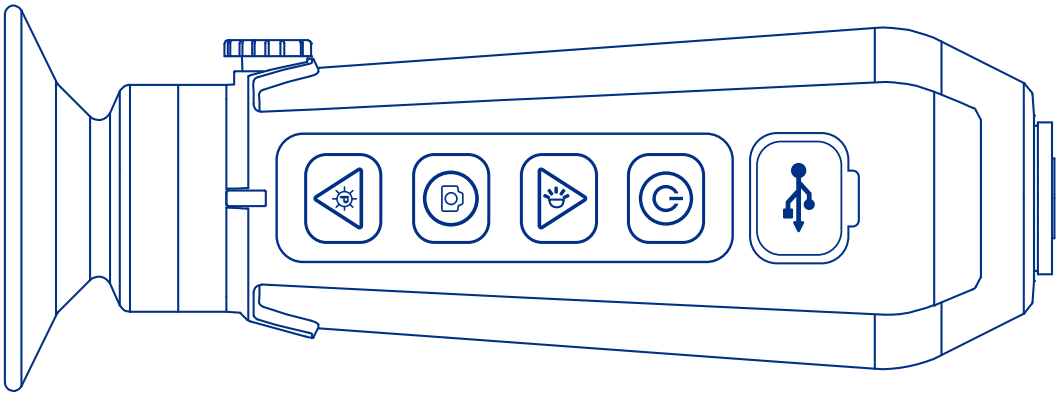
# SCOUT® TK

Thermal Monocular

## USER MANUAL



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

Phone: 888.747.3547 , select option 2 at the prompt ("Handheld Products")

Email: PVS.support@flir.com

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## 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
- 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

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# SECTION 1. INTRODUCTION

## 1.1 SCOPE

This manual covers the FLIR SCOUT TK Series and all applicable components. It is recommended that this manual be read and understood to optimize camera operation.

## 1.2 INTRODUCTION

FLIR's SCOUT TK Series thermal handheld camera gives the user the ability to see clearly in total darkness, providing a wealth of information during any nighttime activity. The design is rugged enough to withstand the demands of outdoor use. It uses FLIR's proprietary Digital Detail Enhancement™ image processing and employs a fixed focus lens. It has 4 external buttons for unit operation and an internal menu to configure options. See Operating the Camera and Using the Menu System sections for more details on buttons and menu options.

## SCOUT TK SERIES FEATURES:

- Rugged design
- 160 X 120 VOx Lepton® Microbolometer
- 20° horizontal field of view
- 640 x 480 LCD Display
- Palm sized, light weight design (6 oz)
- Snapshot capture and Internal storage for up to 1000 images
- Video recording up to 4 hours of video
- Internal rechargeable Li-Ion battery
- USB cable for battery charging and image download

## THE SCOUT TK SERIES CAMERA ALLOWS THE USER TO:

- See wildlife and difficult terrain in reduced visibility conditions or total darkness
- See through smoke, dust, and light fog
- Search for missing pets
- Scan sidewalks, parking lots, and other public areas in the dark

**DETECTION**
I see something.

**RECOGNITION**
It's a four-legged animal.

**IDENTIFICATION**
I can tell it is a dog.

## 1.3 REGISTER YOUR SCOUT TK

You can register your camera online at:
**www.flir.com/scouttk/registration**

## 1.4 CAUTIONS

- To assure proper charging, the camera should be turned off throughout the charging cycle
- Only charge the camera's battery when the temperature is from 0 to 40°C (32 to 104°F), otherwise battery damage could occur
- Do not disassemble the camera enclosure. Disassembly can cause permanent damage. The battery is not user replaceable
- Do not point the camera at high-intensity radiation sources such as the sun, lasers, or arc welders
- Do not leave fingerprints on the camera's infrared optics. Clean only with low pressure fresh water and a lens cloth

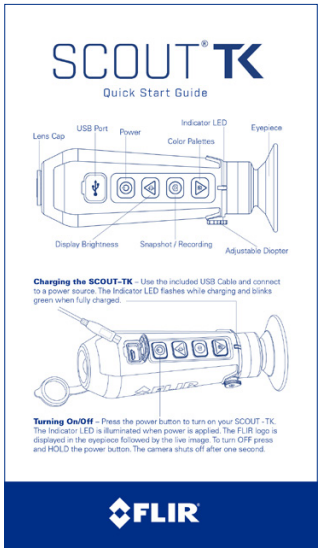
# SECTION 2. GETTING STARTED

## 2.1 UNPACKING AND INSPECTING

The FLIR SCOUT TK Series camera is available with the features, options, and accessories described in this manual. Refer to the packing list enclosed with your camera to determine the actual contents of your camera package.

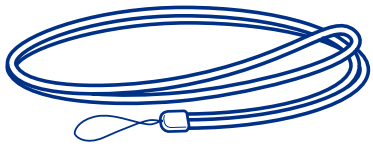
In addition to the camera the following items are included in the camera package:

- FCC Declaration of Conformity
- CE Declaration of Conformity

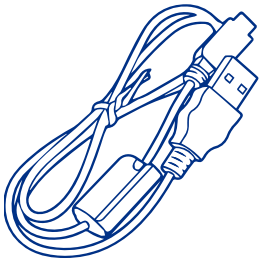



*Quick Start Guide*

*Thank You Card*



*Lanyard*



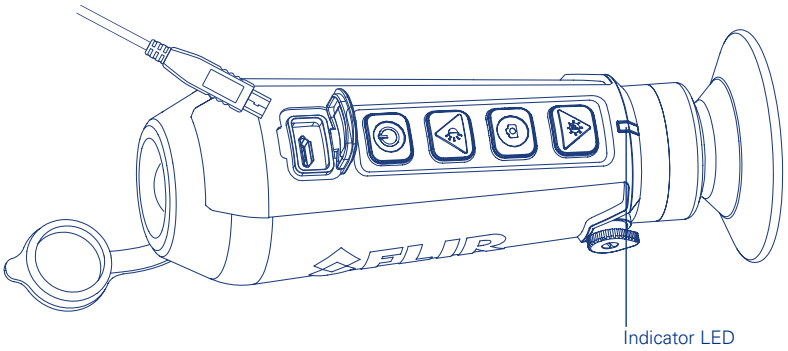
*USB Cable*

## 2.2 CHARGING THE CAMERA

The camera's battery should be fully charged prior to use. Note: The battery is not user replaceable.

### TO CHARGE THE CAMERA'S BATTERY:

1. Lift the cover from the USB port.
2. Plug the cable provided with the FLIR SCOUT TK into the camera's USB port.
3. Plug the opposite end of the cable into a USB power source.




The indicator LED flashes while charging. The color of the Indicator LED is determined by the level of charge.

| FLASHING LED COLOR | LEVEL OF CHARGE |
|---|---|
| Red | <10% |
| Amber | 10-20% |
| Green (Long Flash) | >20% |
| Green (Short Flash) | 100% |

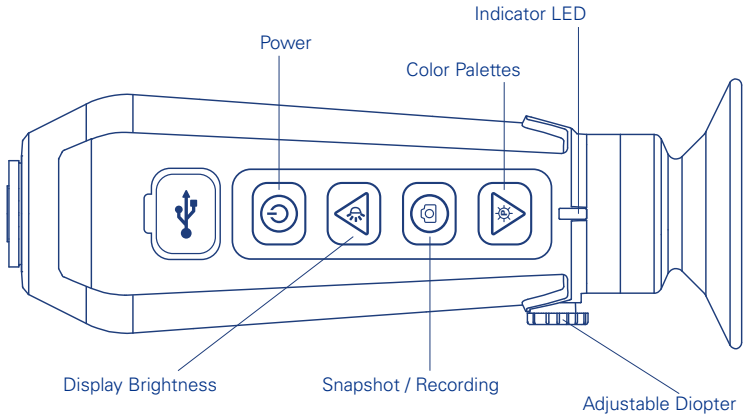
During normal operation the color of the indicator LED shows the battery's level of charge.

| LED COLOR | LEVEL OF CHARGE |
|---|---|
| Red | <10% |
| Amber | 10-20% |
| Green | >20% |

# SECTION 3. OPERATING THE CAMERA

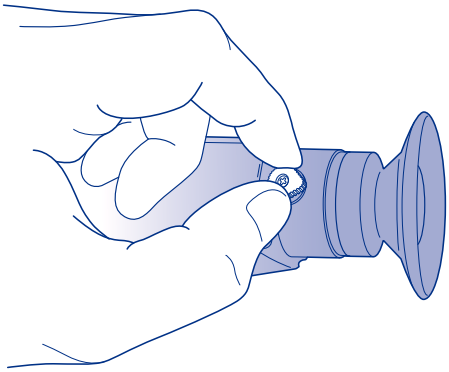
## 3.1 CAMERA BUTTONS

This section details the use of the camera's buttons.




### 3.1.1 DIOPTER ADJUSTMENT

While looking through the eyepiece, adjust the position of the diopter lever to optimize the sharpness of the image in the viewfinder.



### 3.1.2 POWER BUTTON

The Power Button performs the following functions:

| CAMERA STATE | SHORT PRESS | LONG PRESS |
|---|---|---|
| Camera OFF | Turns Power ON | N/A |
| Camera ON | Access User Menu | Turns Power OFF |

### 3.1.3 DISPLAY BRIGHTNESS BUTTON

Press the Display Brightness Button to open the display brightness selection screen. The display brightness can only be adjusted while the display brightness selection screen is displayed. There are 8 brightness levels which can be selected. The graph on the left hand side of the display brightness selection screen shows the current brightness.

*Display brightness selection screen*

While in the display brightness selection screen the buttons have the following functionality:

| BUTTON | SHORT PRESS | LONG PRESS |
|---|---|---|
| | Accesses User Menu | Turns Power OFF |
| | Increases the display brightness by one increment | Quickly increases the display brightness |
| | Exits the brightness selection screen | N/A |
| | Decreases the display brightness by one increment | Quickly decreases the display brightness |

## 3.1.4 COLOR PALETTE BUTTON

The color palette button is used to select the color palette that is applied to the image.

Press the color palette button to open the color palette selection screen. Color palettes can only be changed while the color palette selection screen is active. The graph on the left side of the color palette selection screen displays the name and color gradients of the current palette.

Note: The color palette selection screen automatically exits after three seconds of inactivity.

*Color palette selection screen*

## THE SCOUT TK HAS 9 USER SELECTABLE COLOR PALETTES.

## WHITE HOT

Most commonly used palette. Hot objects appear white. Good for scenes with either high or low contrast.

## BLACK HOT

Hot objects appear black. Scenes appear more lifelike than White-Hot, especially at night.

## InstAlert™

The hottest things in the image are colored and everything else is greyscale.

## GRADED FIRE 1

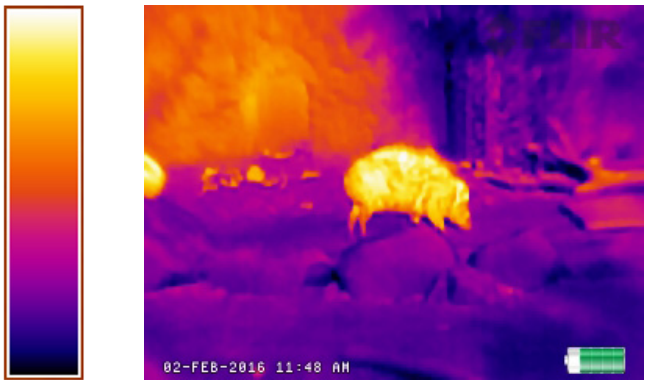
The hottest things in the image are colored with a gradient of color, and everything else is greyscale.

## GRADED FIRE 2

Similar to  Graded Fire 1 but has more grey levels colorized at the top.

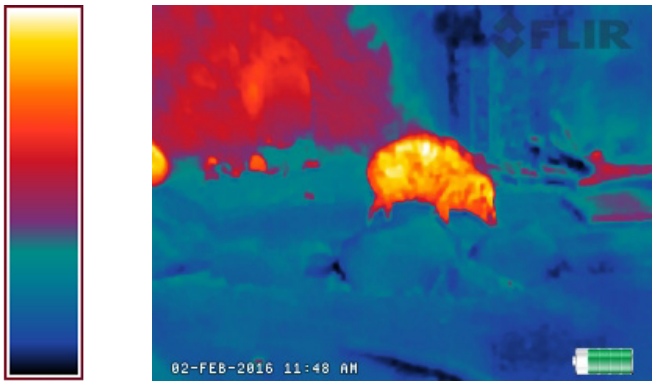
## IRON

Iron simulates the glow of things that are heated to visible incandescence, like an iron in the fire.



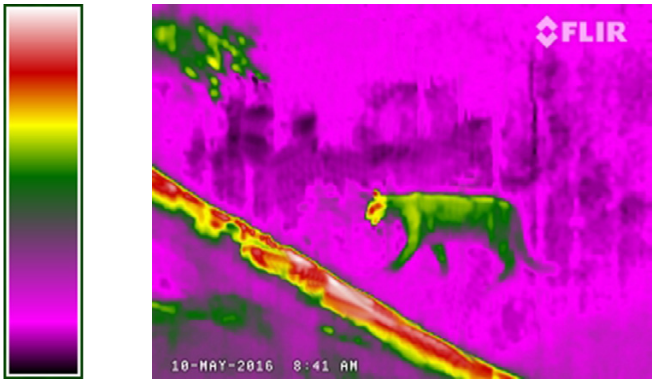

## LAVA

Lava simulates the glow of hot lava against a cold surface. The colors are in strong color contrast.



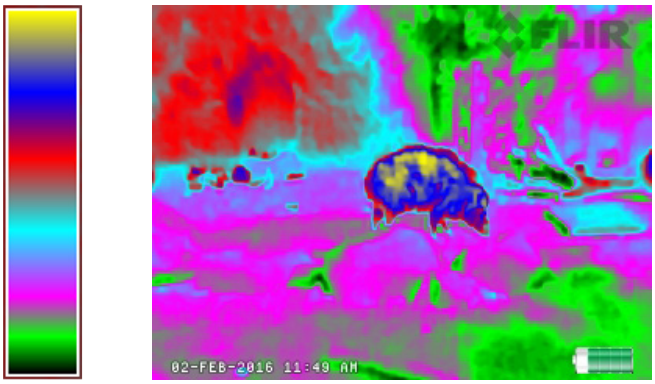

## RAIN

Well-suited for low contrast scenes.




## COLOR WHEEL

Similar to rain but has even more contrast since the base colors are opposites in the color wheel.




While in the color palette selection menu the buttons have the following functionality:

| BUTTON | SHORT PRESS | LONG PRESS |
|---|---|---|
| | Accesses User Menu | Turns Power OFF |
| | Moves up through the color palette options by one increment | Quickly moves up through the color palette options |
| | Exits the color palette menu | N/A |
| | Moves down through the color palette options by one increment | Quickly moves down through the color palette options |

## 3.1.5 SNAPSHOT BUTTON

The snapshot button is used to capture images and to record video. Up to 1000 pictures and up to 4 hours of recorded video can be stored in the camera's internal memory at one time.

The Gallery (accessible via the user menu) can be used to view captured images and recordings. Note: Recordings cannot be played back in the photo gallery, the first frame is displayed in the gallery. See User Menu section for details.

### 3.1.5.1 TAKING A PICTURE

Perform a short press of the snapshot button to capture a single image. The camera icon will be displayed briefly.

If the snapshot button is pressed before the previous image has been saved, the new snapshot image is buffered. The snapshot buffer can hold up to six images at a time. When the snapshot buffer is full, a "Please wait…" warning is displayed.

*Snapshot Buffer Full Message*

The FLIR SCOUT TK has internal storage for up to 1000 images. When the image storage space is exhausted, a "Gallery full" warning is displayed.

*Image Storage Full Message*

### 3.1.4.2 RECORDING VIDEO

To record a video, press and hold the snapshot button. A movie camera icon and elapsed time counter will be shown while a video is recording.

To end recording and save the video to the camera's internal storage, press the snapshot button.

*Recording icon with elapsed time counter*

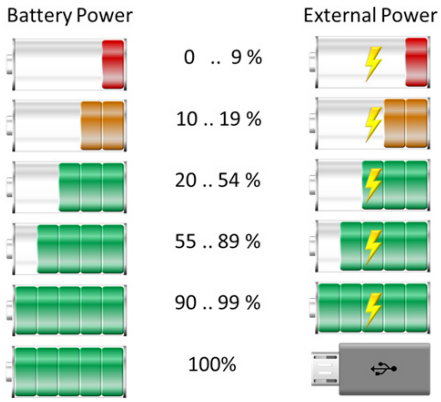
*Snapshot button*

The FLIR SCOUT TK has internal storage for up to 4 hours of video. When the video storage space is exhausted, a "Video media full" warning is displayed.

*Recording Capacity Exceeded*

## 3.2 BATTERY METER

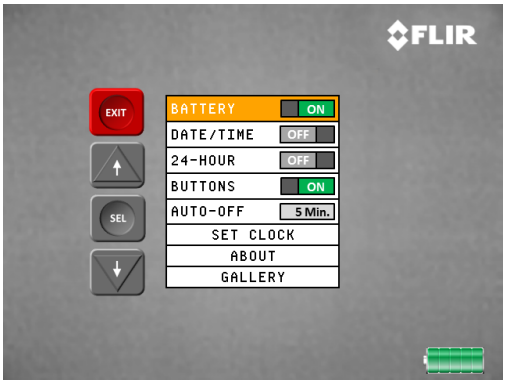
The following image explains the battery meter when operating on battery or external power.



# SECTION 4. USER MENU

## 4.1 USER MENU

To access the user menu press the power button while the camera is operational. The user menu screen will be displayed




*User Menu*

The following items are available in the user menu:

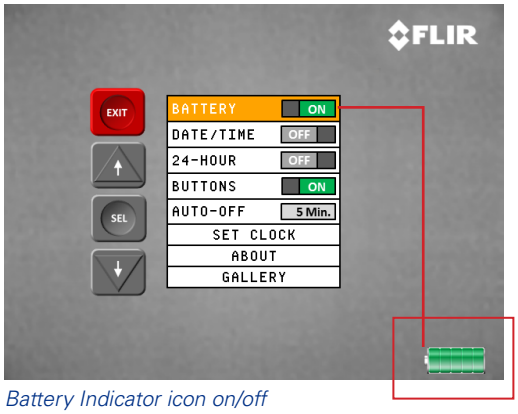
- Battery: Turns the battery meter on/off in the display.
- Date/Time: Turns the date/time on/off in the display.
- 24 Hour: Changes the time display between 12 hour (AM/PM) and 24 hour mode.
- Buttons: Enables/disables on-screen button display for navigation.
- User-selectable auto power off. The options are 5 min (default), 10 min, 20 min, or never.
- Set Clock: Used to set the date and time.
- About: Displays the camera's software version and serial number.
- Gallery: Accesses the camera's snapshot and video browser.

While in the user menu the buttons have the following functionality:

| BUTTON | SHORT PRESS | LONG PRESS |
|---|---|---|
| | Exits the user menu | Turns Power OFF |
| | Moves up through the menu by one increment | Quickly moves up through the menu |
| | Selects Current Item | N/A |
| | Moves down through the menu by one increment | Quickly moves down through the menu |

### 4.1.1 BATTERY INDICATOR

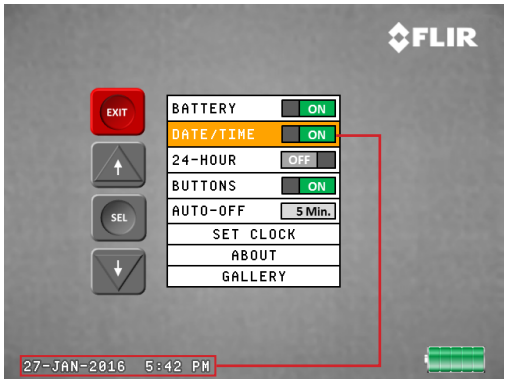
This selection is used to toggle the battery indicator on/off in the display.




*Battery Indicator icon on/off*

### 4.1.2 DATE/TIME

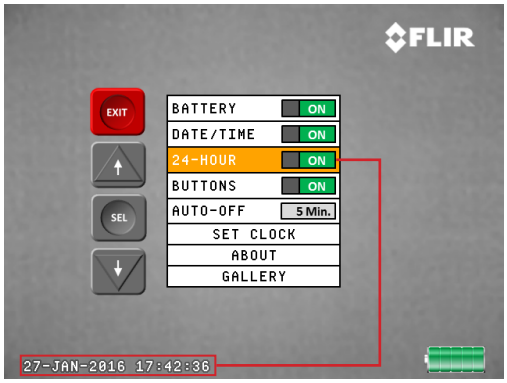
This selection is used to toggle the date and time on/off in the display.




*Date & Time Stamp On/Off*

### 4.1.3 TWENTY-FOUR HOUR

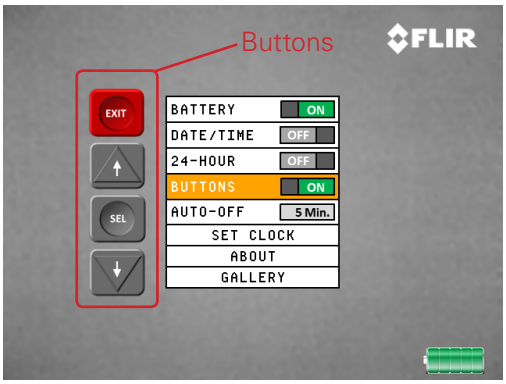
When the date/time stamp is enabled in the display, this option toggles the time display between 12 hour (AM/PM) and 24 hour mode.




*24-Hour Clock Enabled*

## 4.1.4 BUTTONS

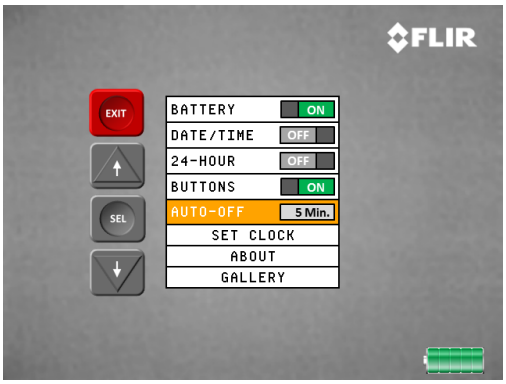
The user can enable/disable the reference button actions from the display. The button functions shown on the screen match the actions generated by pressing the camera's buttons.




*On-Screen button functionality*

## 4.1.5 AUTO POWER OFF (APO)

The user can set the amount of time that the camera can be active without any user interaction prior to shutting off. The options are 5 minutes (Default), 10 minutes, 20 minutes, and never.




*Set length of time for auto shutoff*

## 4.1.6 SET THE CLOCK

Pressing the snapshot button with the Clock option highlighted will bring up the set clock dialogue box.

## 4.1.6 SET THE CLOCK continued

The button actions listed below can be used to set the date and time:

| BUTTON | SHORT PRESS | LONG PRESS |
|---|---|---|
| | Exits the set clock dialog box | Turns Power OFF |
| | Increases the value of the highlighted item by one increment | Quickly increases the value of the highlighted item |
| | Moves to the next item | N/A |
| | Decreases the value of the highlighted item by one increment | Quickly decreases the value of the highlighted item |

## 4.1.7 ABOUT

Pressing the snapshot button with the About option highlighted will bring up the About dialogue box. This displays the software loaded into the camera as well as the serial numbers of the camera and sensor. Press any button to exit.

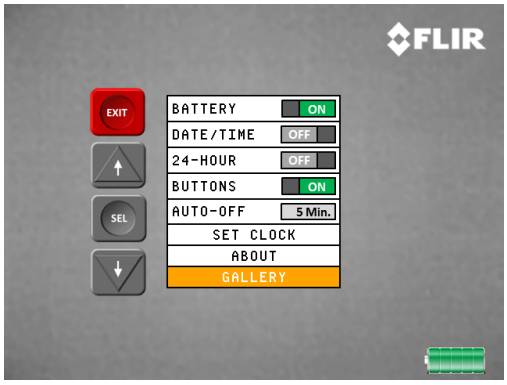
*Access information about your specific camera*

The only software that has the ability to be updated by the end user is the "Camera" software. See Software Update section for details. The about dialogue box provides the following information.

| ITEM | DESCRIPTION |
|---|---|
| Camera: VX.XX.X | Current version of camera's software |
| Sensor: VX.X.XX | Current version of Lepton core software |
| Battery: VX.XX.X | Current version of battery management software |
| Loader: VX.XX.X | Current version of system bootloader |
| Camera SN: XXXXXX | Scout TK's serial number |
| Sensor SN: XXXXXX | Lepton core's serial number |
| SOC: MA21XX | Processor Type |

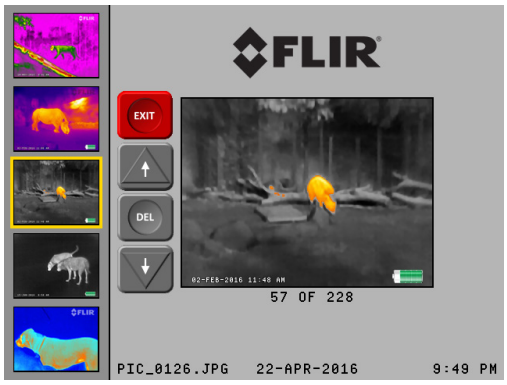
## 4.1.8 GALLERY

Pressing the snapshot button with the Gallery option highlighted will launch the snapshot and video gallery.




*Select Gallery in user menu to view snapshots*

The Gallery provides a convenient way to review the images and video recording files that have been saved to the camera's internal storage.




*Images appear to the left as thumbnails*

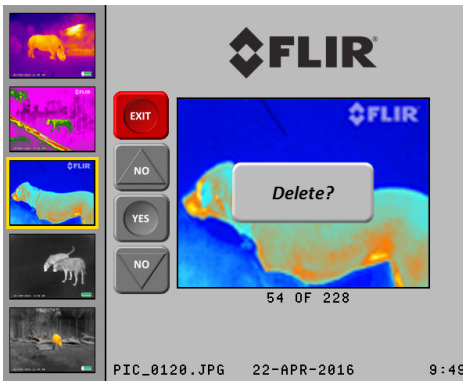
The button operation while in the Gallery is as follows:

| BUTTON | SHORT PRESS | LONG PRESS |
|---|---|---|
| | Exits the Gallery | Turns Power OFF |
| | Scrolls up through images by one increment | Quickly scrolls up through images in the Gallery |
| | Brings up a dialog box to delete the current image/video | Brings up a dialog box to delete all of the camera's images/videos |
| | Scrolls down through images by one increment | Quickly scrolls down through images in the Gallery |

## 4.1.9 DELETE IMAGE/VIDEO INDIVIDUALLY

The button operation while in the individual image/video delete dialog box is as follows:

| BUTTON | SHORT PRESS |
|---|---|
| | Exits the Gallery |
| | Cancels the deletion |
| | Deletes Selected File |
| | Cancels the deletion |

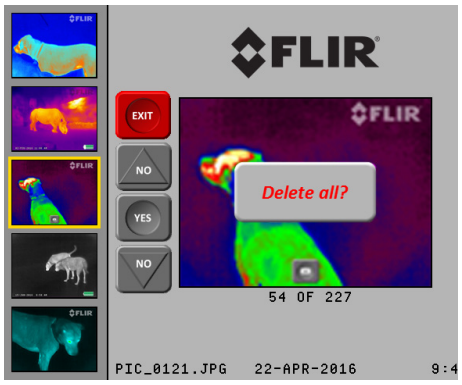



*Deleting Images one at a time*

## 4.1.10 DELETE ALL IMAGES/VIDEOS

The button operation while in the delete all images/video dialog box is as follows:

| BUTTON | SHORT PRESS |
|---|---|
| | Exits the Gallery |
| | Cancels the deletion |
| | Brings up a question box delete all? |
| | Cancels the deletion |

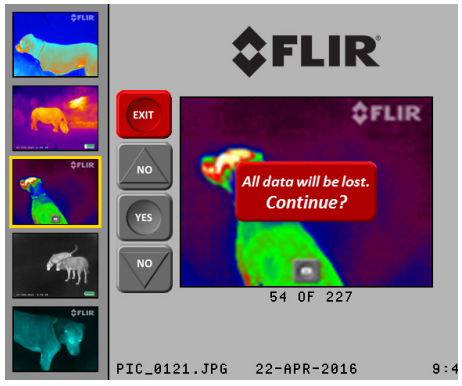



*Deleting All Images and Videos*

If you confirm the deletion a final confirmation dialog box will be shown. The button operation in the final delete all images/ video dialog box is as follows:

## CONFIRM DELETE OF ALL IMAGES/VIDEOS

| BUTTON | SHORT PRESS |
|---|---|
| | Exits the Gallery |
| | Cancels the deletion |
| | Deletes all images and videos |
| | Cancels the deletion |




*Confirmation for deleting ALL images and videos*

# SECTION 5. MAINTENANCE

## 5.1 SOFTWARE UPDATE

Software updates for your FLIR SCOUT TK can be found at www.flir.com/hunting-outdoor/ under the "Resources" tab.

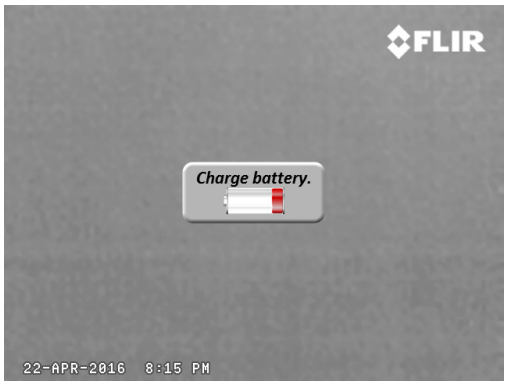
### 5.1.1 Software Update Procedure

To update your camera's software:

1) Go to Resources tab at www.flir.com/hunting-outdoor/

2) Download the latest version of software to your computer

3) Fully charge the FLIR SCOUT TK
   - Note: The software update procedure cannot be performed while the battery is low. If the battery is too low to complete the software update, the charge battery message will be displayed.




*Warning dialogue box for low battery during update*

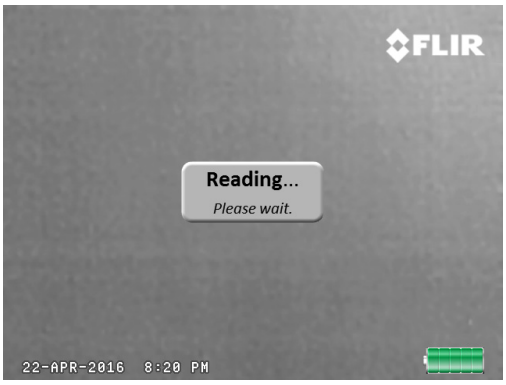
4) Turn on your FLIR SCOUT TK

5) Connect your FLIR SCOUT TK to your computer using the USB cable provided

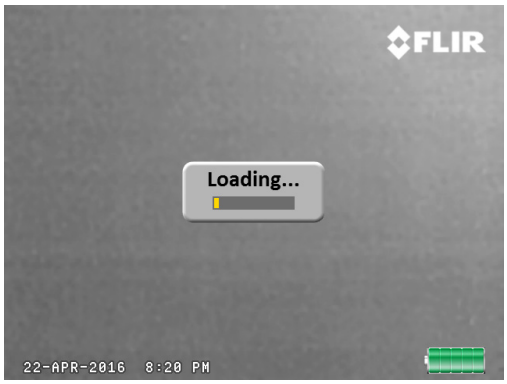
6) Locate and open the drive named "FLIR" on your computer

7) Copy the latest software files to the folder labeled "UPDATE" on the drive named "FLIR". After the file has finished copying, press the Power Button twice and remove the USB cable from the computer
   - Note: The USB cable must be removed within three seconds of the first button press.

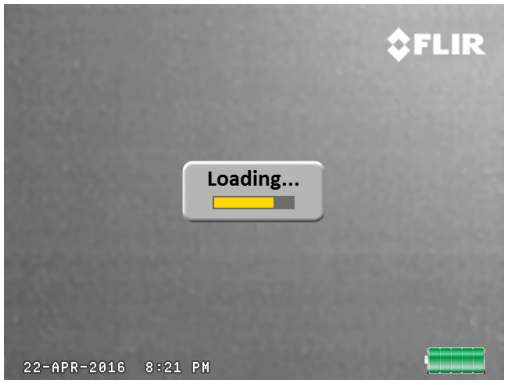
8) During the software update the messages below are displayed through the eyepiece:



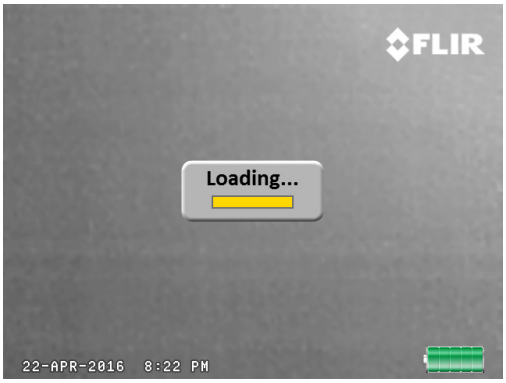

*First Update status reading in SCOUT TK eyepiece*




*Loading bar progression in SCOUT TK eyepiece*




*Loading bar progression in SCOUT TK eyepiece*




*Loading bar progression in SCOUT TK eyepiece*

9) It will take approximately 5 minutes for the software to load. The camera will restart when the process is complete

*Notification screen of a successful load and pending restart to finish software update*

## 5.2 BATTERY SERVICE AND REPLACEMENT

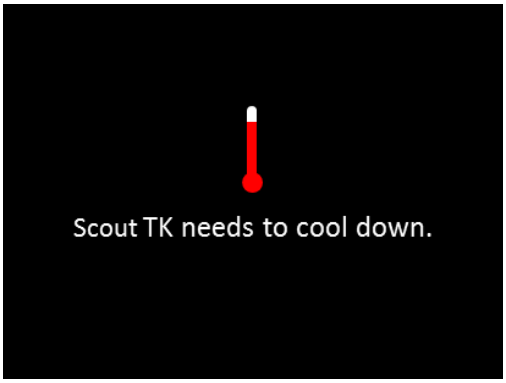
If the battery will not hold a charge and requires replacement, please contact FLIR Systems for details on returning the unit for service. For instructions on charging the battery refer to Section 2.3 Charging the Camera.

## 5.3 CLEANING THE SCOUT TK

Wipe the housing with a damp cloth as needed. Use a high quality lens wipe to remove dirt or smudges from the lens and display window. Do not use abrasives or solvents to clean the housing, lens, or display window.

## 5.4 OVER TEMPERATURE PROTECTION

The camera has built in over temperature protection to prevent damage to the electronics. When an over temperature condition is detected the image below is displayed for ten seconds before the Scout TK shuts down. After a thermal shutdown, the Scout TK will not turn on until the camera's interior has returned to a safe operating temperature.




*Excessive Temperature warning*

# SECTION 6. SPECIFICATIONS

## 6.1 CURRENT SPECIFICATIONS CHART

The table below contains the latest product specifications for the FLIR SCOUT TK; however, with all of our products as they evolve and are further developed these specifications are subject to change without notice.

| SCOUT TK PRODUCT FEATURE | PARAMETERS |
|---|---|
| Start up | <10 seconds |
| Detector Type | 160 x 120 VOx Lepton® Microbolometer |
| Thermal Sensitivity, Waveband | 7.5-13.5µm |
| Field of View (H x V) | 20° x 16° |
| Image Processing | FLIR Proprietary Digital Detail Enhancement™ |
| Media Storage | 1000 images and 4 hours of video |
| **USER INTERFACE** | |
| Display | 640 x 480 pixel LCD |
| Refresh Rate | <9Hz |
| Color Palettes | User Selectable: WhiteHot/BlackHot/InstAlert™/ Graded Fire/Iron/Lava/Rain/Color Wheel |
| **POWER** | |
| Battery Type | Internal Li-Ion Cell |
| Battery Life (Operating @ 20°C) | >5 Hours |
| USB Port | Micro-USB |
| **ENVIRONMENTAL** | |
| Ingress Protection Rating | IP-67, Submersible |
| Operating Temperature | -20°C to 40°C (-4°F to 104°F) |
| Storage Temperature | -40°C to 60°C (-40°F to 140°F) |
| Drop | 1.2m (3.93 ft) |
| **PHYSICAL** | |
| Weight | 184g (6.5 oz) |
| Size | 14.9cm x 5.5cm x 5.5cm (5.9" x 2.2" x 2.2") |
| Country Of Origin | USA |

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