SOUTH
Target your success

G7
— New miniaturized RTK receiver —

Extraordinary GNSS....

The GNSS unit of G7 is integrated with an advanced **SoC** which is a chip comes with the advantage of high integration and low power consumption, efficiently suppress the interference signals, and obtain higher quality observation data from satellite constellations.

Combines with powerful GNSS RTK engine with **1760** channels, and the new generation high sensitivity antenna, G7 achieves centimeter precision in seconds while fully tracking GPS, GLONASS, BEIDOU, GALILEO and QZSS signals.

Now G7 supports the BeiDou-3 B2b L-band BDS-PPP corrections to get real-time centimeter level positioning services.

Thanks to the new function **"Fixed-keep"**, now it is possible for G7 to keep centimeter-level accuracy for few minutes when the RTK corrections is missing.

Smart unit of tilt measurement

60°

An inbuilt high performance **IMU** automatic compensator which corrects the coordinates to the pole tip, that assists users quickly and accurately measure or stake out points at will without strict leveling the receiver, it helps surveyors boost productivity by 30 percent. Furthermore, the compensation is still available even though the fixed solution is lost at a short time, surveyors are able to continue the job after fixed solution recovers without initializing again for the IMU module. And the tilt angle range can achieve to 60°.

Unmatched connectivity

8km

Built-in SOUTH self-developed digital radio, with an advanced protocol **"Farlink"**, makes G7 achieve the typical working range as 8km. The transmission bandwidth of "Farlink" becomes large, and it increases the sensitivity of radio signal capture, 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.

Unlimited productivity

The new generation of SoC platform gives RTK more stable performance and lower power consumption. The built-in 6800mAh high-performance battery can support more than **15 hours** of continuous operation. Featuring with a universal type-C interface, G7 allows to charge the built-in batteries with a PD rapid charger, and support power supply from a power bank to ensure a full-day work.
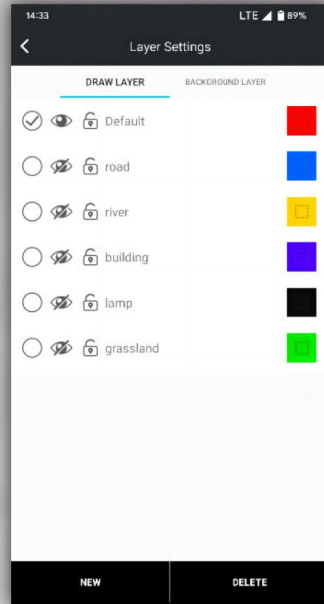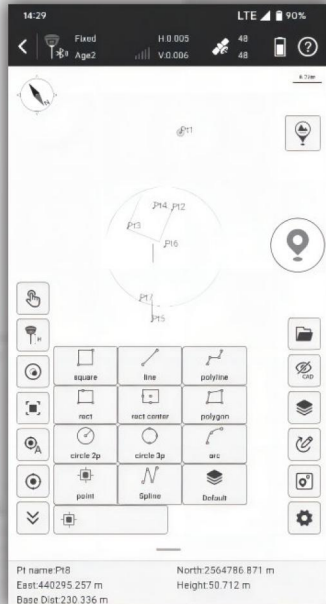
Both internal memory and web interface are accessed by this type-C interface simultaneously without switching working mode for this port.

15hours

SurvStar APP

Field Data Collection & Mapping: The Most Advanced is Here

Measure & Draw : Save Time in Field work and Office

This feature allows you to draw the result map while completing point measurements.

• Before measuring points, users can choose the shape of the target object to be measured from 11 preset figures. The software will guide you to measure points in an order and automatically connect lines and complete the drawing of the figure.

• The .dxf or .dwg maps created on-site can be used directly in office work.

• Users can assign measured objects with different attributes, to different layers for measurement and management, making no mistakes.

CAD Draw : Drafting without a PC
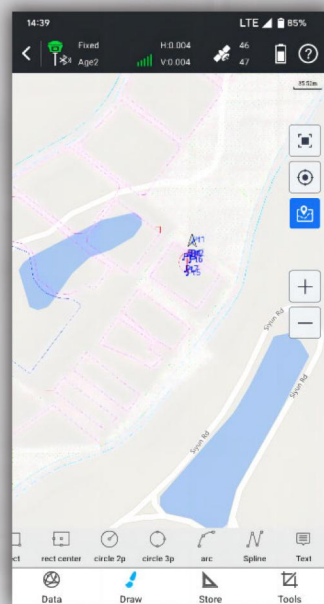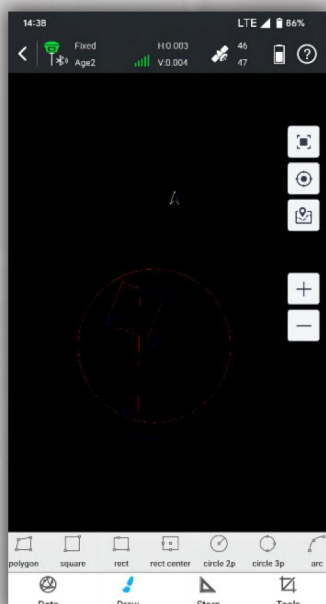
Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

• CAD drawing does not require a computer.

• CAD files prepared on office PCs can be edited and managed by users on RTK data collection terminals.

• Drawing tools include up to 11 types of figures and one type of text.

# Visual Positioning : Industry-Leading Non-Contact Measurement Technology
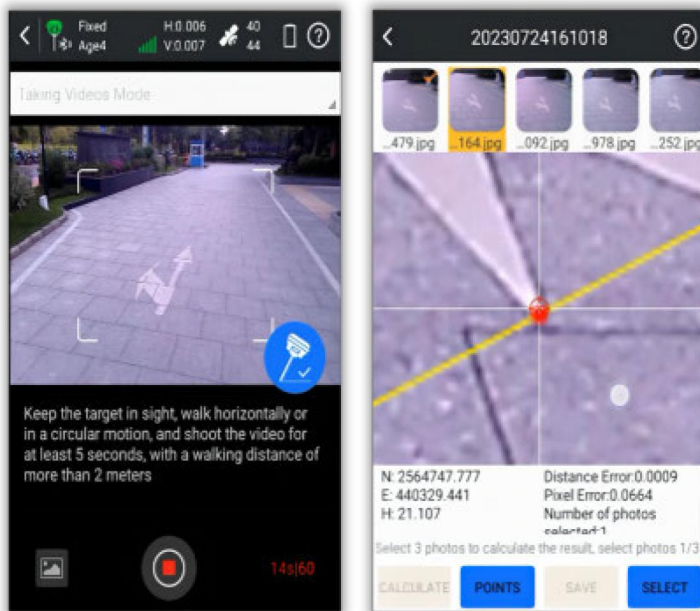
(This function only works with the receiver models that have front-facing camera or dual-cameras)

Photogrammetry Measurements can be conducted by taking pictures or videos. Coordinates of all points in the photos can be acquired.

• Now, target points that are inaccessible due to dangerous environments, poor satellite signals, or impassable terrain can be measured remotely.

• The captured image data can also be used with software like SGO, Pixel4D, DJI Terra, and CC for 3D modeling.

• Image measurement data can also be combined with drone measurement data to address issues of blurriness and deformation in ground data models collected by drones.

Static & PPK Measurement : More Assistance Now is Available
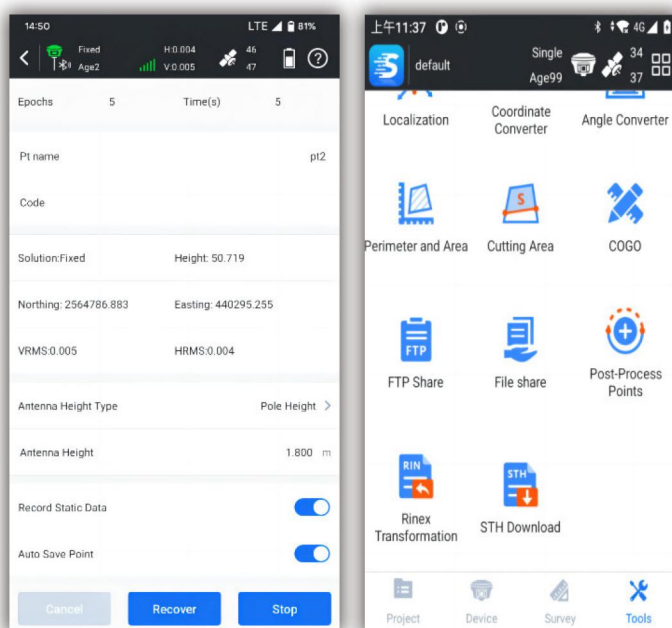
The software provides both static and PPK data collection capabilities.

• Data can be downloaded wirelessly, no need for a PC and cables.

• It is possible to convert .sth files into RINEX files right on the data collector or tablet or your phone, no need of PC.

• Data can be shared with others through mobile Internet.

• The accuracy of PPK data collection is as high as Trimble equipment, the result can be directly imported for use in TBC.

SurvStar APP

Stakeout: Lighten Your Load, Increase Your Output

CAD Stake-Out : Save Labor Cost and Reduce Errors
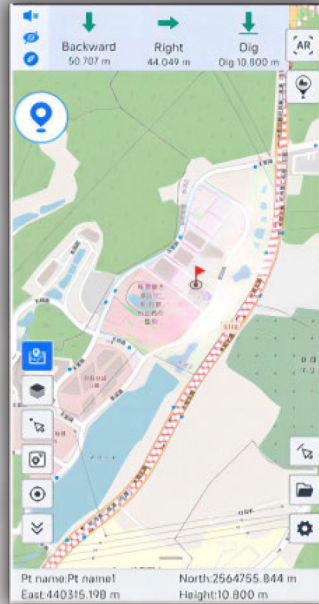
Traditional data collection software requires users to import points or lines to be setout from .csv or .txt files, users need to spend quite a lot of time to edit point and line libraries.

Moreover, for complex shapes such as curves, circles, and polygons, the traditional stake-out process is complicated. Now, our new CAD stake-out program offers a superior solution for surveyors.

• No need for manual editing of point libraries.
• Staking-out geometric shape is faster and easier.

• No need for obtaining coordinate files before work. Staking-out can be done with just a CAD drawing.
• Online maps and CAD drawings can be displayed simultaneously, improving accuracy.
• AR guide lines make staking-out more intuitive.

Area Division : Developed for Professional Cadastral Survey and Stake Out
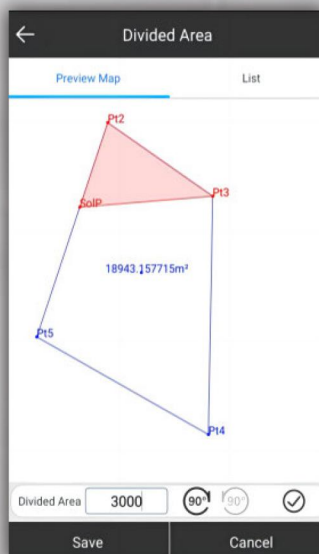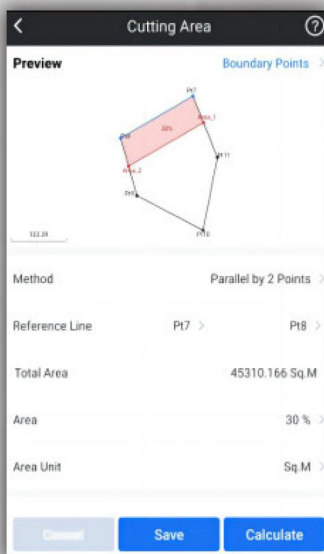
Select points to form a polygon, and directly identify the area division points for the surveyor to stake out. There is no more need for the user to guess a position to measure, and then to adjust.

• Six methods of division to determine the area division points. The methods are flexible and suitable to different user needs.

• The graphic display is intuitive and understandable.

# Live-View Stake-Out : Faster, More Accurate, More Intelligent
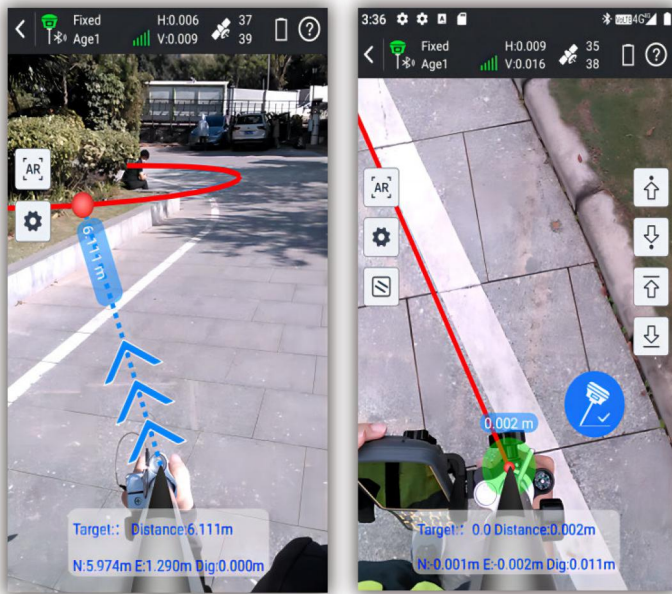
(This function only works with the receiver models that have downward-facing camera or dual-cameras)

Users utilize the real-time imagery captured by the camera at the bottom of the receiver and the AR guide lines displayed by the software, to locate the target points.

• When users perform stake-out with a dual-camera GNSS receiver, the software can call upon both cameras to work together. At medium to long distances, the software uses the front-facing camera to indicate the direction of travel, and at close range, it uses the downward-facing camera to find the specific location. This further increases the speed of staking out.

• AR guide lines can be displayed in point staking out, line staking out, and CAD staking out programs.

Additional Features

Compatible with Multiple Devices
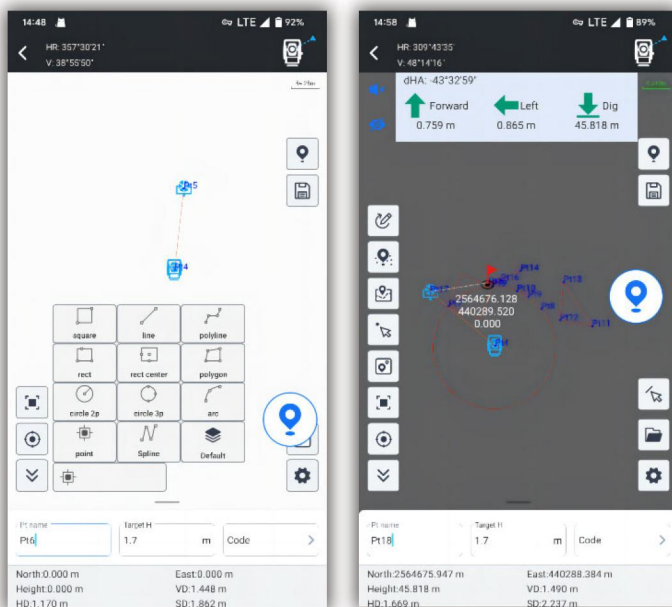
The App Now works with GNSS, Total Station, Echo Sounder, GIS Tablet, in future it will work with SLAM Scanner, Terrestrial Lidar Scanner.
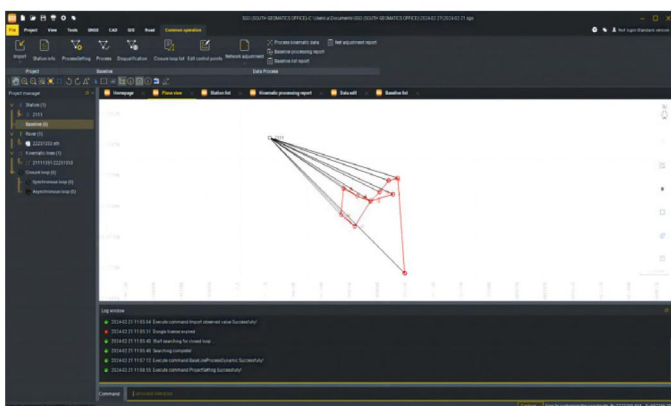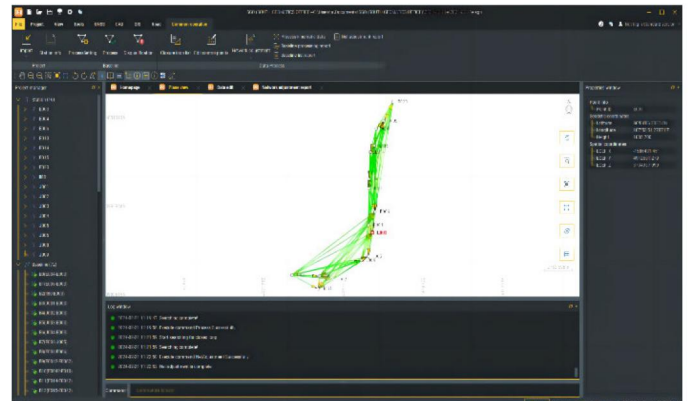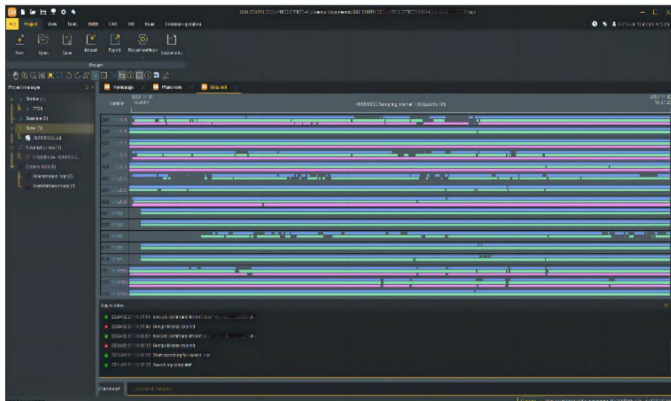
Innovations for Better User Experience

- ■ RTK Data Backup
- ■ QR Code Share
- ■ Multiple Basemap Support
- ■ Basemap
- ■ Adjustment
- ■ Network Mount Point Sorting
- ■ NMEA Output Setting

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SOUTH Geo Office (SGO)
Ideal GNSS Data Processor, Help You To Keep Advancing

Data Processing & Reporting

When surveyors need to do post-processing of GNSS data, our software always can provide state-of-the-art technology to help you to produce optimal results. User just need to import field data, the software will automatically process GNSS baselines. Once results come out, the software can generate reports.

RINEX Import and Export

This feature enables users to import the third party GNSS receiver data into our software and post-process it, by using the industry standard RINEX format.

High Accuracy Guaranteed

RTK check, the unique function in our software, can compare RTK and PPK results to automatically acquire the most accurate coordinates for each target point.

It fills up the gap of poor corrections in RTK or hindered observations in PPK.

This improvement is to provide guarantee for your every survey.

3D Modelling

User can import photogrammetry image data into the software, to achieve 3D modeling, visually presenting geographic information data such as coordinates, areas, and volumes.

Model data can be transformed into different formats and applied with various coordinate parameters based on actual needs, making it adaptable to a wider range of application scenarios.

SPECIFICATIONS

GNSS Features

Channels……………………………………………………………………1760
GPS…………………………………………………………… L1, L1C, L2C, L2P, L5
GLONASS…………………………………………….. L1C/A,L1P,L2C/A,L2P,L3
BDS…………………………………………………………….. BDS-2: B1I, B2I, B3I
BDS-3: B1I, B3I, B1C, B2a, B2b*
GALILEO....……………………………………..…… E1, E5A, E5B, E6C, AltBOC*
SBAS(WAAS/MSAS/EGNOS/GAGAN)………………………………………L1*
IRNSS……………………………………………………………………..……. L5*
QZSS……………………………………………………………..…..L1, L2C, L5*
MSS L-Band……………………………………………………….....BDS-PPP
Positioning output rate…………………………………………..……...1Hz~20Hz
Initialization time……………………………………………………..……<8sec
Initialization reliability…………………………………………….……... > 99.99%

Positioning Precision

Code differential GNSS……………… Horizontal: 0.25 m + 1 ppm RMS
Vertical: 0.50 m + 1 ppm RMS
Static(long observations)……………...Horizontal: 2.5 mm + 0.1 ppm RMS
Vertical: 3 mm + 0.4 ppm RMS
Static………………….…………........Horizontal: 2.5 mm + 0.5 ppm RMS
Vertical: 3.5 mm + 0.5 ppm RMS
Rapid static……………………........... Horizontal: 2.5 mm + 0.5 ppm RMS
Vertical: 5 mm + 0.5 ppm RMS
PPK……………………..………………....... Horizontal: 3 mm + 1 ppm RMS
Vertical: 5 mm + 1 ppm RMS
RTK(UHF)……………………….……........Horizontal: 6 mm + 0.5 ppm RMS
Vertical: 10 mm + 1 ppm RMS
RTK(NTRIP)……………………….......... Horizontal: 8 mm + 0.5 ppm RMS
Vertical: 15 mm + 0.5 ppm RMS
RTK initialization time……………………………………………… 2 ~ 8s
SBAS positioning……………….…H: up to 50cm RMS, V: up to 85cm RMS
BANDA-L………………………………… Horizontal: 5-10cm (5-30min)
Vertical: 10-30cm (5-30min)
IMU…………………………………… Less than 10mm + 0.7 mm/° tilt to 30°
IMU tilt angle……………………………………………………………0° ~ 60°

Hardware Performance

Dimension……………………………. 135mm(W) ×135mm(L) × 84.75mm(H)
Weight…………………………………………………..970g (battery included)
Material……………………………………… Magnesium aluminum alloy shell
Operating temperature…………………………………………… -40℃ ~ +65℃
Storage temperature……………………………………………… -40℃ ~ +75℃
Humidity…………………………………………………… 100% Non-condensing
Waterproof/Dustproof………………………... IP67 standard, protected from long
time immersion to depth of 1m
IP67 standard, fully protected against
blowing dust
Shock/Vibration……………………………… Withstand 2 meters pole drop onto
the cement ground naturally
MIL-STD-810G…………………………….. 514.6
Power supply……………………………….. 6-28V DC, overvoltage protection
Battery……………………………………. Inbuilt 7.4V 6800mAh rechargeable,
Li-ion battery
Battery life…………………………………………… 15h (Rover Bluetooth mode)

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

Communications

I/O Port……………………........…… 5-PIN LEMO external power port + RS232
Type-C interface (charge, OTG, data
transfer to PC or phone, Ethernet)
1 UHF antenna interface
Internal UHF……………………………..…………2W radio, receive and transmit,
radio router and radio repeater
Frequency range…………………………………………….....……410 - 470MHz
Communication protocol………………..……… Farlink, Trimtalk450s, SOUTH,
HUACE, Hi-target, Satel
Communication range……………….....………Typically 8km with Farlink protocol
Bluetooth……………….....…….. Bluetooth 3.0/4.1 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)
Cellular:………………...4G

Data Storage/Transmission

Storage.………… 4GB SSD internal storage standard, extendable up to 64GB
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 20Hz
Data transmission……...………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/CMR 2.1,RTCM/CMR 2.3,
RTCM/CMR 3.0,RTCM/CMR 3.1,RTCM/CMR 3.2
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 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……………………………………………………………Single button
Indicators……………… 4 LED indicators(satellite, Datalink, Bluetooth, Power)
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………..………It provides status and operation voice guidance,
and 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*

The data comes from the SOUTH GNSS Product Laboratory, and the specific situation is subject to local actual usage.

CE FC MIL-STD 810G

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