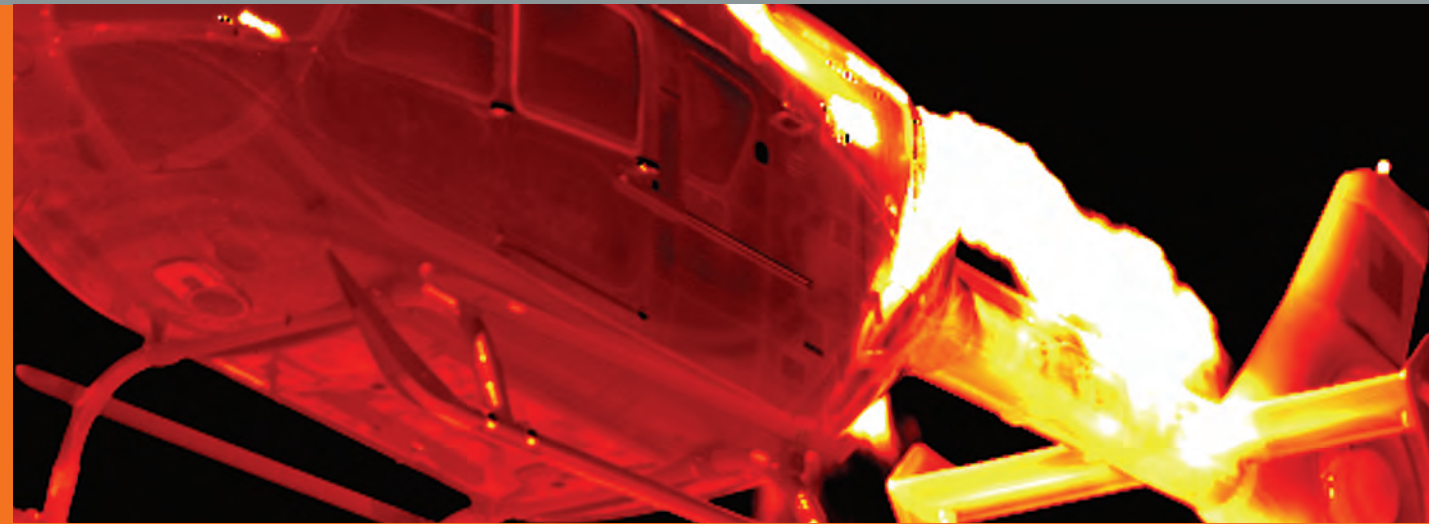


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Start Seeing the World In Infrared

Why do more people buy FLIR infrared cameras than all other brands combined?

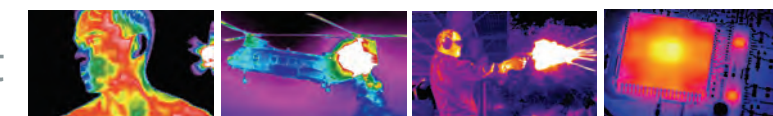
FLIR Systems offers the highest quality products, top-notch service and the best training in the industry.



- > *Infrared Cameras*
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- > *Accessories*
- > *Rental Programs*

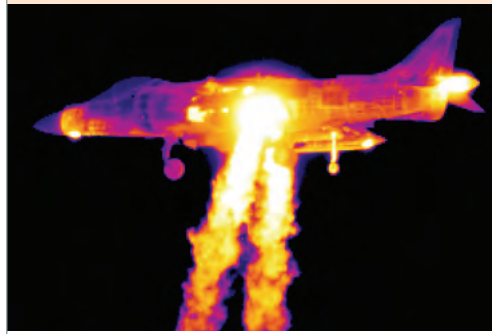
See the world with FLIR and see the difference.

Research & Development



# Your Search for Answers Begins Here

## Infrared Signatures



An IR signature is the quantitative measurement of a target's apparent infrared brightness as a function of wavelength. Signature measurements are used to determine the appearance of a target to sensors under varying conditions of standoff distance and atmosphere, and to constrain the design of vehicle, sensor and camouflage systems.

## High Speed/Stop Motion



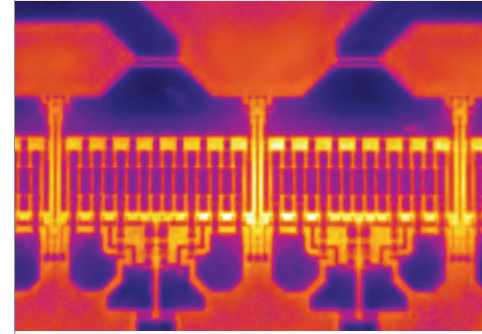
Advanced infrared sensors and data acquisition systems bring high-speed infrared imaging to a new level of performance, enabling microsecond exposure times to stop the apparent motion of dynamic scenes as well as capture frame rates exceeding 10,000 frames per second. Applications include thermal and dynamic analysis of jet engine turbine blades, supersonic projectiles and explosions.

## NIR Spectroscopy



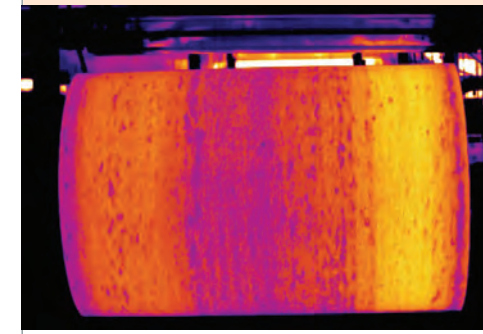
Near Infrared (NIR) light interacts with materials very differently from visible light or thermal IR. NIR imaging spectroscopy provides non-destructive quantitative analysis of crops, pharmaceutical, agricultural products and lasers. Because NIR can penetrate many opaque materials, it can be used for imaging through haze, examination of art forgeries and questioned documents, semiconductor wafer inspection and many other applications.

## Infrared Microscopy



An infrared camera combined with a microscope becomes a thermal imaging microscope, capable of accurate temperature measurement of features as small as 10 microns. Electronics manufacturers can characterize the thermal performance of active and passive components as well as printed circuit traces in operation without physical contact.

## Process Control



Almost all challenges have a thermal dynamic component that shows up easily with an infrared camera. Thermal imagery and data from an infrared camera can provide real-time feedback for process control in various manufacturing and QA processes. Process applications include: PCB inspection, rotary kiln breakthrough detection, automotive parts testing, steel slab inspection, and electronics testing, just to name a few.

## Research & Development



Infrared cameras enable characterization of the properties of materials in ways that complement many standard analysis techniques, as well as rapid non-contact temperature measurement in the most demanding conditions. The wide range of infrared sensor types and optics that are commercially available make infrared imaging capability an indispensable tool in many research environments.

## The Answer is in the Details

### Additional Infrared Applications

- |                    |                            |                         |                     |
|--------------------|----------------------------|-------------------------|---------------------|
| Aerospace          | Education                  | Non-destructive Testing | Spectroscopy        |
| Agriculture        | Electronics                | PetroChem               | Steel               |
| Animal Sciences    | Environmental/Conservation | Pharmaceutical          | Telecommunications  |
| Art Restoration    | Fire Sciences              | Power Generation        | Threat Protection   |
| Asphalt            | Food Sciences              | Process Control         | University Research |
| Astronomy          | Gas Plume                  | Pulp and Paper          | Wavefront Sensing   |
| Automation and OEM | Identification/Detection   | R&D/Testing             |                     |
| Automotive         | Human Physiology           | Range Phenomenology     |                     |
| Ballistics         | Manufacturing              | Rocket/Jet Testing      |                     |
| Counter Measures   | Marine Surveyor            | Security                |                     |
| Dental             | Medical                    | Semiconductor           |                     |
| Directed Energy    | Military                   | Solar Cell Inspection   |                     |

**Need a demo?** Contact your local representative. Call 1 800 464 6372 or see inside back cover!

# Choose Your Weapon!



## ThermoVision™ A20 Series

Compact yet powerful, the ThermoVision A20 is ideal for R&D and production line process control. The A20 comes standard with thermographic calibration for real time temperature measurement "on-board" the camera or to a PC with ThermaCAM Researcher software. Because the camera complies with the FireWire standard, applications requiring multiple cameras cause no problems. Also, the camera features an internal web server, which makes it very easy to remotely control the camera over the Internet.



## ThermoVision™ A40 Series

The ThermoVision A40 is the obvious choice for customers looking for a small and reliable infrared camera to be used in R & D departments or as an advanced sensor for industrial processing control. The A40 is supported by FLIR's ThermaCAM® Researcher application software as well as FLIR's software developers kit (SDK) for C, LabView and Visual Basic. The A40 has an extensive and advanced set of built-in measurement functions allowing the camera to be used "stand-alone" without a PC. The camera also features an internal web server, which makes it very easy to remotely control the camera over the Internet.



## ThermaCAM® S45

The ThermaCAM S45 is ideal for applications that require portability. The built-in color viewfinder provides bright, crisp images under virtually all conditions. Static imagery can be stored in JPEG format on a removable CompactFlash® memory card. The S45 comes with lightweight, long-life Li-Ion batteries to assure uninterrupted inspections. Additionally, the S45 thermographic FireWire (IEEE 1394) output provides real-time digital data streaming of calibrated thermal imagery to FLIR's ThermaCAM® Researcher software.



## ThermoVision™ SC4000

The ThermoVision SC4000 is the workhorse of the FLIR science grade product line. The SC4000 is available with various sensor packages allowing for imaging from the NIR to LWIR spectrum with a single camera platform. The SC4000 QWIP and SC4000 InSb cameras are available with full on-camera thermographic calibration. Value priced with various software and optic options, the SC4000 is the best all around high sensitivity and high performance camera available for electronics, medical, R&D, range, imaging, aerospace, automotive, manufacturing, education, and non-destructive testing (NDT) applications.



## ThermoVision™ SC6000

The ThermoVision SC6000 is a high performance science grade camera available with either a VisGaAs, InGaAs, InSb, or QWIP sensor at 640x512 pixel resolution. Each sensor flavor is built into the same camera footprint for easy multi-wave band data collection and analysis. Additionally, camera type is compatible with FLIR's science grade data recorder system and software for simple plug and play connectivity. The InSb and QWIP SC6000 cameras are also available with on-camera full thermographic calibration for thermal analysis applications.



## ThermoVision™ SC8000

Mega-pixel resolution coupled with Mega-performance makes the 1024x1024 ThermoVision SC8000 the most advance commercially available science grade infrared camera. The mega-pixel InSb FPA produces thermal images and data with incredible detail and superior sensitivity. The SC8000 16-channel ROIC outputs data at 205 Mhz resulting in 132 fps at full frame. Flexible FPA windowing allows for even faster frame rates such as 751 fps @ 320X256 and 1482fps @ 160x120. The SC8000 will reveal target details that other systems are unable to detect.



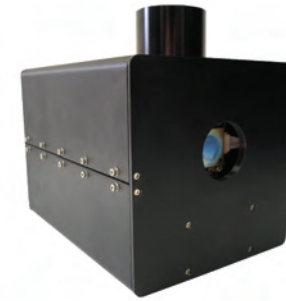
## ThermaCAM® S65 HS

The flexible platform of the ThermaCAM S65 provides powerful thermal analysis for fixed and portable applications. Like the S45, the S65 can be powered with rechargeable Li-Ion batteries. Beyond the S45, the S65 incorporates a built-in external 4-inch LCD screen display, removable remote control panel, programmable periodic image recording, burst recording for capturing moving targets for up to 16 minutes long, visual camera for visible documentation, and voice annotation. Built-in FireWire (IEEE 1394) output allows real-time digital data streaming of calibrated thermal imagery to FLIR's ThermaCAM Researcher software.



## ThermaCAM® SC640

The ThermaCAM SC640 (640x480) camera features a highly sensitive ultra-sharp image offering superior temperature measurement and accuracy. The SC640 is more than just a thermal imager with its built-in real time & static thermal image recording, visual image documentation, voice annotation, and image analysis. This functionality, along with portable battery operation, makes it ideal for the lab or in-field test environments.



## ThermoVision™ STRATUS

The ThermoVision Stratus is an ultra-fast NIR infrared camera ideal for high-speed and high-energy imaging. Based on a 320x256 InGaAs sensor and 16-channel read-out, the Stratus can output 2,300 frames per second at full frame. Windowing of the FPA allows for even greater frame rates. The Stratus is ideal for adaptive optics, wavefront sensing, range gating, and other phenomenology applications.

	A20	A40	S45	S65 HS	SC640	SC4000	SC6000	STRATUS	SC8000	
<b>Sensor type</b>	µbolometer	µbolometer	µbolometer	µbolometer	µbolometer	InGaAs, VisGaAs, InSb, QWIP	InGaAs, VisGaAs, InSb, QWIP	InGaAs	InSb	
<b>Pixel Resolution</b>	160x120	320x240	320x240	320x240	640x480	320x256	640x512	320x256	1024x1024	
<b>Pixel Pitch</b>	35µm	38µm	38µm	38µm	25µm	30µm	25µm	30µm	18µm	
<b>Spectral ranges</b>	7.5µm -13.5µm	7.5µm -13.5µm	7.5µm -13.5µm	7.5µm -13.5µm	7.5µm -13.5µm	.4µm - 1.7µm .9µm - 1.7µm 1.5µm - 5.2µm 3.0µm - 5.0µm 8.0µm - 9.2µm	.4µm - 1.7µm .9µm - 1.7µm 1.5µm - 5.2µm 3.0µm - 5.0µm 8.0µm - 9.2µm	.9µm - 1.7µm	3.0µm - 5.0µm	
<b>Dynamic Range</b>	14 bit	14 bit	14 bit	14 bit	14 bit	14 bit	14 bit	14 bit	14 bit	
<b>Internal Temp Calibration</b>	•	•	•	•	•	• (InSb, QWIP)	• (InSb, QWIP)			
<b>Ambient Drift Compensation</b>	•	•	•	•	•	•	•			
<b>Pixel Clock</b>						50 Mhz	50 Mhz	205 Mhz	205 Mhz	
<b>Full Frame rate</b>	30 fps	30 fps	30 fps	30 fps	30 fps	433 fps	132 fps	2,300 fps	132fps	
<b>Digital Data Output</b>	1394 Firewire	1394 Firewire	1394 Firewire	1394 Firewire	1394 Firewire	Simultaneous GigE & Camera Link	Simultaneous GigE & Camera Link	Camera Link Full	Simultaneous GigE & Camera Link	
<b>Analog Video</b>	RS-170	RS-170	RS-170	RS-170	RS-170, S-Video	RS-170	RS-170			
<b>Auto Focus</b>		•	•	•	•	Optional	Optional			
<b>Triggering Options</b>	•	•	•	•	•	•	•	•	•	
<b>Internal Battery Operation</b>			•	•	•					
<b>SDK Support</b>	•	•	•	•	•	•	•	•	•	
<b>Lab View Compatibility</b>	•	•	•	•	•	•	•		•	
<b>f/#</b>	f/1.2	f/1.0	f/1.0	f/1.0	f/1.1	f/2.5, f/4.1, (InGaAs-Variable)	f/2.5, f/4.1, (InGaAs-Variable)	Variable	f/4.0	
<b>Available optics</b>	36mm 17mm 9.2mm	124mm 72mm 36mm 18mm 9mm Close-up 150um Close-up 80um Close-up 50um	124mm 72mm 36mm 18mm 9mm Close-up 150um Close-up 80um Close-up 50um	124mm 72mm 36mm 18mm 9mm Close-up 150um Close-up 80um Close-up 50um	76mm 40mm 19mm Close up 50um	InSb 1 meter 350mm 200mm 100mm 50mm 25mm 13mm 1X Microscope 2.5X Microscope 4X Microscope 5X Microscope 50/200/500mm 50/250mm	QWIP 100mm 50mm 25mm 13mm 60/180/500mm InGaAs 100mm (640x512) 75mm (640x512) 50mm 25mm 16mm (320x256) 8mm (320x256)			1 meter 100mm 50mm 25mm

Need more technical specifications?  
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# Beyond infrared cameras... INFRARED SOLUTIONS!

## Data System Solutions

FLIR Systems features a family of data recorder solutions optimized for high speed digital data recording, advanced analysis, and full control of FLIR Systems high performance science and R&D grade camera line. Within this family, there are three unique data system solutions, designed to meet a wide array of the most demanding application requirements from our clients. Each system is built, configured and tested at our factory in Massachusetts and comes standard with FLIR Systems one year warrantee.

### High Speed Data Recorder

The High Speed Data Recorder (HSDR) is a PC-based digital recording system designed to record, display, and analyze images at full frame rates from the SC-Series HS cameras. The HSDR software is built on either FLIR's ThermoCAM® RTools or ThermoCAM® Researcher Software Platform.



The HSDR systems can record the full camera data rates to removable, nonvolatile storage for up to three hours with zero dropped frames, while simultaneously allow for real time image display, analysis, and camera control.

The HSDR model features removable hard drives for all disk drives, including the operating system drive, allowing for quick and easy declassification of the system when required.

### Gig-E Data Recorder

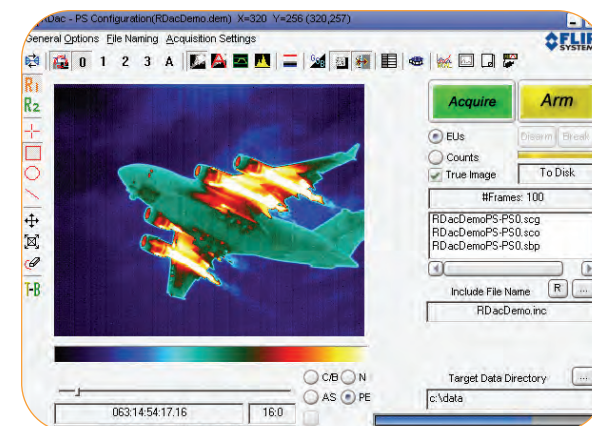
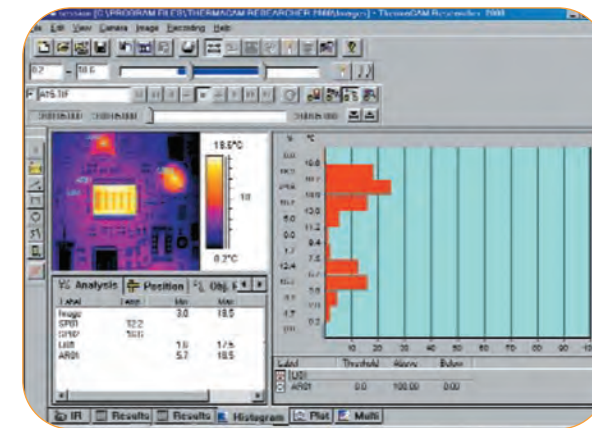
The Gig-E Data Recorder is also built on the same high performance ThermoCAM RTools or ThermoCAM Researcher software platform and is designed for applications requiring extended slower frame rate recording or short high speed burst recording.

The Gig-E model also features removable hard drives for all disk drives, including the operating system drive, allowing for quick and easy declassification of the system when required.

### Portable Data Recorder

The Portable Data Recorder is specifically designed for applications that demand portability and remote operation. The portable data recorder runs on a customized laptop and also is based on the high performance ThermoCAM RTools or ThermoCAM Researcher software platform. This model offers high speed Gigabit Ethernet connectivity using our High Performance Driver, optimized for fast data transfer beyond what traditional portable data systems offer. This design is perfect for long data record times at slower rates or short high speed burst recording.

## Software Solutions



### ThermoCAM® Researcher

Extremely versatile and easy to use, ThermoCAM® Researcher allows in-depth analysis of static and dynamic thermal events. With various connection options, thermal images and data are recorded with ThermoCAM Researcher via direct camera connection or flash card exchange. Powerful built-in analysis tools include, Time vs. temperature plotting, Line profiling, Histogram charting, and image subtraction for quick comprehensive thermal analysis. The ability to store processed imagery and data in non-proprietary formats makes for easy import into other software packages such as MATLAB®, EXCEL®, and Windows® Media Player.

### ThermoCAM® RTools

A highly sophisticated software package developed for engineers and scientists to acquire, radiometrically calibrate, process, and analyze data from various digital infrared camera systems. The ThermoCAM® RTools Software Suite is comprised of robust stand-alone modules for data acquisition and storage, camera calibration, file archival and maintenance, and data review and analysis. The ThermoCAM RTools modules may be installed independently giving end user's the option to pick and choose which modules best meet their application requirements.

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## Accessories



### No other infrared camera manufacturer offers a wider variety of accessories than FLIR Systems.

FLIR offers the widest selection of accessories and supplies, from extra cables to interchangeable optics and lenses. You'll also find an extensive line of accessories designed exclusively for your camera. We're taking technology to a whole new level.

[infraredresearchcameras.com/accessories](http://infraredresearchcameras.com/accessories)

## NEW! IR Camera Rentals!

### Does your project require thermal verification? Do you have immediate projects or fast deadlines that require IR?

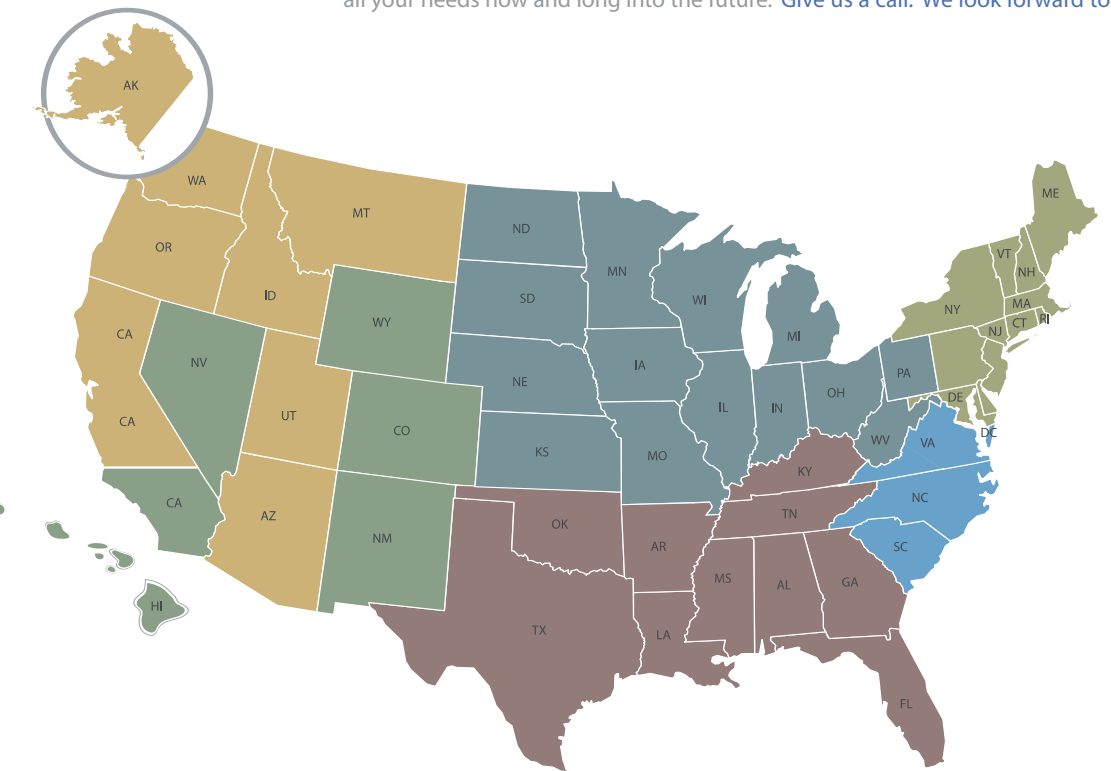
Renting an infrared camera is perfect for short-term applications, thermal verification, pre-purchase evaluation, or to temporarily replace a unit in for service. The FLIR Infrared Camera Rental Program offers an exclusive inventory of powerful, factory-certified infrared cameras to the R&D community. *You can even apply a portion of your rental fee as credit towards the purchase of an infrared camera!*

For more information visit [www.infraredcamerarentals.com](http://www.infraredcamerarentals.com) or contact us at **1 866 477 3687**.

**Need a Lens or Accessory?**  
Call 1 800 464 6372

# What makes FLIR the hottest selling infrared cameras in the world?

FLIR is the largest manufacturer of infrared cameras in the world, offering the widest selection, best post-sale technical support, and meaningful, hands-on training to ensure your success. With over 30 years experience and a long history of innovation and leadership, you can trust FLIR to service all your needs now and long into the future. **Give us a call. We look forward to working with you.**



- |   |  |
|---|--|
| <p><b>Chris Bainter</b><br/>Tel: 1-800-419-4797<br/>Email: <a href="mailto:chris.bainter@flir.com">chris.bainter@flir.com</a></p>       | <p><b>Dennis McCabe</b><br/>Tel: 978-901-8260<br/>Email: <a href="mailto:dennis.mccabe@flir.com">dennis.mccabe@flir.com</a></p>      |
| <p><b>Jerry Beene</b><br/>Tel: 978-901-8124<br/>Email: <a href="mailto:jerry.beene@flir.com">jerry.beene@flir.com</a></p>               | <p><b>Bill Schneider</b><br/>Tel: 1-800-251-7044<br/>Email: <a href="mailto:bill.schneider@flir.com">bill.schneider@flir.com</a></p> |
| <p><b>Ross Overstreet</b><br/>Tel: 1-800-905-9557<br/>Email: <a href="mailto:ross.overstreet@flir.com">ross.overstreet@flir.com</a></p> | <p><b>Blair Jennings</b><br/>Tel: 866-379-4023<br/>Email: <a href="mailto:blair.jennings@flir.com">blair.jennings@flir.com</a></p>   |

	High Speed Data Recorder	Gig-E Data Recorder	Portable Data Recorder
<b>Researcher Software Compatible</b>	•	•	•
<b>RTools Software Compatible</b>	•	•	•
<b>Extended Sequence Recording at Full Frame</b>	•		
<b>Simultaneous Recording, Viewing, and Analysis at Full Frame Rate</b>	•		
<b>Burst Full Frame Rate Recording</b>	•	•	•
<b>Extended Less Than Full Frame Rate Recording</b>	•	•	•
<b>Simultaneous Recording, Viewing, and Analysis at Less Than Full Frame Rate</b>	•	•	•
<b>Removable Drives for Secure Applications</b>	•	•	•
<b>Desktop Configuration</b>	•	•	
<b>Rack Mount Configuration</b>	•	•	
<b>Built in Battery Operation</b>			•

### INFRARED TRAINING

There's no better way to get the most out of your FLIR IR camera investment than world-class instruction through our Infrared Training Center (ITC)—the largest dedicated infrared applications training organization in the world. Courses are available for users at all skill levels from beginner to seasoned professional and available at our state-of-the-art training center, or on-site at your location.

To register: 1 866 872 4647  
[www.infraredtraining.com](http://www.infraredtraining.com)

### FREE OPEN HOUSES

FREE Open Houses are designed to educate the new and experienced infrared user. These venues not only address camera technologies, methods for data recording, analysis techniques, and developing applications, but they also provide an environment for interaction within the IR community.

For seminar and registration information, please visit: [www.flirthermography.com/news/seminars](http://www.flirthermography.com/news/seminars) or call us at 1 800 254 0633.

### INFRAMATION CONFERENCE

InfraMation is the annual Infrared Camera Applications Conference that has evolved into a "must-attend" educational event for both beginning infrared users to seasoned thermographers, and everyone in between. InfraMation features general conference sessions, industry presentations and ongoing interactive exhibits.

For more information, visit [www.inframation.org](http://www.inframation.org) or call 1800 254 0632.