

## ThermoVision™ SDK 2.5

FLIR Systems ThermoVision SDK is an ActiveX component that gives Windows Visual Basic/C++ programmers an excellent tool to control, access and manipulate image data from FLIR Systems infrared cameras. The SDK will accelerate any application programming with FLIR Systems infrared cameras. So if you are an end user or a system integrator that wants to build its own system utilizing infrared cameras for an R&D, Automation or Security application, then the ThermoVision SDK together with FLIR Systems infrared cameras will give you a jump start in your task. The ThermoVision SDK will allow you to fully exploit the possibilities that modern infrared camera technology offers.

**TRUE TEMPERATURE ANALYSIS THERMOVISION SDK IS A SET OF METHODS AND EVENTS TO MANAGE THE COMMUNICATIONS WITH A FLIR SYSTEMS IR CAMERA IN DIGITAL MODE. IT PROVIDES THE FUNCTIONS NEEDED TO:**

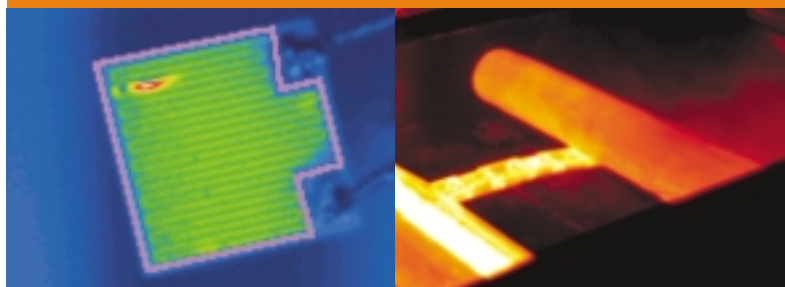
- SET UP COMMUNICATIONS BETWEEN YOUR APPLICATION AND THE FLIR SYSTEMS IR CAMERA
- CAPTURE AND GATHER IMAGES VIA FIREWIRE AND ETHERNET INTERFACES
- ADJUST THE CAMERA CONFIGURATION PARAMETERS AND FOCUS AS YOU VIEW A LIVE IMAGE
- CONTROL THE CAMERA CALIBRATION
- SEND ANY OTHER CAMERA COMMAND TO THE CAMERA
- GENERATE A TRUE TEMPERATURE IMAGE FROM A 16-BIT IMAGE ACQUIRED FROM THE FRAME GRABBER, OR USING FIREWIRE INTERFACE
- CLOSE THE COMMUNICATIONS TO THE IR CAMERA

### NEW FEATURES IN SDK 2.5

- FOCUS SUPPORT FOR THERMOVISION A20 AND A40
- SUPPORT FOR READING RADIOMETRIC JPEG IMAGES PRODUCED BY THE CAMERA
- EMISSIVITY BACK CALCULATIONS ON A GIVEN IMAGE COORDINATE
- EMISSIVITY CORRECTION MAP FOR ABSOLUTE TEMPERATURE IMAGES (ALL CAMERA TYPES)
- SUPPORT FOR SEQUENCE FILES
- BUILT IN SUPPORT FOR SNAPSHOT READOUT OF RADIOMETRIC IMAGES (JPEG) PRODUCED BY THE CAMERA
- DOWN SAMPLING OF THERMOVISION A20 IMAGES TO 160 x 120 TO SAVE DISK SPACE
- MATLAB® SUPPORT
- SUPPORT TO SELECT CABLE INTERFACE ON IRFLASHLINK BOARD (FIBER OR RS-422)
- SERIAL COMMUNICATIONS SUPPORT FOR A20V/A40V CAMERA MODELS
- SUPPORT TO SAVE OR RESTORE THE USER SETTINGS FILE (DEFAULT.REG)
- PROPERTY RETURNING LIST OF AVAILABLE FRAME RATES
- PROPERTY TO LET THE IMAGE SOURCE (CAMERA OR FILE) BE MASTER OF OBJECT PARAMETERS
- PROPERTY TO LET THE IMAGE SOURCE (CAMERA OR FILE) BE MASTER OF SCALING PARAMETERS (LEVEL AND SPAN)
- PROPERTY RETURNING CAMERA SERIAL NUMBER

## KEY FEATURES

- SUPPORTS COMMUNICATION AND BROADCASTING VIA FIREWIRE AND ETHERNET INTERFACES
- GIVES THE USER FULL CONTROL OF THE CAMERA
- ALLOWS THE USER TO SET ALARM CONDITIONS AND MEASUREMENT FUNCTIONS IN THE CAMERA (THERMOVISION A-SERIES AND THERMACAM™ S-SERIES (NO ALARM) ONLY)
- ALLOWS THE USER TO DEFINE I/O FUNCTIONALITY (THERMOVISION A-SERIES)
- BASED ON ACTIVEX TECHNOLOGY
- CONVERTS 16-BIT RAW PIXELS INTO TEMPERATURE PIXELS AND SEVERAL INTERMEDIATE TYPES OF PIXELS FORMATS, FOR MAXIMUM USER FLEXIBILITY. APPLIES TO ALL CAMERA MODELS WITH TEMPERATURE MEASUREMENT CAPABILITIES
- ALLOWS 16-BIT TEMPERATURE LINEAR OUTPUTS FROM THERMOVISION A20 M / A40 M FIREWIRE CAMERAS
- READS FROM AND WRITES TO FILE IN FLIR SYSTEMS' PROPRIETARY FILE FORMAT AND WRITES TO FILES IN FLIR SYSTEMS' OPEN FLOATING POINT FORMAT (\*.FPF)
- INCLUDES METHOD THAT ALLOWS USING INDIVIDUAL EMISSIVITY VALUE CORRECTION ON ANY SINGLE PIXEL OR CONDENSED MEASURING VALUE — E.G. AVERAGE, MINIMUM
- SUPPORTS ACQUISITION OF IMAGES THROUGH IMAGING TECHNOLOGY'S IC-PCI DIG 2, FLIR SYSTEMS PROPRIETARY PC-CARD FRAME-GRABBER, AUTOMATION TECHNOLOGY'S IRFLASHLINK, OR FIREWIRE AND ETHERNET INTERFACES
- SUPPORTS CONDITIONAL RECORDING TO FILE THROUGH IMAGING TECHNOLOGY'S IC-PCI DIG 2, FLIR SYSTEMS' PROPRIETARY PC-CARD FRAME-GRABBER, AUTOMATION TECHNOLOGY'S IRFLASHLINK, OR FIREWIRE OR ETHERNET INTERFACE



# SUMMARY OF API

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## METHOD

AboutBox Method

Connect Method

Disconnect Method

DoCameraAction Method

EmissCalc Method

GetAbsLUT Method

GetObjLUT Method

GetError Method

GetCameraProperty Method

GetImage Method

GetImages Method

GetLUT Method

MLGetImages

SetCameraProperty Method

SetEmissMap Method

SetImage Method

SubmitCamCommand Method

ToTemperature Method

## DESCRIPTION

You can use the AboutBox method to bring up the About box of the camera Control

Connect with the camera using the specified device, communication interface and port

Disconnect the camera and exit the digital transfer mode

Perform a specific camera action as listed below.

Calculates a new emissivity factor for a specified pixel

Get a pixel translation table

The table translates raw image pixels to absolute pixels

Get a pixel translation table

The table translates raw image pixels to object pixels

Converts a status code or error code to a formatted error string

Get specific camera property

Get a row-oriented image from the camera

Get a sequence of images from the camera

Get a temperature translation table

The table translates raw image pixels to temperature

Get a sequence of images. Used by MatLab®

Set specific camera property

Set an image emissivity correction map

Set an image with raw image pixel data

The image should be row-oriented.

Submits a user command to the camera.

Converts a given raw pixel value to temperature in Kelvin

## SYSTEM REQUIREMENTS

ThermoVision™ SDK requires:

- Windows® 98 (2nd Edition), ME, 2000, NT 4.0, XP
- A computer with Ethernet or FireWire interface or if a non A- or S-series camera is used then a Digital Frame grabber is needed (see below)
- A FLIR Systems IR camera
- DirectX 8.1 (or higher) installed on your computer if FireWire interface is used
- An IDE (Integrated Developer's Environment) which understands ActiveX components, e.g. Visual Basic or Visual C++

## NECESSARY HARDWARE & SOFTWARE

### FLIR SYSTEMS SOFTWARE

- ThermoVision SDK (P/N 1 195 710)  
 Purchase information can be found at <http://www.flirthermography.com>  
 For FLIR Cameras without Ethernet or FireWire Interfaces a Digital Frame Grabber is also needed.

### FLIR Systems hardware (FOR CAMERAS WITHOUT FIREWIRE OR ETHERNET)

- Parallel interface P/N 194 441 (needs cable to frame-grabber)
- Cable P/N 194 452 (parallel interface to Imaging Technology frame-grabber)
- PC-Card Interface P/N 194 240 Purchase information: [www.flirthermography.com](http://www.flirthermography.com)  
 Automation Technology frame-grabber
- IRFlashLink Purchase information: [www.automationtechnology.de](http://www.automationtechnology.de)  
 Imaging Technology frame-grabber
- C2-DIG 16 NOTE: Frame-grabber can be bought from FLIR Systems, P/N 908 615

### RECOMMENDED CAMERAS

ThermoVision A20 V FireWire (P/N 227 04 1 02 02) with motor focus ( P/N 2270610202)  
 ThermoVision A20 V Ethernet (P/N 227 08 1 04 05) with motor focus ( P/N 2271010405)  
 ThermoVision A20 M FireWire (P/N 227 04 1 03 04) with motor focus ( P/N 2270610304)  
 ThermoVision A20 M Ethernet (P/N 227 08 1 05 06 ) with motor focus ( P/N 2270610304)  
 ThermoVision A40 V Ethernet (P/N 236 03 0 04 04)  
 ThermoVision A40 M Ethernet (P/N 236 03 0 05 05)  
 ThermoVision A40 V FireWire (P/N 236 02 0 02 02)  
 ThermoVision A40 M FireWire (P/N 236 02 0 03 03)

### The SDK also works with following FLIR Camera models

ThermoVision 320M (PAL P/N 1 199 716 / NTSC P/N 1 199 720)  
 SC500 (PAL P/N 1 195 011 / NTSC P/N 1 195 012) SC1000  
 SC2000 (PAL P/N 1 194 901 / NTSC P/N 1 195 902)  
 SC3000 (High Speed NOT supported) (PAL P/N 194 745 / NTSC P/N 194 744)

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