

# Applanix POS LVX-120

## GNSS-inertial solution for robust mobile mapping and positioning

Trimble® Applanix® POS LVX-120 is a turn-key GNSS-inertial solution that supports two GNSS antenna heading for the highest accuracy in all dynamic conditions, and includes the all new Applanix IN-Fusion®+ GNSS-aided inertial firmware featuring Trimble ProPoint® GNSS technology, while Trimble IonoGuard™ support protects RTK GNSS from ionospheric disturbances.

Real-time positioning and mapping applications require robust RTK positioning 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, in addition to POSpac Assure support for QA and calibration, the Applanix POS LVX-120 meets the needs of ground vehicle applications in fleet management, rail, mobile mapping, and pavement management.

Easily integrated with many types of sensors including optical, infrared, and LiDAR, the Applanix POS LVX-120 delivers high accuracy positioning and orientation in a small, lightweight form factor.

The Applanix POS LVX-120 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. The POS LV-120 is tightly integrated with POSpac™ Mobile Mapping Suite, the Trimble Applanix industry-leading software for accurately geolocating mobile mapping sensors. Optimised for all environments and platforms (air, land, and marine), and compatible with a variety of mapping sensors, this smart software solution achieves both maximum accuracy and efficiency.

### Key Features

- Cost effective and high-performance position and orientation solution in a small form factor enclosure
- Trimble IonoGuard support
- Post-processing available with POSpac MMS and POSpac Cloud for highest accuracy
- POSpac Assure available for QC and Calibration
- Fully integrated, turnkey solution for efficiency and ease-of-use
- RTK option for real-time precision positioning
- Next generation, survey-grade GNSS receiver
- Two antenna heading support
- Next generation Applanix IN-Fusion+ GNSS-inertial firmware featuring Trimble ProPoint GNSS Technology



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## GNSS-inertial solution

### PERFORMANCE SPECIFICATIONS<sup>2</sup> (RMS ERROR) NO GNSS OUTAGES, STANDARD ROAD VEHICLE DYNAMICS

	SPS	SBAS	RTK	POST-PROCESSED <sup>7</sup>
X, Y Position (m)	1.5 H	0.5 H	0.02 H	0.02 H
Z Position (m)	3.0 V	0.85 V	0.03 V	0.03 V
Velocity	0.01	0.01	0.01	0.005
Roll & Pitch (deg)	0.10	0.10	0.10	0.05
True Heading <sup>4</sup> (deg)	0.12	0.09	0.09	0.08

### 1 KM OR 1 MINUTE GNSS OUTAGE, STANDARD ROAD VEHICLE DYNAMICS<sup>5</sup>

	SPS	SBAS	RTK	POST-PROCESSED <sup>7</sup>
X, Y Position (m)	2.0 H	2.0 H	2.0 H	1.20 H
Z Position (m)	5.0 V	3.0 V	3.0 V	0.50 V
Roll & Pitch (deg)	0.20	0.20	0.20	0.10
True Heading <sup>4</sup> (deg)	0.70	0.70	0.70	0.50

## TECHNICAL SPECIFICATIONS

- Advanced Applanix IN-Fusion+ GNSS-inertial integration firmware featuring Trimble ProPoint GNSS Technology
- Trimble IonoGuard support
- Advanced Trimble GNSS survey technology
- Position antenna based on 336 Channels Maxwell 7 chip:
  - GPS: L1 C/A, L2E, L2C, L5
  - BeiDou: B1, B1C, B2, B2A, B3<sup>1</sup>
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA<sup>2</sup>
  - Galileo: E1, E5A, E5B, E5AltBOC, E6<sup>2</sup>
  - 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, B1C, B2, B2A, B3<sup>1</sup>
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA<sup>2</sup>
  - Galileo: E1, E5A, E5B, E5AltBOC, E6<sup>2</sup>
  - 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 Applanix POSPac MMS post-processing software and POSPac Cloud (sold separately)
- Support for Distance Measurement Indicator (DMI) input (sold separately)
- POSPac Assure available for QC and calibration (sold separately)
- No export permit required

## LAN INPUT/OUTPUT

All Ethernet functions are supported through dedicated IP address (Static or DNS) simultaneously.

### TCP/IP and UDP

ASCII and Binary data streaming (Time tag, PPS sync, status, position, attitude, velocity, track and speed, dynamics, performance metrics, GNSS data)

### HTTP

Web based Control software (GUI) for easy system configuration and low rate display. Support for all common browsers (IE, Safari, Mozilla, Google Chrome, Firefox)

### LOGGING:

Internal Logging

6 GByte Flash memory

External Logging

USB 2.0 Device port

Parameters

Time tag, status, position, attitude, velocity, track and speed, dynamics, performance metrics, raw IMU data (200 Hz), raw GNSS data (5 Hz)

## SERIAL INPUT/OUTPUT

### 2 x RS232 ports

Parameteres

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

## Other I/O

PPS (pulse-per-second)

Time Sync Pulse output

Event Input (2)

Two time mark of external event

DMI Input

Quadrature pulse with reference voltage

## 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

Antenna (2): TNC (Female)

GNSS Antenna LNA Power Input..... Trimble 540AP included

Minimum required LNA gain ..... 31.0 dB (> 35 dB Recommended)

## ENVIRONMENTAL CHARACTERISTICS

Temperature..... -40 °C to +75 °C (Operational)  
-55 °C to +85 °C (Storage)

Measurement Range..... +/- 6 g<sup>2</sup>, +/- 350 dps

Mechanical Shock ..... +/- 75 g Survival

Operating Humidity ..... 5% to 95% R.H. non-condensing at +60 °C

Maximum Operating Limits..... 515 m/sec

18,000 m alt

IP rating ..... IP67

- The hardware of this product is designed for Beidou B3 compatability (trial version) and its firmware will be enhanced to fully support such new signals as soon as the officially published signal interface control documentation (ICD) becomes available
- There is no public GLONASS L3 CDMA or Galileo E6 ICD. The current capability in the receivers is based on publicly available information. As such, Trimble cannot guarantee that these receivers will be fully compatible
- Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects
- Using GAMS option and two metre antenna baseline
- With DMI option (DMI sold separately)
- Sensor bandwidth (-3 dB amplitude) ~ 50 Hz
- Applanix POSPac MMS, Single Base station or SmartBase

Specifications subject to change without notice.

## APPLANIX

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