ThermaCAM™ SC640

Portable infrared camera for scientific applications
with extremely high image quality:
640 x 480 pixels

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Infrared thermography for scientific applications
Unrivalled image quality: 640 x 480 pixels

The ThermaCAM SC640 is an infrared camera that will help scientists throughout the world solve their problems. Infrared thermography has proven to be an invaluable tool to solve a wide range of scientific questions and problems. Because of its non-destructive analysis capacities, thermography systems are an important instrument in a wide variety of Research and Development applications.

Thermogaphy is the production of temperature calibrated infrared or heat pictures by utilizing an infrared camera. Based on these thermal images, accurate temperature measurements can be made to detect even the smallest temperature differences. Numerous researchers, active either in product development, applied or fundamental research, have discovered that infrared is a reliable and quick non-destructive method to help them in their daily work.

Outstanding image quality (640 x 480 pixels). See he smallest scientific details in the highest possible resolution.

Advantages of Infrared

Heat patterns are very difficult to predict. This means that it is not always possible to know where to attach the thermocouples necessary to make accurate measurements and effectively evaluate heat dissipation.

Furthermore, since the thermocouple needs to be in contact with the component to be tested, it can influence the results of the measurement. The ThermaCAM SC640 has the advantage that it produces very comprehensive images in a non-contact mode. Even if it is not clear where the exact location of the problem might be, it will clearly show up, sometimes at the most unexpected location, in the easy-to-understand, crisp 640 x 480 pixels, infrared image.

New infrared technology

The ThermaCAM SC640 can produce very high-resolution images (640 x 480 pixels) so that crisp thermal images can be taken of even the smallest of objects in a non-contact mode. The ThermaCAM SC640, is especially designed for the most demanding scientific applications and detects the smallest temperature differences over a very wide temperature range. Frames can be captured, and stored, in real-time, at high frame rates allowing for detailed and extensive analysis of highly dynamic events typically found in R&D environments.

Unlimited applications

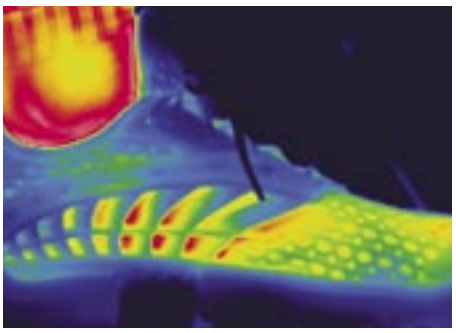
Scientific applications for infrared thermography are numerous and can be found in the most diverse markets. FLIR Systems ThermaCAM SC640 provides the ability to view thermal distribution palettes in real-time for products as small as hybrid IC circuits and as large as jet or rocket engines.

Perfect image quality

See small details - make fast decisions

640 x 480

640 x 480



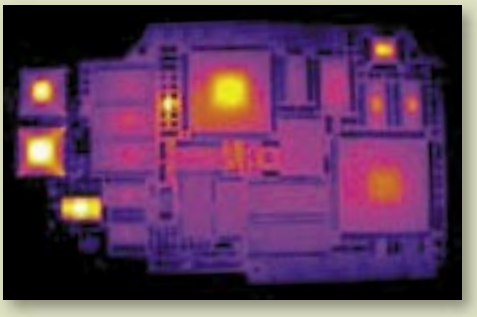
With the ThermaCAM SC640, FLIR Systems offers you the best. An infrared image of 640 x 480 pixels offers no less than 4 times higher resolution than a 320 x 240 pixels image.

Research and development

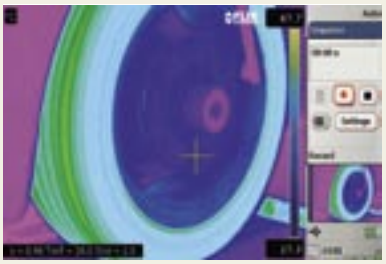
ThermaCAM SC640 is a full featured infrared camera.

The ThermaCAM SC640 is an excellent tool for R&D related applications. Thanks to its 640 x 480 image resolution you can see the smallest of details. The FireWire interface allows to feed infrared data, radiometric or RAW data directly into ThermaCAM Researcher™ software for real-time analysis of the captured images. Furthermore, real-time radiometric sequences can be stored on high capacity (1 GB) SD-cards.

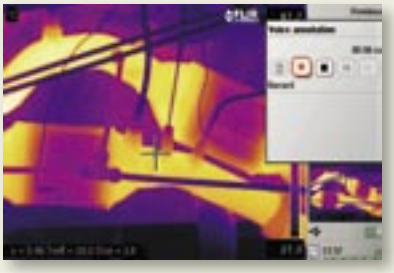
Verification of printed circuit boards



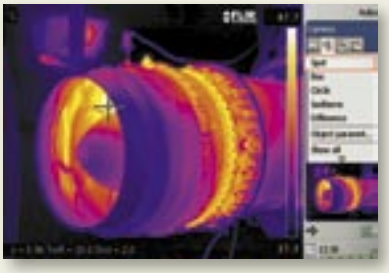
Efficient menu controls



Store infrared video sequences



Voice and text annotations



Flexible JPEG image storage

See it ! Every possible way !

Multi-angle handle with integrated buttons allows for easy operation
No matter what, no matter where, no matter how. The ThermaCAM SC640's turnable control grip allows you to move the camera in the most comfortable position. The buttons and joystick to control the ThermaCAM SC640 are integrated in this handle and stay always right underneath your fingertips. Just 2 buttons and a joystick control the entire ThermaCAM SC640 and allow point-and-shoot operation. Functions like autofocus, freezing and storing of images, are just a button away.

Tiltable viewfinder
In bright light conditions, look at the object through the high resolution color viewfinder and see a bright infrared image. Adjust the viewfinder to the best angle.

Store infrared video sequences
With the ThermaCAM SC640 you can record full radiometric video sequences on a removable SD card. A considerable advantage when you are inspecting moving targets. In-camera play-back allows you to view recordings, without the need for a PC. Recorded data can also be transferred intoThermaCAM Researcher for further analysis.

Video streaming of non-radiometric infrared sequences
Available directly from the camera connected to your PC. Both Firewire and USB connections can be used.

Ergonomic portable and rugged magnesium housing
The ThermaCAM SC640 is not only very user-friendly but also extremely light and easy to carry. Including battery, the P640 weighs only 1,7 kgs. It is designed for users that need to carry the camera around several hours a day.

The ThermaCAM SC640 is a professional instrument designed to stand tough handling in field use. The strong magnesium housing protects its vital internal core from shocks and vibrations. Dust- and watersplash proof it meets IP54 standard. Use it the harshest environments.

Tiltable viewfinder

Laser pointer , Digita Camera, IR lens

Multi-angle handle with integrated buttons

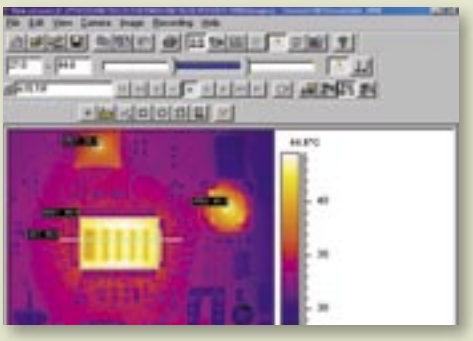
Menu control buttons

Making the difference!

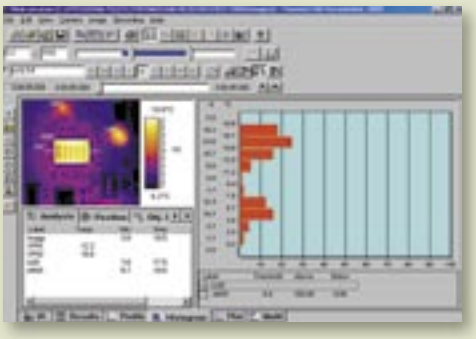
Customized software makes the SC640 even more efficient: ThermaCAM™ Researcher™ for the R&D professional:

FLIR Systems ThermaCAM Researcher allows plug and play. It is very easy to use for static or real-time image analysis. It contains powerful measurement and analysis functions for extensive temperature analysis, including isotherms, line profiles, area histograms, image subtraction capability and many more. Windows® based and extremely versatile, ThermaCAM Researcher adds a new level of power and flexibility to thermal imaging by offering extensive analysis capabilities as well as high speed data acquisition.

Researcher seamlessly stores, retrieves and analyses IR images and data directly from your IR camera allowing in-depth and precise evaluation of thermal performance.



ThermaCAM Researcher measurement tools allow extensive thermal analysis.



Histogram chart shows relative distribution of temperature within a user-defined area.

Specifications ThermaCAM™ SC640

IMAGING PERFORMANCE	
Thermal:	
Field of view/min focus distance	24°x18° /0.3 m
Spatial resolution (IFOV)	0.65 mrad
Thermal sensitivity	60mK at 30°C
Image frequency	30 Hz non-interlaced
Focus	Automatic or manual
Electronic zoom / pan function	1 - 8 x continuous, including pan function
Detector type	Focal Plane Array (FPA), uncooled microbolometer 640 x 480 pixels
Spectral range	7.5 to 13µm
Digital image enhancement	Normal and enhanced
Visual:	
Built-in digital video	1.3 Mpixel, full color / built-in Target Illuminator / exchangeble lens
Standard lens performance	f=8 mm / FOV 32°
IMAGE PRESENTATION	
Video output	RS170 EIA/NTSC or CCIR/PAL composite video, IEEE-1394 FireWire, USB
Viewfinder	Built-in, tiltable, high-resolution color viewfinder (800 x 480 pixels)
External display	Built-in 5.6" LCD (1024 x 600 pixels)
MEASUREMENT	
Temperature range	-40°C to +1,500°C, in 3 ranges; up to + 2000°C, optional
Accuracy	±2°C, ±2% of reading
Measurement mode	Spots/Areas (Boxes, Circles), Isotherms (above, below, interval), Delta T
Menu controls	Palettes , load custom palletes, auto adjust (manual/continuous/based on histogram equilazation), on screen live and reference image (PoP), image gallery, sequence storage, programmable storage
Alarm Functions	Automatic alarm on any selected measurement function, audible/visible alarm above/below,
Set-up controls	Date/time, Temperature °C/°F, language
Atmospheric transmission correction	Automatic, based on inputs for distance, atmospheric temperature and relative humidity
Optics transmission correction	Automatic, based on signals from internal sensors
Emissivity correction	Variable from 0.01 to 1.0 or select from listings in pre-defined materials list
Reflected ambient temperature correction	Automatic, based on input of reflected temperature
External optics/window correction	Automatic, based on input of optics/window transmission and temperature
IMAGE STORAGE	
Type	Removable SD-card (1 GB) Built-in RAM memory for radiometric real-time sequence storage
File formats - Thermal	Standard JPEG, 14 bit measurement data included
File formats - Visual	Standard JPEG, automaticly associated with corresponding thermal image / possibility for visual marker
Voice annotation of images	30 sec. of digital voice "clip" stored together with the image wired headset;
Text annotation of images	Predefined text selected and stored together with the image
VIDEO STORAGE	
Type	Recording of fully radiometric IR-video clips in camera, transferable to SD-card Recording of MPEG-4 non-radiometric video to SD-card
VIDEO STREAMING	
Type	Fully radiometric real-time 14-bit digital IR-video using FireWire MPEG-4, IP-link using FireWire or USB
LENSES (OPTIONAL)	
Field of view/min focus distance	12° x 9° / 0.9m telelens 45° x 34° / 0.1m wide angle lens Close-up 50µm 32 mm x 24 mm / 75 mm
Lens identification	Automatic
LASER POINTER	
Classification	Class 2
Type	Semiconductor AlGaInP Diode Laser: 1mW/635 nm red
BATTERY SYSTEM	
Type	Li-Ion, rechargeable, field replaceable
Operating time	3 hours continuous operation
Charging system	in camera (AC adapter or 12 V from car) or 2 bay intelligent charger
External power operation	AC adapter 110/220 V AC, 50/60 Hz or 12 V from car (cable with Std plug: optional)
Power saving	Automatic shutdown and sleep mode (user selectable)
ENVIRONMENTAL SPECIFICATION	
Operating temperature range	-15°C to +50°C
Storage temperature range	-40°C to +70°C
Humidity	Operating and storage 10% to 95%, non-condensing
Encapsulation	IP 54 IEC 529
Shock	Operational: 25G, IEC 68-2-29
Vibration	Operational: 2G, IEC 68-2-6
PHYSICAL CHARACTERISTICS	
Weight	1.7 kg incl. battery
Size	120 mm x 145 mm x 220 mm
Tripod mounting	1/4" - 20
INTERFACES	
FireWire	IEEE-1394 FireWire output (real-time radiometric or non-radiometric video / filetransfer to PC)
USB	Image (thermal and visual), measurement, voice and text transfer to PC
IrDA	Wireless communication
SD-card (2)	I/O slot; storage slot

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