



Headquarters:  
GEOSOLUTION I GÖTEBORG AB  
Stora Ävägen 21, 436 34 ASKIM,  
Sweden  
Regional Offices:  
Warsaw, Poland  
Jičín, Czech Republic  
Ankara, Turkey  
Scottsdale, USA  
Singapore  
Hong Kong, China  
Dubai, UAE

www.satlab.com.se



# FREYJA GNSS Receiver

## Data Specifications

|   |   |
|---|---|
| <b>GNSS</b><br>Signal Tracking <sup>①</sup>   | GPS (L1C(A) / L1C / L2P(Y) / L2C / L5)<br>BDS (B1I / B2I / B3I / B1C / B2a / B2b)<br>GLONASS (L1 / L2 / L3*)<br>GALILEO (E1 / E5A / E5B / E6)<br>QZSS (L1 / L2 / L5 / L6*)<br>IRNSS (L5)<br>SBAS (L1 / L2 / L5)   |
| <b>No. of Channels</b>  | 1408  |
| <b>POSITIONING PERFORMANCE</b><br><b>High-precision static GNSS Surveying</b><br><b>Static and Fast Static</b><br><b>Post Processing Kinematic</b><br>(PPK / Stop & Go) | H:2.5 mm + 0.1 ppm RMS / V:3.5 mm + 0.4 ppm RMS<br>H:2.5 mm + 0.5 ppm RMS / V:5 mm + 0.5 ppm RMS<br>H:8mm + 1 ppm RMS / V:15 mm + 1 ppm RMS<br>Initialization time: Typically 10 min for base and 5 min for rover<br>Initialization reliability: Typically>99.9%  |
| <b>Code Differential GNSS Positioning</b>   | H:±0.25m+1ppmRMS / V:±0.5m+1ppmRMS<br>SBAS:0.5m(H), 0.85m(V)  |
| <b>Real Time Kinematic (RTK)</b>  | H:8 mm+1ppm RMS / V:15 mm+1 ppm RMS<br>Initialization time: Typically <10 s<br>Initialization reliability: Typically > 99.9%  |
| <b>Time to first Fix</b>  | Cold start:< 45 s   Hot start:< 30 s   Signal re-acquisition:< 2 s  |
| <b>Tilt Survey Performance</b>  | Additional horizontal pole-tilt uncertainty typically less than<br>8 mm +0.7 mm / °tilt (2.5 cm accuracy in the inclination of 60°)   |
| <b>COMMUNICATION</b><br><b>Communication</b>  | Bluetooth: BT 5.2, 2.4GHz<br>Wi-Fi: frequency 2.4 GHz, Supports 802.11a / b / g / n<br>Frequency: 410-470 MHz   Channel: 116 (16 scalable)<br>Transmitting power: 0.5 W / 1 W / 2 W adjustable<br>Supports multi-communication protocols: HI-TARGET,<br>TRIMTALK450S, TRIMMARK III, TRANSEOT, SATEL-3AS, etc.<br>Working range: 3~5km, optional 5~8km |
| <b>Internal UHF Radio</b>   |   |
| <b>PHYSICAL</b><br><b>Internal battery<sup>②</sup></b>  | Internal 7.2 V / 6900 mAh lithium-ion rechargeable battery.<br>RTK Rover (UHF/Cellular): up to 24 hours*  |
| <b>External power</b>   | Charging:using standard smartphone chargers or external<br>power banks.<br>Weight:770g (includes battery)<br>Dimensions (W×H):132mm×67mm<br>Data storage:8GB ROM internal storage   |
| <b>Control Panel</b><br><b>LED Lamp</b><br><b>Physical button</b>   | Satellite, Signal, Power<br>1   |
| <b>Environment</b><br><b>Water / Dustproof</b><br><b>Shock and vibration</b><br><b>Humidity</b><br><b>Operation temperature</b><br><b>Storage temperature</b>           | IP68<br>Designed to survive a 2 m natural fall onto concrete<br>100%, condensing<br>-45 C ~+75 C<br>-55 C ~+85 C  |
| <b>I / O Interface</b><br><b>1 × USB port, Type C</b><br><b>1 × SMA antenna connector</b>   |   |
| <b>Data Formats</b><br><b>Output rate</b><br><b>Static data format</b><br><b>Network model</b><br><b>CMR&amp; RTCM</b><br><b>Navigation outputs ASCII</b>               | 1Hz-20Hz.<br>GNS, Rinex<br>VRS, FKP, MAC; supports NTRIP protocol<br>CMR, RTCM 2.x, RTCM 3.x<br>NMEA-0183   |

\*Description and Specifications are subject to change without notice.  
1.Compliant, but subject to availability of IRNSS and Galileo commercial service definition. QZSS L6 and GLONASS L3 will be provided through future product upgrade.  
2.The battery operating time is related to the operating environment, operating temperature and battery life.




# FREYJA GNSS Receiver






*SatLab Freyja FR20 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 FR20 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.