UASMaster is the right tool for complete processing of data acquired with unmanned aircraft systems (UAS). UASMaster combines ease of use with the full power of a photogrammetric workstation.

The software bridges the gap between simple near black-box workflows for non-photogrammetrists and photogrammetry expert workflows. UASMaster includes advanced technology that has been customized to provide high quality results from the special characteristics of UAS data. It easily integrates into the Inpho world of photogrammetry and 3rd party workflows.

With its open market concept UASMaster is able to process data from almost every hardware vendor for UAS. It works with acquired data from fixed-wing vehicles as well as with helicopter-type machines. The software proved successful processing even with survey-balloons and other types of unmanned aircraft systems.

**Product Highlights**

Modern computer-vision algorithms combined with proven state-of-the-art photogrammetric techniques produce accurate results automatically, with minimal manual interaction:

- Intuitive guided workflow concept for the photogrammetric novice which perfectly integrates into any photogrammetric workflow.
- Interactive context-driven and automated editing capabilities for geo-referencing and point clouds including morphological data creation (e.g. break-line measurements), classification, filtering, and many more.
- UAS-specific local-area ortho editing tools
- Expert tools, simplified for non-photogrammetrists such as automatic correlation-based terrain following, enabling precise stereoscopic measurements without requiring stereo-experience
- Open for any fixed-wing, helicopter-type or other UAS hardware. The technology is optimized for UAS with GPS support (recommended accuracy ±10 m)
- Fully compatible with Inpho photogrammetry modules from Trimble
- Support for weighted high quality GNSS to reduce need for ground control points
- Streamlined workflow to automatic feature extraction with eCognition
- Complete engineering workflows including CAD tools, contouring, gridding...
Technical Specifications

FEATURES OVERVIEW

**Workflow**
- Full automatic georeferencing, camera calibration, point cloud matching and ortho mosaicking
- Local polygon-wise editing and re-processing for georeference, point clouds and orthomosaics
- Photogrammetry-grade processing
- Task-tracking monitor
- Store camera calibration results for later reference
- Optional black-box quick processing
- Weighted GNS and GCP support (georeferencing and sensor calibration without ground control if high quality GNSS is available)
- Multi-flight and multi-camera capable
- Optimum results with input into eCognition automatic feature extraction

**Georeferencing**
- Automatic blunder removal to ensure best quality
- Powerful datum transformations with predefined projections thorough graphical analysis tools and detailed reports.
- Automatic relative and absolute adjustment
- Effective tie point matching also in poorly textured, as well as mountainous areas
- Project-wide photo display with correct topology and auto image-selection for interactive, guided control point measurement
- Powerful intuitive graphical block analyzer:
  - Easy visual checking of large data sets
  - Visualizations
  - Image footprints
  - Overlaps
  - Ground control and tie points
  - Point and photo connections
  - Residuals
  - Error ellipses
  - Geometric sector analysis for points and images
  - Binning cell analysis for point density/connectivity
  - Useful display filters, for example multi-strip connections and more
  - Statistical data tables directly linked to graphics

**Point-Clouds and Height Data**
- Colored point clouds and surface grids as well as bare earth DTM output
- Effective noise filtering for point clouds
- Sophisticated point cloud filtering and classification to e.g. separate ground from offground

**Points**
- Stereoscopic and monoscopic editing and visualization
- Context driven editing tools with heads-up-display
- Rigid consideration and measurement of morphological data such as breaklines
- CAD-like multi-layer editing and visualization
- Automatic correlation-based and interpolation-based terrain following for 3D digitizing
- High-performance 3D point-cloud viewer for millions of points
- On-the-fly contours and height coding
- Automatic best-fit stereo model selection for stereoscopic visualization and editing
- Batch pointcloud processing (tiling, contouring, gridding)

**Orthomosaic processing**
- Automatic feature based scan-finding and color balancing for orthorectified based on trimble-exclusive OrthoVista technology result in perfect seamless mosaics
- Adaptive blending of ortho into mosaics according to image texture analysis
- Rigid True-Ortho (surface-model-based) as well as classic ortho (bare earth DTM-based) strategy ready for use in GIS
- UAS-specific local-area ortho editing tools
- Support for pre-existing height models for quick processing
- Optional speed-optimized orthomosaic generation directly from the colored point cloud without necessary rectification

**Support for pre-existing height models for quick processing**
- Rigid True-Ortho (surface-model-based) as well as classic ortho (bare earth DTM-based) strategy ready for use in GIS
- Adaptive blending of ortho into mosaics according to image texture analysis

**Options**
- Monthly rental, educational and research offering
- Updates from previous versions available
- Maintenance (1st year included in software price) includes support and version updates
- Available also as bundle with Trimble UX5 hardware
- Automatic feature extraction with Trimble eCognition
- Direct stereoscopic 3D mapping into CAD and GIS is available through the connection to Summit Evolution
- Educational Version offering 2 seats for educational, non-profit use, only
- Network licensing
- Lite Version (limited to 800 images, no point cloud editing capability) including all high quality georeferencing, point cloud matching and ortho capabilities

**System Requirements**

**Performance**
- Georeferencing: 10 seconds per image
- Point cloud matching: 3 seconds per image
- Ortho mosaicking: 4 seconds per image
- Reprojection error typically less than 1 pixel
- Height accuracy about 1–2 pixels
- Limited to imagery up to 51 Mpix

**Supported Hardware**
- Open for any UAS hardware, helicopter type or fixed wing:
  - Open for any brand
  - Open for multi-rotor platforms
  - Open for fixed-wing platforms
  - Tested with survey balloons
- Support for professional 3D hardware such as 3D cursors

**Supported Formats**
- Supported image formats:
  - Georeferenced orthos: GeoTIFF, TiffWorld (tfw)
  - TIFF, JPG, BigTIFF
  - EXIF
- Supported point-cloud / morphology formats:
  - LAS(1.2–1.4), LasZIP, XYZ, BXYZ, WNP, SHP, DXF

For prices and distribution partner information please contact: sales@inpho.de

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