

# Lock-in Thermography-Package for Electronics Development

Handheld Thermography Camera VarioCAM® HDx

## INFRA<sup>T</sup>EC.

Your InfraTec Expert Package for Research and  
Development incl. Software IRBIS® 3 active

Microbolometer detector with (640 × 480) IR pixels

High-resolution 5.6" colour TFT display with (1,280 × 800) pixels

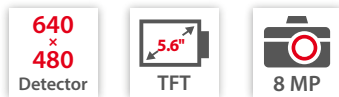
Intuitive operation and numerous automatic functions guarantee  
excellent handling

System integration via LabVIEW or MATLAB interfaces, SDK

Special software IRBIS® 3 active

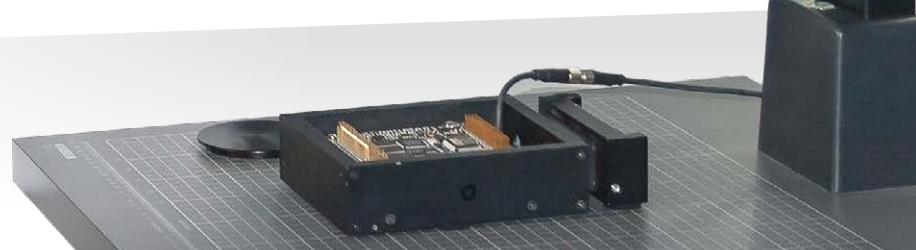
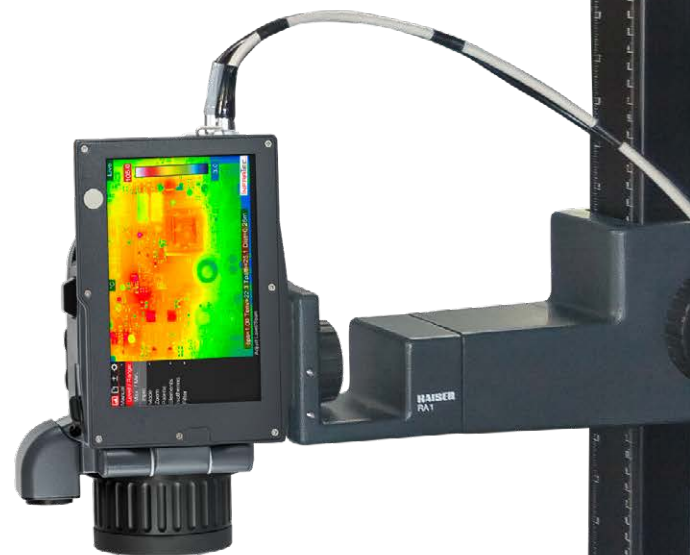
Automatic processing of data quantities

Real-time data connection via GigE-Interface



Lock-in Thermography Package:

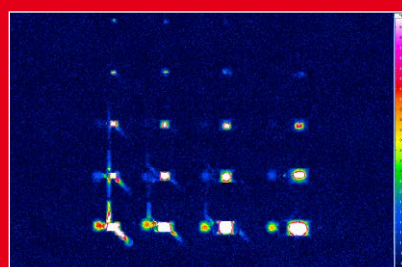
**VarioCAM® HDx**  
incl. **IRBIS® 3 active**



[www.InfraTec.eu](http://www.InfraTec.eu)



VarioCAM® HDx with different lenses



Thermogram of a demonstrator



Perform Lock-in Method using a demonstrator



Spectral range	(7.5 ... 14) µm
Detector	Uncooled microbolometer focal-plane array
Detector format (IR pixels)	(640 × 480)
Temperature measuring range	(-40 ... 600) °C, up to 1,200 °C*
Measurement accuracy	± 2 °C or ± 2%
Temperature resolution @ 30 °C	Up to 0.03 K*
Frame rate	Full-frame: 30 Hz (640 × 480), sub-frame: 60 Hz (384 × 288)
Window mode*	Yes
Storage media	SDHC Card, external control computer for camera control and data acquisition*
Image storage	Time-, trigger- and temperature controlled recording of 16 bit single frames or image sequences with timestamp, video streaming in MPEG format
Lens mount	Automatic objective detection
Focus	Motor-driven, automatic or manual, accurately adjustable, laser-supported autofocus*
EverSharp function*	Multifocal recording allows for maximum extend of sharp focus
Zoom*	Up to 32× digital, stepless
Digital colour video camera	8 Megapixels, LED video light, vision mixer and cross-fade feature
Dynamic range	16 bit
Interfaces*	GigE Vision*, DVI-D (HDMI), C-Video, RS232, USB 2.0, WLAN*, Bluetooth*
Trigger*	2 × digital I/O, 2 × analogue I/O
Tripod adapter	1/4" photo thread
Power supply	Standard Lithium-Ion battery, energy save mode, AC adapter, (12 ... 24) V DC
Integrated microphone and speaker	Voice annotation feature, replay and audio dubbing
Laser range finder*	Semiconductor laser red, laser protection class 2, range up to 70 m
Integrated GPS sensor*	Image integrated storage of position data
Display	5.6" colour TFT display (1,280 × 800) pixel, 170° rotatable and 280° revolvable, daylight suited, incl. flip mirror feature
Colour viewfinder*	Tilttable colour viewfinder with diopter compensation
Single-handed operation	Intuitive operation with ergonomically arranged function keys and multifunctional joystick, programmable keys
Protection degree; storage & operation temperature	IP54, IEC 60529; (-40 ... 70) °C, (-25 ... 55) °C
Impact strength, vibration resistance in operation	25 G (IEC 68 - 2 - 29), 2 G (IEC 68 - 2 - 6)
Dimensions; weight	(210 × 125 × 155) mm; 1.6 kg (basic configuration with standard lens)
Automatic functions	Autofocus, permanent autofocus*, automatic distance indicator*, distance-dependent display of pixel size to avoid geometrically related measurement errors*, autoimage, autolevel, min./ max. temperature alarm: visual / acoustic, alarm triggered image storage
Measurement functions*	8 freely selectable, movable measurement fields / -points, automatic hot / cold spot display, globally and internally defined measurement fields, differential temperature measurement, temperature profile, histogram, differential image, isotherms display
Further functions*	Shutter-free operation, temperature alarm, image merging, synchronous display of thermal and visual image in real-time
Analysis and evaluation software	IRBIS® 3 active
Further software packages*	IRBIS® 3, IRBIS® 3 plus, IRBIS® 3 professional, IRBIS® 3 view, IRBIS® 3 remote HD, IRBIS® 3 online, IRBIS® 3 process, IRBIS® 3 vision, IRBIS® 3 mosaic, FORNAX 2, FORNAX 2 plus

\* Optional

For professional measuring tasks using Lock-in Thermography in electronics development, InfraTec offers a complete package with a handheld thermographic camera of the premium range together with efficient software. The **VarioCAM® HDx** is equipped with a large microbolometer detector. In combination with light-sensitive precision, interchangeable lenses that offer maximum flexibility for different sized measurement objects and variable operating distances, users can record thermographic images with high measurement accuracy and superb image quality. The package is rounded off by the **software IRBIS® 3 active**, a modern and universally usable tool for active thermography. Through the focused introduction or generation of a heat flow, test objects are examined non-destructively for concealed material defects, cavities, cracks, joint flaws or delamination. This method is ideally suited for detecting faults and anomalies in the development of electronics, since a focused input of heat can normally be attained easily by means of electrical excitation. Lock-in Thermography enables defects to be detected and localised reliably even in the case of the slightest power losses.

Lens	Focal lens (mm)	FOV (°)
Wide-angle lens	10	(57.1 × 44.4)
Standard lens	20	(30.4 × 23.1)
Telephoto lens	40	(15.5 × 11.6)
Macro and microscopic lenses	Min. object distance (mm)	Pixel (µm)
Close-Up 0.5× for lens: 40 mm / 20 mm	47 / 47	24 / 49
Microscopic lens M=1.0×	50	17

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