SPECIFICATIONS

GNSS Features

Channels..... 336
GPS..... L1C/A, L1C, L2C, L2E, L5
GLONASS..... L1C/A, L1P, L2C/A, L2P, L3
BDS..... B1, B2, B3
GALILEOS..... E1, E5A, E5B, E5AltBOC, E6
SBAS..... L1C/A, L5 (Just for the satellites supporting L5)
IRNSS..... L5
QZSS..... L1C/A, L1 SAIF, L2C, L5, LEX
MSS L-Band..... Trimble RTX[1]
Positioning output rate..... 1Hz~50Hz
Initialization time..... < 10s
Initialization reliability..... >99.99%

Positioning Precision

Code differential GNSS positioning... Horizontal: 0.25 m + 1 ppm RMS
Vertical: 0.50 m + 1 ppm RMS
GNSS static..... Horizontal: 2.5 mm + 0.5 ppm RMS
Vertical: 5 mm + 0.5 ppm RMS
Real-time kinematic..... Horizontal: 8 mm + 1 ppm RMS
(Baseline<30km) Vertical: 15 mm + 1 ppm RMS
SLink (RTX)[2]..... Horizontal: 4-10 cm Vertical: 8-20 cm
RTK XTRa (xFill)[3]..... Horizontal: 5 + 10 mm/min RMS
Vertical: 5 + 20 mm/min RMS
SBAS positioning..... Typically<5m 3DRMS
RTK initialization time..... 2~8s
IMU tilt compensation..... Additional horizontal pole tip uncertainty typically less than 8mm + 0.6 mm/° tilt down to 30°
IMU tilt angle..... 0°~60°

Hardware Performance

Dimension..... 15.3cm(φ)×10.6cm(H)
Weight..... 1.2kg (battery included)
Material..... Magnesium aluminum alloy shell
Operating temperature..... -25℃~+65℃
Storage temperature..... -35℃~+80℃
Humidity..... 100% Non-condensing
Waterproof/Dustproof..... IP68 standard, protected from long time immersion to depth of 1m
IP68 standard, fully protected against blowing dust
Shock/Vibration..... Withstand 2 meters pole drop onto the cement ground naturally
Power consumption..... 2W
Power supply..... 6-28V DC, overvoltage protection
Battery..... 7.4 V 3400mAh rechargeable, removable Lithium-ion battery
Battery life..... Single battery: 16h (static mode)
10h (internal UHF base mode)
12h (rover mode)

Communications

I/O Port..... 5PIN LEMO external power port + Rs232
7PIN LEMO +external USB(OTG)+Ethernet
1 UHF antenna interface
1 GPRS antenna interface
(internal and external antenna switchable)
SIM card slot (standard)
Internal UHF..... Radio receiver and transmitter, 1W/2W/3W switchable
Frequency range..... 410-470MHz
Communication protocol..... Farlink, Trimtalk450s, SOUTH, SOUTH+,SOUTHx, HUACE, Hi-target, Satel
Communication range..... Typically 15km with Farlink protocol
Cellular mobile network..... Advanced 5G network communication module, downward compatible with 4G/3G
Bluetooth..... BLEBluetooth 4.0 standard, Bluetooth 2.1+EDR
NFC Communication..... Realizing close range (shorter than 10cm) automatic pair between receiver and controller(controller requires NFC wireless communication module else)

WIFI

Modem..... 802.11 b/g standard
WIFI hotspot..... Receiver broadcasts its hotspot form web UI accessing with any mobile terminals
WIFI datalink..... Receiver can transmit and receive correction data stream via WiFi datalink

Data Storage/Transmission

Storage..... 64GB SSD internal storage
Automatic cycle storage (The earliest data files will be removed automatically while the memory is not enough)
Support external USB storage
The customizable sample interval is up to 50Hz
Data transmission..... Plug and play mode of USB data transmission
Supports FTP/HTTP data download
Data format..... Differential data format: CMR+, SCMRx, RTCM 2.1, RTCM 2.3, RTCM 3.0, RTCM 3.1, RTCM 3.2
GPS output data format: NMEA 0183, PJK plane coordinate, Binary code, Trimble GSOF
Network model support: VRS, FKP, MAC, fully support NTRIP protocol

Sensors

Electronic bubble..... Controller software can display electronic bubble, checking leveling status of the carbon pole in real-time
IMU..... Built-in IMU module, calibration-free and immue to magnetic interference
Thermometer..... Built-in thermometer sensor, adopting intelligent temperature control technology, monitoring and adjusting the receiver temperature

User Interaction

Operating system..... Linux
Buttons..... 2-button and visual operation interface
Indicators..... 2 LED indicators, data interaction indicator and Bluetooth indicator
LCD..... 1.54-inch HD color LCD touch screen with resolution 240*240
Web interaction..... With the access of the internal web interface management via WiFi or USB connection, users are able to monitor the receiver status and change the configurations freely
Voice guidance..... The intelligent voice technology provides status and operation voice guidance, supports Chinese/English/Korean/Spanish /Portuguese/Russian/Turkish
Secondary development..... Provides secondary development package, and opens the OpenSIC observation data format and interaction interface definition
Cloud service..... The powerful cloud platform provides online services like remote manage, firmware update, online register and etc

[1] It requires a subscription to data service.
[2] The RTX accuracies depend on correction service chosen. And 95% of the time with initializations are around 5-30 minutes.
[3] RTK XTRa also requires a subscription to the data service, and precision is dependent on GNSS satellite availability. RTK XTRa positioning ends after 5 minutes of radio downtime.

Remarks: Measurement accuracy and operation range might vary due to atmospheric conditions, signal multipath, obstructions, observation time, temperature, signal geometry and number of tracked satellites. Specifications subject to change without prior notice

CE FC MIL-STD 810G

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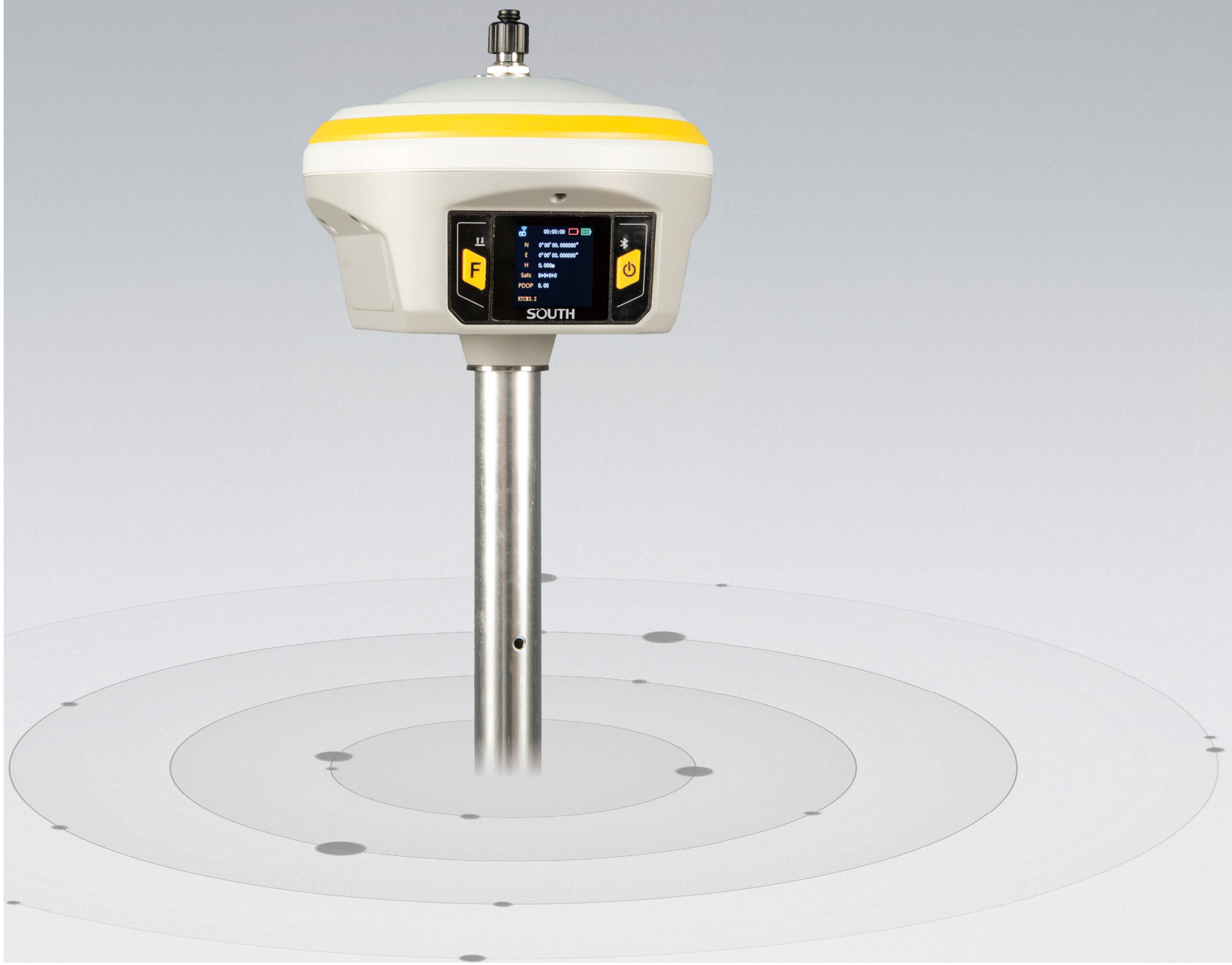
INNO7

- Smart interactive RTK receiver -



5G Network ▸▸▸

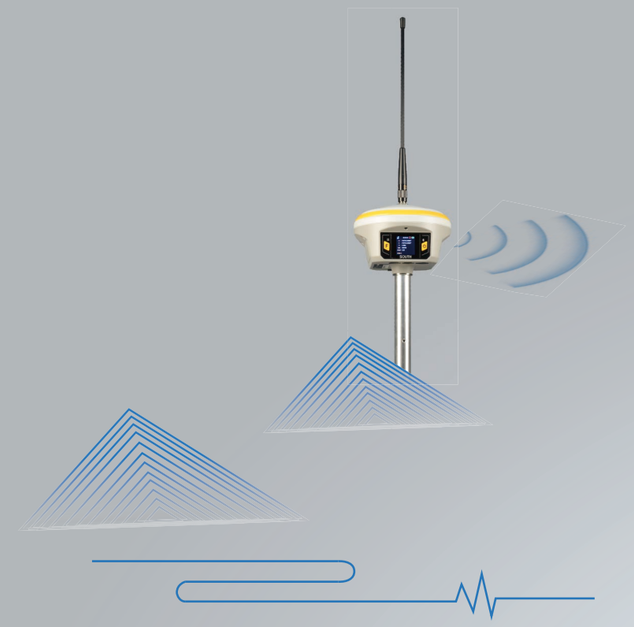
A highway to the era of big data

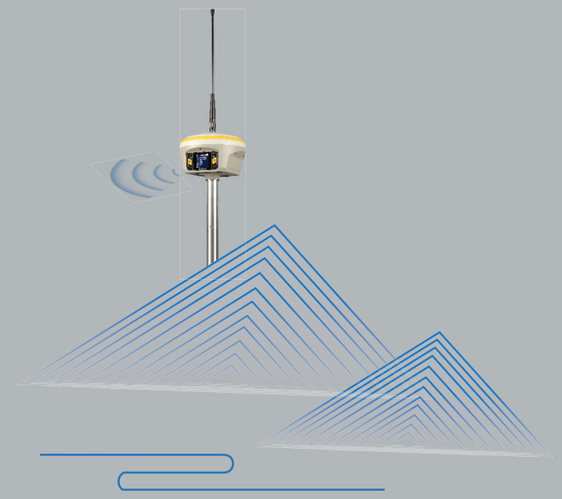
INNO7 is equipped with a high-speed 5G full netcom module, which supports the latest 5G communication network and gives the RTKs high speed information interaction and wider expansion space in the big data era. Based on intelligent PPP dial up technology, INNO7 realizes automatic dialing in real-time and keeps online during working.

FarLink Protocol ▸▸▸

INNO7 adopts an internal radio with 3W maximum transmission power to achieve the typical working range as 15km through **“Far-link”** protocol.

The transmission bandwidth becomes large, which perfectly solves the problem of large data volume of multiple constellations transmission. And the power consumption can reduce about 60% in the same amount of data transmission compare to the traditional RTK.





15 KM

Just use the inbuilt radio only

It is not a dream to achieve 15km working distance by using the inbuilt radio.

Touch Screen

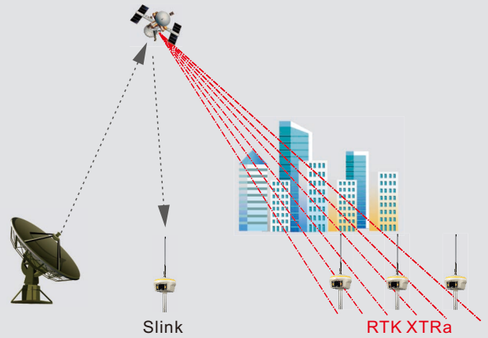
Interaction ▸▸▸

HD 1.54 inch color LCD touch screen with high brightness and low power consumption is more suitable for field work, which is convenient and efficient to complete touch settings, information browsing, function settings.

Slink & RTK XTRa ▸▸▸

Base on the RTX global services, INNO7 is able to achieve the goal of precise single-point positioning without a reference, the positioning is no more constrained by terrain environment, such as mountain, wasteland, desert, island, fixed solution is generally available as long as the GNSS constellations are visible.

Moreover, RTK XTRa technology which is derived from RTX services, it can extend RTK positioning for several minutes while the RTK primary source of correction stream is interrupted or not available, it really makes RTK bright anywhere.



The 'Fast' IMU ▸▸▸

INNO7 is integrated with a new generation IMU module that it only needs 2-5s of shaking receiver to complete the initialization, and the maximum tilt compensation angle can be 60 degree. it can ignore magnetic interference while RTK receiver works in such a magnetic environment. This professional IMU module can keep the tilt effect for about 40s if RTK receiver stays on a point without moving.

IMU is an electronic unit which records angular velocity and linear acceleration data which is fed into a central processing unit for data interpreting and logging. When the RTK receiver moves, and then it will record the data and send back to the receiver for calculating to output the corrected result of position.

64GB SSD ▸▸▸

Built-in 64GB solid-state storage, which can meet most needs of measurement works. And the feature of cyclic storage helps receiver to automatically remove the previous files while there is not enough space in the memory, with this excellent performance, data storage can last almost 4 years based on 5s sampling interval. And the design of embedded memory chip can ensure the safety of measurement data.

RTK² ▸▸▸

Innovative "dual RTK engine algorithm technology" to achieve secondary coordinate check and calculation, effectively avoiding the problem of fake coordinates, more reliable coordinate accuracy and higher stability.