

# TABI 1800

Airborne Wide-Array Broadband Thermal Imager

40° FOV

High Thermal Resolution

Integrated Control & Recording System

Integrated IMU (optional)

Reduced acquisition costs (less flying, wider swath coverage)

Custom diffraction-limited, high-performance optics<sup>1</sup>



HYPER SPECTRAL & THERMAL REMOTE SENSING

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

# TABI1800

Building Heat Loss / Emergency Response / Power Line Mapping / Wildlife Surveys / Soil Moisture / Subsurface Karst Feature Detection / Buried Pipeline Delineation / Mineral Composition / Stratigraphy & Structural Geology / Hotspot Mapping / Vulcanology

## SENSOR TYPE

TIR Pushbroom Sensor  
(Cooled MCT Thermal Airborne Broadband Imager)

## PERFORMANCE

<b>Spectral Range (Continuous Coverage)</b>	3.7-4.8 microns
<b># Spectral Channels</b>	1
<b># Across-Track Pixels</b>	1800
<b>Total Field of View</b>	40 degrees
<b>IFOV (+/- 10%)</b>	0.405 milliradians
<b>f/#</b>	f/2
<b>Pixel Size</b>	15 x 15 microns
<b>Dynamic Range</b>	14-bits (16384:1)
<b>Frame Rate</b>	80 to 100 frames per second
<b>NETD at 300K:</b>	<50mK

## TABI-1800 Imagery:



TABI-1800, 70 cm resolution

## DIMENSIONS, WEIGHTS, AND POWER

ITEM	W / H / D (CM) / WT. (KG)
<b>SHU</b>	35.5 / 61.4 / 39.6 / 31
<b>15" Display</b>	42.3 / 32.2 / 10.3 / 10
<b>SHU Cable Length</b>	3 metres
<b>Power</b>	24-32 VDC, 8A VDC (typical, without IMU)

## ENVIRONMENTAL CONSTRAINTS

<b>Operating Temperature</b>	Ambient -10° to +40°C (+14° to +104°F) RH 20-50% non-condensing
<b>Maximum Altitude</b>	3,048m (10,000 ft) ASL (unpressurized, non-condensing environment)
<b>Storage Temperature</b>	Optimum -20° to +60°C (-4° to +140°F) RH 0-90% non-condensing

## OPERATION

<b>Display</b>	15" sunlight readable, 1024x768 resolution. High altitude display available
<b>Operator</b>	Control Via keyboard, Windows™ OS
<b>Real-Time Display</b>	Scene Image, automated sensor health diagnostics, signal level display
<b>Remote Diagnostics</b>	Ethernet-ready remote diagnostic capability
<b>Data Storage</b>	Swappable mass storage
<b>Multiple Sensor Operation</b>	Up to 5 ITRES imagers may be simultaneously operated via MuSIC™ System

## DATA PROCESSING SYSTEM

- 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

- 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/MOSAICKING SOFTWARE

- Best nadir pixel selection function during mosaicking
- Accepts Lidar, lfsar, 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, 80 Hz frame rate. Finer/coarser pixel resolutions possible.

- Up to 68 km<sup>2</sup> at 0.5 m spatial resolution (75 knots)
- Up to 155 km<sup>2</sup> at 0.75 m spatial resolution (112 knots)
- Up to 275 km<sup>2</sup> at 1 m spatial resolution (150 knots)

## SENSOR TYPE (COOLED MCT)

- Four times faster than uncooled bolometer arrays
- Capable of collecting 50 cm or smaller pixels from fixed wing aircraft as compared to 1m pixels from competing systems with uncooled bolometer arrays
- Increased thermal sensitivity (NETD < 50 mK)

## SPATIAL RESOLUTION & FLIGHT ALTITUDE

- Resolutions 70 cm to 1.25 m possible with typical unpressurized aircraft at 110 knots (e.g.)
- 1m Pixel Example: Flight altitude = 8113 ft AGL, Air speed = 162 knots

## IN-FLIGHT GEOCORRECTION & ANOMALY IDENTIFICATION

- Radiometric calibration & georeferencing applied prior to landing
- Customized algorithms can detect anomalies and provide GPS location in near real-time using IPS™

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