UltraCamEagle - Technical Specifications

Image Product Specification

- Image format: Analogous to an aerial film image at a format of 23 cm x 15 cm, scanned at 12 μm
- Image data formats: JPEG, TIFF with options for 8 and 16 bits, standard tiff format
- Image storage format in level 2: Full resolution panchromatic, separate color channels at color resolution
- Color at level 3: Full resolution R, G, B, Near-IR channels, planar or pixel-interleaved

Camera Digital Sensor Subsystem

- Panchromatic image size: 20,010 * 13,080 pixels
- Panchromatic physical size: 5.2 μm
- Input data quantity per image: 842 Mega Bytes
- Physical format of the focal plane: 104,05 mm * 68,02 mm
- Color image size: 6,670 * 4,360 pixels
- Color physical pixel size: 5.2 μm
- PAN-sharpen ratio: 1.3
- Lens system 1: Linos Vexcel Apo-Sironar digital HR
- PAN lens focal distance: 80 mm
- Lens aperture: f = 1/5.6
- Total field of view, cross track (along track): 66° (46°)
- Color lens system focal distance: 27 mm
- Color lens aperture: f = 1/4.0
- Total color field of view, cross track (along track): 66° (46°)
- Lens system 2: Linos Vexcel Apo-Sironar digital HR
- PAN lens focal distance: 210 mm
- Lens aperture: f = 1/5.6
- Total field of view, cross track (along track): 28° (20°)
- PAN Pixel size on the ground (GSD) at flying height of 1000 m: 2.5 cm
- Color lens system focal distance: 70 mm
- Color lens aperture: f = 1/4.0
- Total color field of view, cross track (along track): 28° (20°)
- Lens system 1 and lens system 2 lab exchangeable by a specifically trained end user expert or Vexcel Imaging GmbH without lab calibration

Shutter system

- Shutter speed options: Prontor magnetic 0 – Vexcel
- Forward-motion compensation (FMC): 1/500 to 1/32
- Maximum FMC-capability: TDI controlled
- Frame rate per second (minimum inter-image interval): 50 pixels
- CCD signal to noise ratio: 1 frame per 1.8 seconds
- Radiometric resolution in each channel: 72 dB
- Analog-to-digital conversion at: >>12 bit
- Workflow dynamic: 14 bits
- Physical dimensions of the camera with 80 mm (210 mm) PAN lenses; including computer and storage module (CEDE): 43 cm x 43 cm x 76 cm (186 cm)
- Weight of the camera with 80 mm (210 mm) PAN lenses; including computer and storage module (CEDE): ~ 75 kg (~ 80 kg)
- Power consumption at full performance; including computer and storage module (CEDE): 350 W

Camera Computer And Data Storage Subsystem (CEDE)

- Concept: Modular stack, stacked onto sensor head or released with cabling to sensor head
- In-flight storage system: Solid state disc pack, optional storing of mirror images of the data on the DE unit
- In-flight storage capacity: Unlimited with use of multiple data units DE, per DE unit ~3.3 TB, ~ 3,800 images
- Weight of DE unit: < 3 kg
- Method of exchanging DE units in-flight: In less than 2 minutes
- Physical dimensions of CEDE module: Width 43 cm x Depth 43 cm x Height 35 cm
- Weight of CEDE: < 30 kg
- Power consumption at full performance: 150 W

Camera Operational Specification

- Data recording time @ 10 cm GSD, 60% forward overlap, 140 kts: 8 hours per DE unit
- Max. forward overlap @ 10 cm GSD (@ 5 cm GSD) with 140 kts: 90 % (80 %)
- Max. flight speed @ 10 cm GSD (@ 5 cm GSD) with 80% forward overlap: 268 kts (134 kts)
- Data transfer from aircraft to office: Shipping of DE, or transfer by high capacity storage medium
- Post-processing of collected raw images: Tiff-output compatible with Customer’s photogrammetric production software
- Photogrammetric Production: Full ortho workflow by GXL Aerial
- Extended Ortho Workflow: Using adapter ring for all current film camera mounts (UltraMounts, PAV-30, -80, T-AS)
- Mounting of the camera: Compatible with all major commercial systems (TrackAir, CCSN-4, …)
- Integrated GPS/INS/FMS system: Compatible with all major DGPS/IMU systems (Applanix POS- AV, IGI Aero-Control, …)
- Flight planning support (external FMS): Better ±2 μm
- Exterior orientation support (external GPS/INS system): Better ±2 μm

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