H-Series
Thermal Night Vision Camera
Operator's Manual

◆FLIR®

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

This documentation is subject to change without notice.

This equipment must be disposed of as electronic waste. Contact your nearest FLIR Commercial Vision Systems, Inc. representative for instructions on how to return the product to FLIR for proper disposal.

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70 Castilian Drive
Goleta, CA 93117
Phone: 888.747.FLIR (888.747.3547)
International: +1.805.964.9797
www.flir.com

Table of Contents

1 Introduction

The H-Series handheld thermal imaging camera lets law enforcement officers see clearly in total darkness, giving them the information they need while making quick decisions, enhancing mission effectiveness, maximizing operational capabilities, and improving officer safety.

The H-Series camera provides a 320 × 240 resolution Vanadium Oxide (VO_x) microbolometer giving excellent, high-fidelity thermal imagery with the detail necessary for cutting edge performance. You will see improved detection and recognition ranges in total darkness, as well as through smoke, dust, and light fog.

You can see better through camouflage and foliage in any lighting conditions. Because H-Series cameras see heat, not light, they are not fooled by suspects wearing dark clothes or hiding in bushes.

You can see more—and see farther—than with other night vision technologies because H-Series cameras see clearly without any light whatsoever. You can see farther at night than with technologies that need ambient light to work and you can see heat sources that these other cameras could never find.

With a variety of lens options, on-board image, and video capture capability all built in to the camera, H-Series cameras are the most potent imaging package available today.
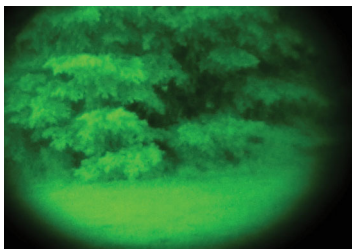
Image Intensified Camera
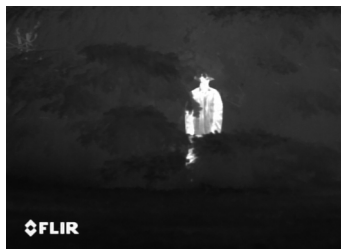
Image with H-Series Camera

1 – 1   H-Series Camera Features

- 320×240 micro bolometer sensor for excellent image quality and clarity

- Hot Shoe—Provides convenient power input and video output.

- Choose the 19 mm lens with 24° field of view or for longer-range surveillance a 65 mm lens with 7° field of view. An optional 2× extender lens can be added to the 19 mm camera to provide a 12° field of view.

- Shuttered Eyepiece—Keeps light from coming out of the viewfinder display, helping you stay covert.

- Two-sided Hand Strap—Accommodates both left-handed and right-handed users.

- Software upgrades using SD card in the field.

- SD Card Slot—Allows for storing captured still images and video on the removable SD card.[1]

- USB 2.0 Connection—Rapid transfer of still images and video files from the camera to a PC.[1]

- Four rechargeable AA NiMH batteries—Provides up to 5 hours of camera operation on a single charge.

- Rugged design—Built to withstand the demands of day-in, day-out law enforcement operations.

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1. Available only with the HS-324/HS-307 Pro (Command version).

1 – 2   Detection Range[1]

The illustration below shows the comparative range performance of the H-Series camera with different lens configurations. The data is based on detecting and recognizing a man 1.8 meters tall (and one-half meter wide).

19 mm Lens	**440 m Detection**
	110 m Recognition
19 mm Lens with 2× Extender	**720 m Detection**
	180 m Recognition
65 mm Lens	
	1.45 km Detection
	370 m Recognition

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

1 – 3   Cautions

Do not disassemble the camera enclosure. Disassembly can cause permanent damage and will void the warranty.
Keep the compartment covers closed to avoid exposing the cameras electronics to water or debris.

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

Use only the supplied power adapter to power or recharge the camera.

Be careful not to leave fingerprints on the camera's infrared optics.

Caution!

The camera window has an anti-reflective coating and should only be cleaned with low pressure fresh water and a lens cloth. Improper care of the camera window can cause damage to the anti-reflective coating, degrade the camera's performance, and void the camera warranty.

2 Getting Started

The H-Series cameras shown below are available with the features, options, and accessories described in this manual.

HS-324 with 19 mm Lens

Focus Ring

HS-307 with 65 mm Lens

2 – 1   Shipping Kits

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

- **HS-324/HS-307 (Patrol version) Camera**

In addition to the camera, Quick Start card, Operator's manual, and Documentation/Training CD or DVD; the following items are included in the camera package:

SD Card

Neck Lanyard

USB Cable

Hot Shoe

Rechargeable AA Batteries

AC Power Adaptor

Video Output Cable

• **HS-324/HS-307 Pro (Command version) Camera**

In addition to the camera, Quick Start card, Operator's manual, and Documentation/Training CD or DVD; the following items are included in the camera package:

Neck Lanyard

Carrying Pouch

USB Cable

Hot Shoe

SD Card

Rechargeable AA Batteries

AC Power Adaptor

Video Output Cable

2 – 2   Options and Accessories

2× Optical Extender for 19 mm lens:

Note

> The 2× Optical Extender is not waterproof and should not be used in wet environments.

The attachable 2× Optical Extender lens doubles the range of performance when needed, without sacrificing the situational awareness benefits of the wide field of view lens.

Lens Release Lever

2× Optical Extender
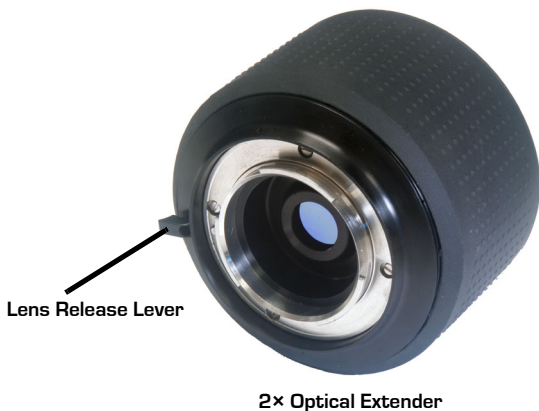
3 Operating Your H-Series Camera

3 – 1   Camera Features and Controls

Display Brightness

White hot/ Black hot

2× zoom

Capture

Power

Eyepiece

Lens cap 19 mm only

Adjustable diopter ±2

SD Card door

Hot Shoe power contacts

Hot Shoe/ Tripod mount

Battery door

3 – 2   Installing the SD Card and Batteries

The batteries must be installed and charged before using your camera. Also install the SD card at this time.

1. Remove the small SD card door. No tools are required. This will help when removing the battery cover.

2. Loosen the four captive screws securing the battery cover.

3. Pry off the battery cover by grasping the front edge exposed where the SD card cover was removed.

Battery cover

Grasp SD card door edges and pull

4. Install the batteries as shown.

5. Install the SD card.
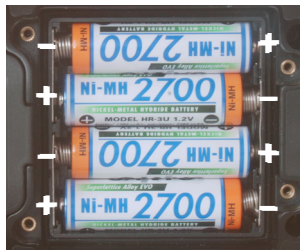
6. Snap the SD card door back into place, ensuring that the rubber lanyard retracts into the camera.

7. Re-install the battery cover—it only fits one way.

8. Tighten the four screws.

If you have installed rechargable batteries, they must be charged before using the camera. Regular AA batteries will provide about one and a half hours of camera use.

3 – 3   Charging the Camera

The batteries in the camera must be fully charged prior to use. If not fully charged or if the recommended batteries are not installed, the battery status indicator may not accurately reflect the remaining battery life.

1. Connect the Hot Shoe to your camera.

2. Rotate the attachment wheel in the clockwise direction until tight.

3. Plug the power adapter provided with the camera into its power source and also into the Hot Shoe.

4. Ensure that the plug is fully seated in the Hot Shoe.

   Plug from power adapter

   When charging correctly, the charging indicator will be lit yellow and will blink green for one second within about 35 seconds.

   Charging indicator

   The charging indicator will continue to blink at decreasing intervals until the batteries are fully charged.

   Solid green

   When fully charged, the charging indicator will be lit solid green. The initial charge time is approximately 4 hours.
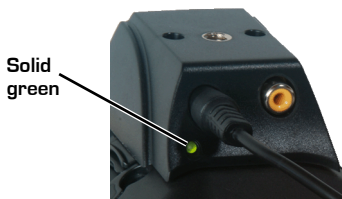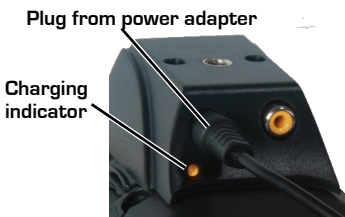
Note

The charging indicator will be lit solid green when the Hot Shoe is not connected to the camera or the recommended batteries are not installed. Ensure the batteries are charging by verifying the green blink described above.

3 – 4   H-Series Power Management

Your H-Series camera is equipped with a power management system that provides up to five hours of continuous operation and up to five days of standby time between battery charges. To make the best use of the camera and to assure it is always ready when you need it, it is important to understand the basic power states of the camera.

The H-Series camera is designed to operate much like your cell phone:

• It is rarely turned off unless you do not plan to use it for a few days or more.

• When near a power source or when not in use, you keep it on the charger.

• When the camera is turned on from the Off state, it takes about 90 seconds to become operational.

• In Standby, it is always ready to go. Press the Power button and the camera will come on in about two seconds.

• It will automatically put itself in Standby to conserve the battery.

A red state LED located next to the display indicates the current power state and can only be seen when the shuttered eyepiece is opened (for example, when the camera is held up to the eye) or when the eyepiece is removed as shown in the photograph below.

Display screen   **State LED**
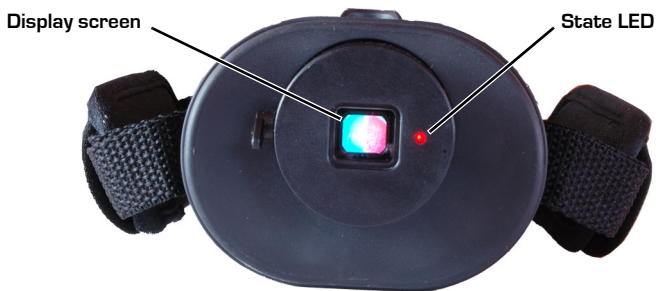
Power States

- There are three power states: Off, On, and Standby

- The initial power-on Bootup process between the Off state and the On state takes about 90 seconds (fast flashing red state LED). During the Bootup process, pressing the Power button again will turn the camera off. After the camera finishes its power-on Bootup process, it is in the On state (state LED is off). After the camera is On, pressing the Power button will toggle the camera between On and Standby (state LED is flashing slowly).

- When battery powered, if Auto-Standby is enabled (see "Auto-Standby Operation" on page 21), the camera goes to Standby after three minutes if no buttons are pushed. A warning is shown in the display.

- From the Standby state, the camera comes back on within about two seconds when the Power button is pushed.

- The Auto-Standby function is disabled if the camera is powered with auxiliary power.

During most use scenarios you will cycle between Standby and On. Only at the end of a shift or when not needed on multi-day field missions might you consider putting the camera into the OFF state.

Camera State	How do you know?
Off	The display and the state LED are off
On	Power-on Bootup—Color bars on the display and the state LED is flashing quickly
	There is a thermal image on the display and the state LED is off
Standby	The display is off and the state LED is flashing slowly

3 – 5   Buttons and Controls

Power Button

Changing between the Off, On, and Standby power states is controlled by the Power button. The table below describes how the camera moves between states.

From State	To State	Method
Off	On	Press the Power button for 1 second. (This will put the camera in power-on bootup for about 90 seconds before going to On.)
On	Standby	Momentarily press the Power button
Standby	On	Momentarily press the Power button
On	Off	Press and hold the Power button for 8 seconds
Standby	Off	Press and hold the Power button for 8 seconds

To shut off the camera completely press and hold the Power button for eight seconds.

After holding the Power button for three seconds this message will be shown in the display and the camera will enter the Off state if the countdown finishes.

Shutdown in 5 Seconds

Release the Power button at any time during this countdown to terminate Shutdown and resume normal operation.

ESD Recovery Sequence

In the unlikely event of a large Electrostatic Discharge (ESD) to the camera it is possible for the camera system to lose video or become frozen. If this occurs, the following recovery sequence should restore the video:

• Hold down the power button for fifteen seconds and then release.

• Wait for five to ten seconds.

• Press the power button again. The camera should begin its bootup sequence.

Capture Button – Pro (Command version) only

Use this button to capture snapshots (in JPEG format) or
video clips (in AVI format). The files are stored on the
integrated SD card. AVI files are viewable via the FLIR Viewer Utility
included on the H-Series resource CD.

• Momentarily pressing the button captures a single snapshot.

• Pressing and holding the capture button for three seconds puts
the camera in video record state. The video record icon should be
displayed. The button may now be released and the camera will
continue to record until the capture button is pressed again. The
video file is then written to the SD card in AVI format.

Twenty-five seconds of video requires about one megabyte (MB) of
storage on the SD card. The image and video files must be transferred
to a computer for viewing.

Note

> The images must be transferred to a computer via the USB cable,
> or the SD card can be temporarily removed from the camera and
> inserted in a card reader.

• If the camera is not a Pro model,
this message will be shown in the
display.

**Feature
Not Enabled**

• If an SD card is not installed, this
message will be shown in the
display and no image will be stored.

**SD Card
Not Installed**

• If the SD card is full, a warning will
be shown in the display and the
image will not be stored.

Note

> The stored image will include the thermal image, time and date
> information, and the FLIR logo. Other icons seen in the display are
> not stored on the saved image.

Still Frame Capture and Store—To capture and store a single still image of what is currently being shown in the display, momentarily press the Capture button. The thermal image will momentarily freeze and the following icons will appear in the display:

The SD Card Memory Gauge indicates how much memory is left on the SD card. The camera icon with the green lens indicates that a single frame was successfully stored to the SD card. Still images are stored in the JPEG file format at 320 × 240 pixel resolution. Still images are approximately 90Kb in size.

Video Capture and Store—To capture and store a video sequence of what is currently being shown in the display, press and hold the Capture button for three seconds. Video capture will begin immediately and continue until the Capture button is pressed again.

During the video store process, real-time video will be shown and these icons will appear in the display:

The lens on the camera icon will flash red/green during recording.

Zoom Button

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.

Zoom Indicator—When zoom has been selected the icon is continuously shown in the display:

White/Black Hot Button

Use this button to toggle between the two video options. In the default White Hot mode, hotter objects appear as white or light grey. In the Black Hot mode, hotter objects appear as black or dark grey. 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 modes, the appropriate icon is displayed for approximately 3 seconds.

White hot   Black hot

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 levels. One of the following icons is displayed for approximately 3 seconds after the button is pressed indicating the current brightness level:

Lowest   Highest

Diopter Controls

The diopter adjustment lever allows a ±2 diopter setting range. When the diopter adjustment lever is pointing straight toward the user, it is in the neutral position.
Adjust the diopter setting for the sharpest image in the viewfinder.

3 – 6   Batteries

Your H-Series camera is equipped with a sophisticated power system that accommodates a wide variety of AA battery types. This includes rechargeable and non-rechargeable batteries.

The camera is optimized for operation with the 2700 mAh rechargeable NiMh batteries that were supplied with your camera. It is recommended that you use these batteries in all but emergency situations.

Note

> Replacement batteries are available online from FLIR Commercial Systems, Inc.

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

no charge

charging

Note

> If non-rechargable batteries are installed the battery indication may not be accurate.

Using Non-Rechargeable Batteries – The H-Series camera allows Alkaline non-rechargeable batteries to be used. When non-rechargeable batteries are installed, connecting the Hot Shoe to a power source will power the camera from the power source and the battery charging circuitry will be disabled.

Note

> When using Alkaline batteries, operating battery life is reduced to approximately 1.5 hours.

Low Battery Auto-Shutdown – When the batteries are almost fully depleted the camera will automatically initiate a shutdown process.
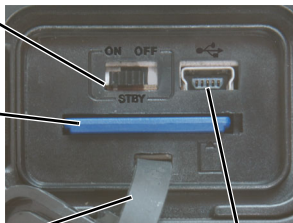
3 – 7   SD Card Door

The SD Card door is located on the bottom of the camera in front of the battery compartment. The SD card, the USB connector, and the Auto-Standby Enable switch are located under the door.

SD Card door

Auto-Standby Enable switch

SD Card

Lanyard   **USB**

Note

> The Hot Shoe must be removed to access the SD Card door.

To open the SD Card door, grasp the two edges with your thumb and finger and pull straight up.

Caution!

> Do not stretch or break the rubber lanyard that keeps the door captive to the camera when opened.

Grasp SD Card door edges and pull

To close the SD Card door, slide the lanyard strap back into the camera, position the door in place, and then firmly press in the middle of the door until it is fully seated.
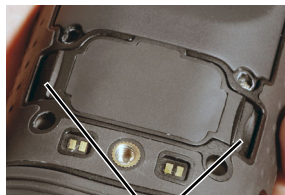
SD Card Capacity and Type

The HS-324/HS-307 Pro (Command version) model camera supports storing images and video on standard 1-Gb and 2-Gb SD cards or up to 32-Gb on SDHC cards.

If a card is inserted into an HS-324/HS-307 (Patrol version) model, it will be ignored unless the camera software detects a valid upgrade file. The HS-324/HS-307 (Patrol version) model must be upgraded to an HS-324/HS-307 Pro (Command version) model in order to store images and video on the SD card.

Installing an SD Card

To install an SD card, insert the card into the slot and press on the SD card until its edge is nearly flush with the surface and release.

To remove an SD card, use this same motion.

Downloading Stored Files via USB

The HS-324/HS-307 Pro (Command version) model camera also supports downloading stored images and video via the USB port.

With the camera on, plug the USB cable into the USB connector on the camera and a USB port on your computer.

Allow up to two minutes for the USB connection to be recognized by the computer's operating system.

3 – 8   Auto-Standby Operation

Auto-Standby is a feature of the H-Series camera that helps to guard against draining the batteries prematurely by inadvertently leaving the camera on. Auto-Standby puts the camera into the Standby state if the following three conditions are met:

- The camera is in the On state.

- The Auto-Standby switch (STBY) is set to ON.

- No buttons have been pressed for three minutes.

Once these conditions are met you will see the following message in the display and the camera will enter the Standby state after the countdown is finished:

**Auto-Standby in
30 Seconds**
Hit Any Button To Abort

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

Note

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

Auto-Standby Switch

Some use scenarios involving unattended operation of the camera may require disabling Auto-Standby.

Select OFF to turn off Auto-Standby.

Select ON to turn on Auto-Standby.

**Auto-
Standby
Disabled**

If Auto-Standby is off, a reminder message will appear in the display each time the camera enters the On state.

3 – 9   The Hot Shoe

Note

The Hot Shoe is not waterproof and should not be used in wet environments.

The Hot Shoe provides the connections to power the camera for continuous operation or charging the batteries; and for accessing the analog video output. The Hot Shoe attaches to the bottom of the camera and is secured via the tripod mount.

The following steps are recommended for quick and easy attachment of the Hot Shoe.

1. With the camera positioned bottom-side up, hold the Hot Shoe in position.
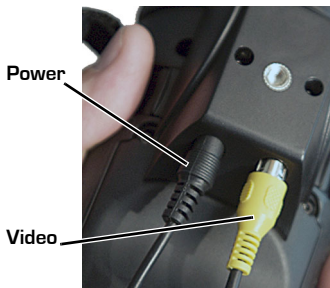
2. Rotate the attachment wheel in the clockwise direction until tight.

3. To remove the Hot Shoe, simply rotate the attachment wheel in the counter-clockwise direction until it is free.

3 – 10 Installing the Shuttered Eyepiece

The shuttered eyepiece keeps light from coming out of the viewfinder display. Pressing your eye up against the eyepiece opens the shutter. The shutter closes automatically.

The eyepiece fits into a groove around the display housing.

When pressing the eyepiece into position, ensure that the diopter lever is free to move.

If the eyepiece is pushed too far onto the display housing it will interfere with the diopter lever.

When removing the eyepiece, grasp and pull on the base of the eyepiece. Do not pull on the shuttered eye cup.

Groove for eyepiece

Shuttered eye cup
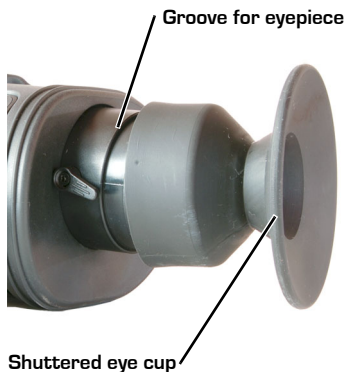
3 – 11 Bayonet Lens Mounting System

The HS-324 camera is equipped with a robust bayonet mounting system to allow for field-interchangeable optics options and future accessories.   As shipped, the HS-324 camera comes with a lens-cover assembly mounted on the bayonet mount.

Operation of the Lens-cover Assembly

The lens cover is a simple flip-to-open lens cover that provides protection for the camera lens when not in use. To open, simply flip the lens cover down to the fully open position (45° pointing toward the ground as shown in the photograph at the right).

To remove the lens-cover assembly, rotate the outer ring of the lens cover clockwise so that the index mark on the top of the lens cover aligns with the index mark on the front body of the camera (approximately 45°), and pull straight off.

3 – 12 2× Extender (19 mm only)

Note

> The 2× Optical Extender is not waterproof and should not be used in wet environments.

The 2× Optical Extender, compatible with both HS-324 and HS-324 Pro (Command version) camera models, provides the user the ability to see twice as far and/or enhance the resolution of objects in the field of view. The 2× Optical Extender is mounted on the bayonet mount in front of the existing lens on the camera.

To mount the 2× extender, first remove the lens cover assembly. Then, position the 2× extender so that the release lever on the 2× extender is in the 5 o'clock position on the bayonet mount. Firmly push the extender onto the bayonet mount, then rotate the lens counter-clockwise so that the release lever reaches the 3 o'clock position where it will hit a hard stop.

Lens Release Lever

Note

> The 2× extender is manually focused by rotating the inner rubber-coated ring.

To remove the 2× extender, press the release lever and rotate the extender clockwise until the release lever is roughly at the 5 o'clock position and pull straight off.

Caution!

> Be sure to replace the lens cover assembly when the 2× Extender is not in use to avoid moisture, dust, or other contaminants reaching the inner lens surface of the 2× Extender.

3 – 13 Hand Position

The H-Series camera is designed for use in a wide variety of applications and environments and by a wide range of users. Individual preference and lens configuration will determine the most comfortable hand position. Positions are interchangeable between left- and right-handed users.

The Base position is the most common hand position for an HS-324 camera used without a 2× extender. These configurations have less weight in the front of the unit and the center-of-gravity is roughly centered on the unit.

In the Base position, the index finger is comfortably positioned over the Power button as shown in Figure 3 – 1. Middle, ring, and little fingers naturally fall on the Camera, 2×, and WH/BH buttons respectively. The less-often used Display Brightness button is easily reached with the little finger when needed.

Figure 3 – 1. Base Hand Position

The Forward hand position is often used to compensate for the heavier optical systems found on the HS-307 or the HS-324 equipped with a 2× extender. In these cases shifting the hand position forward so that the index finger falls on the Capture button helps to compensate for a more forward center-of-gravity of the camera as shown in Figure 3 – 2.

Figure 3 – 2. Forward Hand Position

Of course, hand position is purely an individual user preference.

3 – 14 Installing Software Upgrades

Your H-Series camera may require software upgrades during it's lifetime. The upgrade process requires an SD card loaded with the upgrade file. After receiving the upgrade file from FLIR Commercial Systems, Inc., load it onto your SD card.

Caution!

During a software installation, the camera must remain powered on. Turning off the camera, or losing power for any reason, may damage the system files and require that the camera be returned to the factory for repair.

Use the following procedure to install the upgrade:

1. Ensure that the camera battery is fully charged. (The software installation will not start if the battery charge is less than 50%.)

2. With the camera off, install the SD card loaded with the upgrade file. Refer to "SD Card Door" on page 19.

3. Install the Hot Shoe and connect to a power source. Refer to "The Hot Shoe" on page 22.

4. Turn on the camera. During its Bootup process, the camera will check the SD card for a valid upgrade file.

5. Watch the display. When a valid file is found, a message will be shown for about ten seconds directing you to "Press and hold Capture button for 2 seconds to initiate update." If you ignore the message, the camera will resume normal operation and enter the On state.

6. While the message is displayed, press and hold the Capture button for two seconds.The software upgrade takes about four minutes. When finished you will see this prompt to restart the camera. **SW Upgraded: Please Shutdown & Restart now**

7. To check the current installed version of software, place the camera in standby, then turn on while looking in the upper right corner of the display for the software version number, as shown below.

SW VER 2.00.02

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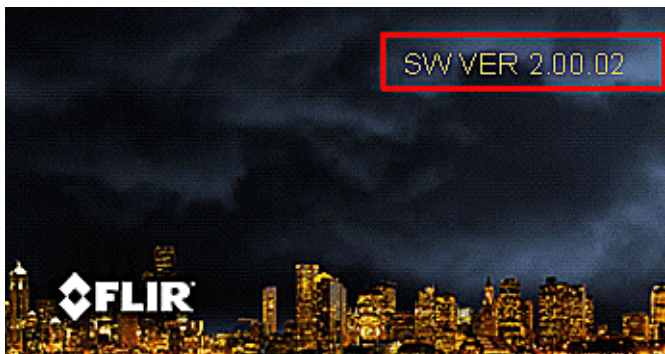
4 Technical Data

4–1   H-Series Camera Model Features

HS-324/HS-307 (Patrol version)	H-Series Handheld Thermal Camera (with choice of lens) and accessory kit.
HS-324/HS-307 Pro (Command version)	H-Series Handheld Thermal Camera (with choice of lens) and accessory kit. Additionally includes the image save function, video save function with real-time stamp, enabled USB2 port, and carrying pouch.
Accessory Kit	Hot Shoe Charging & Video Output Attachment, Four Rechargeable AA Batteries, AC Power Adapter/Charger, Neck Lanyard, USB Cable, and Video Output Cable.

Start up from stand-by	<1.5 seconds
Thermal Sensitivity, Waveband	<50 mK @ f/1.0, 7.5 - 13.5 μm
Detector Type	320 × 240 VOx Microbolometer
Image Processing	FLIR Proprietary Digital Detail Enhancement
Focus, Zoom	Fixed focus, 2× electronic zoom
Video Output	NTSC or PAL composite video; RCA jack

4–2   Power

Battery Types	4 AA Batteries; NiMH or Alkaline
Battery Life Operating (Stand-By)	>Approximately 5 Hours on NiMH batteries at 25°C, (120 hours on NiMH batteries)

4 – 3   Environmental

Ratings (not including the Hot Shoe or the 2× Optical Extender)	IP-67, Submersible, 1 meter drop
Operational Temp.	-4°F – 140°F (-20°C – 60°C)

4 – 4   Physical

HS-324	
Weight (incl. lens)	1.59 lb. (721 g) with batteries; add 0.7 lb. (315 g) for 2× extender
Size (L × W × H)	9.36" × 3.33" × 2.62" (238 × 84.5 × 66.5 mm)
HS-307	
Weight (incl. lens)	2.17 lb. (985 g) with batteries
Size (L × W × H)	10.96" × 3.33" × 2.62" (278.5 × 84.5 × 68.4 mm)

4 – 5   Lens Choice

HS-324	
FOV	24° × 18°
FOV (w/Optional 2× Extender)	12° × 9°
HS-307	
FOV	7° × 5°

4 – 6   Additional Features: Pro (Command version) Model

Still Image Storage, Format	SD, SDHC (up to 32-Gb) card, JPEG; 320 × 240 resolution
Video Storage, Format	SD, SDHC (up to 32-Gb) card, 320 × 240 AVI

4 – 7   Range Detection[1]

HS-324/with 2× Optical Extender	
Detect Man (1.8 m × 0.5 m)	1,445' (440 m)/2,362' (720 m)
Recognize Man	360' (110 m)/590' (180 m)
Detect Vehicle (2.3 m × 2.3 m)	4,070' (1240 m)/6,234' (1900 m)
Recognize Vehicle	1,050' (320 m)/1,640' (500 m)
HS-307	
Detect Man (1.8 m × 0.5 m)	4,757' (1.45 km)
Recognize Man	1,214' (370 m)
Detect Vehicle (2.3 m × 2.3 m)	12,795' (3.9 km)
Recognize Vehicle	3,280' (1.0 km)

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

Santa Barbara

FLIR Commercial Systems, Inc.
World Headquarters
FLIR Systems, Inc.
70 Castilian Dr.
Goleta, CA 93117
USA
PH: +1.888.747.FLIR
    (+1.888.747.3547)

Europe

CVS Eurasian Headquarters
FLIR Commercial Systems B.V.
Charles Petitweg 21
4847 NW Teteringen - Breda
The Netherlands
PH: + 31 (0) 765 79 41 94
FX: + 31 (0) 765 79 41 99
flir@flir.com

Portland

FLIR Corporate Headquarters
FLIR Systems, Inc.
27700A SW Parkway Ave.
Wilsonville, OR 97070
USA

◆FLIR®