



SCREENING FOR

# Elevated Skin Temperature

## What is FLIR Screen-EST™ on-camera screening mode?

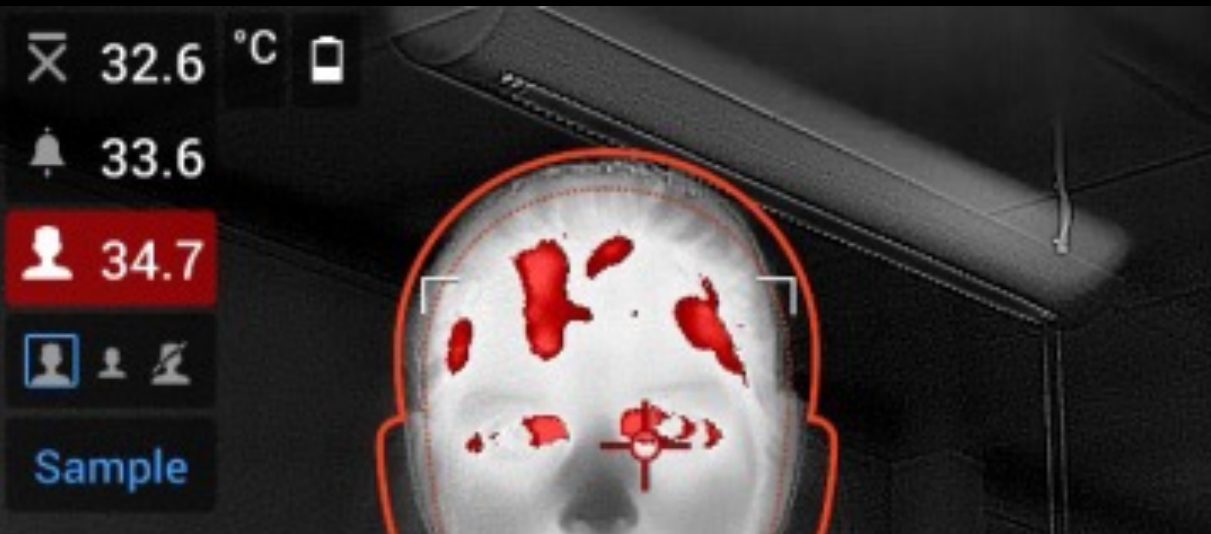
Certain FLIR thermal imaging cameras include Screen-EST™ screening mode as a simplified method for measuring elevated skin temperature (EST). This mode can sound or display an alarm when the camera detects an object or person with an elevated temperature compared against a sampled average temperature value. If the screening mode detects an individual with EST, they can then be evaluated using a medical device such as a thermometer. In this way, FLIR Screen-EST provides a faster, safer method of screening people in high-traffic areas.




Screening data has shown that skin temperature can vary by as much as several degrees throughout the day depending on environmental and other factors. That’s why FLIR Screen-EST mode uses temperatures from ten human subjects to determine an average that can be updated periodically throughout the screening operation. This can reduce the impact of changing skin temperature from person to person and environment to environment, maximizing EST screening accuracy. As screening mode is not an absolute temperature measurement, it does not require a reference blackbody or any additional equipment.

## How does FLIR Screen-EST™ mode work?

Screening mode has been available for many years and this description includes the updates and interface for V6.14.66 and later.

Activating the screening mode will turn on a measurement box and screening data on the camera’s screen that includes:



-  **Sampled Average Temperature**
-  **Alarm Temperature**
-  **Measured Temperature**

Screening mode automatically prompts the operator to input (press “P” button) the skin temperature from ten people at the testing location to set the Sampled Average Temperature to begin screening. The operator then sets an Alarm Temperature by

selecting the appropriate number of degrees above the average. Typically, users choose to set the Alarm Temperature between 1°C to 2°C (1.8°F to 3.6°F) greater than the Sampled Average Temperature. Each person is then screened individually and their Measured Temperature is compared against the Alarm Temperature.

Throughout the screening period, screening mode will automatically prompt the operator to input (press “P” button) additional subjects for the sampled average. Doing this helps the screening mode account for many potential variations throughout the day, including fluctuations in the average person’s temperature due to natural environmental changes, like afternoon heat on a sunny day.



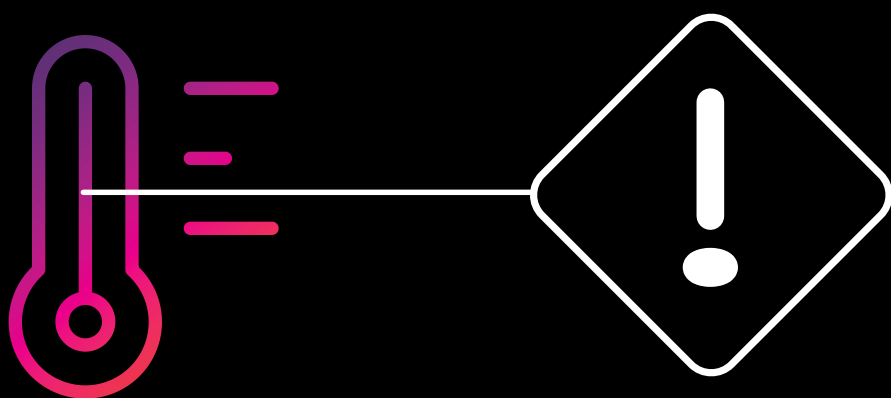
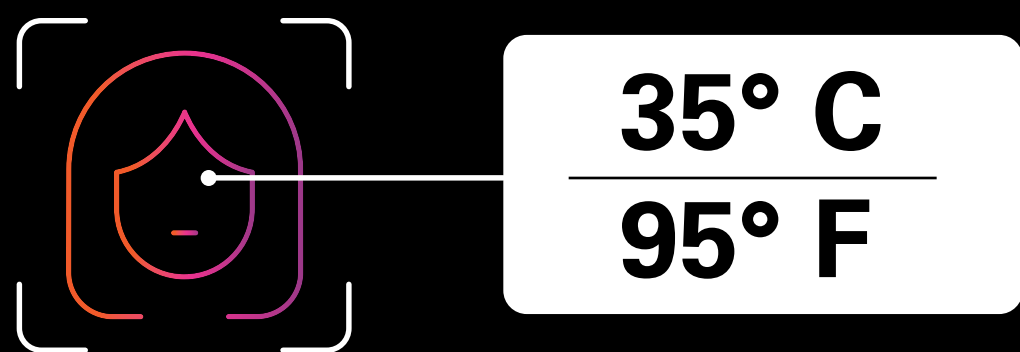
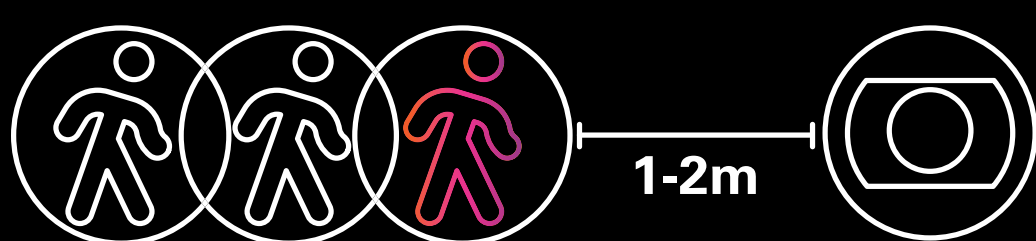
## How accurate are FLIR cameras in screening mode?

FLIR thermal cameras with screening mode can achieve accuracies of  $\pm 0.3^{\circ}\text{C}$  ( $\pm 0.5^{\circ}\text{F}$ ). This meets the U.S. FDA Guidance for Industry and Food and Drug Administration Staff and ISO/ TR 13154 specification. High accuracy

can be achieved by using the camera in a stable ambient environment, only looking at humans, and updating the reference samples according to the population being screened.

## How should skin temperature screening be performed?

Here are several tips to ensure optimal measurement performance from a FLIR thermal camera:



- Screen people one at a time to look for temperature anomalies.
- Screen people from 1 to 2 meters (3 to 6 feet) away.
- Measure temperature near the tear duct (inner canthus) as this location provides the closest temperature correlation to human core body temperature. **NOTE: This is not measuring core body temperature and readings near  $35^{\circ}\text{C}$  ( $95^{\circ}\text{F}$ ) are common.**
- Perform secondary screening on individuals with elevated skin temperature using a medical device designed specifically for measuring body temperature, such as a thermometer.

## Is a blackbody required for EST screening?

There are advantages and disadvantages to using a blackbody when screening for elevated skin temperature. Including a blackbody in the camera's field of view can improve a system's performance in this application but does add additional hardware and complexity. FLIR thermal cameras can be used with blackbodies as part of an EST system. In fact, some partners are integrating FLIR thermal cameras and their own software solution that uses a blackbody as the reference.

FLIR thermal cameras with Screen-EST mode do not require a blackbody for EST screening. In addition to the handheld/tripod-mountable cameras, the new A4xx/A7xx Advanced Smart Sensor cameras with EST configuration also have an on-camera screening mode, and in that configuration, do not require a blackbody. These cameras do also support the use of a blackbody reference, however, if users want to implement that method.