



Left: The complete RMS Light system housed in a portable box. Right: A DJI Mavic 3 Enterprise equipped with the TINAMU sensor. The system is manually operated, and the generated point clouds can be uploaded directly for analysis and digital twin generation.

Tech in bulk

Software & Automation

TINAMU launches RMS Light: A cost-efficient LIDAR-based solution for bulk inventory monitoring

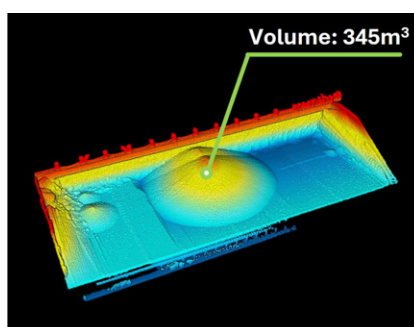
Swiss drone technology firm TINAMU Labs has introduced RMS Light, a compact and mobile solution for stockpile measurement and dry bulk inventory control. Building on the success of its fixed-installation Robotic Monitoring System (RMS), TINAMU now offers a more flexible and accessible alternative for operators seeking accurate volumetric data without the cost and complexity of permanent infrastructure.

At the heart of RMS Light is a LIDAR sensor module developed in-house by TINAMU, designed to integrate with commercial drones such as the DJI Mavic 3 Enterprise or selected Parrot models. The system can be flown manually, allowing rapid deployment across diverse operational settings, including ports, rail terminals, and inland storage yards. In restricted airspace, the sensor can also be operated without the drone in a handheld version.

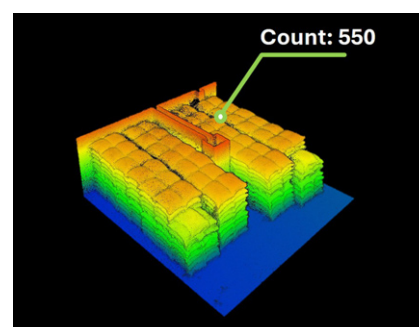
Unlike conventional survey-grade LIDAR systems that generate unstructured point clouds requiring extensive post-processing, RMS Light offers a streamlined workflow. Users can upload data directly to TINAMU's secure cloud portal, where a digital twin is automatically created. This digital twin transforms raw 3D scan data into a structured, interactive model of the site, enabling measurement, monitoring, and historical comparison over time.

FROM POINT CLOUD TO DECISION ENGINE

A point cloud captures geometry. A digital twin interprets it. This shift from passive



Left: Point clouds can be uploaded directly, automatically segmented, and used to estimate volume and density. Right: Advanced analytics enable automated inventory counting and anomaly detection.



data to actionable intelligence is what differentiates RMS Light. Once uploaded, scan data is automatically segmented to isolate stockpiles from infrastructure. When combined with operator-supplied weight data, the system estimates material density over time – frequently with greater accuracy than traditional bulk density methods. This leads to more precise inventory valuations and supports better-informed operational decisions.

Designed with operational efficiency in mind, RMS Light reduces both the technological barrier and the operational footprint. Traditional inventory surveys often require heavy-lift drones, trained pilots, and custom software pipelines. In contrast, RMS Light leverages lightweight off-the-shelf drone hardware, intuitive workflows, and browser-based tools, making it accessible to in-house teams and third-party service providers alike.

In addition to volume measurement, TINAMU's platform supports advanced analytics such as box counting, change

detection, and trend analysis – essential in any multi-material yards where space utilization and segregation are critical. These empower users to advance from simple volumetric data to a robust and comprehensive digital inventory strategy.

A SCALABLE TOOL FOR MODERN BULK OPERATIONS

For asset managers and logistics operators across the dry bulk sector, RMS Light offers a path to digitization that is both pragmatic and cost-effective. Whether used for ad-hoc inspections, periodic cycle counts, or integrated into ongoing monitoring routines, RMS Light helps teams reduce manual surveying, enhance accuracy, and make data-driven decisions – all without significant capital expenditure or infrastructure investment.

By bridging the gap between high-resolution spatial capture and user-friendly analytics, TINAMU's RMS Light represents a practical evolution in drone-based monitoring and stockpile intelligence.