

# SMARTK II GNSS RTK Receiver



## Boosted Performance

### Full Constellation Tracking Ensures Reliable Performance

- 1688 channels, improving fixed rate
- Triple L1+L2+L5 frequency, locking more satellites and increasing stability
- GPS, GLONASS, COMPASS (BDS), GALILEO, QZSS, IRNSS, SBAS & L-Band
- Supporting RTK, PPK and SBAS Positioning
- Internal UHF transmits up to 15KM with 2W power consumption
- IMU-based tilt surveying, up to 60° tilt survey
- Powerful android-based data collection software
- Flexible radio and network work modes

## Superior Value and Flexibility Industrial Grade Integrated RTK receiver

- Powerful functions, point survey, point stake, CAD stake, road stake, feature survey, earthwork calc, etc
- Embedded self-configuring operative system with free lifetime updates and support
- Handle all of surveying operations on screen, Sunlight readability for a clear, easy-to read viewing experience
- Works as rover or base transmitting and receiving by UHF and 4G
- IP67 Water and Shockproof enclosure
- Two batteries cell at 6800mAh
- Made with industrial components, for decades of use and repairable even after heavy damage
- The best Cost/Benefit ratio of the market

**1688 Channels Triple Frequency**

**MILLIMETRIC ACCURACY**

# SMARTK II GNSS RTK Receiver

## GPS, GLONASS, COMPASS, GALILEO, QZSS, IRNSS & SBAS

### SmaRTK GNSS RTK Integrated Receiver

#### System Overview

- Triple-frequency GNSS RTK Receiver with 1688 channels and integrated antenna
- Internal Transceiving 2W UHF Radio modem, the maximum distance is 15KM
- Works as UHF Rover with its internal radio modem
- Works as Base, internal radio modem, power consumption 0.5W to 2W
- Baud rates up to 921600 bps UHF modem
- Tx/Rx with full frequency range from 410-470 MHz
- NFC fast connection
- Integrated Bluetooth, V4.0 protocol, compatible with Windows and Android OS
- IP67 Rugged and water-resistant design

#### C50 Data Collector Overview

- MT6762 8-Core Processor, 2.0 GHz
- 3GB+32GB Memory
- 5.5" Touch Display with 720\*1440 Resolution
- IP67 Waterproof and Dustproof
- 7700mAh Li-Polymer Battery
- Support 4G, Ultra-Distance Bluetooth®, Wi-Fi, NFC

#### Performance Specifications

##### Receiver

- 1688 Channels, high fixed rate
- Anti-interference algorithm technology, for maximum error filtering
- Multiple radio samplers gives the most accurate band tuning available
- Available as GNSS L1+L2+L5 Single receiver
- High precision multicorrelating GNSS pseudorange measurement and DP Filter
- GNSS carrier phase with low noise with <1 mm precision in a 1 Hz bandwidth
- Signal-to-Noise ratios reported in dB-Hz
- Full Constellation tracking, ensures reliable performance
- Satellite signals tracked:

**GPS:** L1C/A, L2P, L1C, L2C, L5

**GLONASS:** L1, L2

**COMPASS:** B1I, B2I, B3I, B1C, B2a, B2b

**Galileo:** E1, E5a, E5b, E6, AltBOC

**IRNSS (NAVIC):** L5

**QZSS:** L1C/A, L1C, L2C, L5

**SBAS:** WAAS, EGNOS, MSAS, GAGAN, SDCM, BDSBAS

**Position data output rates:** 1Hz, 5Hz, 10Hz on RTK, up to 20Hz

**Code differential positioning (DGPS):**

<0.4 m RMS

**Postprocessed static (PPS) fast static and kinematic (PPK) surveying (stop&go)**

Horizontal ± 2.5 mm + 0.5 ppm RMS

Vertical ± 5 mm + 0.5 ppm RMS

**Real Time Kinematic (RTK) surveying. UHF or Network, Single Baseline <30km(L2)**

Horizontal ± 8 mm + 1 ppm RMS

Vertical ± 15 mm + 1 ppm RMS

**Initialization time:** <10 seconds

**Initialization reliability:** >99 9%

**Signal re-acquisition:** <1.5 s

#### Communication Protocols and NTRIP compliance

**Correction data:** RTCM 2.X, 3.X, CMR (GPS only), CMR+ (GPS only)

**ASCII:** NMEA-0183 GSV, RMC, HDT, VHD, GGA, GSA, ZDA, VTG, GST; PTNL, etc.

#### Data Link UHF Radiomodem

**Internal Transmitting Power:** 0.5-2W adjustable

**Tx/Rx with full frequency range:** from 410-470 MHz

**Power consumption:** 1.7W

**Antenna:** external, TNC

**Link Rate/Modulation:** up to 921600 bps

**Link Protocols:** Lora

**Unlimited UHF Channels:** channel 1 to 9, support customize

**Frequency Control:** Synthesized 250 kHz Resolution

**Work Range:** 15 km

**Optional Modes:** Transmitting and Receiving

#### Powerful Android software

**User friendly Wizard:** Help you get familiar with the software step-by-step

**Functions:** Radio/PDA CORS modes, all kinds of survey/stake out/CAD sketch and etc.

**Import & Export:** supporting many kinds of TXT, CSV, SHP, AutoCAD DXF and etc.

**Broad Applicability:** Featuring 10 more languages and various projections & datums

**Cooperation:** support mock location function

#### PDA CORS with Controller Network

Direct connect to CORS with Controller network

**Protocols:** Transparent / NTRIP/TCP

Network CORS support compatible with VRS, FKP, MAC, iMAX

#### User Interphase

• 1 OLED Display and 2 Function buttons

• 2 LEDs (indicating Satellites Tracking, RTK Corrections Data)

• Calibration-free IMU integrated for tilt survey up to 60°tilt

• Bluetooth : V 4.0 protocol, compatible with Windows OS and Android OS

#### Energy

**Typical power consumption:** 1.7W

**Battery:** 2 × 3400 mAh

**Standard operation time on internal batteries:** up to 25 hours typically

**Input voltage:** 7-28 VDC

2 internal Battery Charger with charge indicator.

#### Communications

**Charger and Download:** 1 C Type

**UHF Radio modem transmitter / receiver:** switchable power at 0.5W to 2W, 1 TNC

**WiFi/4G modem:** LTE-FDD, LTE-TDD, WCDMA, GSM

**NFC:** fast connection

#### HARDWARE

##### Physical

**Size(W × H):** Φ 15.5 cm × 7.3 cm

**Weight:** 1.2 kg with two batteries

**Working Temperature:** -40 °C to +65 °C

**Storage Temperature:** -40 °C to +85°C

**Humidity:** 100% no condensing

**Waterproof and dustproof:** IP67, protected from temporary immersion to depth of 1 m

**Shock and vibration tested:**

**Shock Non-operating:** Designed to survive a 2 m drop onto concrete

Memory: 8GB

#### STANDARD ROVER SET INCLUDES:

- 1 Receiver
- 1 Controller with holding Bracket
- 2 Rechargeable Batteries (internal)
- 1 Battery Charger
- 1 USB Data, 1 7-Pin data cable, 1 DB9 cable
- 1 Transport Case
- 1 Whip Antenna

#### STANDARD BASE AND ROVER SET INCLUDES:

- 2 Receivers
- 1 Controller with holding Bracket
- 4 Rechargeable Batteries (internal)
- 2 Battery Chargers
- 1 USB Data, 1 7-Pin data cable, 1 DB9 cable
- 2 Transport Cases
- 2 Whip Antennas (UHF)
- 1 Tribrach (Optional)
- 1 2m-Range Pole with Bagd (Optional)
- 1 Aluminum Disc ×1 (Optional), 15cm Extension Bar ×1 (Optional)

#### Notes:

- Accuracy, TTFF and reliability specifications may be affected by multipath, satellite geometry and atmospheric conditions. Specifications assume at least 5 satellites locked and follow up of the recommended practices.
- Working distance of internal UHF varies in different environments, the maximum distance is 15km in ideal situation.
- 8GB is the default internal memory and optional 16GB, 32GB is available to order. Please clarify when placing the order.