Lock-in Thermography-Package for Electronics Development
Using Handheld VarioCAM® HDx or Stationary VarioCAM® HDx head

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

- Microbolometer detector with (640 × 480) IR pixels
- Thermographic cameras for handheld and fixed mount use available
- 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
- Microscopic lens with up to 17 µm pixel size*

Lock-in Thermography Package:

VarioCAM® HDx oder
VarioCAM® HDx head
+ IRBIS® 3 active

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Spectral range: (7.5 ... 14) µm
Detector: Uncooled microbolometer focal-plane array
Detector format (IR pixels): (640 x 480)
Temperature measuring range: (-40 ... 600) °C, up to 1,700 °C
Measurement accuracy: ± 2 °C or ± 2%
Temperature resolution @ 30 °C: Up to 0.03 K°
Frame rate: Full-frame: 30 Hz (640 x 480), sub-frame: 60 Hz (384 x 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 Megapixel, LED video light, vision mixer and crossfade feature
Dynamic range: 16 bit
Interfaces: GigE Vision*, DVI-D (HDMI), C-Video, RS232, USB 2.01, WLAN*, Bluetooth*, Process interface2*
Laser range finder: Semiconductor laser red, laser protection class 2, range up to 70 m
Dynamic range: 16 bit
Interfaces: GigE Vision*, DVI-D (HDMI), C-Video, RS232, USB 2.01, WLAN*, Bluetooth*, Process interface2*
Laser range finder: Semiconductor laser red, laser protection class 2, range up to 70 m
Integrates GPS sensor: Image integrated storage of position data
Colour viewfinder: Tiltable colour viewfinder with diopter compensation
Single-handed operation: Intuitive operation with ergonomically arranged function keys and multifunctional joystick, programmable keys
Protection degree; storage and operation temperature: IP541, 2 respectively IP67 with screw-on interface 2*, IEC 60529; (-40 ... 70) °C, (-25 ... 55) °C
Power supply: Standard Lithium-Ion battery1, energy save model, AC adapter, (12 ... 24) V DC, PoE2*
Tripod adapter: 1/4" photo thread
Automatic functions: * Autofocus, permanent autofocus, automatic distance indicator1, distance-dependent display of pixel size to avoid geometrically related measurement errors1, autonomy, autolevel, min. / max. temperature alarm: visual / acoustic1, alarm triggered image storage1
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 merging1, synchronous display of thermal and visual image in real-time1, camera internal emissivity correction1
Further software packages: 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 active, IRBIS® 3 mosaic

For professional measuring tasks using Lock-in Thermography in electronics development, InfraTec offers a complete package with thermographic cameras of the premium range together with efficient software. Both the handheld VarioCAM® HDx as well as the stationary VarioCAM® HDx head are 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 suits ideally 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.

<table>
<thead>
<tr>
<th>Lens</th>
<th>Focal lens (mm)</th>
<th>FOV (°)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wide-angle lens</td>
<td>10</td>
<td>(57.1 x 44.4)</td>
</tr>
<tr>
<td>Standard lens</td>
<td>20</td>
<td>(30.4 x 23.1)</td>
</tr>
<tr>
<td>Telephoto lens</td>
<td>40</td>
<td>(15.5 x 11.6)</td>
</tr>
<tr>
<td>Macro and microscopic lenses</td>
<td>Min. object distance (mm)</td>
<td>Pixel (µm)</td>
</tr>
<tr>
<td>Close-Up 0.2x for lens: 40 mm / 20 mm</td>
<td>137</td>
<td>60 / 121</td>
</tr>
<tr>
<td>Close-Up 0.5x for lens: 40 mm / 20 mm</td>
<td>47 / 47</td>
<td>24 / 49</td>
</tr>
<tr>
<td>Microscopic lens M=1.0x</td>
<td>50</td>
<td>17</td>
</tr>
</tbody>
</table>

* Optional  ///  1 only VarioCAM® HDx  ///  2 only VarioCAM® HDx head

Further information at: www.InfraTec.eu

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Design, specification and technical progress subject to change without prior notice.
** Payment terms: 14 days, errors and price alterations excepted. Prices are to be understood plus legal VAT and shipping costs.
* Optional  ///  1 only VarioCAM® HDx  ///  2 only VarioCAM® HDx head

With additional effect the camera offers integrated software modules for the evaluation of the temperature profile, histogram, differential image, isotherms display.