SPECIFICATIONS

GNSS Features

Channels……1598
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…… < 10s
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: 8 mm + 1 ppm RMS
Vertical: 15 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…… Typically < 5m 3DRMS
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…… -25℃ ~ +65℃
Storage temperature…… -40℃ ~ +80℃
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
Power supply…… 6-28V DC, overvoltage protection
Battery…… Inbuilt 7.2V 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……5W 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 km 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)

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 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
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. The measurement accuracy, precision and reliability are associated to various factors, including number of satellite tracking, observation time, multi-path, etc.

CE FC MIL-STD 810G

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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 **1598** channels, and the new generation high sensitivity antenna, G7 achieves centimeter precision in seconds while fully tracking GPS, GLONASS, BEIDOU, GALILEO and QZSS signals.

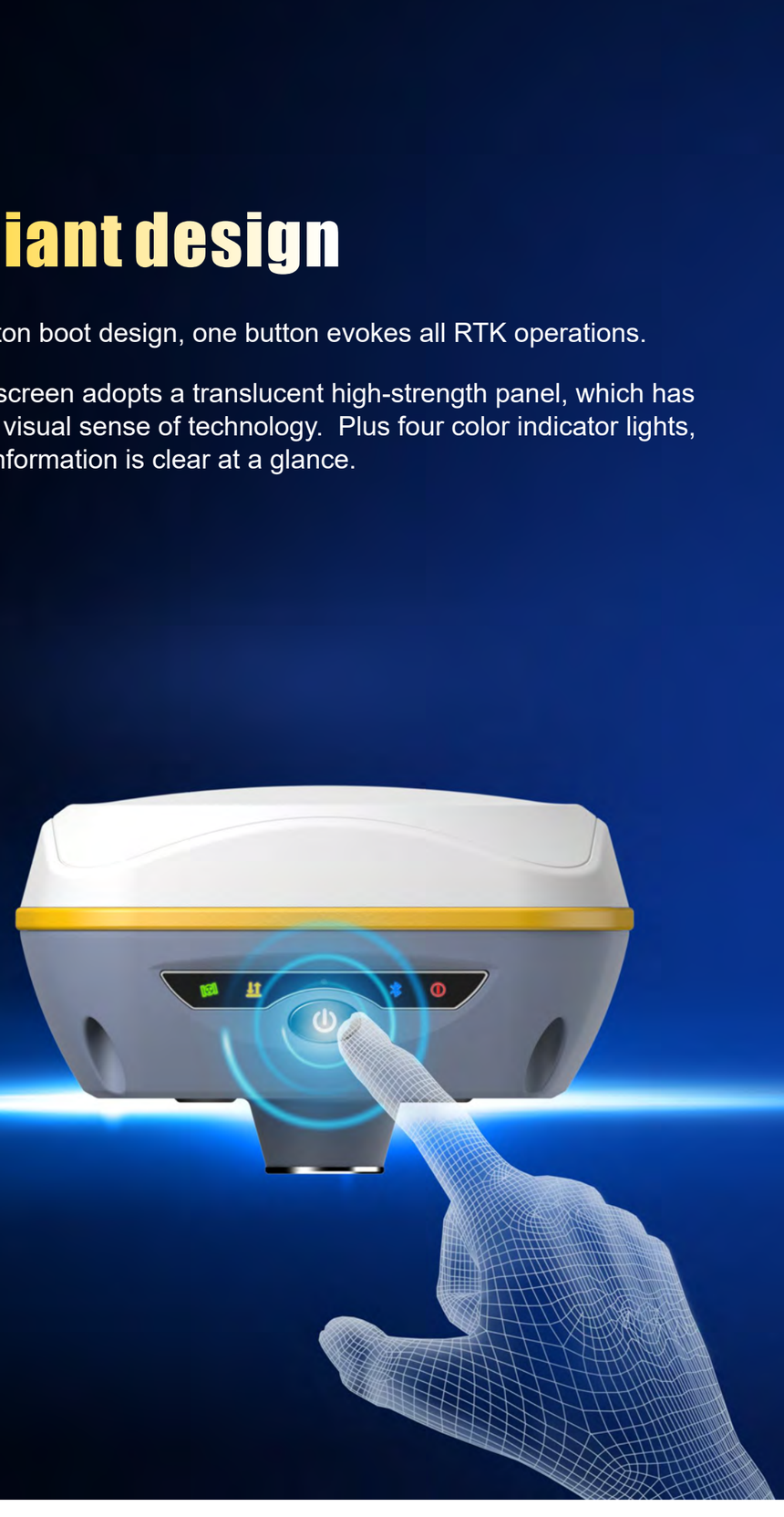
Now G7 supports the BeiDou-3 B2b L-band BDS-PPP corrections to get real-time centimeter level positioning services.

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.

Brilliant design

Single button boot design, one button evokes all RTK operations.

The body screen adopts a translucent high-strength panel, which has a stronger visual sense of technology. Plus four color indicator lights, common information is clear at a glance.



Smart unit of tilt measurement

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

Built-in SOUTH self-developed digital radio, with an advanced protocol **“Farlink”**, makes G7 achieve the typical working range as km. 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.