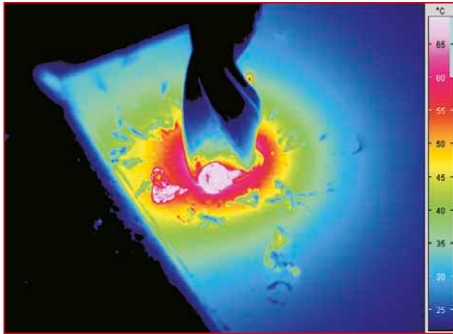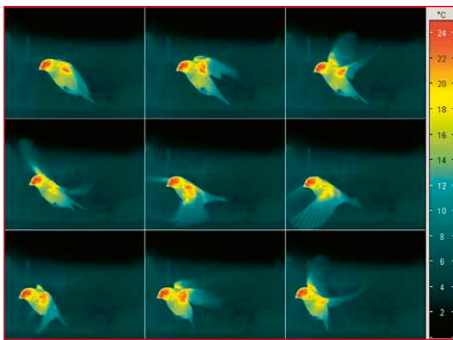# High-end Camera Series ImageIR®

Thermographic systems to match highest standards

Cutting parameter optimisation of high speed tools (metal drilling)
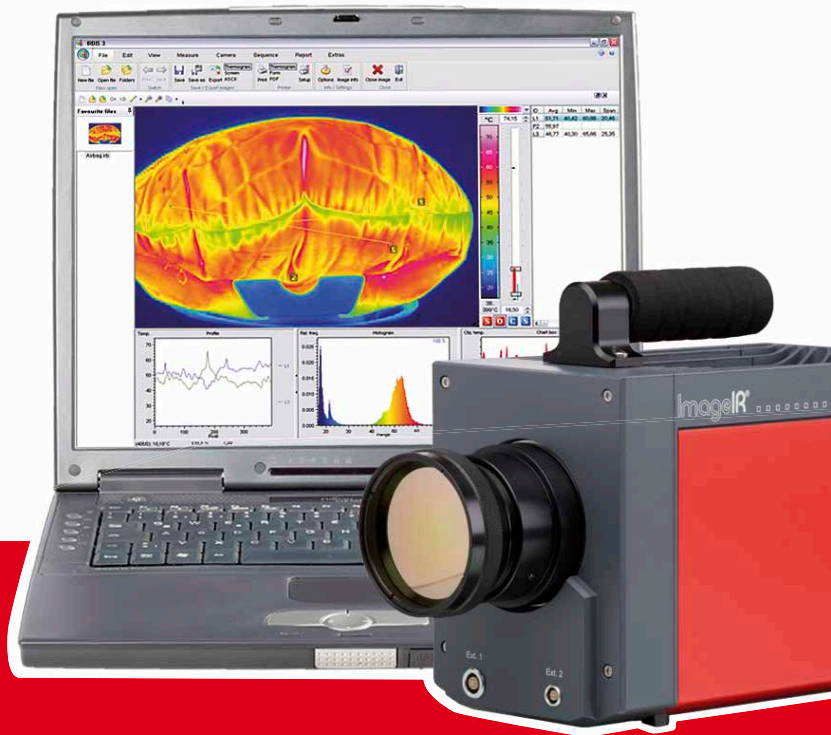

Thermal imaging of a bird's flight

Excellent thermal resolution < 0.025 K
Very high IR image frequency up to 3,000 Hz
Modular design for individual system expansion
Robust light-weight metal housing
High-grade Stirling cooler
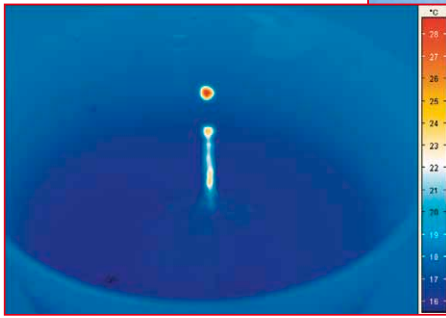**Allows to be triggered externally**
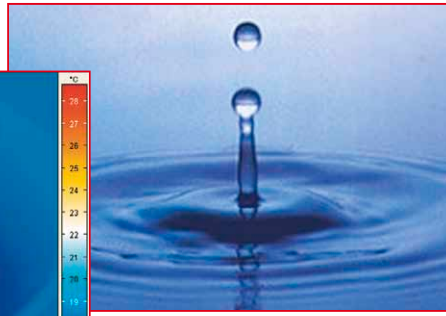

InfraTec

Just ask the specialists ...

High-speed Thermography

High-speed Thermography
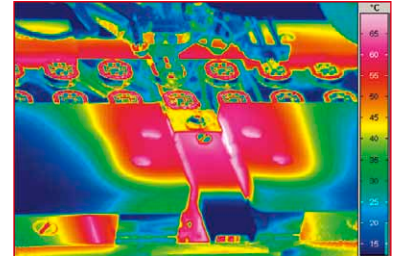
A droplet rebounding off the water surface


Visual image

Thermographic image

The product series ImageIR® offers powerful high-speed thermographic systems based on thermal and geometric high-definition FPA photon detectors in accordance with international state-of-the-art detector technology.

View of an automatic bonding tool

Universal Applications

For the analysis of fast thermal processes, image frequencies of up to 250 Hz (in full screen mode) or 3,000 Hz (in quarter screen mode) and 10,000 Hz (in line mode) have become possible at shortest integration times of 1 µs ... 10 ms. The camera can be triggered externally for synchronisation with revolving structural parts or complex processes. Special top-quality infrared lenses enable optimal adjustment to various object geometries and operating distances. This system is entirely remote-controlled and comes ready-to-operate together with a high-performance PC including a digital interface card and special software. The high degree of protection of the robust housing also permits application in industrial environments.
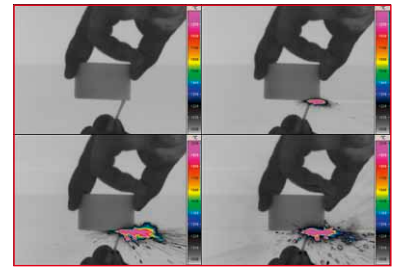
Igniting a match

Technology

The ImageIR® presents the latest in Focal Plane Array infrared detector technology. The product series includes high-speed thermography systems with state-of-the-art focal-plane-array photon detectors of the types InSB, MTC and QWIP as well as of the formats (320 x 256) and (640 x 512) IR pixels. Moreover, with the IRBIS® 3 plus and IRBIS® 3 professional software with integrated online functionality, the complete systems offered by InfraTec include adequate tools for digital real-time data recording and evaluation and all further components required for solving challenging measuring tasks.

Fields of Application

The modular design concept permits to set up an individual camera system in accordance with customers' needs and focus of application. It can universally be used in almost all spheres:

- Aerospace, automotive engineering, medicine, laser technology, welding, electronics/microelectronics
- Glass, plastics and steel industry
- Research and development, non-destructive material testing, lock-in and spectral thermography
- Stress analysis testing of assemblies, microthermography, site surveillance
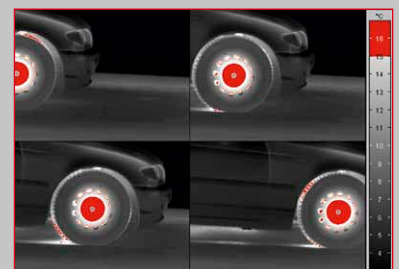

Measuring the effective braking surface in an ABS brake test

# Analysing software for complex thermographic data

The high-performance special software of the software family IRBIS® 3 for Windows 2000/XP/Vista, developed by InfraTec, permits real-time data acquisition and radiometric measurement as well as thermographic image evaluation both online and offline. This is to help customers with high-end thermographic solutions, adapted to their specific requirements in most diversified tasks of measuring and applications.
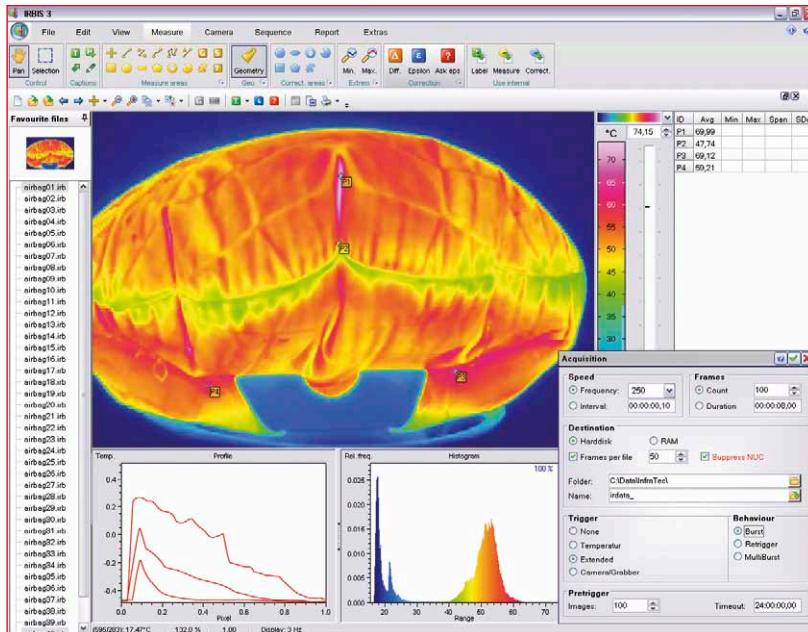
IRBIS® 3 professional for effectively processing high-speed thermographic images
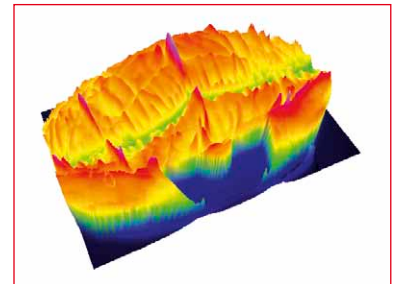
3D-view with Open GL support
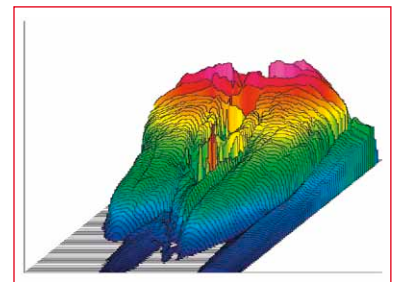
3D-view of the profile-time diagram
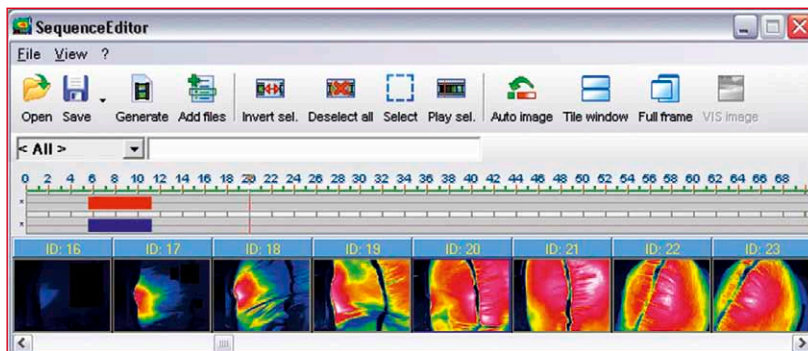
Sequence editor for selecting thermographic data from complex sequences

Sequence Editor

The sequence editor effectively enables manual or also automated, defined by user criteria, selecting of thermographic data from complex sequences as well as editing filtered image series. These can be saved in the raw material with appropriate comments or be restructured on their basis.

Softwarepackage IRBIS® 3

IRBIS® 3 Software package

Expansion modules	Analysis software	Control and acquisition software
■ IRBIS® mosaic	IRBIS® 3	■ IRBIS® 3 remote
■ Sequence editor		■ IRBIS® 3 control
■ Macro editor	IRBIS® 3 plus	
■ AVI Generator		■ IRBIS® 3 online
■ Palette editor	IRBIS® 3 professional	■ IRBIS® 3 process
report generator / IRBIS® 3 report		
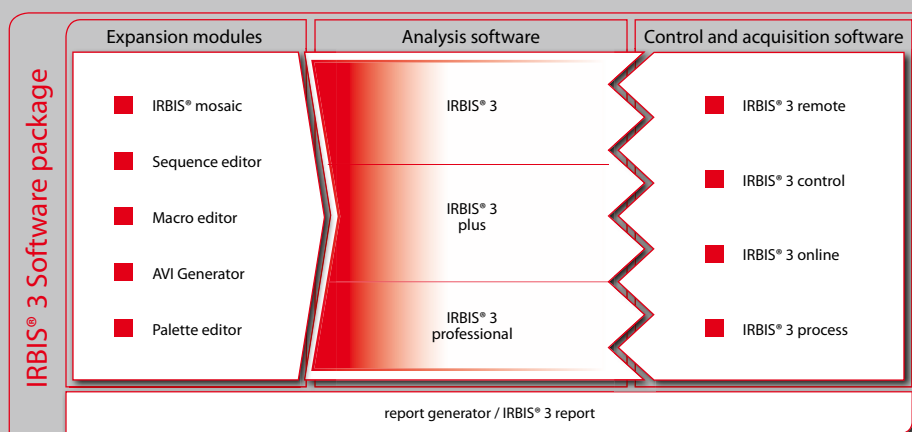
Model	ImageIR® 5100	ImageIR® 5300	ImageIR® 5800	ImageIR® 8300	ImageIR® 8800
Spectral range	(0.8 ... 2.5) μm	(2 ... 5) μm	(8 ... 9.3) μm	(2 ... 5) μm	(8 ... 12) μm
Detector format (IR pixels)	(320 x 256)	(320 x 256)	(320 x 256)	(640 x 512)	(640 x 512)
Detector	MCT	MCT or InSb	MCT or QWIP	MCT or InSb	MCT or QWIP
Detector cooling	Thermoelectrical	Stirling cooler	Stirling cooler	Stirling cooler	Stirling cooler
Measurement accuracy	-	± 1°C or ± 1%	± 1°C or ± 1%	± 1°C or ± 1%	± 1°C or ± 1%
Temperature resolution	-	0.025 K @ 30 ℃	0.025 K @ 30 ℃	0.025 K @ 30 ℃	0.025 K @ 30 ℃
Temperature measuring range	-	(-40 ... 1,200) ℃ (optional up to 2,000 ℃)	(-40 ... 1,200) ℃ (optional up to 2,000 ℃)	(-40 ... 1,200) ℃ (optional up to 2,000 ℃)	(-40 ... 1,200) ℃ (optional up to 2,000 ℃)
Storage temperature	(-40 ... 70) ℃	(-40 ... 70) ℃	(-40 ... 70) ℃	(-40 ... 70) ℃	(-40 ... 70) ℃
Operating temperature	(-20 ... 50) ℃	(-20 ... 50) ℃	(-20 ... 50) ℃	(-20 ... 50) ℃	(-20 ... 50) ℃
Degree of protection	IP 54, IEC 529	IP 54, IEC 529	IP 54, IEC 529	IP 54, IEC 529	IP 54, IEC 529
Integration time	(10 ... 20,000) μs in increments up to 1 μs	(1 ... 20,000) μs in increments up to 1 μs	(1 ... 20,000) μs in increments up to 1 μs	(1 ... 20,000) μs in increments up to 1 μs	(1 ... 20,000) μs in increments up to 1 μs
Filter wheel	optional	optional	optional	optional	optional
Dynamic range	14 bit	14 bit	14 bit	14 bit	14 bit
Window mode	No	Yes	Yes	Yes	Yes
Image rate (full screen Mode/in half screen mode/ in quarter screen mode)	(1 ... 100) Hz/-/-	up to 250/900/3,000 Hz optionally: 10,000 Hz line	up to 250/900/3,000 Hz optionally: 10,000 Hz line	up to 100/325/850 Hz optionally: 2,000 Hz line	up to 100/325/850 Hz optionally: 2,000 Hz line
Digital interface optional	GigE CAMLink, USB	GigE CAMLink, USB	GigE CAMLink, USB	GigE CAMLink, USB	GigE CAMLink, USB
Tripod adapter	1/4" photo thread	1/4" photo thread	1/4" photo thread	1/4" photo thread	1/4" photo thread
Weight (without lens)	3 kg	3 kg	3.5 kg	3 kg	3.5 kg

Lens	Focal length	Availability
Wide angle lens	12 mm	ImageIR® 5100, 5300, 5800, 8300, 8800
Standard lens	25 mm	ImageIR® 5100, 5300, 5800, 8300, 8800
Telephoto lens	50 mm	ImageIR® 5100, 5300, 5800, 8300, 8800
Telephoto lens	100 mm	ImageIR® 5100, 5300, 5800, 8300, 8800
Close-up for telephoto lens	100 mm	ImageIR® 5100, 5300, 8300
Microscopic lens M=1.0x		ImageIR® 5100, 5300, 8300
Microscopic lens M=2.5x		ImageIR® 5100, 5300, 8300

System Variants

■ ImageIR® 5100: optimal resolution for analyses in the near infrared range

■ ImageIR® 5300, 5800: high-speed thermography and excellent thermal resolution

■ ImageIR® 8300, 8800: highest geometric resolution

InfraTec GmbH

Infrarotsensorik und Messtechnik

Gostritzer Straße 61 - 63

01217 Dresden / GERMANY

phone   +49 351 871-8630

fax   +49 351 871-8727

e-mail   thermo@InfraTec.de

Internet   www.InfraTec.de