

Applanix POS AVX 610 RTX

CenterPoint RTX powered GNSS-Inertial solutions for reliable, efficient and high-accuracy mapping

The Applanix® POS AVX 610 RTX represents the latest, most advanced GNSS-Inertial technology, engineered to deliver unparalleled precision and significantly enhance the efficiency of mapping operations. This flagship solution functions seamlessly in both real-time and post-processed environments. It is particularly optimized for high-altitude and endless corridor flying, making it the ideal choice for the most advanced airborne LiDAR systems. Its paramount objective is to significantly reduce operational costs by minimizing reliance on ground infrastructure, thereby maximizing overall airborne mapping productivity.

This GNSS-Inertial solution with Trimble® CenterPoint® RTX, the Applanix POS AVX 610 RTX is designed for exceptionally reliable, efficient, and high-accuracy mapping. This state-of-the-art system is housed within a single, robust enclosure, integrating a high-precision dual GNSS receiver and leveraging an external inertial sensor unit, specifically the IMU Type 57. It includes advanced data logging capabilities and provides comprehensive interface support for various airborne mapping sensors and flight management systems.

The Applanix POS AVX 610 RTX is fully supported by Applanix POSPac™ Complete, our powerful, factory-enabled GNSS-Inertial processing software, featuring the advanced Applanix IN-Fusion®+ with PP-RTX technology for supreme productivity.

Cost effective and high performance

The Applanix POS AVX 610 RTX offers the most advanced Direct Georeferencing approach for superior efficiency and the highest accuracy in airborne mapping. By utilizing POSPac Complete, it delivers significant operational advantages:

- Mapping without a base station
- Supporting complex sensor payload calibration
- Enabling optimized sidelap for extensive coverage in demanding projects



Key Features

- **Optimal Productivity:**
Significantly boost operational efficiency by minimizing reliance on ground infrastructure and reducing or eliminating the need for Ground Control Points (GCPs).
- **Centimeter-Level Accuracy:**
Achieve uncompromised real-time and post-processed centimeter-level position accuracy with high-accuracy orientation, powered by Trimble RTX® technology.
- **Integrated Applanix IN-Fusion+:**
Leverage advanced GNSS-Inertial integration with Applanix SmartCal™ compensation for superior position and orientation.
- **Seamless Workflow:** Supported by Applanix POSPac Complete, the industry-leading software for Direct Georeferencing.
- **Out-of-the-Box Ready:**
Includes a 1-year factory-enabled real-time Trimble CenterPoint RTX and POSPac Complete service, allowing for immediate mapping operations without additional licenses.

Applanix POS AVX 610 RTX

CenterPoint RTX powered GNSS-Inertial solutions for reliable, efficient and high-accuracy mapping

TECHNICAL SPECIFICATIONS

- Advanced Applanix IN-Fusion+ GNSS-Inertial integration technology
- Onboard Solid-state MEMS inertial sensors with Applanix SmartCal compensation technology
- Advanced Trimble Maxwell™ Custom GNSS survey technology with 2 × 336 tracking channels
- Primary Antenna
 - GPS: L1 C/A, L2C, L2E, L5
 - GLONASS: L1 C/A, L2 C/A, L3 CDMA
 - BeiDou: B1, B2, B3
 - Galileo: E1, E5A, E5B, E5AltBOC, E6⁶
 - IRNSS: L5
 - QZSS: L1 C/A, L1S, L1C, L2C, L5, LEX
 - SBAS: L1 C/A, L5
 - MSS L-Band: Trimble RTX
- Secondary Antenna:
 - GPS: L1 C/A, L2C, L2E, L5
 - GLONASS: L1 C/A, L2 C/A, L3 CDMA
 - BeiDou: B1, B2, B3
 - Galileo: E1, E5A, E5B, E5AltBOC, E6⁶
 - IRNSS: L5
 - QZSS: L1 C/A, L1S, L1C, L2C, L5, LEX
 - SBAS: L1 C/A, L5
- High-precision multiple correlators for GNSS pseudorange measurements
- Unfiltered, unsmoothed pseudorange measurements data with low noise, low multipath error, low time domain and high dynamic response
- Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Proven Trimble low elevation tracking technology
- Real-time GNSS Trimble RTX positioning mode (1-year license included)
- Real-time 100 Hz position, attitude output, 200 Hz IMU data rate logging
- Gimbal support with yaw drift correction included
- External IMU support (IMU Type 57)
- Two antenna GNSS heading support for low-speed and hovering applications included
- Navigation output format: ASCII (NMEA-0183), binary (Trimble GSOF)
- RTK license support for Reference Inputs CMR, CMR+, sCMRx, RTCM 2.1, 2.2, 3.0, 3.1, 3.2, sold separately
- Supported by POSpac Complete (1-year license included)
- No export permit required

LAN INPUT/OUTPUT

All Ethernet functions are supported through dedicated IP address (static or DNS) simultaneously including web-based control GUI access and real-time data streaming TCP/IP and UDP

HTTP

ASCII and Binary data streaming (Time tag, PPS sync, position, attitude, velocity, track and speed, dynamics, performance metrics, GNSS data), configuration messages, Gimbal support
Web based Control software (GUI) for easy system configuration and low rate display. Support for all common browsers (IE, Safari, Mozilla, Google Chrome, Firefox)

SERIAL INPUT/OUTPUT

RS232 ports (baud rates up to 460,800)

Parameters ASCII and Binary data streaming (Time tag, PPS track and speed, dynamics, performance metrics, GNSS data), reference input (CMR, CMR+, sCMRx, RTCM), configuration messages, Gimbal support

OTHER INPUT/OUTPUT

PPS (pulse-per-second) Time synchronization
Event Input (2) Two-time marks for external events, TTL 3.3V, 50 Hz max rate
Strobe Output (1) Programmable camera trigger, TTL 3.3V
Status LEDs (4) Operator indicators of the system status
External IMU Interface Dedicated lines for remote IMU connection (model dependent)

LOGGING

Internal Logging 6 GB flash memory
External Logging⁸ Over dedicated (user configurable) Ethernet port,
Parameters Time tag, status, position, attitude, velocity, track and speed, dynamics, performance metrics, raw IMU data (200 Hz), raw GNSS data (5 Hz)

PERFORMANCE SPECIFICATIONS¹ (RMS ERROR) AIRBORNE

	SPS	SBAS ³	RTX ⁴	POSPAC COMPLETE ⁵
Position (m)	1.5 H 3.0 V	0.50 H 0.85 V	0.03 H 0.06 V	0.02 H 0.03-0.05 V
Velocity (m/s)	0.030	0.030	0.010	0.005
Roll & Pitch (deg)	0.005	0.005	0.003	0.0025 ⁹
True Heading ² (deg)	0.030	0.025	0.010	0.005

SYSTEM SPECIFICATION

PCS (POS Computer System)

Size 185 L × 93 W × 43 H mm (nominal)
Weight..... 0.82 kg
Power Wide range input 9-30 V DC,
typical power consumption of 20W max
Connectors I/O: DA26 and DA15
Antenna (2): TNC (Female)
GNSS Antenna AV39⁷

INERTIAL MEASUREMENT UNITS (IMU)

TYPE	RANGE	TEMPERATURE ⁶	SIZE (L × W × H) mm	WEIGHT (kg)
External IMU-57	+/-10 g +/-490 dps	-25 °C to +60 °C	179 × 126 × 127 (in tophat provided)	2.6

ENVIRONMENTAL CHARACTERISTICS

Temperature..... -40 °C to +75 °C (Operational)
-55 °C to +85 °C (Storage)
Mechanical Shock +/- 75 g Survival
Operating Humidity 5% to 95% R.H. non-condensing at +60 °C
Maximum Operating Limits..... 515 m/sec
18,000 m

ADDITIONAL ACCESSORIES

Cables I/O and antenna cables included

- Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects.
- Typical survey mission profile, max RMS error. The heading error will increase for low-speed rotor applications and when hovering.
- Subject to regional coverage.
- Real-time Trimble CenterPoint RTX correction service typical airborne results subject to regional coverage. First year service included. Renewals sold separately.
- Post-Processed with Applanix POSpac Complete includes (Post-processed RTX, Single and Applanix SmartBase™). Factory enabled first year service included. Renewals sold separately.
- Temperature performance range subject to Applanix SmartCal, the system operational outside of the range with possible reduced accuracy.
- Single antenna included, additional antenna for GAMS operation sold separately.
- Requires client software, not included.
- May require local gravity model to achieve the full accuracy.

Specifications subject to change without notice.

APPLANIX

Canada:
85 Leek Crescent,
Richmond Hill,
ON Canada L4B 3B3
T+1-289-695-6000

United Kingdom:
Forester's House,
Old Racecourse,
Oswestry UK SY10 7PW
T+44-1691-700500

USA:
15840 FM 529 Rd, Suite 316,
Houston, Texas, 77095
T+1-713-936-2990