

FREYJA

GNSS Receiver



CE FC



SatLab Freyja GNSS RTK is a progressive receiver that creates a new RTK experience for land surveyors. With its comprehensive features, it can perfectly handle the situations encountered in all kinds of surveying work, minimizing the burden from the physicality and extending the functionality of fieldwork. By increasing productivity by 25%, Freyja offers an accurate and efficient solution.

Key Features



Advanced
RTK
Engine



Multi-Constellation
Tracking



Built-in
Radio



Web UI



Tilt
Compensator



NFC
Module



Long
Battery Life
(> 24 hours)



Compatibility with
third-party software

Applications

- Monitoring
- Land Survey
- Agriculture
- Mapping
- Landfill
- Sensor
- Topography and As-built
- Hydrographic
- UAV Base Station



Unlock your positioning mobility with Freyja



Handiness and Convenience

Refinement of design makes it rugged and compact with only 770g. A more durable battery ensures operating time reaches more than 24 hours. Durability and portability are optimized for surveyors who carry them around a lot in the fieldwork.

Accuracy and Precision

Matured RTK technology promises positioning reliability. New GNSS Antenna, full-constellation and all satellite signal tracking technology lay the solid foundation-precision of fieldwork.

Adaptability and Stability

Equipped with the latest tilt compensation algorithm and built-in high-performance 9-axis Inertial Measurement Unit (IMU), the measurement for hard-to-reach points is simple but precise with the high-performance tilt survey. Quality results are guaranteed even if you lose the signal while under extreme circumstances with great anti-interference ability.



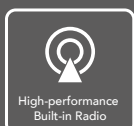
WebUI



Tilt Survey



Electronic bubble



High-performance
Built-in Radio



Professional
Support Network

TECHNICAL SUPPORT
Satlab offers online resources
and a professional support
network available worldwide.

FREYJA GNSS Receiver

Data Specifications

GNSS

Signal Tracking^①

GPS (L1C/A, L1C, L2P(Y), L2C, L5)
BDS (B1I, B2I, B3I, B1C, B2a, B2b)
GLONASS (L1, L2, L3)
Galileo (E1, E5a, E5b, E6)
QZSS (L1, L2, L5, L6*)
NavIC(L5)
SBAS(L1, L2, L5)
PPP(B2b-PPP, Galileo E6-HAS)

No. of Channels

1408

POSITIONING PERFORMANCE^②

High-precision static GNSS Surveying Static and Fast Static

H:2.5mm + 0.1 ppm RMS / V:3.5mm + 0.4 ppm RMS
H:2.5mm + 0.5 ppm RMS / V:5mm + 0.5 ppm RMS

Post Processing Kinematic (PPK / Stop & Go)

H:8mm + 1 ppm RMS / V:15mm + 1 ppm RMS
Initialization time: Typically 10 min for base and 5 min for rover
Initialization reliability: Typically >99.9%

PPP

H:10cm / V:20cm

Code Differential GNSS Positioning

H:±0.25m+1ppmRMS / V:±0.5m+1ppmRMS
SBAS:0.5m(H), 0.85m(V)

Real Time Kinematic (RTK)

H:8mm+1ppm RMS / V:15mm+1 ppm RMS
Initialization time: Typically <10 s
Initialization reliability: Typically > 99.9%

Positioning rate

1Hz, 5Hz and 10Hz

Time to first Fix

Cold start:< 45s | Hot start:< 30s | Signal re-acquisition:< 2 s

Hi-Fix^③

H:RTK+10mm / minute RMS / V:RTK+20mm / minute RMS

Tilt Survey Performance^④

Additional horizontal pole-tilt uncertainty typically less than
8mm +0.7 mm / °tilt (0° ~ 60°)

COMMUNICATION

I/O Interface

1 × USB type C port; 1 × SMA antenna port

WiFi

Frequency 2.4GHz, Supports 802.11 b/g/n

Bluetooth

4.2 / 2.1+EDR, 2.4GHz

NFC

Near Field Communication for device touch pairing

Internal UHF Radio

Frequency: 410-470MHz | Channel: 116 (16 scalable)
Transmitting power: 0.5W / 1W / 2W adjustable
Working Range: Typically 3~5km, optimal 8~15km
Supports multi-communication protocols: HI-TARGET,
TRIMTALK450S, TRIMMARK III, TRANSEOT, SATEL-3AS, etc.

ELECTRICAL

Internal battery^⑤

Internal 7.2V / 6900mAh lithium-ion rechargeable battery
RTK Rover (UHF/Cellular): up to 24 hours*

External power

Charging:using standard smartphone chargers or external
power banks.(Support 5V 2.8A Type-C USB external charging)

PHYSICAL

Weight

≤ 0.8kg(includes battery)

Dimensions (W x H)

132mm×67mm

Operation temperature

-30 C to +70 C

Storage temperature

-40 C to +80 C

Humidity

100% non-condensing

Water/dustproof

IP67 dustproof, protected from temporary immersion to
depth of 1.0m (3.28ft)

Free fall

Designed to survive a 2m(6.56ft) natural fall onto concrete

CONTROL PANEL

LED Lamp

Satellite, Signal, Power

Physical button

1

SYSTEM CONFIGURATION

Storage

8GB ROM internal storage

Output rate

1Hz-20Hz

Output format

ASCII: NMEA-0183

Static data format

GNS, Rinex

Network Mode

VRS, FKP, MAC; supports NTRIP protocol

Real Time Kinematic (RTK)

CMR, RTCM 2.x, RTCM 3.x



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*Description and Specifications are subject to change without notice.

1.QZSS L6 can be provided by firmware upgrade.

2.The measurement accuracy, precision, reliability and initialization time depend on various factors, including tilt angle, number of satellites, geometric distribution, observation time, atmospheric conditions and multi-path validation, etc. The data are derived under normal conditions.

3.Accuracies are dependent on GNSS satellite availability. Hi-Fix Positioning ends after 5 minutes without differential data.Hi-Fix is not available in all regions, check with your local sales representative for more information.

4.Irregular operations such as rapid rotation and high-intensity vibration may affect the inertial navigation accuracy.

5.The battery operating time is related to the operating environment, operating temperature and battery life.