

GNSS RTK **SMARTK** RECEIVER



Total Power and Control

Perfect for Land Surveying, Machine Control and Robotics

- RTK, PPK and SBAS Positioning
- GPS, GLONASS, COMPASS (BEIDOU), GALILEO and SBAS Constellations
- Full L1+L2 or L1-Only Versions
- Internal UHF Transmits at 2W
- External UHF Transmits at 35W
- Exclusive **Auto-Caster Technology**:
Direct Data Link between Base and Rovers by mobile network
- 3D Digital Compensator
- Auditive Verticality Alarm

Superior Value and Performance

Industrial Grade Integrated RTK receiver

- Compatible with any NMEA software for Windows or Linux PC, Win Mobile or Android
- Embedded Self-Configuring Operative System with free lifetime updates and support
- Sunlight-Readable Graphic OLED Display
- Works as Rover or Base Transmitting and Receiving by UHF or Mobile Network
- Water and Shockproof enclosure
- Works with 4 Lithium batteries cells at 6400mAh
- Made with industrial components, for decades of use and repairable even after heavy damage
- The best Cost/Benefit ratio of the market

760 CHANNELS DOUBLE FREQUENCY

MILLIMETRIC ACCURACY

GNSS RTK SMARTK RECEIVER

GPS, GLONASS, COMPASS, GALILEO, SBAS

SmaRTK GNSS RTK Integrated Receiver

System Overview

- Dual-frequency GNSS RTK Receiver with 760 channels and integrated antenna.
- Internal Transceiving 2W UHF Radiomodem compatible with most brands.
- Works as Network, Auto-Caster or UHF Rover with its internal radiomodem.
- Works as Base with Auto-Caster, internal (2W) or external (35W) radio modem.
- Integrated Quad-Band cellular modem with North Auto-Caster® P2P technology.
- Triple Axis Compensator with integrated Auto-Callibration.
- Verticality Alarm that permits the survey work without using the bubble.
- Integrated Bluetooth® wireless technology
- IP68 Rugged and water-resistant design

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

- North GPS Surveyor™ for Windows PC.
- Carlson SurvPC™ and SurvCE™
- North GIS Surveyor™
- Microsurvey Field Genius™
- Esri ArcPad™
- Compatible with any Windows PC, Mobile, Linux, Android or NMEA Software.

Performance Specifications

Receiver

- North Stealth Survey GNSS Receiver Board with 760 Channels
- North Stealth Multipath Shield technology, for maximum error filtering.
- Multiple radio samplers gives the most accurate band tuning available.
- Patented SAW filtering method for Doppler signal sampling.
- Available as GNSS Full L1+L2 or L1-Only versions.
- 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: L1C/A, L1C, L1E, L2C, L2E and L5

GLONASS: L1C/A, L1P, L2C/A, L2P and L3

COMPASS: B1 and B2

GALILEO: E1, E5A and E5B

SBAS: EGNOS, WAAS, MSAS, GAGAN

Sampling Rate: 1Hz, 5Hz, 10Hz on RTK, up to 20Hz RAW Log for PPK.

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 ± 2.5 mm + 1 ppm RMS

Vertical ± 5 mm + 1 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 >99.9%

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

Communication Protocols and NTRIP compliance

RTCM 2.1, 2.2, 2.3, 3.0 and 3.1, CRM, CRM+ input and output / RINEX and Novatel 23 formats of NMEAExtended, includ. GGA, GGL, GSA, GST, GSV, GSK, RMC, etc.

Data Link UHF Radiomodem

Internal Transmitting Power: Switchable 0.5W / 2W

External Transmitting Power: 35W 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, Pacific Crest, Trimtalk, Fast Asynchronous

Unlimited UHF Channels on the range of 410 - 470KHz Included

Frequency Control: Synthesized 12.5 kHz Resolution

Sensitivity: -110 dBm BER 10-5

Optional Modes: Transmitting and Receiving // Receiving only

Internal GNSS Antenna

Four Element Multi-Feed Transducer with Resin platform for maximum sensibility.

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° Axial ratio with low-elevation boost

Data Link Auto-Caster for Mobile Network

Direct Auto-Caster Base to Rover P2P communication

Protocols: Transparent / NTRIP

Network CORS and Auto-Caster support

User Interphase

- Exterior use Industrial Graphical Blue OLED Display, 100 x 16 pixels
- Industrial Stainless Steel 19mm operation Button, IP68
- Auto-Callibrating Double Axis Digital Compensator.
- Auditive North Verticality Alarm™ .

Energy

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

Battery : 6400mAh Lithium-Ion battery (split in two modules of 3200mAh each)

Operating times on internal batteries : 12h Static, 10h Rover UHF, 9h Rover Network

External power input : 12 VDC, 2000 mAh - 110V/220V AC (Charge or Permanent Use)

Integrated internal Battery Charger with charge monitor.

Communications

Rs232 serial port with USB converter

Internal switchable UHF Radio modem transmitter / receiver

Quad-Band 3G Cell Modem: GSM 850, EGSM 900, DCS 1800, PCS 1900 / 85.6 kbps

Integrated Type II Bluetooth® communications port

HARDWARE

Physical

Dimensions (W×H) 17.5 cm × 8.5 cm

Weight 1.4 kg with internal battery, internal radio, standard UHF antenna

Working Temperature: -30 °C to +70 °C / Storage Temperature: -40 °C to +80°C

1GB internal SD Memory, records more than 1000hours @ 1 sec. (upgrades up to 16GB)

Humidity 100%, condensing

Water/dustproof IP68 / IEC 60529 JPX7

Shock and vibration tested to meet the following environmental standards:

Shock Non-operating: Designed to survive a 2 m pole drop onto plywood over concrete.

Operating: to 40 G, 10 msec, zigzag / MIL-STD-202 F 214 A / SAE J1211 4.7

STANDARD ROVER SET INCLUDES:

- 1 SmaRTK Receiver
- 1 Tablet Controller with holding Bracket
- 2 Rechargeable Batteries (internal)
- 1 Battery Charger
- 1 USB Data / Power Cable (Serial optional)
- 1 IP68 ABS Plastic Rugged Carrying Case
- 1 Rover UHF Antenna

STANDARD BASE AND ROVER SET INCLUDES:

- 2 SmaRTK Receivers
- 1 Tablet Controller with holding Bracket
- 4 Rechargeable Batteries (internal)
- 2 Battery Chargers
- 1 USB Data / Power Cables (Serial optional) and 1 Power Cable
- 2 IP68 ABS Plastic Rugged Carrying Case
- 1 Rover UHF Antennas and 1 Base Long Shaft Transmitting UHF Antenna
- 1 Tribrach
- 2 10cm Minipoles with Disk adapter for Tripod
- 1 35W External Radiomodem (Optional)

Notes:

- Accuracy, TTFF 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.
- Specifications are subject to change without previous notice. This description may include typographical errors
- UHF type approvals are country specific