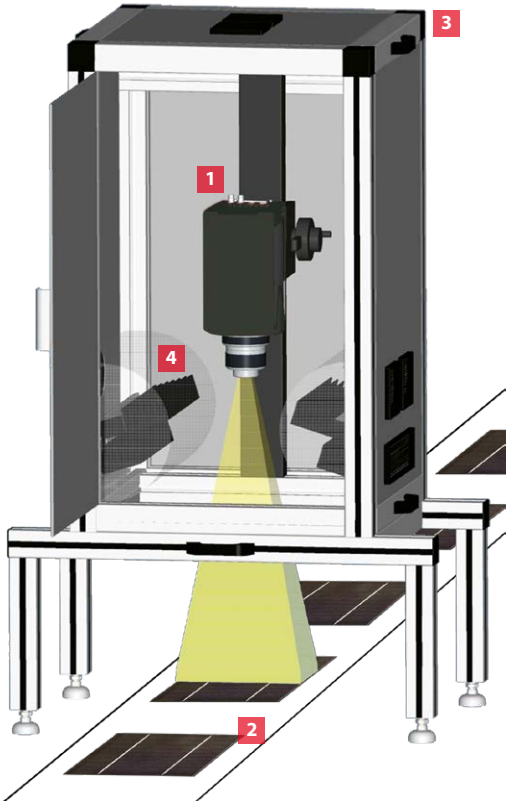
Testing System PV-LIT inline

Inline Solution for Solar Cells and complete Solar Modules



1 Thermographic camera

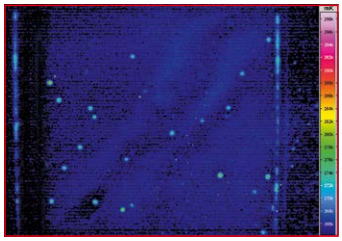
2 Sample on transfer with electrical contact unit system

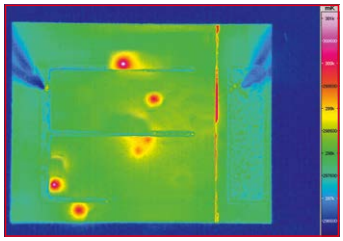
3 Measurement chamber

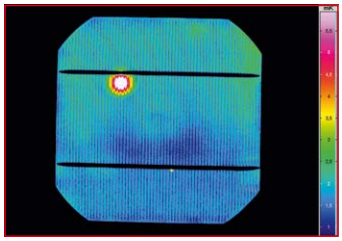
4 LED-Panel (optional)

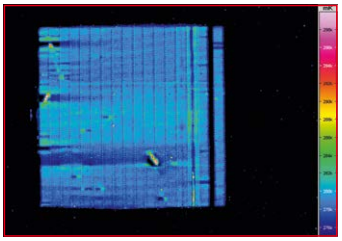
The fully automatic PV-LIT testing system offers individual and serial testing options for solar cells and complete solar modules. The modular testing system allows easy integration into existing production lines and can be used in automated serial testing for quality assurance.

PV-LIT inline guarantees 100 % quality inspection during the manufacturing process. Cycle times of less than one second and a continuous operation allows reliable tests in serial production.


Si solar cell


mc-Si solar cell


Mono-Si solar cell


CIGs module

Essential Performance Features of PV-LIT inline

The PV-LIT inline system is the application of outstanding characteristics of InfraTec's proven standard system PV-LIT:

- Use of either cooled or uncooled camera systems depending on problem definition and customer requirements
- Testing possible at very early stage of production
- Cycle times of less than one second
- Inspection for different defect types Various testing options for different kinds of defects
- Definition of user-defined test parameters (threshold, temerature level, number and size of defects)
- Fully automated testing with classification
- Flexible data interfaces (e. g. Ethernet, Profibus)
- Long-term stability and continuous duty capability

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Automated Testing System PV-LIT inline

Inline Solution for Solar Cells and complete Solar Modules

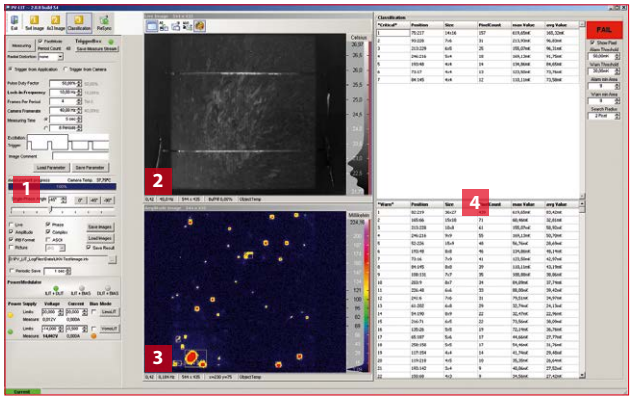
Technical Specifications

Measuring cell	
Infrared thermographic camera	High-end camera – ImageIR® or VarioCAM® hr head
Detector (uncooled)	(640 × 480) IR pixels
Detector (cooled)	(320 × 256) / (640 × 512) IR pixels InSb snapshot array
Spectral range	(3 … 5) µm or (7.5 … 14) µm
Infrared image frequency	Up to 100 Hz (full image)
Contactless illumination source (PV-LIT)	
Illumination source, standard	Infrared LED panels (~ 220 W)
Illumination source (optional)	Spectral selective LED panels for IR-insensitive solar cells
Contact illumination source via tactile spikes (DLIT)	
Electric solar cell contact	For electric BIAS operation and DLIT up to 600 V
Lenses for infrared thermographic camera	Customer specific (microscope to wide angle)
Dimensions	Adapted to cell and module size
Option	Module for remote maintenance

Evaluation unit	
Dimensions	(553 × 589 × 600) mm (W × H × D)
PC	19" industry PC
Power supply	230 V AC / 110 V AC
Weight	74 kg (incl. PC)

Software

- Operational software with comprehensive analysis options
- Software add-on for automatic error classification based on parameter settings
- Intuitive user interface for easy operation
- Real-time display of the object being measured in various states
- Multifaceted memory options for image data and measurement results
- Alternative 0 °, 90 ° or freely set phase angle image for representation of complex intensity information



1 Settings

2 Live image

3 Amplitude image

4 Classification

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