



General description	
The FLIR SC645 camera is an excellent choice for those who want to work in R&D but don't need the highest frame rates but do require 640 x 480 pixel resolution. For those who need to use the camera in R&D, it is highly recommended to use the FLIR ResearchIR software from FLIR Systems.	
Key features:	
<ul style="list-style-type: none"> Affordable 16-bit 640 x 480 images @ 25 Hz Start-and-stop recording in FLIR ResearchIR using digital input 	
Typical applications:	
<ul style="list-style-type: none"> Mid- or high-end industrial R&D that doesn't need the highest-speed frame rates 	
Imaging and optical data	
Field of view (FOV)	25° x 18.8°
Minimum focus distance	0.4 m (1.31 ft.)
Focal length	24.5 mm (0.96 in.)
Spatial resolution (IFOV)	0.69 mrad
Lens identification	Automatic
F-number	1.0
Thermal sensitivity/NETD	< 0.05°C @ +30°C (+86°F) / 50 mK
Image frequency	25 Hz
Focus	Automatic or manual (built in motor)
Detector data	
Detector type	Focal Plane Array (FPA), uncooled microbolometer
Spectral range	7.5–13 μm
IR resolution	640 x 480 pixels
Detector pitch	17 μm
Detector time constant	Typical 8 ms
Measurement	
Object temperature range	-20 to +150°C (-4 to +302°F) 0 to +650°C (+32 to +1202°F)
Accuracy	±2°C (±3.6°F) or ±2% of reading
Measurement analysis	
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
Reflected apparent temperature correction	Automatic, based on input of reflected temperature
External optics/windows correction	Automatic, based on input of optics/window transmission and temperature
Measurement corrections	Global object parameters
USB	
USB	<ul style="list-style-type: none"> Control and image
USB, standard	USB 2 HS
USB, connector type	<ul style="list-style-type: none"> USB Mini-B
USB, communication	TCP/IP socket-based FLIR proprietary
USB, image streaming	16-bit 640 x 480 pixels @ 25 Hz - Signal linear - Temperature linear - Radiometric
USB, protocols	TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP

Ethernet	
Ethernet	Control and image
Ethernet, type	Gigabit Ethernet
Ethernet, standard	IEEE 802.3
Ethernet, connector type	RJ-45
Ethernet, communication	TCP/IP socket-based FLIR proprietary and GenICam protocol
Ethernet, image streaming	16-bit 640 x 480 pixels @ 25 Hz - Signal linear - Temperature linear - Radiometric GenIE Vision and GenICam compatible
Ethernet, protocols	TCP, UDP, SNTP, RTSP, RTP, HTTP, ICMP, IGMP, ftp, SMTP, SMB (CIFS), DHCP, MDNS (Bonjour), uPnP
Digital input/output	
Digital input, purpose	Image tag (start, stop, general), Image flow ctrl. (Stream on/off), Input ext. device (programmatically read)
Digital input	2 opto-isolated, 10–30 VDC
Digital output, purpose	Output to ext. device (programmatically set)
Digital output	2 opto-isolated, 10–30 VDC, max 100 mA
Digital I/O, isolation voltage	500 VRMS
Digital I/O, supply voltage	12/24 VDC, max 200 mA
Digital I/O, connector type	6-pole jackable screw terminal
Power system	
External power operation	12/24 VDC, 24 W absolute max
External power, connector type	2-pole jackable screw terminal
Voltage	Allowed range 10–30 VDC
Environmental data	
Operating temperature range	-15°C to +50°C (+5°F to +122°F)
Storage temperature range	-40°C to +70°C (-40°F to +158°F)
Humidity (operating and storage)	IEC 60068-2-30/24 h 95% relative humidity +25°C to +40°C (+77°F to +104°F)
EMC	<ul style="list-style-type: none"> EN 61000-6-2:2001 (Immunity) EN 61000-6-3:2001 (Emission) FCC 47 CFR Part 15 Class B (Emission)
Encapsulation	IP 30 (IEC 60529)
Bump	25 g (IEC 60068-2-29)
Vibration	2 g (IEC 60068-2-6)
Physical data	
Weight	0.7 kg (1.54 lb.)
Camera size (L x W x H)	216x 73 x 75 mm (8.5 x 2.9 x 3.0 in.)
Tripod mounting	UNC ¼"-20 (on three sides)
Base mounting	2 x M4 thread mounting holes (on three sides)
Housing material	Aluminium
Scope of delivery	
<ul style="list-style-type: none"> Hard transport case or cardboard box Infrared camera with lens Calibration certificate Ethernet™ cable Mains cable Power cable, pig-tailed Power supply Printed Getting Started Guide Printed Important Information Guide USB cable User documentation CD-ROM Utility CD-ROM Warranty extension card or Registration card 	
Optional Accessories	
<ul style="list-style-type: none"> 1910585 Power supply for A/SC3XX and A/SC6XX 1910400 Power cord EU 1910401 Power cord US 1910402 Power cord UK 1910423 USB cable Std A <-> Mini-B, 2 m/6.6 ft. T951004 Ethernet cable CAT-6, 2m/6.6 ft. 1910586 Power cable, pigtailed 1196940 Hard transport case for A/SC3XX and A/SC6XX series 	
Optional Software	

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- T197038 ThermoVision™ System Developers Kit Ver. 2.6
 - T197453 FLIR ResearchIR 1.2
 - T197454 FLIR QuickPlot 1.2
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Optional Accessories

1910585; Power supply for A/SC3XX and A/SC6XX



General description	
Power supply for the A320-series	
Technical data	
AC operation	100–240 V, 50–60 Hz, 1.8 A output: 12 VDC 3.0 A
Power	36 W
Size (L x W x H)	120 x 60 x 35 mm (4.7 x 2.4 x 1.4 in.)
Cable length	2.0 m (6.6 ft.)

v1.0

1910400; Power cord EU



General description	
Power cord (EU) for the power supply	
Technical data	
AC operation	250 V 16 A
Cable length	2.0 m (6.6 ft.)
Color	Black

v1.0

1910401; Power cord US



General description	
Power cord (US) for the power supply	
Technical data	
AC operation	125 V 15 A
Cable length	2.0 m (6.6 ft.)
Color	Black

v1.0

1910402; Power cord UK



General description	
Power cord (UK) for the power supply	
Technical data	
AC operation	250 V 13 A
Cable length	2.0 m (6.6 ft.)
Color	Black

v1.0

1910423; USB cable Std A <-> Mini-B, 2 m/6.6 ft.



General description	
This cable is used to connect the infrared camera with a computer, using the USB protocol.	
Technical data	
Weight	60 g (2.1 oz.)
Cable length	1.8 m (5.9 ft.)
Connector	Standard USB-A to USB Mini-B

v1.02

T951004; Ethernet cable CAT-6, 2m/6.6 ft.



General description	
This cable is used to connect the infrared camera to Ethernet.	
Technical data	
Weight	80 g (2.8 oz.)
Cable length	2.0 m (6.6 ft.)
Connector	RJ-45 to RJ-45
Cable type	CAT-6

v1.01

1910586; Power cable, pigtailed



General description	
This cable is used, when a separate power supply is used (not the one supplied with the camera)	
Technical data	
Weight	75 g (2.6 oz.)
Cable length	2.0 m (6.6 ft.)
Connector	Pigtailed
Color	Black

v1.02

1196940; Hard transport case for A/SC3XX and A/SC6XX series



General description	
Hard transport case for FLIR A3XX series	

v1.0

Optional Software

T197038; ThermoVision™ System Developers Kit Ver. 2.6



General description	
ThermoVision™ System Developers Kit	
Release notes	
Version	2.6
v1.0	

T197453; FLIR ResearchIR 1.2



General description	
<p>FLIR ResearchIR is a part of the FLIR R&D software family. It is aimed for more advanced users that need to monitor thermal events that are more agile or transient. FLIR ResearchIR visualizes thermal patterns and enables viewing, pre- & post recording and storing images at high speed. With FLIR ResearchIR it is possible to do post processing of fast thermal events as well as and to use analyze value conditional to start/stop recording.</p>	
Key features:	
<ul style="list-style-type: none"> Visualizes thermal patterns Possible to view, record and store images at high speed Allows for post processing of fast thermal events Possibility to generate time-temperature plots Possibility to generate profiles from line-tool Possible to use analysis value conditional > < to start/stop recording Pre- and Post recording Unlimited number of analysis functions (spot, line, area) Possibility to export all graph objects: image, plot and profile to clipboard or file either as picture or csv-data 	
Typical applications:	
<ul style="list-style-type: none"> The transient behavior of a Power supply or one of its components during power up when altering the load or any other parameter Evaluating the transient behavior of a car brake when braking and when altering the material in the brakes 	
Release notes	
Version	FLIR ResearchIR 1.2 SP2

New features	
<ul style="list-style-type: none"> --- News in SP2: <ul style="list-style-type: none"> Export to *.avi Support for FLIR SC645 and SC655 Windowing 100, 200 Hz (FLIR SC655 only) --- News in SP1: <ul style="list-style-type: none"> Simplified Chinese language support. Traditional Chinese language support. Support for UVC (USB Video Class). --- News in 1.2: <ul style="list-style-type: none"> New license handling. It is now possible to de-activate/activate a program to move programs between computers. Emissivity calculator. Line profile. Cursor on line/line profile. Plot has been reworked to improve usability. Export plot data to *.csv/clipboard. Export profile data to *.csv/clipboard. Export single image and sequence to *.csv data file. Export screenshot to file (and copy to clipboard) for plot, profile and image. Delta measurement added. Invert palette. Change palette color distribution. Added palette preview in palette chooser. All context menus has been reworked and improved. Scale control has been redesigned graphically. Improved usability for adding new tabs and opening images. Support for more cameras: ThermoCAM™ S65, ThermoVision™ A20 and ThermoVision™ A40. Windows® 7, 32 and 64-bit support. 	
Scope of delivery	
<ul style="list-style-type: none"> FLIR ResearchIR Getting Starting Guide 	
System requirements	
Operating system	Windows XP, 32-bit Windows Vista, 32-bit Windows Vista, 64-bit Windows 7, 32-bit Windows 7, 64-bit
v1.06	

T197454; FLIR QuickPlot 1.2



General description	
<p>FLIR QuickPlot is part of the FLIR R&D software family. It is specifically designed for entry- and mid level R&D users that want to get an understanding on thermal events for design, product or process. The software allows the user to visualize thermal patterns, to record and store thermal image sequences, and to create time-temperature plots for further analysis.</p>	
Key features:	
<ul style="list-style-type: none"> Visualizes thermal patterns Acts as multiple spot pyrometers Non-invasive, Non-contact Possible to record and store image sequences for later retrieval Possibility to generate time-temperature plots 	
Typical applications:	
<ul style="list-style-type: none"> Monitoring of a cars exterior temperature pattern in climate test chamber Monitoring of surface temperatures on devices when they are subjected to a life cycle test in an climate chamber Monitoring of surface temperature on devices when loading conditions are changed. For an example Power supplies, cooling devices and moving mechanics 	
Release notes	
Version	FLIR QuickPlot 1.2 SP2

- New features
- --- News in SP2:
 - Export to *.avi
 - Support for FLIR SC645 and SC655
 - Windowing 100, 200 Hz (FLIR SC655 only)
 - --- News in SP1:
 - Simplified Chinese language support.
 - Traditional Chinese language support.
 - Support for UVC (USB Video Class).
 - --- News in 1.2:
 - New license handling. It is now possible to de-activate/activate a program to move programs between computers.
 - Emissivity calculator.
 - Plot has been reworked to improve usability.
 - Export plot data to *.csv/clipboard.
 - Export profile data to *.csv/clipboard.
 - Export screenshot to file (and copy to clipboard) for plot, profile and image.
 - Delta measurement added.
 - Circle tool added to FLIR QuickPlot.
 - Invert palette.
 - Change palette color distribution.
 - Added palette preview in palette chooser.
 - All context menus has been reworked and improved.
 - Scale control has been redesigned graphically.
 - Improved usability for adding new tabs and opening images.
 - Support for more cameras: ThermoCAM™ S65, ThermoVision™ A20 and ThermoVision™ A40.
 - Windows® 7, 32 and 64-bit support.

Scope of delivery

- FLIR QuickPlot
- Getting Starting Guide

System requirements

Operating system	Windows XP, 32-bit Windows Vista, 32-bit Windows Vista, 64-bit Windows 7, 32-bit Windows 7, 64-bit
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v1.07