



Thermoelastic Stress & Fatigue irNDT Solution

MoviTHERM Stress-Check uses infrared non-destructive testing (*ir*NDT) Thermoelastic Stress Analysis (TSA) to visualize stress measurement on metals, composites, plastics, glass, bone, concrete, and other materials. Stress-Check leverages the relationship between temperature and mechanical behavior laws with Lock-in Thermography (LiT) to measure the linear thermoelastic effect of a material under periodic, random, or cyclic loading condition. The system works with cooled and uncooled IR cameras with multiple lens configurations to meet various application requirements.

Features

- Non-contact Stress Imaging & Measurement
- Works with cooled and uncooled IR Cameras
- Lock-In Thermography Analysis
- Integrates with fatigue testing machines
- Multiple Lens Options for Wide Angle and Close-up imaging



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Truck Crankshaft in Torsion Test



Infrared Thermoelastic Stress Image

Key Benefits

VISUALIZATION OF STRESS PATTERNS

TSA rapidly "sees" stress characteristics in metallic, ceramic, composite, and other materials.

- ✓ Dynamic Stress Patterns
- ✓ Fatigue Limits
- Crack Propagation

STRESS MEASUREMENT MADE EASY

Complex analysis technology simplified for stress measurement.

- Image display in stress units
- Thousands of stress measurement points per image
- Stress images can be used to validate finite element analysis models

IR THERMOGRAPHY ADVANTAGES

Has many positive aspects of IR measurement.

- ✓ Non-contact measurement
- ✓ Whole field measurement
- ✓ Does not damage the sample
- Minimal to no surface preparation is necessary

How does it work?

Applying a cyclic compression load on a solid material will cause it to experience small and reversable temperature variations. Synchronizing an infrared camera to the load cycle allows using Lock-in techniques to capture surface temperatures and then convert temperature measurements to stress units on a pixel-by-pixel basis. Resulting image output displays a stress distribution map and software allows for the extraction of spot stress measurement from any image pixel.



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				
РС Туре		Office PC, Industrial PC, Laptop (for mobile use)		
Supported Operating Systems		Windows 10 Pro 64-bit		
Excitation Source				
Mechanical Excitation		Load Frame or Similar		
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. Online, TSA				
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, including depth				
Measuring and Analysis Properties				
Parameters for the Excitation Source		 Analysis Fun Rectangle W Excitation Fundamental 	nctions: Pulse, Sine, Trapezoid, Rectangle, Arbitrary Waveform Width at Rectangle Modulation: 0.1 – 0.9% Frequency: 1µHz – 50kHz	
Parameters for the IR Camera Re Te		Recording Freque Temperature, Det	ding Frequency, Integration Time, Temperature Range, Average erature, Detector Window, etc.	
Parameters for the Analysis		 Special Function Automatic Notes interference 	ctions for TSA (Thermal Stress Analysis) Noise Reduction Functions and Compensation of exterior es in all analysis modules	

*Specifications subject to change without notice. 11/2021

Get in Touch



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