



POS AV™ SPECIFICATIONS

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, lower cost, more uptime and greater reliability.

PERFORMANCE SPECIFICATIONS

POS AV Absolute Accuracy Specifications¹ (RMS)

POS AV	310 SPS	310 RTX ³	310 RTX Post-Processed ⁴	310 SmartBase Post-Processed ⁴	410 SPS	410 RTX ³	410 RTX Post-Processed ⁴	410 SmartBase Post-Processed ⁴
Position (m)	1.5 H 3 V	<0.1 H <0.2 V	<0.1 H <0.2 V	<0.05 H <0.1 V	1.5 H 3 V	<0.1 H <0.2 V	<0.1 H <0.2 V	<0.05 H <0.1 V
Velocity (m/s)	0.05	0.05	0.010	0.010	0.050	0.050	0.005	0.005
Roll & Pitch (deg)	0.03	0.02	0.015	0.015	0.020	0.015	0.008	0.008
True Heading ² (deg)	0.10	0.08	0.035	0.035	0.080	0.040	0.020	0.020

POS AV	510 SPS	510 RTX ³	510 RTX Post-Processed ⁴	510 SmartBase Post-Processed ⁴	610 SPS	610 RTX ³	610 RTX Post-Processed ⁴	610 SmartBase Post-Processed ⁴
Position (m)	1.5 H 3 V	<0.1 H <0.2 V	<0.1 H <0.2 V	<0.05 H <0.1 V	1.5 H 3 V	<0.1 H <0.2 V	<0.1 H <0.2 V	<0.05 H <0.1 V
Velocity (m/s)	0.050	0.050	0.005	0.005	0.030	0.030	0.0050	0.0050
Roll & Pitch (deg)	0.008	0.008	0.005	0.005	0.005	0.005	0.0025 ⁵	0.0025 ⁵
True Heading ² (deg)	0.070	0.040	0.008	0.008	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) ⁶	0.50	0.50	0.10	< 0.01

SYSTEM SPECIFICATIONS

Computer System

Component	Dimensions (L x W x H) mm	Weight	Power	Temperature	Altitude ⁷
PCS Standard	169 x 186 x 68 (mm)	2.4 kg	18 – 34 Vdc, 59 W Max (including IMU)	-20 C to +55 C	0 to 7,620 m

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 and mission profile. Subscription sold separately.

⁴ POSpac MMS.

⁵ May require local gravity model to achieve full accuracy.

⁶ Attitude will drift at this rate up to a maximum error defined by absolute accuracy in table above.

⁷ Unpressurized operation

Inertial Measurement Unit (IMU)

Type	AV Model	Dimensions (L x W x H) mm	Operational Temperature	Weight
IMU-42 ⁹	POS AV 310	120 x 120 x 110 (in tophat, provided)	-20 °C to +55 °C	1.25 kg
IMU-7 ⁸ IMU-8 ⁸	POS AV 410 POS AV 510	95 x 95 x 107	-54 °C to +71 °C	1.0 kg
IMU-64 ⁹	POS AV 410	120 x 120 x 110 (in tophat provided)	-20 °C to +55 °C	1.25 kg
IMU-46 ⁹	POS AV 510	161 x 120 x 126	-20 °C to +55 °C	2.2 kg
IMU-57 ⁹	POS AV 610	179 x 126 x 127	-40 °C to +60 °C ¹⁰	2.6 kg
IMU-21 ⁸	POS AV 610	163 x 165 x 163	-40 °C to +70 °C	4.49 kg

⁸ 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.

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

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 ¹¹ : L1 BOC, E5A, E5B, E5A/HBOC QZSS: L1 C/A, L1 SAI/F, 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)

¹¹ Developed under the License of European Union and European Space Agency.

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 data
GNSS	
Media	External: Removable 4 Gbyte Flash Disk (2 supplied) Internal: Embedded 4 Gbyte Flash Disk for redundant logging

RS232 NMEA ASCII OUTPUT

Parameters	NMEA Standard ASCII messages: Position (\$GGA), Heading (\$HDT), Track and Speed (\$VTG), Statistics (\$GST)
Rate	Up to 50 Hz (user selectable)

RS232 HIGH RATE BINARY OUTPUT

Parameters	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 Starfire, OmniStar HP), 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 msec 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

Specifications subject to change without notice.



For more information on POS AV simply scan the QR code with your mobile device to access our site.

