Small Satellite GNSS Receiver

The Small Satellite GNSS receiver is one of the high quality products that offer a solution for cost effective applications. The receiver uses GPS and Galileo signals to calculate the position of the spacecraft within 3.5 meter 3D. The receiver performs fast acquisition providing a navigation solution within 4½ minutes after power on autonomously without guidance and within 60s after a warm start.

Key Features
- Multiconstellation single frequency receiver optimized for low earth orbit
- Tracks signals from GPS L1 and Galileo E1 and provides position, velocity and time
- No configuration needed
- Possible to use with and without external LNA
- 1-3 Antenna inputs

Specification
- Better than 3.5m RMS 3D position accuracy
- Better than 0.1 m/s RMS 3D velocity accuracy
- PPS Time error < 1μs RMS
- Time to first fix:
  - 60 s warm start
  - 4½ min cold start
- Communication: UART, SpaceWire or CAN
- PPS output
- Less than 10W
Data Products
- Navigation solution based on GPS & Galileo Constellations
  - Position
  - Velocity
  - Time
- Navigation solution update rate 1Hz or 10Hz.
- PPS output synchronized with GPS/Galileo second
- Support Data
  - Tracking State
  - Geometric Dilution of Precision
  - Carrier to noise (C/N0) for each tracked signal

Budgets
- Size (W x D x H): 175 x 110 x 65 mm incl. feet
- Power consumption: < 10 W
- Mass: 0.8 kg

Environment
- Operating temperature: -30º C to +60º C (qualification level)
- Minimum switch-on temperature: -40º C (qualification level)
- All memories with error correction codes
- Sustains total dose up to 10 years in low earth orbit

Interfaces
SMA connector
- GNSS RF Interface
DSUB connectors
- Power supply 19-38 Vdc
- PPS RS422 output
- UART RS422 interface

Options
- Supply for external LNA
- LNA
- Antenna

RUAG Space Heritage
- Extensive heritage in GNSS receivers and radio occultation instruments. GNSS receivers in orbit since 2006
- >70 GNSS navigation receivers for satellites
- >3000 failure free equipment years in orbit
- >300 Launcher On-Board Computers
- >120 Satellite Data Handling Systems

Photo of passive antenna