EFS GeoTechnologies

DSS™ SPECIFICATIONS

A COMPLETE SOLUTION FOR HIGH-EFFICIENCY AERIAL MAPPING AND ORTHOPHOTO PROJECTS, ALL AT ONE LOW COST.

The DSS Digital Sensor System is a ready-to-use, directly georeferenced, medium-format, airborne digital mapping system. It is the digital imaging answer for aerial survey and remote sensing applications requiring a rapid, cost-effective solution. A mapping-quality alternative to large-format digital cameras, the DSS offers a compact system, a complete solution, and a competitive advantage.

DIGITAL SENSOR

Image Size:	39 MP: 5412 x 7216
Pixel Size:	0.0068 mm
Filter Array:	Color (VIS) or ColorIR (CIR)
Applanix AeroLens™ by Carl Zeiss:	Standard: 60 mm, F/3.5, FOV(deg): crosstrack 44, alongtrack 34, diagonal 54 (CIR and VIS) Optional: 40 mm, F/4, FOV(deg): crosstrack 62, alongtrack 49, diagonal 74 (CIR and VIS)
Exposure Control:	Aperture priority (calibrated) Manual or Shutter priority
Light Metering:	Center weighted average
Shutter:	Electronically controlled focal plane
Shutter Speed:	125 - 4000 (slower speeds not recommended)
ISO:	Up to 800
Exposure Compensation:	+- 2 EV in 1/3 EV steps
Max Exposure Rate:	2.8 seconds ± 0.03 sec 1 sigma
Sensor Head:	Proprietary CCD mount, ruggedized exoskeleton, Designed to hold geometric accuracy over RTCA/DO-160D shock/vibe spec to within 1 pixel*
Calibration:	Terrestrial and Airborne calibration with full report

*When mounted on supplied shock isolators

COMPUTER SYSTEM

Data Logger	Embedded OS
	Removable pressurized and temperature controlled ruggedized disk drive, 7000 image capacity per drive (2 supplied, 500 GByte each)
Navigation, Direct Georeferencing and Flight Management	Embedded Applanix POSTrack, Integrated GPS/Inertial Direct Georeferencing and Flight Management System
	XTRACK Mission Planning software
	Remote Pilot display with touch screen
	Operator or pilot only operation mode
	Panasonic Toughbook for optional operator interface (operator client can be run on any Windows computer)
	Real-time image, camera, and POS status display Tested and meets RTCA/DO-106D specs for shock and vibe

PERFORMANCE

Direct Georeferencing, RMS

	C/A GPS	DGPS*	Post-Processed
Position (m)	4.0-6.0	0.3-2	0.05-0.3
Velocity (m/s)	0.1	0.05	0.005
Roll & Pitch (deg)	0.015	0.010	0.008
True Heading (deg)	0.08-0.016	0.050	0.015

*When using optional Satellite Based Augmentation Service (SBAS)

TruSpectrum™ Radiometry

Bands	1 (Red/NIR)*	2 (Green/Red)*	3 (Blue/Green)*
Color Mode, nm	600-700	500-600	400-500
60mm CIR, nm	800-960	600-720	500-600
40mm CIR, nm	850-1100	600-720	500-600

* VIS/CIR Modes

Minimum Ground Sample Distance (GSD), Portrait Mode*

Effective (Developed Images)	0.033 m (1.3 X Theoretical GSD)
*60 mm lens, Speed < 60 kts, Height < 220 m AGL, 30% endlap, 1/f > 2000	
*40 mm lens: Speed < 60 kts, Height < 150 m AGL, 30% endlap, 1/f > 2000	

Product Accuracy, RMS, High Precision Post-processing*

Orthophoto:	max of 1.2 X GSD** (max) or POS AV position accuracy
Stereo:	H: max of 1.2 X GSD**(max) or POS AV position accuracy V: max of 3 X GSD**(max) or POS AV position accuracy

*Post-processed POS AV, QA/QC procedure followed, self-extracted or high-accuracy DEM (LIDAR), datum errors removed.
**Effective GSD = (1.2 - 1.3) X Theoretical GSD

PHYSICAL DATA

Size:	Digital sensor head Digital Sensor mount tray Computer system	180 x 180 x 360 mm 250 x 310 x 36 mm 340 x 370 x 340 mm
Weight:	Digital Sensor w/o Az Mount Digital Sensor mount tray Computer system	~ 7 kg (60 mm lens) ~ 2 kg 24 kg
Power:	Computer system	28 VDC 280 W (max) (includes camera, Az Mount)
Temp. Range:	Digital Sensor Computer System	0 deg C to +40 deg C -20 deg C to +55 deg C
Humidity:	5 to 90% RH non-condensing	
Altitude:	Up to 10,000 ft, with supplied operator laptop (higher altitude option available) Up to 20,000 ft, without supplied laptop	

PROCESSING SOFTWARE

Produces plotter ready images and Exterior Orientation data

DSS Tools	MissionView: Data management software, downloads images from removable drives
	ImageView: Image development software, lens fall-off correction < 3%,
	image sharpening tools, formats conversion: TIFF, JPEG, IMG, quantization conversion: 8 bit or12 bit, color balance via calibration inputs
POSPAC MMS	GNSS Aided INS Processing Tools: Differential GNSS processing, Inertial/GNSS post-processing
	Photogrammetry Tools: Direct Georeferencing software; producte exterior orientation for each photo, IMU/ sensor boresight calibration, camera calibration,
DTMBox and OrthoBox (Optional)	Softcopy Software by InPHO; automatic DTM extraction and OrthoMosaic generation

USER SUPPLIED EQUIPMENT

PC for Post-processing	PC with Windows OS Minimum of 300 GB disk space (512 MB of RAM) Tower rack with external SATA or USB port
Softcopy OrthoPhoto Software	Compatible with BAE Socet Set, Z/I ImageStation, Leica LPS, and others

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