AA3509DS LIGHTWEIGHT ABS Airborne Scanner

55 pounds <300 watts

For the AA3509DS, the workhorse ABS design has been adapted to airborne & UAV platforms where low weight and power are important considerations.

The ABS system is a dual optical port scanner which simultaneously records two or more spectral channels directly onto a removable hard disk. The ABS provides calibrated thermal information for the determination of radiometric temperature relationships for various remote sensing applications. The compact scan head and electronics can be installed in a wide range of aircraft using standard 16" aerial camera ports and seat assemblies.

The system performs simultaneous scanning for thermal infrared and a second spectral region: either shortwave infrared, visible/near infrared,or ultraviolet. Bandpass filters can be used to obtain specific spectral bands in the V/NIR (0.4 - 1.1 µm) region. Calibration of the thermal IR channel is standard and uses the built-in blackbody references.

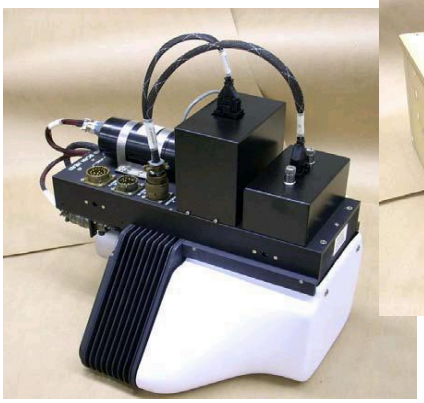
The system's Built-In Test (BIT) capabilities deliver a high level of confidence in mission success. An on-board image display provides a real-time check of flight line coverage and data quality. A built-in differential ready GPS receiver automatically inserts navigation data into the housekeeping message in the header of each scan line.

The lightweight ABS provides operator control via a menu driven remote graphical user interface.

Included with the ABS is the Daedalus Importer which converts the raw image file to industry standard BIL format and applies geometric (velocity over height and s-bend) corrections and radiometric conversion. The optional Image Mapper software module and POS adds the capability to produce GIS compatible ortho-rectified imagery.

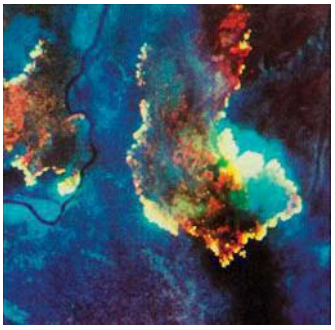
The ABS collects data for applications as diverse as:

- Geologic Mapping
- Vegetation Studies
- Pollution Monitoring
- Maritime Surveillance
- Heat Loss Detection
- And Many More



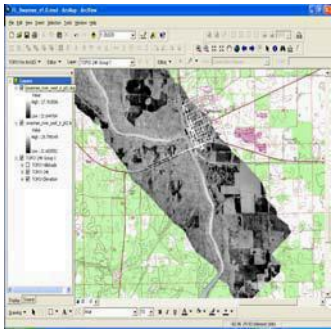
SENSOR HEAD

CONTROL CONSOLE



Forest fire smoke is penetrated here using several region of the infrared to pinpoint hot spots and fire fronts for ground personnel. (Courtesy of NASA/Ames Research Center) NASA does not endorse any commercial product.

Oil spill monitoring using thermal IR and UV channels. The UV assists in determining total area of oil slick while the IR is used for oil thickness estimates. (Courtesy of the North Sea Directorate)



Spring detection and mapping using the thermal IR channel and the Daedalus Rapid Mapper Software allows the St. Johns River Water Management District to improve their understanding of the Floridian Aquifer quickly and efficiently. ArcGIS compatible image maps can be produced within minutes of data acquisition

DaedalusScanners LLC

Daedalus Imaging Systems

AA3509DS LIGHTWEIGHT ABS Airborne Bispectral Scanner

Partial Listing of Applications:	DETECTOR COMBINATION UV	V/NIR	MWIR	LWIR
Geologic mapping				X
Ground water discharge				X
Offshore spring mapping				X
Thermal discharge monitoring				X
Fire detection/mapping			X	X
Geothermal exploration			X	X
Search and rescue			X	X
Ice mapping			X	
Soil moisture studies		X		X
Thermal inertia mapping		X		X
Crop and forestry studies		X		X
Oil spill detection/mapping	X			X

Examples of typical applications and their recommended spectral combinations are depicted in the chart above.

Note: the ABS can be ugraded to the 10 or 16 band AMS (Airborne Multispectral Scanner)

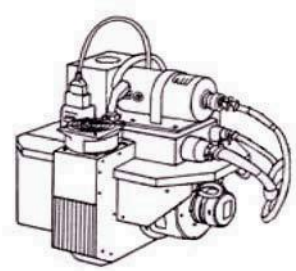
OPTIONS

SECOND CHANNEL DETECTORS
Medium Wave IR Detector (MWIR 3-5 um)
Visible/Near Infrared Detector (V/NIR) 0.4 - 1.1 µm
Ultraviolet Detector (UV) 320 - 380 nm (5.0 mrad only
Three Channel Configuration: UV/MWIR/LWIR

Note: Detectors can be purchased later as needs develop.

GPS/INS and Image Mapper Software
IR DETECTOR CLOSED CYCLE COOLING

INSTALLATION ASSISTANCE



PHYSICAL SPECIFICATIONS

	Height		Width		Depth*	
	in	*cm*	*in*	*cm*	*in*	*cm*
Scan Head	15.0	38.0	15.0	38.0	15.0	38.0
Electronics	7	18	20.0	50.8	20.0	50.8

Total System Weight (approx.) 55 lbs. (25 kg)
* Depth not including connectors and cables

ENVIRONMENTAL SPECIFICATIONS

	Temperature	Rel. Humidity (non-condensing)	Altitude
Scan Head	-55° to +70°C	0 - 95%	50,000 ft (15,200 m)
Electronics (operating)	+5° to + 50°C	20 - 80%	12,000 ft (3,658 m)
Electronics (non-operating)	-40° to +60°C	0 - 95%	50,000 ft (15,200 m)

Specifications subject to change.

TECHNICALSPECIFICATIONS

STANDARD THERMAL INFRARED DETECTOR
LWIR, 8.5 - 12.5 µm

INSTANTANEOUS FIELD OF VIEW
2.5 milliradians
(1.25 mrad optional)

DIGITIZED FIELD OF VIEW - 90°
750 pixels @ 2.5 mrad
1500 pixels @ 1.25 mrad

SCAN RATES
100, 50, 25, 12.5 scans/sec
(operator selectable)

VELOCITY/HEIGHT RATIO (V/H)
0.25 radians/sec with 2.5 mrad IFOV
0.125 radians/sec with 1.25 mrad IFOV

OPERATOR INTERFACE
External computer or laptop PC connected to Control Console by Ethernet. Custom designed GUI controls all instrument functions.

POWER REQUIREMENTS
28 ±3 VDC, 10 amps continuous

IMAGE DISPLAY
Real time water fall display

DIGITIZATION PRECISION
16-bit

RECORD TIME AT 100 SCANS/SEC (2 channel operation)

2.5 mrad	1.25 mrad
>30 hours	>15 hours

THERMAL REFERENCE SOURCES
Two field-filling blackbodies are built in, one passive (ambient) and one controlled by the operator. Each blackbody is viewed once per scan mirror revolution.

Image Mapper and POS

DaedalusScanners has developed software for generating GIS compatible ortho-rectified imagery from the ABS: Image Mapper uses position and orientation information recorded in flight and a DEM, producing image maps after completing the flight line. This feature requires the GPS/INS system.

Rev. 1 - June 2012

DaedalusScanners LLC
1517 Montclair Pl
Ann Arbor, MI 48104 USA

(734) 730-5263
Fred.Osterwisch@DaedalusScanners.com

www.DaedalusScanners.com