

Technical Specifications (preliminary)

Image Product Specification

Image format	Analogous to an aerial film image at a format of 23 cm x 15 cm, scanned at 15 μ m
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	14,430 * 9,420 pixels
Panchromatic physical pixel size	7.2 μ m
Input data quantity per image	418 Mega Bytes
Physical format of the focal plane	103.89 mm * 67.82 mm
Color (multi-spectral capability)	4 channels – R, G, B & NIR
Color image size	4,810 * 3,140 pixels
Color physical pixel size	7.2 μ m
PAN-sharpen ratio	1:3
<i>Sensor configuration "standard"</i>	<i>Linov Vexcel Apo-Sironar digital HR</i>
Panchromatic lens focal distance	100 mm
Lens aperture	f = 1/5.6
Total field of view, cross track (along track)	55° (37°)
Flying height for PAN Pixel size on the ground of 10 cm (GSD)	1,400 m
Color lens system focal distance	33 mm
Color lens aperture	f = 1/4.0
Total color field of view, cross track (along track)	55° (37°)
<i>Sensor configuration "wide angle"</i>	<i>Linov Vexcel Apo-Sironar digital HR</i>
Panchromatic lens focal distance	70 mm
Lens aperture	f = 1/5.6
Total field of view, cross track (along track)	73° (52°)
Flying height for PAN Pixel size on the ground of 10 cm (GSD)	972 m
Color lens system focal distance	23 mm
Color lens aperture	f = 1/4.0
Total color field of view, cross track (along track)	73° (52°)
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 1.2 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; including computer and storage module (CFDF)	43 cm x 43 cm x 76 cm
Weight of the camera; including computer and storage module (CFDF)	~ 75 kg
Power consumption at full performance; including computer and storage module (CFDF)	350 W

Camera Computer And Data Storage Subsystem (CFDF)

Concept	Modular stack, stacked onto sensor head or released with cabling to sensor head
In-flight storage system	Solid state disc pack, with RAID system for data protection
In-flight storage capacity	Unlimited with use of multiple data units DF; per DF unit ~3.3 TB, ~ 7,500 images
Weight of DF unit	< 3 kg
Method of exchanging DF units in-flight	In less than 2 minutes
Physical dimensions of CFDF module	Width 43 cm x Depth 43 cm x Height 35 cm
Weight of CFDF	< 30 kg
Power consumption at full performance	150 W

Camera Operational Specification

Operating / storage temperature	0 °C to 45 °C / -20 °C to 65 °C
Humidity	5 % ... 95 % no condensation
Flight altitude non-pressurized (full accuracy, full temperature range)	≤ 5000 m AGL
Flight altitude non-pressurized (reduced temperature range; 0 °C to 25 °C)	≤ 7000 m AGL
Flight altitude pressurized aircraft	no limitation unless cabin pressure stays above 5000 m pressure
Data recording time @ 10 cm GSD, 60% forward overlap, 140 kts	8 hours per DF unit
Max. forward overlap @ 10 cm GSD (@ 5 cm GSD) with 140 kts	92 % (85 %)
Max. flight speed @ 10 cm GSD (@ 5 cm GSD) with 80% forward overlap	366 kts (183 kts)
Data transfer from aircraft to office	Shipping of DF, 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 UltraMap
Mounting of the camera	Using adapter ring for most current film camera mounts (UltraMount GSM 3000, PAV-80, T-AS)
Integrated GPS/INS/FMS system	UltraNav (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 μ m

For more Information, contact:

Microsoft Photogrammetry Division
Anzengrubergasse 8
A-8010 Graz, Austria

mpsinfo@microsoft.com | www.iFlyUltraCam.com