

Lead'Air, Inc.



MIDAS VI

Multi-Camera Integrated Digital Acquisition System



**The New MIDAS VI
Smaller and Lighter
than ever!**

Multi-Camera Integrated Digital Acquisition System

The MIDAS Acquisition System has been in use worldwide since 2004 and boasts over 100 systems delivered to date. These systems account for millions of professionally produced images yearly and their reliability is well documented.

The MIDAS VI is highly adaptable, with lens configurations ranging from very short, low level 25/35mm pairs to the longest 200/300mm objective assemblies requiring specialized, high altitude platforms and special training.



From the rigid construction of the Cam-Lens mounting hardware, ruggedized yet lightweight mounting array and IMU stabilized mount, to the fully integrated control rack assembly and operating system, the MIDAS VI is completely designed, produced, quality controlled and quality tested in our manufacturing facilities at the Kissimmee Airport in Kissimmee, Florida.

Our systems are unsurpassed in image capture rate, shutter longevity and the all important "overall cost per click". With shutters that routinely capture over 500,000 images per camera and are easily replaceable, our clients are thrilled with their ability to capture an entire heavy season of imagery without the need of replacement shutters.

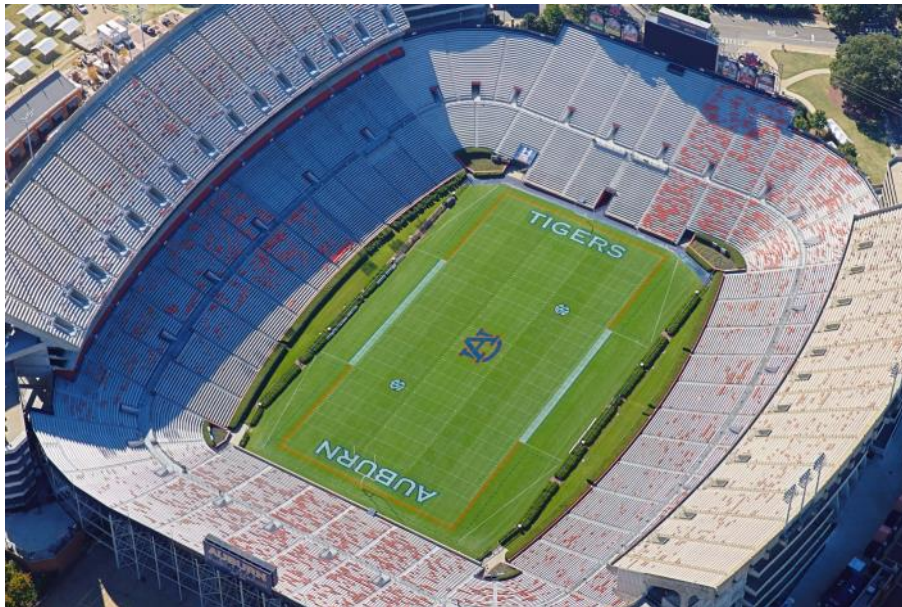
Multi-Camera Integrated Digital Acquisition System

Lead'Air Altitude to GSD Chart

Nikon	45° Oblique GSD in mm/ inches									
	17	20	25.4	30	35	40	45	50.8	71	76.2
ALTITUDE	0.67 in.	0.8 in.	1 inch	1.2 in.	1.4 in.	1.6 in.	1.8 in.	2 inch	2.8 in.	3 in.
4,850										4850
4,550									4550	
3,250								3250		
3,000									3000	
2,850							2850			
2,550						2550				
2,200					2200					
2,050								2050		
1,900				1900						
1,800							1800			1800
1,650									1650	
1,600			1600							
1,400										
1,250		1250								
1,200				1200						
1,100	1100									
1,050								1050		
1,000										1000
Max Airspeed (knots)	100	110	95	110	130	150	155	210	270	285
60% F.O.L.	<1 sec	<1 sec	One second per frame							

STANDARD MIDAS 25-35 35-50 60-85 100-135

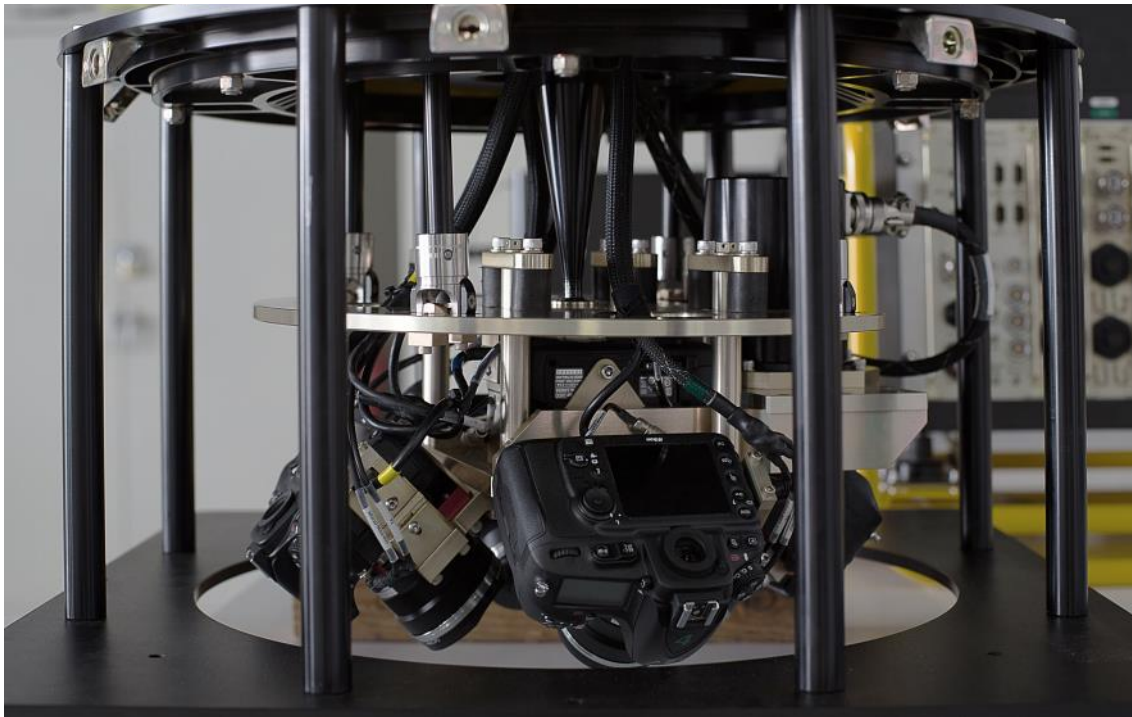
GSD TABLES for different lenses and altitudes demonstrate the flexibility of the MIDAS VI systems. Using today's highest resolution sensors (up to 50MPx in the full-frame, 24x36mm form factor) and the broad array of lenses available, it is possible to achieve outstanding resolution and productivity for every job.



Multi-Camera Integrated Digital Acquisition System

New Stabilized Suspension System

The MIDAS VI mount is made possible because of a new, ground breaking fully stabilized camera suspension system. This innovative system allows the camera array to move freely, hovering at a very short distance above or even lowered into the camera hole, without the need for a bulky old-fashioned circular mount.



With no control arms to get in the way or impede movement, the mount “legs” can be adjusted in height to lower the optical array into the mounting hole to the optimal position for each aircraft, allowing smaller holes and/or wider lenses than a mount with a typical gimbal system in the same plane as the optics.

Multi-Camera Integrated Digital Acquisition System

Customized Metric Mapping Cameras

Instead of building the system with very costly medium format cameras, Lead'Air uses less expensive off the shelf, full frame, top of the line DSLR bodies from Nikon. These camera bodies are reengineered and rebuilt in our own manufacturing facilities. They are reassembled using the best available lenses into true metric mapping cameras which are each delivered with an official calibration certificate.



If requested the MIDAS VI can be built with a medium format PhaseOne iXM camera in the vertical position only with 4 oblique DSLR cameras or all 5 positions with medium format cameras. The additional cost of the cameras will be passed on to the client.

Powerful Computer Control Center



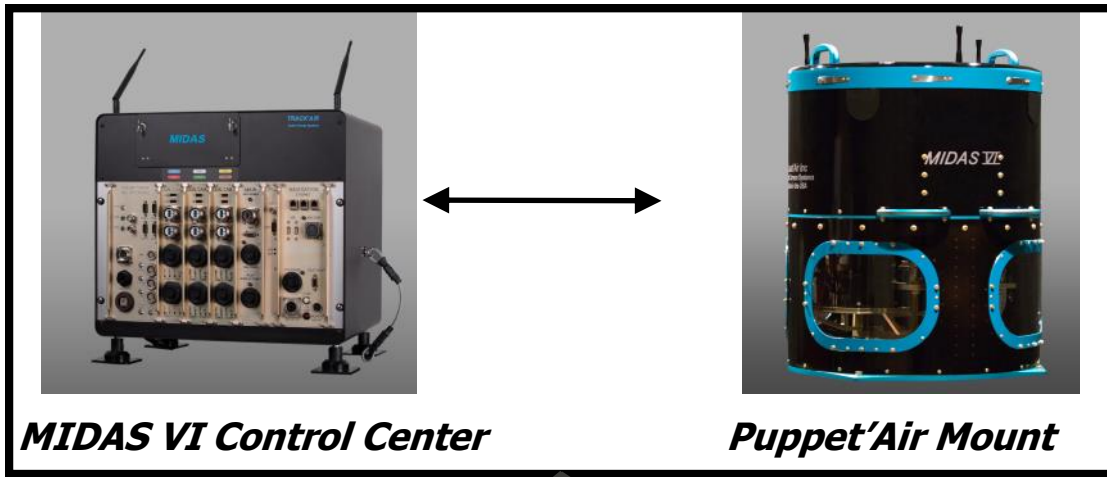
The MIDAS VI is controlled by the **MIDAS VI** Computer Control Center and takes advantage of the years of development creating the best known oblique imaging system in the world.

The MIDAS VI Computer Control Center contains all the necessary controls for each camera, IMU, Navigation interface, stabilized mount and all power functions for the system.

Even the most robust systems occasionally need maintenance. The modular unit allows for operator maintenance in the field with replacement modules overnigheted when needed.

One System, Multiple Camera Arrays

ONE MIDAS VI AND MOUNT MULTIPLE NIKON CAMERA ARRAYS



HELIDAS Array with



DSLR Cameras

*Two Inch Pixel Resolution
from Multiple Altitudes with
Interchangeable Arrays*



35mm/50mm

Nikon D850 1200' AGL



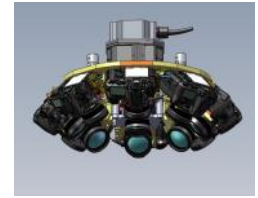
50mm/85mm

1700' AGL



100mm/135mm

3400' AGL

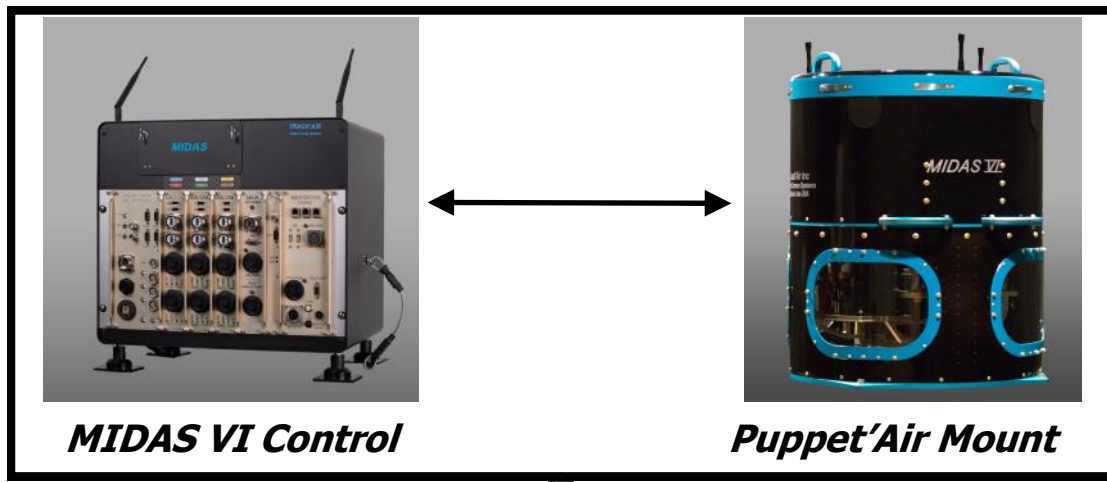


135mm/200mm

4600' AGL

One System, Multiple Camera Arrays

ONE MIDAS VI AND MOUNT MULTIPLE PHASE ONE CAMERA ARRAYS



MIDAS VI Control

Puppet'Air Mount

**HELIDAS Array with
Phase One iXM**

**Two Inch Pixel Resolution
from Multiple Altitudes with
Interchangeable Arrays**



**32mm/40mm
1150' AGL**



**50mm/70mm
1800' AGL**



**70mm/110mm
2540' AGL**



**110mm/150mm
4000' AGL**

Multi-Camera Integrated Digital Acquisition System



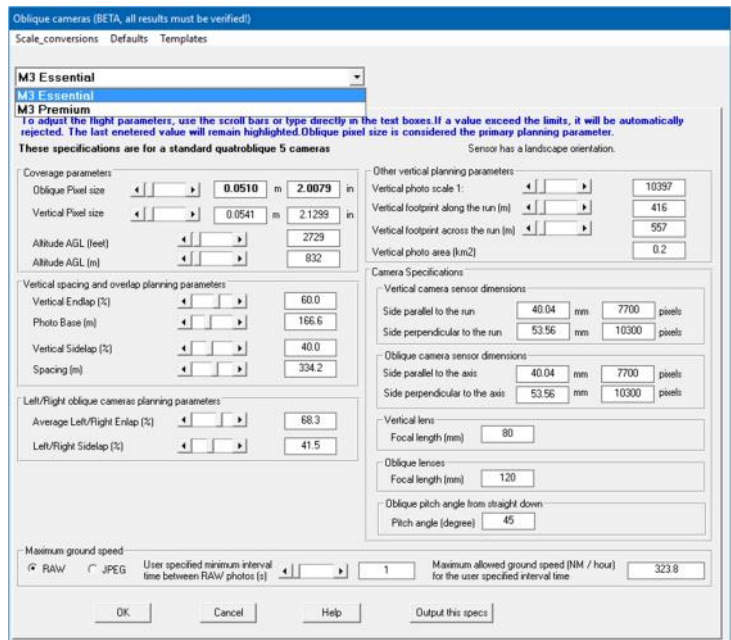
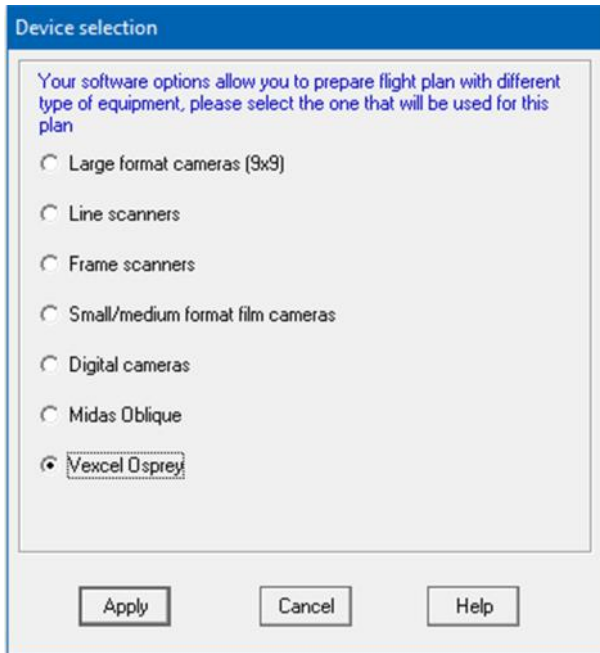
TrackAir

New Automated Flight Planning for MIDAS

With our newly designed **snapPLAN** flight planning system, the operator is assured of complete coverage with our automated methodology. The system automatically creates flight plans and modifies the number of flight lines to ensure the areas are completely photographed from all 4 angles as well as the vertical view. Options are available for our MIDAS VI system as well as the Vexcel Osprey oblique system.

Simplified Planning Parameters

Changing the parameters of your flight plan is easier than ever. After selecting or creating your proper lens combination just enter your preferred Pixel size, endlap and sidelap and then verify the overlaps of all of your oblique images with the new overlap display tab.



New Automated Flight Planning System

Planning and Optimization

After selecting your specifications click on the Overlap Display tab and visualize the overlaps you will have for your flight lines.

Oblique cameras (BETA, all results must be verified)

Scale_conversions Defaults Templates

Track Air is not responsible for this list of Midas cameras. Please verify that these parameters actually matches those of your system !

Midas Nikon D800 50mm/85mm

Change planning parameters | Change or add a new oblique/vertical definition | Overlap Display

To adjust the flight parameters, use the scroll bars or type directly in the text boxes. If a value exceed the limits, it will be automatically rejected. The last entered value will remain highlighted. Oblique pixel size is considered the primary planning parameter.

These specifications are for a standard quadroblique 5 cameras

Sensor has a landscape orientation.

Coverage parameters

Oblique Pixel size: 3.17 cm 1.2480 in

Vertical Pixel size: 3.81 cm 1.5000 in

Altitude AGL (feet): 1279

Altitude AGL (m): 390

Vertical spacing and overlap planning parameters

Vertical Endlap (%): 70.0

Photo Base (m): 56.1

Vertical Sidelap (%): 40.0

Spacing (m): 152.1

Left/Right oblique cameras planning parameters

Average Left/Right Endlap (%): 75.6

Left/Right Sidelap (%): 25.5

Other vertical planning parameters

Vertical photo scale 1: 7797

Vertical footprint along the run (m): 187

Vertical footprint across the run (m): 280

Vertical photo area (lm2): 0.1

Maximum ground speed

RAW JPEG User specified camera interval time between RAW photos (s): 0.4 Maximum allowed ground speed (knots) for the specified interval time: 272.7

OK Cancel Output this specs

Oblique cameras (BETA, all results must be verified)

Scale_conversions Defaults Templates

Track Air is not responsible for this list of Midas cameras. Please verify that these parameters actually matches those of your system !

Midas Nikon D800 50mm/85mm

Change planning parameters | Change or add a new oblique/vertical definition | Overlap Display

Strip Direction

Export all coverages to a file

Camera Coverage Display

Purple line indicates the strip. Click a circle to jump to a camera coverage.

Vertical dimensions indicate endlaps.

Horizontal dimensions indicate sidelaps.

Left click to jump to a coverage.

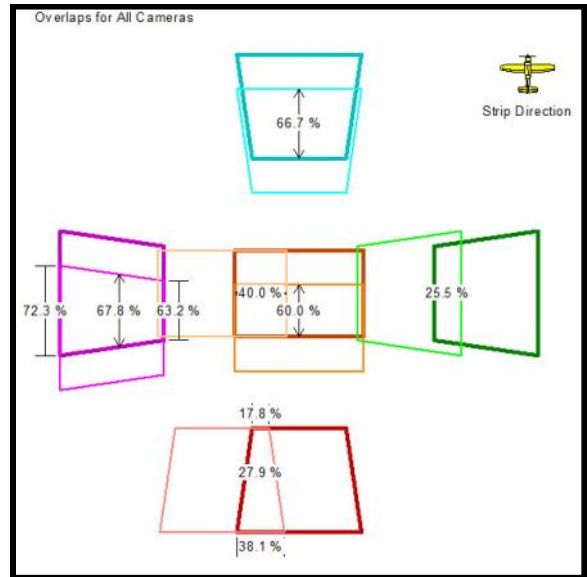
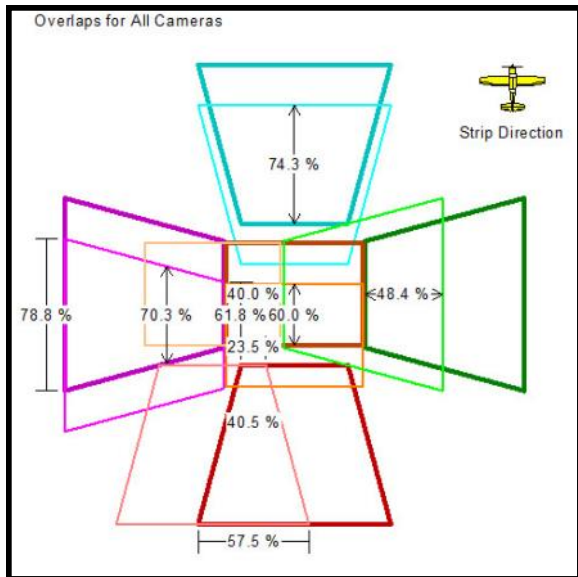
Right click to show one side coverages.

Lock display when switch tabs

Reset Zoom

Diagram showing camera coverage with percentages: 75.0%, 79.3%, 75.8%, 72.4%, 40.0%, 70.0%, 25.5%, 17.8%, 27.9%, 38.1%.

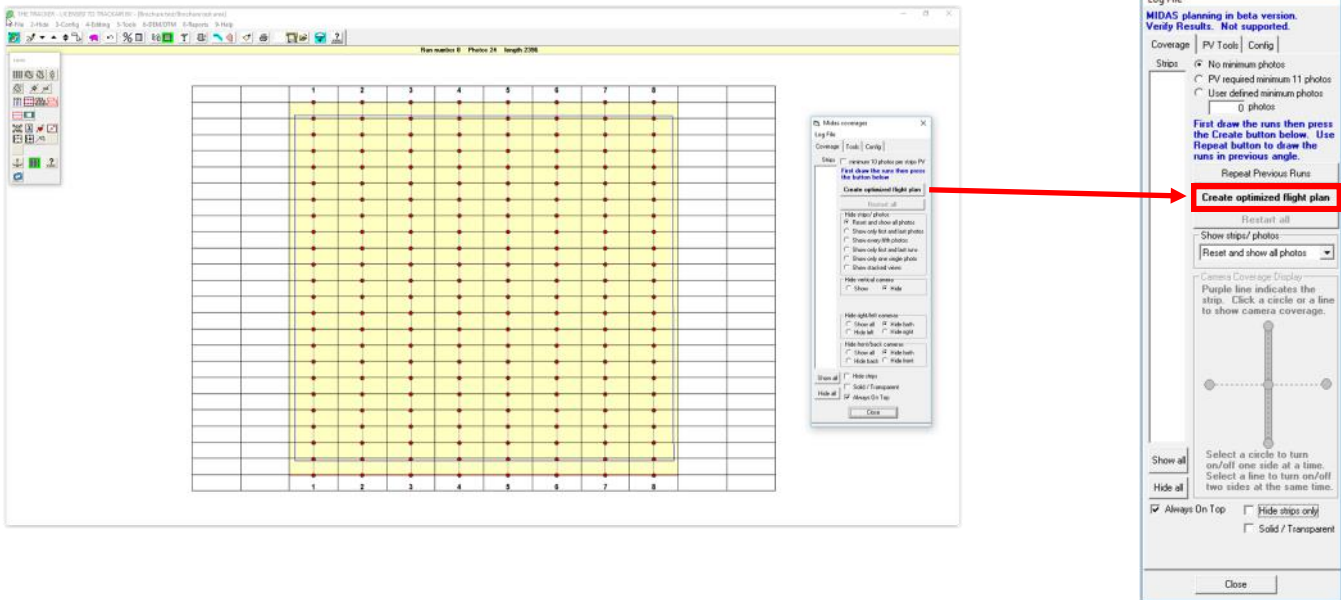
We show the actual overlaps for each direction between two flight lines allowing you to edit the specs to optimize your flight plan. The layout can be exported as a jpg to be included in reports or used for a planning meeting.



New Automated Flight Planning System

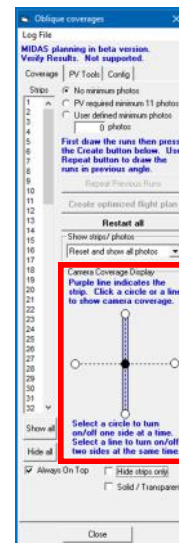
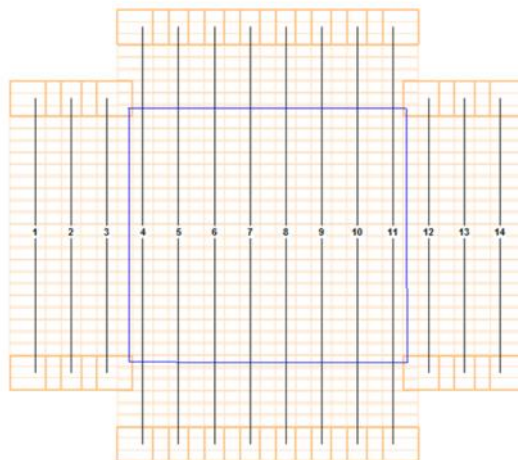
Planning and Optimization

With our newly designed planning, creating and verifying your coverage could not be easier. After creating your usual vertical flight plan, in the right panel select "create optimized flight plan".



The program automatically creates the additional lines and extends the existing ones to properly cover the project for the oblique imaging. With the Quick View Show/Hide buttons for each of the directional views the software assures the planner that the project is properly covered.

Shown to the right is the vertical camera view depicting all the image locations required to properly capture the project area



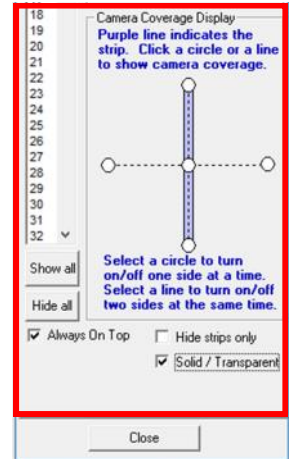
Multi-Camera Integrated Digital Acquisition System

Quick View Coverage Reviews

With our "Quick View" Camera Coverage Display Options the ability to review each camera direction is essential to the assurance that the project plan will properly cover the required area.

Complete your review, add your terrain heights and save your completed flight plan.

With the addition of our sorting tools in **snapBASE**, the program provides a comprehensive listing of only the images required to create a complete coverage set of imagery.



TRANSPARENT FRAME VIEWS

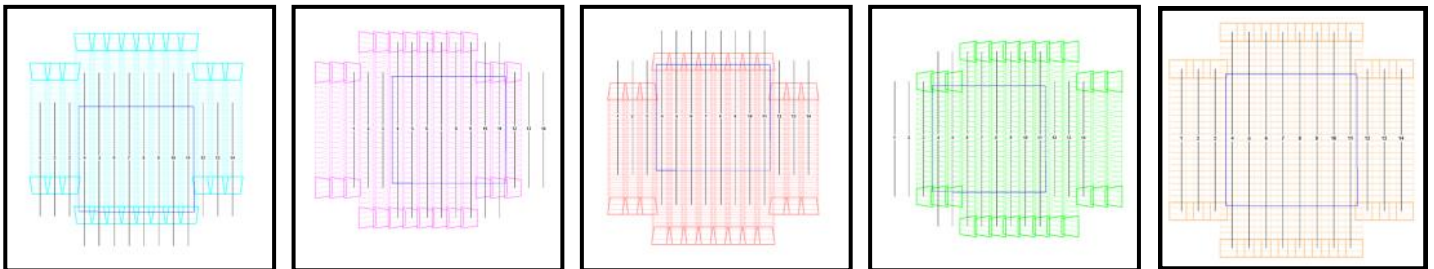
0° Forward

270° Left

180° Back

90° Right

Vertical



SOLID FRAME VIEWS

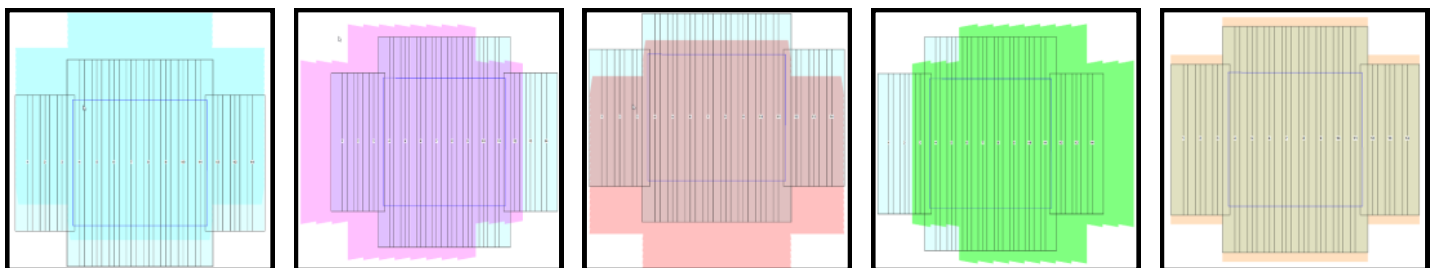
0° Forward

270° Left

180° Back

90° Right

Vertical



Powerful Backup Computer Control Station

The amount of data captured per day can be substantial and because each camera has a dedicated Solid State Drive in the Disk Array it is important to be able to download the data as efficiently as possible. Lead'Air delivers a backup station that automatically and systematically downloads all the data to two of your high speed hard drives to be sent to the office or maintained on sight until the project is complete. Redundant copying is critical in the case of a drive failure.



Complete Automation

Plug in the Disk Array, answer a few questions in the custom software package and the system will download all the data from the solid state drives to two drives at once, perform a disk verification and when you approve, reformat the disk array to ready it for the next flight.

Two disk arrays are included with each system, so if necessary, while one is flying and capturing more data the other can be downloading.

Multi-Camera Integrated Digital Acquisition System

TECHNICAL SPECIFICATIONS (GENERAL)

Power requirements	24-28 Volts at 24-30 Amp
MIDAS Computer Size	19 x 13 x 15 inch (490 x 330 x 390mm)
Navigation/camera control	X-TRACK flight management system
FMS interface	Flat panel touch screen
Cameras	5 Nikon D850 46 MP
Lenses	1-100mm and 4-135mm Zeiss MILVUS f/1.4 ZE (1 vertical + 4 tilted)
Sensor	14 bits
Images	5 x 46 Mega pixel raw images
Image quality control	Real time viewer with thumbnail display
Image storage	6 x 512GB SATA SSD Drives
Performance	Interval of 1.3 seconds
Altitude	Max 25,000 feet
Operation temperature	32-140 Fahrenheit (0-60 Celsius)
Shock/vibration	Rubber Vibration Dampeners
IMU/GPS.....	Integrated Applanix AP 50 IMU

Technical specifications fully stabilized camera mount

Drift correction	Automatic ; Motorized +/- 30 °
Pitch/roll leveling	Automatic ; Motorized +/- 10 °
Camera angle	Fixed 45°
Shock/vibration	Rubber Vibration Dampeners

Weight and balance (may vary slightly with individual system configurations)

Midas computer system w' frame, POS, cables and Displays.....	~ 101.0 lbs.	45.8 kg
Midas array with cameras, mount and all cables	~ 97.1 lbs.	44.0 kg
Total	~ 198.1 lbs.	89.8 kg