ASS3

Dual Spectral Thermal Imaging

Thermometer System

User Manual

JIANGSU ASCENDENT OPTRONICS INC.

Thank you very much for purchasing our products. If you have any questions or needs, please feel free to contact us.

This manual is suitable for ASS3 dual spectral thermal imaging thermometer.

This manual may contain technical inaccuracies, inconsistencies with product functions and operations, or misprints. We will update the contents of this manual according to the enhancement of product functions, and will regularly improve or update the products or procedures described in this manual. The updated content will be added in the new version of this manual without prior notice.

In order to make the user of this product to easily master the installation and use method, this product manual is specially made for their reference. Please read this manual carefully before installation and use.
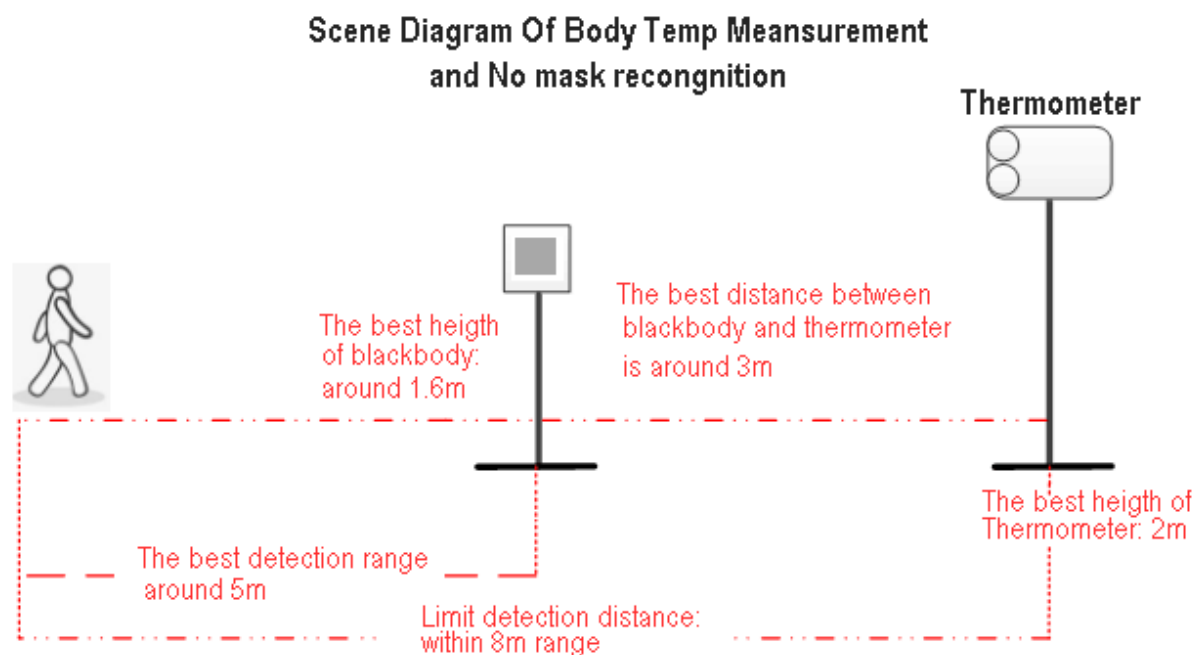
⚠ Precautions For Safe Use

Please follow the following instructions when using this product:

➢ please read the equipment operation manual carefully before using the equipment, and strictly follow the operation instructions.

➢ Be sure to turn off all power associated with the equipment when installing equipment accessories,

➢ Please do not use the equipment in the humid or high temperature environment beyond the standard, avoid using the equipment near the strong interference source and shielding equipment.

➢ Please do not drop the product or sustain strong knocks.

➢ This equipment is precision electronic equipment, do not disassemble and repair parts by yourself.

➢ it is recommended to protect the delivery with ex-factory packaging, when the product is transported.

➢ The device uses a specific type of battery, power adapter and accessories. If the battery is damaged and needs to be replaced, please be sure to contact the equipment manufacturer or local dealer to prevent the risk caused by improper replacement or disassembly of the battery.

➢ if you have any questions or requirements during the use of the equipment, please contact our technical staff.

Contents

1. Scenario deployment and setup

Scene Diagram Of Body Temp Meansurement and No mask recongnition

Thermometer

The best distance between blackbody and thermometer is around 3m

The best heigth of blackbody: around 1.6m

The best heigth of Thermometer: 2m

The best detection range around 5m

Limit detection distance: within 8m range

Scenario deployment and setup diagram

Height:

- The optimal setting height of the thermometer is: about 2m;

- Black body (optional) best erection height: about 1.6m, height is not limited, black body should be in the monitoring area of the green box .

Distance:

- The optimal temperature measuring distance of the thermometer is: about 3 meters from the thermometer;

- The limit distance of detection by thermometer is: ≤8 meters;

- The detection range of the thermometer is about 5 meters

Notes:

1) The black body (optional) and the thermometer are deployed in the parallel range, and the black body shall not be blocked by any object;

2) It is recommended that after the deployment, a temperature-measuring guide

zone should be set with an optimal temperature measuring distance of about 3 meters;

3) The green frame of the real-time image of the thermometer is the temperature detection area, which can detect the temperature and whether to wear a mask. The area outside the green frame can only detect whether to wear a mask.

4) Temperature-measuring instrument and black body (optional), please power up and start half an hour in advance before using the equipment, otherwise the temperature of internal devices will be unstable, resulting in inaccurate temperature measurement;

5) The equipment shall be deployed and used in an indoor environment without wind, or in a windy or outdoor environment. The equipment can operate normally due to too many uncontrollable factors of the environment.

6) After using the black body as the temperature reference, if want the temperature measurement more accurate, please prepare a forehead temperature gun or hot water bag for on-site temperature reference, comparison and adjustment.

2. Network deployment mode

2.1 Thermometer + computer + blackbody (optional)

Solution 1: Dual Spectral Thermal Imaging Thermometer + Computer + Blackbody
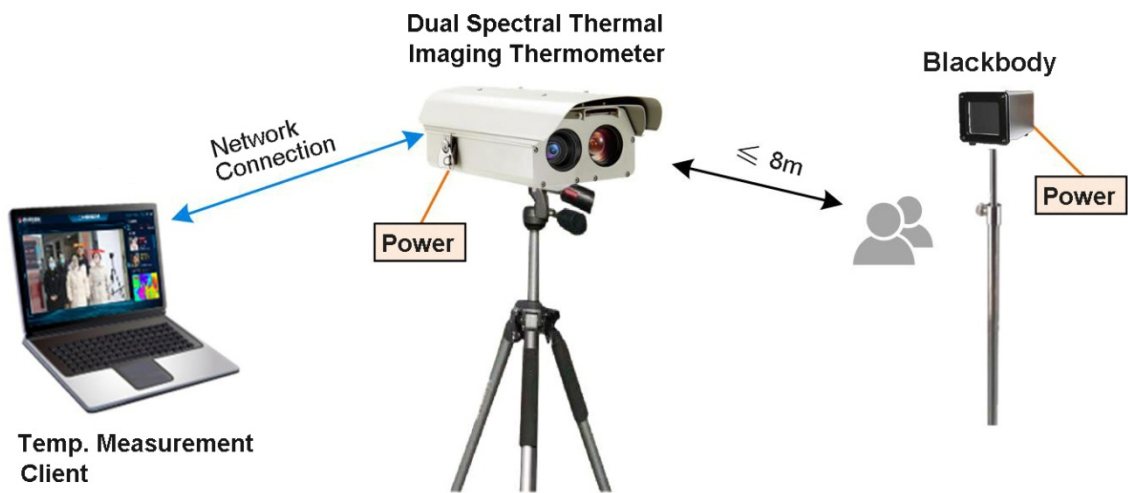
A thermometer connect to work normally, and the network is kept under a local area network. It is directly connected to the PC, which installed the "Rapid Temperature Screening System" client to obtain real-time intelligent monitoring and alarm events and voice broadcast. If the black body is selected, then deploy on the site, placed in the monitoring scene, and the temperature parameters can be checked for reference, then the rapid deployment will be finished.

2.2 Thermometer + android TV + blackbody (optional)

Solution 2: Dual Spectral Thermal Imaging thermometer + Android TV + Blackbody
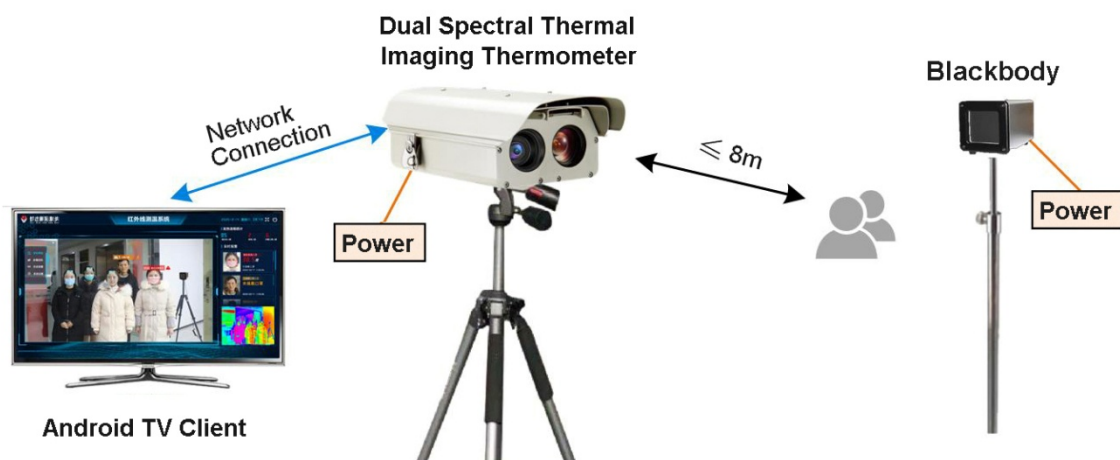
Android TV is directly connected to the network port of the thermometer, which is in the same local area network. Install the software of "Rapid temperature screening system" into android TV, the client will obtain real-time intelligent monitoring video and voice broadcast. If the black body is selected, it can be deployed on the site, to be placed in the monitoring scene, and check temperature parameter for reference, then the rapid deployment will be finished.

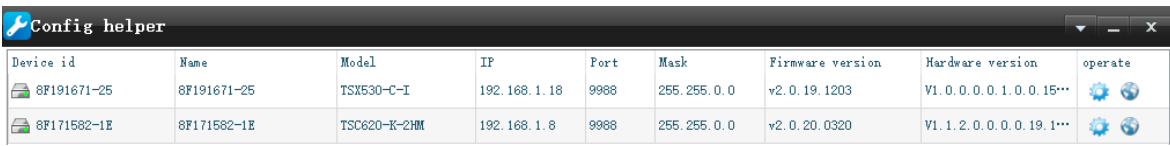## 3. Device configuration

3.1 Confighelper

Device confighelper, mainly used to configure device IP, upgrade firmware, restart and restore factory Settings, factory IP is not recommended to change, if must be changed, you must ensure that all IP address of the equipments to be in the same network segment, and can not be repeated.

The device has three IP addresses:

Real-time detection video :192.168.1.8;

Intelligent analysis box: 192.168.1.18;

Thermal imaging camera: 192.168.1.88.

Device id	Name	Model	IP	Port	Mask	Firmware version	Hardware version	operate
8F191671-25	8F191671-25	TSX530-C-I	192.168.1.18	9988	255.255.0.0	v2.0.19.1203	V1.0.0.0.0.1.0.0.15···	
8F171582-1E	8F171582-1E	TSC620-K-2HM	192.168.1.8	9988	255.255.0.0	v2.0.20.0320	V1.1.2.0.0.0.0.19.1···	

3.1.1 Built-in web page

Click to open the built-in web page, the computer will automatically pop up the web page, the factory default address of the device is 192.168.1.8, after successful login, the url page address is: 192.168.1.8:9988, first time to login the web page will prompt the installation of plug-in, follow the instruction for installation will be ok.

login account, with user name: admin, password: 123456, IP address is not recommended to be changed.
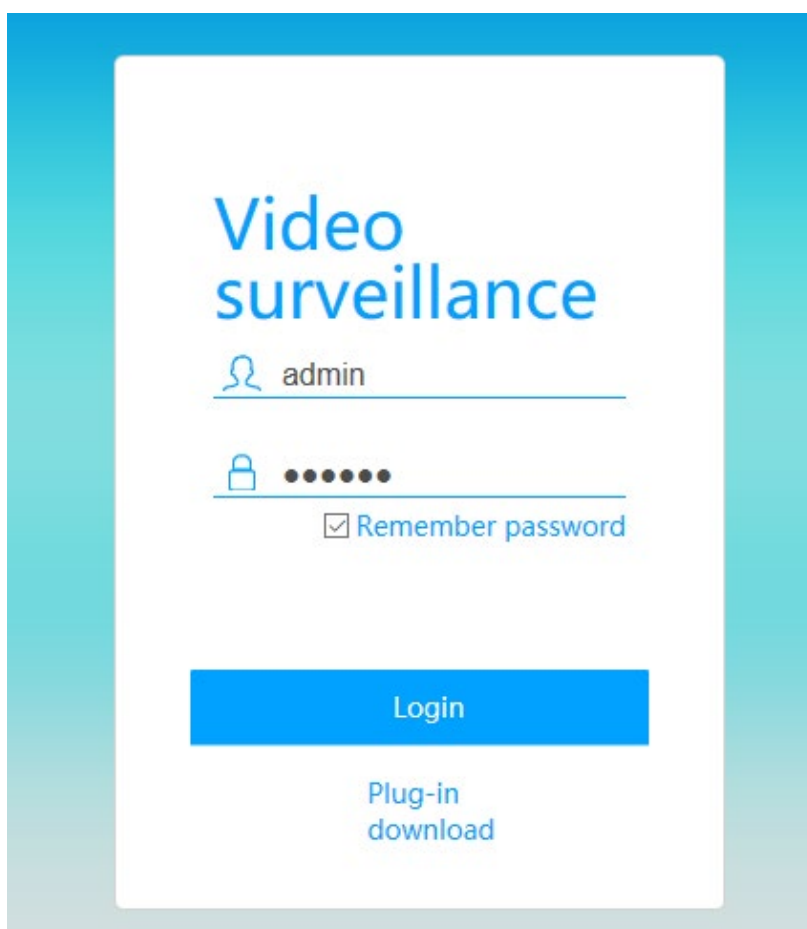
3.12 Configuration interface

Click ⚙ to open configuration interface, can modify device IP, to do device firmware updating, etc. Among them, the IP address is not recommended to be changed. Please use the network upgrade under the remote support of the manufacturer.

Setting - 8F171582-1E(8F171582-1E)

IP address   Network update   System

☐ Enable DHCP

IP Address: 192.168.1.8

Mask: 255.255.0.0

Gateway: 192.168.1.1

update

Cancel

3.2   Body Temp Detection Settings

3.2.1   Fever Temperature Threshold

Select the temperature monitoring setting. The fever temperature threshold indicates that the device will automatically send alarm information events to the direct-connected TV client or PC client after body temperature reach to the preset temperature. The client will have real-time display and obtain the temperature monitoring events for reference.

Device configuration

Name: 8F171582-1E   Rename Set description   Index: 0

Info. Channels Platform Network Online Login Time Linkage AI **BodyTemperature** Other

BodyTemperature

Fever Temperature Threshod: 37   (length:0~63 characters)

🖫 Submit   🔄 Refresh

System
Video
Audio
PTZ
Serial port
Storage

3.3 Intelligent Analysis

Select equipment management, click on the intelligent analysis, most parameters of the factory default optimal, no need to modify, which need to pay attention to the following parameters Settings, to ensure the algorithm to be choose to "face recognition", sending intelligent events to direct client keeps ticked, algorithm data storage status is "normal". Enable face recognition keeps ticked, face recognition status is in "work", face recognition mode is "face detection".

Among them, the face detection positive face index defaults to 50, which can be modified according to the actual situation. It is recommended to modify the range between 50 and 60. The purpose of modification is to increase the value to reduce the capture rate of the side face. Face detection image quality index, default 50, it's the best value, not recommended to modify.
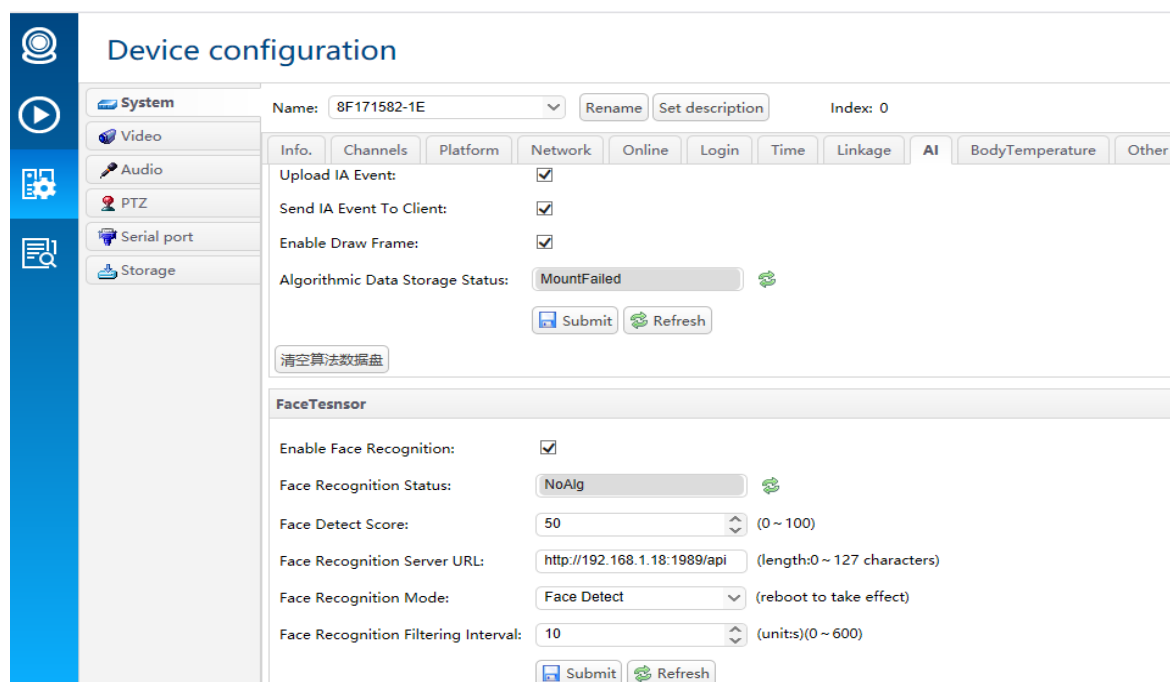
3.4 Real-time Video

Double spectrum thermal imaging thermometer, supports the double channel video, the default play Camera1 video, after parameter configuration success, you may select real-time video, to check the body temperature and mask wearing

recognition monitoring, real-time monitoring result, video superposition monitoring data whether or not include wearing masks, real-time temperature data, over the preset temperature threshold alarming, etc.
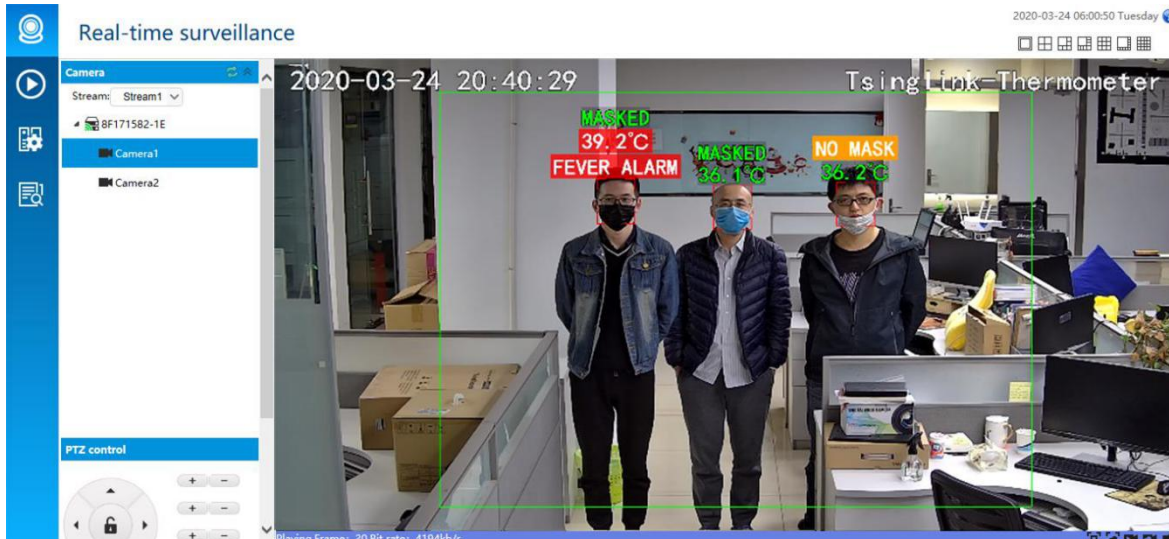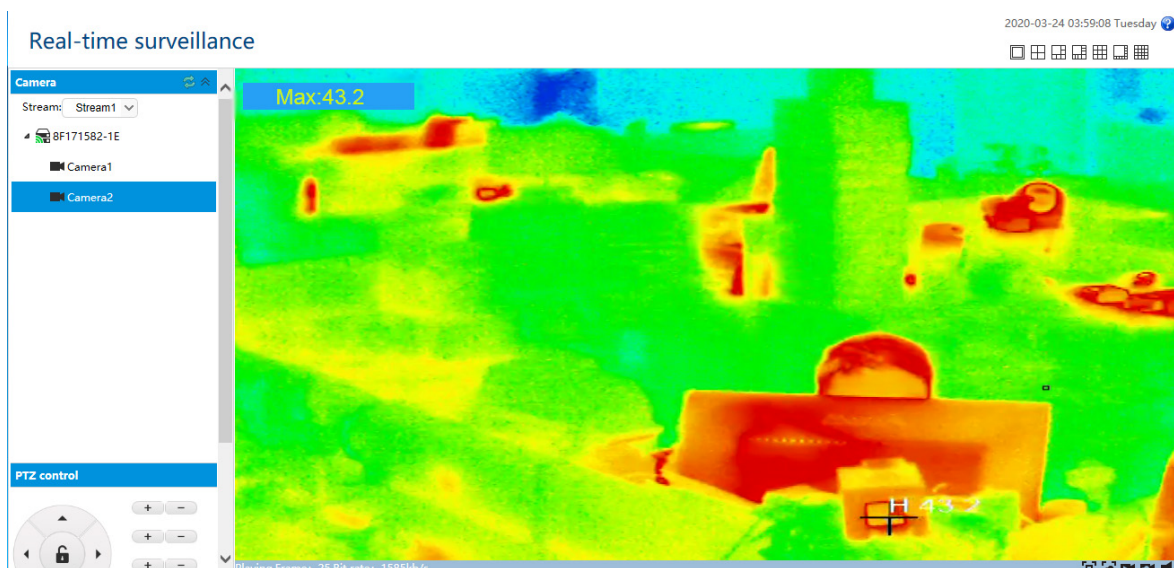

Video camera2 is real-time video of thermal imaging temperature measuring camera, which automatically monitors the maximum temperature of human body in real time. This video channel does not need any configuration, mainly used to observe the temperature monitoring status of human body in real time.

3.5 Temperature calibration configuration

The equipment has carried out temperature calibration at the factory, which is suitable for most indoor constant temperature scenarios. It can be directly deployed

and used. If the temperature measurement deviation is large due to the different environment, the temperature calibration configuration operation of the thermometer can be conducted. The specific operation as follows:

➢ **Step 1: log into the device's built-in web page**

Input thermal imaging camera IP address in browser, factory default 192.168.1.88, the first login needs to install plug-in, after the installation, refresh or re-open the browser to login, the account is admin, password 123456.
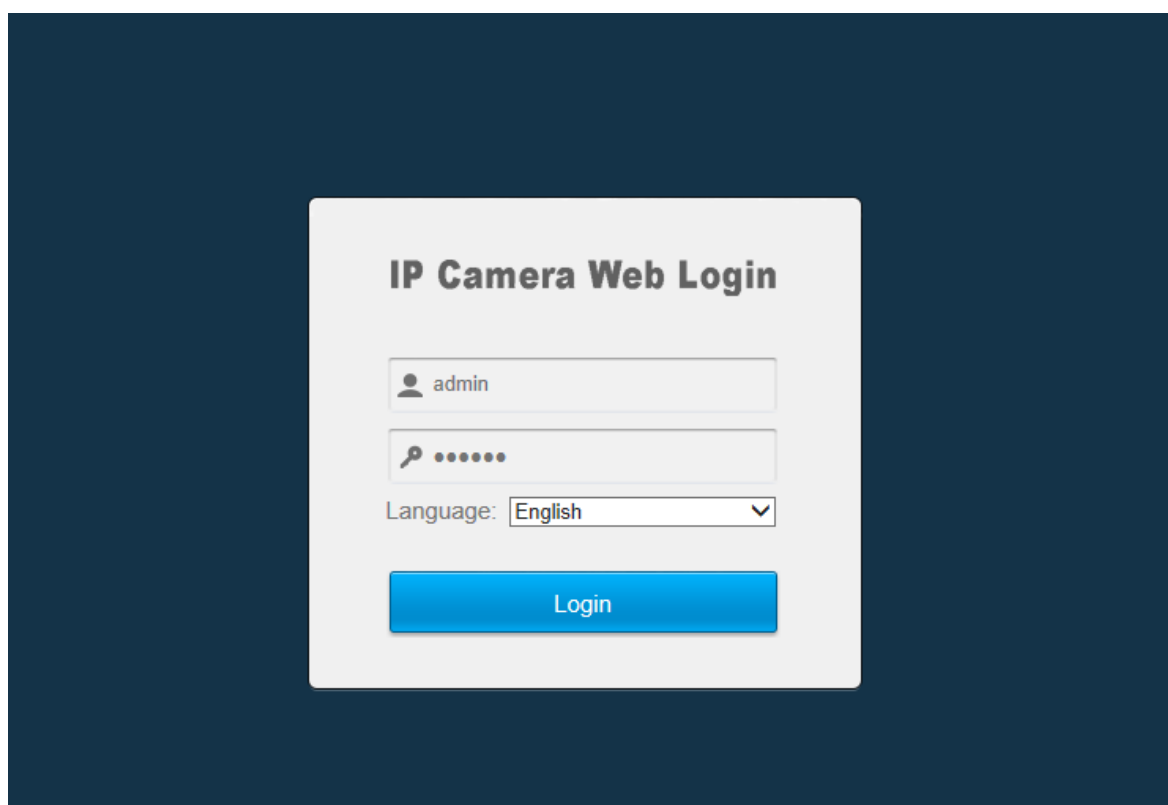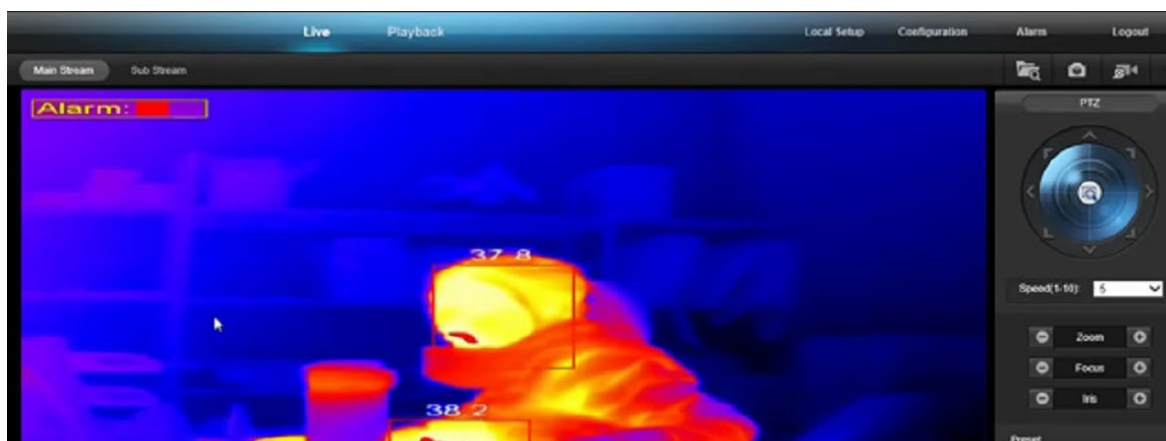
> **Step 2: go to the configuration page**

After logging into the main interface of the device, select "configuration" to enter the menu configuration page. Since other parameters and functions of the device has been adj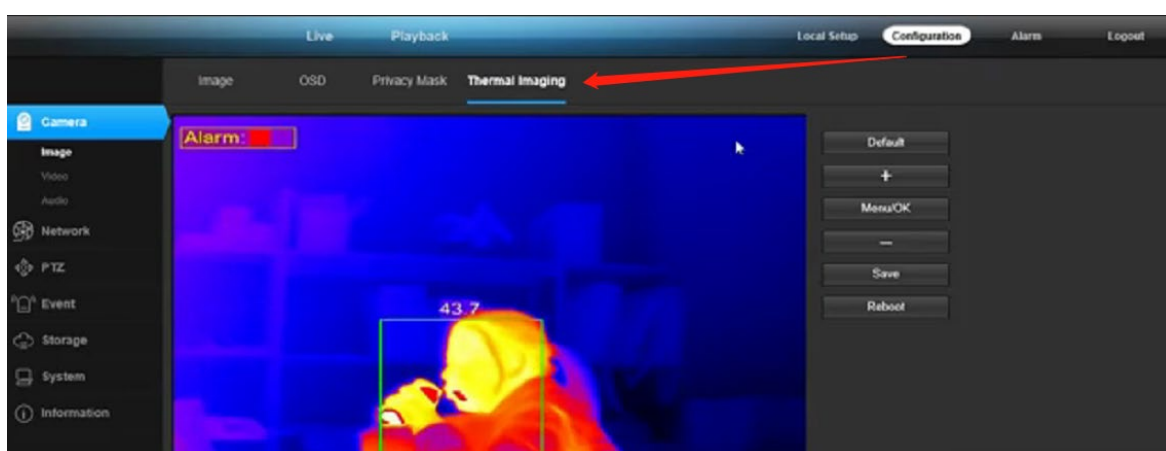usted to the best when leaving the factory, it is recommended not to adjust the configuration of irrelevant parameters, in case of inconvenience to use.

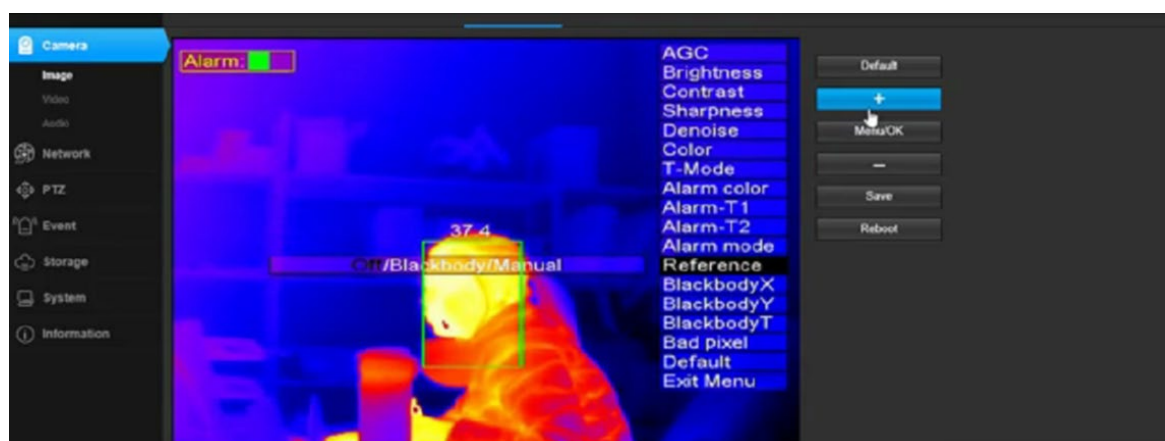> **Step 3: enter reference correction option**

Enter the configuration interface, choose "thermal imaging", then choose "menu/ok", in the video on the vertical will pop-up menu list box, to pitch menu options with "+" and "-", then choose "reference correction", click "menu/ok again to enter the" reference correction "option, the same to exit this option, also need to click the menu/ok again to exit.

Notes：

When all menu options can be flipped up and down to select, the options base color are black, as shown below

Off/Black Body/Manual | Reference

After clicking "menu/ok", confirming that a certain option is entered, the font base color of option is white, shown as follows:

Off/Black Body/Manual | Reference

> **Step 4: mode setting**

Refer to the reference correction options, which are divided into three Settings: off mode, blackbody mode, and setting mode. The usage of each mode is specified below.

● **Off mode**

It's factory default mode. when the temperature measurement thermometer leave factory, program has been configured with the best temperature parameters, conform to majority of the application scenarios, if in the actual temperature measurement, a large temperature difference happened, then need to switch to the black body or setting mode for relevant configuration.

● **Set mode**

If there is a big difference between the temperature displayed by the thermometer and the temperature of the fore-temperature gun tester, for example,

the temperature detected by the larger staff is too high or too low, the "reference correction" mode can be selected as "setting", then adjust "correction temperature" value, to make the thermometer temperature conform to the actual temperature of the human body.
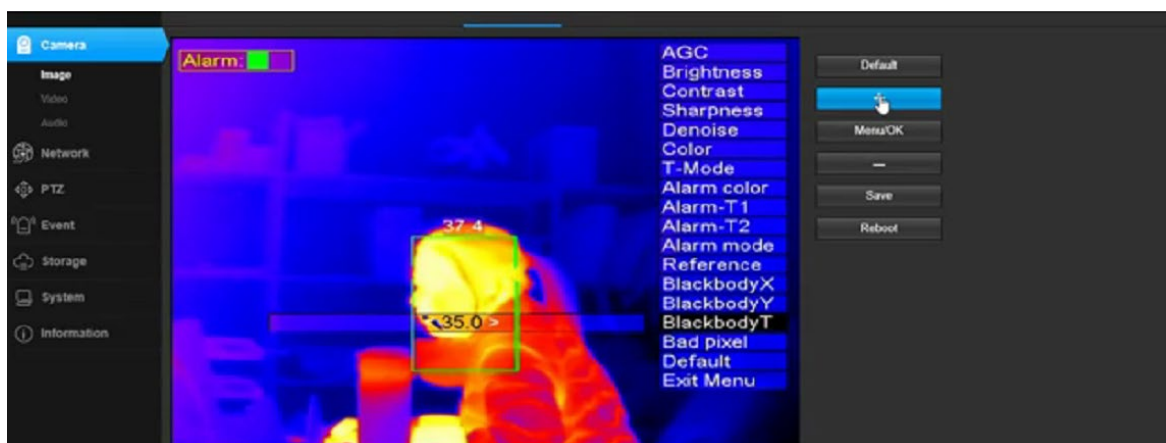
Specific "check temperature" numerical adjustment, depends on the temperature of the current detection personnel high or low specific value. if the body temperature is actually 37 degrees, and the thermometer detection are 36 degrees, then add "check temperature" numerical upward. How much of this reduction will be adjusted according to the temperature detected by the forehead temperature gun.

If the human body temperature is actually 37 degrees, while the thermometer detects 38 degrees, then reduce "check temperature" accordingly. How much of this reduction will be adjusted according to the temperature detected by the forehead

temperature gun.

After all parameters are set, click "menu/ok" to take effect.

● **Black mode**

When the "set" mode's offset value does not conform to the human body temperature with the change of the ambient temperature, then the blackbody mode needs to be enabled. The blackbody can give the thermometer a thermostatic heat source, so that the thermometer has a thermostatic reference, so as to accurately detect the human body temperature.

It will be ok to put the blackbody in the green box of the video image. The best distance is about 3 meters from the thermometer. It can not be blocked between the blackbody and the thermometer. The blackbody can be placed without occupying the normal detection view angle.

After the position of the blackbody is determined, the coordinates " " x (horizontal coordinates) and y (vertical coordinates) of the blackbody need to be adjusted to the coordinate position in the middle of the black body by left and right" < > ".

Select "+ -" to "blackbody" and select "menu/ok" :

| Off/Black Body/Manual | Reference |

Then select the blackbody coordinate X and the coordinate Y by "+ -", to adjust the value by "+ -" respectively, until the coordinate " ▣ " is adjusted to the middle position of the blackbody, then the coordinate calibration is finished:

| < 16 > | BlackbodyX |
| < 0 > | BlackbodyY |

Finally through the selection of "+ -" to the blackbody temperature, temperature reference value can be set up for blackbody constant temperature 1-2 degrees from top to bottom, blackbody temperature ultimate adjustment value, need fine-tuning according to the body temperature difference by temperature thermometer measured and the temperature of forehead gun measured, how much higher than the forehead temperature gun temperature, to cut blackbody temperature how much, conversely, how much below, then raise the blackbody temperature how much, specific adjustment according to actual situation.

| < 35.0 > | BlackbodyTEMP |

The specific operation shall be carried out according to the following contents:

- The coordinate box of the blackbody demarcates the position of the blackbody, which tells the thermometer that the position of the coordinate box is the blackbody;
- The setting of the blackbody temperature is just the reference value, generally set in the blackbody temperature above and below 1-2 degrees;
- According to the forehead temperature gun for comparison, to see the difference between the temperature and the temperature gun, higher will lower the blackbody set value, lower will increase.

4. Software Installation and use

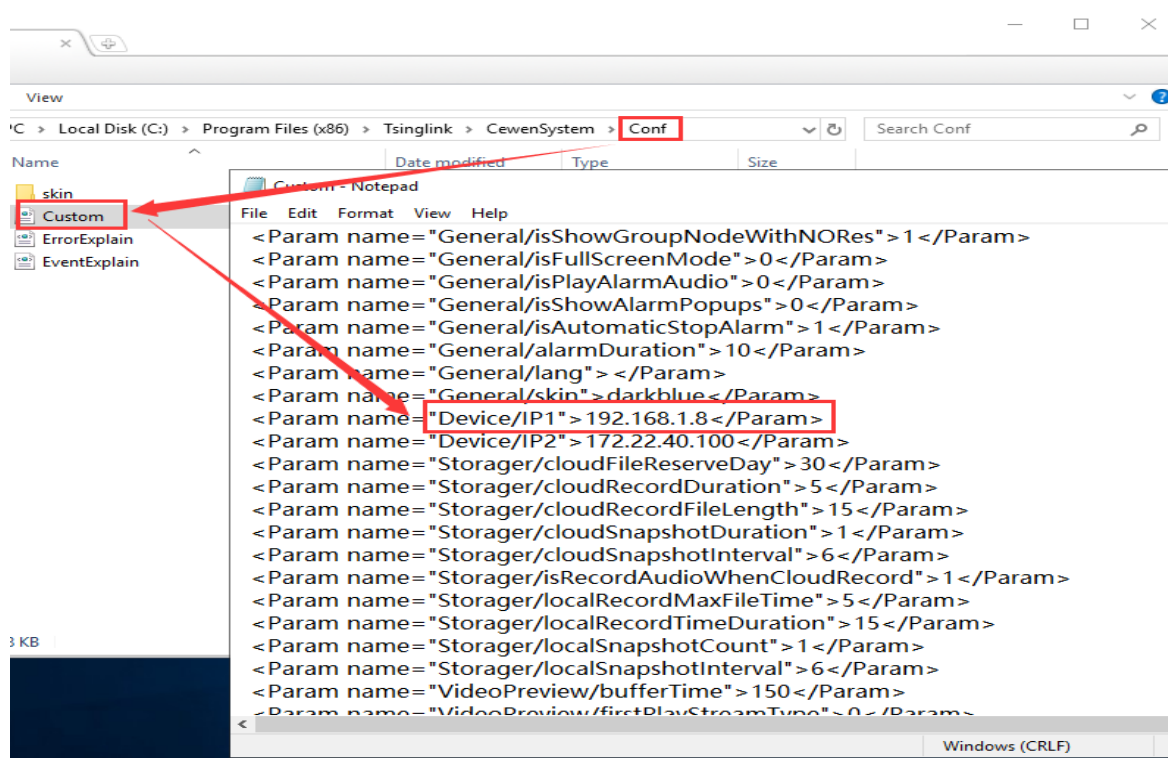### 4.1   Software installation

4.1.1   PC Client installation

PC client installation is very simple, double-click to open the "rapid temperature screening system" installation package, installation prompt "next", click to choose the path to install, next steps all pages prompt "next", directly click next, all options default, no need to change, until "Finish", click "finish" to complete the installation.

There are two points to note:

1. If IP of the thermometer changes, you need to install the Conf folder in the root directory of the PC client, open the Custom. XML file with notepad, modify the IP address of IP1, and keep it consistent with the device. Among them, the IP address of IP2 need not be taken care, remember not to modify.

2. If there is no picture on the client and "Connection error" is displayed, please open the settings to confirm whether the Thermometer IP is consistent with the device. If it is not the same, modify IP1 in the Custom.xml file to be consistent with the device IP.

4.1.2 Android TV software installation

Since android TV brand and android system versions are different, when install the rapid temperature screening system software on the TV side, firstly insert the U disk into the TV U disk interface, to make it read normally, and then find the local media or local files from the TV system interface, find the local media or local files, find the storage directory of thermometer   software, and click to install.

4.2 Rapid Temp Screening System Introduction -PC version

Rapid Temperature Screening System PC client, can real-timely monitor personnel temperature data in image, real-timely monitor personnel whether wearing masks, real-timely capture facial images, real-timely monitor the temperature of personnel over fever threshold, the client sends alarm, support statistics of various status of personnel data information, support alarm events face images and videos saved to the local PC storage, can operate query, play and delete by date and time.
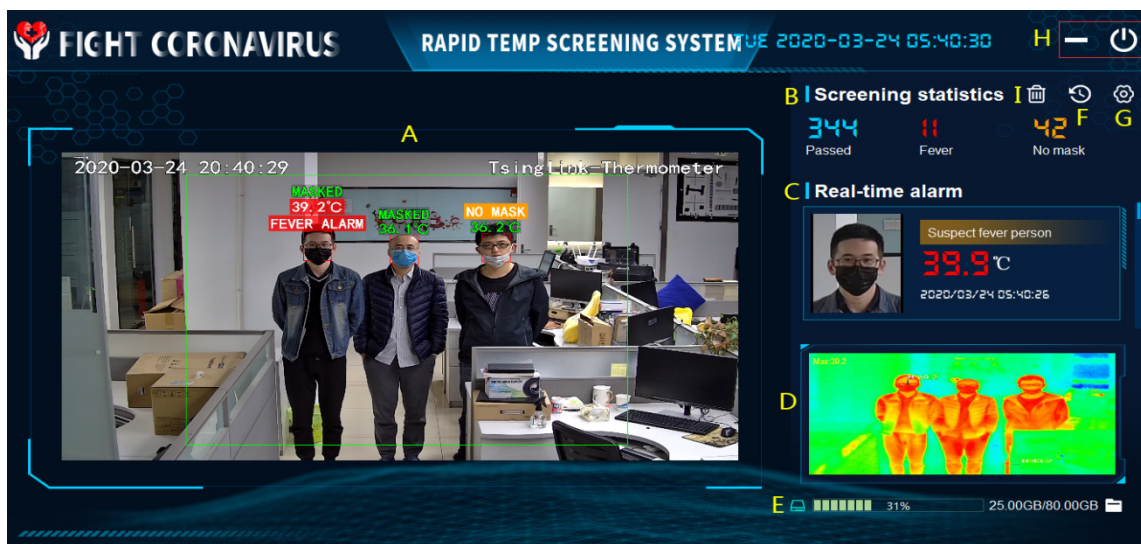
The specific system can be divided into eight functional modules, which are specified as follows:

4.2.1　Area A - Temperature detection and mask recognition display area

Real-time images in green box area is for body temperature monitoring area, also can recognize whether wearing masks, real-time monitoring information superimposed above personnel's head, follow personnel to display real-time tracking changes. Such as No mask, overlay text will change to red font "No mask", such as the temperature is higher than the fever temperature threshold preset, overlay text will be prompted to red font "Fever", temperature value will also be changed to red alert. The corresponding alarm data above will be scrolling displayed in the alarm area in real time, and records will be kept. The corresponding alarm records are: warning of people who do not wear masks, warning "No mask", abnormal body temperature, warning: suspected fever.

The monitoring area outside the green box can only recognize whether wearing mask, can not recognize the temperature.

4.2.2　Area B-Screening Statistics

Screening statistics are mainly used for counting the total number of people

passing through the video, the number of fevers and the number of without masks. These numbers are based on personnel monitoring and screening, and automatically record the suspected fever events, without masks events, people wearing masks monitor and identify records, and classify them for statistical presentation.

4.2.3 Area C-Real-time Alarm

The alarm events acquired by the system are displayed in real-time. The event records include: snapshot records of people without masks, and snapshot records of people suspected of fever.
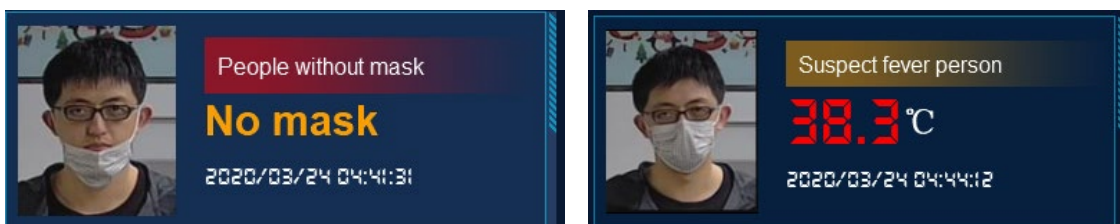
4.2.4 Area D- Thermal Imaging Body Temperature Monitoring Area

Real-time display of the body temperature of personnel in the temperature monitoring area and real-time overlay display.
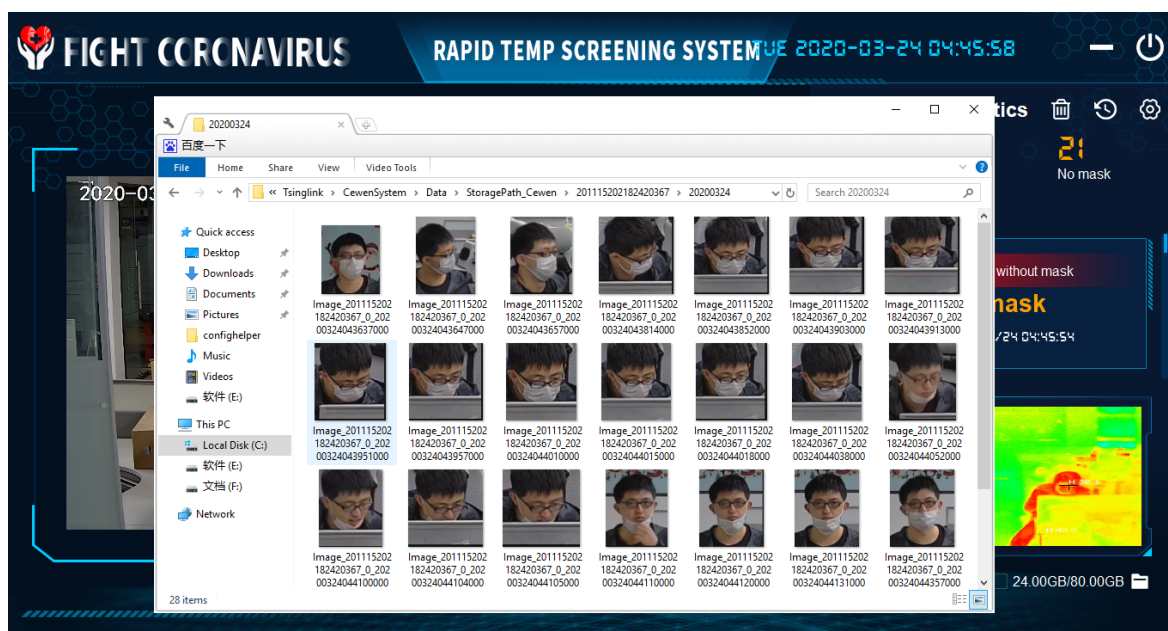

4.2.5 Area E-Open Folder

Display the current space usage of the saved file disk in real time. Click the path to view the directory of snapshot pictures and video files named by date and

time, as shown below:

4.2.6 Area F - View History Area

Click the icon to view the history area, which is mainly divided into two major functions, alarm management and video management. The alarm management can query the details of alarm events according to three alarm types, alarms, without mask, and suspected fever. The details include time, parameter, face photos, notes, etc. The operation of querying event, playback event and deleting event can be realized.

Video management function, according to the selected date and time range, query the recording of the event playback, the video can be played, during the playback video can be paused, fast forwarded and fast rewind, also supports the delete operation. The recorded video information includes the video name, video time, video duration, and remark etc.

4.2.7 Area G-Options

Click the icon and select the option function, which includes functions of changing the storage directory, changing the maximum number of alarm display, changing the number of days of video storage, changing the temperature threshold, changing the thermometer address, and the opening of the thermometer configuration web interface, starting and stopping of temperature measurement control etc, as detailed below:

● Storage directory:

Click Browse to modify the directory where the alarm event face pictures and video files are stored;

● Maximum number of alarm displays:

Default 50, the value can be modified, and the maximum value is not more than 200;

● Video storage days:

Default 30 days, the number of days can be modified, and the maximum storage is 100 days;

● Body temperature threshold:

The initial value is 37.8 degrees, according to the setup of body temperature value, the system will alarm the abnormal temperature based on this value and generate a corresponding alarm event for suspected fever personnel;

● Thermometer address:

Cannot be changed, click to enter the web configuration interface of the thermal imaging camera. Normally, no configuration is required, when the temperature calibration configuration is required, you can log in. The web access account is "admin" and password is "123456".

● Temperature measurement control:

Default ticked, cancel the tick to stop temperature detection, observe the video image, temperature no longer overlay display.

● Mask wearing control:

Default ticked, cancel the tick to stop mask recognition and detection, observe the video image, mask information no longer overlay display.

● Alarm sound:

Alarm sound, can be set, support Chinese and English voice switching, and shutting down.
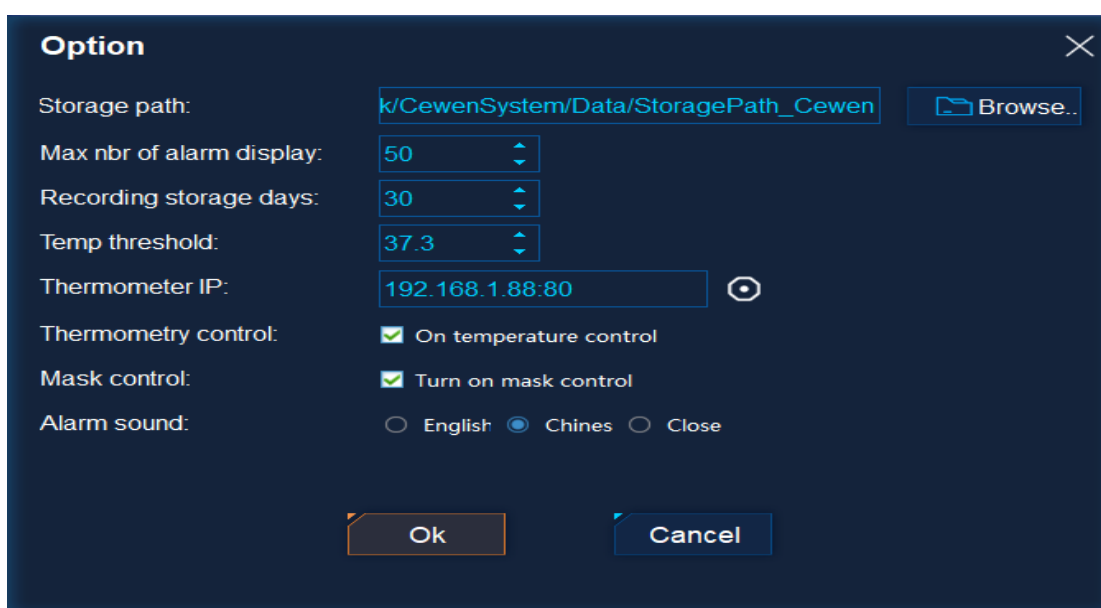
4.2.8   Area H - Minimize and Close

Operate to minimize the client and close the client.

4.2.9   Area I - Statistics Reset

Click to reset the records of the total number of people, people suspected of fever and people without masks

4.3   Quick Temperature Screening System-Android Version

After logging in to the Android TV version, the first step is to set the TV network to a wired network, set the TV network port address to the same network segment as the thermometer, and then log in to the APP to set the APP connect to the IP address

of the thermometer, which needs to be consistent with it to ensure the APP can directly obtain the video of the device. The specific operation is described below.
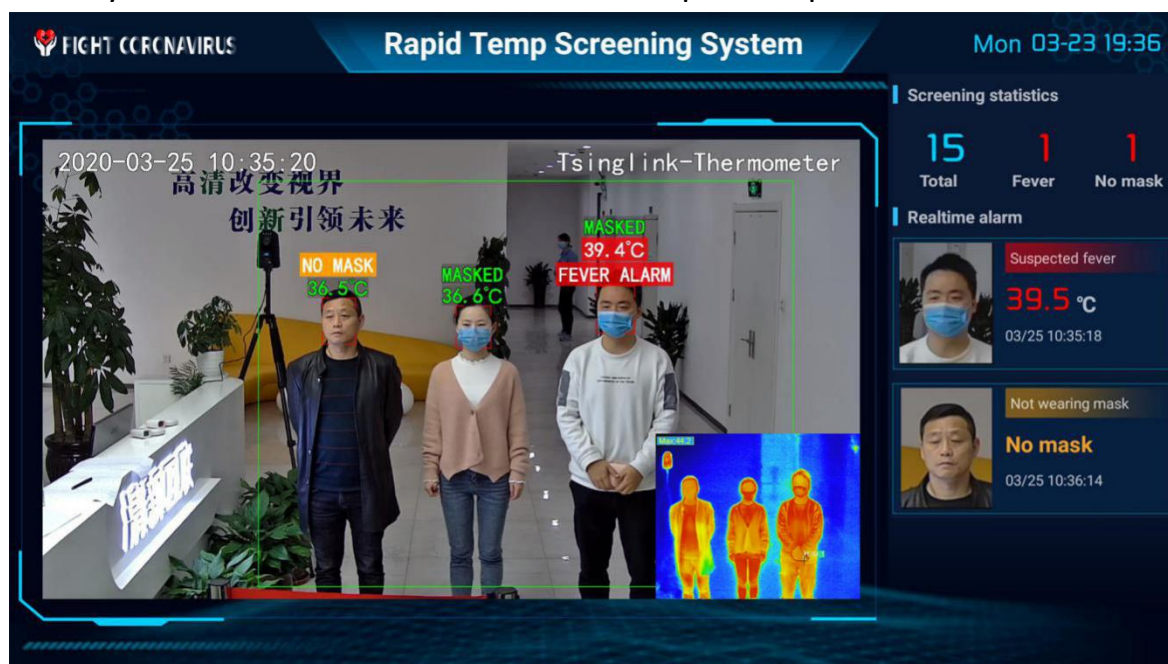
The specific system is roughly divided into four functional blocks, as follows:

4.3.1   Area A-Temperature Detection and Mask Recognition Display Area

The green box area in the real-time screen is the temperature monitoring area. It can also identify whether wearing mask or not. The monitoring information is overlaid on the top of the person's head in real time, and tracking changes in real time as the person moves. For example, not wearing masks, overlay text will change to red font "without mask", if the body temperature is higher than the setup value of the fever body temperature threshold, the overlaid text will prompt the red font "body temperature abnormality", and the body temperature value will be changed to red.

The above corresponding alarm data will be displayed in the alarm area in real-time, and the records will be kept. The corresponding alarm records are: warning "without mask" if people do not wear masks, warning "body temperature abnormality" if people suspected of having fever.

The monitoring area outside the green box can only realize whether to wear a

mask or not, and cannot detect the body temperature. It should be noted that the corresponding acquired events are consistent with the body temperature monitoring area.

4.3.2 Area B-Screening Statistics

Screening statistics are mainly used for counting the total number of people passing through the video, the number of fevers and the number of without masks. These numbers are based on personnel monitoring and screening, and automatically record the suspected fever events, without masks events, people wearing masks monitor and identify records, and classify them for statistical presentation.

4.3.3 Area C-Real-time Alarm

The alarm events acquired by the system are displayed in real-time. The event records include: snapshot records of people without masks, and snapshot records of people suspected of fever.
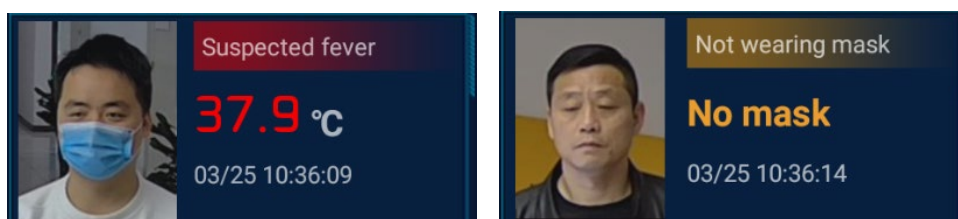

4.3.4 Area D - Thermal Imaging Body Temperature Monitoring Area

Real-time display of the body temperature of personnel in the temperature monitoring area and real-time overlay display.
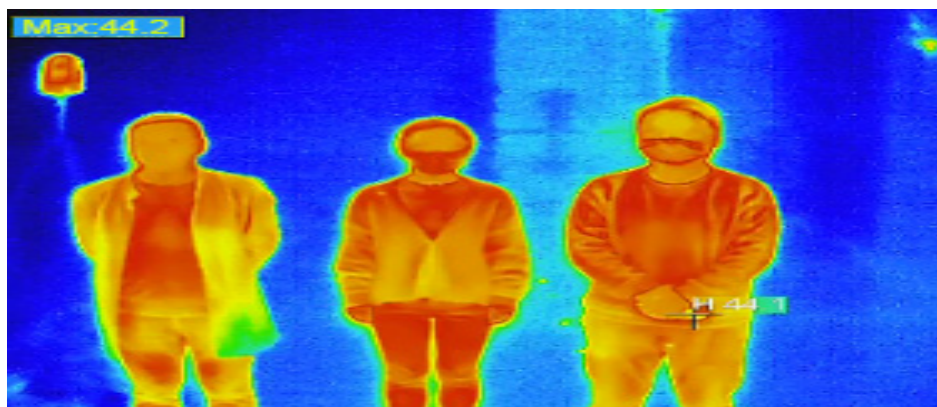

4.3.5 Parameter Setting For Android TV Software

After successfully logging in the APP software, press the right button of the remote control to enter the main interface of the system setting, press the left button to exit the main interface of the system. The system setting is mainly divided into setting device IP, about, debugging information, uploading logs, and checking for updates. As shown below:
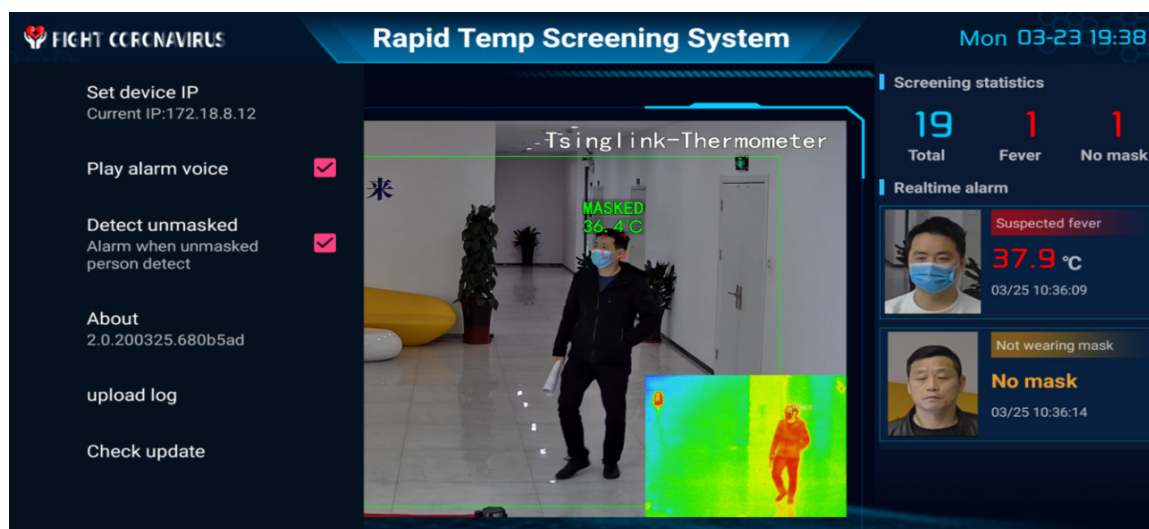
4.3.5.1   Set Device IP

Select "Set Device IP" by the remote control, the input interface pops up. The input IP address must be consistent with the device IP address. The purpose is to let the APP connect to the device and obtain the real-time video of the device. The default IP of the main device video access is: 192.168.1.8. If the device IP is changed, as long as the TV IP and the device IP are in the same network segment, they can be connected normally.
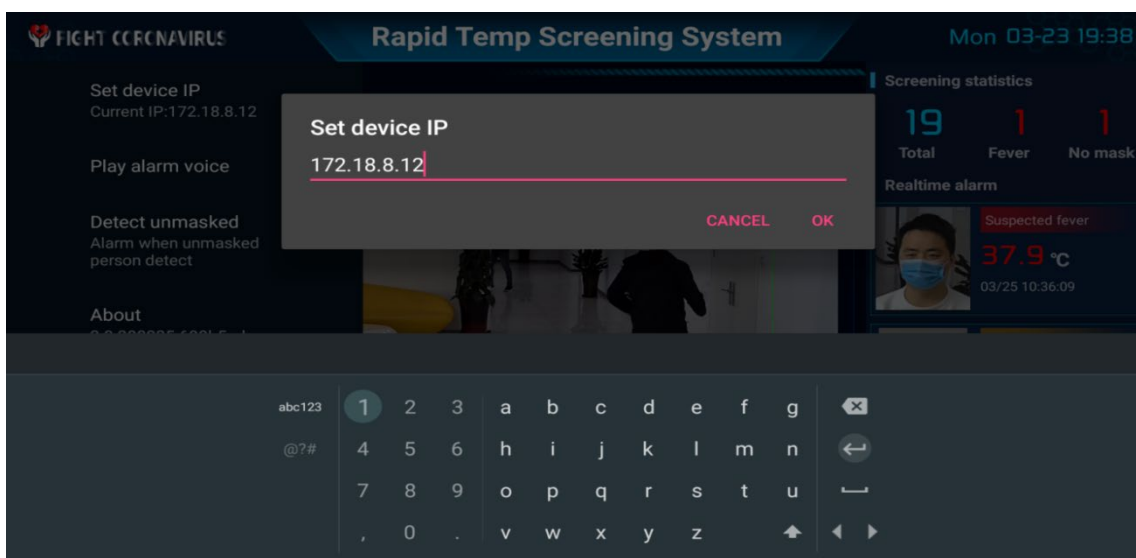
4.3.5.2 About

Select "About" by the remote control to view system related information, including device ID, version, device IP, local IP, etc.
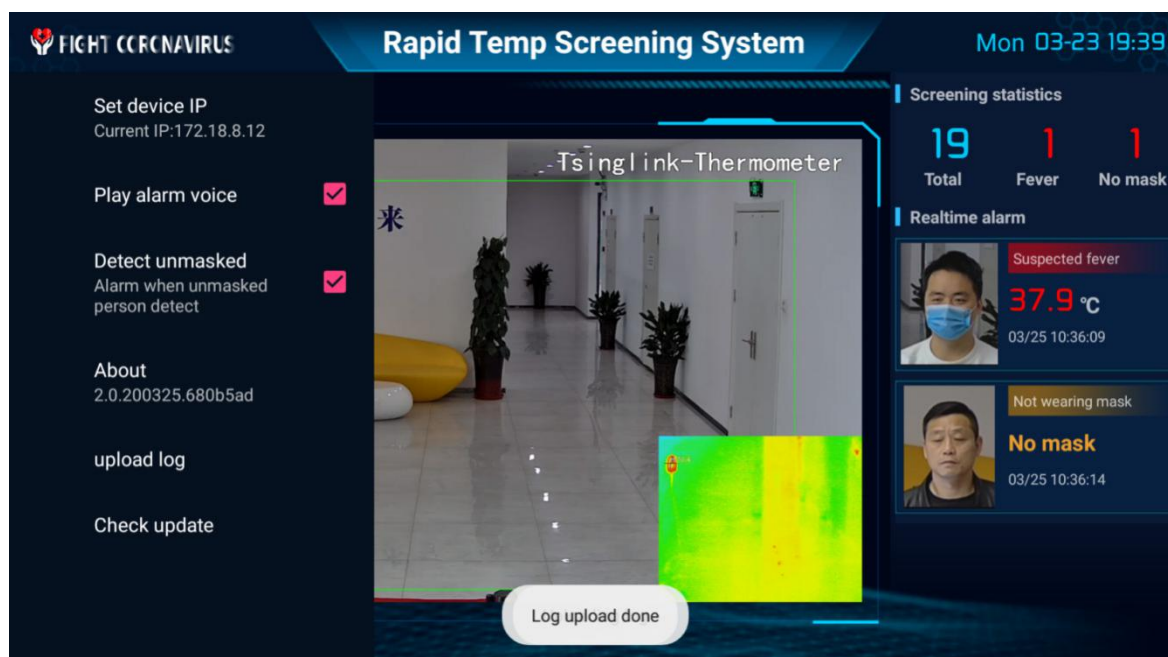

4.3.5.3 Debug Information

This item is R & D debugging information, which can only be viewed, not modified and deleted.

4.3.5.4　Upload Log

Select "Upload Log" by the remote control. If there is any abnormal situation on the software side, click "Upload Log" to upload the error information to the remote server to help the technical engineer troubleshoot the problem.

4.3.5.5　Check the Update

Select "Check the Update" by the remote control. If the version update is released in the APP background, it will prompt installation or cancellation. If there is no update, the interface will prompt "No new version can be upgraded"