

# Enhanced *Real Time Mapping AMS Multispectral Scanner - AA3600DS*

The utility and feature set of the original AMS has been broadened for this workhorse imaging system. The basic AMS is a dual optical port multispectral scanner which records up to 10 spectral bands simultaneously onto a removable disk. Relative to the earlier AMS, this enhanced version is optimized for 2.5 mrad spatial resolution (FOV or higher), has a high dynamic range and high capacity data system and geo-corrected output imagery.

***These enhanced features are also available as an upgrade for existing AMS, ABS or ATM- or owners wishing to modernize and improve the capability of their system***

The new system integrates a GPS/INS subsystem, DEM storage and enhanced processing power. Specially developed software uses the position and attitude measurements and the DEM to geocode each pixel to map coordinates, thus producing GIS compatible imagery. Corrected compatible imagery is available upon landing the aircraft. Uncorrected "raw" sensor data is also recorded. Optional accessories permit the imagery to be radio or satellite linked in real time to a ground workstation where it is superimposed onto a standard base map image. Additional tools are provided to enable post processing of the raw recorded data in cases where immediate results are not required. Post processing also increases the accuracy of the geo-located images.

Like the standard AMS, the enhanced version provides calibrated thermal outputs for the determination of radiometric temperature relationships for a variety of remote sensing applications. The compact scan head and electronics can be installed in a wide range of aircraft using standard aerial camera ports and seat assemblies. The sensor configuration includes a dual element thermal infrared detector and a 8-band, visible/near-infrared spectrometer so that a total of 10 spectral bands are available. Any or all of these bands may be selected for recording by the operator without restrictions.

The system's built-in test capability delivers 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. The AMS provides continuous status monitoring and operator control via a menu-driven touch screen.

## Now with compact data system and Geo-corrected output.

The AMS collects data for applications as diverse as:

### **Strategic intelligence**

*Geologic mapping*

*Forest inventory*

*Fire mapping*

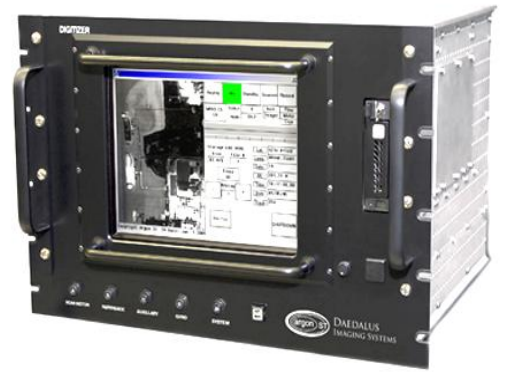
*Oil spill detection/mapping*

*Water chlorophyll studies*

***And many more.***

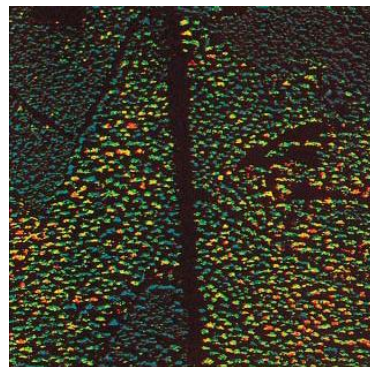


Scan Head

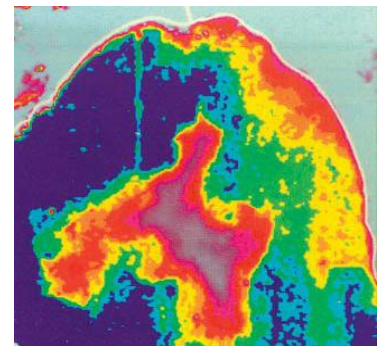


Data System

*photo depicts one variation of system.*



Imagery of waste settling ponds in the San Francisco Bay area shows dramatic differences in spectral signatures. Diked ponds, some of which are used for industrial processing wastes, require airborne monitoring to detect leakage. (Courtesy of NASA/Ames Research Center) NASA does not endorse any commercial product.



Bay Environment Study shows sea water pollution, suspended solids and chlorophyll conditions. (Courtesy Asia Air Survey Company, Ltd., Japan)

Acid Rain Study of a forest area shows degradation of healthy trees over a one year period. Red dots are dead trees. (Courtesy Eurosense, Belgium)



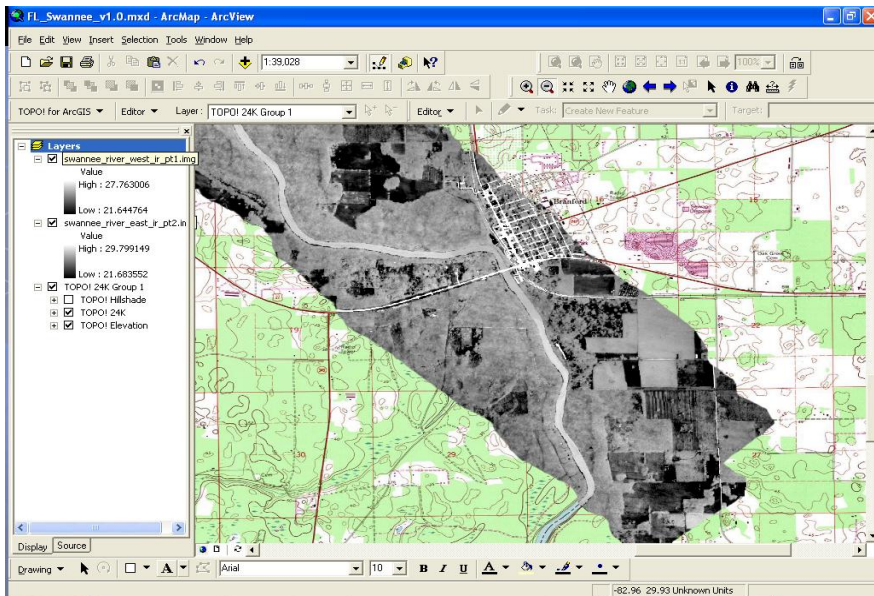
***DaedalusScanners LLC***

# Real Time Mapping AMS Multispectral Scanner - AA3600DS

PARTIAL LISTING OF APPLICATIONS:	SPECTRAL BANDS									
	VIS/NIR Spectrometer Channels								MWIR	LWIR
	1	2	3	4	5	6	7	8	9	10
Geologic Mapping		X			X		X	X	X	X
Water Chlorophyll	X	X		X	X	X				X
Water Suspended Sediment			X	X			X	X		X
H <sub>2</sub> O Temp-Spring/Seep Detection										X
Water Algae	X		X	X	X	X	X			X
Forest Inventory		X	X	X	X	X	X	X		X
Crop Vigor Studies		X	X	X			X	X		X
Fire Detection/Mapping									X	X
Oil Spill Detection/Mapping	X								X	X

The AMS collects data for applications as diverse as geologic mapping, forest inventory, fire mapping, oil spill detection/mapping, water chlorophyll studies and many more. Examples of typical applications and their recommended spectral combinations are depicted in the chart above. **Strategic intelligence applications may use all bands.**

Band	Band Edges	
1	0.43 – 0.45 $\mu$ m	Visible
2*	0.45 – 0.52 $\mu$ m	
3*	0.52 – .60 $\mu$ m	
4	0.60 – 0.63 $\mu$ m	
5*	0.63 – 0.69 $\mu$ m	
6	0.69 – 0.75 $\mu$ m	Near Infrared
7*	0.76 – 0.90 $\mu$ m	
8	0.91 – 1.05 $\mu$ m	
9 MWIR	3.0 – 5.4 $\mu$ m	Thermal Infrared
10 LWIR	8.5 – 12.5 $\mu$ m	



Two line mosaic of IR AMS image over base map in GIS system

## OPTIONS

IR Detector Cryo-Cooling or Liquid Nitrogen cooled  
 Installation assistance; - maintenance and calibration accessories  
 Higher spatial resolution: 1.25 milliradian

## PHYSICAL

	Height		Width		Depth*	
	in	cm	in	cm	in	cm
Scan Head	15.0	38.0	15.0	38.0	15.0	38.0
Electronics	10.5	26.7	20.0	50.8	20.0	50.8

Total System Weight (approx.)

\* Depth not including connectors and cables

lbs	kg
150	68

## ENVIRONMENTAL

	Temperature	Rel. Humidity (non-condensing)	Altitude
Scan Head	-55° to +70°C	0 - 95%	50,000 ft (15,200 m)
Electronics (operating)	+5° to +40°C	20 - 80%	25,000 ft* (7,600 m)
Electronics (non-operating)	-40° to +60°C	0 - 95%	50,000 ft (15,200 m)

## TECHNICAL SPECIFICATIONS

INSTANTANEOUS FIELD OF VIEW  
 2.5 milliradians standard

DIGITIZED FIELD OF VIEW  
 90° = 750 scene pixels

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

REAL TIME GEO-LOCATION ACCURACY  
 ± 5-10 Pixels for 30 M USGS DEM and DGPS  
 POST PROCESSED GEO-LOCATION ACCURACY  
 ±5 Pixels for 30 M USGS DEM and DGPS

POWER REQUIREMENTS  
 28 ±3 VDC, 30 amps maximum

IMAGE DISPLAY  
 Scrolling moving window on touch screen

DIGITIZATION PRECISION  
 16-bit per pixel

RECORD TIME AT 100 SCANS/SEC  
 (10 channel operation)  
 3Hours per removable disk

THERMAL REFERENCE SOURCES  
 Two controllable field-filling blackbody reference sources. Range of -15° to +25°C with respect to scan head heat sink temperature.

## GPS/INS SYSTEM

A attitude and location measurement system is integral to the instrument. Attitude and location information from this system are used in real-time or in post processing, together with a DEM, to remove the effects of aircraft motion & terrain relief from the image data. Output image is North-up and ortho-rectified.

Specifications subject to change.

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## DaedalusScanners LLC

1517 Montclair Pl.  
 Ann Arbor, MI 48104 USA  
 (734) 730-5263

www.DaedalusScanners.com