

Sentris IC

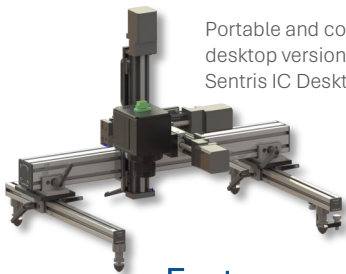
Electronics Failure Analysis System

Sentris pinpoints low-level infrared thermal emissions from faults such as short circuits and leakage current.

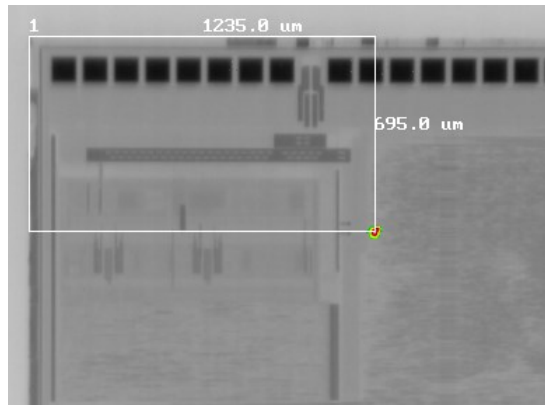
Lock-in Thermography (LIT) is a non-destructive process of automatically and repeatedly powering an electronic device at regular intervals while thermal images of the device are analyzed by software. Failures can be isolated on both bare (front or backside) and packaged devices without the need for surface treatment or coating.



Sentris IC 600-XYZ with Probing Platform enclosed by the Benchtop Test Enclosure 600 Series with clear panels.



Portable and compact desktop version, Sentris IC Desktop-XYZ



The Freestanding Test Enclosure 600 contains a 19" standard 18U rack, locking casters, and light tree, in addition to the basic enclosure features listed below.

Features

- Complete, turn-key systems
- Detect localized heating $<0.0001^{\circ}\text{C}$
- Defect depth analysis of stacked die
- True temperature mapping using Emissivity Tables
- Visual camera probing
- Front and backside analysis
- No need for surface treatment or coating

Applications

Faults Detected

- Semiconductor ESD related faults
- Leakage current and Resistive shorts
- Latch-up sites
- Defective transistors and diodes
- Oxide layer breakdown
- SMD component leakage

Testable Electronic Devices

- Bare semiconductor devices
- Package semiconductor devices
- Wafers
- SMD components
- Bare circuit boards
- Populated circuit boards
- Flex circuits

Options

- Camera positioning system with automatic or manual X, Y, and/or Z axes.
- Optional components include Thermoelectric Stages and Controllers, Device Probing Platform, Motor Controller Safety Kit, Needle Probers, etc.
- Enclosures feature an electrical control box; a passthrough panel for banana Jack, BNC, and TRIAX connections; a door activated N.O and N.C. interlock system with auxiliary screw terminals; etc.

Thermalize Image Analysis Software Capabilities

In addition to Lock-in Thermography, Thermalize provides an extensive set of analysis tools to help you characterize the performance of electronic and micro-mechanical devices in many different and insightful ways.

Image Overlay	Import pictures or schematics to overlay with thermal images and lock-in hot spots
Image Subtraction	Analyze delta temperature from an unpowered state
Emissivity Tables	Emissivity correction by regions or pixel by pixel to compensate for surface emissivity variations
Instrument Control	Direct control of specific Tektronix source meters during lock-in tests
Sequences	Create movies of thermal events for post-test analysis
Regions	Draw regions to display temperature statistics
Graphs	Real time line profiles, histograms, and strip charts of temperature statistics
Linear Stage Control	Direct control of linear stage positioning, speed, and safety settings

IS640-17 LWIR Camera, 60Hz Specifications

Observe real time thermal behavior with Optotherm's radiometric camera that measures temperature accurately.

Infrared Detector	Uncooled amorphous silicon microbolometer
Array Size	640 x 480 pixels
Detector Pitch	17 μm
Noise Equivalent Temperature Difference	$< 30 \text{ mK}$ ($< 12 \text{ mK}$ with $\leq 9 \text{ Hz}$ option)
Spectral Response	7-14 μm
Thermal Time Constant	$< 11 \text{ ms}$
Compatible lenses*	Macro, 80 μm , 40 μm , 20 μm , 10 μm , 5 $\mu\text{m}\dagger$
Accuracy of radiometric lenses (Macro, 80 μm , 20 μm , 10 μm)	Low range: $\pm 2^{\circ}\text{C}$ High range: $\pm 2^{\circ}\text{C}$ or 2% of reading s

* All lenses are radiometric except 40 μm & 5 μm

† Lens size " μm " indicates pixel resolution



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