# CASI1500

Wide-Array Airborne Hyperspectral VNIR Imager (0.38 – 1.05 microns)
Programmable, Up to 288 Spectral Channels
40° FOV, 1500 Spatial Imaging Pixels
Continuous VNIR – SWIR Coverage with SASI-600
Custom diffraction-limited, high-performance optics[1]

itres
HYPERSPECTRAL & THERMAL REMOTE SENSING

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

# **CASI**1500

Vegetation Classifications / Invasive Species / Optical Water Quality / Coral Reefs / Wetlands / Forestry / Agriculture / Change Detection / Environmental Impact Assessments / Pipeline 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 mRad |
| **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) |
| **Sustained Data Rate Mpix/Second** | 9.6 Mpix/Sec |
| **Spectral Smile/ Keystone Distortion** | ±0.35 pixels |
| **Peak Signal to Noise Ratio** | SNR models for various radiance conditions are available |

**CASI-1500 Imagery:**

### DIMENSIONS, WEIGHTS, AND POWER

| ITEM | W / H / D (CM) / WT. (KG) |
|---|---|
| **SHU** | 47.0 / 46.7 / 53.5 / 25 |
| **ICU (Single)** | 48.3 / 17.8 / 52.3 / 16 |
| **15" Display** | 41.0 / 30.9 / 6.52 / 8 |
| **Power** | 24-32VDC 13.5A (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 on ICU |
| **Data Storage** | Swappable mass storage |
| **Multiple Sensor Operation** | Up to 5 ITRES imagers may be simultaneously operated via MuSIC™ System |

### DATA PROCESSING SYSTEM

- Processing software Linux and Windows-based
- Playback software (Quicklook)
- Generates 16-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

- 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/ORTHOCORRECTION SOFTWARE

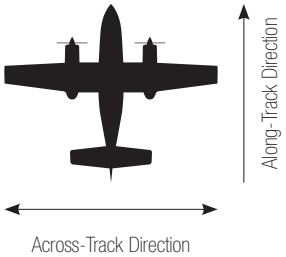
- Best nadir pixel selection function during mosaicking
- Accepts Lidar, Ifsar, and USGS DEM inputs
- Nearest neighbor algorithm used – maintains radiometric fidelity
- Separately stores ancillary data (e.g. pointing vector, DEM)

### HOURLY COVERAGE (35% SIDELAP)

- 120 $km^2$ at one meter spatial resolution and 144 bands; Over 320 $km^2$ at one meter spatial resolution and 36 bands

### SPATIAL RESOLUTION & FLIGHT ALTITUDE

- 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

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