SPECIFICATIONS

GNSS Features

Channels……1598
GPS……L1C/A, L2C, L2P, L5
GLONASS……L1C/A, L1P, L2C/A, L2P
BDS……B1, B2, B3
GALILEO……E1, E5A, E5B, E5AltBOC*, E6
SBAS……L1C/A, L5 (Just for the satellites supporting L5)
IRNSS……L5
QZSS……L1C/A, L2C, L5
L-Band……BDS-PPP, GALILEO-HAS*
Positioning output rate……1Hz~20Hz
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
Static (long observations)……Horizontal: 2.5mm + 0.1 ppm RMS
Vertical: 3mm + 0.4 ppm RMS
Real-Time Kinematic……Horizontal: 8 mm + 1 ppm RMS
(Baseline < 30km) Vertical: 15 mm + 1 ppm RMS
RTK NTRIP……Horizontal: 8mm + 0.5 ppm RMS
Vertical: 15mm + 0.5 ppm RMS
PPK……Horizontal: 3mm + 1 ppm RMS
Vertical: 5mm + 1 ppm RMS
SBAS positioning……Typically < 5m 3DRMS
RTK initialization time……< 10s
IMU tilt compensation……Additional horizontal pole tip uncertainty typically less than 8mm + 0.7 mm/°tilt down to 30°, 1.8m pole height
IMU tilt angle……0° ~ 60°

Hardware Performance

Dimension……131mm(ϕ)× 80mm(H)
Weight……800g (battery included)
Material……Magnesium aluminum alloy shell
Operating temperature……-45℃ ~ +75℃
Storage temperature……-55℃ ~ +85℃
Humidity……100% Non-condensing
Waterproof/Dustproof……IP68 standard, protected from long time immersion to depth of 2m
IP68 standard, fully protected against blowing dust
Shock/Vibration……Withstand 2 meters pole drop onto the cement ground naturally
Power consumption……4W
Power supply……6-28V DC, overvoltage protection
Battery……Built-in 7.4 V 6800mAh rechargeable Lithium-ion battery
Battery life……16h (static mode)
10h (internal UHF base mode)
12h (rover mode)
Camera……2 MP
FOV……75°

Communications

I/O Port……UHF antenna interface
Type-C
Internal UHF……2W radio receiver and transmitter
Frequency range……410 - 470MHz
Communication protocol……Farlink, Trimtalk450s, SOUTH, HUACE, ZHD
Communication range……Typically 8km with Farlink protocol
Bluetooth……BLEBluetooth 4.2 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……4GB SSD internal storage standard, extendable up to 32GB
Automatic cycle storage (The earliest data files will be removed automatically while the memory is not enough)
Support external USB storage
Data transmission..The customizable sample interval is up to 20Hz (Reserve)
Plug and play mode of USB data transmission
Supports FTP/HTTP data download
Data format……Static data format: STH, Rinex2.01, Rinex3.02 and etc.
Differential data format: RTCM 2.x, RTCM 3.x
GPS output data format: NMEA 0183,
PJK plane coordinate, Binary code
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 immune 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…….. Single button
Indicators……... 3 color LED indicators, and Battery indicator
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.

*Items marked with * will be upgraded along with the update of assigned firmware version.*

The data comes from the SOUTH GNSS product laboratory, and the specific situation is subject to local usage. The measurement accuracy, precision and reliability are associated with various factors, including the number of satellite tracking, observation time, multi-path, etc.

CE FC MIL-STD 810G

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Insight V2

— Innovative Palm-sized Visual RTK —

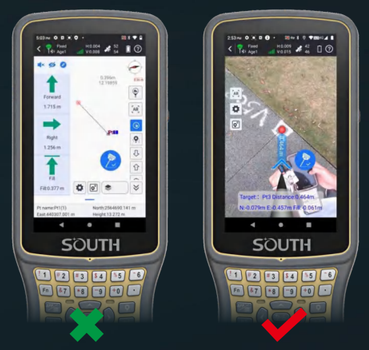
Fast and Precise AR Stakeout

SOUTH new palm-size RTK receiver—Insight V2, seamlessly integrated with GNSS, IMU sensor and a camera, bringing RTK surveying and stakeout into a new era.

Based on integrated technology of GNSS positioning, IMU compensation, imaging, and calculating the real-time receiver's altitude, Insight V2 provides live visual data that results in the stakeout target accurately displayed on the screen hence precise and distinct navigation to the targets; moreover, without leveling bubble.

Advanced Algorithm for Positioning

V2 exploits the SoC-type GNSS board with 1598 channels for multi-constellation and multi-frequency tracking, efficiently suppresses the interference signals, and obtains higher-quality observation data from GNSS constellations. V2 will bring a leap-forward experience of RTK performance, even in harsh environments.



Virtual Guideline to Targets

AR technology superimposes a virtual guideline and distances from the target on the real-time image display; therefore, the field software can guide you to the points by live-view images that no need to worry about identifying directions, which saves time and effort.

Superior Endurance

Benefiting from the SoC board and intelligent power management plan, the built-in 6800 mAh high-performance battery can support V2 continuously working for a whole daytime. And the power volume is indicated at the bottom of the receiver. Meanwhile, V2 adopts the mainstream Type-C interface, which supports web interface login and fast charging.

Powerful Internal UHF

Insight V2 equips with a new self-developed digital radio module that utilizes "Farlink" communication technology, which increases signal sensitivity and transmission efficiency to achieve an ultra-long working range.

Brilliant Inertial Measurement Unit

Built-in high-performance IMU automatic compensator corrects the coordinates to the pole tip, assisting you to quickly and accurately measure or stake out points at will without strictly leveling the receiver. Coupling with the latest sensor program, the IMU can initiate rapidly and easily by walking a few steps only.