How To Use Suprema Thermal Camera - FaceStation 2

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Suprema Thermal Camera that can be used in combination with FaceStation 2 to detect users with elevated skin temperature. It is expected to enhance security and safety at sites by combining face recognition and skin temperature measurement. Suprema solution has increased the accuracy and consistency of the temperature measurement by using the face recognition algorithm of the FaceStation 2 to pinpoint the upper area of the face.   The model name of the product is TCM10-FS2. For the product information, click here.

Preparation
- o TCM10-FS2 Installation Guide
- o FaceStation 2 FW v1.4 or high
- o BioStar 2 v2.8.6 or high
  If you have v2.8.1 or lower version, you can upgrade your BioStar 2 in accordance with the general upgrade progress of BioStar 2. - [BioStar 2] How to Upgrade BioStar 2 Server
  For BioStar 2
- BioStar 2 Device SDK v2.7.1 or high

Available Operation Examples

Within range   Higher than threshold
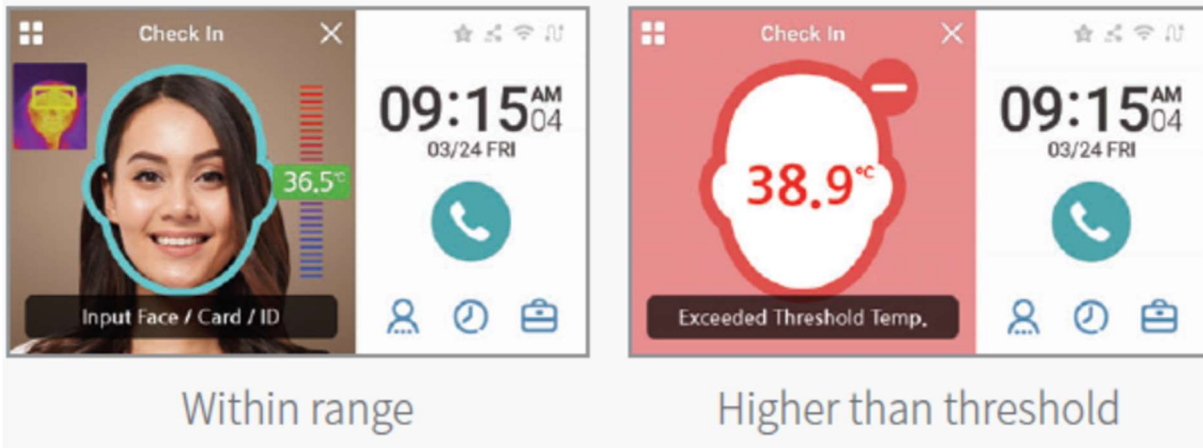
1. Check Temperature ONLY without user authentication
1) Access Granted when temperature is under threshold
2) Access Denied when temperature is above threshold

2. Temperature Check + Face, Card, or ID Mode Authentication
1) Access Granted when temperature is under threshold and there is authorized user
2) Access Denied when temperature is above threshold
3) Access Denied when an user authentication fails after temperature is under threshold

3. Face, Card, or ID Authentication Mode Operation + Temperature Check
1) Access Granted when there is an authorized user and temperature is under threshold
2) Access Denied when user authentication fails
3) Access Denied when temperature is above threshold after user authentication succeeds

How To Use Suprema Thermal Camera - FaceStation 2 with Temperature Detection

Quick View

Step 1. Power the unit for 1.5 hours before using to detect a subject's temperature for self-calibration

Step 2. Enable **Thermal Camera**

Step 3. Set **Threshold Temperature**

Step 4. Choose one mode in **Check Temperature Mode**

Step 5. Set others under **Thermal Camera Menu** in accordance with your environment

Step 6. Test

Setup Guide - Details

Step 1. Power the unit for 1.5 hours before using to detect a subject's temperature for self-calibration
We highly recommend prior to first use to power the unit for 1.5 hours before using to detect a subject's temperature.
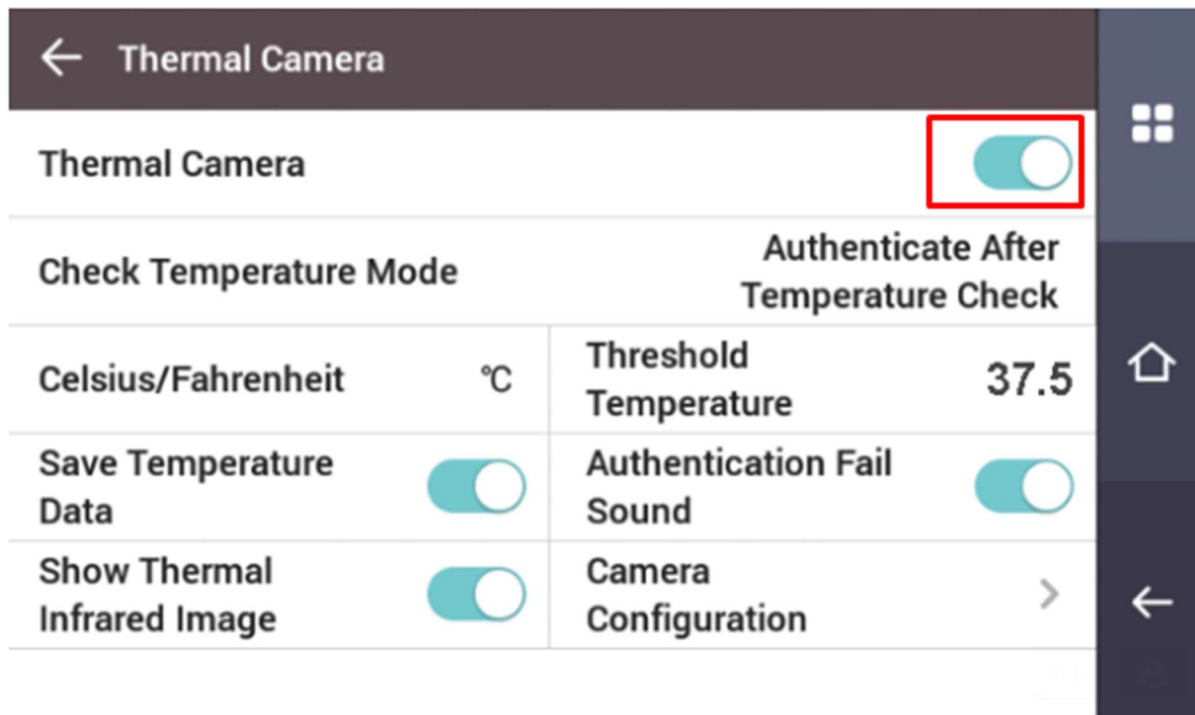
Step 2. Enable **Thermal Camera**

* The above icon is menu icon of FaceStation 2.
    1) Press the menu icon and authenticate with the Admin level credential.
   2) Go Device > Thermal Camera
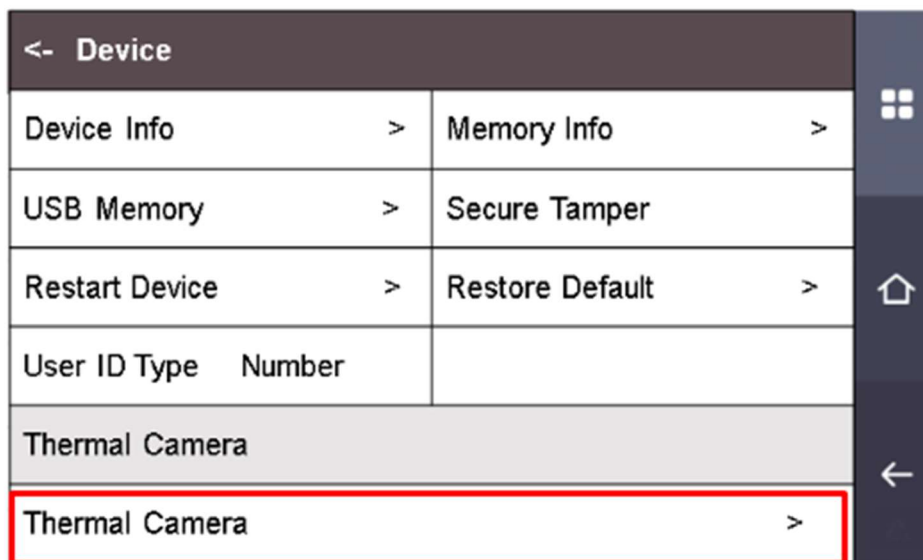
    3) Enable **the option of Thermal Camera**
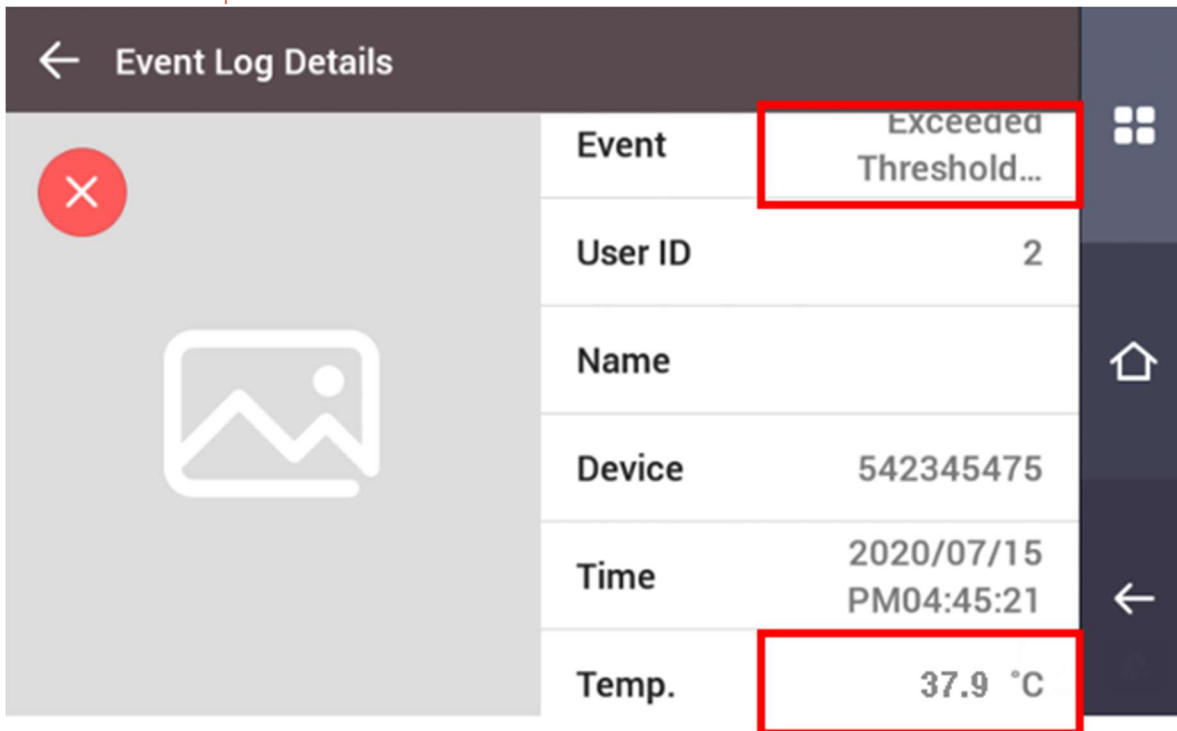
Step 3. Set **Threshold Temperature** properly

Default Threshold Temperature is 37.5 ℃. If the detected temperature is 37.5 ℃ or under 37.5 ℃, the result will be success. You can adjust the threshold properly.
Please note that the minimum available detection temperature is from 34.0 ℃.

Step 4. Choose one mode in **Check Temperature Mode**
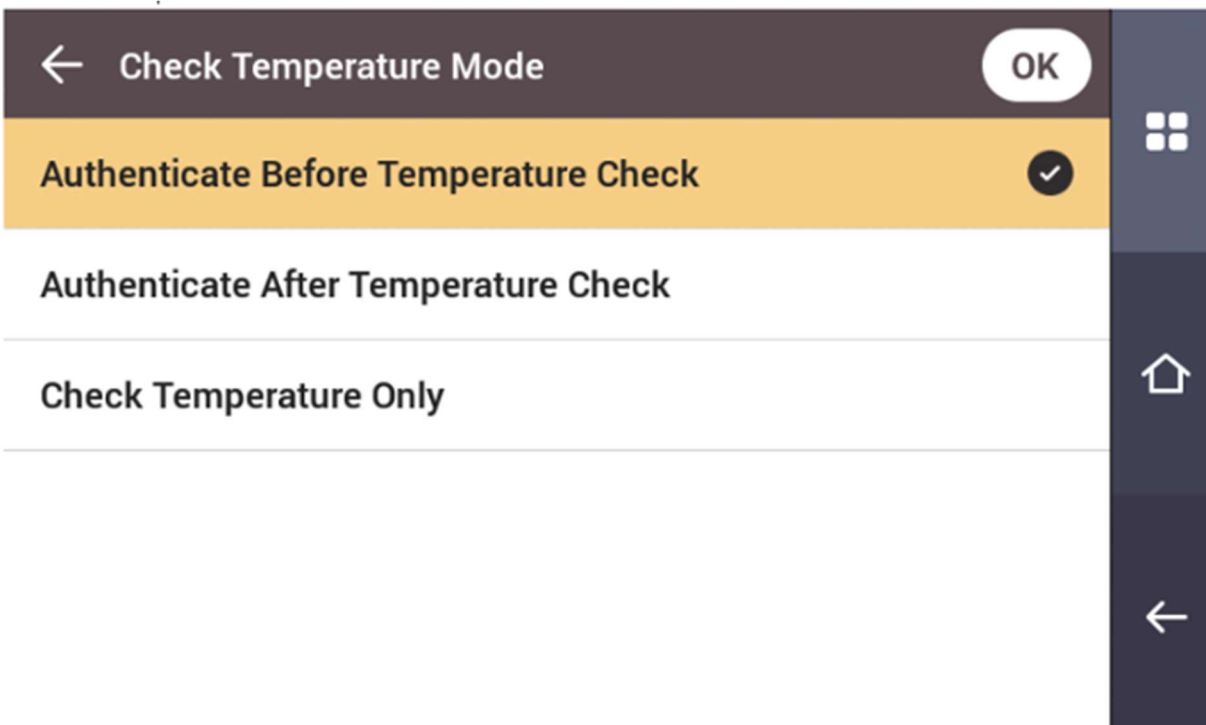
1) [Authenticate Before Temperature Check] : If you want to authenticate first, and then check the temperature, please set this option.

    1-1) If the temperature after authenticating user is above the threshold, the device will show up Exceeded Threshold Temp. On the device log menu, the status will be recorded as Exceeded Threshold Temp.

    1-2) If the temperature after authenticating user is under the threshold, the device will show up Access Granted.

2) [Authenticate After Temperature Check] : If you want to check your temperature before authenticating, please set this option.

    2-1) If the temperature before authenticating user is above the threshold, the device will show up Exceeded Threshold Temp. On the device log menu, the status will be recorded as Exceeded Threshold Temp.

2-2) If the temperature before authenticating user is under the threshold, the device will show up Access Granted.

3) [Check Temperature Only] : If you want to allow to access the door without authenticating, please set this option.

3-1) If the temperature is above the threshold, the device will show up the popup message "Exceeded Threshold Temp.". On the device log menu, the status will be recorded as "Check Temp. Fail". The temporary user ID is always 42949267295 which is to handle it as the invalid user ID.

3-2) If the temperature is under the threshold, the device will show up the popup message "Success". On the device log menu, the status will be recorded as "Check Temp. Success". The temporary user ID is always 42949267295 which is to handle it as the invalid user ID.
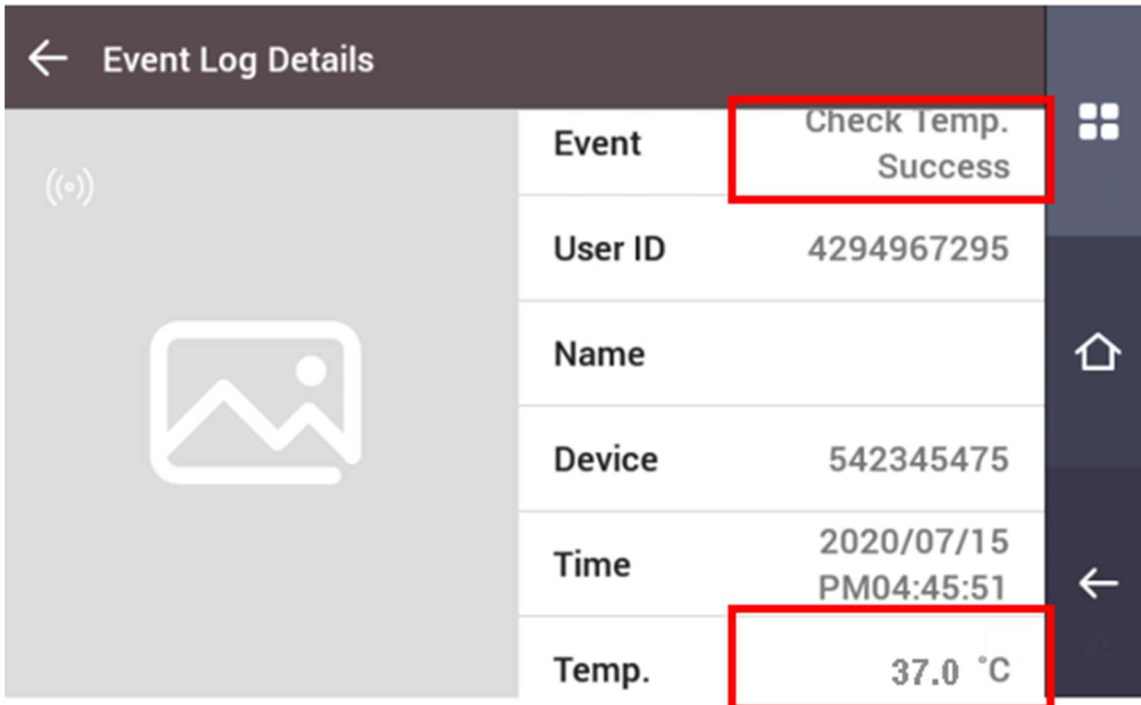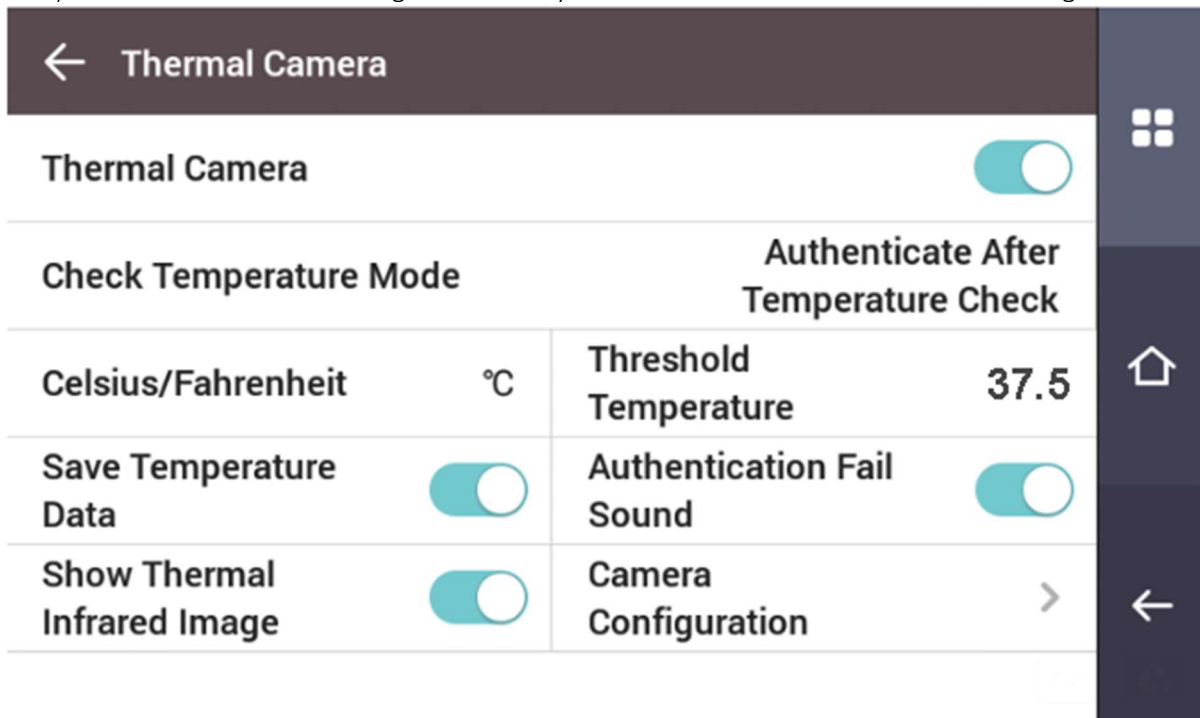
Step 5. Set others under **Thermal Camera Menu** in accordance with your environment
    1) Celsius/Fahrenheit
    2) Save Temperature Data
    3) Authentication Fail Sound
    4) Show Thermal Infrared Image > Enable if you want to show the thermal infrared image on the device

Authentication Fail Sound can be replaced by importing a thermal_auth_fail.wav file via importing the file of USB memory.
How To Apply
1) Make your own sound file and set the file name to thermal_auth_fail. Make sure the file format is .wav.

2) Copy the file to a USB memory and insert it to USB memory port of FaceStation 2
3) Go to the below menu and then, select the file
Direction: Menu > Device> USB Memory> Import> Sound

5) Camera Configuration (Click here to download the configuration guide and to know the definition of the settings)
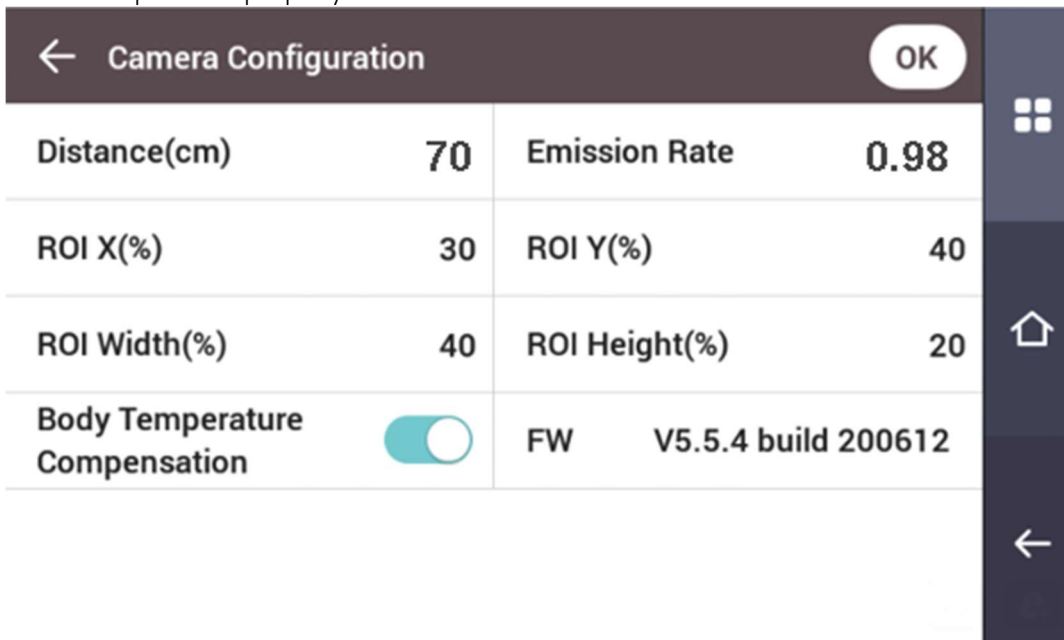
Please keep the default settings if you don't need to change the settings.

5-1) Distance (cm): It is recommended to maintain the default value (70 cm) for the best performance.
5-2) Emission Rate: It is recommended to maintain the default value (0.98) for the best performance.
5-3) ROI : If there are lights in the device field of view they may be detected instead of the desired subject. Set the temperature measurement area by adjusting the size and position of ROI (Region of Interest).
5-4) Body Temperature Compensation: Default is ON. Keep the enabled option to detect the temperature properly.

Camera Configuration		OK
Distance(cm)	70	Emission Rate	0.98
ROI X(%)	30	ROI Y(%)	40
ROI Width(%)	40	ROI Height(%)	20
Body Temperature Compensation	⬤	FW	V5.5.4 build 200612

Step 6. Test the device

The below list will be uploaded.
- Device Configuration for the relevant Thermal Camera
- Trigger&Action for making an alert
- Monitoring Menu

FAQs

1. How does TCM10-FS2 (Thermal camera) work with FS2 and Biostar 2?

TCM10-FS2 measures the skin temperature together with Suprema face recognition technology. Suprema face recognition system (FS2) detects the user's forehead and TCM10-FS2 images a 160X120 pixels area. By analyzing the data in this thermal image, TCM10-FS2 determines accurate skin temperature.

If you update FS2 firmware to v1.3.2, you can set up the threshold value and bypass option through "Menu>Device>Thermal camera". With this "Thermal camera" setting, you can also turn on and off the thermal camera feature. Biostar 2, v2.8.x also provides the UI to control thermal camera, and optionally users can set up the event log to save the temperature log.

2. Can the threshold be adjusted? For example, can the threshold be 37.5℃ or 37.6℃?

When you enter the FS2 menu, "Menu>Device>Thermal camera", you can find "Threshold temperature" setting. If you click "Threshold temperature", you can configure the desired temperature for the threshold. You can also change to "Fahrenheit" on "Celsius/Fahrenheit" option.

3. Will FS2 retrieve the face template if TCM10-FS2 detects a temperature above the threshold?

TCM10-FS2 provides 3 modes.

1) "Face recognition + temperature measuring" : If you enable the thermal camera option, this is the default operation mode. Under this setting, users whose face is successfully recognized and temperature is measured as normal, can enter the door (depending on threshold value).

2) "Check temperature only" : when you enable this mode, face recognition feature is disabled and only temperature measuring works. Anyone with normal temperature can enter the door.

3)"Auth after temperature check" : If you enable this option, temperature will be measured first and only users with normal temperature can start face recognition procedure or PIN entry procedure. This mode is recommendable for the cases in which administrator does not want the users with temperature above the threshold to touch the device for PIN input or card touch.

4. Do we need to calibrate TCM10-FS2 before using? If so, how long do we need to calibrate?

We recommend prior to first use to power the unit for 1.5 hours before using to detect a subject's temperature. During this time, the unit will perform automatic self-calibration. If there are significant changes in the installed environment, or if the unit is moved to another location, the calibration should be repeated.

5. Can we use it with BioStar 2 Device SDK or G-SDK?

We are planning to release Biostar 2 Device SDK v2.7.1(Sep 2020) and G-SDK v1.2(Oct 2020) for setting the configuration and uploading the transactions.

6. Will FS2 send Wiegand output to 3rd party ACU?

As before, FaceStation 2 will send Wiegand output in accordance with user authentication result.

But, it won't send the temperature data through Wiegand. If you have any project for that, please contact Suprema Sales team or create a new ticket.

7. Can we get the temperature data to our software?

Storing the temperature data is an optional. If that is activated, the user's template data is recorded and stored into the device memory. The data is included into the logs. So, BioStar 2 SW will store the log data with the temperature to BioStar 2 DB. With using BioStar 2 API or BioStar 2 DB reference, you can get the temperature data and confirm it.

8. Can TCM10-FS2 detect wearing a mask?

Unfortunately, no. It doesn't support to detect wearing a mask and authenticate the user with wearing the mask.