



Combining the precision of POS AV of Direct Georeferencing with the Flight Management System expertise of TRACK'AIR

POSTrack is the first fully integrated, real-time direct georeferencing and flight management system designed for the airborne geospatial community. Purpose-built to reduce the costs associated with the preparation and implementation of airborne surveys, POSTrack minimizes and streamlines mission planning and in-flight operational workload.

Utilizing a combination of specifically developed software and hardware tools, the system combines the best of both technologies with all the functionality necessary to simplify and streamline today's aerial survey and remote sensing operations.

POSTrack's Complementary Technologies (POS AV & XTRACK)

POSTrack incorporates the latest integrated inertial/GPS direct georeferencing technology from Applanix, with the Flight Management System (FMS) expertise of Track'air, the industry's leading FMS manufacturer. Unlike other IMU/GPS/FMS configurations, which utilize independent components for in-flight task automation and mission planning, POSTrack is engineered as a single system, compact, convenient, and easily installed on all types of aircraft without a complicated network of cables and connectors.

POS AV

The POS AV component integrates precision GPS with inertial technology to enable geospatial projects to be completed more efficiently and effectively. Supported by Applanix industry expertise and technological innovation, POS AV is engineered for all types of aerial sensors to produce directly georeferenced data. The system generates an accurate solution for all motion variables, and precise, image-specific Exterior Orientation parameters without the requirement for a complete ground control survey and corresponding aerotriangulation processing.

XTRACK

As the most sophisticated flight management system available, XTRACK covers all the aspects of flying an airborne mission, from preparation, to image acquisition, to data archiving. It incorporates flight planning, navigation and reporting software with an external sensor interface and pilot display. Combining the two technologies offers seamless integration to provide automated airborne mission control for consistent project success.

The POSTrack Advantage

The complete POSTrack system has been configured to handle the GPS/IMU functions and control and trigger the airborne sensors to ensure the highest levels of precision are maintained. The in-flight automation provided by the system enables exact flight path guidance and accurate sensor positioning, which translates into optimized airtime over the target area for the most economical and efficient mission capability.

Compact Design and Simplified Cockpit Configuration

The system comprises a single box solution incorporating a POS AV computer (PCS) module and an FMS computer system (FCS) module, manufactured using Applanix state-of-the-art, real-time embedded computing technology.

The display includes touch screen capability, allowing the pilot to operate in full standalone mode. For a two-person operation, a laptop or tablet computer can also be used to allow the second crew member (navigator) to work on the mission together with the pilot. A single Ethernet connection is all that is required. In this configuration, the XTRACK navigation software, running on the FCS, can be controlled simultaneously from either the pilot's screen or the navigation laptop.

With a maximum weight of 5.9 kg, the size of the unit does not exceed 279mm L x 330mm W x 91mm H. The compact design will easily fit all types of survey aircraft without cluttering the cockpit with cables and oversized housings and mounting brackets.



The display includes touch screen capability, allowing the pilot to operate in a full stand-alone mode.

POSTrack™

One Compact System, One Complete Solution

Tight Integration for Optimal Performance

The FCS communicates directly with the PCS via high speed Ethernet protocol. In addition to the normal GPS/IMU functions, the POS AV module has been modified to control and trigger the various types and combinations of aerial sensor. The XTRACK system monitors the real-time position and orientation of the sensors, which has been computed by the POS AV, and then instructs it to perform certain tasks to control the sensors.

Examples include the automatic triggering of frame cameras, automatic on/off control of LIDAR and push-broom scanners, and the automatic on/off control of 3-axis mount stabilization.

Flexible Interfaces for Maximum Efficiency

Although POSTrack is tightly integrated to maximize performance, it still maintains a flexible and open architecture to allow easy integration with many different types and combinations of airborne sensors.

The most common sensors are already supported, and customizations are available upon request.



The Advantage of Real-time GPS-Aided Inertial Navigation

POSTrack computes a true real-time navigation solution for the aerial sensor 200 times or more per second. This means all motion parameters, such as position, velocity, roll, pitch, heading, acceleration and angular rate, are available for integration with the flight management software.

The real-time solution provides the pilot with feedback on the quality of the IMU and GPS data being collected for direct georeferencing. Any concerns with the data immediately appear as warnings on the pilot display.

The real-time orientation data is also used to automatically control the drift and level of a 3-axis mount, which will dramatically help the mount. However, during turbulent conditions, the aircraft's horizontal accelerations will cause the inclinometers to generate false readings causing the mount to tilt with respect to the ground.

Because the POS AV is unaffected by turbulence, its real-time roll and pitch data can be fed into the mount to ensure it always remains level. Similarly, the real-time heading from POS AV can be used to automatically steer the azimuth of the mount to follow a desired track along the ground. These attributes are a tremendous advantage. Currently, POSTrack interfaces with the following 3-axis mounts: Z/I T-AS (drift control only), Leica Geosystems PAV30 (leveling and drift), SOMAG GSM3000 (leveling and drift).



Protecting Your Investment With a Complete Upgrade Path

POSTrack is a new, powerful aerial survey technology combining the best of both worlds - direct georeferencing and flight management systems.

With sensor-compatible interfaces, mission status display, low radiation LVDS pilot display screen, and planning and reporting software, POSTrack is the ideal system for single-pilot or pilot/navigator crew configurations who want a streamlined, cost-effective airborne operation.

As with all Applanix products, POSTrack has a clear upgrade path to ensure the system provides the best results and continued service.

