DATASHEET

Applanix POS LVX-125

GNSS-inertial solution for robust mobile mapping and positioning

Trimble® Applanix® POS LVX-125 is available as a turn-key or OEM GNSS-inertial solution that supports two antenna GNSS 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™ protects RTK GNSS from ionospheric disturbances.

Positioning and mapping applications 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 Applanix POS LVX-125 uses onboard inertial sensors calibrated with the Applanix SmartCal™ software compensation technology for superior performance to meet the needs of ground vehicle applications in rail, mobile mapping, pavement management, fleet management, and vehicle testing.

Easily integrated with many types of sensors including optical, infrared, and LiDAR, the Applanix POS LVX-125 delivers high accuracy positioning and orientation in a small, lightweight form factor.

The Applanix POS LVX-125 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 LVX-125 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 and compatible with a variety of mapping sensors, this smart software solution achieves both maximum accuracy and efficiency.

Key Features

- High-performance position and orientation solution in a small form factor enclosure
- Trimble IonoGuard support
- Post-processingn available with POSPac MMS and POSPac Cloud
- POSPac Assure available for QC and calibration
- Fully integrated, turnkey solution for efficiency and ease-of-use
- Stable, reliable and repeatable positioning solution for land-based mobile mapping and positioning applications
- Next generation, survey-grade GNSS receiver
- Two-antenna heading support
- For the same performance in an OEM offering, see the Applanix APX-18
- Applanix SmartCal compensation technology for superior position and orientation performance
- Next generation Applanix IN-Fusion+ GNSS-aided inertial firmware featuring Trimble ProPoint GNSS Technology

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Trimble®

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Applanix POS LVX-125

GNSS-inertial solution

PERFORMANCE SPECIFICATIONS[3] (RMS ERROR) NO GNSS OUTAGES, STANDARD ROAD VEHICLE DYNAMICS				
	SPS	SBAS	RTK	POST-PROCESSED[7]
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)	0.04	0.03	0.03	0.025
True Heading[4] (deg)	0.12	0.09	0.09	0.06

1 KM OR 1 MINUTE GNSS OUTAGE, STANDARD ROAD VEHICLE DYNAMICS[5]				
	SPS	SBAS	RTK	POST-PROCESSED[7]
X, Y Position (m)	2.0 H	2.0 H	1.0 H	0.80 H
Z Position (m)	5.0 V	3.0 V	2.0 V	0.20 V
Roll & Pitch (deg)	0.09	0.09	0.09	0.05
True Heading[4] (deg)	0.35	0.35	0.30	0.20

TECHNICAL SPECIFICATIONS

- Advanced Applanix IN-Fusion+ GNSS-inertial integration firmware featuring Trimble ProPoint GNSS Technology
- Trimble IonoGuard support
- Onboard IMU with 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, B1C, B2, B2A, B3[1]
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA[2]
  - Galileo: E1, E5A, E5B, E5AltBOC, E6[2]
  - 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[1]
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA[2]
  - Galileo: E1, E5A, E5B, E5AltBOC, E6[2]
  - 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 separatey)
- POSPac Assure available for QC and calibration (sold separately)
- Support for Distance Measurement Indicator (DMI) input (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 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[6], +/- 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

1 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 oficially published signal interface control documentation (ICD) becomes available
2 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 compatable
3 Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects
4 Using GAMS option and two metre antenna baseline
5 With DMI option (DMI sold separately)
6 Sensor bandwidth (-3 dB amplitude) ~ 50 Hz
7 Applanix POSPac MMS, Single Base station or SmartBase

Specifications subject to change without notice.

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