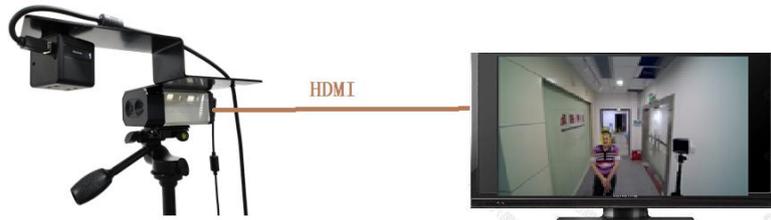
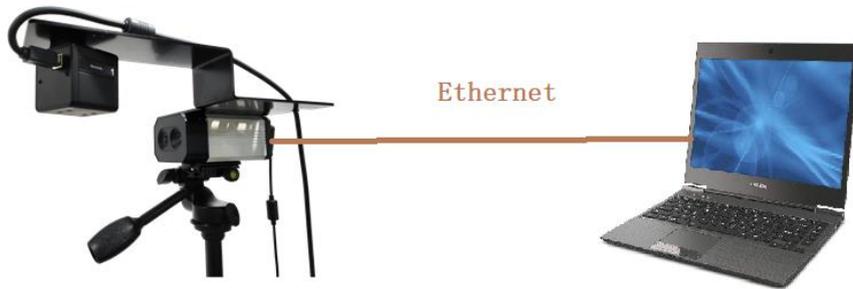


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# Thermal Imaging Camera User Manual

V2.0



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# 1 Overview

TMT30BB Thermal imaging camera is a non-contact solution to detect human body temperature, which can be simple, safe and accurate to screening the high temperature people to prevent the fever people pass.

TMT30BB thermal imaging camera doesn't need any software configuration, just assemble it and power on after one minute, then the camera can start measuring the human body temperature.

With a blackbody in the front of the TMT30BB, TMT30BB will continuously calibrate from the blackbody, even the environment temperature change, the measured temperature value will be always accurate.

When the normal temperature people pass, the thermal imaging camera will detect the face and measure the temperature, and there will be temperature normal displayed in the software. If the fever people pass, the thermal imaging camera will show temperature alarm in red in the software, both the thermal imaging camera and computer (or TV) will send sound alarm out, and automatic take the people face picture and record video.

To know more about why need blackbody in the fever detection of COVID-19 thermal imaging system solution, please visit United States of American Food and Drug Administration (FDA) website, and search "blackbody" in the below url:

<https://www.fda.gov/media/137079/download>

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## 2 Features

- The thermal imaging camera can automatic measure the human body without any configuration, it is no matter with or without facemask.
- The people just walk through without stop, the system will detect the body temperature.
- With a blackbody to automatic calibrate the thermal imaging camera, fully compliant with FDA requirement.
- The temperature accuracy  $\pm 0.3^{\circ}\text{C}$ .
- Ethernet and HDMI port based with SDK; the customers could develop own software platform.
- Automatic take people face pictures and record alarm videos when the people temperature is higher than threshold.
- Alarm pictures and videos can be automatic saved to external USB disk.
- Support visible or fusion display modes.

### 3 Specification

#### 3.1 Dual Spectrum Thermal imaging camera



The specification is shown below,

Parameter		Specification
Thermal imaging camera	Resolution	160x120
	Spectrum	8~14um
	FPS	25Hz
	NETD	80mK@25°C (77°F)
	FOV	H84° , V64°
	Measuring range	10°C~50°C (50°F ~ 122°F)
	Accuracy	±0.3°C (±5.4°F)
	Measure distance	3 meters
	Measure the temperature	Automatic face temperature measurement based on face recognition
Visible camera	Resolution	1080P
	FOV	H120
	FPS	25Hz
	illumination	0.5 Lux @ (F1.8, AGC ON)
	Backlight compensation	Supported
	Digital noise	2D&3D Digital noise reduction
	SNR	≥55dB
General	IP configuration	DHCP or static IP address

Parameter		Specification
	Temperature unit	Celsius, Fahrenheit
	Interface	Ethernet (RJ45)
		HDMI
		RS485
		Alarm
		USB
		Working temperature
	Storage temperature	-40°C~+85°C (-40°F ~ 185°F)
	Degree of protection	IP54
	Size	129mm x 73mm x 61mm (L x W x H)
	Weight	460g
	Mounted	1 / 4 "tripod mounting hole
Software	AI	Face recognition
	Temperature Measurement	Automatic face recognition temperature measurement
	Alarm	Sound alarm of camera, computer or TV
	Photograph	Automatic photograph when alarm or manually photograph
	Video	Automatic video recording when alarm or manually video recording
	Language	Chinese, English, Japanese (other language can be customized)

### 3.2 B03 Blackbody





The specification is shown below,

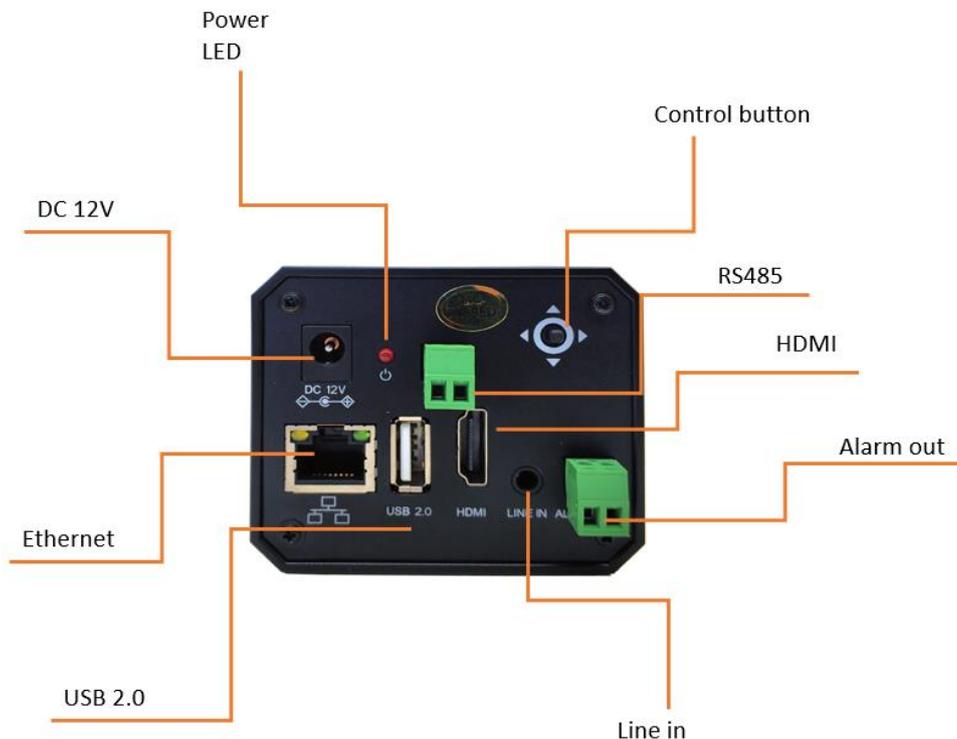
Parameter	Specification
Measuring range	+5°C ~ 50°C (41°F ~122°F)
Surface Size	Diameter 25 mm
Emissivity	0.95 ± 0.02
Accuracy	0.1°C (0.18°F)
Stability	< ±0.1°C (±0.18°F)
DC	5V (propose 5V 2A adaptor, at lease 5V 1A adaptor)
Working temperature	Temperature 0°C ~ 50°C (32°F ~122°F) Humidity ≤90%RH
Equipment Size	53 x 50 x 57mm
Weight	150g
Power consumption	Average 2.5W

### 3.3 Appearance and Interface

The thermal imaging camera has below interface,



No.	Interface	Function Description
1	1080P visible camera	provide visible imaging for the camera
2	thermal imaging camera	provide thermal imaging for the camera
3	Green LED	LED on: camera work normally LED off: camera work abnormally or power off



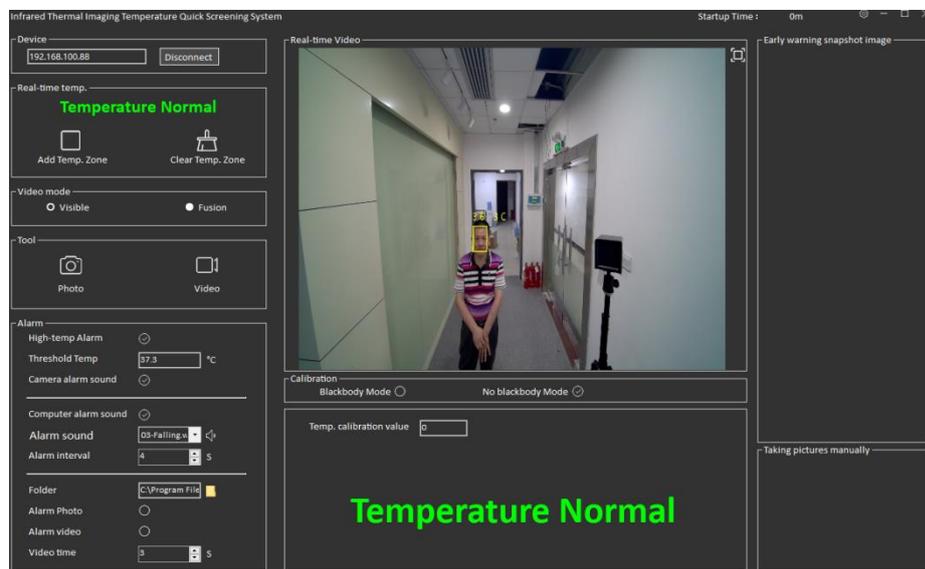
No.	Interface	Function Description
1	DC 12V	provide DC 12V for the camera
2	Ethernet	connect computer with camera, can work with HDMI simultaneously
3	HDMI	connect HDMI TV or display, can work with Ethernet simultaneously
4	USB 2.0	store the alarm pictures and videos when only connect with TV or display
5	RS485	No available now

6	Alarm out	to connect external sound and light alarm equipment (cannot provide power supply)
7	Line in	No available now
8	Control button	For visible light camera configuration (default is enough for most scenarios)
9	Power LED	LED on: camera power is normal LED off: camera power is abnormal

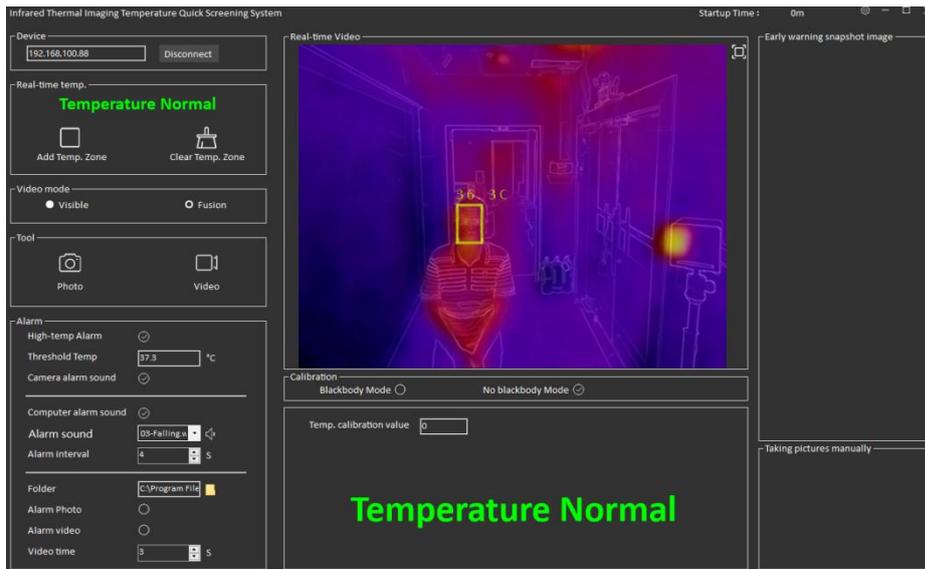
## 4 Software

The interface is shown below, we propose the visible mode to see the face,

- Visible mode



- Fusion mode



The software functions are shown below,

Functions	Description
Video mode	visible mode
	fusion mode
Image	automatic snap face image when temperature higher than threshold, and display the value of the temperature.
	manual save image
Video	automatic record video when temperature higher than threshold
	manual record video
Alarm	Set alarm threshold value
	Camera sound alarm
	Computer sound alarm
SDK	Ethernet based SDK for secondary development of customers

## 5 Devices List

No.	Type	Specification	Qty.	Remark
1	Dual spectrum infrared thermal imaging camera	Camera resolution 1080P, Thermal resolution 160×120	1	Standard configuration
2	B03 Black body	+5°C ~ 50°C (41°F ~122°F) , diameter 25mm surface	1	Standard configuration

No.	Type	Specification	Qty.	Remark
3	B03 blackbody power cable		1	
4	Mechanical part	To hold the TMT30BB and B03 blackbody	1	
5	Software		1	
6	TMT30BB tripod	1.8 – 2 meters	1	Optional
7	HDMI TV or display		1	
9	Adaptor with USB port	DC5V 2A or 1A	1	

## 5.1 All Items



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## 6 Caution

- The environment has a great influence on the temperature measurement accuracy of infrared thermal imaging. Although there is blackbody correction, there is a great change of environment, which will also affect the blackbody. Therefore, try to choose a stable room temperature environment. Do not deploy the thermal imaging camera and blackbody near the air conditioner, fan and, heating equipment, etc.
- The thermal imaging camera and blackbody shall be placed in the indoor environment, which means the sunshine cannot directly on the products or in the camera video image, and the ambient temperature shall not change greatly.
- For the background of the video image, try not to have other high-temperature equipment higher than the body temperature, such as: heating air conditioner, water heater, incandescent lamp and other high-temperature objects.
- Some people who are not fever may have over high temperature alarm, such as after drinking hot liquid, strenuous exercise, just drinking boiled water, local facial inflammation, long-term sun exposure, just coming out of the sultry environment, etc., at this time, the people can be quiet for a while then test.