



Riegl and Applanix join forces for UAV-based Airborne LIDAR mapping solution

VUX-1 and APX-15 UAV integration promises unbeatable efficiency, performance and versatility for survey from small unmanned aerial vehicles.



capture everything. precisely.

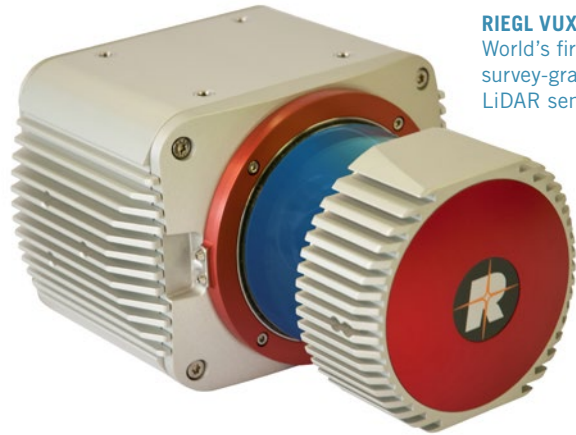


In the traditional world of airborne survey, the use of laser measurement tools has largely been restricted to manned flight. The size-weight and power constraints of unmanned craft, added to the requirement to measure position and orientation with very high degree of accuracy for direct georeferencing of the point cloud, have hitherto made LiDAR-based surveys impractical for all but the very largest unmanned systems.

Two elements are required to overcome this hurdle: a laser that meets the size and weight constraints of the payload capacity of small UAVs; and a direct georeferencing (GNSS-inertia) system that meets the very high accuracy and precision demands of point cloud measurement, yet is also itself small and light enough to meet the SWAP constraints of those aircraft.

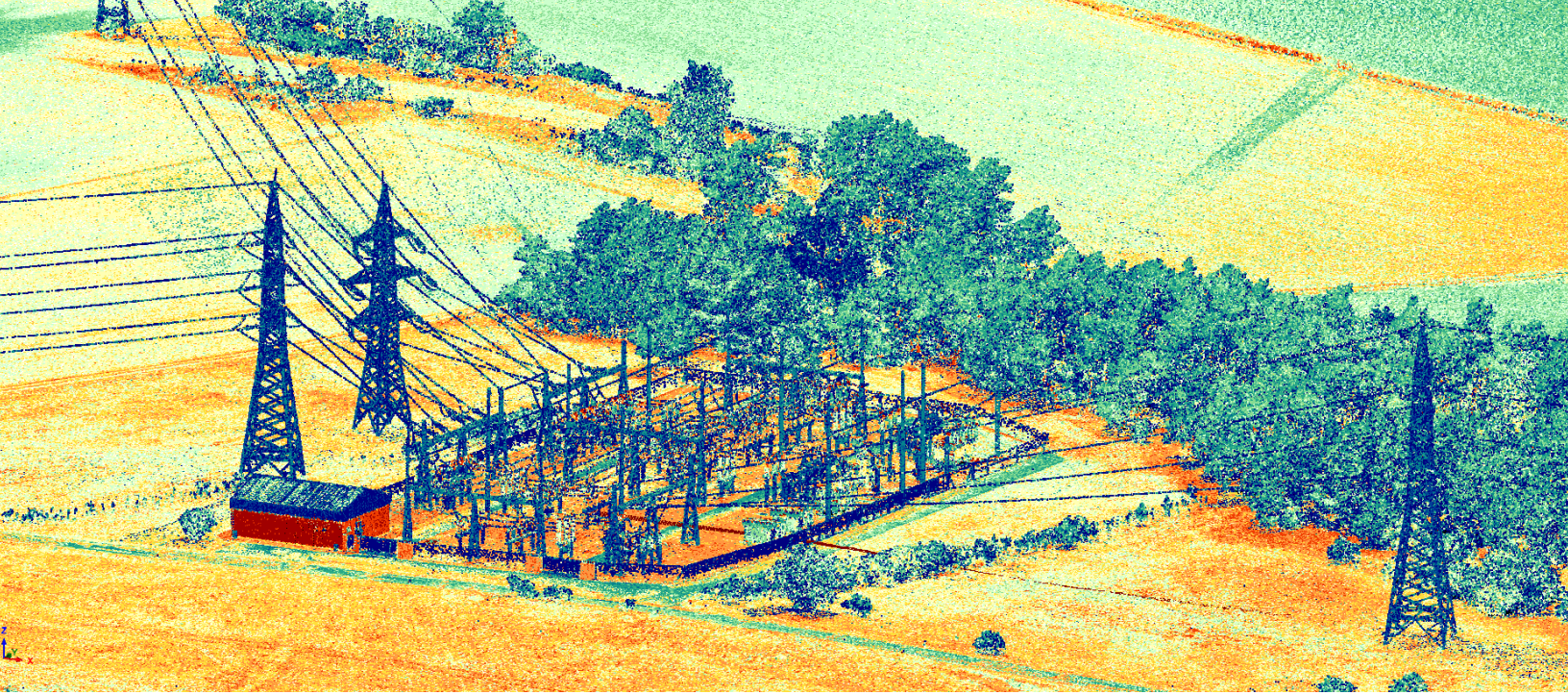
Riegl's VUX-1 compact laser scanner breaks new ground in terms of packaging a powerful sensor in a very small and light footprint. Using Riegl's unique echo digitization and wave processing techniques, VUX-1 achieves superior measurement results even under adverse weather conditions. Weighing in at just over 3.5kg, the VUX-1 is capable of being flown on a variety of fixed-wing and rotary UAVs that are today being used for tasks including powerline and pipeline inspections, urban mapping, mining, construction, archaeology, and many more. However, the user has still had to address the challenge of registering the resultant point cloud in real space.

APX-15 UAV –
Survey-grade GNSS and MEMS inertial sensors on a single board.



RIEGL VUX-1 –
World's first survey-grade UAS LiDAR sensor

Applanix has recognized the need to provide the growing UAV mapping market with the same highly efficient solutions that it pioneered for airborne mapping over 15 years ago. We are offering a cost-effective solution that meets the size, weight, power and cost requirements of small UAVs, and maintains the Applanix pedigree for quality and performance.



Applanix' APX-15 UAV answers that challenge. APX-15 UAV is a complete and ready-to-integrate mapping solution which provides Direct Georeferencing for small UAVs. Following the principles of the Direct Mapping Solution for Unmanned Aerial Vehicles (DMS-UAV, an Applanix framework for direct georeferencing UAV payloads), APX-15 UAV features a high-performance, survey-grade, multi-frequency GNSS receiver and state-of-the-art low-noise MEMS inertial sensors all on a single board. It is compact (7 x 6 cm) and lightweight (60g).

Working with Riegl, Applanix is integrating with APX-15 UAV with VUX-1 to provide a seamless, robust and affordable solution for highly accurate and directly georeferenced laser mapping from a small unmanned vehicle. Available through Riegl's usual sales channels, the VUX-1 and APX-15 UAV can be packaged and configured for almost any UAV payload, from multirotor VTOL craft designed for working in close to historical buildings and archaeological sites, to medium-altitude long-endurance fixed-wing vehicles for beyond-line-of-sight mapping of powerline corridors or pipelines.



APX-15 UAV together with VUX-1 improves efficiency by:

- Enabling LiDAR surveys to be undertaken from a smaller unmanned platform
- Enabling more frequent flights for temporal as well as spatial analysis of a changing survey site
- Providing highly accurate ground truth in a very short time using Applanix' processing software
- Flying LiDAR in smaller, tighter, more difficult spaces than it has ever been possible to scan using historic equipment



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