

# **irNDT**

## **Semi-Check**

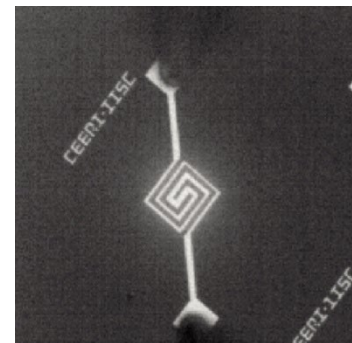
Turnkey *ir*NDT Semi-Conductor Solution



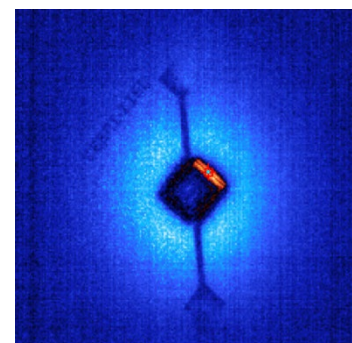
MoviTHERM Semi-Check is a turnkey infrared non-destructive testing (*ir*NDT) Lock-in system developed for microelectronics failure analysis. The system incorporates a 2-quadrant power supply that allows for separate current and voltage modulation using square, sinusoidal, and arbitrary waveforms. The system works with cooled and uncooled IR cameras with multiple lens configurations to meet various application requirements. The combination of Lock-in Thermography makes it possible to detect thermal variations in the micro-Kelvin range. A special Lock-in online mode allows for virtually unlimited measurement periods for extremely low signals.

### **Features**

- Non-contact *ir*NDT
- Works with cooled and uncooled IR Cameras
- Lock-In Thermography Analysis
- Functional Circuit Analysis
- Effective on low emissivity targets
- Multiple Lens Options for Wide Angle and Close-up imaging



Circuit Board Thermal Image



Circuit Board Image using  
Lock-in Thermography

## Key Benefits

### NON-CONTACT FAILURE ANALYSIS

Active *ir*NDT thermography “sees” common microelectronic defects.

- ✓ Shorts
- ✓ Electrostatic Discharge Defects
- ✓ Oxide Damage
- ✓ Defective Transistors & Diodes
- ✓ Device Latch-ups

### FLEXIBLE AND EXPANABLE

Upgrade a system by adding lenses, enclosures, stages, and IR cameras.

- ✓ Works with Cooled and Uncooled IR Cameras
- ✓ Multiple lens configurations for wide angle and close-up evaluation

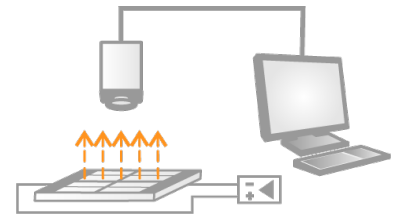
### *ir*NDT MADE EASY

Complex analysis technology simplified for inspection.

- ✓ Effective measurement on low and varying emissivity targets
- ✓ No Surface Preparation Required
- ✓ Large and small area measurement
- ✓ Quick and reliable defect detection

## How does it work?

Semi-Check works by means of Lock-in Thermography (LiT) which consists of applying a periodic pulsed electrical signal to the test device and monitoring the resultant temperature variation with a synchronized thermal camera. A computer captures multiple IR images and applies a processing algorithm to produce a surface map identifying localized hotspots. LiT produces images with greater resolution and sensitivity over passive IR thermography.



## Specifications

Uncooled Infrared Camera Options		Cooled Infrared Camera Options	
Available Resolutions	336 x 256 or 640 x 512	Available Resolutions	640 x 512 or 1280 x 1024
Image Rate	30 Hz / 60 Hz	Image Rate	60 Hz / 120 Hz / 181 Hz / 1000 Hz
Thermal Sensitivity	< 30 mK @ 30°C	Thermal Sensitivity	< 20 mK @ 30°C
PC			
PC Type		Office PC, Industry PC, Laptop (for mobile use)	
Supported Operating Systems		Windows 10 Pro 64-bit	
Excitation Source			
Electrical Excitation		0 – 10V input, 0-70V output Programmable Power Supply	
IRX-Box			
Modulation Box for Synchronization of all Hardware and Software Components			
Enables Easy and Compact Measuring Setups			
irNDT-Software			
Evaluation Modules for Lock-in, Lock-in Online, Lock-in Ref., Lock-in Ref. Online			
Graphical User Interface for easy creation of customized solutions without programming skills			
Integrated MS Excel Report Generator for easy set-up of inspection reports, export of inspection data to Matlab, sorting of inspection parameters in workspaces, and storing of result images include measuring parameters			
Integrated VB Script-Engine for the creation of macros for solving automated inspection tasks			
Result Viewer App – Allows for calibrated spatial defect measurements			
Measuring and Analysis Properties			
Parameters for the Excitation Source		<ul style="list-style-type: none"><li>• Analysis Functions: Pulse, Sine, Trapezoid, Rectangle, User-Defined Function</li><li>• Rectangle Width at Rectangle Modulation: 0.1 – 0.9%</li><li>• Excitation Frequency: 1μHz – 50kHz</li></ul>	
Parameters for the IR Camera		Recording Frequency, Integration Time, Temperature Range, Average Temperature, Detector Window, etc.	
Parameters for the Analysis		<ul style="list-style-type: none"><li>• Special Functions for Inspection of Photovoltaic Cells</li><li>• Automatic Noise Reduction Functions and Compensation of exterior interferences in all analysis modules</li></ul>	

\*Specifications subject to change without notice. 11/2021

Get in Touch

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