The POS LVX is available as a turn-key or OEM GNSS-Inertial solution that supports two antenna heading for the highest accuracy in all dynamic conditions.

Autonomous vehicles require accurate heading information immediately and in all phases of operation from stop-and-go traffic to highway speeds.

With a compact footprint, ease of integration, and fast setup the POS LVX uses onboard inertial sensors calibrated with the Applanix SmartCal™ software compensation technology for superior performance to meet the needs of autonomous vehicle manufacturers in mining, trucking, mapping, and vehicle testing.

Easily integrated with many types of sensors including optical, infrared, and lidar, the POS LVX delivers Inertially-Aided Real-Time Kinematic (IARTK) positioning in a small, lightweight form factor.

The POS LVX product uses state-of-the-art low noise multi-frequency Trimble Maxwell GNSS technology, and tracks all current satellite signals including GPS L1/L2/L2C/L5 and GLONASS L1/L2, QZSS, Beidou, IRNSS, and Galileo, and supporting SBAS, RTK, and Trimble CenterPoint® RTX positioning modes.

Key Features

- Cost effective and high-performance position and orientation solution in a small form factor enclosure
- Fully integrated, turnkey solution for efficiency and ease-of-use
- Stable, reliable and repeatable positioning solution for land-based autonomous applications
- POS LVX is a new configuration of dual GNSS POS LV designed for the smaller, modular system
- For the same performance in an OEM offering, see the Applanix APX-18
- Applanix SmartCal™ compensation technology for superior position and orientation performance
DATASHEET

TECHNICAL SPECIFICATIONS

- Advanced Applanix IN-Fusion™ GNSS-Inertial integration technology
- Solid-state MEMS inertial sensors with Applanix SmartCal™ compensation technology
- Advanced Trimble GNSS survey technology
- Position antenna based on 336 Channels Maxwell 7 chip:
  - GPS: L1 C/A, L2E, L2C, L5
  - Beidou B1, B2, B3
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA²
  - Galileo²: E1, E5A, E5B, E5a/b+c, E6²
  - IRNSS L5
  - QZSS: L1 C/A, L1 SAIF/L1C, L2C, L5, LEX
  - SBAS: L1 C/A, L5
  - MSS L-Band: OmniSTAR, Trimble RTX
- Vector Antenna based on second 336 Channel Maxwell 7 chip:
  - GPS: L1 C/A, L2E, L2C, L5
  - Beidou B1, B2, B3
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA²
  - Galileo²: E1, E5A, E5B, E5a/b+c, E6²
  - IRNSS L5
  - QZSS: L1 C/A, L1 SAIF/L1C, L2C, L5, LEX
- High precision multiple correlator for GNSS pseudorange measurements
- Advanced RF Spectrum Monitoring and Analysis
- Unfiltered, unsmoothed pseudorange measurements data for low noise, low multipath error, low time domain correlation and high dynamic response
- Very low noise GNSS carrier phase measurements with <1 mm precision in a 1 Hz bandwidth
- Proven Trimble low elevation tracking technology
- 100 Hz real-time position and orientation output
- IMU data rate 200 Hz
- Navigation output format: ASCII (NMEA-0183), Binary (Trimble GSOF)
- Supported Reference input: – CMR, CMR+, sCMRx, RTCM 2.1, 2.2, 2.3, 3.0, 3.1, 3.2
- Support for POSPac MMS post-processing software (sold separately)
- No export permit required
- Supports Fault Detection & Exclusion (FDE), Receiver Autonomous Integrity Monitoring (RAIM)

LAN INPUT/OUTPUT

All Ethernet functions are supported through dedicated IP address (Static or DNS) simultaneously.
TCP/IP and UDP
HTTP

LOGGING:
- Internal Logging
- External Logging
- Parameters

SERIAL INPUT/OUTPUT

2 x RS232 ports
- Parameters

ASCII and Binary data streaming (Time tag, PPS sync, status, position, attitude, velocity, track and speed, dynamics, performance metrics, GNSS data)
- Web based Control software (GUI) for easy system configuration and low rate display. Support for all common browsers (IE, Safari, Mozilla, Google Chrome, Firefox)
- 6 GByte Flash memory
- USB 2.0 Device port
- Time tag, status, position, attitude, velocity, track and speed, dynamics, performance metrics, raw IMU data (200 Hz), raw GNSS data (5 Hz).

Other I/O
- PPS (pulse-per-second)
- Event Input (2)
- DMI Input
- ASCII and Binary data streaming (Time tag, PPS sync, status, position, attitude, velocity, track and speed, dynamics, performance metrics, GNSS data), reference input (CMR, CMR+, sCMRx, RTCM), configuration messages.
- Time Sync Pulse output
- Two time mark of external event
- Quadrature pulse with reference voltage

PERFORMANCE SPECIFICATIONS (RMS ERROR)

No GNSS outages, standard road vehicle dynamics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>SPS</th>
<th>DGPS</th>
<th>RTK</th>
<th>Post-Processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position (m)</td>
<td>1.5 H</td>
<td>0.1 H</td>
<td>0.02 H</td>
<td>0.02 H</td>
</tr>
<tr>
<td>Roll &amp; Pitch (deg)</td>
<td>0.04</td>
<td>0.03</td>
<td>0.03</td>
<td>0.025</td>
</tr>
<tr>
<td>True Heading (deg)</td>
<td>0.12</td>
<td>0.09</td>
<td>0.09</td>
<td>0.06</td>
</tr>
</tbody>
</table>

1 km or 1 minute GNSS outage, standard road vehicle dynamics

<table>
<thead>
<tr>
<th>Parameter</th>
<th>SPS</th>
<th>DGPS</th>
<th>RTK</th>
<th>Post-Processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position (m)</td>
<td>2.0 H</td>
<td>2.0 H</td>
<td>1.0 H</td>
<td>0.80 H</td>
</tr>
<tr>
<td>Roll &amp; Pitch (deg)</td>
<td>0.09</td>
<td>0.09</td>
<td>0.09</td>
<td>0.05</td>
</tr>
<tr>
<td>True Heading (deg)</td>
<td>0.35</td>
<td>0.35</td>
<td>0.30</td>
<td>0.20</td>
</tr>
</tbody>
</table>

PHYSICAL CHARACTERISTICS

- Size: 185 L x 93 W x 42 H mm (nominal)
- Weight: 0.76 kg
- Power: Wide range input 9-30 V DC, typical power consumption of 3.5 W at room temperature
- Connectors: I/O: DA26, DMI: DE9
- GNSS Antenna LNA Power Input: Trimble 540AP included
- Minimum required LNA gain: 30.0 dB (> 35 dB Recommended)

ENVIRONMENTAL CHARACTERISTICS

- Temperature: -40 deg C to +75 deg C (Operational)
- Measurement Range: -55 deg C to +85 deg C (Storage)
- Mechanical Shock: +/- 6g², +/- 350 dps
- Operating Humidity: 5% to 95% R.H. non-condensing at +60 deg C
- Maximum Operating Limits: 18,000 m alt. 515 m/sec
- IP rating: IP67

- Antenna (2): TNC (Female)
- POS LVX

Specifications subject to change without notice.

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