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	H:2.5mm + 0.1 ppm RMS / V:3.5mm + 0.4 ppm RMS
Static and Fast Static	H:2.5mm + 0.5 ppm RMS / V:5mm + 0.5 ppm RMS
Post Processing Kinematic	H:8mm + 1 ppm RMS / V:15mm + 1 ppm RMS
(PPK / Stop & Go)	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 l Hot start:< 30s l 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 l 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℃ to +70℃
Storage temperature	-40℃ to +80℃
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

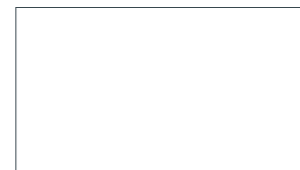*Description and Specifications are subject to change without notice.
1.QZSS L6 can be provided by firmware upgrade.
2.The measurement accuracy, precision, reliability and initialization time depend on various factors, including tilt angle, number of satellites, geometric distribution, observation time, 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.

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FREYJA
GNSS Receiver

ISO 9001 CERTIFIED CE FC

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GNSS Receiver

SatLab GEOSOLUTIONS

Made by Sweden

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
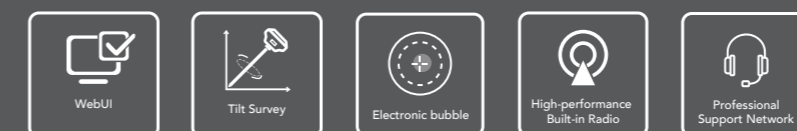
Handiness and Convenience

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.