DATASHEET

Applanix POS AVX 210 RTX

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

Introducing the Applanix® POS AVX 210 RTX, the latest GNSS-Inertial solution engineered for maximum efficiency and precision of airborne mapping. This state-of-the-art system delivers unparalleled accuracy in both real-time and post-processed environments, making it ideal for projects deploying small and medium format cameras and low-altitude LiDAR sensors. Experience a dramatic reduction in operational costs and significantly enhanced airborne mapping productivity by virtually eliminating the need for ground infrastructure.

The POS AVX 210 RTX is housed within a single, robust enclosure, integrating a high-precision dual GNSS receiver, an embedded inertial sensor unit (IMU Type 79), and advanced data logging capabilities. It offers comprehensive interface support for seamless integration with airborne mapping sensors and flight management systems.

Powering this innovative hardware is Applanix POSPac™ Complete, our 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 210 RTX delivers an advanced Direct Georeferencing solution, significantly improving the efficiency and accuracy of mapping operations for small and medium format digital cameras and low-altitude LiDAR sensors. This powerful solution, leveraging POSPac Complete, provides substantial operational advantages, including:

- Mapping without the need for a base station
- Streamlined camera payload calibration
- Reduced or eliminated Ground Control Points (GCPs)
- Optimized workflows with reduced sidelap

Key Features

- **Optimal Productivity**: Boost efficiency by minimizing reliance on ground infrastructure and reducing or eliminating 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 correction service and POSPac Complete post-processing service for immediate mapping.

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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, E6[6]
  - 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, E6[6]
  - 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
- Internal OnBoard IMU (IMU Type 79).
- 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
- Applanix POSPac Complete post-processing (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	ASCII and Binary data streaming (Time tag, PPS sync, status, position, attitude, velocity, track and speed, dynamics, performance metrics, GNSS data)
HTTP	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 Logging[8]	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 SPECIFICATIONS[1] (RMS ERROR)
NO GNSS OUTAGES, STANDARD ROAD VEHICLE DYNAMICS

	SPS	SBAS[3]	RTX[4]	POSPAC COMPLETE[5]
Position (m)	1.5 H	0.5 H	0.03 H	0.02 H
	3.0 V	0.85 V	0.06 V	0.03-0.05 V
Velocity (m/s)	0.050	0.050	0.050	0.015
Roll & Pitch (deg)	0.040	0.035	0.030	0.025
True Heading[2] (deg)	0.150	0.130	0.010	0.08

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	AV39[7]

INERTIAL MEASUREMENT UNITS (IMU)

TYPE	RANGE	TEMPERATURE[6]	SIZE (L × W × H) mm	WEIGHT (kg)
Internal Onboard IMU-79	+/-6 g +/-350 dps	-25 °C to +60 °C	n/a	n/a

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

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

Specifications subject to change without notice.

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