

AHS-160 Airborne Hyperspectral Scanner

Moving Window Display (MWD)

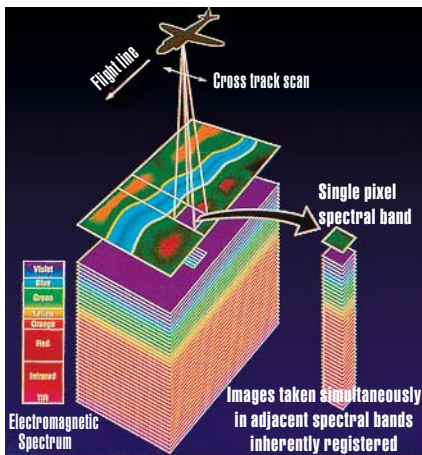
- To check flight line and overall data quality in flight
- GPS receiver built in
- Simple software update

Touch Panel for Operator Control of System Offers:

- Automatic system diagnostics; Built-In Test (BIT) on startup
- Simplified user interface with menus providing convenient system set-up and control
- Special mission configuration set-ups can be stored in memory; configuration settings can be loaded on the ground

The Airborne Hyperspectral Scanner AHS-160 is based on the integration of many advanced technologies developed by Argon ST. Each of the individual items have been delivered and field-tested in operational use.

The AHS-160 incorporates advanced components to ensure high performance while maintaining the ruggedness to provide operational reliability in a survey aircraft. The AHS-160 version uses the full scan aperture for maximum sensitivity performance.



Built-In System Monitors



System photo depicts one variation of system.

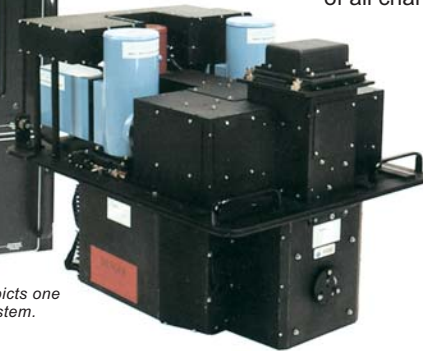
DESIGNED FOR HIGHER ALTITUDE, SLOWER SPEED FLIGHT OPERATIONS

Oscilloscope

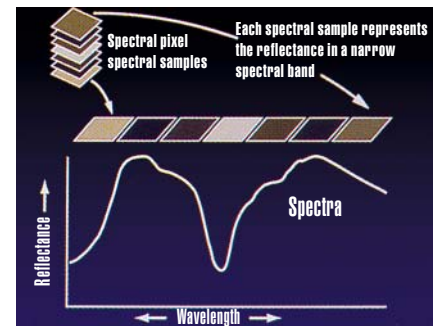
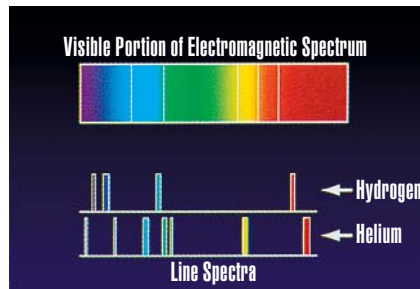
Data Recorder: Tape or Disk

Common Field Stop Optical Design

- Maintains spatial co-registration of all channels



- Up to 80 spectral bands (or more) sampled and recorded simultaneously
- Computer compatible 8 mm cartridge or removable disk data recording
- Built-in real-time display and built-in test features
- Operator touch panel control system with easy menus
- 12-bit digital resolution
- Data output compatible with ENVI®



Hyperspectral imagers divide the spectrum into many discrete narrow channels. This fine quantization of spectral information on a pixel by pixel basis enables researchers to discriminate the individual constituents in an area much more effectively. For example, the broad spectral bands of a multispectral sensor allows the user only to coarsely discriminate between areas of deciduous and coniferous forest, plowed fields, etc., whereas a hyperspectral imager provides characteristic signatures which can be correlated with specific spectral templates to help determine the individual constituents and possibly even reveal details of the natural processes which are affecting them.



Imaging Group

Environmental Remote Sensing Technology

AHS-160 Airborne Hyperspectral Scanner

AHS-160 Spectral Bands

Up to 80 bands (or more) recorded.
 Spectral band complement typically negotiated with each customer.
 Visible/Near IR: Up to 20 bands .45 - 1.05 μm
 Mid IR: One band 1.6 μm
 Mid IR: Up to 42 bands 2 - 2.5 μm
 Medium Wave IR: Up to 7 bands 3 - 5 μm
 Long Wave Thermal IR: Up to 10 bands 8 - 13 μm
 Other combinations are possible.

OPTIONS

Position and Orientation Sensor
 Vacuum Pumping Station
 Optical Test Bench
 Custom spectral band options can be negotiated.

PHYSICAL SPECIFICATIONS

	Height		Width		Depth*	
	in	cm	in	cm	in	cm
Scan Head/Spectrometer	26.5	67	20.6	52	28.1	71
Electronics	40	102	19	48.3	24	61
			lbs	kg		
Scan Head Weight (approx.)			220	100		
Total System Weight (approx.)			460	209		

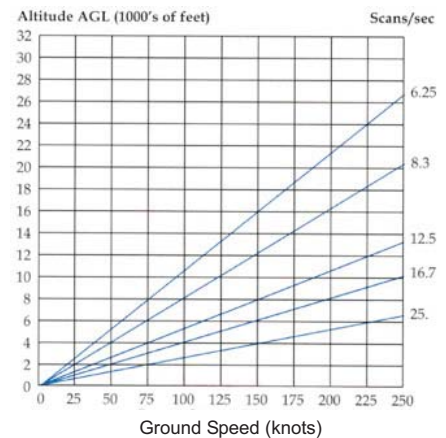
* Not including connectors and cables

ENVIRONMENTAL SPECIFICATIONS

Operating Environment	
Altitude	15 Km Scan Head 7.5 Km Electronics, MWD turns off @ 4.6 Km
Temperature	-55 to +50°C Scan Head 5 to 40°C Electronics
Humidity	0.95% Scan Head 20 to 80% Non-condensing Electronics

Specifications subject to change. Argon ST reserves the right to substitute components of equal or superior performance at any time without notice.

(V/H) Flight Envelope Chart



This graph was calculated using the Optical IFOV parameter of 2.5 mrad.

TECHNICAL SPECIFICATIONS

INSTANTANEOUS FIELD OF VIEW
 2.5 milliradians (1.25 mrad optional)

DIGITIZED FIELD OF VIEW – 90°

SCAN RATES
 25, 16.7, 12.5, 8.3, 6.25 (operator selectable)

ROLL CORRECTION
 $\pm 15^\circ$ of roll correction (automatic)

POWER REQUIREMENTS
 28 ± 3 VDC, 50 amps continuous

IMAGE DISPLAY
 9" CRT continuous moving window,
 RS-170/CCIR output

DIGITIZATION PRECISION
 12-bit data words ± 1 least significant bit

DATA RECORDING
 8 mm Exabyte Mammoth - 20 Gbyte capacity

RECORD TIME PER TAPE
 160 minutes minimum using recommended cartridge

THERMAL REFERENCE SOURCES
 Two controllable field-filling blackbody reference sources. Range of -15° to $+25^\circ\text{C}$ with respect to scan head heat sink temperature.

NAVIGATION INTERFACE
 GPS receiver is built in. Date, time, ground speed, latitude, longitude are recorded with image data.

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Imaging Group

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