JENOPTIK

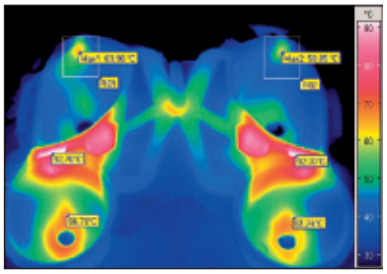
InfraTec

VarioCAM® hr research

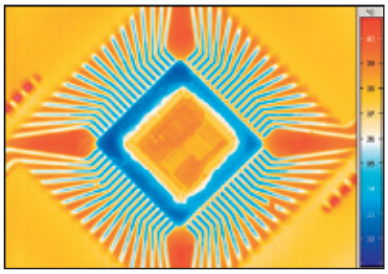
Mobile Thermographic Camera for Research and Development

NEW 0.03 K Thermal Resolution

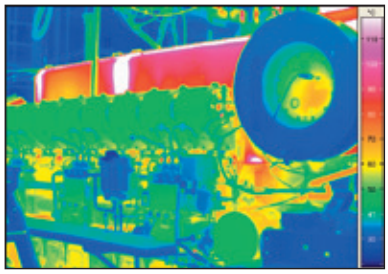
Process optimization



Research in microelectronics



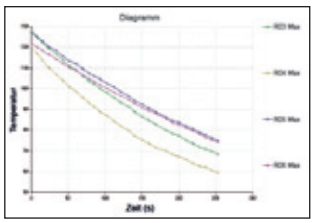
Analysis at a test bench



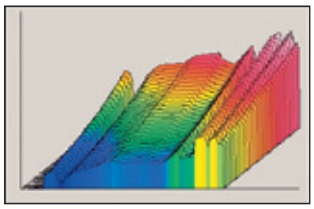
Analysis of image sequences

Gallery view of a cooling process

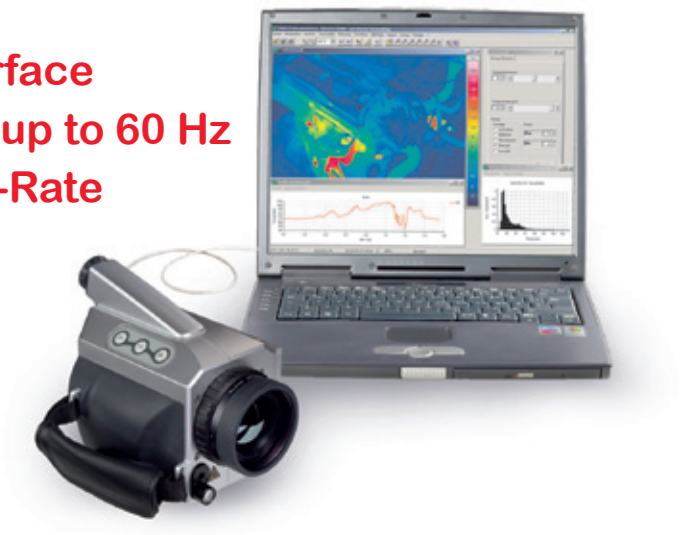
Temperature -Time diagram



3D-Profile -Time diagram



FireWire
data interface
real-time up to 60 Hz
IR-Frame-Rate



up to
1,280 x 960
Infrared pixels

Features

- Uncooled FPA Detector with (384 x 288) or (640 x 480) IR-pixels
- Optomechanic microscan function provides up to (1,280 x 960) IR-pixels*
- Digital real-time FireWire (IEEE 1394) interface up to 60 Hz
- Wide standard temperature measuring range
- Wide angle, telephoto, close-up and microscopic lenses
- External triggerable, temperature trigger
- Process control possible
- Latest Li-Ion battery generation, operating time up to 5 h
- Software-Development-Kit (SDK), MATLAB® and LabVIEW interface available
- Powerful software package IRBIS® 3 online/plus

* Depending on the particular camera configuration.

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VarioCAM® hr research

Mobile Thermographic Camera for Research and Development

Technical specifications

Spectral range	(7.5 ... 14) µm
Detector, Detector format (pixel)	Microbolometer Focal Plane Array, uncooled (384 x 288),“ Resolution Enhancement” to (768 x 576)* (640 x 480), “Resolution Enhancement” to (1,280 x 960)*
Temperature measurement range	(-40 ... 1,200) °C, optional > 2,000 °C
Measurement accuracy	± 1 °C or ± 1 % (for selected models and areas), ± 2 °C or ± 2 %
Temperature resolution @ 30 °C	better than 0.05 K, optional 0.03 K
IR-frame rate	50/60 Hz
Digital colour video camera	1.3 megapixels, with a LED video light, image-mixing and cross-fading feature
Standard lens (object field)	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, integrated real-time memory
Dynamic range	16 Bit
Interfaces	PAL/NTSC-FBAS, S-Video, RS232, FireWire (IEEE 1394), WLAN
Power supply	standard, off-the-shelf Li-Ion battery (fast rechargeable, with status display)
Laser	red semiconductor, laser protection class 2
Operation temperature, encapsulation	(-15 ... 50) °C, IP 54
Dimensions	(133 x 106 x 110) mm
Weight	1.5 kg (completely equipped)
Optional functions	close focus, GPS, connection to external sensor technology, dew point analysis

The VarioCAM® hr research represents a high-performance mobile thermographic camera of the VarioCAM® high resolution series manufactured by the German company JENOPTIK, that uses uncooled Microbolometer FPA detectors of the latest generation. Based on the modular concept of the camera, this completely equipped version with a digital high-performance FireWire (IEEE 1394) interface allows the acquisition of digital 16 Bit real-time measurement data with up to 60 Hz at a computer. Without a PC, real-time data can be saved in the internal memory - as well up to 60 Hz - and can be retrieved and analyzed on-site. The exclusively offered optional opto-mechanic “Resolution Enhancement” mode provides a hardware-based geometrical resolution of up to 1.23 Megapixels - actually the highest resolution in this class of thermographic systems. VarioCAM® hr research offers the best solution for complex thermographic measurements in laboratories or in process environments. The comprehensive range of accessories (lenses, cables, etc.) ensures flexibility of use as well as internal/external triggering. Besides a comprehensive software package from the IRBIS® family included in the delivery for a convenient and detailed analysis of fast thermal processes, the SDK and LabVIEW and MATLAB® interfaces provide optional opportunities for your own software development.

Lenses and close-up-lenses

Detector type (pixel)		**(384 x 288)**	**(640 x 480)**
Lens	Focal distance	FOV (°)	FOV (°)
Super wide angle lens	8 mm	(80 x 64)	(90 x 74)
Wide angle lens	12.5 mm	(57 x 44)	(65 x 51)
Standard lens	25 mm	(30 x 23)	-
Standard lens	30 mm	(25 x 19)	(30 x 23)
Telephoto lens	50 mm	(15 x 12)	(18 x 14)
Telephoto lens	75 mm	(10 x 7.5)	(12 x 9)
Telephoto lens	130 mm	(6 x 4.5)	(7 x 5.5)
Close-up lenses	Focus	Field of view (mm^2)	Field of view (mm^2)
Close-Up 0.17x/0.2x for Standard lens*	150 mm	(80 x 60)	(80 x 60)
Close-Up 0.5x/0.6x for Standard lens*	50 mm	(27 x 20)	(27 x 20)
Microscopic lens 1.0x	50 mm	(13 x 10)	(16 x 12)

Accessories

Breakout-Box

Breakout Box features different input and output interfaces to assure universal use of the VarioCAM® research in industrial applications.

Repeater 800-LWL

Using fibre optical interface extension, camera and PC can be connected over several 100 m by a fibre optical cable.

* Depending on the particular camera configuration.

Produced by

Jenoptik
ESW GmbH