TRIMBLE APX-18 LAND
SINGLE BOARD DUAL ANTENNA GNSS-INERTIAL SOLUTION

The Trimble APX-18 Land is an OEM GNSS-inertial solution with dual GNSS antenna input, that enables a new class of small, portable mobile mapping systems. Comprised of a small single OEM board containing a precision GNSS receiver with optional RTK, onboard IMU and two antenna heading, the Trimble APX-18 Land uses the new Applanix IN-Fusion+ firmware featuring Trimble ProPoint GNSS technology to achieve unsurpassed positioning and orientation accuracy and robustness.

HIGH ACCURACY, EXTREMELY SMALL PACKAGE

Measuring just 100 x 60 mm and weighing only 62 grams, the APX-18 provides unparalleled performance in an extremely small package. With a compact footprint, ease of integration, and fast setup, the APX-18 Land uses on-board inertial sensor calibration 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 APX-18 Land delivers high accuracy positioning and orientation information in a small, lightweight form factor.

The APX-18 Land 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 Trimble APX-18 Land is fully supported by the industry-leading Applanix POSPac MMS post-processing software, featuring Post-processed Trimble CenterPoint RTX™ for centimeter position accuracy without base stations, making it the ultimate solution for integrators wishing to produce a highly efficient mobile mapping system. For LiDAR integrators, the APX-18 Land is also fully compatible with the POSPac MMS LiDAR QC Tools, which performs LiDAR to IMU boresighting and trajectory adjustment using the LiDAR point cloud.

Key Features

- Compact single-board OEM module complete with survey-grade multifrequency GNSS receiver and MEMS inertial components
- Stable, reliable, and repeatable positioning solution for land-based applications
- Two antenna heading support
- Applanix SmartCal™ compensation technology for superior position and orientation performance
- Applanix POSPac MMS post-processing software for highest accuracy
- High accuracy orientation
- RTK option for real-time precision positioning
- Next generation Applanix In-Fusion+™ GNSS-aided inertial firmware featuring Trimble ProPoint™ GNSS Technology
Trimble APX-18 LAND

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, L2, L2C, L5
  - BeiDou B1, B1C, B2, B2A, B31
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA
  - Galileo E1, E5A, E5B, E6
  - 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, L2, L2C, L5
  - BeiDou B1, B1C, B2, B2A, B31
  - GLONASS: L1 C/A, L2 C/A, L3 CDMA
  - Galileo E1, E5A, E5B, E6
  - 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 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
- External Logging
- 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
- 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.

Other I/O
- PPS (pulse-per-second)
- Event Input (2)
- DMI Input
- Time Sync Pulse output
- Two time mark of external event
- Quadrature pulse with reference voltage

PHYSICAL CHARACTERISTICS

Size: 300 L x 60 W x 12 H mm (nominal) Weight: 0.62 kg
Power: 3.3 V DC +/− 6g
Antenna Port: 2 x MMCX receptacle
Output Voltage: 3.3 V DC to 5 V DC Maximum Current: 400 mA
LNA gain: 32 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: +/- 2°/°, +/- 1500 ppm
Mechanical Shock: +/- 2g Survival Operating Humidity: 5% to 95% R.H. non-condensing at +60 deg C Maximum Operating Limits: .515 m/sec 18,000 m alt

ADDITIONAL ACCESSORIES

Evaluation Kit: Includes development board and power supply DMI: External wheel-mounted DMI and cable GNSS Antennas: Survey-grade GNSS antennas and cables

Specifications subject to change without notice.

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