Issue 2017 / 2018

Infrared Reflexions

The Infrared Measurement / Thermography Newsletter by InfraTec GmbH

Dear readers of Infrared Reflexions,

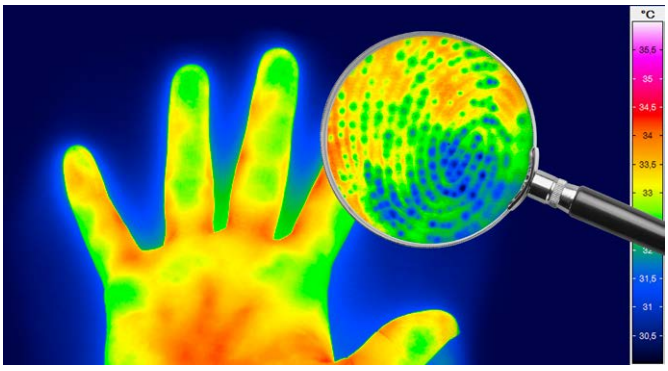
The first half of 2017 presented us with some surprises, positive and negative. Regardless, we at InfraTec are pursuing our worldwide business endeavours with a fundamentally optimistic attitude. We continue to orient our actions in a positive basic direction that moves toward a sustainable "better world" (I hope you will permit me to use this shorthand description…), to which we are making our small contribution.

We presented our product innovations at international trade fairs at the start of the year and noticed a positive response. This has since been gratifyingly manifested in a higher level of incoming orders. We are working with great enthusiasm to fulfil these orders to permit you, our customer, to make your own contribution as well. The foundation for this is our fascinating thermography technology. We continue to be astounded by the new technology fields that make use of thermography, too. This edition of Infrared Reflexions reports on this as well. And so we look forward with you to the positive surprises that the months to come will bring!

Kind regards from Dresden,
Dr. Matthias Krauß
Managing Director and Partner

In this issue:

MicroScan Quadruples the Image Format



Concepts for **increasing the geometrical resolution** of thermographic cameras have belonged to the state of the art of technology for years. With MicroScan, InfraTec is introducing for the first time the possibility to quadruple the image format for a radiometric thermography camera used in the civil sector with cooled FPA photon detector. The function for the ImageIR® camera series is based on an opto-mechanical principle and provides genuine temperature measurement values.

Always Optimally Taken Care of

For **over 25 years,** InfraTec has been offering comprehensive service for turnkey thermography automation solutions as well. We support you all the way, from the analysis of the initial situation to transfer of the turnkey system – and beyond. If a malfunction occurs, your request is directed through a hotline directly to our employees. You receive an initial diagnosis through remote maintenance. Together with you, we analyse the cause of the problem and quickly provide a solution.

Our company's own service department team

ImageIR® Series with New Functions

The ImageIR® high-end camera series carries the InfraTec DNA more than almost any other product. It incorporates the know-how from over 25 years of practical experience with thermography. How consistently its development has progressed is shown by the multitude of new functions across the entire model series.

No Time for Staying in Place

Several Models are Receiving a Performance Plus

There are further developments within the ImageIR® series besides the MicroScan function. These include a new version of the **multi integration time function (MIT).** This ensures an increase in the image dynamics up to 16 bit and expands the temperature measuring ranges significantly.

The **ImageIR® 8800** for investigations in the long-wave **spectral range (7.7 ... 10.2) µm** has received an improved detector in the format of (640 × 512) IR pixels. Thanks to the outstanding **thermal resolution of 0.025 K,** very high frame rates of up to 14,593 Hz, and **extremely short integration times** in the microsecond range, the camera is suitable for analysing rapid thermal processes, which require a broad temperature measuring range.

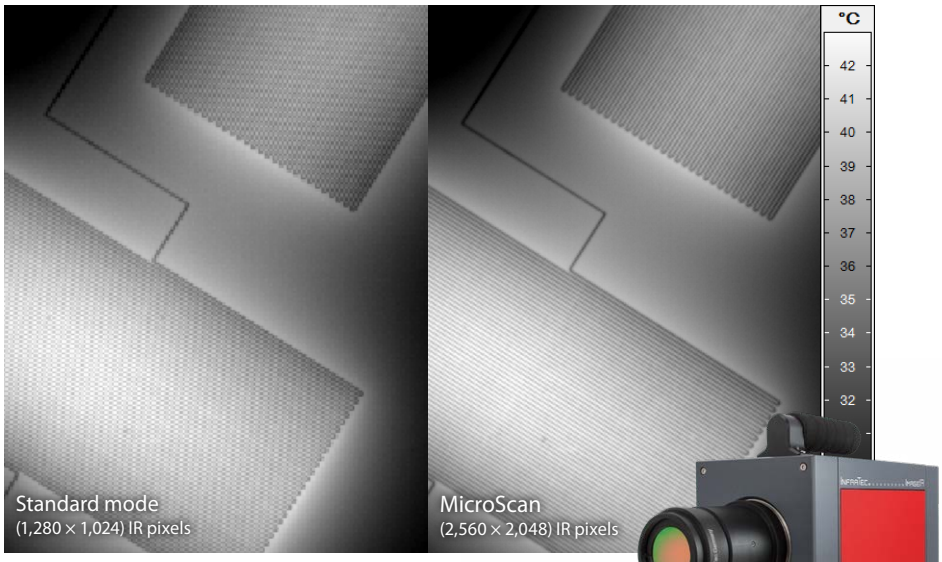
The **ImageIR® 8300** has additional performance capabilities through a temperature measuring range extended **up to 3,000 °C** and higher frequencies in creating recordings in full, half, quarter and sub-frame.

Bat above a lake (image with very short integration time: ImageIR® 8800)

An Eye for Detail

MicroScan Significantly Increases the Geometrical Resolution Capability of the ImageIR® Camera Series

The ImageIR® camera series, InfraTec's flagship, sets the capability standards for modern thermography cameras. The model series fortifies its status once again with the MicroScan function. For the first time this enables to quadruple the image format with a radiometric thermography camera with cooled FPA photon detector. Recorded images with up to **(2,560 × 2,048) IR pixels (5.2 Megapixels)** become possible.



A comparison of exposures of a circuit board show the improved resolution of MicroScan technology

Fast and efficient solution

Behind the function is an integrated, fast-rotating MicroScan wheel. It ensures that four different individual exposures are taken per wheel revolution, which are offset laterally by half a pixel each. These individual exposures are brought together in real-time into a thermogram with quadruple image format. Each pixel in the image represents a genuine temperature measured value.

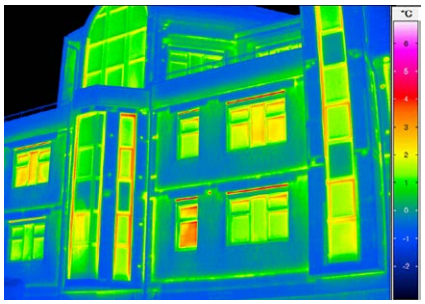
The spatial oversampling causes a visible increase in image quality: The measurement objects are recorded on the extremely low-noise exposures with a very fine resolution, including measurements with static and dynamic character. As a result, MicroScan is suitable for accomplishing the most varied of measurement and inspection tasks, from microthermography to security applications.

More Selection under Hand-held Cameras

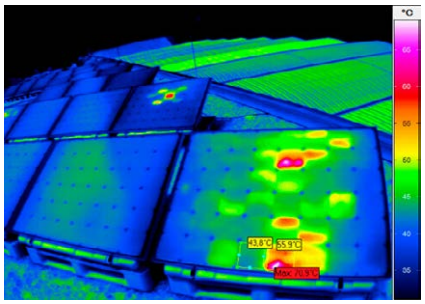
Today, powerful thermal imaging cameras for mobile use certainly do not have to be expensive. As proof, InfraTec offers new complete packages and camera models equipped with uncooled microbolometer detectors of the latest generation. Whether entry-level or professional thermograph – there is something for everyone here.

More than Just a Camera

InfraTec is Putting Together Powerful Professional Packages, Including Thermal Imaging Cameras, Software and Training



Conveniently inspect building and fassade



Detect weak points in photovoltaic systems

InfraTec is offering a very special complete package for use in building thermography and predictive maintenance. For only **EUR 14,950***, users receive a top-class mobile thermography camera including professional thermography software. Free attendance at our fundamentals training, which teaches everything important about working with the camera and software, rounds out the offer.

The core of the package is the **VarioCAM® HDx 625,** the newest camera series in the professional segment of mobile microbolometer cameras. Its large-format detector with **(640 × 480) IR pixels** and very high thermal resolution capability permit reliable discovery of hidden damage in the building shell and professional system inspection, e.g. of photovoltaic systems. The included fast, precision changeable lenses create the foundation for recording images of outstanding quality.

Special software, which was developed for these applications, permits fast and convenient evaluation and documentation of the exposures. Users can take advantage of numerous analysis functions or individual patterns in accordance with VdS standards.

Special Offer Construction

VarioCAM® HDx 625
incl. normal lens
+ **FORNAX 2** or
IRBIS® 3 report
+ **training**

Special Offer Inspect

VarioCAM® HDx 625
incl. normal lens
+ report software
IRBIS® 3 report
+ **training**

Practical, Compact, Inexpensive

New Cameras for Mobile Use Make Entry into Thermography Easier

The handheld thermography cameras **mobileIR 400** and **compactIR 400** extend the segment of entry-level cameras by a larger detector format of. Its geometrical resolution exceeds standard formats of **(320 × 240) IR pixels** by **1.5 times.** For users, that means less effort in measuring.

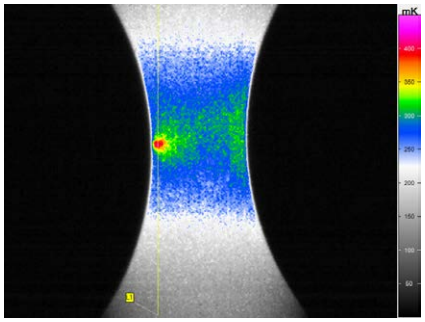
With the new mobileIR 400 inspection tasks can be solved flexibly and efficiently

The cameras make it possible to detect temperature differences of 0.045 K reliably. They allow low-cost entry-level access to thermography and are used primarily in mechanical and electrical maintenance as well as in building diagnostics.

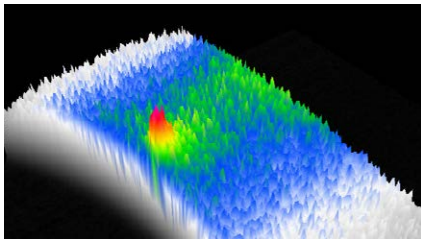
*Prices are without statutory value added tax and shipping costs. Sale only to commercial customers, government agencies, and public facilities.

Under Stress

Lock-in Thermography in Thermal Stress Analysis (TSA)



Detection of a tension peak in the aluminium sample



Depiction of the detected tension peak as a 3D diagram

If you wish to clarify whether components have the required material characteristics for your application, you can make use of thermal stress analysis (TSA). In this process, external forces work cyclically on the test specimen, which causes change in the specimen's mechanical stresses, which goes along with minor temperature changes. These temperature changes on the surface of the test specimen are made visible with the thermography camera and permit conclusions about areas with stress concentrations or weak points in which failure under constant load is expected.

Examination at maximum speed

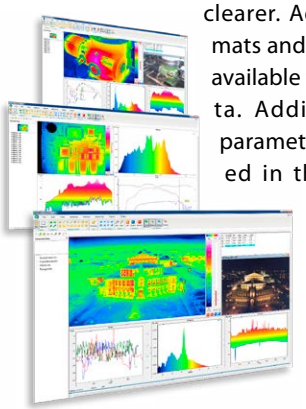
For such analyses, for example, an Al sample is clamped into a resonance testing machine and stretched periodically in the elastic range. A high-resolution high-speed camera of the type **ImageIR® 8300 hp** continuously records the surface temperature of the sample. The camera detector (native format 640 × 512 IR pixels) is operated in sub-frame mode (320 × 256 IR pixels) with an **image frequency of 600 Hz** required due to the high temperature conductivity of Al. The data is captured with the software IRBIS® 3 online and then analysed with the software IRBIS® 3 active.

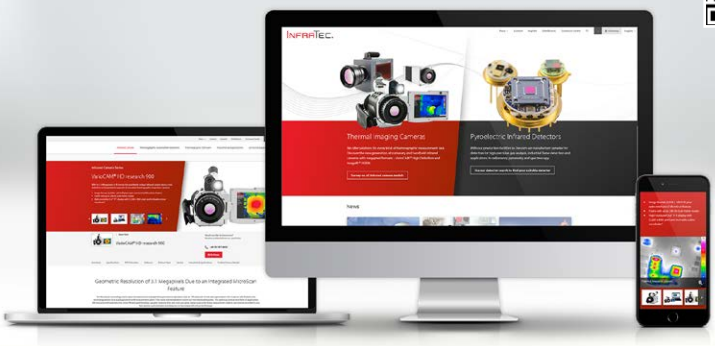
The results show that active thermography is suitable for qualitative tension measurement, both for the elastic stretch range and in the transition to the plastic stretch range. With the help of relevant formulas for the connection between changes in temperature and tension, the quantitative tension values can be calculated from temperature measurement values and material parameters.

Software with New Functions

Updates for the IRBIS® 3 Range from Operation to Data Evaluation

Besides the development of thermal imaging cameras, InfraTec is focusing its attention on optimising the application-specific thermography software of the **IRBIS® 3 family.** New functions are continuously opening additional opportunities for use. That starts in handling, such as with a further developed zoom view of the thermograms. Various buttons have been optimised, so the arrangement on the screen has become clearer. Additional file formats and contents are now available for storing the data. Additional exposure parameters can be included in the analyses. Use of additional diagrams simplifies evaluation of your measurement results.





Website

InfraTec Modernises its Online Presence

Starting in December, InfraTec will have a completely modernised web presence. An intuitive menu will then let you find all information about our products even faster. A mobile version of the website gives you the opportunity to surf, regardless of where you are at the moment. New content points out our expanded offering. Only the address stays the same.

www.InfraTec.eu

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