RIEGL and Schiebel cooperate to enhance UAV-Lidar bathymetric mapping

RIEGL Laser Measurement Systems and Schiebel have successfully completed the integration of a high-end laser scanning system, the RIEGL VQ-840-G topobathymetric Lidar sensor, on the Schiebel Camcopter S-100 uncrewed aerial system (UAS).

Operating a high-end laser scanning system remotely on an uncrewed aerial vehicle (UAV or ‘drone’) requires a tailored solution that goes beyond what is currently available off-the-shelf. To maintain the broad operating range of the UAS, it is imperative to keep the weight of the sensor payload low. Additionally, the effective execution of the survey mission requires full remote control of the payload instruments and real-time feedback to the operator via a data link.

Surveying shallow waters

The compact topobathymetric laser scanner was designed for use in a variety of maritime and hydrographic environments. The Lidar sensor payload system is controlled remotely via a data link, which is crucial for integration into the S-100 system. The scanner is controlled using the onboard software RiACQUIRE-Embedded via the available data link, while data acquisition and laser safety are also monitored. Once the survey is completed, the raw data seamlessly integrates into the RIEGL data processing workflow.

The RIEGL VQ-840-G, combined with the outstanding technical specifications and performance of the Camcopter S-100 UAS, enables an efficient and secure way to survey shallow waters, where monitoring from boats becomes a challenge. The applications of airborne Lidar bathymetry (ALB) include mapping coastlines and river banks, monitoring natural habitats and water reservoirs, and hydraulic engineering applications (e.g. canals, dams, bridges). Data both below and above the water surface can be covered in a single data acquisition mission.

Additionally, the topographic laser scanners RIEGL VUX-1UAV/-LR and VUX-12023 can be integrated into the front payload bay of the Camcopter S-100.

The RIEGL VQ-840-G topobathymetric Lidar sensor mounted on the Schiebel Camcopter S-100 UAS. (Image courtesy: RIEGL)