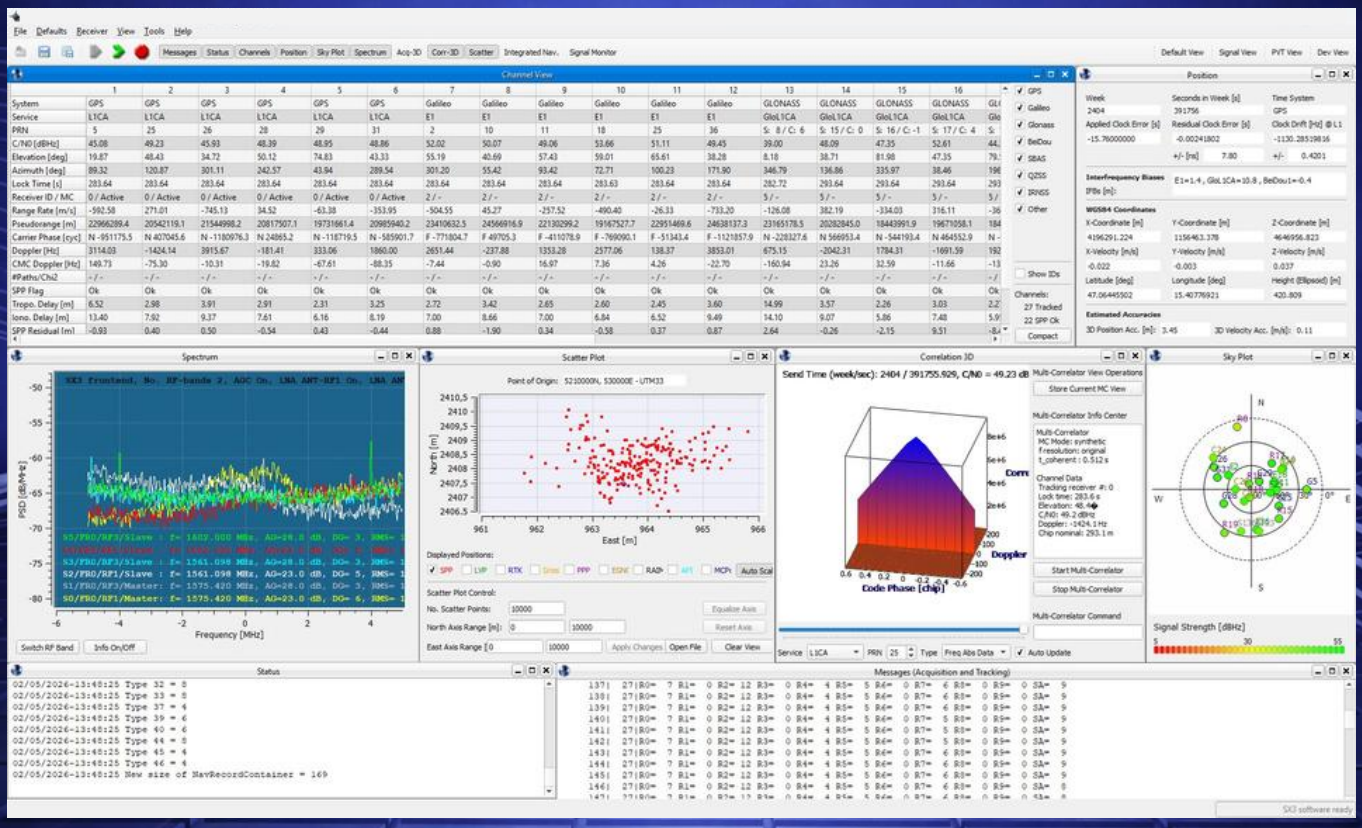
# VELQR
# GNSS R&D Software Receiver



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# Specification

| VELQR Platform Type | VELQR -1 RF | VELQR -2 RF |
|---|---|---|
| RF Front-End | 1 RF-input<br>4 RF bands (L- and S-band)<br>RF bandwidth 50 MHz | 2 RF inputs,<br>4 RF bands (2 bands per input), L- and S-band<br>RF bandwidth 50 MHz |
| Processing Unit | Intel® Core i7-4790 or higher processor, 64-bit Microsoft Windows 10/11 operating system | |
| IF Sample Rates | Selectable: 5, 10 (standard), 20, 25, 50, 100 MSamples | |
| Signal Channels | Depending on selected processing modes and options<br>Reference station mode: up to 300 real-time channels, GPU-based signal acquisition<br>Configurable multi-correlator setup (for signal quality monitoring, scintillation) | |
| GNSS Signals | Galileo E1 (I/NAV, OSNMA, SAR/RLS), E5a, E5b, E5ab (Meta Signal Processing), E6<br>GPS L1 CA & L1C, L2P & L2C, L5<br>BeiDou B1I & B1C, B2I & B2a, B3I<br>GLONASS L1, L2<br>NavIC L1, L5, S<br>QZSS L1, L2, L5<br>SBAS L1 | |
| Signal Processing | Real-time Processing,<br>Post-Processing (IF samples from file)<br>Scalar tracking, Vector tracking | Real-time Processing,<br>Post-Processing (IF samples from file)<br>Scalar tracking, Vector tracking, Heading, Reflectometry |
| Code Accuracy | < 20 cm (typical) | |
| Carrier Accuracy | < 1 mm | |
| TTFF | < 1 s (with position and ephemeris), < 10 s (with ephemeris), < 55 s cold start | |
| Measurement Rate | Up to 25 Hz | |
| Measurement Latency | < 70 ms | |
| Acquisition Sensitivity | 19 dBHz | |
| Tracking Sensitivity | 10 dBHz | |

# Specification

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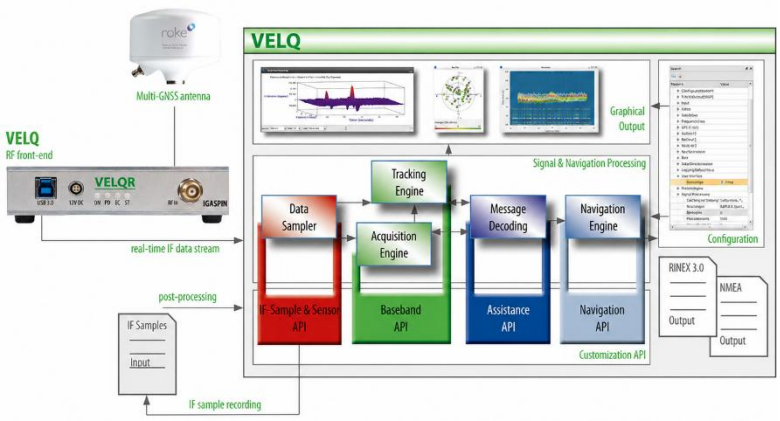
|---|---|
| Develop your own applications with the VELQR programming APIs | Baseband API,<br>Navigation API,<br>Sensor API,<br>IF Sample API,<br>Assistance API<br>  |
| Output Formats | RINEX, NMEA and proprietary ASCII logs |
| Interfaces from RFFE to Computer | USB 3.0 |
| External Connectors | 10 MHz in/out, 1-pps out, 1 trigger-in |
| Active Antenna Support | 5 V / 150 mA per antenna |
| Integrated Sensors, External Sensors | Barometer (internal), interface to Xsens IMU, interface to WLAN |
| Operating Limits | < 600 m/s velocity<br>< 18.000 m height |
| Temperature | 0° C to + 50° C |
| Enclosures | <br> |