POS AV

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

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POS AV

PERFORMANCE SPECIFICATIONS

POS AV Absolute Accuracy Specifications[1] (RMS)

POS AV	310 SPS	310 RTX[3]	310 PP-RTX[4 5]	310 SmartBase Post-processed[4]
Position (m)	1.5 H	< 0.1 H	0.03 H	0.02 H
	3 V	< 0.2 V	0.06 V	0.05 V
Velocity (m/s)	0.05	0.05	0.010	0.010
Roll & Pitch (deg)	0.03	0.02	0.015	0.015
True Heading[2] (deg)	0.10	0.08	0.035	0.035

POS AV	410 SPS	410 RTX[3]	410 PP-RTX[4 5]	410 SmartBase Post-processed[4]
Position (m)	1.5 H	< 0.1 H	0.03 H	0.02 H
	3 V	< 0.2 V	0.06 V	0.05 V
Velocity (m/s)	0.050	0.050	0.005	0.005
Roll & Pitch (deg)	0.020	0.015	0.008	0.008
True Heading[2] (deg)	0.080	0.040	0.020	0.020

POS AV	510 SPS	510 RTX[3]	510 PP-RTX[4 5]	510 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)	0.050	0.050	0.005	0.005
Roll & Pitch (deg)	0.008	0.008	0.005	0.005
True Heading[2] (deg)	0.070	0.040	0.008	0.008

POS AV	610 SPS	610 RTX[3]	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	0.0050	0.0050
Roll & Pitch (deg)	0.005	0.005	0.0025[6]	0.0025[6]
True Heading[2] (deg)	0.030	0.020	0.0050	0.0050

POS AV Relative Accuracy

POS AV	310	410	510	610
Noise (deg/sqrt(hr))	0.15	< 0.10	0.02	0.005
Drift (deg/hr)[7]	0.50	0.50	0.10	< 0.01

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 7,620

[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 service, 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 require US government approvals for all exports, a Canadian export permit for all destinations outside the US, and may be subject to local export restrictions internationally. Contact your Applanix representative for further information

Inertial Measurement Unit (IMU)

Type	AV Model	Dimensions (L x W x H) mm	Operational Temperature c	Weight kg
IMU-42[10]	POS AV 310	120x120x120 (in tophat, provided)	-45 to +55	1.25
IMU-7[9] IMU-8[9]	POS AV 410 POS AV 510	95x95x107	-54 to +71	1.0
IMU-64[10]	POS AV 410	120x120x110 (in tophat, provided)	-45 to +55	1.25
IMU-80[10]	POSAV 510	161x120x126	-20 to +55	1.9
IMU-57[10]	POS AV 610	179x126x127	-40 to +55[11]	2.6
IMU-21[9]	POS AV 610	163x165x163	-40 to +70	4.49

Global Navigation Satellite System (GNSS)

Option	Signals	Data Rate
GPS-17	GPS: L1 C/A, L2C, L2E, L5 GLONASS : L1 C/A , L1 P, L2 C/A, L2 P GALILEO[12]: L1 BOC, E5A, E5B, E5AltBOC QZSS: L1 C/A, L1 SAIF, L2C, L5 SBAS: Simultaneous L1 C/A and L5 L-Band: OmniSTAR VBS, XP, HP and G2, Trimble CenterPoint RTX BeiDou: B1, B2	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 Ssoftware

- 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

[10] 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
[11] IMU must be at -20 °C or higher at power-on
[12] Developed under the License of European Union and European Space Agency

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Specifications subject to change without notice.

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