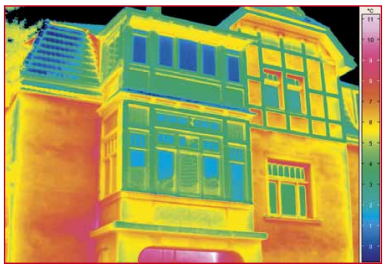
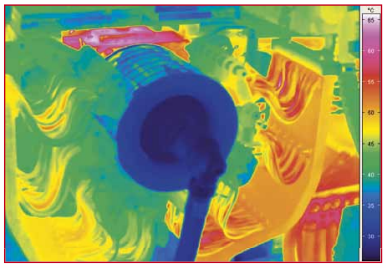
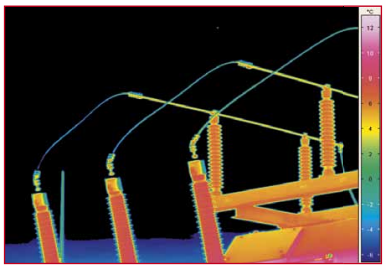
VarioCAM® high resolution

The new dimension in thermography

Innovative measuring technology from Germany
1.23 Megapixel resolution
Highest precision
Efficiency guaranteed







< 0.03 K Thermal Resolution

World's first handheld 1.23 Megapixel thermographic camera

1 Lens

Full signal f/1.0 precision optics with patented quick-change technology and automatic lens recognition made by JENOPTIK.

2 Colour Video Camera

Built-in digital colour video camera with high light intensity and 1.3 megapixels for synchronous real image storage and integration into thermal images.

3 LED video light

Powerful LED video light for lighting scenarios with unfavourable lighting conditions.

4 Laser Pointer

Red semiconducter laser of laser protection class 2 for marking measuring points at the object.

5 Joystick

Multi-functional joystick for easy navigation in the camera menu.

6 Interfaces

Easy access via an IP65 plug-in connection: FireWire (IEEE 1394), Headset, Trigger, RS232, DC, VGA, PAL/NTSC-FBAS and -S-Video.

7 Battery

Commercial, high-performance quick-charge lithium-Ion battery with up to 5 hours of operating time.

8 Housing

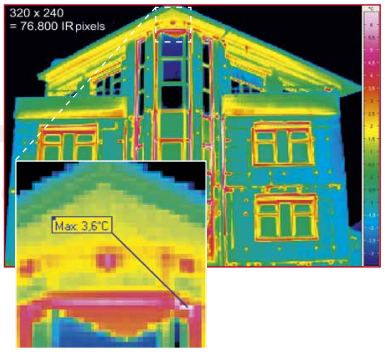
Rugged and ergonomically shaped light-weight metal housing with grip, designed for fatigue-proof mobile application.

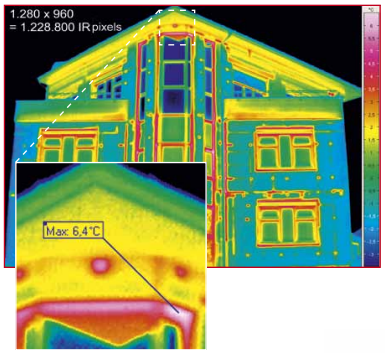
9 Functional Keys

All the important automatic, measuring and memory features of the camera can easily be accessed via functional keys.

1.23 Megapixels

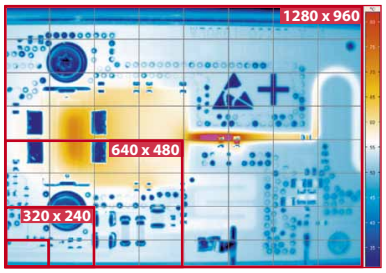
Use an unique opto-mechanical microscan feature with the RE mode and take thermal images of a geometric resolution you have never obtained before.





Avoid Measuring Errors

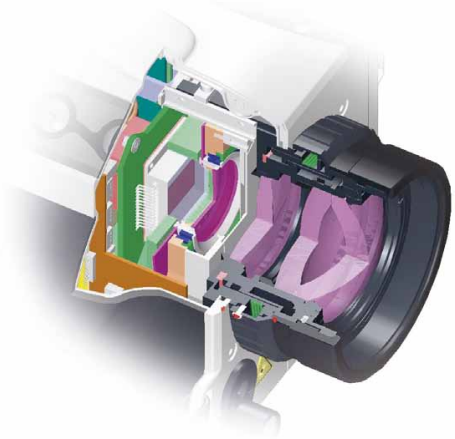
With the help of the Megapixel resolution, VarioCAM® high resolution offers 16 times more real measuring points with only one shot compared to a conventional thermographic camera and therefore prevents geometrical measurement errors.



64 times (160 x 120) pixels = 1 time (1,280 x 960) pixels

Time-saving

VarioCAM® high resolution with up to 1.23 Megapixels sets completely new standards.
Benefit from a depth in detail never possible before and thermal recognision of smallest structures. Save precious time! Since only one image taken by VarioCAM® high resolution at (1,280 x 960) IR pixels covers an area of 64 images of (160 x 120) IR pixels each.



Merging

By means of the intelligent image-mixing and cross-fading feature of VarioCAM® high resolution it has become very easy, to continuously cross-fade a real and an infrared image. This helps with later analysis and presents measuring scenarios more clearly.

Focussing Concept

Besides a reliable auto-focussing and a precise and sensitive manual focussing also close-up images can be taken using a standard lens. This is enabled by a complex opto-mechanical subassembly. The enclosure around the focussing mechanics within the camera guarantees long-time reliability and will not allow dust and dirt to enter even in tough industrial environments.

Accessories

VarioCAM® high resolution comes with a wide range of accessories and additional ones are available:

- Special lenses
- Tripods, sturdy cases for transportation
- Memory media, cables and adapters
- Various software packages
- Batteries and quick-charging adapters
- IR protective windows
- Remote control and displays

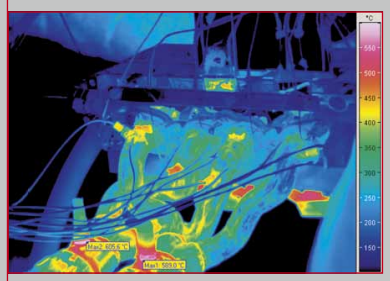
The new Dimension in Thermography

An excellent thermal and geometric resolution, ruggedness, user friendliness, the ergonomic housing design and a variety of innovative features as well as up-to-date interfaces make the new VarioCAM® high resolution an outstanding measurement solution. You will be surprised by the enormous performance potential of a completely new camera generation opening up possibilities yet unheard of.

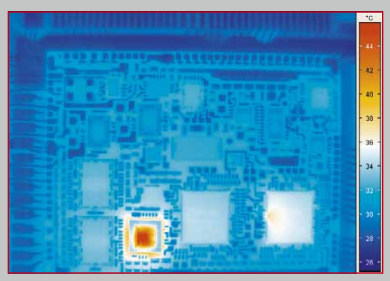
VarioCAM® high resolution
basic
inspect
research

Equipment Options for Any Application

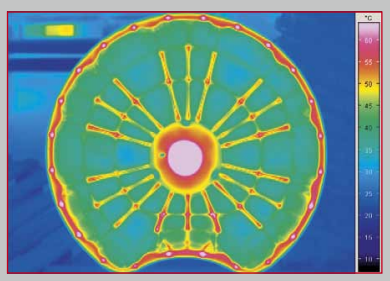
The modular device concept permits the camera equipment to be custom-designed according to the customer's needs and enables its universal application in almost any area.



Realtime thermography in research and development



Megapixel resolution enables analyses in an overview and in detail at the same time



Quality control without extensive computer technology

Further Benefits

The ergonomically designed lightweight metal housing and the low overall weight of 1.5 kg that is unusual in this class of performance allow for extended usage without showing any signs of fatigue.

The numerous automatic functions guaranty easy handling and an excellent image quality, also in unfavourable conditions.

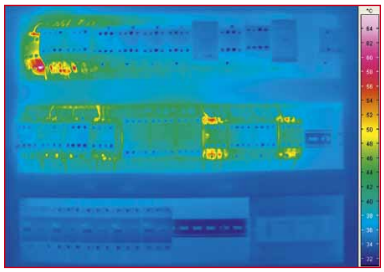
Powerful inbuilt measuring and display functions permit detailed analyses on-site. Every user may store his preferred camera adjustments as a separate user profile, clearly reducing working times.

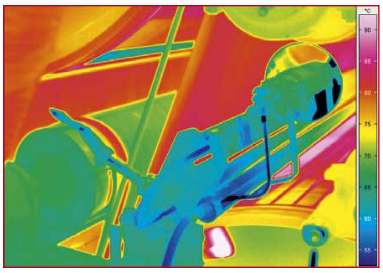
The integrated high-resolution TFT colour display and the colour viewfinder with the dioptric adjustment will perfectly visualise the measuring scene in all lighting conditions.

A variety of up-to-date interfaces enables easy data exchange between the camera and the PC.

High-resolution 16-bit thermograms can be recorded hassle-free at image rates of up to 60 Hz via a FireWire interface or the internal realtime memory of the camera.

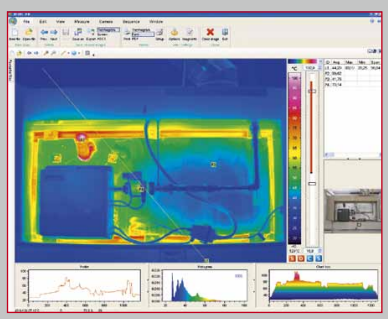
Along with each thermal image, both visual images of the internal colour video camera and spoken language or text comments can optionally be stored. This feature considerably helps in documenting the situation when the measurement was carried out.





Software

The top-notch software family IRBIS® 3 developed by InfraTec is the ideal tool for the quick analysis of the thermographic measuring data generated by the VarioCAM® high resolution and for their comfortable, WORD-based reporting. Depending on the application focus, packages are available for various levels of performance - IRBIS® 3, IRBIS® 3 plus and IRBIS® 3 professional.
Powerful tools, such as the IRBIS® 3 report for quick generation of reports and the IRBIS® 3 mosaic for generation of panoramic images out of multiple frames, make the editing and evaluation of images very easy.



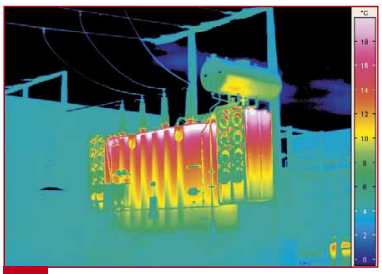
Applications

1 Automotive

Complex thermographic tasks can be completed within much less time thanks to both the outstanding performance of the new VarioCAM® high resolution and its ability to store high-resolution 16-bit thermograms at up to 60 Hz via a modern FireWire interface in a time and action-controlled mode. This will save users in the automotive industry considerable costs in both manufacturing and research processes.

2 Building Industry

VarioCAM® high resolution distinguishes itself by an extremely high thermal resolution and thereby permits highly precise measurements, making it even more independent of seasons. Together with its unique resolution of up to 1.23 Megapixels, you can now generate thermographic images of building structures much more efficiently – this will really save you money.



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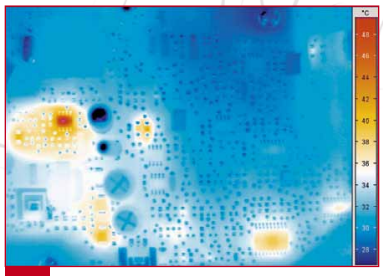
3 Research and Development

The extraordinary features of VarioCAM® high resolution, such as its 60-Hz infrared image frequency, geometric resolution, lens options, temperature measurement range, thermal resolution and measuring precision, in alliance with the IRBIS® software series, make it an essential instrument for research and development.

4 Manufacturing Control/ Quality Assurance

With no extensive computer technology needed, the new VarioCAM® high resolution enables automated monitoring of dynamic processes. This helps to quickly optimise manufacturing processes and improve product quality.



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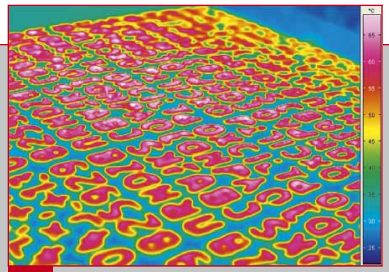

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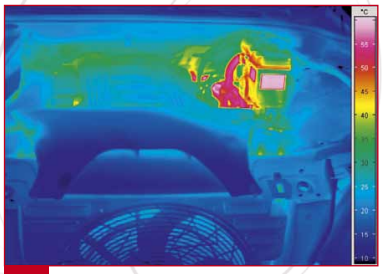
5 Predictive Maintenance

Early failure detection minimises downtime and raises productivity. The new VarioCAM® high resolution will enable you to actively take preventive measures. Its superb functionality and precise measuring results are as intriguing as its low weight and ease of use.



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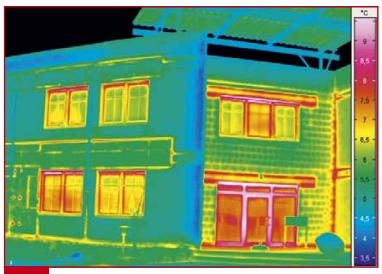

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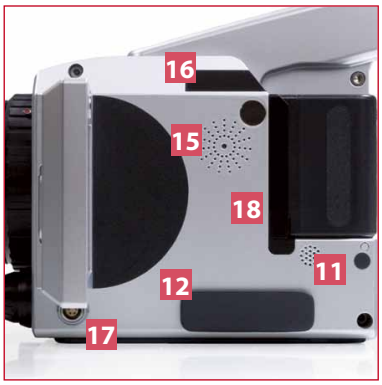

10 Viewfinder

High-resolution TFT colour viewer with dioptric adjustment.

11 Microphone

For recording of thermal-image integrated spoken comments.

12 SD-Card Slot

Protected slot for SD memory cards.

13 Display

Luminous 3.5" TFT colour display suited for rough industrial environments with a flip mirror function enables brilliant imaging at (640 x 480) pixels, also in unfavourable lighting conditions. The automatic shutoff during idle times saves energy for longer camera operating times.

14 Humidity Sensor/ External Sensors

Coupling with external sensors allows for an easy inclusion of additional object- and environmental parameters, which are for instance needed to determine the dew point at building inspections.

15 Loudspeaker

For playing thermal-image integrated spoken comments, acoustic support during operation and alarms.

16 WLAN

WLAN antenna for wireless remote control of the camera.

17 GPS modul

This feature allows to capture the GPS coordinates of the camera site. The location determination data can be saved as additional information with every thermographic image. With this, locality information is available for later editing of the thermographic data.

18 Internal real time memory

Allows storage of fast IR image sequences with up to 60 Hz right on the camera.

Spectral range	(7.5 ... 14) µm
Detector, Detector format (pixel)	Uncooled microbolometer Focal Plane Array, (320 x 240) (384 x 288), with built-in opto-mechanical high-precision scan unit (768 x 576) (640 x 480), with built-in opto-mechanical high-precision scan unit (1,280 x 960)
Temperature measuring range	(-40 ... 1,200) °C, optional > 2,000 °C
Measurement accuracy	± 1 °C or ± 1 % (depending on the model), otherwise ± 2 °C or ± 2 %
Temperature resolution @ 30 °C	Better than 0.03 K (depending on the model); otherwise better than 0.04 K
IR-frame rate	50/60 Hz
Digital colour video camera	1.3 Megapixels, with a LED video light
Standard lens* (field of view)	1.0/25 mm (25 x 19)° with a detector of (320 x 240) pixels 1.0/25 mm (30 x 23)° with a detector of (384 x 288) pixels 1.0/30 mm (30 x 23)° with a detector of (640 x 480) pixels
Image storage	SD-card, FireWire (IEEE 1394) up to 50/60 Hz, internal real-time memory
Dynamic range	16 Bit
Interfaces	PAL/NTSC-FBAS, S-Video, VGA,RS232, Trigger, FireWire (IEEE 1394), WLAN
Power supply	Lithium-Ion battery (quick rechargable, with status display), AC adapter
Laser pointer	Red semiconductor laser, laser protection class 2
Operation temperature; Storage temperature	(-15 ... 50) °C; (-40 ... 70) °C
Encapsulation	IP54, IEC 529
Impact strength/vibration resistance in operation	25 G (IEC 68 - 2 - 29)/2 G (IEC 68 - 2 - 6)
Dimensions	(133 x 106 x 110) mm
Tripod mount	1/4"-photo thread
Weight	1.5 kg (complete system)
Optional functions	Close focus, GPS, external sensor technology, dew point calculation

Detector format (pixel)		**(320 x 240)**	**(384 x 288)**	**(640 x 480)**
Lens	Focal distance	FOV (°)	FOV (°)	FOV (°)
Super wide angle lens	8 mm	(70 x 55)	(80 x 64)	(90 x 74)
Wide angle lens	12.5 mm	(48 x 37)	(57 x 44)	(65 x 51)
Standard lens	25 mm	(25 x 19)	(30 x 23)	-
Standard lens	30 mm	(21 x 16)	(25 x 19)	(30 x 23)
Telephoto lens	50 mm	(13 x 10)	(15 x 12)	(18 x 14)
Telephoto lens	75 mm	(8.5 x 6.5)	(10 x 7.5)	(12 x 9)
Telephoto lens	130 mm	(5 x 3.5)	(6 x 4.5)	(7 x 5.5)

Close-up lens	Pixelsize**	FOV (mm^2)	FOV (mm^2)	FOV (mm^2)
Close-up 0.17x/0.2x for standard lens*	209/209/125 µm	(67 x 50)	(80 x 60)	(80 x 60)
Close-up 0.5x/0.6x for standard lens*	70/70/41 µm	(22 x 17)	(27 x 20)	(27 x 20)
Microscopic lens 1.0x	35/35/25 µm	(11 x 8)	(13 x 10)	(16 x 12)

* Standard lens in standard configuration of the camera.

** Pixelsize for detector format (320 x 240/(384 x 288/(640 x 480)

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