



The Trimble® UX5 HP Aerial Imaging Solution is an easy to use, fully automated, high precision system for capturing images with resolution down to 1 cm. Captured imagery is processed through the Trimble Business Center (TBC) solution, using an intuitive workflow that allows you to create crisp orthomosaics and 3D models for agronomic and topographic agriculture applications. Imagery produced by TBC can also be uploaded to Connected Farm™ to compute vegetation vigor maps with indexes such as NDVI.

#### Key Features

- Apply imagery for crop scouting to detect pests, weeds, mineral deficiencies, and other potential problems in agriculture
- Capture 148 acres (60 hectares) of imagery at 1 cm resolution in a single flight
- Operate with a high-performance Trimble GNSS receiver with Post-Processed Kinematic (PPK) technology
- Includes a 36MP, full-frame, high resolution camera for capturing imagery
- Process NDVI maps in Connected Farm, where they are accessible on any computer or tablet with internet connectivity

#### Superior Image Acquisition and Accuracy

The UX5 HP delivers precise data by integrating a high-performance Trimble GNSS receiver and a superior camera. PPK GNSS technology is used to establish very accurate image locations in absolute coordinate systems, eliminating the need for ground control. As a result, less time is spent in the field and high precision results can be achieved even in the most inaccessible areas. With PPK, georeferencing aerial data is more robust and accurate than RTK, providing a superior level of reliability and accuracy. Use either your own base station or work with data from reference stations to georeference your deliverables with the highest accuracy possible.

#### Trusted Performance

The UX5 HP is an extremely safe and durable system, made from impact resistant foam, that can withstand extreme temperatures, winds up to 55 km/h, and light rain—making it ideal for use in conditions that most unmanned aircrafts struggle to operate in. Engineered with an advanced reverse thrust technology, you can count on accurate and predictable landings in confined areas. The UX5 HP is easy to maintain with an airframe that can be renewed as needed. Whether you work with row crops, vegetables, or fruit trees, the UX5 HP will continue to capture the highest quality data, flight after flight.

# TRIMBLE UX5 HP AERIAL IMAGING SOLUTION

## Performance specifications

- Maximized image footprint without compromising resolution, obtained with a custom wide-angle lens and full frame 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 High Precision GNSS receiver to georeference deliverables accurately and easily

## Hardware

Type	Fixed wing
Weight	2.9 kg (6.4 lb)
Wingspan	1 m (3.3 ft)
Wing area	34 dm <sup>2</sup>
Dimensions	100 cm x 65 cm X 10.5 cm (39.4 in x 25.6 in x 4.1 in)
Material	EPP foam; Carbon frame structure; Composite elements
Propulsion	Electric pusher propeller; brushless 1400 W motor
Battery	14.8 V, 6600 mAh
Camera	.36 MP mirrorless full frame with custom 15, 25 or 35 mm lens
GNSS receiver	L1/L2 GNSS (GPS, Glonass, Beidou, Galileo Ready)
Controller	Trimble Tablet Rugged PC
Modem	Links GCS to UX5 in flight

## 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

Endurance <sup>1</sup>	.40 minutes
Range <sup>1</sup>	52 km (32 mi)
Cruise speed	85 km/h (53 mph)
Ceiling	750 m (2,460 ft)
Pre-flight system setup time	.5 minutes
Take off	
Type	Catapult launch
Angle	30 degrees
Landing	
Type	Belly landing
Angle	14 degrees
Landing area (L x W) <sup>2</sup>	
Typical	20 m x 6 m (66 ft x 20 ft)
Recommended	50 m x 30 m (164 ft x 98 ft)
Weather limit	55 km/h (34 mph) and light rain
Communication & control frequency	.24 GHz (FHSS)
Communication & control range	Up to 5 km (3.10 mi)

## Acquisition performance

Resolution (GSD)	. . . . . 1 cm to 25 cm (0.4 in to 9.9 in)
Height above	
take-off location (AGL)	. . . . . 75 m to 750 m (246 ft to 2,460 ft)
XYZ positioning accuracy	
(no ground control points)	. . . down to 1 cm (0.6 in) in XY and 5 cm (1.8 in) in Z
Relative orthomosaic/3D	
model accuracy	. . . . . (1-2x/1-5x GSD)

<sup>1</sup> ISO standard atmosphere conditions.

<sup>2</sup> 1 sigma for wind <30 km/h (19 mph).

Specifications subject to change without notice.

## Area Coverage Table

HEIGHT AGL	GSD 15 MM LENS	AREA/ FLIGHT 15 MM LENS	GSD 25 MM LENS	AREA/ FLIGHT 25 MM LENS	GSD 35 MM LENS	AREA/ FLIGHT 35 MM LENS
75 m (246 ft)	2.4 cm (0.9 in)	140 ha (345 ac)	1.5 cm (0.6 in)	80 ha (198 ac)	1.0 cm (0.4 in)	60 ha (148 ac)
100 m (328 ft)	3.3 cm (1.3 in)	189 ha (467 ac)	1.9 cm (0.7 in)	119 ha (294 ac)	1.4 cm (0.6 in)	80 ha (198 ac)
120 m (394 ft)	3.9 cm (1.5 in)	241 ha (595 ac)	2.3 cm (0.9 in)	140 ha (345 ac)	1.7 cm (0.7 in)	101 ha (249 ac)
150 m (492 ft)	4.9 cm (1.9 in)	311 ha (768 ac)	2.9 cm (1.1 in)	178 ha (441 ac)	2.1 cm (0.8 in)	119 ha (294 ac)
300 m (984 ft)	9.8 cm (3.9 in)	650 ha (1606 ac)	5.8 cm (2.3 in)	370 ha (915 ac)	4.2 cm (1.7 in)	269 ha (665 ac)
750 m (2461 ft)	25 cm (9.8 in)	1610 ha (3980 ac)	14.6 cm (5.7 in)	932 ha (2304 ac)	10.5 cm (4.1 in)	629 ha (1555 ac)

The table assumes a 5:1 aspect ratio of a single rectangular flight block, at 80% lateral overlap, including 5 min of traveling time from take-off to the first waypoint and from the last waypoint to the landing.

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