

TRIMBLE UX5 AERIAL IMAGING SOLUTION

KEY FEATURES

Leading image acquisition quality and data accuracy

All-terrain and all-weather performance

Reverse thrust for precise landings in confined spaces

A durable and reliable solution for intensive use

Fully automated Trimble Access workflows for ease-of-use and safe operation

Simple data processing with Trimble Business Center photogrammetry module

A NEW STANDARD IN MAPPING AND SURVEYING

The all-new Trimble® UX5 Aerial Imaging Solution is setting the standard for fast and safe aerial data collection by offering a complete system with powerful technologies such as reversed thrust & automatic fail-safe procedures, a robust design and radically simplified workflow. Featuring the Trimble Access™ Aerial Imaging application the Trimble UX5 makes a once time-consuming and complex process incredibly easy – no matter what the conditions.

HIGH QUALITY IMAGE ACQUISITION

Designed to follow the latest developments in the ‘prosumer’ camera market, the Trimble UX5 ensures optimal image quality along with maximum photogrammetric accuracy. The UX5 camera has – unlike a traditional compact camera – a large imaging sensor that captures very sharp, color-rich images, even in dark or cloudy conditions. The 16.1 MP camera and its custom optics give the UX5 the ability to capture data down to 2.4 cm (0.94 in) resolution.

LANDINGS, LESS SPACE – MORE ACCURATE

The Trimble UX5 overcomes the limitations of traditional UAS landings with the addition of an advanced control method. Based on reversed thrust, this innovative improved altitude measurement results in accurate and predictable landings for landing confidence every time. For professionals working in small areas, the landing angle and trajectory is compact and allows landings in confined spaces.

UNRIVALED DURABLE AIRFRAME

Based on a production method patented by Trimble, the Trimble UX5 combines an impact resistant foam structure and internal and external composite elements that give the UX5 its extreme durability and strength. Additionally, the design focus has been on delivering an easy to maintain airframe that can be renewed at users’ discretion by a plug-and-play fitting of the protected internal electronics.

INTUITIVE WORKFLOWS WITH TRIMBLE ACCESS

The Trimble Access Aerial Imaging application loaded onto the Trimble Tablet Rugged PC operates the Trimble UX5 and is a single software tool for planning your

aerial missions, performing pre-flight checks and monitoring your flights – all with intuitive workflows that ensure reliable results. In the field, the operator is guided through the pre- and post-flight sequences with step-by-step digital checklists. For additional time and resource savings, many of the Trimble UX5 checks are automatically verified by the software and do not require any interaction from the operator. Plus, the fast and intuitive workflow allows the Trimble UX5 to be ready to fly in only 5 minutes ensuring minimal downtime.

AUTOMATIC PROCEDURES FOR MAXIMUM SAFETY

The Trimble UX5 offers a much safer method to collect data compared to traditional surveying methods. Flights are conducted in a fully automated manner, from launch to landing, and require no piloting skills. The operator merely facilitates the aircraft’s operation and built-in safety procedures ensure safe and successful launches each time. This means that data collection is performed without risking injury to individuals as a result of hazardous terrain, environmental contaminants, or equipment and machinery.

MAXIMUM PERFORMANCE

The remarkable design of the Trimble UX5 ensures employability nearly everywhere and in practically all weather conditions. Whether you choose to fly in rainy conditions along windy seashores, in hot deserts, or in a snowy, mountain terrain, the Trimble UX5 is a dependable solution to gather high quality data without compromising coverage.

VALUABLE PHOTOGRAMMETRY DELIVERABLES

Optimized to process data from the Trimble UX5 Aerial Imaging Rover, the Trimble Business Center Photogrammetry Module creates impressive deliverables with flights performed with the Trimble UX5. Produce point clouds, Triangulated Irregular Network (TIN) models and contour maps of the area flown. These can then be used to calculate volumes, excavation planning, drainage planning and many other functions. Trimble Business Center also produces a scaled orthophoto of the area that can be used to plan a project, define features of interest, identify property boundaries, or show construction progress by comparing orthophotos from different times.

The Trimble UX5 Aerial Imaging Solution, a new standard in mapping and surveying for professionals that require the highest accuracy – no matter what the conditions.



TRIMBLE UX5 AERIAL IMAGING SOLUTION

PERFORMANCE SPECIFICATIONS

- Maximized image footprint without compromising resolution, obtained with a custom wide-angle lens and APSC-type sensor.
- Maximized coverage per flight and per hour due to large image footprint, sharp turning capability and high cruise speed.
- Reversed thrust technology for a short and steep landing circuit.
- Powerful propulsion system for steep climbs and high altitude flights.
- High airframe service life due to wing robustness and maintainability.
- Short setup time with automated procedures in Trimble Access field software.
- Self-check and failsafe procedures for safe operation.
- One-button export to Trimble Business Center to create deliverables.
- Optimized data accuracy when processed with Trimble Business Center.

HARDWARE

Type Fixed wing
 Weight 2.5 kg (5.51 lb)
 Wingspan 1 m (3.28 ft)
 Wing area 34 dm²
 Dimensions 100 cm x 65 cm X 10.5 cm (39.37 in x 25.59 in x 4.13 in)
 Material EPP foam; Carbon frame structure; Composite elements
 Propulsion Electric pusher propeller; brushless 700 W motor
 Battery 14.8 V, 6000 mAh
 Camera 16.1 MP mirrorless APSC with custom 15 mm lens
 Controller Trimble Tablet Rugged PC

SOFTWARE

Trimble Access Aerial Imaging application

- Project management
- Mission planning with option for multiple flights
- Automated pre-flight checks
- Automatic take off, flight and landing
- Autonomous camera triggering
- Automated fail-safe routines
- User controlled fail-safe commands
- Automated data consistency checks
- Export to Trimble Business Center and a generic format for image processing

OPERATION

Endurance¹ 50 minutes
 Range¹ 60 km (37.28 mi)
 Cruise speed 80 kmh (50 mph)
 Maximum ceiling² 5000 m (16,404 ft)
 Pre-flight system setup time 5 minutes
 Take off
 Type Catapult launch
 Angle 30 degrees
 Landing
 Type Belly landing
 Angle 14 degrees
 Landing space (L x W)³
 Typical 20 m x 6 m (66 ft x 20 ft)
 Recommended 50 m x 30 m (164 ft x 98 ft)
 Weather limit 65 kmh (40.39 mph) and light rain
 Communication & control frequency 2.4 GHz (FHSS)
 Communication & control range Up to 5 km (3.10 mi)

ACQUISITION PERFORMANCE

Resolution (GSD) 2.4 cm to 24 cm (0.94 in to 9.44 in)
 Height above take-off location (AGL) 75 m to 750 m (246 ft to 2,460 ft)

AREA COVERAGE TABLE

Height	GSD	Coverage/flight [km ²] (1)			Coverage/day [km ²] (2)		
		70%	80%	90%	70%	80%	90%
75 m (246 ft)	2.4 cm (0.94 in)	1.1 km ² (0.43 mi ²)	0.8 km ² (0.31 mi ²)	0.4 km ² (0.15 mi ²)	6.85 km ² (2.63 mi ²)	4.5 km ² (1.74 mi ²)	2.3 km ² (0.88 mi ²)
100 m (328 ft)	3.2 cm (1.26 in)	1.8 km ² (0.7 mi ²)	1.2 km ² (0.64 mi ²)	0.6 km ² (0.23 mi ²)	10.8 km ² (4.17 mi ²)	7.2 km ² (2.78 mi ²)	3.6 km ² (1.39 mi ²)
150 m (492 ft)	4.8 cm (1.89 in)	3.1 km ² (1.2 mi ²)	2.1 km ² (0.81 mi ²)	1.0 km ² (0.39 mi ²)	18.7 km ² (7.22 mi ²)	12.5 km ² (4.83 mi ²)	6.2 km ² (2.39 mi ²)
200 m (656 ft)	6.4 cm (2.52 in)	4.4 km ² (1.7 mi ²)	3.0 km ² (1.16 mi ²)	1.5 km ² (0.58 mi ²)	26.6 km ² (10.27 mi ²)	17.8 km ² (6.87 mi ²)	8.9 km ² (3.44 mi ²)
250 m (820 ft)	8 cm (3.15 in)	5.8 km ² (2.24 mi ²)	3.8 km ² (1.47 mi ²)	1.9 km ² (0.73 mi ²)	34.6 km ² (13.36 mi ²)	23.1 km ² (8.92 mi ²)	11.5 km ² (4.44 mi ²)
300 m (984 ft)	9.6 cm (3.78 in)	7.1 km ² (2.74 mi ²)	4.7 km ² (1.81 mi ²)	2.4 km ² (0.93 mi ²)	42.5 km ² (16.41 mi ²)	28.3 km ² (10.93 mi ²)	14.2 km ² (5.48 mi ²)
400 m (1,312 ft)	12.8 cm (5.04 in)	9.7 km ² (3.75 mi ²)	6.4 km ² (2.47 mi ²)	3.2 km ² (1.24 mi ²)	58.0 km ² (22.40 mi ²)	38.7 km ² (14.94 mi ²)	19.3 km ² (7.45 mi ²)
500 m (1,640 ft)	16 cm (6.3 in)	12.4 km ² (4.79 mi ²)	8.2 km ² (3.17 mi ²)	4.1 km ² (1.58 mi ²)	74.2 km ² (28.65 mi ²)	49.5 km ² (19.11 mi ²)	24.7 km ² (9.54 mi ²)
750 m (2,461 ft)	24 cm (9.45 in)	19.0 km ² (7.34 mi ²)	12.7 km ² (4.90 mi ²)	6.3 km ² (2.43 mi ²)	113.9 km ² (43.98 mi ²)	75.9 km ² (29.31 mi ²)	38.0 km ² (14.67 mi ²)

(1) For a 2:1 aspect ratio, which is a flight block with length equal to 2 times the width. This is a good approximation of the average flight block.
 (2) Assuming on average 5 minutes pre-flight and 5 minutes post-flight setup and recovery time and operation between 10 am and 4 pm.
 (3) 1 sigma for wind <30 kph (19 mph).

1 ISO standard atmosphere conditions.
 2 Recommended; UX5 not tested above 2,500 m (8,202 ft)
 3 1 sigma for wind <30 kph (19 mph).



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