

AEROcontrol™



AEROcontrol is IGI's GNSS/IMU system for the precise determination of position and attitude of an airborne sensor.

The AEROcontrol system consists of an Inertial Measurement Unit (IMU-Ile) based on Fibre-Optic Gyros (FOG) and a Sensor Management Unit (SMU) with integrated high end GNSS receiver. There are three different systems available with different accuracies.

Together with AEROoffice the system provides the optimal workflow for Direct Georeferencing (DG) and Integrated Sensor Orientation (ISO).

It is the state-of-the-art position and attitude determination system for aerial & thermal photography, synthetic aperture radar, hyperspectral sensors and LiDAR sensor systems.



AEROcontrol Sensor Management Unit

AEROcontrol benefits

The system is designed for direct georeferencing of airborne sensor data. The obtained angular accuracy matches nicely with the "single pixel FOV" of modern digital aerial cameras and the geometrical resolution of airborne LiDAR systems.

For large scale photogrammetric projects, where a higher accuracy is required, the use of AEROcontrol post-processing results as additional information for an aerial triangulation (Integrated Sensor Orientation) leads to large savings in GCP's and processing time. Therefore AEROoffice provides an easy interface for photogrammetric software packages. Together with digital imaging sensors, ISO is an optimal solution with a minimum of manual interaction.

AEROoffice software package:

The AEROoffice software package for post-processing the AEROcontrol data provides:

- Forward / backward Kalman filter algorithm to achieve optimal results even under challenging conditions
- Transformation to more than 600 local coordinate systems
- Coordinate System Editor for customized coordinate systems
- Export to standard formats, Bing Maps™ & GoogleEarth™ (*.kml) format and defined customized formats
- Simplified user interface to obtain optimal results for all users without extensive training and experience



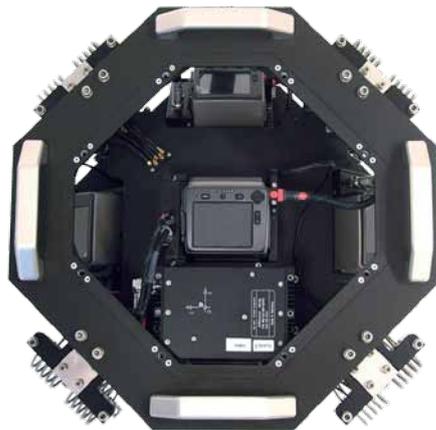
AEROcontrol SMU with IMU-Ile

AEROcontrol™ - Precise Positioning & Attitude Determination

Combined with IGI's mission planning and aircraft guidance & sensor management systems, *AEROcontrol* is the perfect match for a turn-key solution for photogrammetry and LiDAR applications. Installation material for the IMU, including a mechanical adapter plate, are available in stock for the following aerial camera systems:

Digital Aerial Camera Systems

- IGI:
DigiCAM camera range
DigiTHERM camera range
- Microsoft/Vexcel:
 UltraCam camera range
- Intergraph:
 DMC camera range
- DiMAC Systems:
 DiMAC series
- Wehrli/Geosystem:
 3-DAS-1
- Rollei Metric:
 AIC series



IMU-Ile inside of Penta DigiCAM

Analog Aerial Camera Systems

- Leica Geosystems:
 RC10, RC10A, RC20, RC30
- Carl Zeiss Jena:
 LMK, LMK1000, LMK2000
- Zeiss-Oberkochen / Z/I Imaging / Intergraph:
 RMK-A, RMK-TOP



Multi Sensor Platform with *DigiCAM*, *DigiTHERM*, IMU-Ile and *LiteMapper* LiDAR system

Depending on GPS constellation and distance from GPS Base/Monitor Station, a positioning accuracy better than 0.05m RMS and an attitude accuracy of 0.007° RMS for heading and 0.003° RMS for roll and pitch is achievable in post-processing.

SPECIFICATIONS AEROcontrol			
Performance*	AEROcontrol-I**	AEROcontrol-II**	AEROcontrol-III
Position [m]	0.05	0.05	0.05
Velocity [m/s]	0.005	0.005	0.005
Roll / Pitch [deg]	0.008	0.004	0.003
True heading [deg]	0.015	0.01	0.007
Available data rates	128 Hz or 256 Hz	128 Hz or 256 Hz	400 Hz

* Post Processing

** Upgrades to AEROcontrol-II or -III possible at any time

SPECIFICATIONS IMU-Ile	
FOG-Bias [deg / h]	0.03
FOG-RW [deg / sqrt(h)]	0.005
Accelerometer Bias [mg]	0.3
Update and transmission rate	128, 256 or 400 Hz



+49 (0)2732 5525-0



info@igi-systems.com



+49 (0)2732 5525-25



www.igi-systems.com

IGI mbH

Langenauer Str. 46

57223 Kreuztal

Germany