



THEIA

RUGGED GNSS BASE RECEIVER

The RinoNav THEIA, with its 5-watt internal radio, is specifically designed to function as a GNSS base station in a variety of survey situations. Additionally, the THEIA integrates a 4G modem to facilitate the transmission of GNSS corrections, thereby opening up more possibilities. With its reliable performance, the THEIA GNSS base receiver is ideal for applications such as surveying, mapping, drone, USV, agriculture, etc.

Long Working Distance via 5-Watt Internal Radio

No need to carry an external radio with a multitude of cables and accessories. The RinoNav THEIA's inbuilt 5-watt radio can reach a working distance of over 15 km in typical survey operations.

Visible Working Status

The colorful display shows the primary status. Four indicators provide real-time updates on the status of the satellite, datalink, Bluetooth, and battery.

Smart Voice Alarm and Broadcast

THEIA sends out a voice alarm in real time when it is moved. In addition, its smart broadcast will tell the current working mode and status when you short press the button.

Expanded Communication Options

Corrections can be transmitted using the UHF or 4G network modem, and there are various datalinks available to meet different requirements.

Experience seamless data transfer using the handheld controller through Bluetooth or Wi-Fi, unlocking a wide range of communication options.

All-Constellation Multi-Frequency GNSS Tracking

THEIA provides high performance as a GNSS base station with advanced 1408-channel GNSS technology. All GNSS constellations are available including GPS, BDS, GLONASS, Galileo, and QZSS.

Product Specification

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GNSS Performance

Satellites tracking	GPS	L1 C/A, L2P (W), L5
	BDS	B1I, B2I, B3I, B1C, B2a
	GLONASS	L1, L2
	GALILEO	E1, E5a, E5b
	QZSS	L1, L2, L5
Channels	1408	
Cold start	< 30 seconds	
Update rate	20 Hz	
High precision static	<ul style="list-style-type: none"> ■ H: 2.5 mm + 0.5 ppm RMS ■ V: 5 mm + 0.5 ppm RMS 	
Standard point positioning	<ul style="list-style-type: none"> ■ H: 1.5 m RMS ■ V: 2.5 m RMS 	
Correction data	RTCM V3.X, RTCM2, CMR	
Data output	GGA, ZDA, GSA, GSV, GST, VTG, RMC, GLL, Binary	

Power Supply

Battery	Rechargeable Built-in Lithium-ion battery x 1 3.65V - 24000 mAh
Voltage	<ul style="list-style-type: none"> ■ Type-C port: 12V DC, 1.5 A ■ 5-pin port: 15V DC, 2 A
Working time	Up to 13 hours as UHF base
Charging time	Typically 8.5 hours

System

Operation system	Linux
Internal memory	8 GB
Bluetooth	BT 5.0 BR + EDR, BLE
Wi-Fi	802.11 b/g/n
Network modem	Support LTE Cat4 LTE FDD: B1/B2/B3/B4/B5/B7/B8/B12/B13/ B18/B19/B20/B25/B26/B28 LTE TDD: B38/B39/B40/B41 WCDMA: B1/B2/B4/B5/B6/B8/B19 GSM: 850/900/1800/1900 MHz
TNC	Connect internal radio with antenna
5-pin port	Connect to external radio and external power
Type-C port	Charge and data transmission
SIM card slot	√
Web UI	View status, update firmware, set up working mode, download data, etc.
Intelligent voice	Broadcast working mode and status
Tilt sensor	e-Bubble

Physical

Dimension	Φ151 mm x H92 mm
Weight	1500 g
Operating temperature	-30°C ~ +65°C
Storage temperature	-40°C - +80°C
Water / dust proof	IP67
Shock	<ul style="list-style-type: none"> ■ Withstand topple over from a 2 m survey pole onto hard surfaces ■ Survive a 1.2 m free drop
Vibration	Vibration resistant
Humidity	Up to 100%
Indicators	Satellites, datalink, battery, Bluetooth
Button	Power button, short press to voice broadcast working mode and status
Screen	√
Certificate	FCC, CE, KC, ANATEL

Internal Radio

Type	TX
Emitting power	Up to 5W
Operation range	8 - 10 km typically 15 km with optimal conditions ¹
Frequency range	410 - 470 MHz
Channel spacing	12.5 kHz / 25 kHz
Protocol	Satel, Satel_ADL, HiTarget, TrimTalk, South, TrimMark III, TRANSEOT, GEOTALK, GEOMK3, PCCFST, PCCFST_ADL, PCCEOT, PCCEOT_SATEL, HZSZ

1: It varies with the obstacle and terrain.