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

CAMERA

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Image Size</td>
<td>39 MP: 5412 x 7216</td>
</tr>
<tr>
<td>Pixel Size</td>
<td>0.0068 mm</td>
</tr>
<tr>
<td>Filter Array</td>
<td>Color (VIS) or ColorIR (CIR)</td>
</tr>
</tbody>
</table>
| 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

<table>
<thead>
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</tr>
</thead>
</table>
| 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

<table>
<thead>
<tr>
<th>Direct Georeferencing, RMS</th>
<th>DSS 439</th>
<th>C/A GPS</th>
<th>DGPS*</th>
<th>Post-Processed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position (m)</td>
<td>4.0-6.0</td>
<td>0.3-2</td>
<td>0.05-0.3</td>
<td></td>
</tr>
<tr>
<td>Velocity (m/s)</td>
<td>0.100</td>
<td>0.050</td>
<td>0.005</td>
<td></td>
</tr>
<tr>
<td>Roll &amp; Pitch (deg)</td>
<td>0.015</td>
<td>0.010</td>
<td>0.008</td>
<td></td>
</tr>
<tr>
<td>True Heading (deg)</td>
<td>0.08-0.016</td>
<td>0.050</td>
<td>0.015</td>
<td></td>
</tr>
</tbody>
</table>

*When using optional Satellite Based Augmentation Service (SBAS)
PERFORMANCE

TruSpectrum™ Radiometry

<table>
<thead>
<tr>
<th>Bands</th>
<th>1 (Red/NIR)*</th>
<th>2 (Green/Red)*</th>
<th>3 (Blue/Green)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>40mm/60mm VIS, nm</td>
<td>600-700</td>
<td>500-600</td>
<td>400-500</td>
</tr>
<tr>
<td>60mm CIR, nm</td>
<td>800-960</td>
<td>600-720</td>
<td>500-600</td>
</tr>
<tr>
<td>40mm CIR, nm</td>
<td>850-1100</td>
<td>600-720</td>
<td>500-600</td>
</tr>
<tr>
<td>250mm VIS, nm</td>
<td>600-700</td>
<td>500-600</td>
<td>400-500</td>
</tr>
</tbody>
</table>

* 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)

PHYSICAL DATA

Size:
- Digital sensor head: 180 x 180 x 360 mm
- Digital sensor mount tray: 250 x 310 x 36 mm
- Computer system: 340 x 370 x 340 mm

Weight:
- Digital sensor w/o Az Mount: ~ 7 kg (60 mm lens)
- Digital sensor mount tray: ~ 2 kg
- Computer system: 24 kg

Power:
- Computer system: 28 VDC 280 W (max) (includes camera, Az Mount)

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

- 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 or12 bit, color balance via calibration inputs

- InPHO DTMBox 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

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