



POS AV 610

IMMEDIATE ANSWERS FROM AIRBORNE DIRECT GEOREFERENCING

POS AV 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 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 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 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 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 improves productivity in all aerial mapping applications.

As Applanix is a Trimble Company (NASDAQ: TRMB), POS AV is unique in the marketplace with its ability to receive the Trimble CenterPoint RTX Correction Service. Using RTX, POS AV 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 Omnistar SBAS correction service
- ▶ Trimble 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



PERFORMANCE SPECIFICATIONS

POS AV Absolute Accuracy Specifications¹ (RMS)

POS AV	610 SPS	610 RTX ²	610 PP-RTX ^{4,5}	610 SmartBase Post-processed ⁴
Position (m)	1.5 H	< 0.1 H	0.03 H	0.02 H
	3 V	< 0.2 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

POS AV Relative Accuracy

POS AV	610
Noise (deg/sqrt(hr))	0.005
Drift (deg/hr) ⁷	< 0.010

SYSTEM SPECIFICATIONS

Computer System

Component	Dimensions (L x W x H) mm	Weight kg	Power (incl IMU)	Temperature c	Altitude ⁸ m
PCS Standard	169x186x68	2.4	18-34 Vdc, 59 W Max	-20 to +55	0 to 7620

Inertial Measurement Unit (IMU)

Type	Range	Dimensions (L x W x H) mm	Operational Temperature c	Weight kg
IMU-57 ⁹	+/- 10g, +/- 490 dps	179 x 126 x 127	-40 ¹¹ to +55	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 ¹² GALILEO ¹⁰ : E1, E5A, E5B, E5AltBOC, E6 ¹² BeiDou: B1, B2, B3 ¹³ 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 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 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 X USB 2.0 ports for security keys
- Internet Access (for installation, DEM download, optional SmartBase processing)
- Windows 7

¹Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects

²Typical mission profile, max RMS error

³Trimble RTX service, typical airborne results, subject to regional coverage. Subscription sold separately

⁴POSPac MMS

⁵Post-processed CenterPoint RTX, typical mission performance. Subscription sold separately

⁶May require local gravity model to achieve full accuracy

⁷Attitude will drift at this rate up to a maximum error defined by absolute accuracy in table above

⁸Unpressurized operation

⁹These IMUs are exportable worldwide subject to statutory export declarations, and standard restrictions relating to certain international destinations. Contact your Applanix representative for further information

¹⁰Developed under the License of European Union and European Space Agency

¹¹IMU must be at -20 deg C or higher at power-on

¹²There 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

¹³The 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