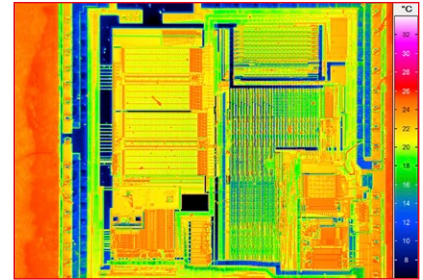


Controlling and acquisition software for facility protection



Microscopic thermography: detail of a circuit board

# ImageIR® 9300

High-end Thermography Camera with High Image Quality and High Sensitivity

1,280  
x  
1,024  
Detector

**Detector Format**  
Efficient measurement of smallest structures on large-scale objects

1,280  
x  
1,024  
106 Hz

**IR-Frame Rate**  
Analysis of extreme temperature changes and gradients in full frame

±1  
%

**Measurement Accuracy**  
Highly accurate and repeatable measurements

≤ 25  
mK

**Thermal Resolution**  
Precise detection of smallest temperature differences

10  
GigE

**10 GigE Interface**  
High-speed, long-distance interference proof data transmission

Calibration

**HighSense**  
Flexible setting of temperature measurement ranges/integration times beyond calibration ranges

Focus

**Motor Focus**  
Precise, fast and remotely controllable; including multiple autofocus functions

With its ImageIR® 9300 InfraTec introduces another top-level thermographic camera model from the ImageIR® high-end camera series. It is equipped with a cooled focal-plane array photon detector that provides a format of (1,280 × 1,024) IR pixels – four times higher than comparable competitive units. Combining an outstanding thermal resolution up to 0.025 K with very high frame rates of 106 Hz and extremely short integration times of only a few microseconds, this camera offers you a whole new range of applications.

ImageIR® 9300 was developed for demanding operations in research and development, non-destructive material testing and process monitoring sectors. Its modular structure, which consists of optical, detector and interface modules, makes it easily adaptable to the respective application.

A snapshot detector and an integrated trigger interface guarantees a repeatable high-precision triggering of quick procedures. Multiple configurable digital in- and outputs serve as control ports for the camera or as a generator of control signals for external devices. The optical channel consists of exchangeable infrared lens systems and application-specific apertures, filters and optical elements. All exchangeable radiometric precision lenses of the ImageIR® can be equipped with a motorised focus unit, which is operated from the camera's application software. As part of the optional autofocus function it allows quick, precise and remotely controllable motorised.

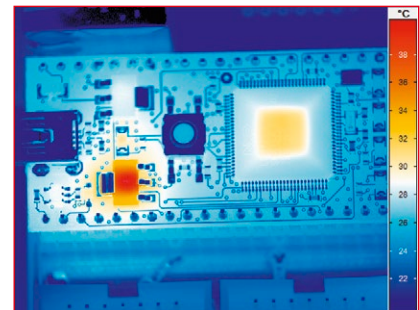
## Technical Specifications

Spectral range	(1.5 ... 5.5) $\mu\text{m}$
Pitch	15 $\mu\text{m}$
Detector	InSb
Detector format (IR pixels)	(1,280 $\times$ 1,024)
Image acquisition	Snapshot
Readout mode	ITR/IWR
Aperture ratio	f/2.0 or f/4.6
Detector cooling	Stirling cooler
Temperature measuring range	(-40 ... 1,500) $^{\circ}\text{C}$ , up to 3,000 $^{\circ}\text{C}^*$
Measurement accuracy	$\pm 1^{\circ}\text{C}$ or $\pm 1\%$
Temperature resolution @ 30 $^{\circ}\text{C}$	Better than 0.025 K
Frame rate (full / half / quarter / sub frame)*	Up to 106 / 200 / 390 / 3,200 Hz
Window mode	Yes
Focus	Manually, motorised or automatic*
Dynamic range	Up to 16 bit*
Integration time	(0.5 ... 18,000) $\mu\text{s}$
Rotating filter wheel*	Up to 6 positions
Rotating aperture wheel*	Up to 5 positions
Interfaces	GigE, 10 GigE*, 2 $\times$ CAMLink*, HDMI*
Trigger	4 IN / 2 OUT, TTL
Analogue signals*, IRIG-B*	2 IN / 2 OUT, yes
Tripod adapter	1/4" and 3/8" photo thread, 2 $\times$ M5
Power supply	24 V DC, wide-range power supply (100 ... 240) V AC
Storage and operation temperature	(-40 ... 70) $^{\circ}\text{C}$ , (-20 ... 50) $^{\circ}\text{C}$
Protection degree	IP54, IEC 60529
Dimensions; weight	(235 $\times$ 120 $\times$ 160) mm*; 4.0 kg (without lens)
Further functions	Multi Integration Time*, HighSense*
Analysis and evaluation software	IRBIS <sup>®</sup> 3, IRBIS <sup>®</sup> 3 view, IRBIS <sup>®</sup> 3 plus*, IRBIS <sup>®</sup> 3 professional*, IRBIS <sup>®</sup> 3 control*, IRBIS <sup>®</sup> 3 online*, IRBIS <sup>®</sup> 3 process*, IRBIS <sup>®</sup> 3 active*, IRBIS <sup>®</sup> 3 mosaic*, IRBIS <sup>®</sup> 3 vision*

\* Depending on model

Lenses	Focal length (mm)	FOV ( $^{\circ}$ )	IFOV (mrad)
Wide-angle lens	25	(42.0 $\times$ 34.2)	0.6
Standard lens	50	(21.7 $\times$ 17.5)	0.3
Telephoto lens	100	(11.0 $\times$ 8.8)	0.15
Telephoto lens	200	(5.5 $\times$ 4.4)	0.08

Macro and microscopic lenses	Minimum object distance (mm)	Object size (mm)	Pixel size ( $\mu\text{m}$ )
Close-up for standard lens 50 mm	300	(115 $\times$ 92)	90
Close-up for telephoto lens 100 mm	500	(96 $\times$ 77)	75
Microscopic lens M=1.0 $\times$	40	(19 $\times$ 15)	15
Microscopic lens M=8.0 $\times$	14	(2.4 $\times$ 1.92)	1.9



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