DATASHEET

Applanix POS AV 610

Immediate answers from airborne direct georeferencing

Applanix® POS AV® 610 is the foremost commercial GNSS-Inertial solution for airborne direct georeferencing. Used with digital cameras, film cameras, LiDAR systems, SAR systems and digital scanners, POS AV 610 precisely measures aerial sensor position and orientation hundreds of times each second, accounting for all motion variables at the exact moment of data capture. In real time or refined in post-processing with the highly productive Applanix POSPac™ Mobile Mapping Suite (MMS) software, data is used to accurately georeference sensor data to the Earth or local mapping frame without ground information, eliminating time-consuming aerotriangulation steps. POS AV 610 is ideally suited to support precision mapping work, especially in inhospitable environments and in rapid response capacities where ground control data may be unavailable or physically impossible to collect.

POS AV 610 integrated precision GNSS with inertial technology is supported by Applanix industry leading expertise and a continuous dedication to technological innovation. Offering a streamlined and automated data workflow with built-in quality control features, POS AV 610 improves productivity in all aerial mapping applications.

As Applanix is a Trimble® Company (NASDAQ: TRMB), POS AV 610 is unique in the marketplace with its ability to receive the Trimble CenterPoint® RTX Correction Service. Using Trimble RTX® correction service, POS AV 610 delivers significant benefits including higher accuracy and speed, lower cost, more uptime and greater reliability.

Key Features

- High-performance, survey-grade multi-frequency GNSS receiver
- Compact, low-power, lightweight, rugged construction
- High-performance, low profile FAA certified GNSS-L Band antenna
- Full in-air alignment support
- Embedded Trimble OmniSTAR® SBAS correction service
- CenterPoint RTX correction service available
- Simple to use and operate with auto-log and auto-start functions
- POSPac MMS post-processing software bundle includes Carrier Phase DGPS processing, Integrated Inertial/GNSS processing, and optional photogrammetry tools for EO generation, IMU boresight calibration and quality control

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PERFORMANCE SPECIFICATIONS

APPLANIX POS AV ABSOLUTE ACCURACY SPECIFICATIONS[1] (RMS)				
APPLANIX POS AV	610 SPS	610 RTX[3]	610 PP-RTX[4 5]	610M SMARTBASE POST-PROCESSED[4]
Position (m)	1.5 H	0.05 H	0.03 H	0.02 H
	3 V	0.1 V	0.06V	0.05 V
Velocity (m/s)	0.030	0.030	0.005	0.005
Roll & Pitch (deg)	0.005	0.005	0.0025[6]	0.0025[6]
True Heading[2] (deg)	0.030	0.020	0.005	0.005

APPLANIX POS AV RELATIVE ACCURACY	
APPLANIX POS AV	610
Noise (deg/sqrt(hr))	0.005
Drift (deg/hr)[7]	< 0.010

SYSTEM SPECIFICATIONS

COMPUTER SYSTEM					
COMPONENT	DIMENSIONS (L × W × H) mm	WEIGHT (kg)	POWER (incl IMU)	TEMPERATURE	ALTITUDE[8] (m)
PCS Standard	169 × 186 × 68	2.4	18-34 Vdc, 59 W Max	-20 °C to +55 °C	0 to 7,620

INERTIAL MEASUREMENT UNIT (IMU)				
TYPE	RANGE	DIMENSIONS (L × W × H) mm	OPERATIONAL TEMPERATURE	WEIGHT (kg)
IMU-57[9]	+/- 10g, +/- 490 dps	179 × 126 × 127	-40 °C[10] to +55 °C	2.6

GLOBAL NAVIGATION SATELLITE SYSTEM (GNSS)		
OPTION	SIGNALS	DATA RATE
GPS-19	GPS:L1 C/A, L2C, L2E, L5 GLONASS : L1 C/A , L2 C/A, L3 CDMA[11] GALILEO: E1, E5A, E5B, E5AltBOC, E6[11] BeiDou: B1, B2, B3[12] QZSS: L1 C/A, L1S,L1C, L2C, L5,LEX IRNSS: L5 SBAS: L1 C/A and L5 MSS L-Band: Trimble CenterPoint RTX	5 Hz (raw)

ETHERNET INPUT/OUTPUT

Parameters ..... Time tag, status, position, attitude, velocity, track and speed, dynamics, performance metrics, raw IMU data (at IMU rate), raw GNSS data
Display Port ..... Low rate (1 Hz) UDP protocol output
Control Port ..... TCP/IP input for system commands
Primary Port ..... Real-time (up to 200 Hz) TCP/IP protocol output
Secondary Port ..... Buffered TCP/IP protocol output for data logging to external device

LOGGING

Parameters ..... Time tag, status, position, attitude, velocity, track and speed, dynamics, performance metrics, raw IMU data (at IMU rate), raw GNSS data
Media ..... External: Removable 8 Gbyte Flash Disk (2 supplied)
Internal: Embedded 4 Gbyte Flash Disk for redundant logging

RS232 NMEA ASCII OUTPUT

Parameter ..... NMEA Standard ASCII messages: Position ($INGGA), Heading ($INHDT), Track and Speed ($INVTG), Statistics ($INGST)
Rate ..... Up to 50 Hz (user selectable)

RS232 HIGH RATE BINARY OUTPUT

Parameter ..... User selectable binary messages: Time, position, attitude, speed, track, PAV30 output, Yaw Drift Correction
Rate ..... Up to IMU Data Rate (user selectable)

RS232 INPUT INTERFACES

Parameter ..... Gimbal encoder input, AUX GPS Input (RTK, NavCom RTCM104 DGPS Corrections Input
Rate ..... 1 to IMU Data Rate

OTHER I/O

1PPS ..... 1 pulse-per-second Time Sync output, normally high, active low pulse
Event Input (6) ..... Six time mark of external events. TTL pulses > 1 ms width, max rate 100 Hz

USER SUPPLIED EQUIPMENT

PC for Applanix POS Controller and Operator Client Software

- Atom 1.6 GHz or equivalent (minimum)
- Intel Graphics media accelerator 500 or equivalent (minimum)
- 2 GB RAM, 32 GB HDD (minimum)
- Ethernet adapter (RJ45 100 base T), USB Port
- Windows® 7

PC for Mission Planning and optional Applanix POSPac Post-processing

- Pentium 4 (32 bits) at 2 GHz or equivalent (recommended minimum)
- 1 GB RAM, 100 GB Free disk space (recommended minimum)
- 2 × USB 2.0 ports for security keys
- Internet Access (for installation, DEM download, optional Applanix SmartBase™ processing
- Windows 7

1 Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects
2 Typical mission profile, max RMS error
3 Trimble RTX, typical airborne results, subject to regional coverage. Subscription sold separately
4 POSPac MMS
5 Post-processed CenterPoint RTX, typical mission performance. Subscription sold separately
6 May require local gravity model to achieve full accuracy
7 Attitude will drift at this rate up to a maximum error defined by absolute accuracy in table above
8 Unpressurized operation
9 These IMUs are exportable worldwide subject to statutory export declarations, and standard restrictions relating to certain international destinations. Contact your Applanix representative for further information
10 IMU must be at -20 °C or higher at power-on
11 There is no official version GLONASS L3CDMA or Galileo E6 ICD. The current tracking capability is based on publicly available information. Full receiver compatibility cannot be guaranteed
12 The firmware of this product is designed for BeiDou B3 compatibility (trial version) and its firmware will be enhanced to fully support such new signal as soon as official ICD becomes available

Specifications subject to change without notice.

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