



## FLIR New Coronavirus Prioritized Temperature Screening Camera Examined

By: Ethan Ace, Published on Apr 03, 2020 | [✉ Email This](#)

FLIR has announced a new series of thermal cameras "prioritized for entities working to mitigate the spread of COVID-19 virus", the [A400/A700 series](#).





## A400/A700 Overview

The [A400 \(320x240\)](#) and [A700 \(640x480\)](#) are compact box-style cameras with several lens options from 6° to 42°. They have no on-board display like many of FLIR's options, such as the [E series](#) or [T series](#) models, but instead are accessed via Ethernet or Wi-Fi.

### Accuracy Claims / No Black Body Required

In screening mode, FLIR claims accuracy of  $\pm 0.3^{\circ}\text{C}$  ( $\sim \pm 0.5^{\circ}\text{F}$ ). This accuracy spec is similar to their other A and T series models as well as most competitive screening systems we have examined such as [Dahua](#) or [Sunell](#). However, unlike others claiming  $\pm 0.5^{\circ}\text{C}$  or lower, FLIR does not require a black body calibrator, eliminating the regular maintenance and checks required for proper black body use and reducing installation and setup time.

Note that FLIR's A400/A700 spec sheets list accuracy of  $\pm 2^{\circ}\text{C}$ , but this is the general accuracy spec of the camera across the entire temperature range it is capable of measuring,  $-20^{\circ}\text{C}$  to  $2,000^{\circ}\text{C}$  ( $-4^{\circ}$  to  $3,632^{\circ}\text{F}$ ), not specific to screening mode. Screening mode performance is not mentioned on their spec sheets.

### Stop And Stand Screening / No On-The-Move Measurement

Using FLIR cameras, subjects are measured one at a time, at a distance of 1-2m ( $\sim 3.3$ - $6.5'$ ) using typical lens options. Subjects must remove glasses and remain still for screening, which takes 3-5 seconds, shown in the video below.

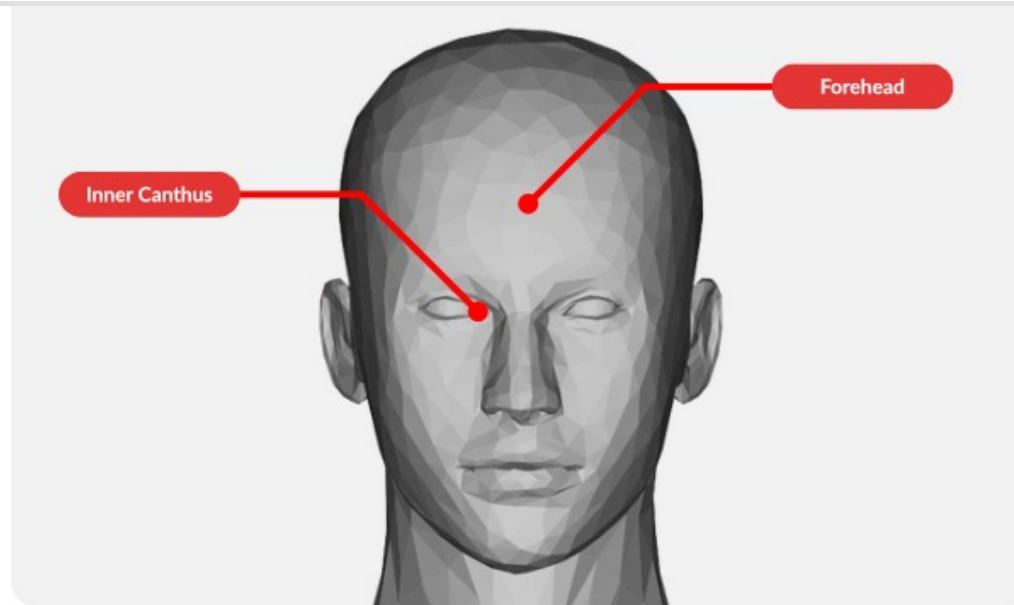


Stationary screening improves accuracy, as the camera is better able to measure small clusters of pixels located over specific points of the face, and eases operator response compared to others which claim on-the-move measurement, since the subject may be pulled out of line immediately for secondary screening, instead of locating them in a moving crowd.

However, in high throughput applications such as airports or border entry control areas, this requirement may cause bottlenecks, requiring additional screening systems to increase throughput.

### **Inner Canthus Of The Eye Measured**

FLIR requires stationary screening and requires glasses to be removed because subject temperature is measured using the inner canthus of the eye, a small region near the tear ducts, instead of measuring the skin of the face/forehead like most competitive systems.



The inner canthus area is much more closely correlated to actual body temperature than other regions of the face because it is near the ophthalmic artery, which increases blood flow, and because it is less susceptible to environmental effects such as heat, cold, or moisture which can cause inaccurate measurements on the skin.



The downside is that glasses block / obscure the inner canthus from thermal imagery, requiring glasses to be removed to perform that screening, which is demonstrated in FLIR's recent marketing demo video:



## Adaptive Baseline Temperatures

FLIR also claims to improve accuracy by adjusting baseline temperatures over time. A baseline is established using known-healthy subjects (nonfebrile) at first, but the camera automatically adjusts temperature upwards or downwards if it detects subjects steadily elevating or decreasing.

This avoids some of the re-calibration which should otherwise be performed throughout the day due to changing ambient conditions due to weather, HVAC efficiency, crowd load, etc. Some competitors claim to perform this automatic adjustment, as well, but it is not a common feature.

## FDA 510(K) Clearance

FLIR has received FDA 510(K) clearance for their elevated body temperature cameras, allowing them to be used for adjunct screening (requiring a second examination with an approved thermometer). This is uncommon among competitive



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[listing of 510\(K\) cleared models](#)).

Marketing models without FDA clearance is risky, as enforcement actions could (and historically have) resulted in product recalls and fines. For more information on FDA guidelines, see: [FDA Gives Guidance on 'Coronavirus' Thermal Fever Detection Systems](#).

### **Prioritizing Coronavirus Response**

The A400 and A700 are available for ordering now. However, FLIR is currently prioritizing this line for those working to mitigate the spread of COVID-19. Other entities may order the cameras, but they may be backordered until initial medical/public health orders are filled.

### **Outlook**

FLIR's A400 and A700 are potentially very attractive, with FDA approvals most competitors do not have, and pricing similar to screening cameras/systems from competitors with much less history in temperature measurement, such as Dahua, Hikvision, and Sunell. Additionally, their use of stationary screening of the canthus of the eye is fundamentally stronger than these systems claiming on the move measurement of the skin.