EnsoMOSAIC AERIAL SURVEY SYSTEM

Specifications

WHAT IS EnsoMOSAIC?

EnsoMOSAIC is an aerial survey system for topographic mapping, cadastral surveys, natural resource inventories, change monitoring and urban planning.

EnsoMOSAIC images are taken with a GPS-synchronized digital still camera at low altitude, also below the clouds. This unique GPS-synchronization assures precise coordinates for accurate photogrammetric processing.

EnsoMOSAIC software rectifies automatically thousands of images on one run applying block adjustment, and joins them into a large georeferenced mosaic. Optionally, it calculates also single orthoimages and oriented images. A Digital Elevation Model (DEM) is created, thus the output mosaics are always orthorectified.

TECHNICAL SPECIFICATIONS OF OUTPUT MOSAICS

The specifications of the output mosaic depend mainly on flying altitude and camera type and settings. The following details are commonly defined:

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
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<tbody>
<tr>
<td>Ground resolution</td>
<td>0.05 - 2.0 m (flying altitude 200 - 5000 m, respectively)</td>
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<tr>
<td>Spectral resolution</td>
<td>RGB, CIR, thermal, multispectral or hyperspectral</td>
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<tr>
<td>Geometrical accuracy</td>
<td>1-2 pixels with ground control, 3-8 pixels without ground control points (depends on terrain and flight conditions)</td>
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<tr>
<td>Coordinate system</td>
<td>UTM (WGS 84) or user-specified</td>
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<tr>
<td>Format</td>
<td>GeoTIF, TIF, ERS or JPG</td>
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AIRCRAFT AND PERSONNEL

Any aeroplane or helicopter is suitable for imaging. In addition to the EnsoMOSAIC hardware, no special equipment is needed. For easy system operation the camera should be installed inside the aircraft.

Normally a pilot and a navigator are needed on-board, but the system can be set to function also independently with pilot only or without operators in an unmanned aerial vehicle (UAV).
The hardware and the software are tailored according to the existing equipment and special needs of the client. The following defines a typical installation:

<table>
<thead>
<tr>
<th>Item</th>
<th>Type</th>
<th>Specifications</th>
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| Camera                            | e.g. Nikon D800E            | • 6144 * 4912 CMOS sensor  
• True colour (RGB) or colour infra-red (CIR) or both  
• Nikkor or Carl Zeiss lenses  |
| Rikola Hyperspectral              |                             | • 1 - 25 channels, user defined between 400 nm – 950 nm  
• max image dimensions 2048 * 1024  
• installed with RGB camera |
| Computer                          | Laptop PC                   | • Min 32 MB RAM, 100 MHz processor, 1 GB hard disk, Windows |
| GPS                               | EnsoMOSAIC GPS-unit         | • 12 channels, Pulse Per Second signal in real time.  
• single or dual frequency, differential correction optional, |
| Navigation and imaging software   | NavCam                      | • Flight route and real-time position of the aircraft for the navigator.  
• Numeric and graphic flight data for the pilot. |
| Control box                       | EnsoMOSAIC Camera Control    | • Synchronisation of the camera and GPS with the navigation software, compensation for the aircraft movement  
• Triggering the camera |
| IMU (optional)                    | XENS                        | • Attitude and Heading Reference System (AHRS)  
• Drift-free, GPS-enhanced, 3D orientation data.  
• Integrated with NavCam trigger control |

**Hardware and Software for Image Processing**

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<th>Specifications</th>
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| Computer                          | Any powerful and reliable   | • Pentium 1 GHz, 40 GB hard disk, 4 GB RAM, Windows  
• High-quality monitor, min 17"  
• 32 or 64 bits |
| Photogrammetry Software           | EnsoMOSAIC                  | • Automatic aerial triangulation; tie points and block adjustment  
• Automatic image rectification and orthomosaic resampling  
• Spectral corrections  
• DEM production, block export for stereo measurement  
• Ortho-rectification, output of single images and mosaic tiles  
• Productivity 200 – 1000 images / day / CPU |
| 3D software (optional)            | EnsoMOSAIC 3D               | • 3D data extraction  
• point cloud management  
• volume calculations |

**Work with MosaicMill!**

Please contact us for further information of EnsoMOSAIC aerial survey system. We are prepared to quote the price of the system, which depends on the number of licenses, on the size of area of operation and on the specifications of the camera and other equipment selected.

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