

**worldwide
aerial
mapping**



**aero
map**

- » Integration solutions for LSA / UL aircraft
- » Professional surveying sensors
- » Unrivaled operational economy

ultralight mapping systems

Remote Sensing Based on LSA / Ultralight Aircraft



Flight Design CTSW with surveying cargo pod



Stabilized sensor box in cargo pod

Remote sensing in a cost efficient way

AeroMap is a worldwide provider of integrated mapping systems and remote sensing data.

We are specialized on the integration of compact, but powerful sensors in LSA / ultralight aircraft that offer professional, cost efficient mapping. This development is driven by the integration of the latest sensor models, an ultra-low-weight sensor stabilization, highly automated software solutions and the use of composite technology.

A unique light aircraft mapping system

We integrate professional surveying systems into light aircraft:

- » Up to date LSA / ultralight aircraft with glass cockpit, long range and high speed range provide a safe and stable mapping platform that comes at low operation costs.

Expertise for aircraft manufacturers and mapping companies

We offer our expertise on system integration for various applications - from camera systems to turnkey multi-sensor-platforms. We consult aircraft manufacturers on required adaptations and help aerial mapping companies provide a tailored solution for their demands.

Laserscanning and photogrammetry in one flight

The integrated AeroMap mapping system can provide both, aerial imagery and laserscanner data within one flight. Provides another step towards higher efficiency.

Economy in acquisition and operation

Due to the lean AeroMap concept, initial and operational costs are very competitive (typical 2-3 times less compared to standard systems).

New markets

The AeroMap system opens up new markets for small to medium-sized mapping projects, where standard technology would be too expensive.

LSA / ultralight aircraft

LSA / ultralight type aircraft are the ideal platform for an integrated mapping system. In combination with Aero Map's compact, yet powerful sensor developments, this is the future of aerial surveying for small to medium-sized projects.

- » In cooperation with other partners, AeroMap developed a certified cargo pod solution.
- » The system can be adapted to operate on various types of aircraft.
- » Systems can also be fit *into* the fuselage, depending on sensor outfit.

Professional Surveying System

Hardware and Software Components

Photogrammetry

Lab-calibrated professional aerial cameras for high resolution imagery in RGB and near infrared (NIR) from mid to large format or oblique – 3 axes stabilized. The high speed of the aircraft results in coverage rates of over 400 km² per hour. A forward motion compensation (FMC) avoids motion blur.

Laserscanning

Full wave sensors with high data rates – 3 axes stabilized. The low speed of the aircraft can provide point densities of over 25 pts/m², which can otherwise only be achieved by helicopters. The stabilization guarantees unmatched data quality due to a regular scan pattern.

Stabilization

The gimbal system stabilizes all sensors: cameras and laserscanner. It is aligned by the flight management system according to the planned flight lines and only weighs 6 kg.

- » Pitch/roll: +/- 10°
- » Heading: +/- 25°
- » Accuracy: < 0,5°
- » Payload stabilized up to 25 kg

Flight management system

The tablet-based flight management system comprises pilot guidance, sensor triggering and gimbal control. Easy kml-based flight mission import.

IMU/GPS

The synchronized GPS/IMU units provide real time position and attitude solutions for the flight management system and the stabilization. After post processing, high precision trajectory data can be used for the georeferencing of airborne laser scanner data or aerial imagery. The dual antenna system helps to get stable heading information even on long, straight mapping lines.

Software solutions

AeroMap offers image fusion software for RGB / NIR aerial imagery, including distortion removal and matching-based sub-pixel layer stacking.

Processing software

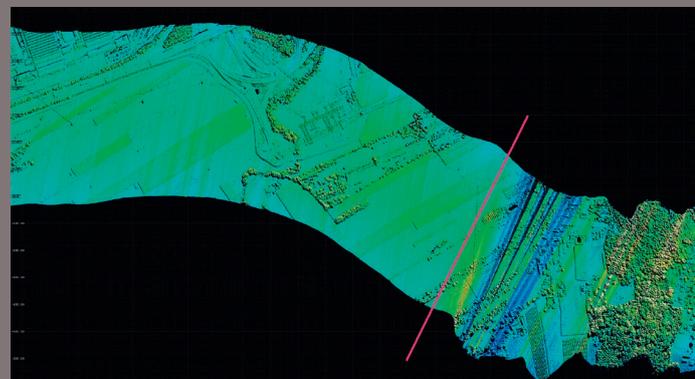
- » GPS/IMU: Inertial Explorer
- » LIDAR georeferencing: RIEGL
- » Raw image processing: Phase One
- » Image processing: QGIS, Global Mapper

System Calibration

- » Camera calibration
- » Lever arm and boresight calibration
- » Sensor synchronization



Sensor box with cameras, IMU and laserscanner



Laser scan pattern: stabilized (left), unstabilized (right)



RGB / NIR image fusion



Who we are

AeroMap is a system integrator for sensor hardware and worldwide provider of high-resolution remote sensing data, located in the heart of Europe. Based on long-term experience we developed a sophisticated remote sensing platform, which fits into an ultralight aircraft. This is the new standard for low-cost, yet high quality mapping.

AeroMap was awarded for their project “Development of a Fully Stabilized Multi-sensor-Platform Based on a Light Aircraft – Photogrammetry and Laserscanning Cost Efficient” with a nomination for the Austrian State Engineering Award.

Our strengths

- » Customer-oriented mapping solutions
- » Consultance, planning and manufacture of:
- » Light aircraft mapping systems
- » Highly economic and flexible
- » Ideal for small to medium-sized project areas

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