial applications
- Works as RTK Rover by UHF or Mobile Network
- Transmits as RTK Base by UHF or Mobile Network
- Supports external UHF and RF communications
- Real time millimetric position at 1, 5 and 10Hz
- Real time event logger at 20 and 150Hz
- Compatible with any NMEA software for Windows or Linux PC, Windows Mobile or Android
- The best Cost/Benefit ratio of the market

444 CHANNELS DOUBLE FREQUENCY
MILLIMETRIC ACCURACY
HARDWARE

- Integrated Multi-Path rejection filter to eliminate noise from the source.
- Internal Transmitting Power: Switchable 0.5W / 2W
- 1 Helix GNSS Antenna
- Military and Industrial Grade GNSS Antenna
- Helical Dual Frequency GNSS Dual Helix Antenna with Coaxial Phase Center
- 1 Motherboard
- Dimensions (L x H x W) 7.4 cm x 5.4 cm x 2.54 cm without antenna.

External Transmitting Power: 25W / 45W switchable, with external power supply.

- UHF 15W/35W Switchable UHF Radiomodem

- Working Temperature: -40 °C to +85 °C / Storage Temperature: -55 °C to +85°C
- With 1GB SD Memory, records more than 1000hours @ 1 sec. (upgrades up to 16GB)
- Humidity 95%, Non condensing, without enclosure.
- Shock and vibration tested to meet the following environmental standards:

Standard Helix GNSS Antenna (Removable)

- Helical Dual Frequency GNSS Dual Helix Antenna with Coaxial Phase Center
- Integrated Multi-Path rejection filter to eliminate noise from the source.
- High Power impedance of 50 Ohm, with > 5dBi Zenithal gain
- Maximum Phase Center error of ± 1.00mm
- RHCP Polarization and 360° Azimuthal Coverage with low-elevation boost

Optional Data Link UHF Radiomodem

- Internal Transmitting Power: Switchable 0.5W / 2W
- External Transmitting Power: 25W / 45W switchable, with external power supply.
- Power draw: 0.3 Watts Rx // 3.8-8.0 VDC Rx/Tx
- Antenna: External, TNC, 50 Ohm
- Link Rate/Modulation: 19,200 bps, 9600 bps, 4800 bps
- Link Protocols: Transparent, Packet Switched, Trimtalk, Fast Asynchronous
- 64 UHF Channels on 3 Bands: 400-430KHz, 430-450KHz, 450-470KHz Included.
- Frequency Control: Synthesized 12.5 kHz Resolution
- Sensitivity: -110 dBm BER 10-5

Optional Modes: Transmitting and Receiving // Receiving only

STANDARD SET INCLUDES:
- 1 RTKite Receiver
- 1 Helix GNSS Antenna
- 1 Motherboard

OPTIONAL ACCESSORIES:

- Battery Charger: 7.4v 2.400mAh Lithium battery
- UHF Tx/Rx 2W Transceiving Radiomodem
- UHF Tx/Rx 5W Transceiving Radiomodem
- UHF 450 Mhz Receiving Whip Antenna
- UHF 450 Mhz Transmitting Omni Antenna
- UHF 25W/45W Switchable UHF Amplifier
- UHF 15W/35W Switchable UHF Radiomodem
- Surveying Grade 4 Element GNSS Antenna
- Aeronautical Grade GNSS Antenna
- Military and Industrial Grade GNSS Antenna
- Choke Ring CORS Station GNSS Antenna
- L1 GNSS receiver Module
- GNSS RTK SmaRTK Base Receiver
- Rugged Plastic Enclosure

Notes: - Accuracy, TTF and reliability specifications may be affected by multipath, satellite geometry and atmospheric conditions. Specifications assume at least 5 satellites and follow up of recommended practices.
- UHF type approvals are country specific. -Specifications may change without previous notice.

RTKite GNSS RTK Receiver Module

**System Overview**

- Dual-frequency GNSS RTK Receiver with 444 channels and communications.
- Receives Helix, Vehicular and Surveying patch GNSS Antennas.
- Works as Network Rover with internal Cellular Modem or UHF radiomodem module.
- Works as RTK Base with Cellular Modem or external UHF radiomodem (2W~45W).
- Integrated cellular modem with North Auto-Caster® P2P technology.
- Integrated Bluetooth® wireless technology
- Integrated SD Card slot for Memory expansion up to 16 GB
- Supports NMEA, NTRIP, RTCM, CRM, Transparent and more industrial protocols.
- Accepts UHF Transceiving Radiomodem compatible with most brands.
- Compatible with the North SmaRTK LNSS line and RTKs of other brands.
- Compatible with standard CORS and VRS Reference Station networks.

**North Software Options** - Unique design to work Natively with NMEA drivers.

- North TopView™ for Android, Windows CE, Windows Mobile or Windows PC.
- Carlson SunPC™ and SurvCE™
- North GIS Surveyor™
- Microsurvey Field Genius™
- Esri ArcPad™
- Compatible with Windows PC, Mobile, Linux, Android or Embedded NMEA Software.

**Performance Specifications**

**Receiver**

- North Stealth Survey GNSS chipboard with 444 Channels
- North Stealth Multipath Shield technology, for maximum noise filtering.
- Multiple radio samplers gives the most accurate band tuning available.
- Patented SAW filtering method for Doppler signal sampling.
- Available as GPS or GNSS versions in both Single L1 and Double Frequency L1+L2
- High precision multicorrelating GNSS pseudorange measurements.
- GNSS carrier phase with low noise with < 1 mm precision in a 1 Hz bandwidth
- North Low-Track Technology for increased reception of horizontal signals.
- Signal-to-Noise ratios reported in dB-Hz
- Satellite signals tracked:
  - GPS: L1/C/A, L1C, L1E, L2C, L2E and L5
  - GLONASS: L1/C/A, L1P and L2C
  - COMPASS: L1/C/A and L2C (Available upon request)
  - GALILEO: L1, L2, (Available upon request)
  - SBAS: EGNSO, WAAS, MSAS, GAGAN

**Sampling Rate:**

- 1Hz, 5Hz, 10Hz on RTK, 20Hz Raw Logging and 150Hz event log
- Code differential positioning (DGPS)
- Horizontal ± 0.25 m + 1 ppm RMS
- Vertical ± 0.50 m + 1 ppm RMS
- Postprocessed static (PPS) fast static and kinematic (PPK) surveying (stop&go)
- Horizontal ± 3 mm + 0.5 ppm RMS
- Vertical ± 5 mm + 0.5 ppm RMS
- Real Time Kinematic (RTK) surveying, UHF or Network, Single Baseline <30km
- Horizontal ± 8 mm + 1 ppm RMS
- Vertical ± 15 mm + 1 ppm RMS
- Initialization time typically <10 seconds
- Initialization reliability typically >99 %

**RTK Initialization Range:** Short, Mid and Long range up to 50 Kilometers

**Data Link Auto-Caster for Mobile Network**

Direct Auto-Caster Base to Rover P2P communication

- Protocols: Transparent / NTRIP
- CORS and Auto-Caster support

**Energy**

- Typical power consumption: 2.8W (UHF Rx) // 6.3-10.0 VDC Rx/Tx
- External power input: 7-12 VDC

**Communications**

- RS232 serial port / CMOS
- SD Memory
- Quad-Band Cell Modem: GSM 850, EGSM 900, DCS 1800, PCS 1900 / 85.6 kbps

- Integrated Type II Bluetooth® communications port