

POS LVX-120

POS LVX-120 GNSS-INERTIAL SOLUTION FOR ROBUST MOBILE MAPPING AND POSITIONING

The 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.

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, the POS LVX-120 uses onboard inertial sensors calibrated with the Applanix SmartCal™ software compensation technology for superior performance to meet 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

POS LVX-120 delivers high accuracy positioning and orientation in a small, lightweight form factor.

The 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, Applanix' industry-leading software for accurately geolocating mobile mapping sensors. Optimized 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
- ▶ Fully integrated, turnkey solution for efficiency and ease-of-use
- ▶ Stable, reliable and repeatable positioning solution for land-based mobile mapping and positioning
- ▶ Next generation, survey-grade GNSS receiver
- ▶ Two antenna heading support
- ▶ Applanix SmartCal™ compensation technology for superior position and orientation performance
- ▶ Next generation Applanix In-Fusion+™ GNSS-inertial firmware featuring Trimble ProPoint™ GNSS Technology



TECHNICAL SPECIFICATIONS

- Applanix IN-Fusion+™ GNSS-inertial integration firmware featuring Trimble ProPoint™ GNSS Technology
- 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, B3¹
 - GLONASS: L1 C/A, L2 C/A, L3 CDMA²
 - Galileo³: E1, E5A, E5B, E5AltBOC, 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, B1C, B2, B2A, B3¹
 - GLONASS: L1 C/A, L2 C/A, L3 CDMA²
 - Galileo³: E1, E5A, E5B, E5AltBOC, 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 GSOFF)
- 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)
- 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 Parameters	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).

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), reference input (CMR, CMR+, sCMRx, RTCM), configuration messages.
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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

PERFORMANCE SPECIFICATIONS⁴ (RMS ERROR)

No GNSS outages, standard road vehicle dynamics

	SPS	SBAS	RTK	Post-Processed ⁸
Position (m)	1.5 H	0.1 H	0.02 H	0.02 H
	3.0 V	0.5 V	0.03 V	0.03 V
Velocity	0.01	0.01	0.01	0.005
Roll & Pitch (deg)	0.1	0.1	0.10	0.05
True Heading ⁵ (deg)	0.12	0.09	0.09	0.08

1 km or 1 minute GNSS outage, standard road vehicle dynamics⁶

	SPS	SBAS	RTK	Post-Processed ⁸
Position (m)	2.0 H	2.0 H	2.0 H	1.20 H
	5.0 V	3.0 V	3.0 V	0.50 V
Roll & Pitch (deg)	0.2	0.2	0.20	0.10
True Heading ⁵ (deg)	0.7	0.7	0.70	0.50

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) Trimble 540AP included
GNSS Antenna LNA Power Input:	
Minimum required LNA gain:	31.0 dB (> 35 dB Recommended)

ENVIRONMENTAL CHARACTERISTICS

Temperature	-40 deg C to +75 deg C (Operational) -55 deg C to +85 deg C (Storage)
Measurement Range	+/- 6g ⁷ , +/- 350 dps
Mechanical Shock	+/- 75g Survival
Operating Humidity	.5% to 95% R.H. non-condensing at +60 deg 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 compatibility (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
 (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 compatible.
 (3) Developed under a License of the European Union and the European Space Agency
 (4) Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects
 (5) Using GAMS option and two metre antenna baseline
 (6) With DMI option (DMI sold separately)
 (7) Sensor bandwidth (-3 dB amplitude) ~ 50 Hz
 (8) POSPac MMS, Single Base station or SmartBase

Specifications subject to change without notice.

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