The Applanix APX-15 Land is a GNSS-Inertial OEM solution that enables a new class of small, portable mobile mapping systems and field robotics applications. Comprised of a small single OEM board containing a precision RTK-capable GNSS receiver and inertial sensor components plus optional post-mission Differential GNSS-Inertial office software, the Applanix APX-15 allows system integrators to utilize the benefits of an accurate position and orientation solution in a small, compact form, reducing size, weight, and power versus existing products.

HIGH ACCURACY, EXTREMELY SMALL PACKAGE

Measuring just 60 x 67 mm and weighing only 60 grams, the Applanix APX-15 UAV provides High-performance Position and Orientation solution for improved efficiency and accuracy of modular mobile mapping platforms and field robotics applications:

- Robust POSE in all land vehicle applications
- DMI support and on-board magnetometer support for low-dynamic and stationary initialization

Key Features

- Compact Single-Board OEM module complete with survey-grade multifrequency GNSS receiver and MEMS inertial components
- Applanix IN-Fusion™ GNSS-Inertial and SmartCal™ compensation technology for superior position and orientation performance
- POSPac MMS Differential GNSS Inertial post-processing software for highest accuracy
- RTK real-time position for precision field robotics applications
- High-accuracy real-time orientation
DATASHEET

APX-15 LAND

TECHNICAL SPECIFICATIONS

System Summary
- Advanced Applanix IN-Fusion™ GNSS-Inertial integration technology
- Solid-state MEMS inertial sensors with Applanix SmartCal™ compensation technology
- Advanced Trimble Maxwell Custom GNSS survey technology
- 220 Channels
  - GPS: L1 C/A, L2C, L2E (Trimble method for tracking unencrypted L2P), L5
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA
  - BeiDou: B1, B2
  - Galileo: E1A, E1B, E5A/B, E5ab
  - QZSS: L1 C/A, L1 L2, L2C, L5
  - SBAS: L1 C/A, L5
- High precision multiple correlator for GNSS pseudorange measurements
- 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 position, roll, pitch and heading output
- IMU data rate 200 Hz
- Magnometer heading initialization
- Navigation output format: ASCII (NMEA-0183), Binary (Trimble GSOF)
- Support for POSPac MMS post-processing software
- Support for POSPac MMS MMS post-processing software
- 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, altitude, 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)

SERIAL INPUT/OUTPUT

RS232 level port
  TTL level (3.3 V) port
  Parameters
  ASCII and Binary data streaming (Time tag, PPS sync, status, position, altitude, velocity, track and speed, dynamics, performance metrics, GNSS data), reference input (CMR, CMR+, sCMRx, RTCM), configuration messages.

OTHER INPUT/OUTPUT

PPS (pulse-per-second)
  Two time mark of external events
  TTL 3.3 V pulses, max rate 50 Hz

DMI Input
  Encoder pulse input, 3.3 V TTL

Digital I/O (3)
  LED drivers with dedicated functionality for systems integrators

LOGGING

Internal Logging
  6 GByte Flash memory

External Logging
  USB 2.0 Device port

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

PERFORMANCE SPECIFICATIONS (RMS ERROR)

Land Vehicle Applications

<table>
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<tr>
<th>Parameters</th>
<th>SPS</th>
<th>DOPS</th>
<th>RTK</th>
<th>Post-Processed</th>
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<td>0.02</td>
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</table>

PHYSICAL CHARACTERISTICS

Size
  67 L x 60 W x 15 H mm (nominal)

Weight
  60 grams

Power
  Wide range input 8-32 V DC, typical power consumption of 3.5W at room temperature

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

Measurement Range
  3.3 V DC to 5 V DC

Mechanical Shock
  +/− 75g Survival

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

Maximum Operating Limits
  535 m/sec 18,000 m

ENVIRONMENTAL CHARACTERISTICS

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

Measurement Range
  +/− 6g, +/- 300 dps

Mechanical Shock
  +/− 75g Survival

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

Maximum Operating Limits
  535 m/sec 18,000 m

ADDITIONAL ACCESSORIES

Evaluation Kit (Development Board)
  Mounting option with test cable

POSPAC MMS OFFICE SOFTWARE

- Post-processed Differential GNSS-Inertial SW for APX-15
- 200 Hz Navigation solution (Position, Velocity, Orientation, Rates, Accelerations)
- Applanix IN-Fusion GNSS-Integration technology
- Full support for dynamic models
- Single Base and SmartBase Differential GNSS-Inertial processing
- Forward and reverse processing with optional Smoother

Specifications subject to change without notice.

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