

Airborne Scanner for Oil & Fire Mapping AA3503DS

The DaedalusScanners model AA3503DS is a dual optical port scanner configured with three (3) sensors which are ideally suited for detection and mapping of oil spills and/or hot targets such as wildfires. The system records all spectral channels directly onto a removable hard disk. The scanner 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 of two thermal infrared bands and an ultraviolet spectral band. All bands are spatially co-registered. Calibration of the thermal IR channel is standard using the built-in blackbody references.

The system's Built-In Test (BIT) function runs automatically at startup, delivering 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 included inertial navigation sub-system automatically inserts location and orientation data into the recorded output file for each scan line.

Operator control is provided by a menu-driven touch screen.

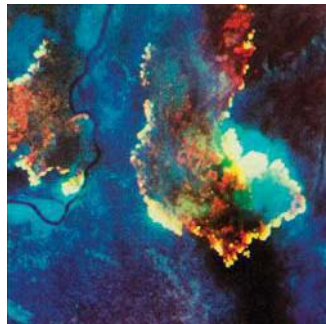
RapidMapper software is included which provides the capability to produce Arc GIS compatible and geo-rectified imagery.

The scanner collects data for applications as diverse

- ▣ Geologic studies
- ▣ Fire Mapping
- ▣ Pollution monitoring
- ▣ Maritime surveillance
- ▣ Heat loss detection
- ▣ And many more.

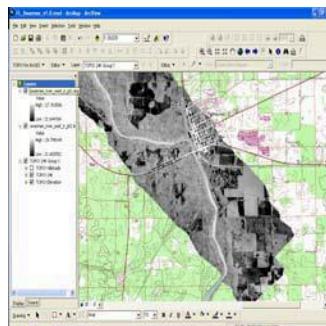
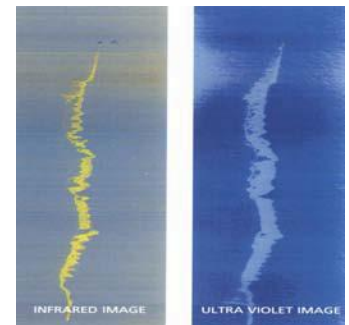


Photo depicts one variation of system.



(Left) Forest fire smoke is penetrated here using several regions 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.

(Right) 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)



(Left) 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

Airborne Scanner for Oil and Fire Mapping AA3503DS

SOME DETECTOR COMBINATIONS

Partial Listing of Applications:	UV	VNIR	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 upgraded to the 10 or 16 band multispectral scanner.

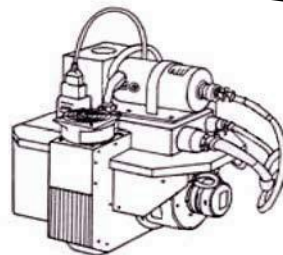
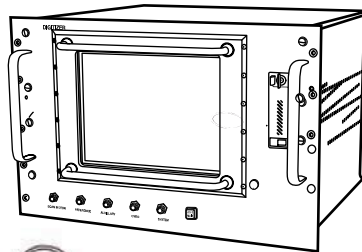
OPTIONS

ALTERNATE DETECTORS

Visible/Near Infrared Detector (V/NIR) 0.4 - 1.1 μm

Note: Optional detectors can be purchased later as needs develop.

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	10.5	26.7	20.0	50.8	20.0	50.8

Total System Weight (approx.) 100 lbs. (45 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. DaedalusScanners reserves the right to substitute components of equal or superior performance at any time without notice.

Rev. 2 - Jul 2012

TECHNICAL SPECIFICATIONS

STANDARD SPECTRAL BANDS

LWIR	8.5 - 12.5 μm
MWIR	3.5 - 5.5 μm
UV	0.32 - 0.38 μm

Note: IR detectors are closed cycle cryo-cooled: liquid nitrogen is not needed.

INSTANTANEOUS FIELD OF VIEW

1.25 milliradians

(2.5 mrad optional)

Note: For best performance the UV band is 5 mrad only.

DIGITIZED FIELD OF VIEW = 90°

1500 recorded pixels per line @ 1.25 mrad

750 recorded pixels per line @ 2.5 mrad

SCAN RATES

100, 50, 25, 12.5 scans/sec

(operator selectable)

VELOCITY/HEIGHT RATIO (V/H)

0.125 radians/sec with 1.25 mrad IFOV

0.25 radians/sec with 2.5 mrad IFOV

POWER REQUIREMENTS

28 \pm 3 VDC, <20 amps continuous

IMAGE DISPLAY

Real time water fall display

DIGITIZATION PRECISION = 16-bit

RECORD TIME > 15 hours

THERMAL REFERENCE SOURCES

Two controllable field-filling blackbody references are built in. Controlled range is -15°C to +25°C with respect to scan head temperature.

RUGGEDIZED DATA SYSTEM

The electronics packaging design is enhanced to survive and operate in a high dust and vibration environment.

ImageMapper

DaedalusScanners has developed software for generating GIS compatible ortho-rectified imagery from the scanner data.

Image Mapper uses position and orientation information recorded in flight, plus a customer provided DEM, to create north-up geo-corrected image maps after the flight line is completed,

DaedalusScanners LLC

1517 Montclair Pl
Ann Arbor, MI 48104 USA

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

www.DaedalusScanners.com

This technology/information/software is subject to the controls of the US Export Administration Act (EAA) and the Export Administration Regulations (EAR). Diversion contrary to U.S. Export Laws is prohibited.