



DSSTM 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 TM 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 POStTrack, 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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