
User's manual FLIR EST Thermal Screening

FLIR Screen EST and FLIR Exx/T5xx-EST or FLIR Exx/T5xx/T8xx

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1.1 Note about this manual

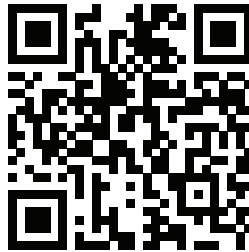
This manual describes how to set up, configure, and operate a FLIR EST Thermal Screening station based on the FLIR Screen EST application and a FLIR Exx-EST, FLIR T5xx-EST, FLIR Exx, FLIR T5xx, or FLIR T8xx series camera.

For complete information about the FLIR Screen EST application and the FLIR cameras, refer to the respective manuals.

1.2 Online documentation

The FLIR EST Thermal Screening documentation is continuously updated and published online.

To access the latest user manuals, product information, and other FLIR EST Thermal Screening resources, go to: <http://support.flir.com/resources/est>.



1.3 Customer help

Do not hesitate to contact our Customer Support Center if you experience problems or have any questions.

FLIR EST Thermal Screening Solutions

FLIR Systems provides different screening solutions for detection of elevated skin temperatures using thermal cameras.

No thermal camera can detect or diagnose a virus or infection, but with a FLIR EST Thermal Screening Solution it is possible to identify individuals with skin temperatures that are above a specified threshold. An elevated temperature may be one indicator that the person being screened may have a fever.

The FLIR EST Thermal Screening system measures the temperature of the skin around the ear duct. An alarm will trigger when the measured temperature is higher than the sum of a reference temperature and a specified allowed deviation.

To improve the accuracy of the screening results, it is important to set up the screening station correctly.

Since the FLIR EST Thermal Screening systems measure the surface temperature of the ear duct, the measured temperatures are lower than the ones you may be used to in a fever context. Note that the FLIR EST Thermal Screening systems cannot measure core body temperature or diagnose a fever.

It is up to you to set up a suitable core body temperature measuring process, and a process for those individuals where the system has indicated an elevated skin temperature in accordance with applicable local data protection, employment, and health & safety laws.

Screening station — General description

3.1 Overview

The screening station typically consists of a FLIR thermal camera, a FLIR EST Thermal Screening application (e.g. desktop software or camera mode), a clearly defined screening position, and a backdrop.

For improved measurement accuracy, it is important that the screened person is at the correct distance from the camera. The screening position indicates where the person shall stand for the screening.

A backdrop shall be placed behind the screening position. The backdrop is needed to prevent any disturbing reflections, people, and light in the background from reaching the camera.

The thermal camera measures the temperature at the ear duct of the screened person. The FLIR EST Thermal Screening application analyzes the measured temperature and displays a screening result.

3.2 Typical setup

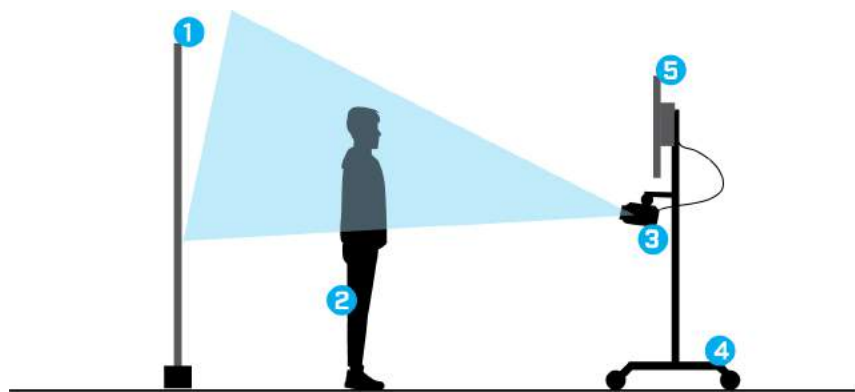


Figure 3.1 Typical screening station setup

1. Backdrop
2. Screening position
3. Thermal camera
4. Stand
5. Display

3.2.1 Mounting and placement

- The camera shall be placed under the display.
- The screening position shall be perpendicular to the camera. The distance between the camera and the screening position shall be 1–2 m (3–6 ft.).
- The camera shall be angled upwards, so that it aims at the head of a person standing at the screening position.
- A backdrop shall be placed behind the screening position, providing a uniform and non-reflective background.

3.3 Environmental considerations

For more accurate screening results, the following factors related to the environment around the screening area should be considered:

- When the outdoors temperature differs from the temperature at the screening station, it is essential that persons entering the building wait at least 1 minute before doing the

screening. For instance, people riding a bike will be significantly colder in the eye even at relatively warm weather. But the eye will quickly (1-3 minutes) adapt to the core temperature once indoors.

- The screening area should have a non-reflective background and minimal reflected infrared radiation from the surroundings. This can be achieved by placing a backdrop behind the screened person.
- Make sure there are no glass windows or doors in front of the camera. The windows can cause reflections and incorrect temperature measurements.
- Make sure there are no heat sources near the screened person, including hot lamps, sun light, electrical equipment, etc. This can increase the skin temperature.
- Make sure no beams from intensive energy sources go into the thermal camera. This includes devices that emit laser radiation, or the sun. The beams can have an unwanted effect on the accuracy of the camera. They can also cause damage to the camera.
- The measurements can be influenced if the screened person is sweating. For that reason, the relative humidity in the screening area should be maintained below 50 % and the temperature below 24°C (75°F).
- Prevent drafts from sources such as air conditioning from blowing directly onto the screened person. The air flow can cause cooling or heating of the face.

3.4 Privacy and processes

FLIR EST Thermal Screening Solutions offer a wide variety of (default) settings and options to allow you to use FLIR cameras in accordance with your needs and in compliance with any applicable laws and guidelines.

In addition to setting up the screening station equipment, you must also consider personal integrity and processes for elevated temperature alarms.

- **Personal integrity**
You must make decisions on how to handle personal integrity, e.g. show/hide visitor display for others than the screened person, have/not have an alarm sound.

By default only the following are shown on the display: live (thermal) video and screening result (but not the exact temperature: if exceeding a selected temperature difference, to determine reference temperature, and for actual screening results, indicated as “elevated/no elevated temperature detected”).
- **Process for alarms**
You must establish a process for those individuals where the system has indicated an elevated temperature, e.g. let the person sit down for 10 minutes and then do the screening again, further evaluation by medically trained personnel in accordance with applicable local data protection, employment, and health & safety laws.

3.5 Equipment and material

The following equipment is needed at the screening station:

- FLIR thermal camera with EST software and EST accessories.
- FLIR EST Thermal Screening application (e.g. desktop software, camera mode).
- Visitor display.
- Mounting equipment for display and camera; e.g. stand, wall mount, tripod, bar table.
- Backdrop, providing a uniform and non-reflective background.
- Marker to indicate the screening position; e.g. floor sticker, tape.

3.5.1 Examples — equipment and material



Figure 3.2 Stand with rail for flexible mounting of display and camera

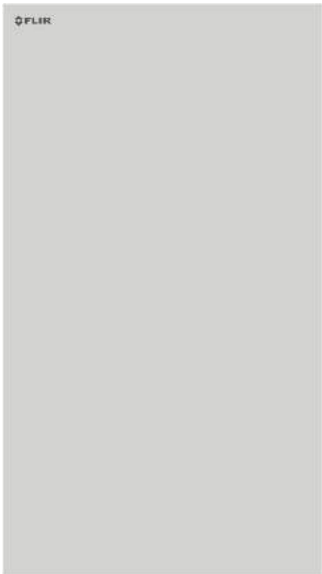
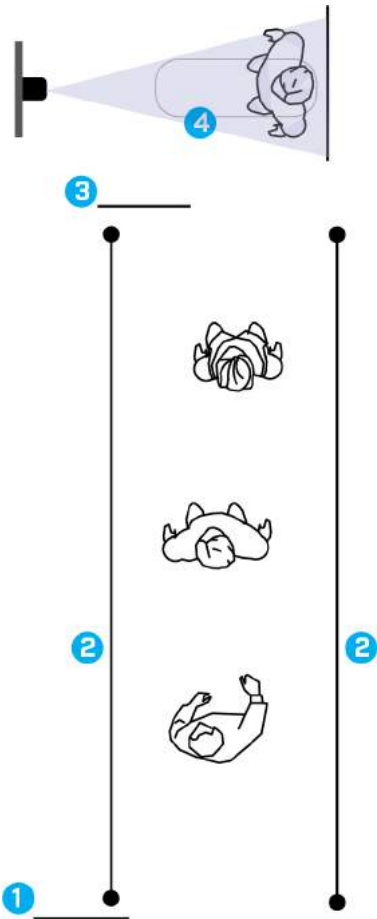


Figure 3.3 Backdrop

3.6 Supporting material



1. Screening information (roll-up)
This roll-up informs people what the screening is about and why they need to do it.
2. Queue management
Solution to guide the persons to the screening station, e.g. barriers and tape on the floor to indicate distance keeping.
3. Screening instructions (roll-up)
This roll-up tells people to remove any objects covering their face before they are screened.
4. Floor sticker
The floor sticker indicates the screening position; that is, where the persons should stand for the screening.

3.6.1 Examples — supporting material



Figure 3.4 Roll-up, screening information

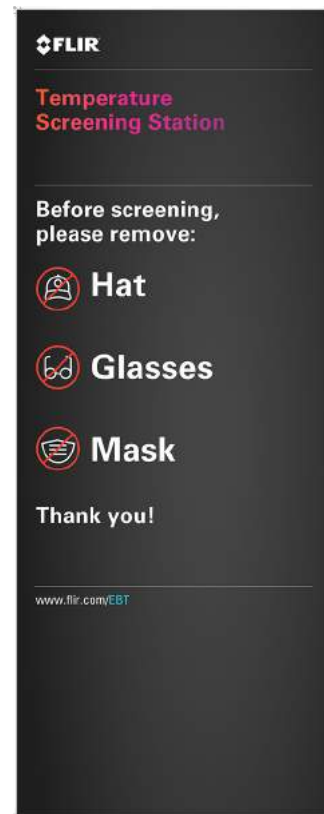


Figure 3.5 Roll-up, screening instructions



Figure 3.6 Floor sticker

For available supporting material from FLIR Systems, go to <https://www.flir.com/>.

Screening with the FLIR Screen EST application

FLIR Screen EST is an application for detection of elevated skin temperatures using thermal cameras.

Using face-detection capabilities, the system determines an average skin temperature of people entering the camera field-of-view and automatically alarms on readings that exceed a selected temperature difference.

4.1 Screening procedure

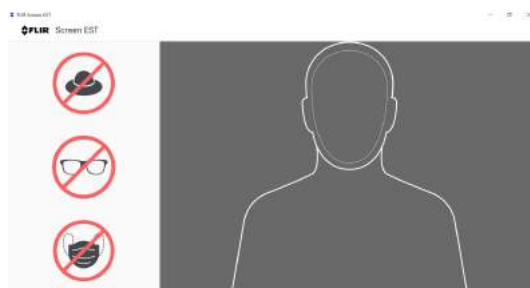
The screening of a person is performed in a few steps.

The person stands in front of the screening station, looking at the display. When the system detects a face, live video is shown on the display. The display graphics guide the person into the correct position for the screening. When the system has measured the temperature, the screening result is shown on the display.

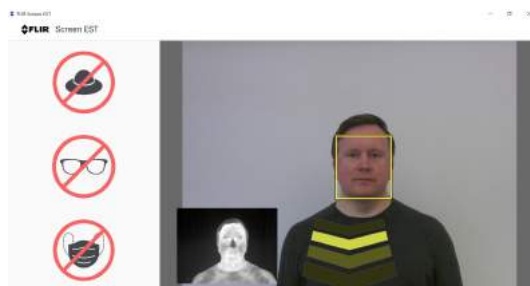
Note New versions of the FLIR Screen EST application are continuously released. The user interface may differ depending on the software version.

Screening procedure:

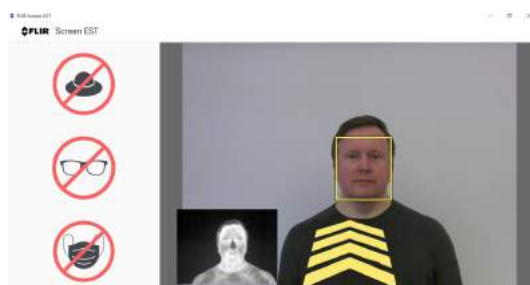
1. The system is in idle mode. Go forward and stand in front of the display. Make sure your eyes are not covered by eyeglasses, hair, or other items.



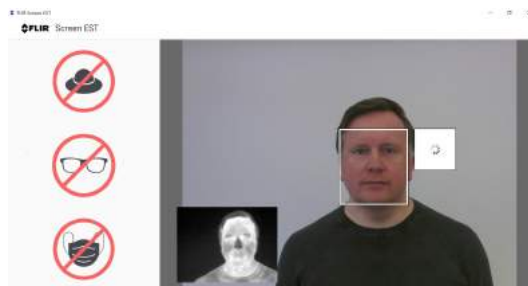
2. You are too far from the camera. Move closer.



3. You are too close to the camera. Move further back.

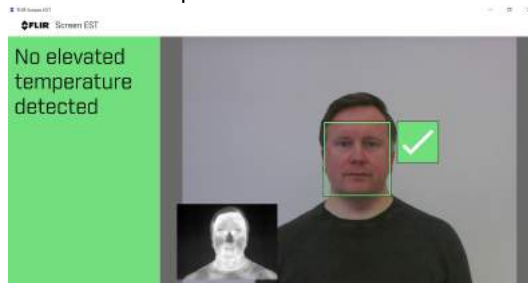


4. You are in a good position. The system is measuring and evaluating your temperature.

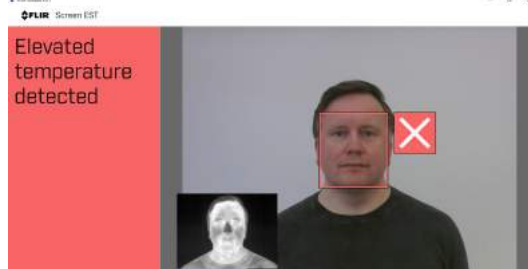


5. The screening is completed and your result is displayed.

No elevated temperature detected.



Elevated temperature detected. Follow the instructions from the staff.



This chapter describes the FLIR products, equipment, and material needed to set up a screening station with the FLIR Screen EST application and a FLIR Exx/T5xx-EST or a FLIR Exx/T5xx/T8xx camera.

5.1 FLIR products

5.1.1 FLIR Exx/T5xx-EST

When using a FLIR Exx/T5xx-EST camera, the following FLIR products are needed:

- FLIR Exx-EST or FLIR T5xx-EST series camera
- FLIR Screen EST license card

The following accessories, included in the camera package, are also needed:

- USB 2.0 A to USB Type-C cable with Power supply

5.1.2 FLIR Exx/T5xx/T8xx

When using a FLIR Exx/T5xx/T8xx camera, the following FLIR products are needed:

- FLIR Exx, FLIR T5xx, or FLIR T8xx series camera
- EST Camera kit (FLIR Exx/T5xx/T8xx), part number T300344, including the following:
 - Dual streaming option that enables simultaneous streaming of thermal and visual video.
 - A USB cable for connection of the camera (USB Type-C) to a computer (USB 2.0 Type A). Since the cable also includes a power adapter, the camera will get enough power for continuous operation.
- FLIR Screen EST license card

5.1.2.1 Camera software

To ensure correct operation, it is important that the FLIR Exx/T5xx/T8xx camera has the latest software and the Dual Streaming option installed.

The Dual Streaming option is included in the EST Camera kit, but you have to get an update package and install it on the camera.

5.1.2.1.1 Get the update package

To get the update package with the latest software and the Dual Streaming option, go to <https://flir.custhelp.com/app/ask> and submit a request. To access the request form, you must log in to your FLIR account or sign up for a new account.

Make sure you provide the following information to your request:

- Invoice number for the purchase of the EST Camera kit (FLIR Exx/T5xx/T8xx).
- Camera serial number.
- Current version of the camera software.

To find the serial number and software version, start the camera and select *Settings > Device settings > Camera information*.

5.1.2.1.2 Update the camera software

The update package will be delivered with instructions for how to update the camera software.

If you are not confident that you can complete the update successfully, the update can be performed by a FLIR service representative.

5.2 Computer and display

The following computer and display equipment is needed:

- Computer.
- Visitor display.
- Optional: Operator display.
- Display cable.
- Power cables.

5.2.1 System requirements

For the FLIR Screen EST application, the computer and display must fulfil the following system requirements:

| | |
|-------------------------|---|
| Operating system | Microsoft Windows 10 (32-bit and 64-bit) |
| Hardware requirements | RAM: Minimum 2 GB Disk space: Minimum 500 MB |
| Additional requirements | Screen resolution: Minimum 1024 x 768 |

5.3 Equipment and supporting material

The following equipment and supporting material are needed:

- Mounting equipment for display and camera; e.g. stand, wall mount, tripod, bar table.
- Backdrop, providing a uniform and non-reflective background. The backdrop is needed to cut out disturbing background reflections, people, and light.
- Marker to indicate the screening position; e.g. floor sticker, tape.
- Queue management; e.g. barriers.

Note For available equipment and material from FLIR Systems, go to <https://www.flir.com/>.

5.4 Materials and tools

The following materials and tools can be useful:



- Measuring tape or yardstick.
- Screwdriver.
- Masking tape.
- Cable ties.

6.1 New camera

If you have a new camera, do the following:

1. Charge the battery for 2 hours (FLIR Exx-EST and FLIR Exx) / 3 hours (FLIR T5xx-EST and FLIR T5xx/T8xx) using the stand-alone battery charger.
2. Push the battery into the battery compartment.

6.2 Turn the camera on/off

- To turn on the camera, push the on/off button .
- To turn off the camera, push and hold the on/off button  for more than 0.5 second.

6.3 Menu system

The menu system gives access to the *Settings* menu and more.

To display the menu system, push the navigation pad or tap the menu system button







To navigate the menu system, you can use the navigation pad or tap the camera screen.

6.4 Adjusting the camera focus

You can adjust the camera focus by rotating the focus ring or by pushing the autofocus button.

Adjusting the camera focus correctly is important for accurate temperature measurements. This is described in more detail later in the manual.

Note The camera can also be set up to perform continuous autofocus. When using the camera for screening, the focus shall be adjusted manually and continuous focus shall be disabled. For more information, see section 7.4 *Prepare the camera*.

| | FLIR Exx-EST FLIR Exx | FLIR T5xx-EST FLIR T5xx/T8xx |
|---------------------|--|---|
| Manual focus |  |  |
| Autofocus |  |  |

This chapter provides step-by-step instructions for how to set up a screening station with the FLIR Screen EST application and a FLIR Exx/T5xx-EST or FLIR Exx/T5xx/T8xx camera.

Before starting the setup, please read the entire chapter. Make sure you have all the needed FLIR products, equipment, and material, see section 5 *Screening station equipment*.

7.1 Main steps

The setup procedure includes the following main steps:

1. Prepare the screening station.
2. Prepare the computer.
3. Prepare the camera.
4. Place the camera, display, computer, and backdrop.
5. Configure FLIR Screen EST.
6. Ensure correct setup.
7. Place the supporting material.

7.2 Prepare the screening station

7.2.1 Choose the site

- The screening station needs a floor area of approx. 1.5 x 3.3 m (5 x 11 ft.) plus the queue area.
- For important factors related to the area around the screening station, see section 3.3 *Environmental considerations*.
- Decide where the visitor display and the camera shall be placed and how they shall be mounted.
- Consider personal integrity matters; e.g. if the visitor display should be hidden from others than the screened person.
- Decide where the computer shall be placed, preferably so that the operator can view the screening station and also be of guidance to the screened persons.

7.2.2 Secure power supply

Power outlets are needed for the following equipment:

- Camera power supply.
- Computer.
- Visitor display.
- Optional: Operator display.

7.2.3 Solve the queue management

- Plan how the persons will flow into the screening station and out, both in low and high flow periods, and enable queueing.
- Plan for any alternative routes:
 - after an alarm
 - for any questions
 - for persons in a wheelchair or with other special requirements

7.3 Prepare the computer

Note Make sure the computer fulfills the system requirements, see section 5.2.1 *System requirements*.

7.3.1 Install the FLIR Screen EST application

To install the FLIR Screen EST application on the computer, follow this procedure:

1. Download the FLIR Screen EST installer package from <https://support.flir.com/screenest>.
2. To start the installation, double-click the executable installer file.
3. Read and accept the license terms and conditions.
4. Click *Install*.
5. Click *Finish*.
6. Run the application from the Start menu or by double-clicking the desktop icon.
7. The *FLIR Screen EST* dialog box appears where you can activate your license key.

Note To complete the installation, the computer may need to be restarted. Follow the instructions on the screen.

7.3.2 Power and sleep settings

Change the computer's settings so it never automatically enters sleep mode or turns off the display.

7.4 Prepare the camera

Note Prepare the camera before you mount it. It can be difficult to do the necessary settings when the camera is mounted.




7.4.1 New camera

If you have a new camera, follow the instructions in section 6.1 *New camera*.

7.4.2 Configure the camera

For safety reasons and for accurate screening results, some important settings are needed in the camera.

Note Laser and autofocus are not supported by all camera models.

1. The laser must be disabled. The laser beam can cause eye irritation.
 Disable the laser by selecting  (*Settings*) > *Device settings* > *Lamp & laser* > *Disable all*.
2. The camera temperature range shall be set to the temperature range that includes human skin temperatures; 30 to 45°C (86 to 113°F).
 - For the standard cameras, you must set the camera temperature range manually:
 Select  (*Settings*) > *Camera temperature range*.
 - For the EST cameras, no manual setting is needed. The cameras are limited to 15 to 45°C (59 to 113°F) temperature range. The camera will provide contrast from -20 to 120°C (-4 to 248°F), but no temperature information will be provided.
3. Continuous autofocus shall be disabled. The focus shall be adjusted manually before starting the screening and must not be changed.
 Disable continuous autofocus by selecting  (*Settings*) > *Device settings* > *Focus* > *Continuous autofocus* > *Off*.

7.5 Quick guide to FLIR Screen EST

7.5.1 Start application

You start the FLIR Screen EST application from the Start menu or by double-clicking the desktop icon.

7.5.2 User interface

The FLIR Screen EST application consists of two windows:

- The operator window is used by the operator for setup, control, and monitoring.
- The screening window is what the screened person sees.

The operator window has three pages:

- The *Live* page is where you connect to the camera and control the screening.
- On the *Library* page you can navigate to any saved images.
- The *Settings* page is used to change the settings.

7.5.3 Working principle

The system calculates a moving average temperature value based on a specified number of samples. Only temperatures between specified minimum and maximum temperatures are included in the average calculation. Persons with an elevated temperature do not contribute to the average calculation.

The system detects and measures the temperature of the hottest spot within a face detection box. An alarm will trigger when the measured temperature is higher than the alarm limit. The alarm limit is the sum of the average temperature and a specified allowed deviation.

The face detection box is looking for faces in a part of the image which is called the region-of-interest. The size and position of the region-of-interest can be changed on the *Live* page.

7.5.4 User manual

To access the FLIR Screen EST user manual, click *User manual* on the *Library* page or go to <https://support.flir.com/screenest>.

7.6 Place the camera, display, computer, and backdrop

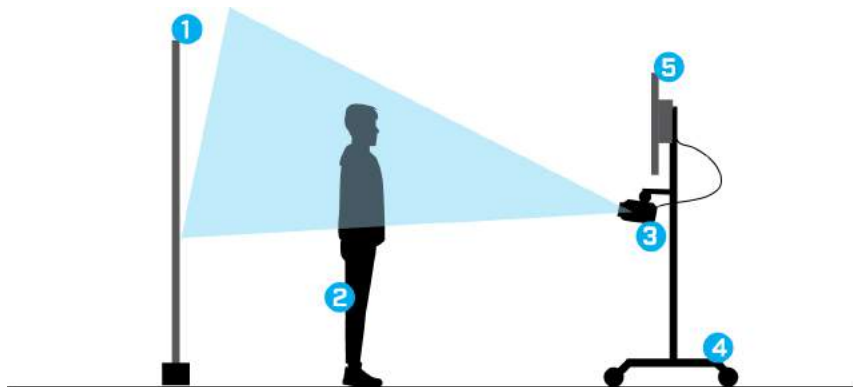


Figure 7.1 Typical screening station setup

1. Backdrop
2. Screening position
3. Thermal camera
4. Stand
5. Display

Note The setup as described in this section is adapted for persons with an average height of 170 cm (5.6 ft.). With this setup, the system will screen persons with a height of 150-195 cm (4.9–6.4 ft.). To adapt the setup for other average heights, see section 7.6.1 *Height of screened persons*.

1. Mount the display and camera.
 - The distance from the floor to the center of the display shall be 150 cm (4.9 ft.).
 - The camera shall be placed under the display and vertically aligned with the display.
 - The distance from the floor to the camera lens shall be 95 cm (3.1 ft.).
2. Place the computer where you want to keep it for easy operator access.
 - 2.1. Connect the visitor display to the computer.
 - 2.2. Change the computer screen setting so the visitor display acts as an extension to the computer screen.
3. Connect the camera to the computer.

Note For connection of the camera to the computer, you should use the USB cable with power adapter. This is needed to provide the camera with enough power for continuous operation.

 - 3.1. Open the cover at the top (FLIR Exx-EST and FLIR Exx) / bottom (FLIR T5xx-EST and FLIR T5xx/T8xx) of the camera. Connect the USB cable to the USB-C connector in the camera.
 - 3.2. Connect the USB cable to the computer.
 - 3.3. Connect the USB cable power adapter to a power outlet.
4. Connect the camera to FLIR Screen EST.
 - 4.1. Turn on the camera.
 - 4.2. On the computer, start the FLIR Screen EST application.
 - 4.3. In the FLIR Screen EST operator window, go to the *Live* page.
 - 4.4. In the *Discovery* pane, make sure *Dual* is selected.
 - 4.5. In the *Discovery* pane, click the button to the right to connect to the camera.
5. Define the screening position.
 - 5.1. Make a straight line from the camera towards the screening position - use a masking tape.
 - 5.2. Make a mark on the tape at 160 cm (5.2 ft.) from the camera, indicating the screening position.
6. Adjust the angle of the camera.
 - 6.1. Place a 170 cm (5.6 ft.) tall person at the screening position.
 - 6.2. Tilt the camera so that it aims at the face of the person.
 - 6.3. Look at the live visual image in FLIR Screen EST and adjust the angle of the camera until the face of the person is inside the box.



7. Place the backdrop behind the screening position. Look at the live image in FLIR Screen EST and make sure the camera only sees the backdrop.

7.6.1 Height of screened persons

The setup as described in section 7.6 is adapted for persons with an average height of 170 cm (5.6 ft.). With this setup, the system will screen persons with a height of 150-195 cm (4.9–6.4 ft.).

- Shorter persons shall move closer to the camera.
- Very short persons may need e.g. a high chair to sit on.
- Longer persons shall move further back from the camera.

- Very long persons may have to bend their knees.

To adapt the screening station for a shorter or longer average height, lower or raise both the display and the camera. The distance from the center of the display to the camera lens shall still be 150–95=55 cm (4.9–3.1=1.8 ft.).

7.7 Get familiar with the screening

Note See also section 7.5.3 *Working principle*.

1. Place a person in front of the camera.
2. When the system detects a face, live thermal and visual video is displayed on the *Live* page.

The system automatically starts to collect the samples that are needed for the average calculation. In the *Face detection* pane, the status indicator shows the sampling status; red when there are no samples, yellow when the system is collecting samples, green when the number of registered samples is according to the *Samples count* setting.

3. When the status indicator is green (OK), the system is ready for screening.

The *Detection status* shows the screening result; green when the temperature is normal, red when an elevated temperature is detected, grey when no result is available.

4. When the system is ready for screening, the screening window also becomes operational.

7.8 Configure FLIR Screen EST

7.8.1 Personal integrity

Configuring the FLIR Screen EST application also involves settings related to personal integrity.

You need to make decisions on the following:

- Should there be an alarm sound when the system detects an elevated temperature?
- Should a combined thermal and visual image and a data file be saved when the system detects an elevated temperature?
- Should a separate visual image be saved, in addition to the combined thermal and visual image?
- What output folder should be used for any saved images and data?

Note By default, no images are saved when the system detects an elevated temperature.

7.8.2 Select the FLIR Screen EST settings

You access the *Settings* page via the toolbar on the *Library* and *Live* pages in the operator window.

For most settings in the FLIR Screen EST application, it is recommended to use the default settings.

The settings that you may want to change are on the *Face detection* and *General* tabs on the *Settings* page.

7.8.2.1 Face detection tab

Face detection status

- The *Allowed deviation* value is the allowed deviation from the average temperature. If the measured temperature of the screened person is more than the sum of this value and the average temperature, the elevated skin temperature alarm will trigger. It is recommended to use the default setting, but you can experiment with other values.

Alarm

- Select the *Log alarms to output folder* check box to automatically save an image and a data file (*.csv) when the system detects an elevated temperature. By default, this check box is cleared and no images are saved automatically.
- Select the *Use sound alarm* check box to have a sound when an elevated temperature is detected.

Expected face size

- For accurate measurements, it is important that the screened person is at the correct distance from the camera. If the person is too far, the face will be too small for an accurate measurement. If the person is too close, the camera focus will be incorrect. To make sure the person is in a correct position, the system will only measure temperatures when the person's face covers a specified percentage of the so called region-of-interest. The *Minimum value* and *Maximum value* settings are used to specify this percentage.

Depending on factors such as the distance to the camera and the type of camera lens, you may have to adjust the *Minimum value* and *Maximum value* settings.

Note On the *Live* page you can change the size of the region-of-interest. If you do that, you may have to adjust the *Minimum value* and *Maximum value* settings.

Custom status messages

- You can change the text that the screened person sees on the display. You may, for example, want to add instructions for what the person shall do in case of a detected elevated temperature.

Swap video streams (applicable to the screening window)

- Select the *Swap video streams* check box to change the display of the thermal and visual video streams.
- Select the *Mirror image horizontally* check box to mirror (flip) the image.
- Select the *Swap direction animations* check box to change the direction of the arrows that indicate that the person shall move closer or further back.

When all settings are completed, click *Close* in the bottom right corner of the page. This closes the *Settings* page.

7.8.2.2 General tab

When the *Log alarms to output folder* check box on the *Face detection* tab is selected, an image and a data file (*.csv) is automatically saved when an elevated skin temperature is detected. It is also possible to save images manually on the *Live* page.

Save dual snapshot separately

- When this check box is cleared, a combined thermal and visual image will be saved.
- When this check box is selected, a separate visual image will be saved in addition to the combined thermal and visual image.

When the *Open output folder after saving snapshot* check box is selected, the folder with the saved image will open when the saving is completed.

To change the file path to the folder where you want to store saved images, click *Browse* and then select the folder.

7.9 Ensure correct setup

Note The setup as described in this section is adapted for persons with an average height of 170 cm (5.6 ft.). With this setup, the system will screen persons with a height of 150-195 cm (4.9–6.4 ft.). To adapt the setup for other average heights, see section 7.6.1 *Height of screened persons*.

1. Make sure the camera and display are mounted as described in section 7.6 *Place the camera, display, computer, and backdrop*.

-
2. Mark the screening position.
 - The distance from the camera to the screening position shall be 160 cm (5.2 ft.).
 - Clearly mark the screening position, e.g. by a floor sticker.
 3. Make sure the system detects faces of persons with different heights.
 - 3.1. Start the FLIR Screen EST and make sure the screening window is displayed on the visitor display.
 - 3.2. Check that a live image is displayed in the screening window when persons of different heights (or a tall person bending the knees) stand in front of the camera.
 - A 170 cm (5.6 ft.) tall person shall stand at the screening position.
 - Shorter persons shall move closer to the camera.
 - Longer persons shall move further back from the camera.
 - 3.3. If no live image is displayed in the screening window, you must adjust the *Expected face size* settings. See 7.8.2 *Select the FLIR Screen EST settings*.
 4. For accurate temperature measurements, it is important to adjust the camera focus.
 - 4.1. Place a 170 cm (5.6 ft.) tall person at the screening position.
 - 4.2. Adjust the focus on the face by using the focus controls on the *Live* page in the operator window.
 - 4.3. Once the focus is correctly adjusted, make sure the focus is not changed.
 5. Make sure the backdrop is correctly placed. Look at the live image in FLIR Screen EST and make sure the camera only sees the backdrop.

7.10 Place the supporting material

Place the queue management and information material. See also section 3.6 *Supporting material*.

Screening procedure — Operator instructions

To prepare the system for a new screening session, do the following:

1. Start the FLIR Screen EST application.
2. Drag and drop the screening window to the visitor display. Click “Maximize” in the upper right corner of the window.
3. Turn on the camera.
4. In the *Discovery* pane in the FLIR Screen EST operator window, click the button to the right to connect to the camera.
5. For accurate temperature measurements, it is important that the camera focus is correct. Before you start a new screening session, you must adjust the camera focus.
 - 5.1. Place a 170 cm (5.6 ft.) tall person at the screening position.
 - 5.2. Adjust the focus on the face by using the focus controls on the *Live* page in the operator window. You can also use the autofocus and/or manual focus functions in the camera, see section 6.4 *Adjusting the camera focus*.
 - 5.3. Once the focus is correctly adjusted, make sure the focus is not changed.
6. The thermal camera should be allowed to warm up for about 20 minutes before performing the screening. This will help ensure the best results.
7. To build up an accurate reference temperature data series, screen a healthy person first. Make sure this person represents normal people who will pass the screening. This will create the average used by the system to detect if someone has an elevated skin temperature.

The status indicator on the *Face detection* pane shows the number of registered samples. When the status indicator is green (OK), the system is ready for screening.

Note You can temporarily stop the screening by clearing the *Enable tracking* check box.

8.1 Keep the average value updated

To keep the average value up to date over the day, you should periodically reset the system and collect new samples. If the ambient temperature varies a lot during the day (outside/inside), you must reset the system more often. By updating the average value, you can avoid false alarm and secure a more accurate screening.

To reset the average value, hover over the *Value* field in the *Face detection* pane to display the reset button and then click the button.

To reset the system, do the following:

1. Hover over the *Value* field in the *Face detection* pane to display the reset button and then click the button.
2. Screen a healthy person. When the status indicator on the *Face detection* pane is green (OK), the required number of samples have been collected and the system is ready for screening.



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