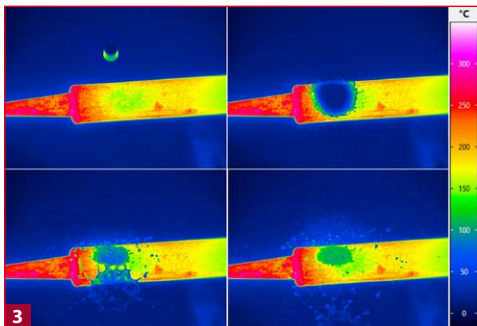


# ImageIR® 9400

High-performance Thermography Camera

## INFRA<sup>TEC</sup>.

Europe's leading specialist for infrared sensors and measurement technology



- 1) ImageIR® 9400 with interchangeable lenses from InfraTec
- 2) Lock-in thermography of an electronic device with the thermographic software IRBIS® 3 active
- 3) Impact of a drop of water on a soldering iron, recorded with high-speed mode

Cooled FPA photon detector with (1,280 × 1,024) IR pixels  
Available with high-speed mode thanks to binning technology

Snapshot detector, internal trigger interface

Thermal resolution up to 0.02 K

Extremely short integration times in the microsecond range

Pixel size with microscopic lens up to 1.3 μm

Made in Germany



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

[www.InfraTec-infrared.com](http://www.InfraTec-infrared.com)

**NEW**



Spectral range	(2.0 ... 5.5) $\mu\text{m}$ or (3.6 ... 4.9) $\mu\text{m}$
Pitch	10 $\mu\text{m}$
Detector	InSb
Detector format (IR pixels)	(1,280 $\times$ 1,024)
Image acquisition	Snapshot
Readout mode	ITR / IWR
Aperture ratio	f/2.2 or f/3.0
Detector cooling	Stirling cooler
Temperature measuring range	(-40 ... 1,500) $^{\circ}\text{C}$ , up to 2,000 $^{\circ}\text{C}^*$
Measurement accuracy	$\pm 1$ $^{\circ}\text{C}$ or $\pm 1$ %
Temperature resolution @ 30 $^{\circ}\text{C}$	Up to 0.03 K / Up to 0.02 K in high-speed mode
Frame rate (full frame mode / 640 $\times$ 512)*	Up to 180 Hz / 625 Hz, (identical FOV)
Window mode	Yes
Focus	Manually, motorised or automatically*
Dynamic range	Up to 16 bit*
Integration time	(1 ... 20,000) $\mu\text{s}$
Rotating aperture and filter wheel*	Up to 5 positions
Interfaces	10 GigE, HDMI*
Trigger	3 IN / 2 OUT, TTL
Analogue signals*, IRIG-B*	3 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	High-speed mode*, Multi Integration Time*
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

To analyze the thermal behavior of objects and processes from a wide variety of perspectives InfraTec introduces Imager<sup>®</sup> 9400. The camera is equipped with a new generation **cooled focal-plane array photon detector** that provides a **format of (1,280  $\times$  1,024) IR pixels**. Next to the standard mode users can choose a **high-speed** mode utilizing binning technology. Due to a reduced number of pixels but the same field of view (FOV) this enables **very high frame rates up to 625 Hz**, extremely short integration times and excellent thermal resolution at the same time.

Imager<sup>®</sup> 9400 was developed for demanding operations in research and development, **non-destructive testing and process monitoring**. Its **modular structure, which consists of optical, detector and interface modules**, makes it easily adaptable to the respective application.

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 generator of control signals for external devices. The optical channel consists of exchangeable infrared lens systems as well as application-specific apertures, filters and optical elements. All **exchangeable radiometric precision lenses** of the Imager<sup>®</sup> 9400 can be equipped with a motorised focus unit, which is operated from the camera's application software. It allows quick, precise and remotely controllable motorised focusing.

Lenses	Focal length (mm)	FOV ( $^{\circ}$ )	IFOV (mrad)
Standard lens	25	(29 $\times$ 23)	0.4
Telephoto lens	50	(15 $\times$ 12)	0.2
Telephoto lens	100	(7.3 $\times$ 5.9)	0.1
Telephoto lens	200	(3.7 $\times$ 2.9)	0.05

Macro and microscopic lenses	Object distance (mm)	Object size (mm)	Pixel size ( $\mu\text{m}$ )
Close-up for telephoto lens 50 mm	300	(77 $\times$ 61)	60
Close-up for telephoto lens 100 mm	500	(64 $\times$ 51)	50
Microscopic lens M=1.0 $\times$	40	(13 $\times$ 10)	10
Microscopic lens M=8.0 $\times$	14	(1.6 $\times$ 1.3)	1.3

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