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.

POS AV 610

- 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
**DATASHEET**

**Inertial Measurement Unit (IMU)**

**SYSTEM SPECIFICATIONS**

**Computer System**

<table>
<thead>
<tr>
<th>Component</th>
<th>Dimensions (L x W x H) mm</th>
<th>Weight kg</th>
<th>Power (incl IMU)</th>
<th>Temperature °C</th>
<th>Altitude m</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCS Standard</td>
<td>169 x 266 x 68</td>
<td>2.4</td>
<td>18-34 Vdc 59 W Max</td>
<td>20 to +55</td>
<td>0 to 7620</td>
</tr>
</tbody>
</table>

**Inertial Measurement Unit (IMU)**

| IMU-571            | +/- 10g, +/- 490 dps      | 179 x 126 x 127 | -40° to +55    | 2.6           |

**Global Navigation Satellite System (GNSS)**

<table>
<thead>
<tr>
<th>Option</th>
<th>Signals</th>
<th>Data Rate</th>
</tr>
</thead>
</table>

**PERFORMANCE SPECIFICATIONS**

**POS AV Absolute Accuracy Specifications**

<table>
<thead>
<tr>
<th>POS AV</th>
<th>610 SPS</th>
<th>610 RTX</th>
<th>610 PP-RTX</th>
<th>610 SmartBase Post-processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position (m)</td>
<td>1.5 H 0.05 H 0.03 H 0.02 H</td>
<td>3 V 0.1 V 0.06 V 0.05 V</td>
<td>Roll &amp; Pitch (deg)</td>
<td>0.005 0.005 0.00256 0.00256</td>
</tr>
</tbody>
</table>

**POS AV Relative Accuracy**

<table>
<thead>
<tr>
<th>POS AV</th>
<th>610 SPS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Noise (deg/hr/h)</td>
<td>0.005</td>
</tr>
<tr>
<td>Drift (deg/hr/h)</td>
<td>&lt; 0.001</td>
</tr>
</tbody>
</table>

**Performance Specifications**

**Global Navigation Satellite System (GNSS)**

- GPS: L1 C/A, L2C, L2E, L5
- GLONASS: L1 C/A, L2C/A, L3 COMA
- Galileo: E1, E5A, E5B, E5ABOC, E6
- Beidou: B1, B2, B3
- QZSS: L1 C/A, L1S/L1C, L2C, L5, L5E
- IRNSS: L5
- SBAS: L1C/A and L5
- MSS L-Band: Trimble CenterPoint RTX

- 5 Hz (raw)

**User Supplied Equipment**

- PC for POS Controller and Operator Client Software
  - Windows 7
  - Internet Access (for installation, DEM download, optional SmartBase processing)
  - 2 X USB 2.0 ports for security keys
  - Pentium 4 (32 bits) at 2 GHz or equivalent (recommended minimum)
  - Intel Graphics media accelerator 500 or equivalent (minimum)
  - 2 GB RAM, 100 GB Free disk space (minimum)
- Ethernet adapter (RJ45 100 base T), USB Port
- Windows 7

**System Specifications**

- POS AV 610

**ETHERNET INPUT/OUTPUT**

- Time tag, status, position, attitude, velocity, track and speed, performance metrics, raw IMU data
- Display Port: Low rate (1 Hz) UDP protocol output
- Control Port: TCP/IP protocol output 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**

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

**RS32 NMEA ASCII OUTPUT**

- Time tag, status, position, attitude, velocity, track and speed, performance metrics, raw IMU data
- Media: NMEA Standard ASCII messages: Position ($INGGA), Heading ($INHDT), Track and Speed ($INVTG), Statistics ($INGST)
- Rate: Up to 50 Hz (user selectable)

**RS32 HIGH RATE BINARY OUTPUT**

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

**RS32 INPUT INTERFACES**

- Gimbal encoder input, AUX GPS Input (RTK, NavCom)
- RTCM104 DGPS Corrections Input
- Event Input (6) Six time mark of external events. TTL pulses > 1 ms width, max rate 100 Hz

**Other I/O**

- 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

**Specifications subject to change without notice.**