



# POS LV

## DESIGNED FOR INTEGRATION, BUILT FOR PERFORMANCE

When data continuity with position and orientation accuracy is a steadfast requisite for a mobile data application, engineers and geospatial specialists turn to POS LV solutions. For those looking to upgrade from GNSS-only positioning performance or seeking a fully-integrated, turnkey position and orientation system, POS LV solutions deliver the reliable, repeatable results that make mobile land-based data acquisition systems profitable and highly productive.

Compact and simple to install or transfer between vehicles, POS LV is simple to learn and has been designed to calibrate quickly after set-up. By conducting operations at normal highway traffic speeds, POS LV accelerates productivity while reducing data collection costs and potential roadside risk to personnel. POS LV may be used with DGPS and RTK corrections, and survey-grade GNSS technology and Distance Measurement Instrument (DMI) integration are standard on all models to ensure superior accuracy performance.

POSPac post-processing software is also available to further enhance and refine results by producing a more accurate, representative data set.

Used by transportation departments, engineering companies, GIS consultants, and mobile mapping system integrators around the world, POS LV provides uninterrupted, precise position and orientation measurements in seemingly impossible GNSS conditions. The POS LV earns its distinguished reputation by producing reliable, repeatable, high-rate (up to 200 Hz), high-accuracy results – even in circumstances where GNSS signals are blocked or affected (multipath effects), such as with urban canyons. Whether used for pavement analysis, asset/infrastructure management, GIS data capture, vehicle dynamics, corridor measurement and visualization, or route monitoring, POS LV meets the requirements of any mobile surveying service specialty.

## Key Features

- ▶ POS Computer System directly processes raw GNSS data from as few as one satellite, in order to compute accurate positional information in areas with intermittent or no GNSS reception
- ▶ IMU generates a true representation of vehicle motion in all three axes
- ▶ Streamlined data workflows
- ▶ Worldwide availability
- ▶ Embedded GNSS receivers provide heading aiding to supplement the inertial data
- ▶ Operates at normal highway traffic speeds for cost-effective data capture
- ▶ Post-processing capabilities with POSpac MMS
- ▶ Quick operational capability; installation, calibration, and training completed in as little as three days



PERFORMANCE SPECIFICATIONS - WITH GNSS\*

POS LV	220 PP	220 IARTK	220 DGPS	410/420 PP	410/420 IARTK	410/420 DGPS	610/620 PP	610/620 IARTK	610/620 DGPS
X,Y Position (m)	0.020	0.020	0.300	0.020	0.020	0.300	0.020	0.020	0.300
Z Position (m)	0.030	0.030	0.500	0.030	0.030	0.500	0.030	0.030	0.500
Roll & Pitch (deg)	0.015	0.020	0.020	0.008	0.015	0.015	0.0025	0.005	0.005
True Heading (deg)	0.025	0.050	0.050	0.020	0.020	0.020	0.015	0.020	0.020

PERFORMANCE SPECIFICATIONS - GNSS OUTAGE, 60 SECONDS\*

POS LV	220 PP	220 IARTK	220 DGPS	410/420 PP	410/420 IARTK	410/420 DGPS	610/620 PP	610/620 IARTK	610/620 DGPS
X,Y Position (m)	0.240	0.690	0.880	0.120	0.340	0.450	0.100	0.280	0.410
Z Position (m)	0.130	0.350	0.610	0.100	0.270	0.560	0.070	0.100	0.510
Roll & Pitch (deg)	0.020	0.020	0.020	0.020	0.020	0.020	0.0025	0.005	0.005
True Heading (deg)	0.030	0.070	0.070	0.020	0.030	0.030	0.015	0.020	0.020

\* All accuracy values given as RMS. Assumes typical road vehicle dynamics for initialization, with DMI option.

SYSTEM SPECIFICATIONS

Component	Dimensions (L x W x H) mm	Weight kg	Power	Temperature	Humidity	Cables
PCS (all models)	167 x 185 x 68	2.4	10 to 34 Vdc power supply	-20 °C to +60 °C	5 to 95% RH**	-
DMI (Applanix)	908 x 115 x 254	2.4	Powered by PCS	-40 °C to +85 °C	-	8 m (standard)
GNSS Antenna*	146 x 146 x 62	0.4	Powered by PCS	40 °C to +70 °C	-	10 m (standard)
IMU	See below	See below	Powered by PCS	See below	-	8 m (standard)

\* POS LV 510 and 610 Single GNSS, POS LV 220, 420, 520 and 620 Dual GNSS

\*\* Non-Condensing

INERTIAL MEASUREMENT UNIT (IMU)

Type	Operational Temperature °C	Models Used In	Maximum Data Rate	Dimensions (L x W x H) mm	Weight kg
IMU-7 <sup>1</sup>	-54 to +71	POSLV 410/420	200 Hz	158 x 158 x 124	2.5
IMU-17 <sup>1</sup>	-40 to +60	POSLV 220	100 Hz	158 x 158 x 124	2.5
IMU-42 <sup>2</sup>	-20 to +55	POSLV 220	200 Hz	158 x 158 x 124	2.6
IMU-57 <sup>2</sup>	-20 to +55	POSLV 610/620	200 Hz	179 x 126 x 127	2.6
IMU-64 <sup>2</sup>	-20 to +55	POSLV 410/420	200 Hz	158 x 158 x 124	2.6
IMU-82 <sup>2</sup>	-40 to +65	POSLV 220	200 Hz	158 x 158 x 124	2.3

GLOBAL POSITIONING SYSTEM OPTIONS

Option	Signals	
GPS-19	GPS: L1 C/A, L2E, L2C, L5 GALILEO <sup>4</sup> : E1, E5A, E5B, E5AltBOC, E6 <sup>3</sup> SBAS: L1 C/A, L5 BeiDou: B1, B2, B3 <sup>3</sup>	GLONASS: L1 C/A, L2 C/A, L3 <sup>3</sup> QZSS: L1 C/A, L1 SAIF, L1C, L2C, L5, LEX <sup>3</sup> MSS L-Band: OmniSTAR VBS, Trimble RTX

<sup>1</sup>These IMUs require US government approvals for all exports, a Canadian export permit for all destinations outside the US, and may be subject to local export restrictions internationally. Contact your Applanix representative for further information.

<sup>2</sup>Typical mission profile, max RMS error. These IMUs are exportable worldwide subject to statutory export declarations, and standard restrictions relating to certain international destinations. Contact your Applanix representative for further information.

<sup>3</sup>The hardware of this product is designed to support this capability, however tracking of these is currently disabled

<sup>4</sup>Developed under a License of the European Union and the European Space Agency

USER SUPPLIED EQUIPMENT

- PC or laptop computer for LV-POSView™ (controller): Celeron x86 1 GHz processor (minimum), 16 MB RAM, 20 MB free disc space, Ethernet adapter (10/100 base-T, RJ45), Windows 7/10
- PC for POSpac MMS™ (post-processing): Pentium 4 (32 Bit) at 2 GHz processor, 1GB RAM, 400 MB free disc space 4+ GB for navigation data, USB port, Windows XP Professional
- 10-34 Vdc power supply, capable of supplying 60 W (peak) power from the host vehicle's electrical system

GENERAL – SENSORS

IMU ..... Reliable high performance sensors  
DMI ..... Rugged construction able to withstand harsh vibration and shock environment, as well as temperature and humidity extremes

ETHERNET INPUT OUTPUT (10/100 BASE-T)

Function ..... Operate POS LV and record data  
Media ..... Position, attitude, heading, velocity, track and speed, acceleration, status and performance, raw data. All data has time/distance tags  
UDP Port ..... Display port - low rate (1 Hz data)  
UDP & TCP/IP Ports ..... Real-Time Data Port - high rate (1-200 Hz data)  
TCP/IP Ports ..... Logging Data (buffered for data logging)  
Control Port - used by LV-POSView™ (controller software)

LOGGING OUTPUT TO REMOVABLE DRIVE

Parameter ..... Position, attitude, heading, velocity, track and speed, acceleration, status and performance, raw data. All data has time/distance tags

RS232 NMEA OUTPUT

Parameters ..... Position (\$INGGA), Heading (\$IHDT), Track and Speed (\$INVTG), Statistics (\$INGST), Attitude (\$PASHR), Time and Date (\$INZDA), Events (\$EVT1, \$EVT2)  
Rate ..... 1 - 50 Hz (user selectable)

RS232 HIGH RATE DIGITAL OUTPUT

Parameters ..... Roll, pitch, true heading, latitude, longitude and altitude  
Rate ..... 1 - 200 Hz (user selectable, IMU dependant)

RS232 BASE 1 AND BASE 2 INPUT

Formats ..... CMR, CMR+, RTCM 2.3, 3.0, 3.1, 3.2

OTHER I/O

PPS ..... One pulse-per-second time sync output. Normally low, active high pulse where the rising edge is the reference  
Event Input ..... Four input discretes used to mark external events. Discretes are TTL pulses > 1 msec width where rising or falling edge is time tagged and logged. (Maximum rate 300 Hz.)

Be sure to ask about our 3 year warranty plan that includes one system upgrade at anytime throughout the warranty period. System upgrade includes PCS (latest version available at time of upgrade request), IMU tophat (as applicable to current system), and standard cables. Contact support@applanix to find out more.

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