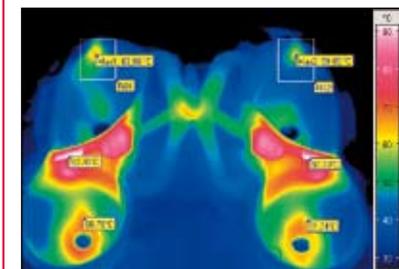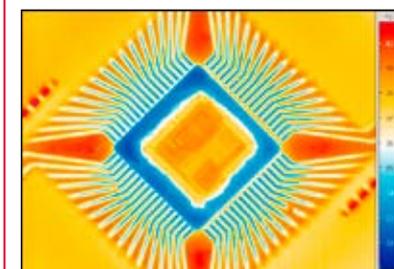InfraTec

VarioCAM® hr research

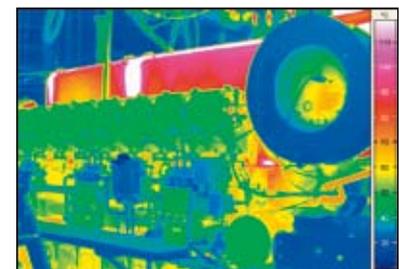## Mobile thermographic camera for research and development

Process optimization

Research in microelectronics

Analysis at a test bench

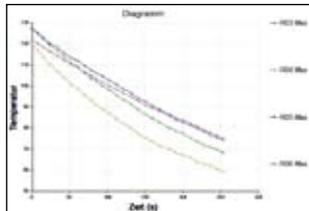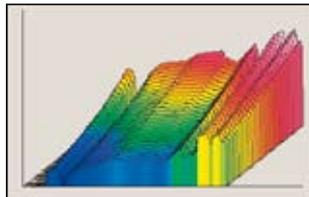Analysis of image sequences

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) pixels
- optomechanic microscan function provides up to (1,280 x 960) infrared pixels
- digital real-time FireWire (IEEE 1394) interface up to 60 Hz
- wide standard temperature measuring range
- wide angle, telephoto and close-up lens options

- external triggerable, temperature trigger
- process control possible
- Software-Development-Kit (SDK) available
- available MATLAB® and LabVIEW interface
- real-time acquisition software IRBIS® online
- powerful analysis software IRBIS® plus

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), optional „Resolution Enhancement" to (768 x 576) (640 x 480), optional „Resolution Enhancement" to (1,280 x 960)
Temperature measurement range	(-40 ... 1,200) °C, optional > 2,000 °C
Measurement accuracy	± 1.5 K (0 ... 100) °C; ± 2 % (< 0 resp. > 100) °C
Temperature resolution @ 30 °C	better than 0.08 K or 0.05 K at premium mode
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 (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)
Operation temperature, encapsulation	(-15 ... 50) °C, IP54
Dimensions	(133 x 106 x 110) mm
Weight	1.5 kg (complete system)

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

Lens	Focal distance	FOV (°)	FOV (°)
Detektor type (pixel)		**(384 x 288)**	**(640 x 480)**
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 8)	(12 x 9)
Telephoto lens	130 mm	(6 x 4)	(7 x 5)

Close-up lenses	Focus	field of view (mm²)
0.17x	150 mm	(80 x 60)
0.5x	50 mm	(27 x 20)

Accessories

Breakout Box

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

FO-Repeater

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