DHI Thermal Body Temperature Measurement Solution Delivery Plan

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Revision Record

Course Code	Category	Category Version	Course Version

Author/ID	Date	Reviewer/ID	New/ Update
Chen Simin/16018	2020/2/29		New

Objectives

- After learning this course, you can:
  - Be familiar with the application of Dahua Thermal Body Temp. Measurement Solution;
  - Get the knowledge of equipment survey, installation and wiring, etc;
  - Understand how to debug the system;
  - Understand how to use the system;
  - Get the knowledge of the solution FAQ;

CONTENT

Overview | Application scenarios

- For indoor temperature measurement stations with professional personnel on duty, such as passenger stations, railway stations, subway stations, airports and other security check entrances where passengers pass in order, it is only necessary to deploy a human body temperature camera and high-precision human body temperature blackbody at each entrance, and connect to the on-site computer for configuration management, so as to realize the temperature detection of inspectors. If the temperature is abnormal, alarm and remind the on duty personnel For further disposal.

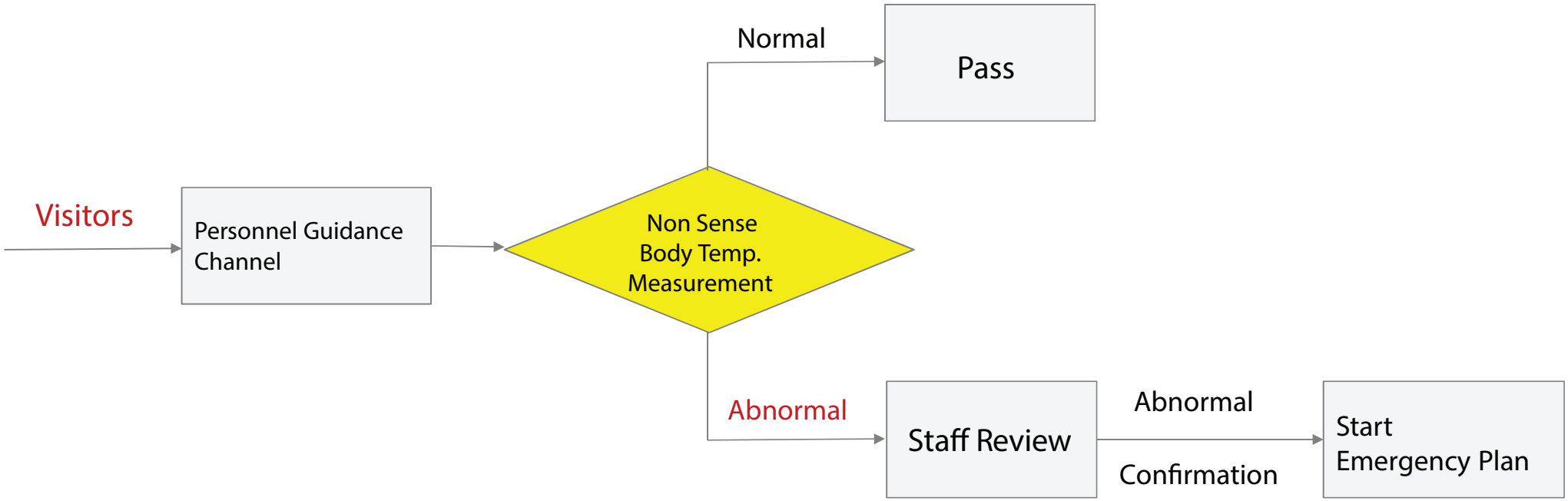
Airport

Station

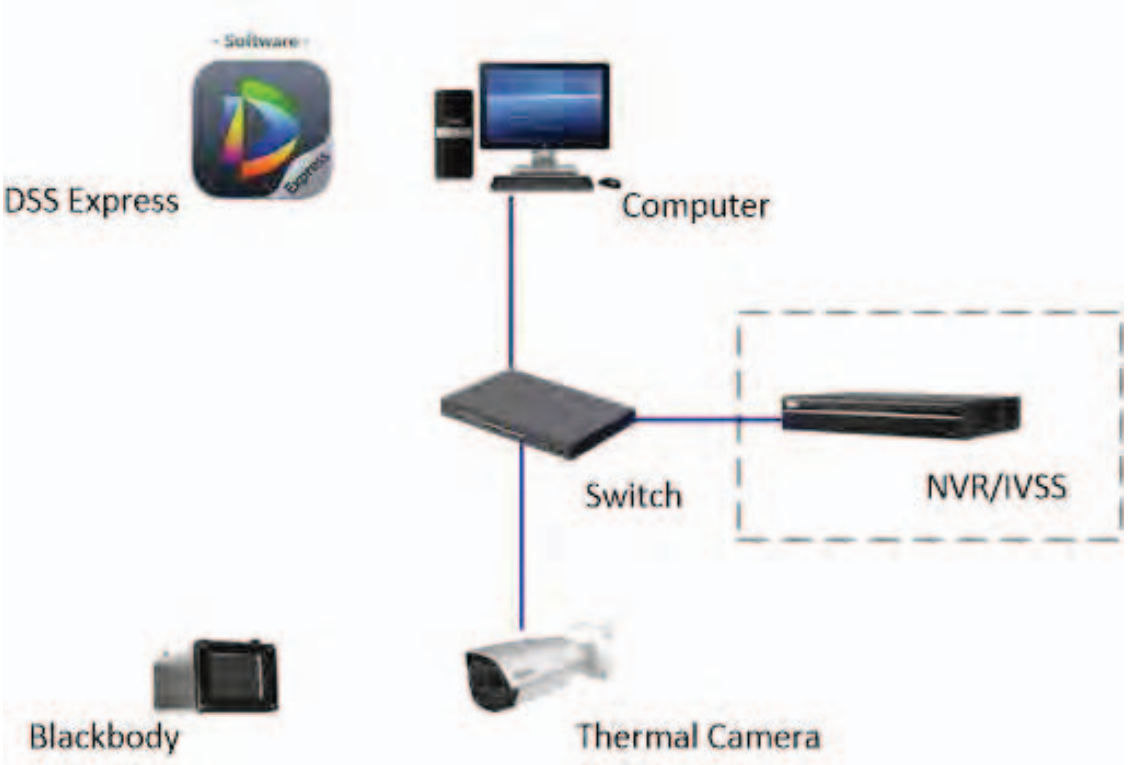
Hospital

Enterprise

Overview | Solution Process Diagram



Overview | Topology



Overview | Products

Thermal Network Bullet Camera DH-TPC-BF3221	Thermal Network Bullet Camera DH-TPC-BF5421P	AI Network Video Recorder DHI-NVR5216-16P-I	Easy-to-Use and Reliable VMS Express	Body temperature measurement blackbody
				
Uncooled vanadium oxide infrared focal plane detector Detector resolution: 256 * 192 Spectrum range: 8 μ m ~ 14 μ M Thermal imaging lens: 3.5mm/7mm optional Temperature measurement range: 30 ℃ ~ 45 ℃ Thermal sensitivity: ≤ 50mk @ f / 1.0 Visible light: 1 / 2.8 "CMOS Visible lens: 4mm / 8mm optional Sound light warning: built in white light warning light and horn Resolution: 1080p Temperature measurement accuracy: ± 0.3 ℃ (with blackbody), ± 1 ℃ (without blackbody)	Uncooled vanadium oxide infrared focal plane detector Detector resolution: 400 × 300 Spectrum range: 8 μ m ~ 14 μ M Thermal imaging lens: 7.5mm/13mm optional Sensitivity: ≤ 40 MK Visible light: 1 / 2.8 "CMOS, 1080p Visible lens: 4mm / 8mm optional Sound light warning: built in white light warning light and horn Temperature measurement range: 30 ℃ ~ 45 ℃ Temperature measurement accuracy: ± 0.3 ℃ (with blackbody)	16 Channel IP video access Smart H.265+/H.265/Smart H.264+/H.264/MJPEG Up to 16 Channel perimeter protection Up to 4 Channel video stream face recognition Up to 24 face pictures /sec processing Up to 20 face databases with 100,000 face images in total 1-8 PoE Ports support ePoE & EoC	Integrates all the management operations in the client Auto search to add devices quickly in LAN Imports devices from SmartPSS, which is convenient to upgrade from SmartPSS to DSS Express High Flexibility Benefits from vector icon for different resolution display GPU decoding to monitor more HD cameras High Stability Backup automatically and restore manually in case data lose in abnormal situation Locks the record to keep evidence in case that it could be rewritten	Working temperature: default 40.0 ℃ (ring temperature + 5.0 ℃ ~ 50.0 ℃ adjustable) Temperature resolution: 0.1 ℃ Temperature measurement accuracy: ± 0.2 ℃ (single point) Temperature stability: ± (0.1 ～ 0.2) ℃ / 30min Effective emissivity: 0.97 ± 0.02 Power supply: 220VAC 50Hz Ambient temperature and humidity: 0 ~ 40 ℃ / ≤ 80% RH (constant temperature reference)

Overview | Solution Features

Easy deployment	Safety	High efficiency	High detection rate	All-weather
Human body thermography camera + blackbody + ordinary PC constitute a small temperature measuring station	Non contact thermography to avoid the risk of cross infection	The detection time is less than 1 second, and multiple people can be detected at the same time	The head detection temperature measurement can avoid the interference of other non-human targets, and the temperature measurement accuracy can reach ± 0.3 ℃ with blackbody	7x24 hours online real-time temperature measurement preliminary screening, early warning intervention (some models support active acoustooptic warning reminder)

CONTENT

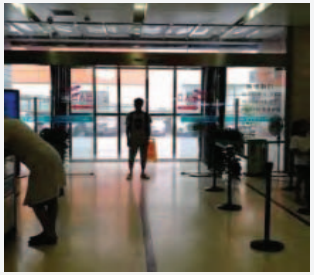
Preparation | Survey

- The installation area shall be a relatively isolated and stable environment without wind , avoiding the outdoor or the scene connected with the outdoor. It is not suitable for the environment with air flow or strong electromagnetic interference or vibration.
- The installation area shall ensure that the moving direction of the flow of people is facing the camera in a positive direction to ensure that the camera can detect the temperature of the face forehead.
- No high temperature heat source or sunlight in the thermal image ,avoid the interference of heat sources such as microwave oven, heater, hot water point, high-power lamp, radiator, etc , to avoid damage to the detector.
- The visible light channel of the binocular camera requires sufficient illumination in the environment and avoids the influence of backlight / reflection / change of strong light / occlusion, etc.

Recommended guide channel

It is recommended to use the flow direction guide device (protocol bar, etc.) to guide the walking direction of the personnel and control the width of the personnel aisle so that the personnel can face the thermal imaging camera at the best detection position

Scenarios should be avoided

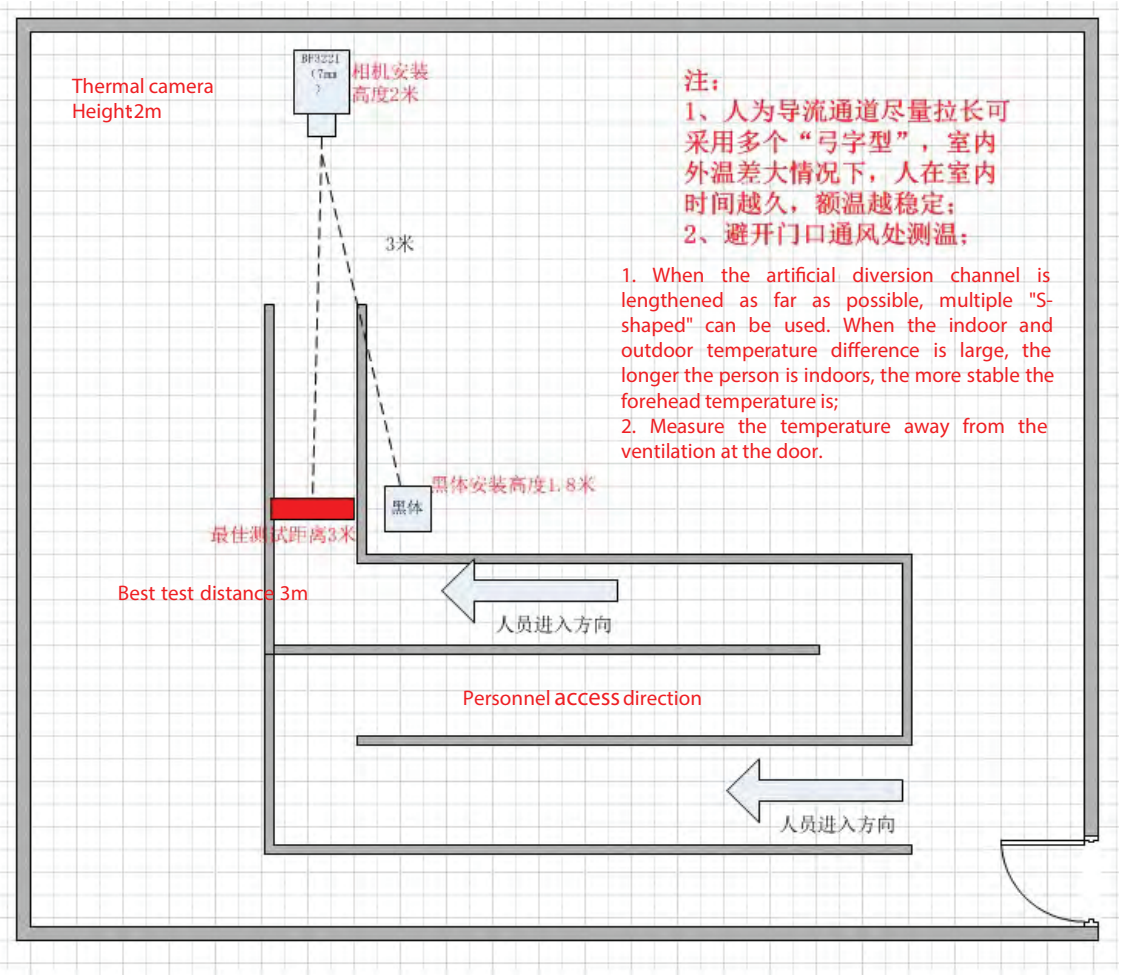


Scene connected with the outdoor

The direction of people moving is not toward the camera

Insufficient illumination

Preparation | Survey



- For the scene with large indoor and outdoor temperature difference, it is necessary to plan multiple S-shaped routes, avoid the windy area at the door, and measure the temperature after the personnel reaches the indoor forehead temperature to be stable.

Preparation | Device & Tool List

Note: Tripod installation mode is adopted in this scheme, which is suitable for portable indoor installation scene.

Equipment	Specification type	Appearance	Remarks
Thermal camera (optional)	DH-TPC-BF3221	Binocular camera	Thermal camera 3.5mm lens, best monitoring distance 2m Thermal camera 7mm lens, best monitoring distance 3m
	DH-TPC-B5421	Monocular camera	Thermal camera 13mm lens, best monitoring distance 3m
Blackbody	JQ-D70Z		Blackbody and camera 1:1 scale configuration
Tripod and Connector	VCT-999		The tripod can be used for rapid deployment of thermal camera and blackbody, and an adapter block is needed for connection. Note: one set of temperature measuring equipment shall be equipped with two sets of tripods and adapter blocks, one for camera and one for blackbody
	RAW021-00-Adapter block		
Computer	Notebook / Desktop		For function configuration and debugging
NVR	DHI-NVR5216-16P-I		
Software	DHI-DSS Express-Base-License		Installing on Computer, software for the solution to manage all the devices
Switch	DH-PFS3005-4ET-60		
DC12V power adapter	DH-PFM320		Power-AC100V~240V-12V2A-VI-DH-PFM320D
Band tape	5 meters or more		

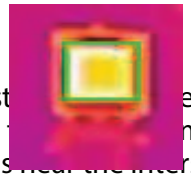
Preparation | Device & Tool List

Equipment	Specification type	Appearance	Remarks
Network cable, power cable, patch panel	several		For power supply and network connection of equipment, prepare in advance according to site environment
Concierge bar	several		Guide the walking direction of the personnel, control the width of the personnel corridor, so that the personnel can ensure that the face faces the thermal camera in the best detection position
Footprint sticker	currency		Stick the stop footprints on the best temperature measurement position to guide the temperature measurer to measure temperature one by one at the designated position, or use other indicator stickers instead
Screwdriver, Wire Clamp, Insulating tape, Cable Tie, RJ-45 plugs, etc	several		

CONTENT

Installation | Installation Requirements and Precautions

- The thermal imaging camera and blackbody are installed on the same side to avoid the occlusion between the camera and blackbody.
- The black body radiation surface (Note: the radiation surface shall not be touched or dirty) shall be facing the camera irradiation direction, the black body shall be on the left or right side of the thermal imaging picture, and the tripod can be protected by temporary fence.



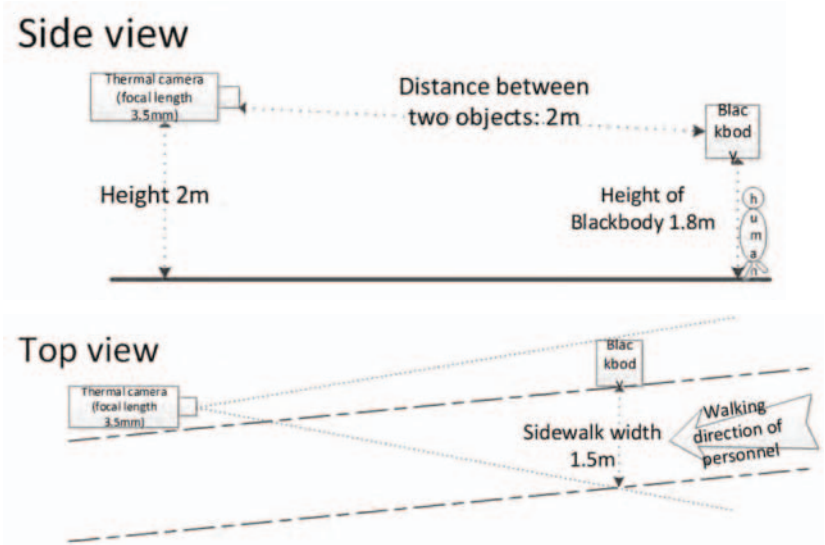
- Note: The bla d not be inst e to the edge of the thermal i ommended mage into 16 equal parts. A blackbody is rsection point on the upper left or upper right of the image.In addition, in order to ensure that the blackbody will not be moved after the installation, temporary fence can be added to protect it from being touched.

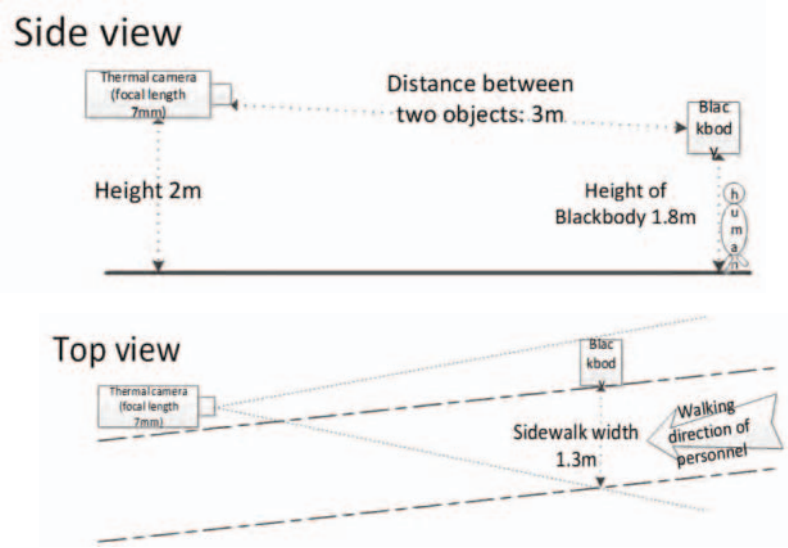
Installation | Installation Requirements and Precautions

The installation height of camera and blackbody and the distance from blackbody to camera are strictly required, as shown in the table below. The distance between the forehead and the camera should be the same as the distance between the blackbody and the camera. At this time, the accuracy of temperature measurement is the best. BF3221 (7mm) as an example, the blackbody calibration distance is 3m, the best temperature measurement distance is 3m (the straight-line distance between the front of the forehead and the camera), the best test width at 3m is about 1.3m (about one gate), the forward temperature at 3m will be higher, and the backward temperature will be lower. Under normal circumstances, put footprints at 3m position to guide the temperature measurer to measure temperature one by one at the designated position.

Camera mounting height	Camera depression angle	Mounting height for Blackbody	Focal length of thermal camera lens	Distance between blackbody and camera	Distance between human forehead and camera	Width at the best distance of temperature measurement
2m	Look down < 30 °, do not look up or horizontally	1.8m	BF3221(3.5mm)	2m	2m (No blackbody 2m)	1.5m
			BF5421 (7.5mm)	2m	2m (No blackbody 2m)	2m
			BF3221(7mm)	3m	3m (No blackbody 2m)	1.3m
			BF5421(13mm)	3m	3m (No blackbody 2m)	1.5m

Installation | Installation Requirements and Precautions

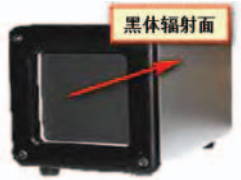




Installation | Installation Requirements and Precautions

Announcements :

- It is forbidden to touch the blackbody radiation surface, and dirt will lead to the decrease of blackbody accuracy or scrap, so as to avoid the scratch of blackbody radiation surface and affect the temperature measurement accuracy.



- The blackbody equipment uses AC220V power supply, be sure to use grounding socket to prevent accidental electric shock!

Installation Guide.mp4

Installation | Installation Requirements and Precautions

The height of the thermal camera from the ground is 2m, and the height of the blackbody from the ground is 1.8m. The best detection position of the human body is parallel to the blackbody (3m away from the camera), and the camera's pitch angle is less than 30 °, facing the forehead of the face and the radiation surface of the blackbody

Note: the environment is a temporary test point, and the gate is closed. During field installation, direct connection with the outdoor shall be avoided, otherwise the temperature measurement may be inaccurate at the best temperature measurement point due to the influence ofindoor and outdoor airflow convection

Monitoring effect of the tester standing at the best temperature measuring point of 3m

Installation | Thermal Camera & Blackbody

Camera cable connection :

Power interface connected to power adapter (BF3221 and BF5421 connected to DC12V, sd8421 connected to AC24V)

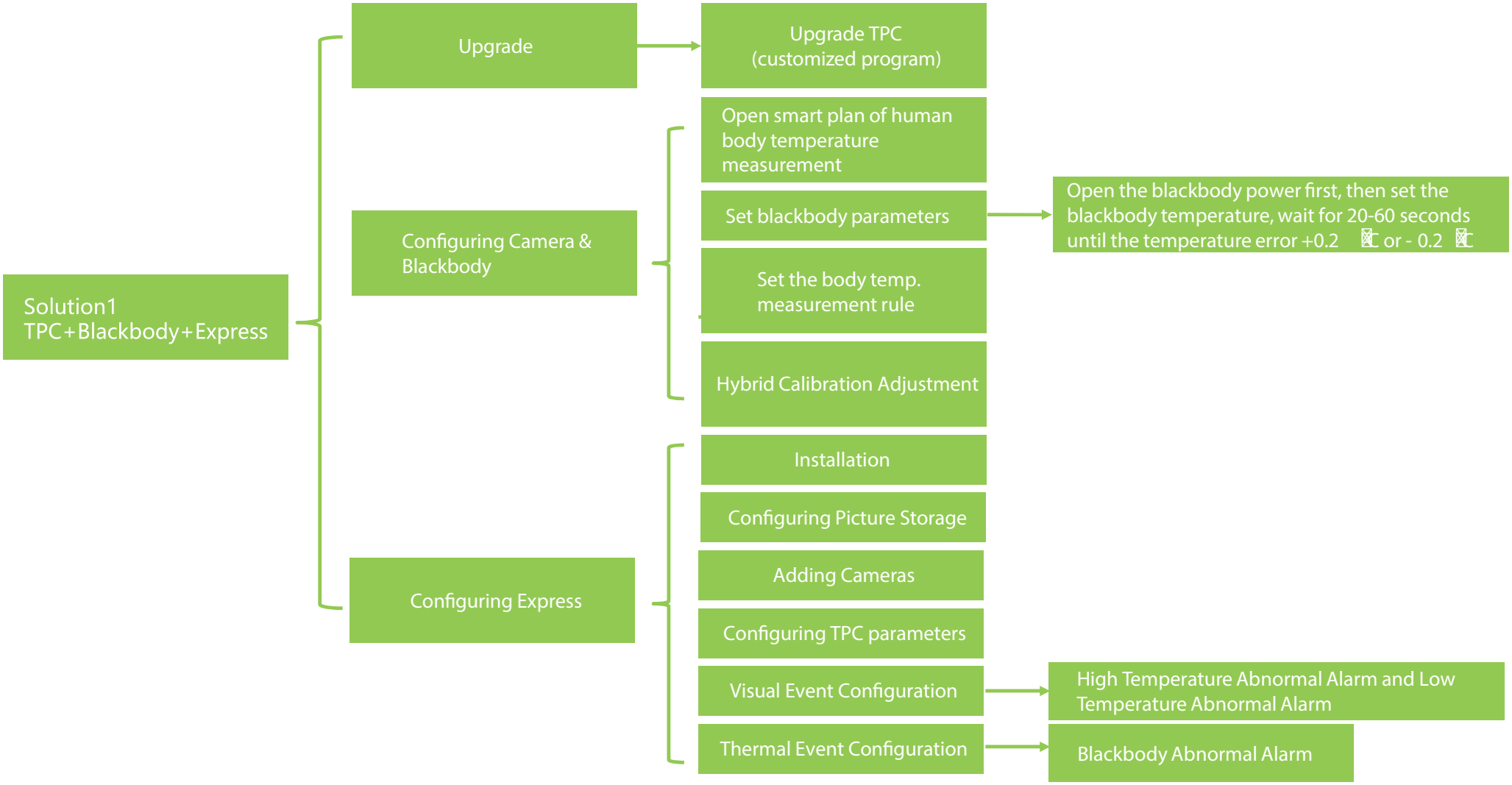
The network interface is connected to the switch and connected with NVR and computer

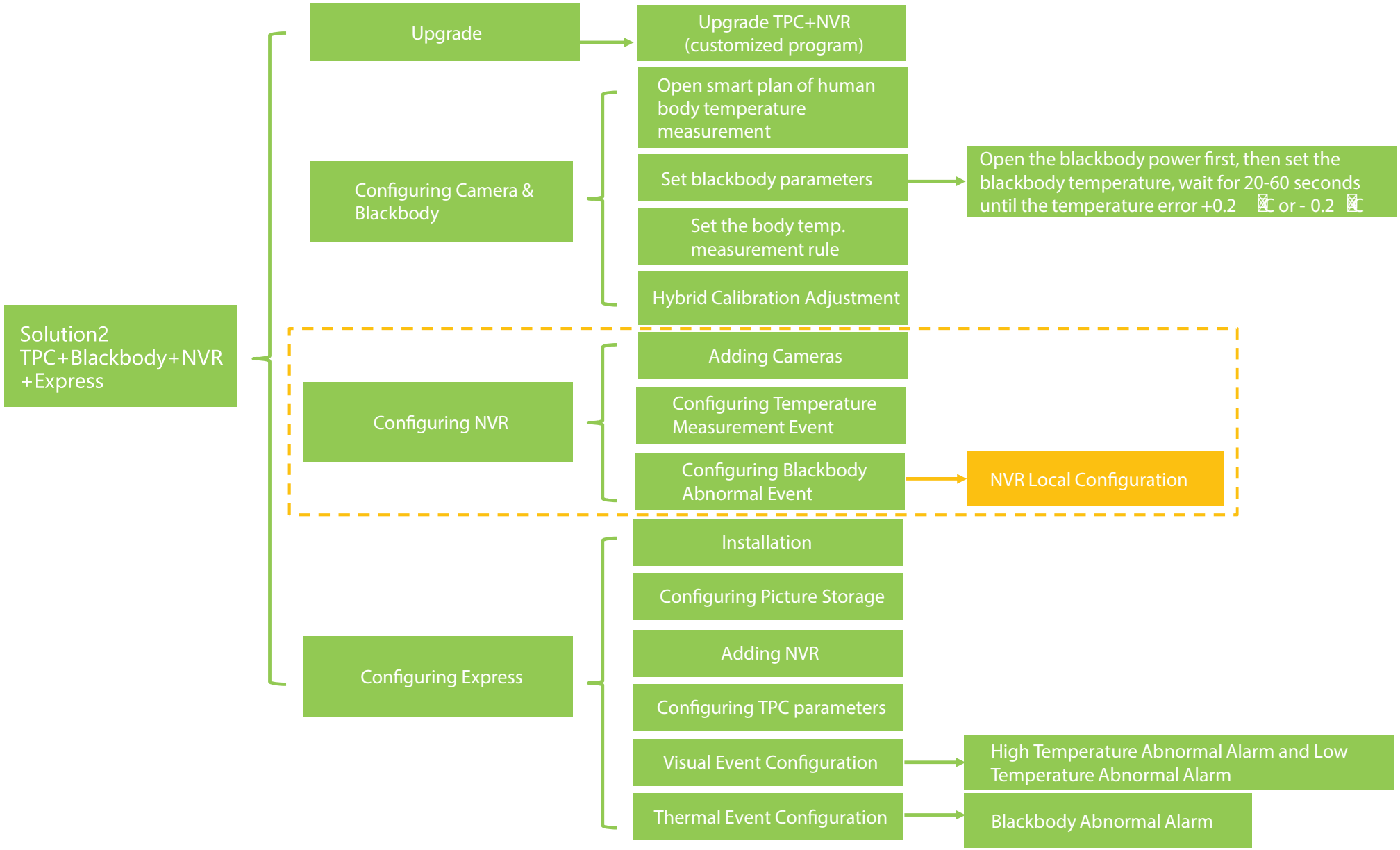
blackbody cable connection :

The black power supply is AC220V, with national standard AC three hole plug line, the line length is 2m (the socket must be grounded)

CONTENT

Configuration| Process Diagram




Solution2
TPC+Blackbody+NVR
+Express
Upgrade
Upgrade TPC+NVR
(customized program)
Configuring Camera &
Blackbody
Open smart plan of human
body temperature
measurement
Set blackbody parameters
Open the blackbody power first, then set the
blackbody temperature, wait for 20-60 seconds
until the temperature error +0.2 ℃ or - 0.2 ℃
Set the body temp.
measurement rule
Hybrid Calibration Adjustment
Configuring NVR
Adding Cameras
Configuring Temperature
Measurement Event
Configuring Blackbody
Abnormal Event
NVR Local Configuration
Configuring Express
Installation
Configuring Picture Storage
Adding NVR
Configuring TPC parameters
Visual Event Configuration
High Temperature Abnormal Alarm and Low
Temperature Abnormal Alarm
Thermal Event Configuration
Blackbody Abnormal Alarm

Configuration| Upgrade

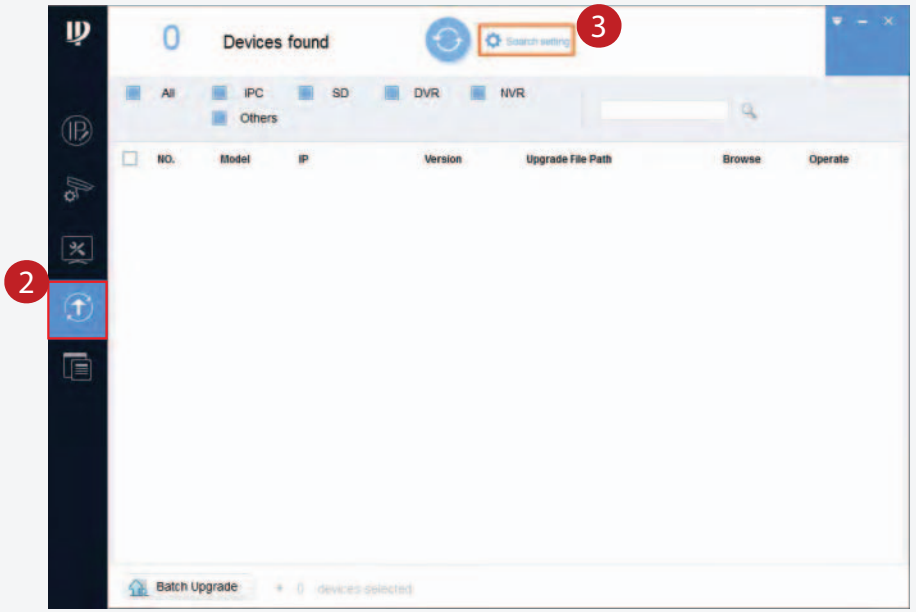
Upgrade

Configuring Camera & Blackbody

Configuring NVR

Configuring Express

Upgrade Devices



1. Double-click "ConfigTool.exe" to open the tool;
2. Click 
3. Click Search setting.

Configuration| Upgrade

Upgrade

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Configuring Camera & Blackbody

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Configuring NVR

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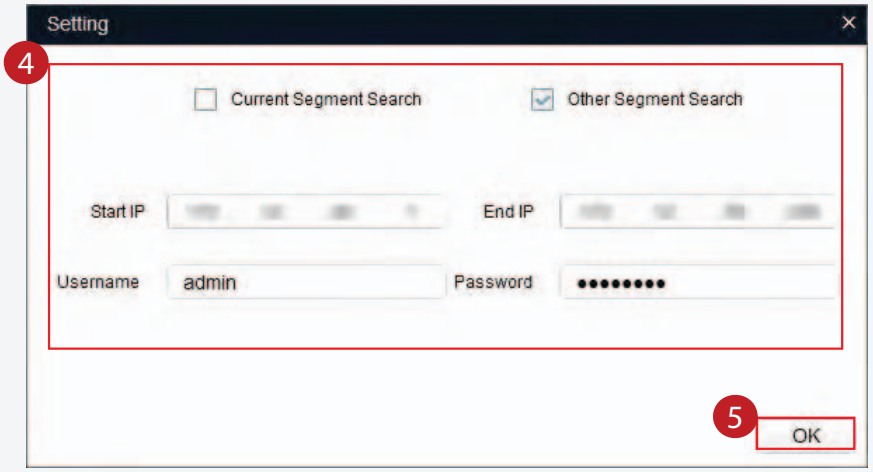
Configuring Express

Upgrade Devices



4. Select the network segment for the target device. If the IP address of the target device is in the current network segment, select Current Segment Search, and then enter the user name and the password of the target camera.
5. Click OK

Configuration| Upgrade

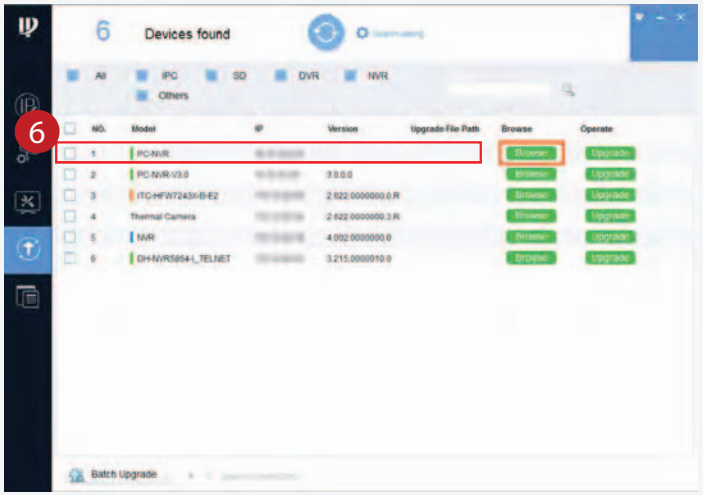
Upgrade

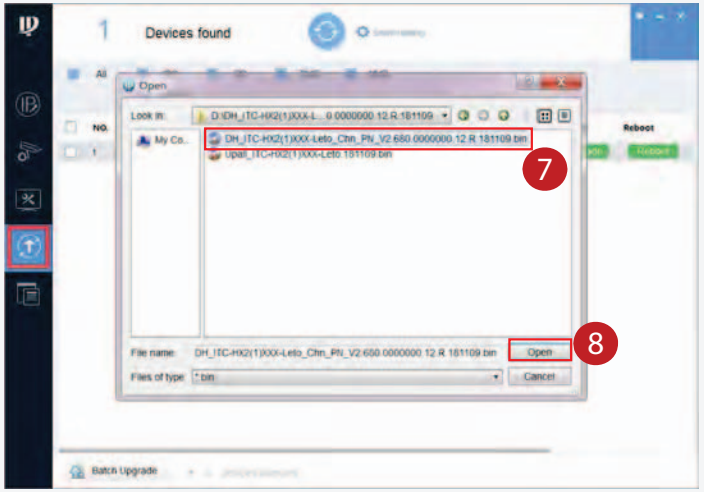
Configuring Camera & Blackbody

Configuring NVR

Configuring Express

Upgrade Devices





6. Select the devices to update.

- Update devices one by one: Select the corresponding device, and then click Browse .
- Update devices in batches: Select multiple devices, and then click Batch Upgrade .

7. Select the update file.
8. Click Open.
9. Update the Devices , Update the devices one by one: ClickUpgrade, and the system starts updating. You can see the update progress.

Configuration| Configuring Camera & Blackbody

- Upgrade
- Configuring Camera & Blackbody
- Configuring NVR
- Configuring Express

Open smart plan of human body temperature measurement → Set blackbody parameters → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning

1. Log in TPC Web, select [Settings] > [Intelligent thermal] > [Smart plan]

2. Select the smart plan of human body temperature measurement to start (the default gray is not enabled, it turns yellow after selection)

3. Click Save.

Configuration| Configuring Camera & Blackbody

- Upgrade
- Configuring Camera & Blackbody
- Configuring NVR
- Configuring Express

Open smart plan of human body temperature measurement → Set blackbody parameters → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning

1. Open the Power, the green light is on when the switch is turned on. (After power on, the blackbody equipment needs to be preheated for 20 minutes. The default working temperature of blackbody is 40 ℃, which needs to be manually adjusted to 35℃.)
2. Long press the “SEL” button to enter the set temperature, and the red light will be on.Then press increase / decrease key to adjust the value to 35℃.

Configuration| Configuring Camera & Blackbody

- Upgrade
- Configuring Camera & Blackbody
- Configuring NVR
- Configuring Express

Open smart plan of human body temperature measurement → Set blackbody parameters → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning

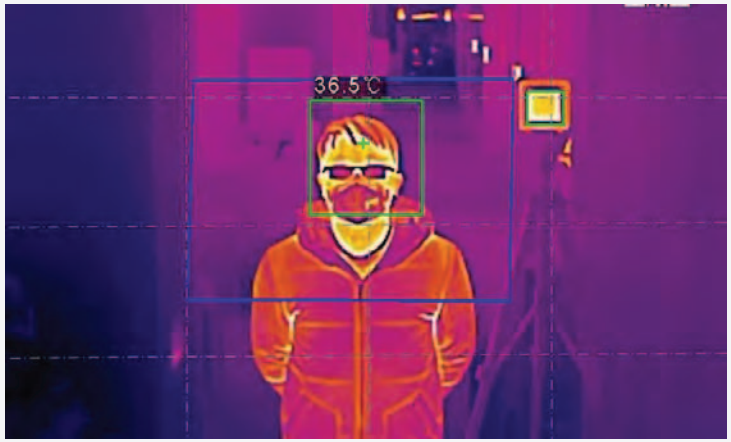
Note: When the blackbody is actually set to 35℃, there may be two situations on the back of the blackbody, one is the digital tube display , the other is the LCD display (Above)

For the blackbody display of the LED, just press the bottom‘﹀’to adjust the value; for the LCD display device, press the bottom‘<’ to select the value to be adjusted, and then press the bottom‘﹀’to adjust the value.

Configuration| Configuring Camera & Blackbody

- Upgrade
- Configuring Camera & Blackbody
- Configuring NVR
- Configuring Express

Open smart plan of human body temperature measurement | Set blackbody parameters | Set the body temp. measurement rule | Hybrid Calibration Adjustment | Commissioning



After fixing the camera and the blackbody position, make sure that the blackbody is on the right or left side of the image and is not blocked (the best position of the blackbody: put it on the top left or the middle position of the 'Cross type' on the top right: as shown below)

Configuration| Configuring Camera & Blackbody

Upgrade

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Configuring Camera & Blackbody

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Configuring NVR

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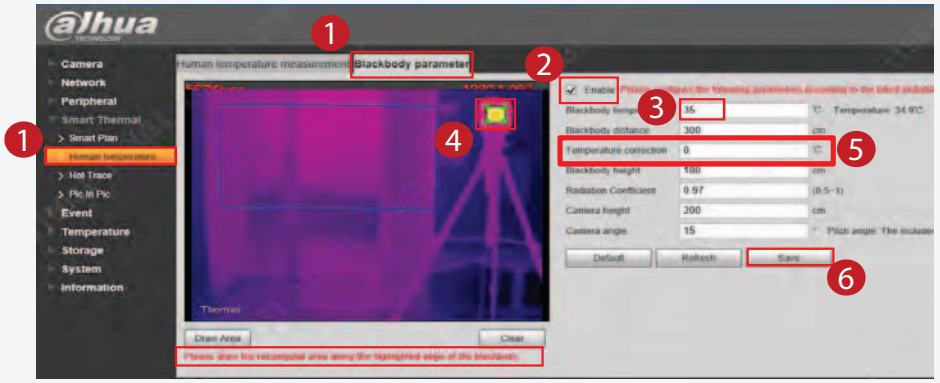
Configuring Express

Open smart plan of human body temperature measurement → Set blackbody parameters → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning



1. Log in TPC WEB, select [settings] > [intelligent thermal] > [human body temperature measurement] > [blackbody parameters]
2. Enable the blackbody function (Note: if there is a blackbody scheme, it must be checked and enabled; if there is no blackbody scheme, it is not necessary to enable it)
3. The blackbody temperature is 35 ℃ (the default value). Confirm that the maximum temperature, the minimum temperature and the average temperature are all within 35 ± 0.2 ℃.

Configuration| Configuring Camera & Blackbody

Upgrade

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Configuring Camera & Blackbody

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Configuring NVR

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Configuring Express

Open smart plan of human body temperature measurement → **Set blackbody parameters** → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning

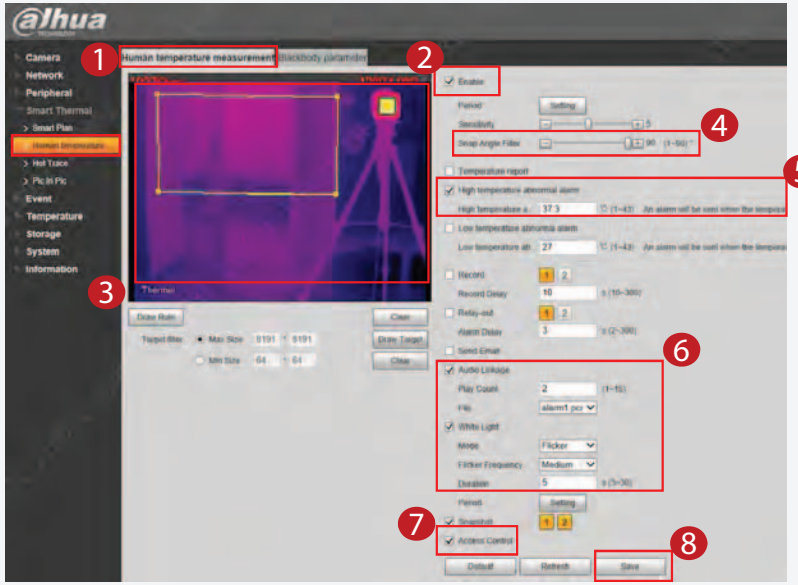
4. Draw the blackbody area: The rule box is shown in the green window box below (the rule window box of the program after 20200210 is a rectangle. The drawing method is as follows: please draw a rectangular area along the highlighted edge of blackbody), and click OK to take effect.
5. Temperature correction: due to environmental differences, the temperature of the tester may have errors. If more than 5 people in the field are at the optimal temperature measuring distance and the measured temperature is generally too high or too low, compensation can be made through temperature correction. For example, if the temperature is 0.5 ° c too low, fill in 0.5 ° c with the temperature correction; if the temperature is 0.5 ° c too high, fill in -0.5 ° c.
6. Click Save

Configuration| Configuring Camera & Blackbody

- Upgrade
- Configuring Camera & Blackbody
- Configuring NVR
- Configuring Express

Open smart plan of human body temperature measurement > Set blackbody parameters > Set the body temp. measurement rule > Hybrid Calibration Adjustment > Commissioning

1. Log in TPC WEB, select [settings] > [intelligent thermal] > [human body temperature measurement] > [human body temperature measurement]
2. Enable human body temperature measurement function
3. Draw a regular frame: the tested person stands on the edge of the blackbody (2 meters (3.5mm) / 3 meters (7mm) from the camera, facing the camera, and can see the head and shoulder exposed in the picture; the regular lower frame is drawn on the tested person's shoulder, and the regular upper frame can be drawn to the upper edge of the image, and the regular frame does not contain the blackbody
(Note: the lower frame cannot be too low, otherwise the temperature is high when the human body approaches, which is prone to false alarm)



Configuration| Configuring Camera & Blackbody

Upgrade

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Configuring Camera & Blackbody

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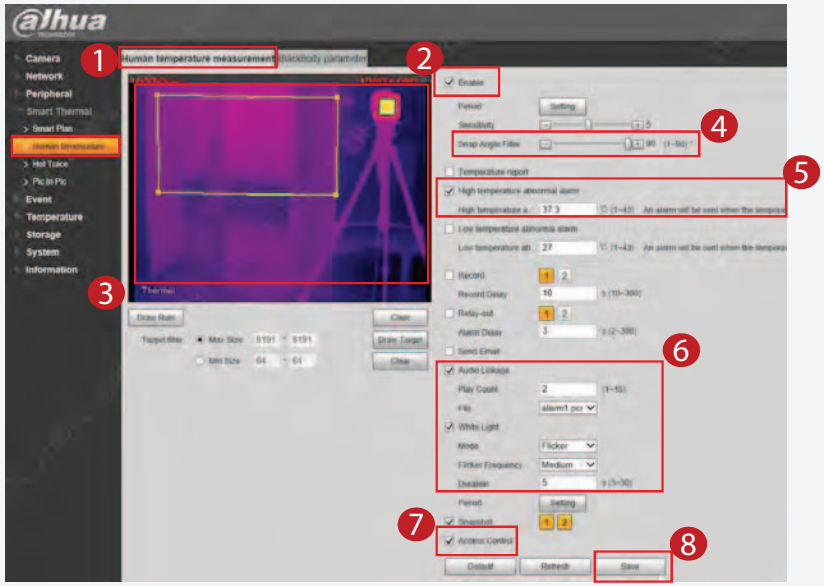
Configuring NVR

↓

Configuring Express

Open smart plan of human body temperature measurement → Set blackbody parameters → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning

4. Capturing Angle filtering (only BF3221 and BF5241 support this feature) The higher the value, the easier it is to capture the side face. For example, when the value is 1, it only detect the front face
5. High temperature abnormal alarm: set to 37.3 ℃ by default
6. BF3221 supports audible and visual warning: Audio & white light.
7. Enable Access Control function
8. Click Save



Configuration| Configuring Camera & Blackbody

Upgrade

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Configuring Camera & Blackbody

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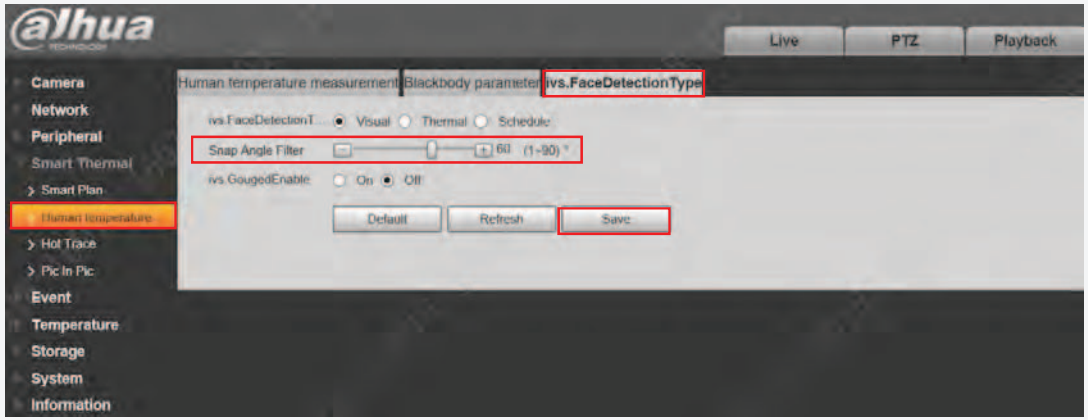
Configuring NVR

↓

Configuring Express

Open smart plan of human body temperature measurement → Set blackbody parameters → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning



Capturing Angle filtering (only BF3221 and BF5241 support this feature) The higher the value, the easier it is to capture the side face. For example, when the value is 1, it only detect the front face

(Some Devices web interface are different, please refer to the above picture)

Configuration| Configuring Camera & Blackbody

Upgrade

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Configuring Camera & Blackbody

↓

Configuring NVR

↓

Configuring Express

Open smart plan of human body temperature measurement → Set blackbody parameters → Set the body temp. measurement rule → Hybrid Calibration Adjustment → Commissioning

1. Log in TPC WEB, select [Settings] > [Camera] > [Conditions] > [Conditions]
2. Select Channel 2
3. Set Colorization as “Ironbow2” (the new version is iron red by default, and the old version is white hot by default before 20200131), which can be selected as needed.
4. Hybrid Calibration Adjustment, only BF3221/BF5421 support, adjust the up, down, left and right arrows (set step length) according to the actual situation, you can fine-tune the thermal imaging face frame, and must make the face frame accurate.

Configuration| Configuring Camera & Blackbody

Upgrade

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Configuring Camera & Blackbody

↓

Configuring NVR

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Configuring Express

Open smart plan of human body temperature measurement

Set blackbody parameters

Set the body temp. measurement rule

Hybrid Calibration Adjustment

Commissioning

Return to the preview interface, the personnel pass normally, and check the temperature measurement effect

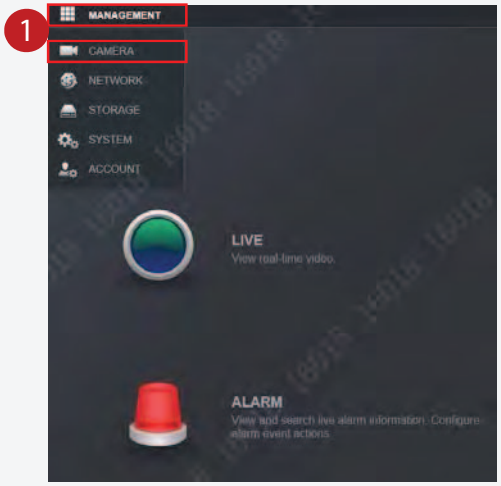
Temperature measurement under normal condition

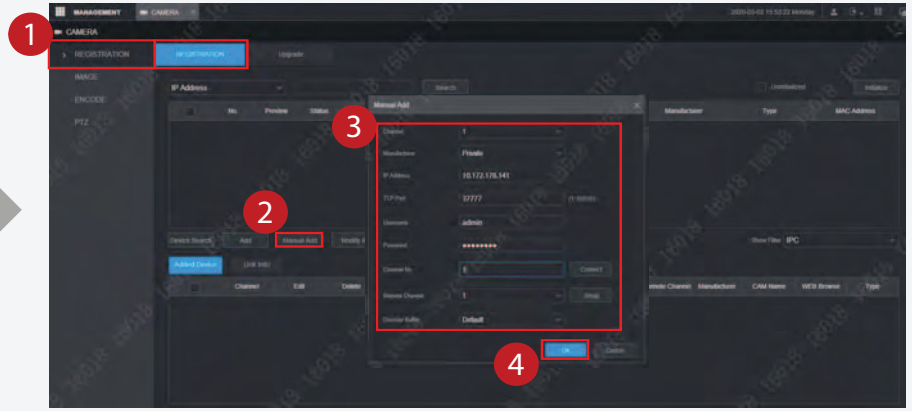
Simulation of high temperature trigger alarm by placing forehead with high temperature object

Configuration| Configuring NVR

- Upgrade
- Configuring Camera & Blackbody
- Configuring NVR
- Configuring Express

Adding Cameras | Configuring Temperature Measurement Event | Configuring Blackbody Abnormal Event | Commissioning





1. Log in NVR WEB, select [Management] > [Camera] > [Registration] > [Registation]
2. Select “Manual Add”
3. Input TPC camera IP, username and password
4. Click OK

Configuration| Configuring NVR

Upgrade

↓

Configuring Camera & Blackbody

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Configuring NVR

↓

Configuring Express

Adding Cameras | Configuring Human Body Temperature Measurement | Configuring Blackbody Abnormal Event | Commissioning

1. Log in NVR WEB, select [Alarm] > [Thermal Alarm]
2. Select “Channel 2”(Thermal Channel)
3. Select the Alarm Type as “ Human Body Temperature Measurement”
4. Enable the alarm
5. Click OK

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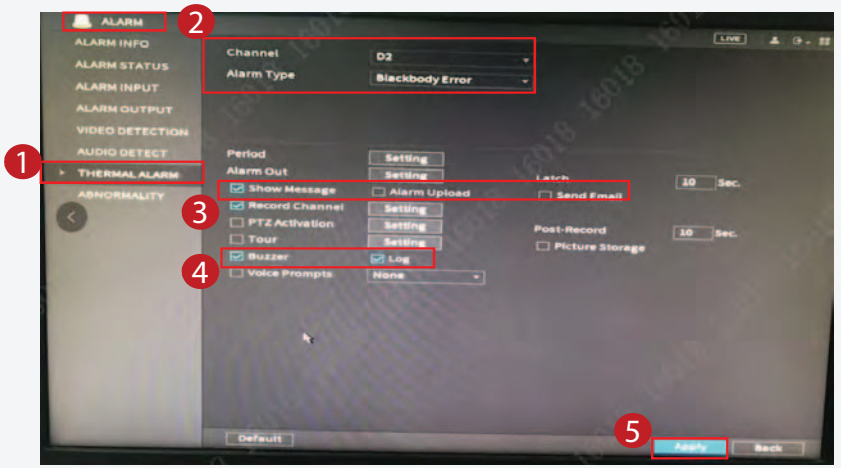
Adding Cameras | Configuring Temperature Measurement Event | Configuring Blackbody Abnormal Event | Commissioning



1. Log in NVR local interface, select [Alarm] > [Thermal Alarm]
2. Select “Channel D2”(Thermal Channel), select the Alarm Type as “ Blackbody Error”
3. Select the alarm linkage type as you need, the default setting is “ Show massage”
4. Select “Buzzer” or “Log” as you need
5. Click OK

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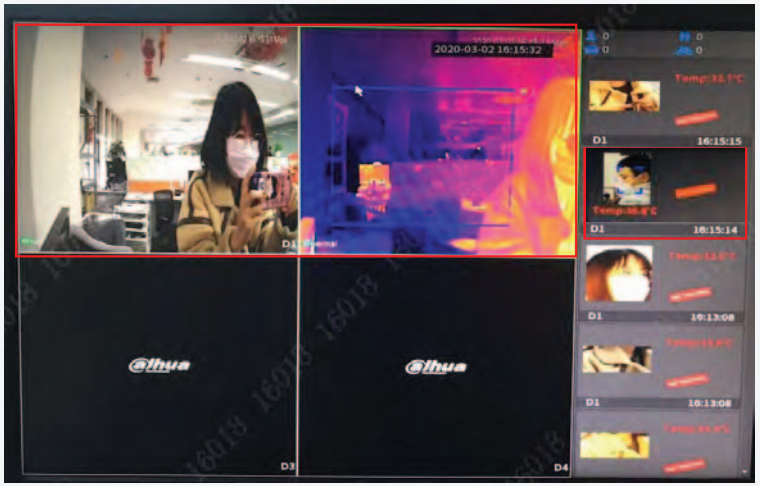

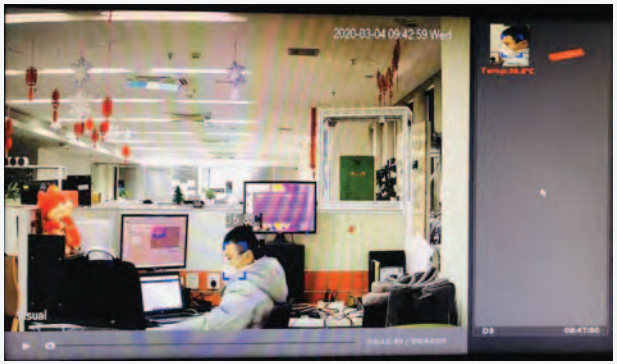

1. You can open the visual and thermal live video, then you can check the capture picture shown on the left in the NVR local interface, it will show the face snapshot and human temperature.

   Double click the picture you want to check, you can check the larger picture, and playback the recorded video.

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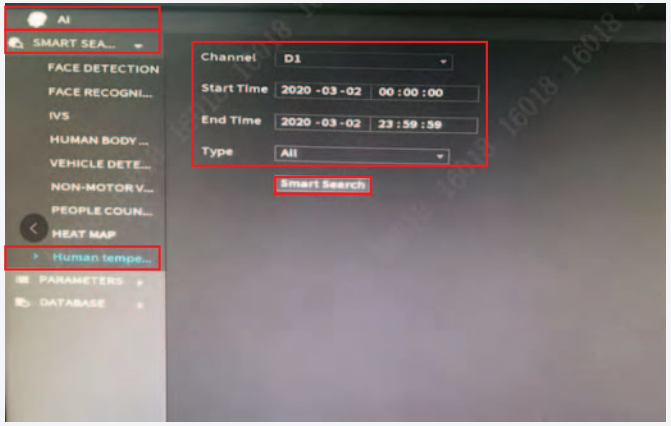

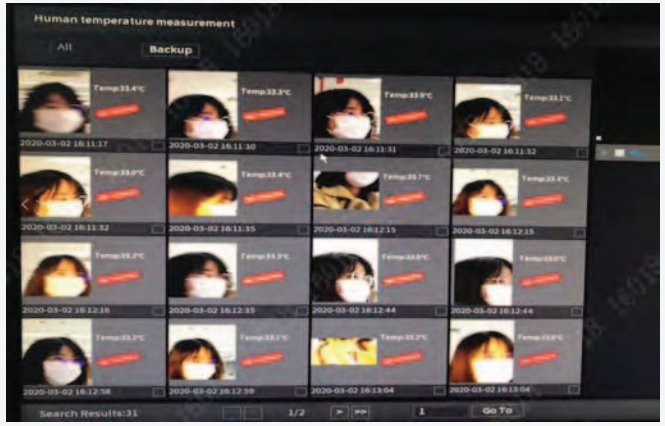

2. Log in NVR local interface, select [AI] > [Smart Search] > [Human Temperature], then choose the channel as visual channel, select the “start time” and “end time”, Click “Smart Search”. You can check all the human snapshot here.

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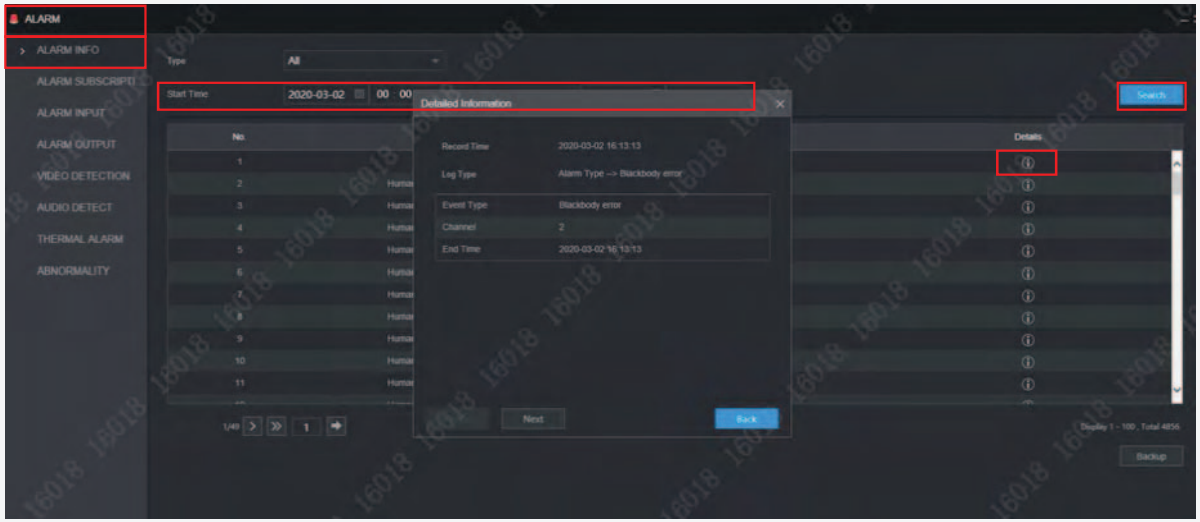
Adding Cameras > Configuring Temperature Measurement Event > Configuring Blackbody Abnormal Event > Commissioning



3. Log in NVR local interface/web, select [Alarm] > [Alarm Info] , then select the “start time” and “end time”, Click “Search”. You can check all the alarm information here, click , you can check the alarm details.

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Configuring Camera & Blackbody

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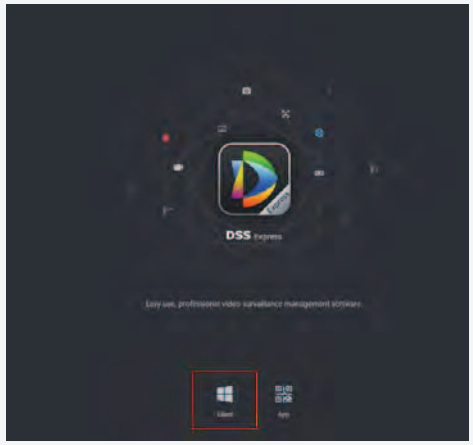
Installation | Configuring Picture Storage | Adding Devices | Configuring TPC parameters | Visual Event Configuration | Commissioning | Thermal Event Configuration



You can install PC client and mobile phone app of the DSS Express platform. This section takes installing PC client for example to introduce the installation and login of DSS Express platform.

1. Enter server IP address in the browser address bar, and then press Enter.
2. Double-Click Run or download client according to interface prompt.
3. Click Run, or double-click client installation program under the save directory. Then install the Client step by step until finish.

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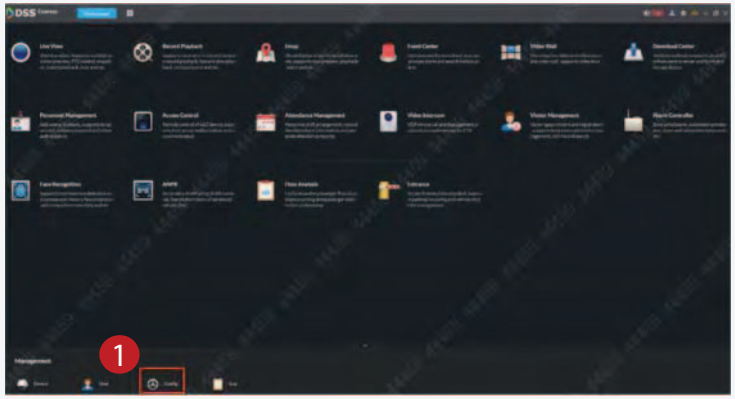

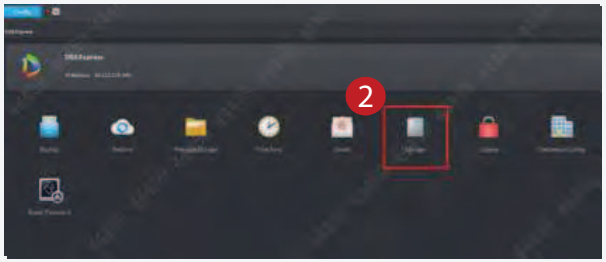

1. Log in DSS Express Client, Click “Config”
2. Select “Storage”

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3. Choose the local Disk you want to storage the pictures, then click 

4. Set the storage space, then select “General Picture”, Click 

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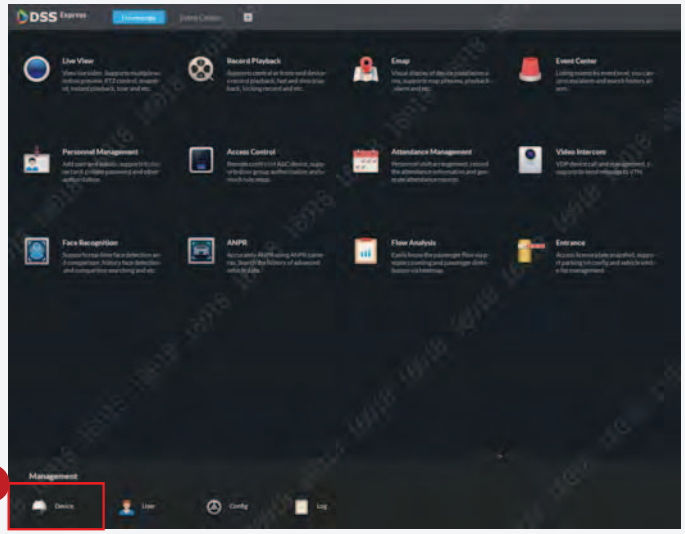

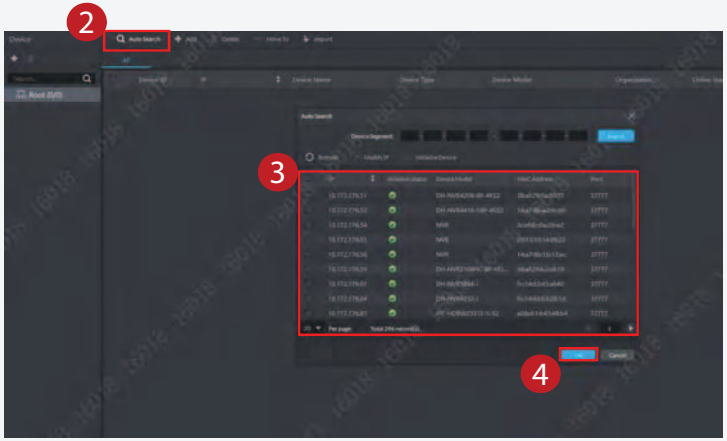

1. Log in DSS Express Client, Click “Device”
2. Select “Auto Search”
3. Select the TPC or NVR you want to add
4. Click “OK”

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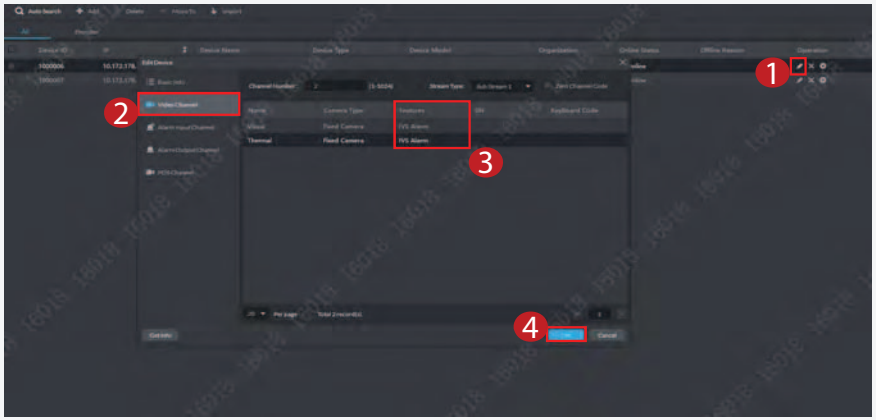

1. Select the TPC or NVR you want to edit, click 
2. Select “Video Channel”
3. Select the Feature as “ IVS Alarm”
4. Click “OK”

Configuration| Configuring Express

Upgrade

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Configuring Camera & Blackbody

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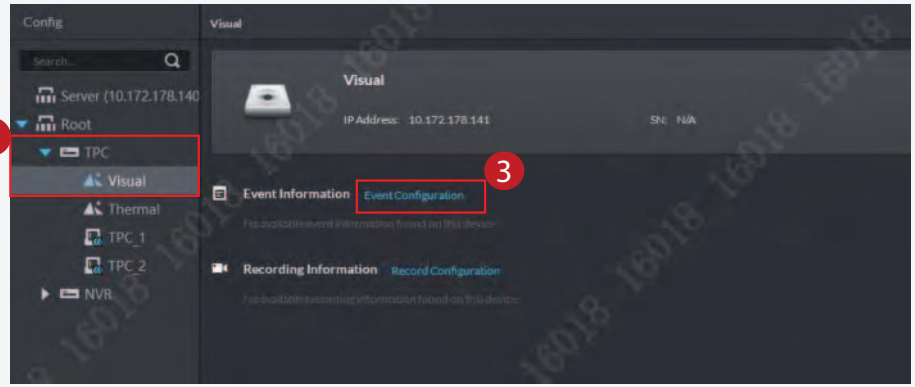
Installation | Configuring Picture Storage | Adding Devices | Configuring TPC parameters | Visual Event Configuration | Thermal Event Configuration | Commissioning



1. Click “Config”
2. Select the TPC visual channel to config the high or low temperature measurement alarm event
3. Select “Event configuration”

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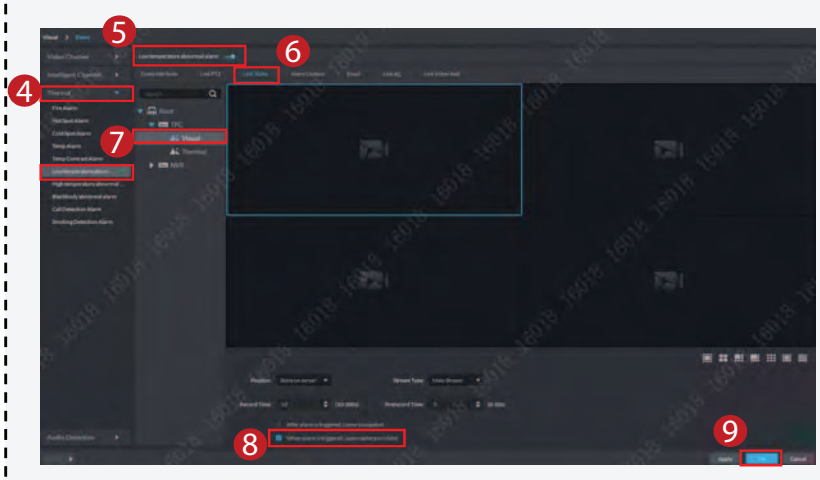

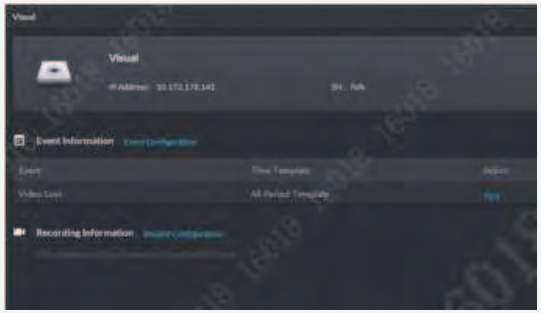

4. Select [Thermal] > [low temperature abnormal alarm] or [high temperature abnormal alarm]
5. Enable the low temperature abnormal alarm function or high temperature abnormal alarm function
6. Select “Link Video”
7. Select the TPC visual channel
8. Click “When alarm is triggered, open camera on client”
9. Click OK

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Configuring Camera & Blackbody

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Configuring NVR

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Configuring Express

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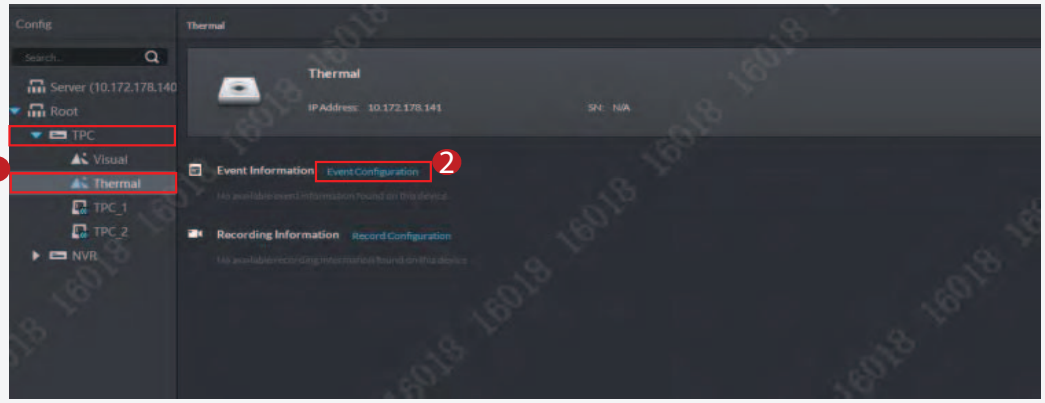

1. Select the TPC thermal channel to config the blackbody abnormal alarm
2. Select “Event configuration”

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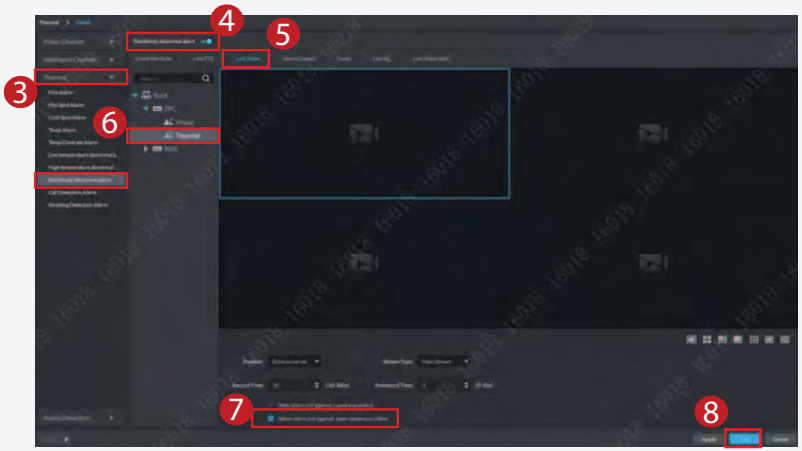

3. Select [Thermal] > [Blackbody abnormal alarm]
4. Enable the Blackbody abnormal alarm function
5. Select “Link Video”
6. Select the TPC thermal channel
7. Click “When alarm is triggered, open camera on client”
8. Click OK

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Configuring Camera & Blackbody

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Configuring NVR

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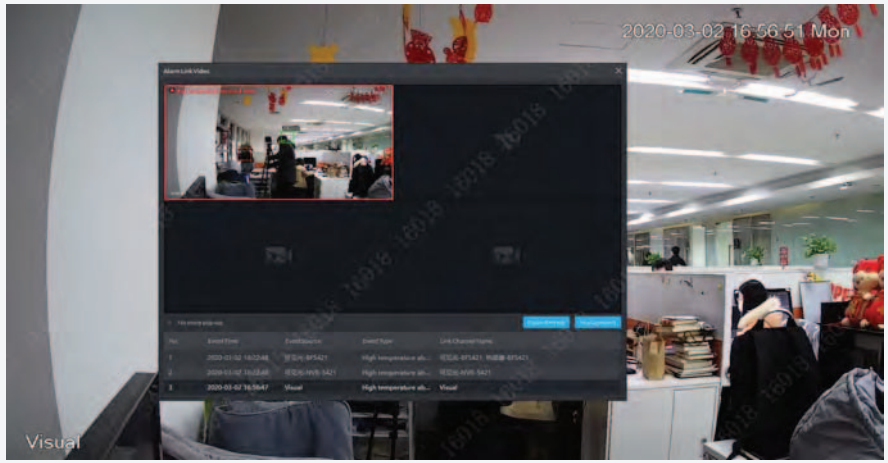

1. If the human temperature is too high or too low, or the blackbody have something wrong, it will trigger the alarm, you can get the link video interface, and you can check the alarm details here.

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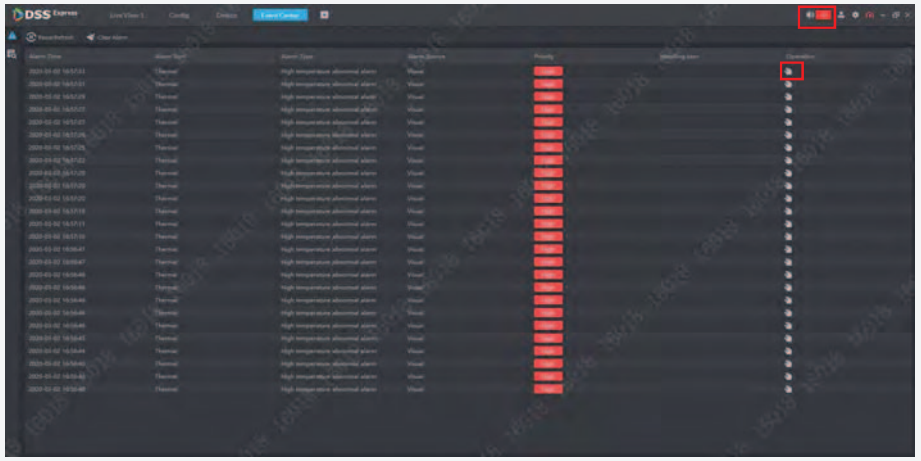


2. You can click the button, then check all the alarm information here. When you click this button, you can check the alarm details (information, live view, recording and map)

CONTENT

Acceptance Criteria

NO	Acceptance contents	Is it qualified? (√/ ×)	Remark
	1、Construction acceptance		
1.1	Whether it is installed in a relatively stable indoor environment		Because the outdoor temperature, wind, humidity and other environmental factors have a great impact on the temperature measurement of the thermal imaging surface, is not recommended to be installed outdoors or in the area directly connected to the outdoor, but in a closed and relatively stable environment without wind.
1.2	Camera Height 2m		Measurement photos with tape measure shall be provided
1.3	Blackbody Height 1.8m		Measurement photos with tape measure shall be provided
1.4	Whether the distance between camera and blackbody is qualified		Measurement photos with tape measure shall be provided BF3221(3.5mm) ：2m BF3221(7mm) 、BF5421 （13mm） ：3m
1.5	Width of protective channel at the best temperature measurement position (including blackbody)		Measurement photos with tape measure shall be provided BF3221(3.5mm)、BF5421 （13mm） ：1.5m BF3221(7mm)：1.3m
1.6	Whether the flow of people is facing the camera		Photos required
1.7	Preview the screenshot of the interface (people standing at the best temperature measurement position)		Screenshot required, Including visual channel and thermal imaging channel
1.8	Take photos of side view after actual installation		Photos required, it needs to be able to see the installation height of the camera and the distance between the camera and the blackbody and people from the side

Acceptance Criteria

NO	Acceptance contents	Is it qualified? (√/ ×)	Remark
	2、Commissioning acceptance		
2.1	Screen capture of setting interface		Screenshot required, Setting diagram: setting intelligent thermal imaging human body temperature measurement, human standing at the best temperature measurement position Note: confirm whether the installation is in place remotely through rules and pictures
	3、Effectiveness acceptance		
3.1	Observe continuously for 3 minutes under normal human flow to see whether the detection temperature of human head is accurate (dual channel video recording)		Video recording required, Video recording with two channels of visual channel and thermal imaging channel shall be provided

CONTENT

FAQ | Precautions for use of Blackbody

Warning

To avoid personal injury or instrument damage, please follow the following instructions:

- Make sure the place is free of oil, chemicals, inflammables and explosives!
- The use environment is 0 ℃ ~ 40 ℃. Do not put it into the high and low temperature box without permission to avoid accidents!
- Be sure to use grounding socket to prevent accidental electric shock!
- Blackbody cannot be used for applications other than temperature testing and calibration!
- Do not change the boldface range without permission to avoid damaging the boldface or causing safety accidents!
- Do not disassemble or refit boldface without permission! The tamper proof label is torn or damaged, otherwise the product is not warranted.

FAQ | Precautions for use of Blackbody

Attention

To avoid damaging the instrument or affecting the test accuracy, please follow the following instructions:

- Do not touch the blackbody radiation surface, and dirt will lead to the decrease of blackbody accuracy or scrap , so as to avoid the scratch of blackbody radiation surface and affect the temperature measurement accuracy
- Indoor use only. The use environment shall be free from obvious air convection and strong light irradiation, strong electromagnetic interference and vibration.
- Heat dissipation space shall be reserved around the blackbody , and the distance between the blackbody and surrounding objects shall not be less than 10cm.

FAQ | Precautions for use of Blackbody

Calibration

- In order to ensure the accuracy of blackbody temperature measurement, it is recommended to send blackbody to Dahua for paid calibration on a regular basis. The calibration cycle is usually one year.

Routine maintenance

- Blackbody shall be managed and maintained by designated personnel, and maintenance and use records shall be made.
- During the use process, it is not allowed to cover any object on the blackbody, so as not to affect the heat dissipation and thus the temperature accuracy.
- When it is not necessary to use, dust-proof work shall be done, and the blackbody shall be put into the packing box or covered with a clean cloth . Ensure that the storage environment temperature and humidity are appropriate.
- It is recommended to use neutral detergent to clean the blackbody shell and soft brush to clean the dust on the radiation surface of blackbody.

FAQ | Solution FAQ

1、What is blackbody? What is its function?

- Blackbody can be simply understood as a constant temperature reference source. When testing human body temperature, blackbody is generally set to 35 ℃ by default, which is used for temperature correction of thermal imaging acquisition, so as to meet the accuracy requirements of ±0.3 ℃.

2、Can it be installed in outdoor or semi outdoor environment?

- Because the outdoor temperature, wind, humidity and other environmental factors have a great impact on the temperature measurement of the thermal imaging surface, it is not recommended to be installed outdoors or in the area directly connected to the outdoor, but in a closed and relatively stable environment without wind.

3、Why is it recommended to measure the temperature of frontal forehead?

- First of all, different people's forehead temperature also has temperature difference. In the case of mask, the exposed area of forehead is relatively large, which is more convenient for temperature measurement.
- The actual temperature of the front face and the side face of the same person / same position is different. With masks, the high temperature points are mainly in the forehead, ears and neck, and the temperature is different among different people. Therefore, it is required to face the camera and test the frontal temperature uniformly to reduce the impact of temperature difference between different parts.

FAQ | Solution FAQ

4、The best distance for temperature measurement?

- The best temperature measurement distance is the same as the distance between blackbody and equipment. 3.5mm detection distance is 2m, and the transverse width of 2m is about 1.5m; 7mm detection distance is 3m, and the transverse width of 3m is about 1.3m; the temperature measurement value far from the optimal distance will be reduced, and the temperature measurement value close to the optimal distance will be increase

5、How many heads can be tested?

- In normal use, many people (1.3-1.5m in width) can't be placed side by side at the best distance of temperature measurement. There is no limit to the number of heads in the detection area, but it is too far or there is overlap, which may result in missing or inaccurate temperature measurement. It is recommended to test one by one.

6、Why does the image of thermal imaging channel get stuck after a period of time? Is it normal?

- Normal. In order to ensure the image uniformity and temperature measurement accuracy, thermal imaging needs a period of time to set the blank to zero for correction. During the process of setting the blank, the image will get stuck, which is a normal situation

7、Why thermal camera does not measure temperature after the first configuration

- System time is not synchronized, refer to time synchronization setting in system debugging

FAQ | Solution FAQ

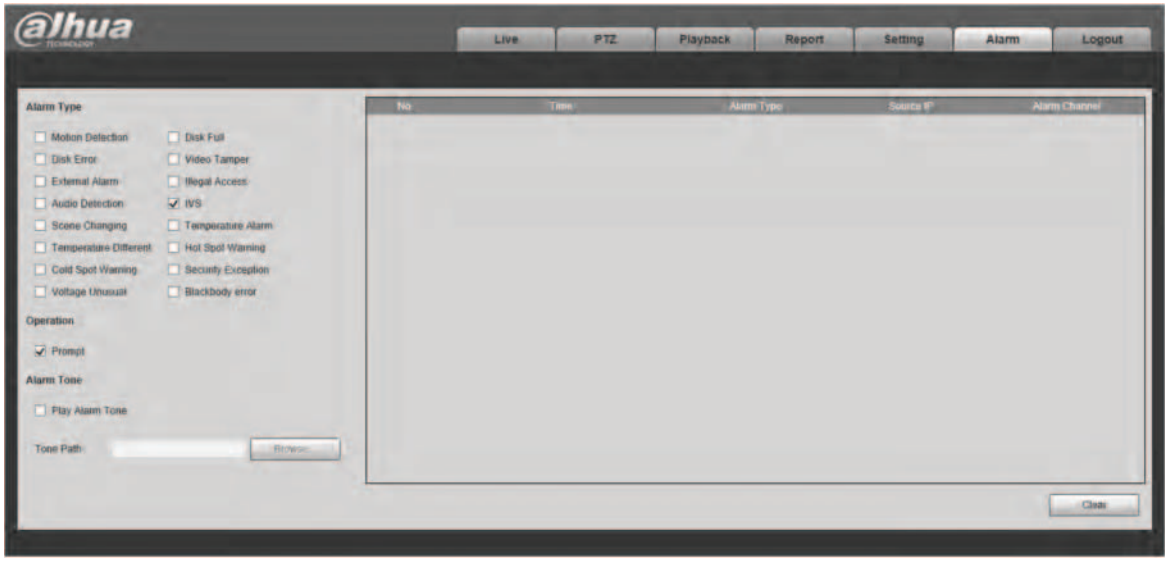
8、Why is the head frame inaccurate?

- First, confirm whether the site installation angle and environmental background meet the requirements,

If the head detection effect is not ideal, please provide the Dav video with two channels on site.

9、If the camera does not support the sound light warning function, how to give an alarm prompt?

- You can use web linked computer sound as shown in the figure below, or matching Express to prompt.



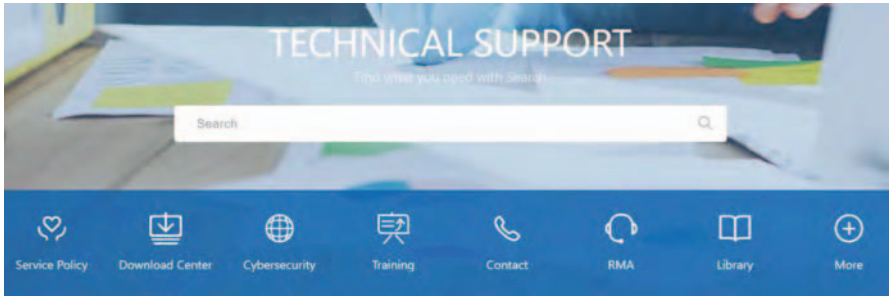
More Information

- You can download the manuals from Dahua Support Website.

 https://www.dahuasecurity.com/user/login?redirect_url=011101

 Use Dahua user name and password to log in the solution center

 Support > Solutions Center > SMB Solution > Thermal Solution > Thermal Solution V1.0



THANK YOU