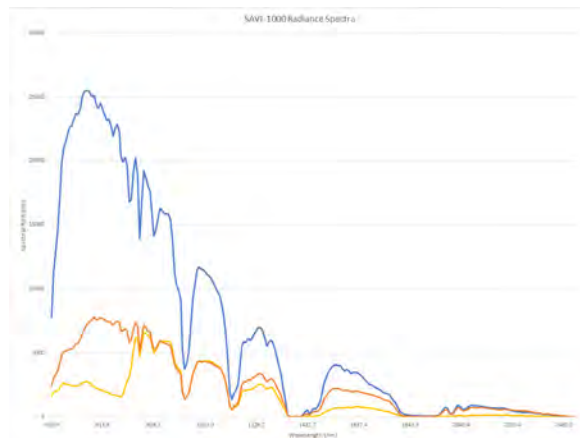


# SAVI1000

**SINGLE DETECTOR**, SCIENTIFIC-GRADE,  
HYPERSPPECTRAL VIS-SWIR IMAGER

- Hyperspectral VIS-SWIR Imager
- Continuous 0.4 - 2.5 $\mu$ m Spectral Coverage
- Single Detector
- 40° FOV
- 1000 Spatial Imaging Pixels
- 256 Spectral Channels
- Cryo-Cooled MCT Detector
- All-Reflective Fore-Optics
- Optional GNSS-Inertial System
- Easy Lidar Integration
- Typical Ground Resolutions 50cm - 2m



# SAVI1000

256 CHANNEL, 1000 PIXEL, **SINGLE DETECTOR**, WIDE SWATH VIS-SWIR IMAGER

Invasive Species / Optical Water Quality / Coral Reefs / Wetlands / Forestry / Agriculture / Change Detection / Target Detection and Synthetic Materials / Vegetation Classifications / Geological Exploration / Vegetation Speciation / Aquatic Pollution Presence / Utility Corridors / Mineral Composition

VNIR to SWIR coverage across a single detector array using set of custom optics.

Benefits:

- Consistent spatial resolution and image swath width across both spectral regions- improved spectral analysis
- Instantaneous collection of full spectral range for each imaging pixel - no fusion or re-sampling required
- Mechanical shutter for dark data and offset collection of each flight line
- Simplified installation

## PERFORMANCE

<b>Spectral Range</b>	0.4-2.5 microns
<b>(Continuous Coverage, Single Detector)</b>	
<b># Spectral Channels</b>	256
<b>Cooling System</b>	Cryo-cooled
<b># Across-Track Pixels</b>	1000 ±2%
<b>Total Field of View</b>	40 degrees
<b>f/#</b>	f/2.4
<b>Pixel Size</b>	>24 microns
<b>Dynamic Range</b>	16-bits
<b>Detector Full Well</b>	>1 Me (per single pixel)
<b>Maximum FPS, Full Frame</b>	100fps
<b>Scanning Mode</b>	Pushbroom
<b>Spectral Resolution FWHM (nm)</b>	≤12nm
<b>Peak SNR (per pixel, full spectral range)</b>	≥1000:1 (calculated as square root detector full well)
<b>Spectral Smile</b>	<0.2 pixels
<b>Keystone Distortion</b>	<0.2 pixels
<b>Pre-processing Software</b>	GCSS & RCX
<b>Georeferencing and Mosaicing accuracy</b>	≤2 pixels @ a spatial resolution of 70 cm
<b>Internal Calibration Module (To measure spectral shifts and uniformity)</b>	Yes

## DIMENSIONS, WEIGHTS, AND POWER

ITEM	W / H / D (CM) / WT. (KG)
<b>SHU</b>	48.3 / 82.4 / 51.6 / 49.2kg <sup>1</sup>
<b>SHU Cable Length</b>	3 metres
<b>Power</b>	26-32 VDC, 10 A <sup>1</sup> <sup>1</sup> Subject to change

## SUGGESTED ENVIRONMENTAL CONSTRAINTS

<b>Operating Temperature</b>	Ambient -20 to +50°C (-4 to +122°F)
<b>Maximum Altitude</b>	RH 20-80% non-condensing 4,500m (15,000 ft) ASL (unpressurized, non-condensing environment)
<b>Storage Temperature</b>	Optimum -30 to +75°C (-22 to +167°F) RH 10-90% non-condensing

## OPERATION

<b>Operator</b>	Laptop control (MuSIC)
<b>Real-Time Display</b>	Scene Image, automated sensor health diagnostics, signal level
<b>Remote Diagnostics/ Control</b>	IP Protocol ready remote diagnostic and control 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
<b>Data Recording Capacity</b>	≥2TB (SSD, SATA III)
<b>Recording Capacity (hrs)</b>	3 hours (@ 100fps)
<b>Time Stamping</b>	<1 ms
<b>Diffraction-Limited Optics</b>	Yes

## 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

- GNSS-Inertial integration to POS AV (other systems available)
- Data synchronization (GPS, attitude, and image streams)
- Precision positional accuracy
- Stabilized mount option (GSM 4000, GSM 5000 / PAV 200 or later models)

## GEOCORRECTION/ORTHO CORRECTION SOFTWARE (POST-PROCESSING)

- 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) detection (optional)

## MOSAIC HOURLY COVERAGE

- Real-world operational assumptions: 35% sidelap, 3.5 minute turns, zig-zag flight direction, 100 Hz frame rate. Finer/coarser pixel resolutions possible
- At least 117 km<sup>2</sup> /hour at 1 m spatial resolution (195 knots)

## SPATIAL RESOLUTION & FLIGHT ALTITUDE

- Resolutions between 50cm to 2m possible at altitudes of 680m to 2745m above ground

## EMBEDDED CALIBRATION MODULE

- Contains a spectral lamp to track system stability inflight
- Collects spectral data and uniformity measurements to calibrate data on a per flight line basis

\*Actual SNR may vary with target reflectance and atmospheric conditions.

ITRES Research Limited  
Calgary, Alberta, Canada  
T: +1.403.250.9944

info@itres.com  
www.itres.com

Document ID: U10089-04  
©2025 ITRES Research Limited

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