

DSS™ 439 SPECIFICATIONS

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

CAMERA

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) Optional: 250 mm, F/4, FOV (deg): crosstrack 11, alongtrack 8, diagonal 14 (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:	<3 seconds, sustained, including display of QA/QC thumbnail and status, logging of image and POS data
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

DSS 439	C/A GPS	DGPS*	Post-Processed
Position (m)	4.0-6.0	0.3-2	0.05-0.3
Velocity (m/s)	0.100	0.050	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)



PERFORMANCE

TruSpectrum™ Radiometry

Bands	1 (Red/NIR)*	2 (Green/Red)*	3 (Blue/Green)*
40mm/60mm VIS, 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
250mm VIS, nm	600-700	500-600	400-500

* VIS/CIR Modes

Minimum Ground Sample Distance (GSD), Portrait Mode*

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
 Effective GSD (developed images) 0.033 m (1.3 X theoretical GSD)

250 mm lens: Speed < 200 kts, Height < 2000 m AGL, 30% endlap, 1/f >1000
 Effective GSD (developed images) 0.05 m (1.3 X theoretical GSD)

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:	Camera with 40mm/60mm lens Camera with 250mm lens Computer system	0 deg C to +40 deg C 20 deg C, ± 4 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

POSPac MMS	GNSS Aided INS Processing Tools: Differential GNSS processing, Inertial/GNSS post-processing
	Photogrammetry Tools: Direct Georeferencing software; produces direct exterior orientation for each photo, IMU/ camera boresight calibration, Quality Control
	RapidOrtho (Optional): rapid generation of directly georeferenced orthophotos
DSS Tools	MissionView: Data management software, downloads images from removable drives
	ImageView: Image development software, lens fall-off correction < 3%, image sharpening tools, format conversion: TIFF, JPEG, IMG, quantization conversion: 8 bit or 12 bit, color balance via calibration inputs
InPHO DTMBBox and OrthoBox (Optional)	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 most softcopy photogrammetry packages



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