

CASI1500h

Wide-Array Airborne Hyperspectral VNIR Imager (0.38 – 1.05 microns)

Smaller sensor head with embedded controller

Programmable, Up to 288 Spectral Channels

40° FOV

High Signal-to-Noise Ratio

Continuous VNIR – SWIR Coverage with SASI-600

Custom diffraction-limited, high performance optics¹



HYPERSPECTRAL & THERMAL REMOTE SENSING

¹Diffraction-limited optics ensure that every pixel is a spatially independent sample with no smearing. This gives users optimal image quality and focus.

CASI1500h

Same CASI-1500 High Performance, But 50% Smaller¹ & Eliminates Separate Instrument Controller

Vegetation Classifications / Invasive Species / Optical Water Quality / Coral Reefs / Wetlands / Forestry / Agriculture / Change Detection / Environmental Impact Assessments / Utility Corridors

SENSOR TYPE	
VNIR Pushbroom Sensor (Compact Airborne Spectrographic Imager)	
PERFORMANCE	
Spectral Range (Continuous Coverage)	380-1050nm
# Spectral Channels	Up to 288
# Across-Track Pixels	1500
Total Field of View	40 degrees
IFOV	0.49 milliradians
f/#	f/3.5
Spectral Width Sampling/Row	2.4nm
Spectral Resolution (FWHM)	<3.5nm
Pixel Size	20x20 microns
Dynamic Range	14-bits (16384:1)
Frame Rate	Up to 333 frames per second
Data Rate	19.2 Mb/sec
Spectral Smile/Keystone Distortion	±0.35 pixels
Peak Signal to Noise Ratio	SNR models for various radiance conditions are available

CASI-1500 Imagery:



CASI-1500 imagery, Antarctica, 2011. Courtesy collaboration between British Antarctic Survey, DRDC Suffield, & ITRES

DIMENSIONS, WEIGHTS, AND POWER	
ITEM	W / H / D (CM) / WT. (KG)
SHU	29.8 / 53.4 / 38.1 / 21
15" Display	42.3 / 32.2 / 10.3 / 10
Power	24-32VDC 11A (Typical)
ENVIRONMENTAL CONSTRAINTS	
Operating Temperature	Ambient 0 to +35°C (+32 to +104°F) RH 20-80% non-condensing
Maximum Altitude	3,048m (10,000 ft) ASL (unpressurized, non-condensing environment)
Storage Temperature	Optimum -20 to +60°C (-4 to +120°F) RH 10-90% non-condensing
OPERATION	
Display	15" sunlight readable, 1024x768 resolution. High altitude display available.
Operator	Control Via keyboard, Windows™ OS
Real-Time Display	Scene Image, automated sensor health diagnostics, signal level display
Remote Diagnostics	Ethernet-ready remote diagnostic capability
Data Storage	Swappable mass storage
Multiple Sensor Operation	Up to 5 ITRES imagers may be simultaneously operated via MuSIC™ System

DATA PROCESSING SYSTEM	
<ul style="list-style-type: none"> Processing software Linux or Windows-based Playback software (Quicklook) Generates 16-32 bit BIP format data compatible with ENVI (BIL, BSQ formats possible) ASCII format ancillary QC data output – clocking, attitude, logging, GPS, and sensor health monitoring information Outputs diagnostic information Selectable band output 	

GEOCORRECTION SYSTEM	
<ul style="list-style-type: none"> GPS/IMU integration to POS AV (other systems available) Data synchronization (GPS, attitude, and image streams) Precision positional accuracy After bundle adjustment no need for GCPs Stabilized mount option 	

GEOCORRECTION/ORTHO CORRECTION SOFTWARE	
<ul style="list-style-type: none"> Best nadir pixel selection function during mosaicking Accepts Lidar, Ifsar, and USGS DEM inputs Nearest neighbor algorithm used – maintains radiometric fidelity Separately stores ancillary data (e.g. pointing vector, DEM) 	

MOSAIC HOURLY COVERAGE	
Real-world operational assumptions: 35% sidelap, 3.5 minute turns, zig-zag flight direction, integration time flexibility used to optimize for faster aircraft ground speed within typical fixed-wing survey speed range. Note that as the CASI is both spectrally and spatially programmable, many other band number/airspeed/pixel resolution combinations are possible. Four simple examples (smaller pixel resolutions possible):	
<ul style="list-style-type: none"> Up to 212 km² at 1.25 m spatial resolution and 144 bands (110 knots) Up to 230 km² at 1.0 m spatial resolution and 72 bands (150 knots) Up to 248 km² at 1.0 m spatial resolution and 36 bands (162 knots) Up to 93 km² at 0.5 m spatial resolution and 48 bands (121 knots) 	

SPATIAL RESOLUTION & FLIGHT ALTITUDE	
<ul style="list-style-type: none"> Resolutions between 20 cm to 1.5 m possible with typical unpressurized aircraft at 110 knots 1m Pixel Example (96 bands): Flight altitude = 6760 ft AGL, air speed = 110 knots 	



¹by volume

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All ITRES sensors are calibrated to traceable standards. Specifications subject to change without notice.