



# ULTRACaMLp

Photogrammetric Medium Format  
Digital Aerial Mapping Camera

The largest-footprint medium format camera system on the market is ideal for smaller aircraft, providing maximum frame rate at 2.5 seconds and superior image quality.

## Overview

Based on the UltraCamL, the UltraCamLp features the same advanced technical specifications but boasts an even larger format collection at 92 megapixels (11,704 x 7,920 pixels pan) compared to the UltraCamL 64 megapixel format, making it the largest-footprint medium format camera system on the market and ideal for smaller aircraft and local projects that require a rapid response. With new electronics, the UCLp allows for a larger footprint than the UCL without sacrificing cycle rates. The result is 43% more image at the same frame rate, allowing for the following possible benefits:

- Data collection at higher flight speeds
- Increase of potential forward overlap for a given GSD and speed
- Data collection at higher resolutions with the same forward overlap and speed

With superior image quality, the UCLp can be used on smaller airplanes, and thus operated at lower cost. Smaller mapping companies have an affordable option for offering a digital platform and expanding their aerial services. The UCLp is also ideal for larger mapping firms who need to cost-effectively fly small projects or collect digital data in conjunction with lidar or other data. The UCLp provides the same high geometric accuracy, broad dynamic range, matching and stereo capabilities, and full metric capabilities, as the large format cameras. The image data are suitable for DSM (digital surface model) production, aerotriangulation, ortho mapping and 3D technical vector mapping.

## Features

- *Largest-footprint medium format camera system on the market with an even larger format collection at 92 megapixels (11,704 x 7,920 pixels pan)*
- *New camera electronics provide the same maximum frame rate at 2.5 seconds, which increases the forward overlap at a given GSD and speed*
- *1:2.20 pan-to-color ratio delivers brilliant true-color and color-infrared (CIR) image quality with unmatched radiometric range*
- *Short frame interval allows multi-ray photogrammetry even for large-scale mapping at low altitude and high aircraft speed; forward overlaps of 80% are achieved at a 10 cm pixel size at 110 knots*
- *High level of detail with no blur due to Forward Motion Compensation (FMC) using Time Delayed Integration (TDI)*
- *Pixel size on the ground (GSD) at flying height of 900 m is 8 cm (at 500 m is 4.3 cm)*
- *Removable storage units provide two benefits: the length of missions is limited only by the constraints of the aircraft; ground time is minimized*
- *Maximum use of legacy environments; supports ALL standard gyro-stabilized camera mounts (PAV-30, Z/I-TAS, GSM3000) and most common GPS/IMU systems*
- *Utilizes only a sensor head with integrated sensor and computing sub-systems, integrated computing sub-system and integrated solid-state devices (storage sub-system) for maximum reliability; no additional computing or storage units are required*
- *Weight of UltraCamLp sensor head is approximately 55 kg*
- *Panchromatic Focal Length: 70 mm, Color and NIR 33 mm*

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## Configurations

### Sensor Sub-system (integrated in the sensor head)

- Simultaneously collects Pan, RGB and NIR
- Panchromatic image size is 11,704 x 7,920 pixels; color and NIR image size is 5,320 x 3,600 pixels
- New electronics and a smaller CCD array of just 6  $\mu\text{m}$  allows 92 megapixels in pan image

### Computing Sub-system (integrated in the sensor head)

- Processes raw images on board in real time, to compute quick views and histograms

### Data Sub-system (integrated in the sensor head)

- In-flight storage capacity is limited only by number of solid-state storage devices on board, given space and weight constraints of aircraft
- Approximately 2,500 uncompressed images per device (~1 TB) can be stored

### Operational Specifications

- At 70% and 20% overlap, with 20 cm GSD and flying at 140 knots, the data collection period is approximately 6 hours per SSD unit
- Post-processing can begin in the air and be completed on the ground with a laptop or group of PCs
- Image geometric accuracy is better than  $\pm 2 \mu\text{m}$
- Time between frame collections is 2.5 seconds
- Weight of UltraCamLp is approximately 55 kg (only sensor unit required, no additional computing and storage units)

## More Information

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