

# SX-NSR

GNSS Navigation Software Receiver



## GNSS Navigation Software Receiver

SX GNSS Solutions for the Scientific Community

GPS & SBAS  
Galileo  
GLONASS  
**GNSS**

Software based  
signal  
processing  
**Flexibility**

Scientific  
signal analysis  
R & D  
**Applications**

The SX-NSR multi-GNSS Navigation Software Receiver supports the major GNSS (GPS, Galileo, GLONASS and SBAS) in real-time with the NavPort RF front-end. With the integrated barometer sensor and the capability to synchronize an external IMU / magnetic sensor, also advanced sensor fusion applications are supported.

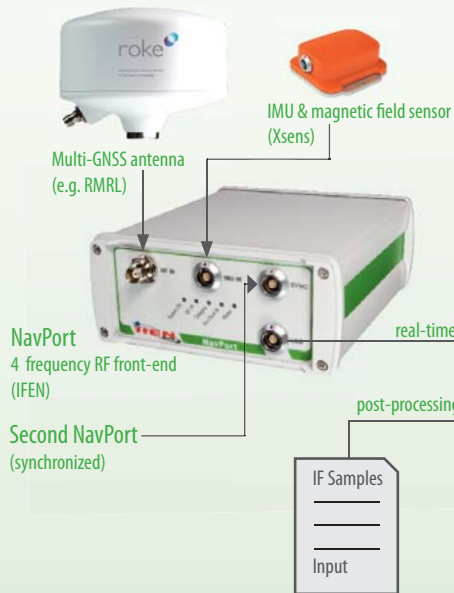
The signal processing is highly flexible, being completely implemented in software. With a SW licensing scheme, GNSS signal capabilities can be unlocked according to the individual needs. This enables signal processing configurations beyond current receiver technology. The user can also insert new customer specific processing functions using the SW-APIs.

With this GNSS software receiver, a flexible and customizable tool is available for the scientific GNSS community. The SX-NSR supports the major GNSS signals making it an indispensable tool for sophisticated signal analysis, such as the evaluation of ionospheric scintillation monitoring, multipath, reflectometry and interference.

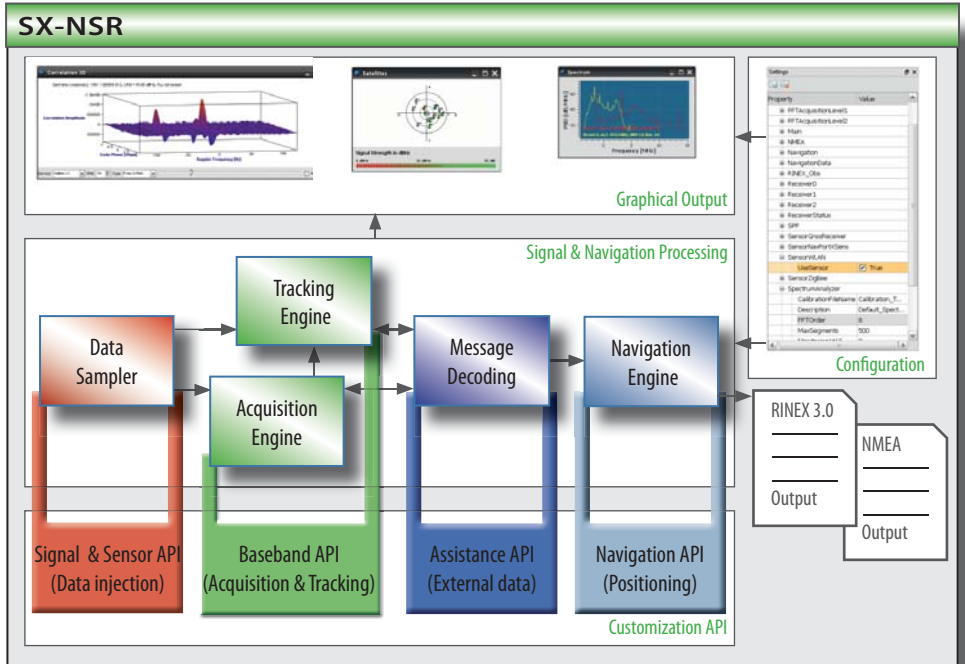
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## Architecture



The SX-NSR is a modular multi-GNSS software receiver, with superior flexibility and performance. Whether processing the NavPort RF front-end data stream in real-time or post-processing of IF samples from storage, the SX-NSR masters both.



SX-NSR Software Receiver

## Features

### Signal Capability

- GPS L1, L2P & L2C, L5 and SBAS
- Galileo E1, E5a, E5b and E6
- GLONASS G1, G2

### Flexible and Extendible

- Real-time and post-processing capabilities
- GNSS signal capability flexibility by SW license
- API access to all receiver engines (acquisition, tracking, positioning, sensor data, assistance) for user provided extensions
- A second NavPort RF-FE can be synchronized

### Applications

- Scientific applications (e.g. GNSS signal reflectometry, ionosphere scintillation)
- Multipath and spoofing signal evaluation
- Interference monitoring
- Weak signal investigation
- Sensor fusion (barometer, magnetometer, IMU)
- GNSS heading and dual-tracking applications

## Specification

### Performance

- NavPort: 4 RF bands simultaneously
- NavPort RF bandwidth: 15 MHz
- Real-time channels: 12 - 20 per CPU core
- Measurement rate: up to 25 Hz
- Measurement latency: < 70 ms
- Acquisition sensitivity: 19 dBHz
- Tracking sensitivity: 10 dBHz
- Code accuracy: < 20 cm
- Carrier accuracy: < 1 mm
- Mean TTFF: < 1 s with ephemeris & position < 10 s with ephemeris < 55 s cold
- Maximum velocity: 515 m/s

### Hardware

- Min. system requirements: 2 GB RAM, SSSE3 capable processor
- Available with notebook: 3 GB RAM, INTEL Core

### Software

- Supported operating systems: Windows XP and Windows 7
- Configuration and control SW: Local GUI or remote via TCP/IP

### Interfaces

- Real-time I/F from NSR to NavPort: USB 2.0
- Reading of IF-samples for post-processing: From file
- Additional data sources: External IMU/magnetometer sensor, internal barometer
- Output format: RINEX, NMEA and proprietary ASCII logs

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Disclaimer:  
All specifications subject to  
change without prior notice

