Scout II® Series Thermal Imager

Operator's Manual

If you have questions that are not covered in this manual, or need service, contact FLIR Systems, Inc. customer support at 805.964.9797 for additional information prior to returning a camera.

This documentation is subject to change without notice.

Proper Disposal of Electrical and Electronic Equipment (EEE)

The European Union (EU) has enacted Waste Electrical and Electronic Equipment Directive 2002/96/EC (WEEE), which aims to prevent EEE waste from arising; to encourage reuse, recycling, and recovery of EEE waste; and to promote environmental responsibility.

In accordance with these regulations, all EEE products labeled with the "crossed out wheeled bin" either on the product itself or in the product literature must not be disposed of in regular rubbish bins, mixed with regular household or other commercial waste, or by other regular municipal waste collection means. Instead, and in order to prevent possible harm to the environment or human health, all EEE products (including any cables that came with the product) should be responsibly discarded or recycled.

To identify a responsible disposal method where you live, please contact your local waste collection or recycling service, your original place of purchase or product supplier, or the responsible government authority in your area. Business users should contact their supplier or refer to their purchase contract.

Important Instructions and Notices to the User:

Modification of this device without the express authorization of FLIR Commercial Systems, Inc. may void the user's authority under FCC rules to operate this device.

Note 1: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna;

• Increase the separation between the equipment and receiver;

• Connect the equipment into an outlet on a circuit different from that of the receiver; and/or

• Consult the dealer or an experienced radio/television technician for help.

Industry Canada Notice:

This Class B digital apparatus complies with Canadian ICES-003.

Avis d'Industrie Canada:

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada

FLIR Systems, Inc.

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Important Safety Instructions

- DO NOT DISASSEMBLE THE DEVICE.
- Read and follow all instructions
- Heed all warnings
- Only use the attachments/accessories specified by the manufacturer
- All service must be provided by the manufacturer

Battery Safety Information

The Scout II Series camera is a sealed unit with sensitive electronics and contains no user-serviceable parts. Service or repair is to be performed only by the manufacturer. The camera unit must not be opened or modified by the user or owner in any manner or for any reason.

The battery used in this device may present a risk of fire or chemical burn if mistreated. Do not disassemble the camera, store above 60°C, or incinerate. The battery is factory replaceable only; return the camera to the manufacturer for battery replacement.

1 Introduction

FLIR's Scout II Series thermal handheld cameras give hikers, hunters, and outdoorsmen the ability to see clearly in total darkness, providing a wealth of information during any nighttime excursion.

The Scout II Series camera enables the outdoorsman to:

- See animals and difficult terrain in reduced visibility or total darkness
- See through smoke, dust, and light fog
- See camouflage and foliage in any lighting conditions
- See more—and see farther—than with low-light night vision goggles

The Scout II Series camera makes images from heat, not light, a feat impossible for the naked eye or even image intensified (I^2) night vision devices, which means you can see clearly even without any visible light at all. People, animals, and objects all make their own heat and their own contrast, and are clearly seen by the Scout II Series camera in even the most adverse conditions.

Visible Image   Scout II Series Camera Image

1–1   Scout II Series Camera Features

- Rugged design—Built to withstand the demands of outdoor use.

- Microbolometer sensor for excellent image quality and clarity

- 336×256 pixel resolution, 17° horizontal field of view—Scout II 320

- 240×180 pixel resolution, 24° horizontal field of view—Scout II 240

- Palm-Sized Portability and Light Weight—Only 12 Ounces

- Embedded LED Task Light

- USB Cable for battery charging

- USB/Video Adapter Cable for video out—Scout II 320 only.

- Rechargeable Internal Li-Ion battery—Provides up to 5 hours of camera operation on a single charge

Caution!

Do not disassemble the camera enclosure. Disassembly can cause permanent damage and will void the warranty.

Do not point the camera directly at extremely high-intensity radiation sources, such as the sun, lasers, arc welders, etc.

Be careful not to leave fingerprints on the camera's infrared optics. Clean only with low pressure fresh water and a lens cloth.

2 Getting Started

The Scout II Series camera is available with the features, options, and accessories described in this manual.

Refer to the packing list enclosed with your camera shipment to determine the actual contents of your camera package.

In addition to the camera and Quick Start card; the following items are included in the camera package:

Lens Cover

Wrist Strap

USB Cable

USB/Video Adapter Cable—Scout II 320 only

USB Power Adapter Set

Molle-Compatible Belt Holster

The following optional accessories are available for the Scout II Series cameras.

Camera Carrying Pouch

Floating Lanyard

2–1   Charging the Camera

Caution!

> To assure proper charging, Scout II Series cameras should be turned OFF throughout the charging cycle. Charging MUST only be done when the camera temperature is from 0 to 40°C (32 to 104°F), or battery damage may occur.

The camera battery should be fully charged prior to use. To charge the camera, lift the cover from the USB port, plug in the USB cable provided with the camera, and plug other cable end into a USB power source.

USB port

- When charging correctly, the charging indicator will be lit orange.
- When fully charged, the charging indicator will light solid green. The initial charge time is approximately 5 hours.

Plug in USB Charger

Charging indicator green when fully charged

Charging indicator orange when charging

2–2   Using USB/Analog Video Adapter Cable—Scout II 320 only

To obtain analog video out, insert the adapter cable into the USB connector. The camera will detect the adapter cable and provide the video stream. Use an RCA cable to connect to a monitor or a video recorder.

**USB/Video
adapter cable**

**Customer supplied
RCA cable**
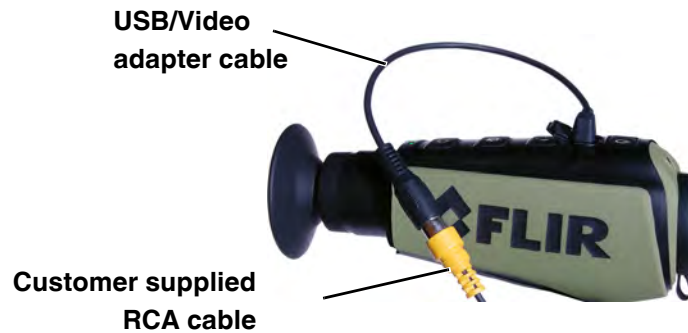
When using the USB/Analog Video Adapter cable to record video or supply video to a remote monitor, it may be useful to turn off the Auto Shutdown feature of the camera.

2–3   Scout II Series Power Management

Your Scout II Series camera is equipped with a power management system that provides up to five hours of continuous operation. When left in the Off state the battery will hold a charge for up to two months. To make the best use of the camera it is important to understand the basic power states of the camera.

- When the camera is turned on from the Off state, it takes about five seconds to become operational. During the Bootup process, the FLIR splash screen is shown and then the software version is displayed briefly. Pressing the Power button will toggle the camera between On and Off.

- The camera shuts down after about five minutes if no buttons are pushed. **Auto shutdown 30s**, is shown in the display, and after counting down for 30 seconds the camera will shutdown.

Camera State	How do you know?
Off	The display is off and the Task Light comes on when the Brightness button is pressed.
On	The display is on and the LED Task Light is disabled. If the image appears blank, make sure the lens cover is removed.

2–4   Scout II/LS-X/LS-XR/Ocean Scout End User Tool

The Scout II/LS-X/LS-XR/Ocean Scout end user tool is a graphical user interface (GUI) that is used with the following FLIR handheld thermal imaging cameras:

• Scout II Series
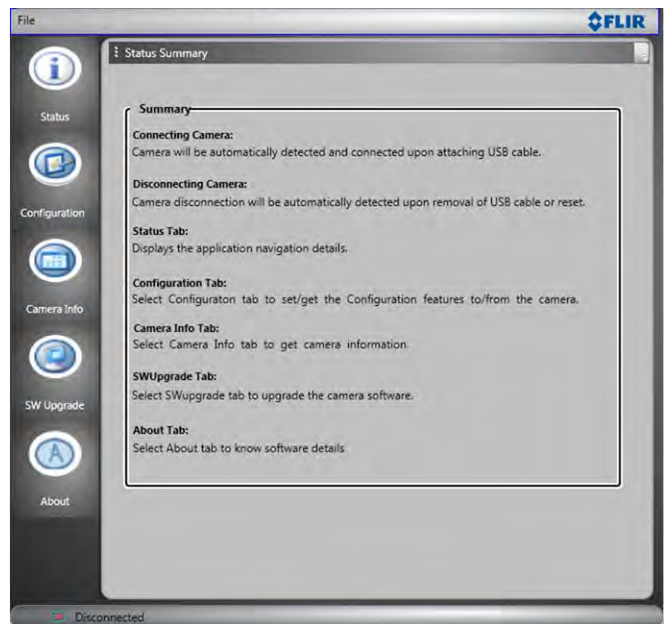• LS Series
• Ocean Scout

These cameras are similar in design and may be referred to generally as "Cayman" cameras.

The software allows a user to make minor configuration changes to one of these cameras. For example, a user can turn camera sounds on or off, or change the amount of time before the camera shuts down automatically. The tool can also be used to perform a camera firmware upgrade if one becomes available in the future.

To download the GUI, go to http://

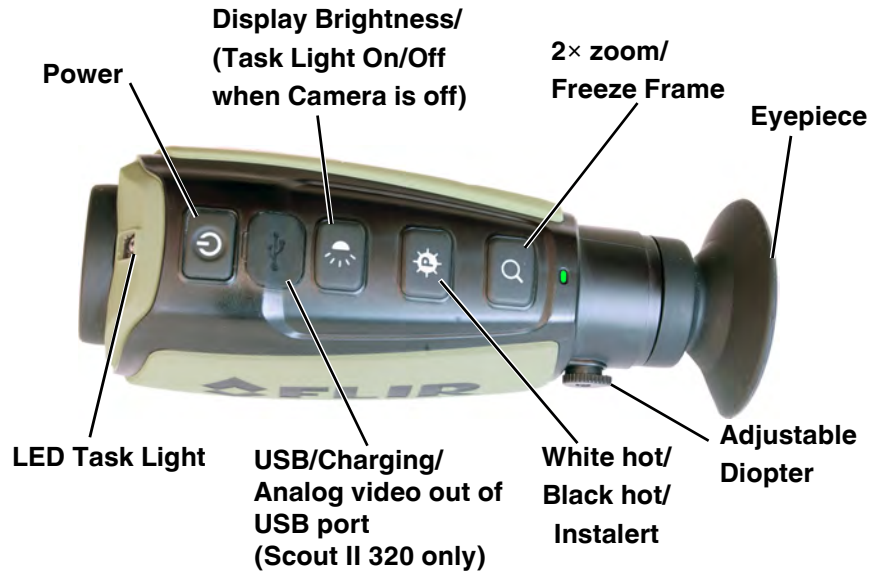?id=53129, select the end user tool under Software to download.

Select Configuration to read camera setting and make changes to available camera features.

3   Operating Your Scout II Series Camera

3 Operating Your Scout II Series Camera

3–1   Camera Features and Controls

3–2   Buttons and Controls

Power Button

Turn the camera On and Off.

Display Brightness Button

Use this button to cycle through the five levels of display brightness. Each press of the button advances to the next level of brightness.

When the highest brightness level is reached, subsequent button presses advance to the next lower brightness levels. When the lowest brightness level is reached, subsequent button presses advance to the next higher brightness level. One of the following icons is displayed for approximately 3 seconds after the button is pressed indicating the current brightness level:

Note

When the Scout II Series camera is powered Off, the Display Brightness button, when held on, turns on the LED Task Light.

White Hot/Black Hot/InstAlert™ Button

Use this button to toggle between the two video and the four InstAlert™ color palettes. In the default White Hot palette, hotter objects appear as white or light grey. In Black Hot, hotter objects appear as black or dark grey. In the InstAlert™ palettes the hottest objects in the scene are highlighted in red to simplify detection of animals, people, and objects. There are four pre-set levels of InstAlert™ that you can select based on the specific scene being viewed. All of the InstAlert™ palettes are based on the white hot palette.

While white hot is the most commonly used and visually intuitive method of viewing thermal imagery; black hot can often enhance contrast of certain objects or provide better visual perspective in some conditions. When switching between palettes, the appropriate icon is displayed for approximately 3 seconds.

White hot   **Black hot**   **InstAlert™ 1 – 4**

Zoom Button—Scout II 320 only

Use this button to switch the camera between no zoom (full resolution) and 2× zoom. The central part of the image is magnified twice its normal size when 2× is selected.
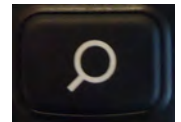
When zoom has been selected the icon is continuously shown in the display:

Freeze Frame Button—Scout II 240 only

Use this button to freeze the video so that a single frame may be inspected closely.

Diopter Controls

Adjustable Diopter neutral position

The diopter adjustment lever allows you to adjust for optimum image sharpness in the eyepiece. When the diopter adjustment lever is pointing straight away from the front of the camera, it is in the neutral position. Adjust the diopter setting for the sharpest image in the viewfinder.

3–3   Battery

Your Scout II Series camera is equipped with a sophisticated power system using a rechargeable internal Li-Ion battery.

Battery Status Indicator

While the camera is On, a battery status indicator is always shown in the corner of the display image. This indicator provides an estimation of the remaining battery charge.

full charge

half charge

3–4   Auto Shutdown Operation

plugged in

Auto Shutdown is a feature of the Scout II Series camera that helps to guard against draining the battery prematurely by inadvertently leaving the camera on.

Auto Shutdown turns the camera off if the following conditions are met:

- The camera is On
- No buttons have been pressed for about five minutes.

Once these conditions are met you will see the following message in the display: **Auto shutdown 30s**, and after counting down for 30 seconds the camera will shutdown.

Press any button during this countdown to terminate Auto Shutdown and resume normal operation.

Note

Pressing any button during an Auto Shutdown countdown will only terminate the countdown and abort the shutdown. The normal function of the button will not occur.

4   Technical Data

4 Technical Data

4–1   Scout II Series Model Features

Scout Model	
Scout II 240	Scout II Series Handheld Thermal Camera with video resolution of 240 × 180 pixels with freeze frame capability.
Scout II 320	Scout II Series Handheld Thermal Camera with video resolution of 336 × 256 pixels with 2× digital electronic zoom.
Included with all camera models	Lens Cover, USB Cable, Wrist Strap, Operator's Manual, and Soft Carrying Pouch

Feature	
Start up	< 5 seconds
Thermal Sensitivity, Waveband	< 50 mK @ f/1.0, 7.5 µm to 13.5 µm
Detector Type	VOx Microbolometer Scout II 240—240 x 180 pixels Scout II 320—336 x 256 pixels
Resolution / Display	640x480 pixels LCD Scout II 240, < 9Hz Refresh rate; Scout II 320, < 9Hz Refresh rate
Video Output	NTSC/PAL switchable using GUI available from FLIR website. (Scout II 320 models only—Composite video out through USB port via USB/Video Adapter Cable to customer supplied RCA cable.)
Image Processing	FLIR Proprietary Digital Detail Enhancement
Focus, Zoom	Fixed focus (Scout II 320 models only—2x electronic zoom)
Display Palettes	White Hot, Black Hot, InstAlert™; selectable
Task Light	LED enabled during power off state

Power

Battery Type	Internal Li-Ion
Battery Life Operating	Greater than 5 Hours at 25°C

Environmental

	Scout II 240 and Scout II 320
Camera Operational Temp.	-4°F to 122°F (-20°C to 50°C)
Storage Temp.	-40°F to 140°F(-40°C to 60°C)
Ingress Protection Rating	IP-67, submersible up to 1 meter
Drop Test Rating	1 meter drop

Physical

Scout II 240, Scout II 320	
Weight, including lens	12 oz. (340 g)
Size (L × W × H)	6.70" × 2.31" × 2.44" (172 × 58.7 × 62 mm)

Field of View

Scout II 240, Scout II 320	
Field of View (FoV)	Scout II 240: 24° × 18° NTSC Scout II 320: 17° × 13° NTSC

Range Detection[1]

Detect Man (1.8 m × 0.5 m)	
Scout II 240	383 yd. (350 m)
Scout II 320	600 yd. (550 m)

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1. Actual range may vary depending on camera set-up, environmental conditions, and user experience.