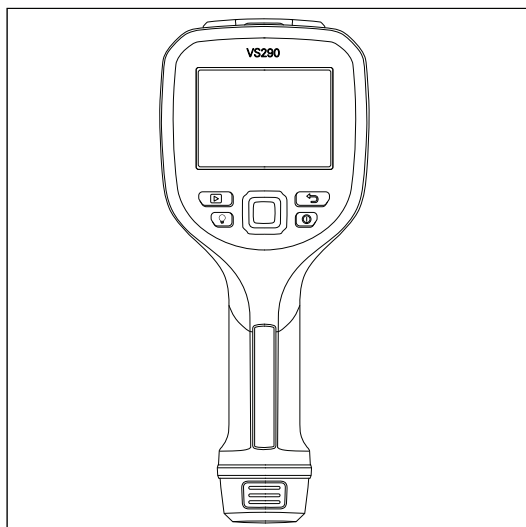




# Quick Start

## Thermal Videoscope Kits

Kit nos. VS290-21, VS290-32, VS290-33



# Quick Start (en)

## QUICK STEPS

The Thermal Videoscope kit includes the VS290–00 base unit, camera probe, and accessories (listed in Specifications section). Before use, please read the entire Quick Start and online User Manual, available at this address:

<https://support.flir.com>

1. Insert a fully charged battery into the VS290–00 handle.
2. Long press the power button to power up. If the battery voltage is low, an alert will appear.
3. When powered, the VS290–00 displays a camera image and function indicators.
4. Carefully position the probe into the area to be examined and view the camera image.
5. Short press the worklight button to switch the light on/off.
6. To select an image mode, press the Menu button (centre), scroll to the Image Mode icon using the navigation buttons (outer ring of Menu button) and press Menu again. Use the navigation buttons to select Thermal MSX, Thermal, or Digital camera; press Menu to confirm. The VSC-IR21 probe does not include MSX, digital camera, or worklight.
7. Use the cross-hairs to target and measure the surface temperature of a spot. The measurement is shown digitally (upper left). The thermal scale for the current image is shown on the right edge of the display.
8. To capture an image or to stop/start a video, pull and hold the trigger. Press the Gallery button to view stored images and videos. Images/videos can be transferred to a PC via USB.

## 2–10 EXTENDED WARRANTY

To activate the extended 2–10 warranty, please register your product within 60 days of purchase. Otherwise, the standard one-year warranty will be in effect from date of purchase. The 2–10 warranty covers parts and labour for the camera for 2 years and coverage of the detector for 10 years. Register your product at this address:

<https://support.flir.com/prodreg>

## SAFETY INFORMATION

### Safety Notes

- Before operating the device, you must read, understand, and follow all instructions, dangers, warnings, cautions, and notes.
- FLIR Systems reserves the right to discontinue models, parts or accessories, and other items, or to change specifications at any time without prior notice.



#### WARNING

VS290-32 and VS290-33 are suitable for use in CAT IV 600 V environments.

VS290-21 is not intended for use in high voltage (> 600 V AC) environments.



#### WARNING

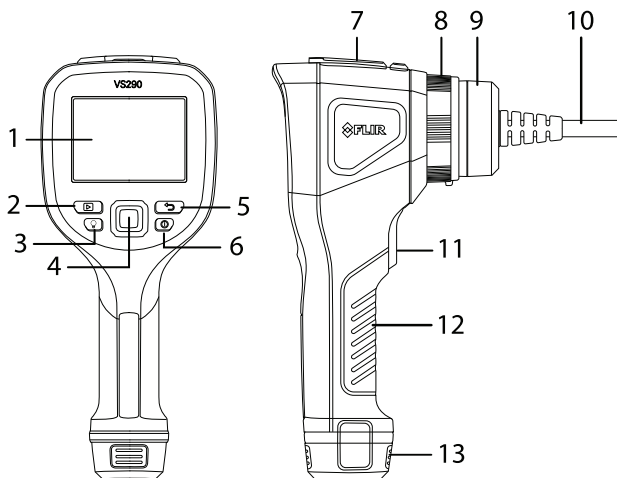
- Do not operate the device if you do not have the correct knowledge. Incorrect operation of the device can cause damage and injury to persons.
- Do not replace the batteries with the device powered up. This can cause damage to the instrument and can cause injury to persons.
- Do not use the device if it show signs of damage. Injury to persons can occur.
- Be careful working near voltages > 25 VAC or 35 VDC. There is a risk of shock from these voltages. Injury to persons can occur.
- Do not touch expired/damaged batteries without gloves. Injury to persons can occur.
- Do not cause a short circuit of the battery. This can cause damage to the instrument and can cause injury to persons.
- Do not put batteries into a fire. Injury to persons can occur.

## CHARGING THE BATTERY

This kit is supplied with two high capacity batteries and a stand-alone two-bay charger. To charge batteries, place them in the charger and plug it into an AC receptacle.

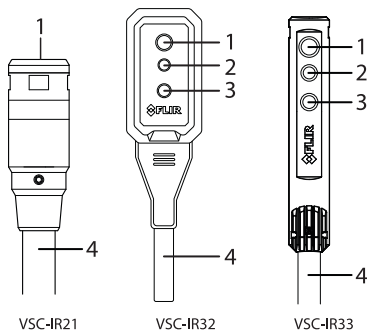
## PRODUCT DESCRIPTIONS

### VS290-00 Description



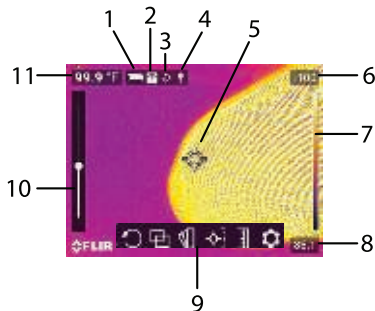
1. Camera display
2. Image and video Gallery button
3. LED worklight button
4. Menu button (center) and navigation buttons (outer ring)
5. Return button (exit a menu)
6. Power button (long press)
7. USB jack and memory card compartment
8. Collar screw locks probe to VS290-00
9. Probe connector
10. Probe
11. Image and video capture trigger
12. Handle grip
13. Battery compartment

## Camera Probe Descriptions



1. Thermal camera lens
2. Digital camera lens
3. LED worklight
4. Probe

## Display Description



1. Battery status
2. Wi-Fi (reserved for future use)
3. USB active
4. Worklight active
5. Cross-hairs. Target a surface spot (see Measurement Mode menu)
6. Highest temperature sensed in the current camera image

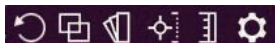
7. Range of the selected display color palette. Alarm alerts are also represented here
8. Lowest temperature sensed in the current camera image
9. Main menu icons
10. Thermal MSX alignment tool (VSC-IR32 and VSC-IR33). Refer to the Alignment Distance menu
11. Temperature of targeted spot. In Hot/Cold Spot modes, this area will show the MAX or MIN temperature

## PROGRAMMING MENU

### *Basic Navigation*

Press the Menu button to open the main menu and the sub-menus. Use the navigation buttons to scroll left/right and up/down. Use the Menu button to confirm a selection; press the Return button to exit a menu.

### *Main Menu*




1 2 3 4 5 6

The main menu options are: 1. Image Rotation, 2. Image Mode, 3. Color, 4. Measurement, 5. Temperature Scale, and 6. Settings.

### *Image Rotation Menu*

○ Press Menu on the Image Rotation icon and use the navigation buttons to select 90° rotation or horizontal/vertical flip of the camera image. Press Menu to confirm.

### *Image Mode Menu*

 Press Menu on the Image Mode icon and use the navigation buttons to select: Digital, Thermal, Thermal MSX, or Alignment Distance. Thermal MSX (Multi-Spectral Dynamic Imaging) is an enhancement that improves image clarity by embossing visual scene details on the thermal image. The MSX Alignment Distance option allows you to fine tune the embossed visual scene details. The VSC-IR21 does not include MSX or digital camera.

### **Color Palette Menu**



To select a display color palette, press Menu on the Color icon and use the navigation arrows to scroll. Press Menu when the desired color palette is selected (Iron, Rainbow, Gray, Above Alarm, or Below Alarm). In the Above/Below Alarm modes, select a high/low alarm set point. An alert is displayed if an alarm is triggered.

### **Measurements Menu**



Navigate to the Measurement icon and press Menu. Select from the three options, detailed below, and then press Menu to confirm.

- **Centre Spot.** Target a surface spot with the cross-hairs to measure its temperature. The measurement appears in the upper left corner of the display (digitally).
- **Hot/Cold Spot.** Position the camera so that the rectangle display target is covering an area of interest. The cross-hairs will move to the hottest (MAX) or coldest (MIN) spot automatically (inside the rectangle target). The MAX or MIN temperature is shown, digitally, in the upper left corner.
- **No Measurements.** No radiometric temperature measurements or cross-hair icons are displayed.

### **Temperature Scale Menu**



Navigate to the Temperature Scale icon and press Menu. Use the navigation buttons to select Auto (where the camera uses the entire thermal range), or Lock (where you can freeze the range to a narrow thermal region).

### **Settings Menu Overview**



The settings menu has four sub-menus: Recording mode, Measurement parameters, Save options, and Device settings. See below.

## SETTINGS MENU

### ***Recording Mode Sub-Menu***

Press Menu on the Settings icon and press Menu again at the Recording Mode sub-menu. Select Video or Single-shot using the navigation buttons and press Menu to confirm. Pull and hold the trigger to start/stop a video recording or to capture a single image.

### ***Measurement Parameters Sub-Menu***

Press Menu on the Settings icon and press Menu again at the Measurement Parameters sub-menu. Perform one or more of the steps below:

- Scroll to the Emissivity option and press Menu. Select a preset or choose a custom emissivity setting.
- Scroll to the Reflected Temperature option, press Menu, and set a reflected temperature value.
- Scroll to the Atmospheric Temperature option, press Menu, and set an atmospheric temperature value.

### ***Save Options Sub-Menu***

Press Menu on the Settings icon and press Menu again at the Save Options sub-menu. When set to ON, the camera stores two images (thermal and digital) for each Thermal MSX image captured. Use the navigation buttons to set on/off and press Menu to confirm.

### ***Device Settings Sub-Menu***

Press Menu on the Settings icon and press Menu again at the Device Settings sub-menu to begin programming or viewing the following items. Before contacting customer support, please note the serial number for the probe and the VS290-00 in this sub-menu.

- Set the Language, Time/Date, and Units of measure.
- Set individual Auto Power Off (APO) timers for the camera and the worklight.
- Configure or disable Wi-Fi (reserved for future use).
- Adjust the screen and worklight brightness.
- View system information including serial number and firmware version.
- Revert to factory default conditions and format memory card.
- View regulatory data.



## **WORKING WITH IMAGES AND VIDEO**

### ***Capturing Images and Video***

To select video or single-shot mode see the Recording Mode sub-menu section.

Pull and hold the trigger to capture an image or to start recording video. For images, release the trigger when the filename appears. For video, release the trigger when the video timer starts. Pull and hold trigger to stop the video recording.

Images and videos are stored on the memory card (supplied) inserted in the VS290-00 top compartment. Do not insert or remove the memory card while the VS290-00 is powered.

### ***Viewing Images and Video***

Press the Gallery button to open the image/video gallery. Scroll to an image/video and press Menu to open it. Press Menu again at an opened image/video to access these options: Play (video only), full screen mode, image/video information, and image/video delete.

### ***Transferring Images and Video***

Transfer to a PC by first connecting the VS290-00 to a PC using the supplied USB cable (the USB jack is located in the VS290-00 top compartment), and then use the VS290-00 as you would a typical external storage drive.

## SPECIFICATIONS

For additional specifications see the on-line user manual.

<b>IMAGING AND OPTICAL SPECIFICATIONS</b>	
IR Resolution	160 x 120 pixels
Field of View (FOV)	57° x 44°
Minimum focus distance	5.9 in. (0.15 m); 25.6 in. (0.65 m) in MSX mode
Image frequency	8.7 Hz
<b>IMAGE PRESENTATION</b>	
Display resolution	320 x 240 pixels
Screen size	3.5 in. (8.9 cm)
Color palettes	Iron, Rainbow, Gray, Below/Above Alarm
Image modes	IR, Visual, and MSX (VSC-IR21 is IR-only)
<b>MEASUREMENT AND ANALYSIS</b>	
Object temperature range	14 °F to 752 °F (-10 °C to 400 °C)
Measurement accuracy	At ambient temperature. 59 to 95 °F (15 to 35 °C) and object temp. above 32 °F (0 °C) 32 to 212 °F (0 to 100 °C): ±5.5 °F (±3 °C) 212 to 752 °F (100 to 400 °C): ±3%
Spotmeter	Centre spot, hot spot, cold spot
Emissivity correction	3 presets and 1 custom setting
<b>IMAGE STORAGE AND VISUAL (DIGITAL) CAMERA</b>	
Storage capacity	Removable SD Card (16 GB)
Image/Video file formats	Image: Radiometric .jpg; Video: .mpeg-4
Digital camera resolution	2 MP (VSC-IR21 does not include digital camera)
Field of View (FOV)	83°

**DATA COMMUNICATION**

USB	USB Type-C
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**BATTERY**

Battery type	Lithium ion
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Battery operating time	> 5 hours (full display brightness and work-light ON)
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**INCLUDED EQUIPMENT AND ACCESSORIES**

Videoscope display, camera probe, rechargeable batteries (2), battery charger, SD card, USB cable, wrist strap, hard case, printed documentation, and complimentary one-year subscription for *FLIR Thermal Studio Standard* application.

**CUSTOMER SUPPORT**

Customer Support Telephone List	<a href="https://support.flir.com/contact">https://support.flir.com/contact</a>
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Repair, Calibration, and Technical Support	<a href="https://support.flir.com">https://support.flir.com</a>
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# Quick Start

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**Website**

<http://www.flir.com>

**Customer support**

<http://support.flir.com>

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Publ. No.: NAS100055  
Release: AE  
Commit: 79702  
Head: 79705  
Language: en-US  
Modified: 2021-09-24  
Formatted: 2021-09-24