Trimble UX5 HP
Unmanned Aircraft System

Key Features
High-performance Trimble GNSS receiver with PPK technology
36MP, full-frame, high resolution camera
Orthomosaics resolution down to 1 cm & 3D models with up to 1,000 pts/m²
Survey quality accuracy without ground control
Fully automated Trimble Access workflows for ease-of-use and safe operation
Simple data processing with Trimble Business Center photogrammetry module
Advanced data processing with Trimble Inpho UASMaster

HIGH PRECISION MAPPING AND SURVEYING SOLUTION
The Trimble® UX5 HP Unmanned Aircraft System (UAS) is an easy to use, fully automated, high precision system capable of capturing aerial photography with resolutions down to 1 cm. Featuring Trimble Access™ Aerial Imaging field software and Trimble Business Center office software, this complete system provides an intuitive workflow that allows you to quickly create the highest quality orthomosaics and 3D models for applications such as survey grade mapping, power line monitoring, field leveling, site and route planning, progress monitoring and asset mapping.

Superior Image Acquisition and Accuracy
The UX5 HP delivers precise data by integrating a high-performance Trimble GNSS receiver and a superior camera. Post-Processed Kinematic (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.

The Trimble UX5 HP features an industry-leading 36 MP full-frame sensor camera capable of capturing sharp, high resolution images. The camera achieves a leading level of image resolution—orthomosaics down to 1 cm GSD and point clouds up to several thousands points per square meter.

Configure for the Job
No one project is ever the same, that is why you can select a camera and lens combination that match your project needs. You have the flexibility to choose between a near infrared or RGB sensor system, and a selection of lenses. The lenses include a 35mm lens for high accuracy, a 15mm wide angle lens for increased flight coverage or a 25mm lens delivering both accuracy and increased flight coverage.

Trusted Performance
The Trimble UX5 HP is an extremely safe and durable system, made from impact resistant foam, that can withstand extreme temperatures, winds up to 65 km, and light rain—making it ideal for use in conditions that most unmanned aircrafts struggle to operate in.

Intuitive Workflows with Trimble Access
The Trimble Access Aerial Imaging application loaded onto the Trimble Tablet Rugged PC operates the UX5 HP and is a single software tool for planning your aerial missions, performing pre-flight checks and monitoring your flights. Now you can map corridors, cover disconnected areas in a single flight, import multiple map layers, fly irregular shaped areas and heights, plan or change multiple takeoff and landing locations during flight, and perform flight simulations to confirm the plan.

The export functionality gathers all required data into a single file that can be imported into Trimble Business Center.

Valuable Photogrammetry Deliverables
Optimized to process data from the Trimble UX5 HP, the Trimble Business Center Photogrammetry Module creates impressive deliverables. With a single drag-and-drop, imported GNSS information, base station or reference station data, and onboard images are processed in Trimble Business Center to produce a scaled orthophoto, point clouds, Triangulated Irregular Network (TIN) models and contour maps of the area flown. These can then be used in planning a project, calculating volumes, excavation planning, drainage planning and many other functions.

Alternatively, Inpho UASMaster provides the power user or photogrammetrist with the right set of tools to use the full potential of aerial data. With feature-based seamline-finding, terrain editing capabilities, state-of-the-art DTM generation, classification and filtering, even the most challenging projects can be processed.
PERFORMANCE SPECIFICATIONS

- Optimized data accuracy when processed with Trimble Business Center or Trimble Inpho UASMaster.
- High Precision GNSS receiver to georeference deliverables accurately and easily.

HARDWARE

- Controller: Trimble Tablet Rugged PC
- GNSS receiver: L1/L2 GNSS (GPS, Glonass, Beidou, Galileo Ready)
- Camera: 36 MP mirrorless full frame with custom 15, 25 or 35 mm lens

SOFTWARE

- Trimble Access Aerial Imaging application
  - Mission planning with option for multiple flights
  - Autonomous take-off, flight and landing
  - Autonomous fail-safe routines
  - User controlled fail-safe commands
  - Data consistency checks
  - Export to Trimble Business Center, Trimble UASMaster and a generic format for image processing

OPERATION

- Endurance: 40 minutes
- Range: 52 km (32 mi)
- Cruise speed: 85 kph (53 mph)
- Maximum ceiling: 5000 m (16,404 ft)
- Pre-flight system setup time: 5 minutes
- Take off: Catapult launch
- Landing: Belly landing
- Angle: 30 to 45 degrees

ACQUISITION PERFORMANCE

- Resolution (GSD): 1 cm to 25 cm (0.4 in to 0.9 in)
- Height above take-off location: 75 m to 750 m (246 ft to 2,460 ft)
- Absolute accuracy XY/Z (no ground control points): down to 2 – 5 cm (0.8 – 2 in)
- Relative orthomosaic/3D model accuracy: (1-2/√1-5x GSD)

AREA COVERAGE TABLE

<table>
<thead>
<tr>
<th>Height AGL (m)</th>
<th>15mm lens</th>
<th>25mm lens</th>
<th>35mm lens</th>
</tr>
</thead>
<tbody>
<tr>
<td>75 m (246 ft)</td>
<td>2.4 cm (0.9 in)</td>
<td>1.4 km² (0.54 mi²)</td>
<td>1.5 cm (0.6 in)</td>
</tr>
<tr>
<td>100 m (328 ft)</td>
<td>3.3 cm (1.3 in)</td>
<td>1.9 km² (0.73 mi²)</td>
<td>1.9 cm (0.7 in)</td>
</tr>
<tr>
<td>120 m (394 ft)</td>
<td>3.9 cm (1.5 in)</td>
<td>2.4 km² (0.93 mi²)</td>
<td>2.3 cm (0.9 in)</td>
</tr>
<tr>
<td>150 m (492 ft)</td>
<td>4.9 cm (1.9 in)</td>
<td>3.1 km² (1.20 mi²)</td>
<td>2.9 cm (1.1 in)</td>
</tr>
<tr>
<td>300 m (984 ft)</td>
<td>9.8 cm (3.9 in)</td>
<td>6.5 km² (2.51 mi²)</td>
<td>5.8 cm (2.3 in)</td>
</tr>
<tr>
<td>750 m (2461 ft)</td>
<td>16 cm (6.3 in)</td>
<td>16.1 km² (6.22 mi²)</td>
<td>14.6 cm (5.7 in)</td>
</tr>
</tbody>
</table>

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

Specifications subject to change without notice.

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