

# FREYJA GNSS Receiver

## Data Specifications

### GNSS

#### Signal Tracking<sup>1</sup>

L1C(A) / L1C / L2P(Y) / L2C / L5  
 B1I / B2I / B3I / B1C / B2a / B2b\*  
 L1 / L2 / L3  
 E1 / E5A / E5 / AltBOC / E5B / E6  
 L1C(A) / L5(QZSS,WAAS, MSAS,GAGAN)  
 L1 / L2 / L5 / L6\*  
 IRNSS (L5)  
 PPP(B2b-PPP)

**No. of Channels** 1408

### POSITIONING PERFORMANCE

#### High-precision static GNSS Surveying

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

#### Static and Fast Static

H:2.5 mm + 0.5 ppm RMS / V:5 mm + 0.5 ppm RMS

#### Post Processing Kinematic

H:8mm + 1 ppm RMS / V:15 mm + 1 ppm RMS

(PPK / Stop & Go)

Initialization time: Typically 10 min for base and 5 min for rover

Initialization reliability: Typically >99.9%

#### Code Differential GNSS Positioning

H:±0.25m+1ppmRMS / V:+0.5m+1ppmRMS

SBAS:0.5m(H), 0.85m(M) / PPP:20cm(H), 10cm(V)

#### Real Time Kinematic (RTK)

H:8 mm+1ppm RMS / V:15 mm+1 ppm RMS

Initialization time: Typically <10 s

Initialization reliability: Typically > 99.9%

#### Time to first Fix

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

#### Tilt Survey Performance

Additional horizontal pole-tilt uncertainty typically less than 8 mm +0.7 mm / °tilt (2.5 cm accuracy in the inclination of 60°)

### COMMUNICATION

#### Communication

Bluetooth: 4.2 / 2.1+EDR, 2.4 GHz

Wi-Fi: frequency 2.4 GHz, Supports 802.11a / b / g / n

Frequency: 410-470 MHz | Channel: 116 (16 scalable)

Transmitting power: 0.5 W / 1 W / 2 W adjustable

Supports multi-communication protocols: HI-TARGET, TRIMTALK450S, TRIMMARK III, TRANSEOT, SATEL-3AS, etc.

#### Internal UHF Radio



#### Headquarters:

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#### Regional Offices:

Warsaw, Poland

Jičín, Czech Republic

Ankara, Turkey

Scottsdale, USA

Singapore

Hong Kong, China

Dubai, UAE

[www.satlab.com.se](http://www.satlab.com.se)

### PHYSICAL

#### Internal battery

Internal 7.4 V / 6800 mAh lithium-ion rechargeable battery.

RTK Rover (Network) for 12 hours. | Static: up to 15 hours

Power consumption:4.2W | Dimensions (W×H):132mm×67mm

Charging:using standard smartphone chargers or external power banks.

Weight:≤0.8 kg (includes battery)

Data storage:8GB ROM internal storage

#### External power

#### Control Panel

##### LED Lamp

Satellite, Signal, Power

##### Physical button

1

#### Environment

##### Water / Dustproof

IP67

##### Shock and vibration

Designed to survive a 2 m natural fall onto concrete

##### Humidity

100%, condensing

##### Operation temperature

-30 C ~+70 C

##### Storage temperature

-40 C ~+80 C

#### I / O Interface

1 × USB port, Type C

1 × SMA antenna connector

#### Data Formats

##### Output rate

1Hz-20Hz.

##### Static data format

GNS, Rinex

##### Network model

VRS, FKP, MAC; supports NTRIP protocol

##### CMR& RTCM

CMR, RTCM 2.x, RTCM 3.0, RTCM 3.2

##### Navigation outputs ASCII

NMEA-0183



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\*Description and Specifications are subject to change without notice.

1.Compliant, but subject to availability of IRNSS and Galileo commercial service definition. Galileo E6 and IRNSS L5 will be provided through future product upgrade.



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



### Applications

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



### Handiness and Convenience

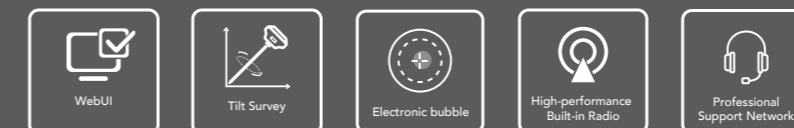
Refinement of design makes it rugged and compact with only 800g. A more durable battery ensures operating time reaches more than 12 hours. Durability and portability are optimized for surveyors who carry them around a lot in the fieldwork.

### 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.



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