



# ImageIR® 8300 hs

High-speed Thermography Camera in VGA Format

**640  
x  
512**  
Detector

#### Detector Format

Large detector enables highest sensitivity

**640  
x  
512**  
1,105 Hz

#### IR-Frame Rate

Analysis of extreme temperature changes and gradients in full frame

**±1  
%**

#### Measurement Accuracy

Highly accurate and repeatable measurements

**≤ 20  
mK**

#### Thermal Resolution

Precise detection of smallest temperature differences

**10  
GigE**

#### 10 GigE Interface

High-speed, long-distance interference proof data transmission

**25 µm  
Pitch**

#### Pitch Dimension

Precise measurement of low temperatures and very fast integration times

Our ImageIR® 8300 hs infrared camera sets new standards due to the combination of the image format of (640 × 512) IR pixels with the exceptionally high frame rate of 1,105 Hz. It enables thermographic images of excellent quality, even of extremely fast-moving objects or highly dynamic thermal processes. Thus, the moment that matters is reliably captured, displayed in high resolution and precisely thermally measured. Radiometric image data is transferred directly to a standard notebook for control and analysis tasks via an industry-standard 10 GigE interface using loss-free, intelligent real-time compression.

With the camera's wide temperature measurement range, fast processes with large temperature gradients can be easily captured, such as those that occur during explosions, electrical discharges or laser machining processes. To adapt the camera sensitivity to the spectral properties of the measured objects, the ImageIR® 8300 hs can be equipped with a rotating filter wheel. Due to the innovative T2SLS detector with HOT Long-Life technology, it requires significantly reduced cooler power and thus offers an extended lifetime compared to other cooled cameras.

The ImageIR® 8300 hs has a wide range of high-quality interchangeable optics. All standard full optics can be combined with a remotely controllable motorised focus unit for fast motorised focusing.

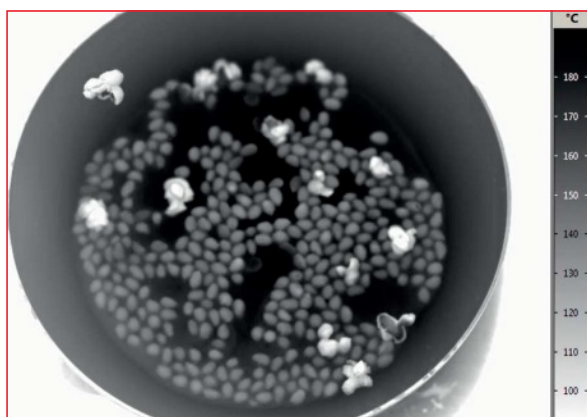
## Technical Specifications

Spectral range	InSb: (1.5 ... 5.5) $\mu\text{m}$ T2SLS: (1.5 ... 6) $\mu\text{m}$
Pitch	25 $\mu\text{m}$
Detector	T2SLS or InSb
Detector format (IR pixels)	(640 × 512)
Image acquisition	Snapshot
Readout mode	IWR
Aperture ratio	f/2.0
Detector cooling	Stirling cooler, HOT Long-Life (T2SLS)
Temperature measuring range	(-40 ... 1,700) $^{\circ}\text{C}$ , 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 0.02 K
Frame rate (full / half / quarter / sub frame)*	Up to 1,105 / 1,957 / 3,731 / 30,330 Hz
Window mode	Yes
Focus	Manual, motorised or automatically*
Dynamic range	Up to 14 bit*
Integration time	(0.5 ... 20,000) $\mu\text{s}$
Rotating aperture wheel and filter wheel*	Up to 6 positions
Interfaces	10 GigE, 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 × M5
Power supply	24 V DC, wide-range power supply (100 ... 240) V AC
Storage and operation temperature	(-40 ... 70) $^{\circ}\text{C}$ , (-20 ... 40) $^{\circ}\text{C}$
Protection degree	IP54, IEC 60529
Dimensions, weight	(235 × 120 × 160) mm; 4.0 kg (without lens)
Further functions	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*

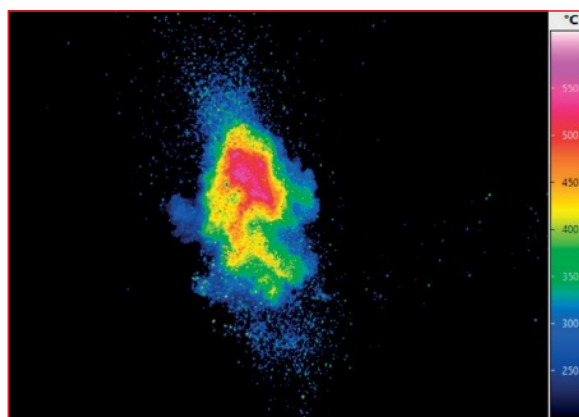
\* Depending on model

Lenses	Focal length (mm)	FOV ( $^{\circ}$ )	IFOV (mrad)
Standard lens	25	(35.5 × 28.7)	1.0
Telephoto lens	50	(18.2 × 14.6)	0.5
Telephoto lens	100	(9.1 × 7.3)	0.25

Macro and microscopic lenses	Minimum object distance (mm)	Object size (mm)	Pixel size ( $\mu\text{m}$ )
Close-Up for telephoto lens 50 mm	300	(96 × 77)	150
Close-Up for telephoto lens 100 mm	500	(80 × 64)	125
Microscopic lens M=1.0×	40	(16 × 13)	25
Microscopic lens M=8.0×	14	(1.6 × 1.3)	3.1



Heating popcorn maize: releasing the stored heat in the form of kinetic energy



Explosion of a firecracker measured with an integration time of 40  $\mu\text{s}$

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