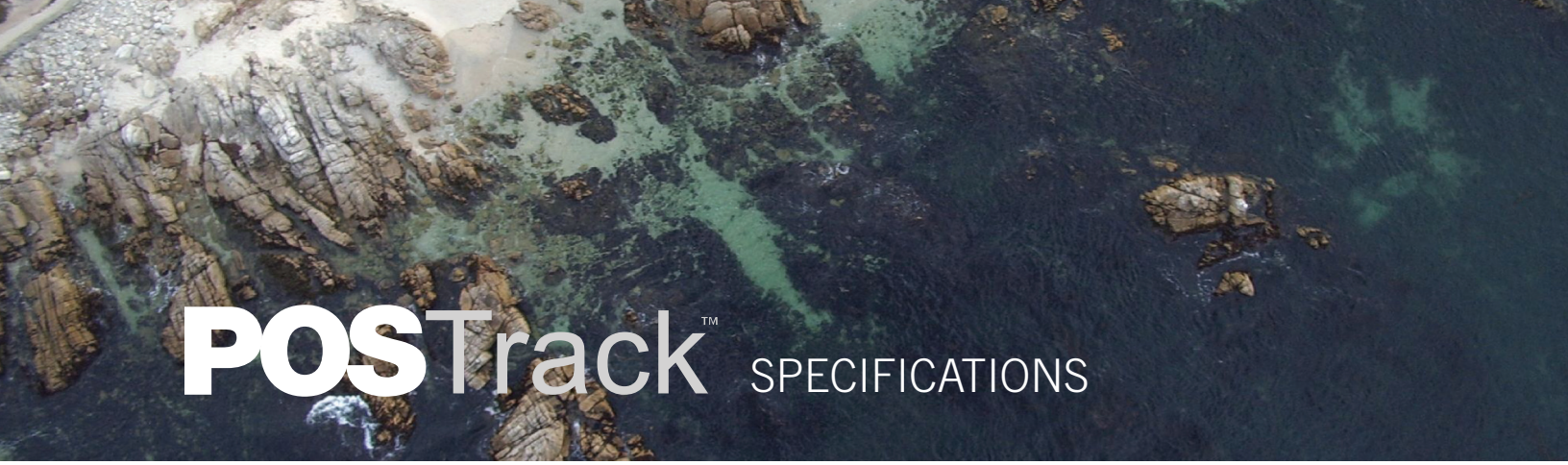

POSTrack™ SPECIFICATIONS

GNSS-INERTIAL DIRECT GEOREFERENCING WITH INTEGRATED FLIGHT MANAGEMENT FOR AIRBORNE MAPPING

POSTrack tightly integrates the POS AV GNSS-Inertial direct georeferencing technology from Applanix with Flight Management System (FMS) software from Track' Air, in one compact ruggedized system. Engineered as a single system, it is compact, convenient, and easily installed on all types of aircraft. Flight Management features include mission planning with full DEM support, pilot guidance, automatic stabilized mount control and automatic camera triggering at pre-planned intervals. POS AV features include in-air initialization, levelling of stabilized mounts, automatic drift correction, GNSS position translation using encoder data from stabilized mounts, and generation of Exterior Orientation of each image for the mapping process.

These features significantly reduce the cost of airborne mapping by improving the efficiency of the data collection and map production process. POSTrack puts you in control: various performance, price points and export control options allow you to build the right solution for your application and for your budget. And all POSTrack solutions can utilize the highly productive POSPac Mobile Mapping Suite (MMS) software, featuring the Applanix IN-Fusion™ technology and Applanix SmartBase™ module. POSPac MMS enables airborne missions to be flown with higher reliability and in less time, saving fuel costs and reducing environmental impact.

PERFORMANCE SUMMARY

POSTrack Absolute Accuracy[1] (RMS)

POS AV	410 SPS	410 DGPS	410 XP[3]	410 Post Prcessed[4]	510 SPS	510 DGPS	510 XP[3]	510 Post Prcessed[4]	610 SPS	610 DGPS	610 XP[3]	610 Post Prcessed[4]
Position (m)	1.5-3.0	0.5-2.0	0.1-0.5	0.05-0.30	1.5 - 3.0	0.5-2.0	0.1-0.5	0.05-0.30	1.5- 3.0	0.5-2.0	0.1-0.5	0.05-0.3
Velocity (m/s)	0.050	0.050	0.010	0.005	0.05	0.05	0.01	0.005	0.030	0.02	0.01	0.005
Roll and Pitch (deg)	0.020	0.015	0.015	0.008	0.008	0.008	0.008	0.005	0.005	0.005	0.005	0.0025[5]
True Heading[2] (deg)	0.080	0.050	0.040	0.025	0.07	0.050	0.040	0.008	0.030	0.030	0.020	0.0050

POSTrack Relative Accuracy

POS AV	410	510	510 IMU-14	610
Noise [deg/sqrt(hr)]	< 0.10	0.02	< 0.01	0.005
Drift (deg/hr)[6]	0.5	0.10	0.10	< 0.01

SYSTEM SPECIFICATIONS

Computer System

Component	Dimnesions (L x W x H) mm	Weight	Power	Temperature	Altitude
PCS and FCS	279x 330x 91	5.9 Kg	20-34 Vdc, 110 W Max including IMU and Pilot Display	-20 C to+55 C	0 to 6,096 m
Pilot Touch screen	40 x 159 x 258	1.2 Kg		-20C to +50C	0 to 6,096 m

1 Typical performance. Actual results are dependent upon satellite configuration, atmospheric conditions and other environmental effects. POSTrack is not an approved aviation system, and under no circumstances should it be used as a stand alone means of navigating any aircraft. Customer assumes full responsibility for proper use and validity of flight plans
2 Typical mission profile, max RMS error
3 OmniStar XP service, typical airborne results, subject to regional coverage and mission profile. Subscription sold separately
4 With POSPac MMS, sold separately
5 May require local gravity model to achieve full accuracy
6 Attitude will drift at this rate up to a maximum error defined by absolute accuracy in table above

Printed in Canada

Inertial Measurement Unit (IMU)

Type	AV Model	Origin	Temp (Operational)	Size (LxWxH) mm	Weight
IMU-7 / IMU-8	POS AV 410 / POS AV 510	US	-54 C to +71 C	95x95x107	1.0 kg
IMU-29[7]	POS AV 410	EU	-40 C to +71 C	128x128x104	2.1 kg
IMU-14[8]	POS AV 510	EU	-20 C to +55 C	150x120x100	2.0 kg
IMU-31[7]	POS AV 510	EU	-20 C to +55 C	163x130x137	2.6 kg
IMU-21	POS AV 610	US	-40 C to +70 C	163x165x163	4.49 kg

7 Applanix has obtained rulings from the US Department of State, Foreign Affairs and International Trade Canada, and The Federal Office of Economics and Export Control (BAFA), Germany, which determined that IMU-29 and IMU-31 are not subject to US (ITAR), Canadian or German munitions and defense-related licensing restrictions. Other licensing requirements may apply. Please contact Applanix for details

8 Max angular rate of rotation is 60 deg/sec

Global Navigation Satellite System (GNSS)

Option	Signal	Data Rate
GPS-16	GPS L1/L2/L2C; GLONASS L1/L2; OmniSTAR LBand	5 Hz (raw)

I/O

Ethernet (100 base-T)

Parameters Time tag, status, position, attitude, velocity, track and speed, dynamics, performance metrics, raw IMU data (at IMU rate), raw GNSS data
Display Port Low rate (1 Hz) UDP protocol output
Control Port TCP/IP input for system commands
Primary Port Real-time (up to IMU Rate) TCP/IP protocol output
Secondary Port Buffered TCP/IP protocol output for data logging to external device

Logging

Parameters Time tag, status, position, attitude, velocity, track and speed,dynamics, performance metrics, raw IMU data (at IMU rate), raw GNSS data
Media External: Removable 1 Gbyte Flash Disk (2 supplied),
Internal: Embedded 1 Gbyte Flash Disk for redundant logging

RS232 NMEA ASCII Output

Parameters NMEA Standard ASCII messages:
Position ($INGGA), Heading ($INHDT),
Track and Speed ($INVTG), Statistics ($INGST)
Rate Up to 50 Hz (user selectable)

RS232 High Rate Binary Output

Parameters User selectable binary messages:
Time, position, attitude, speed, track,
PAV30 output, Yaw Drift Correction
Rate Up to 200Hz (user selectable)

RS232 Input Interfaces

Parameter Gimbal encoder input, AUX GPS Input
(RTK, NavCom Starfire, OmniStar HP), RTCM104,
DGPS Corrections Input
Rate 1 to 200Hz

Other I/O

1PPS 1 pulse-per-second Time Sync output, normally high, active low pulse
Event Input (2) Two time mark of external events. TTL pulses >
1 msec width, max rate 100 Hz

SENSOR INTERFACES

3-axis Mount

Drift Correction T-AS (digital interface)
PAV30 (RS232) (Requires POSOP)
PAV80 (RS232) (Requires COMOP and IMUOP)
GSM3000 (RS232)
DSS Azimuth Mount (RS232)
Z/I Mount (RS232)
Levelling Control PAV30 (RS232)
PAV80 (RS232)
GSM3000 (RS232)
Z/I Mount (RS232)
Gimbal Encoder PAV30 (RS232)
PAV80 (RS232)
GSM3000 (RS232)
DSS Azimuth Mount (RS232)
TAS (digital interface)
Z/I Mount (RS232)
Stab. Control GSM3000 (RS232)
PAV30 (RS232)
PAV80 (RS232)
T-AS (digital interface)
Z/I Mount (RS232

LiDAR

Logging On/Off ALS40/50
Riegl Q240/560/680

Frame Camera

Triggering/MEP RC20/30
TOP RMK
LMK 1000
Vexcel UCD/UCX/UCL
Generic
DiMAC
Data Interface RC20/30 (RC20 w/o data annotation, RC30 requires extended EDI interface)
TOP RMK (requires TCU digital interface)
LMK 1000
Vexcel UCD/UCX/UCL
Generic
DiMAC

MISSION PLANNING AND REPORTING SOFTWARE

1. snapView: On screen digitizing

- Import raster data from various sources and formats, including Google Earth
- Simple, intuitive and efficient digitizing of project areas

2. snapXYZ: Entering coordinates of areas or photo lines

- Accepts all geographic or grid coordinates formats without conversion or calculation
- Includes a graphic viewer to visually check the correctness of the text input
- Import drawings prepared by other programs in DXF format
- Generate geophysics survey flight plans based on swath width and altitude

3. snapPLAN: Flight planning c/w DEM support

- Planning module used to add photo lines to digitized drawings or defined geographic areas
- Worldwide DEM support via ASTER DEM product
- Automatic stereoscopic coverage of blocks
- Prepare flight plans with hundreds of runs and thousands of photos in one single mouse click
- Interactive drawing of single strips, easily move strips and arrange until the best flight plan is achieved
- Automatically prepare pinpoint flight plans where each photo position has to conform to a given grid (geographical or map)
- Full support for line-scanner and LIDAR flight plans based on swath width and altitude
- Export flight plans via KML

4. snapBASE: Project management database

- Track and update the status and progress of projects
- Check the data generated during the flight and log accepted or rejected photos
- Maintain an accurate and up to date photo index of the project
- Generate film reports, progress reports, etc.
- Export areas flown via KML

5. snapPLOT: Printing and plotting

- Printing and plotting module used to quickly and easily prepare scaled photo indices
- Plot a professional A0 photo-index in less than 2 minutes

USER SUPPLIED EQUIPMENT

PC for POS Controller and Operator Client Software

- Atom 1.6 GHz or equivalent (minimum)
- Intel Graphics media accelerator 500 or equivalent (minimum)
- 2 GByte RAM, 32 GB HDD (minimum)
- Ethernet adapter (RJ45 100 base T), USB Port
- Windows XP

PC for Mission Planning and optional POSPac Post-processing

- Pentium 4 (32 bits) at 2 GHz or equivalent (recommended minimum)
- 1 GB RAM, 100 GB Free disk space (recommended minimum)
- 2 X USB 2.0 ports for security keys, PC Card Reader
- Internet Access (for installation, DEM download, optional SmartBase processing)
- Windows XP, 7

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