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 pixel 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 (multi-spectral capability)	4 channels – R, G, B & NIR
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
Panchromatic lens focal distance	80 mm
Lens aperture	f= 1/5.6
Total field of view, cross track (along track)	66° (46°)
PAN Pixel size on the ground (GSD) at flying height of 1000 m (at 500 m)	6.5 cm (3.25 cm)
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
Panchromatic 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	Prontor magnetic 0 – Vexcel
Shutter speed options	1/500 to 1/32
Forward-motion compensation (FMC)	TDI controlled
Maximum FMC-capability	50 pixels
Frame rate per second (minimum inter-image interval)	1 frame per 1.8 seconds
CCD signal to noise ratio	72 dB
Radiometric resolution in each channel	>>12 bit
Analog-to-digital conversion at	14 bits
Workflow dynamic	16 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 (86 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	UltraMap, UM/AT extension, PC network or Laptop
Photogrammetric Production	TIFF-output compatible with Customer's photogrammetric production software
Extended Ortho Workflow	Full ortho workflow by GXL Aerial
Mounting of the camera	Using adapter ring for all current film camera mounts (UltraMounts, PAV-30, -80, T-AS)
Integrated GPS/INS/FMS system	Applanix POSTrack OEM full embedded into camera head
Flight planning support (external FMS)	Compatible with all major commercial systems (TrackAir, CCNS-4, ...)
Exterior orientation support (external GPS/INS system)	Compatible with all major DGPS/IMU systems (Applanix POS-AV , IGI Aero-Control, ...)
Image geometric accuracy	Better ±2 µm

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