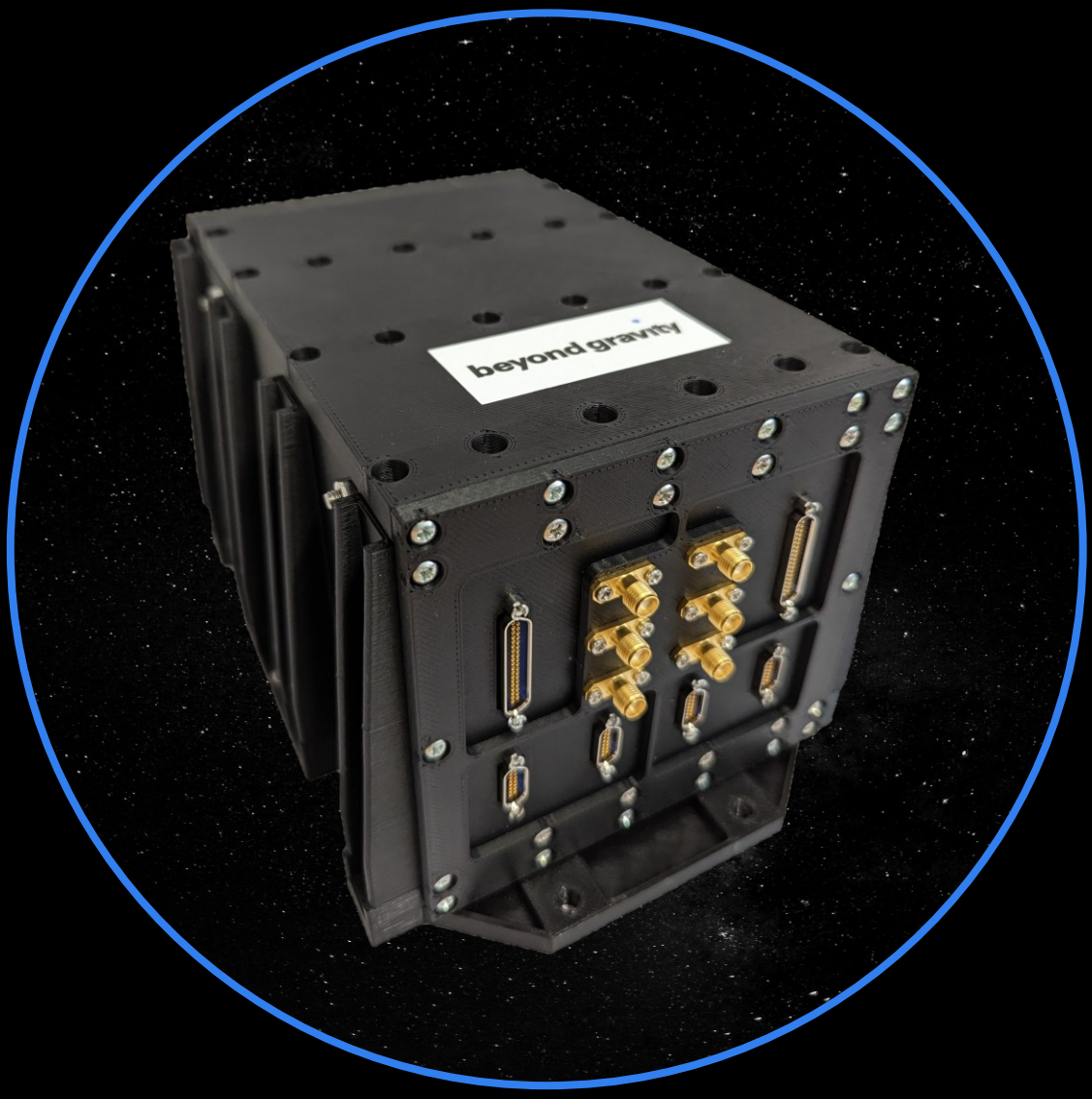
beyond gravity



FoX NavRIX PinPoint GNSS Receiver

FoX NavRIX PinPoint, Beyond Gravity's cost-efficient, redundant, multi-constellation (GPS, Galileo), multi-frequency GNSS receiver for commercial LEO, MEO, GEO & cis-lunar missions provides an outstanding on-board real-time navigation performance with accuracy below 20 cm. It is specifically designed for use in harsh space environments also for mission durations > 10 years. Due to its SDR design the receiver provides the maximum amount of resilience, availability, and flexibility.

Key Features

- The NavRIX Pinpoint receivers rely on BG's proven space heritage and are designed for space environments and long lifetimes, providing the highest fault tolerance and availability in the radiation environment encountered in orbit.
- Flexible Software Defined Radio design with all BG heritage building blocks unified in a single product allows adaption to the needs and requirements of different constellations or future missions even after launch.
- Outstanding position, velocity & timing performance of under 20cm 3D rms, < 1 mm/s, and < 5 ns rms applying Precise Point Positioning (PPP) technique (option)
- Highest availability in flight due to active mitigation of radiation effects in the design reducing performance outages to the bare minimum.
- The advanced dynamically filtered navigation solution implemented guarantees resilience and allows also for outstanding positional and timing performance even during periods of GNSS outage.

Supported Signals

- GPS L1 C/A
- GPS L5 I/Q
- GPS L2C
- Galileo E1 B/C
- Galileo E5a I/Q
- Galileo E6

Time-to-first fix

- Warm start typ. < 60 s
- Cold start typ. < 60 s

Performance

- Position 3D rms < 0.2m (PPP)
- Velocity 3D rms < 1 mm/s (PPP)
- Time 1 sigma < 5 ns (PPP)

Data Products

- Navigation solution based on multi-frequency and dual-constellation (GPS/Galileo) measurements
- Up to 2 independent PPS signals synchronized to GPS/Galileo
- Carrier & Code phase measurements for each tracked signal
- Support Data:
  - Tracking state
  - GDOP
  - Carrier to noise (C/N0) measurement of each tracked signal
  - Noise measurements of each RF down conversion chain
  - Satellites in view status
  - Satellite navigation message

Interfaces (per redundant half)

- 2 antenna inputs
- TC/TM: UART (RS-422)
- 2 PPS outputs (RS-422)
- Primary power input 28 V unregulated (on/off command or autostart upon power application)
- Up to 2 External clock inputs (opt)

Physical / environment

- Full internal redundancy ("two receivers in a box")
- Size (incl. feet): 210x155x112 mm^3 (8.3" x 6.1" x 4.4")
- Weight: 3.6 kg (7.9 lbs)
- Operating temperature: -20° C to +60° C
- Total Ionisation Dose (TID) allows >10 years in LEO
- Power consumption: 10 W avg

Program / heritage

Beyond Gravity has delivered more than 100 flight models of GNSS receivers to customers in Europe, USA, Middle East and Asia.
Some example missions:

- SWARM (ESA)
- Sentinel-1, Sentinel-2 and Sentinel-3 A/B (Copernicus)
- Sentinel-1, Sentinel-2 and Sentinel-3 C/D
- Sentinel-6/Michael Freilich A/B (NASA/ESA)
- EarthCare (ESA/JAXA)
- ICESat-2 (NASA)
- PACE (NASA)
- OSAM-1 (NASA)
- Biomass (ESA)
- FLEX (ESA)
- KOMPSAT-6,-7 (KARI)
- CAS-500 (KARI/KAI)
- SWF-M (Ball Aerospace)

Contact our sales team for more information:
hilmar.pirker@beyondgravity.com