

Fever Screening Thermal Solutions and Products

HIKVISION[®]

What's Thermal?

Principle



Any object with temperatures above **absolute zero** emits a detectable amount of radiation. A thermal camera converts IR radiation into grayscale values, and matches grayscale values to temperature values through an algorithm model.

The model (Temperature Gray Level Curve) is obtained via **blackbody calibration**.

Application



Thermal cameras with high temperature accuracy can help **detect elevated body temperatures which may indicate the presence of a fever**. Thermal cameras can be used for the **fever screening of travelers, shoppers, and office workers**.

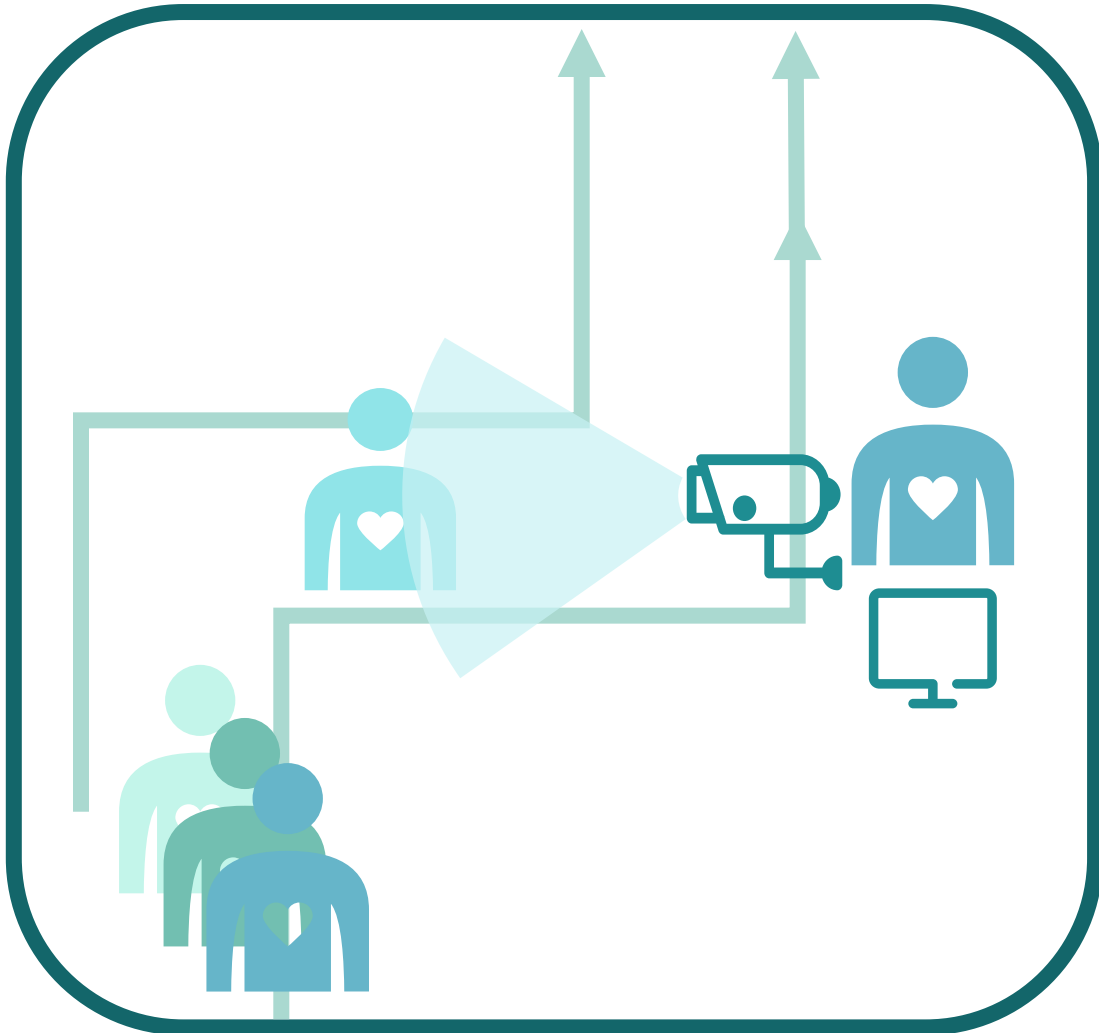
Advantages



1. **High Efficiency:** It takes only one second for a thermal camera to detect temperature of a person, thus allows screening of large numbers of people at a time.
2. **Safety:** Thermal cameras feature non-contact temperature measurement from about one meter away, avoiding unnecessary physical contact.



Thermal Fever Screening Process



1. Set up a screening channel

Set up a quick screening channel **in an indoor space** to separate the space into a few parts.



2. Thermal camera quick screening

Using thermal fever screening solutions to do quick screening of the moving crowd with efficiency



3. Thermometer secondary check

For a person identified with a fever, **use a thermometer to double-check.**



Professional Fever Screening Solution

Solution Components

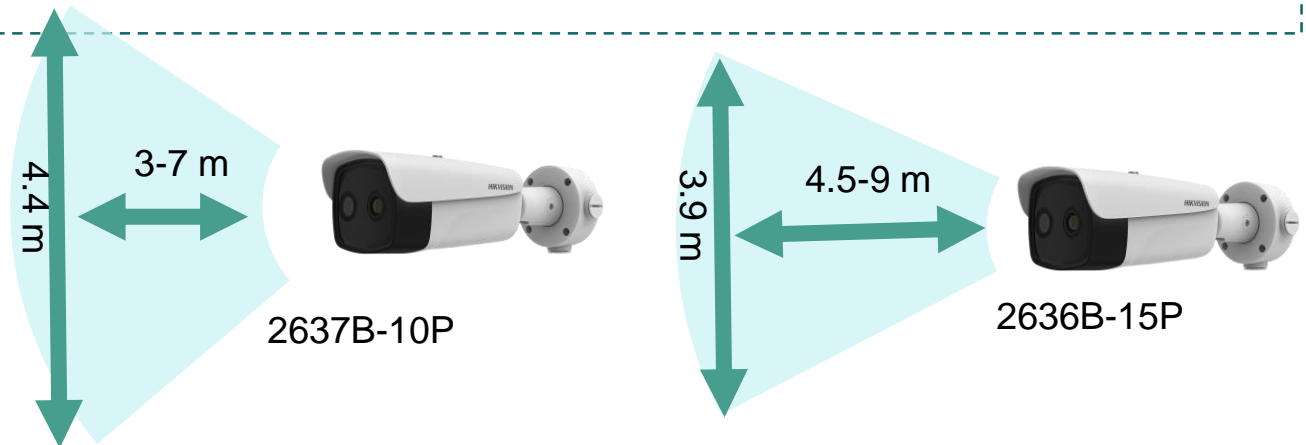
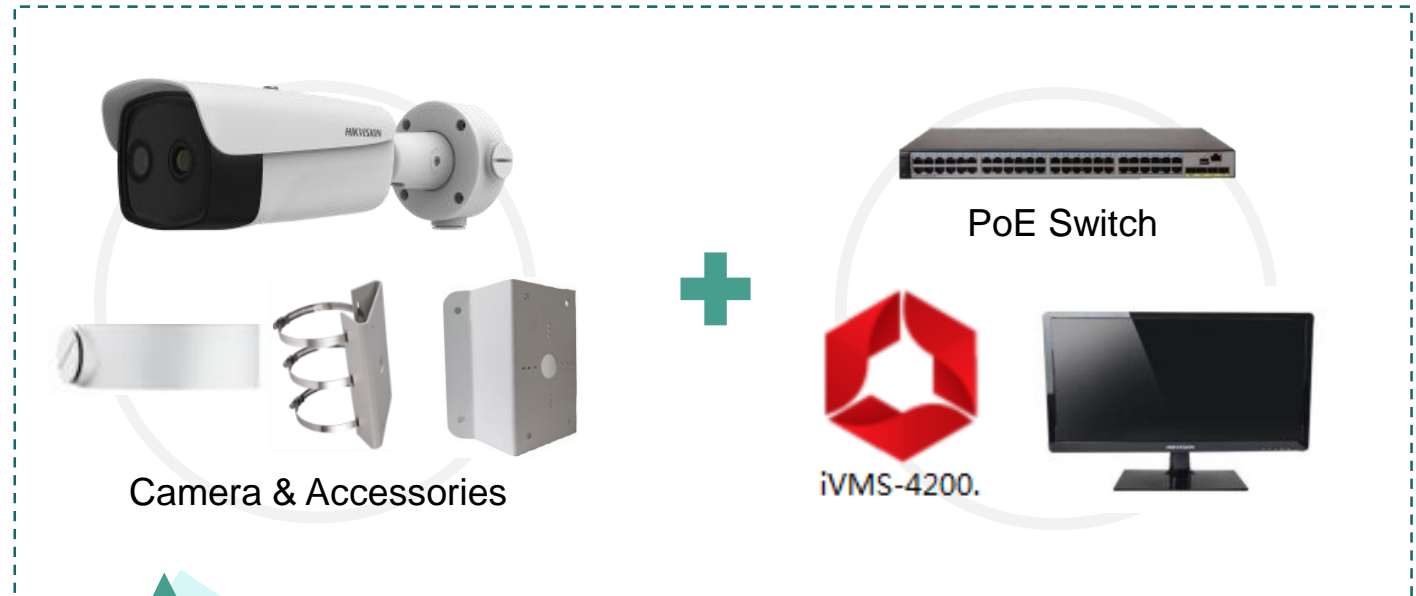
HD Bullet Fever Screening Thermographic Camera +
Accessories + iVMS-4200 + PoE Switch

Solution Advantages

- Thermal resolution of **384*288**, providing more image detail and wider coverage for temperature measurement
- The 15 mm thermal lens provides a fever screening range of **4.5 to 9 meters (2636B-15/P)** or **3 to 7 meters (2637B-10P)**, fitting for long-range use, can be used with handheld thermographic camera
- Fixed solution not only for temporary use but also for **long-term use**
- Accuracy is **$\pm 0.5\text{ }^{\circ}\text{C}$** , satisfying preliminary fever screening requirements
- Supports **4 MP optical channel**, satisfying regular monitoring requirements

Installation Tips

- Recommend to install in a stable **indoor** environment without wind



Thermographic camera coverage area (Distance & Width)
Maximum range

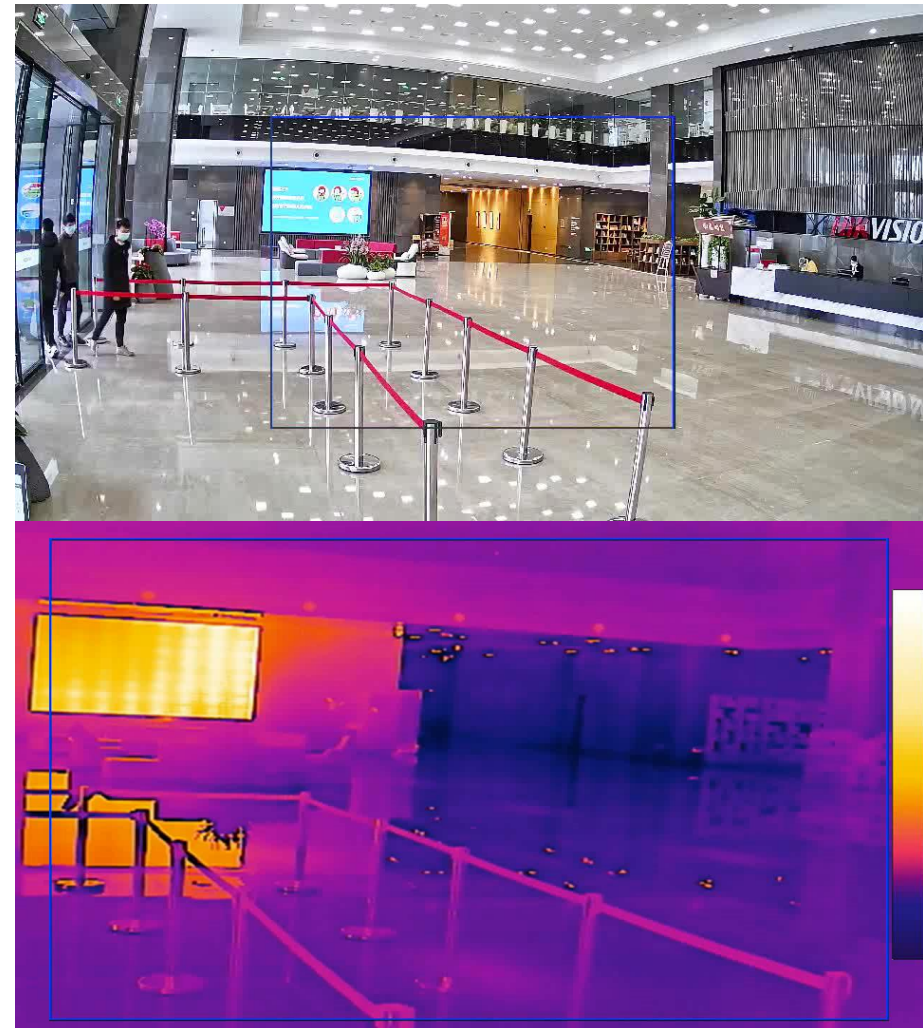
Professional Fever Screening Solution

Temporary Installation & Monitoring Scheme



1.7 m

Video Of The Thermal & Optical Channels



Handheld Fever Screening Solution



Solution Components

Professional handheld thermographic camera + Tripod (optional) + **iVMS-4200 (PC) / Hik-Thermal (Mobile app)**

Solution Advantages

- Thermographic handheld camera **supports Wi-Fi**, can integrate with a PC / Mobile client, and supports **real-time audio alarm and automatic uploading of screen captures**.
- Touch screen to ensure user experience
- Supports flexible temperature measurement areas
- Accuracy is **$\pm 0.5\text{ }^{\circ}\text{C}$** , satisfy preliminary fever screening requirements

Installation Tips

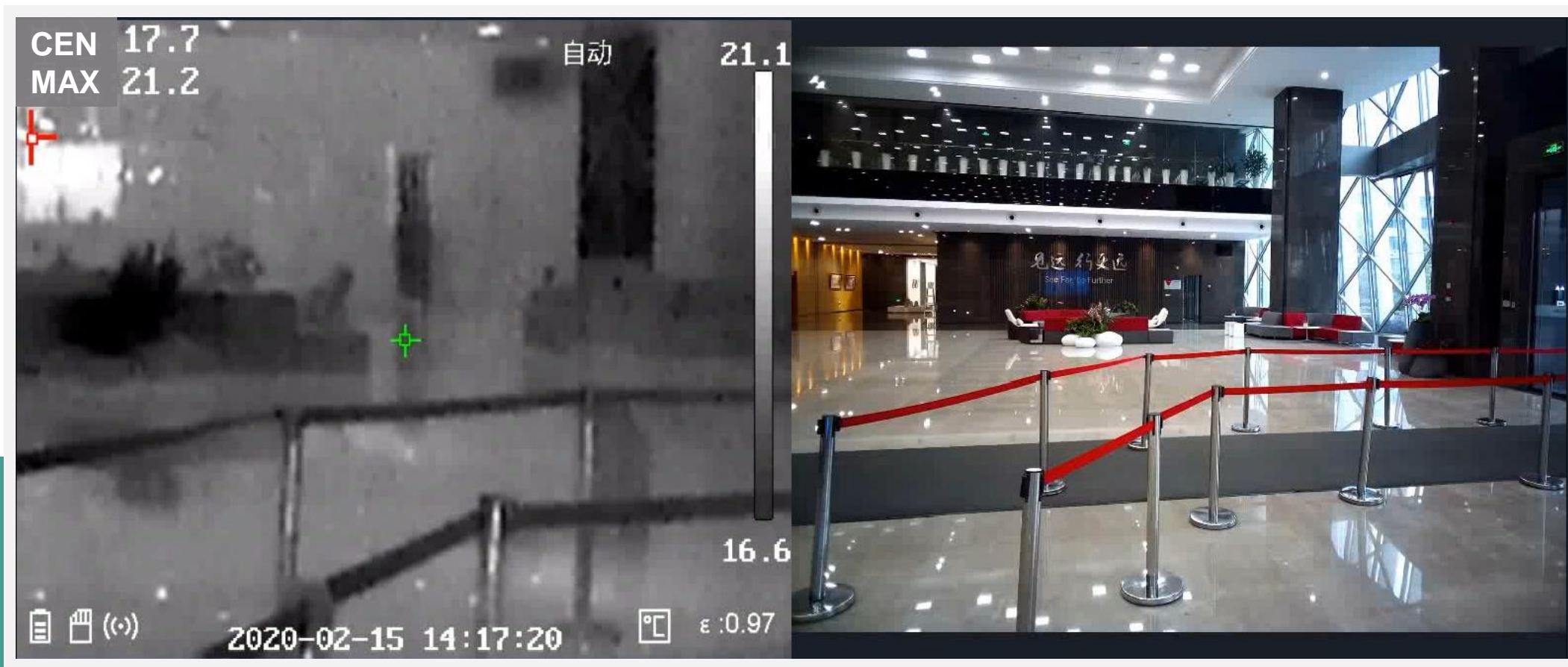
- The camera is recommended to install at a height of **1.5 meters**, keeping the distance between the targets and the camera at **1.5 to 2.5 meters**
- Recommend to install in a stable **indoor** environment without wind
- People pass by the thermographic camera one by one



1.5 m

Handheld Fever Screening Solution

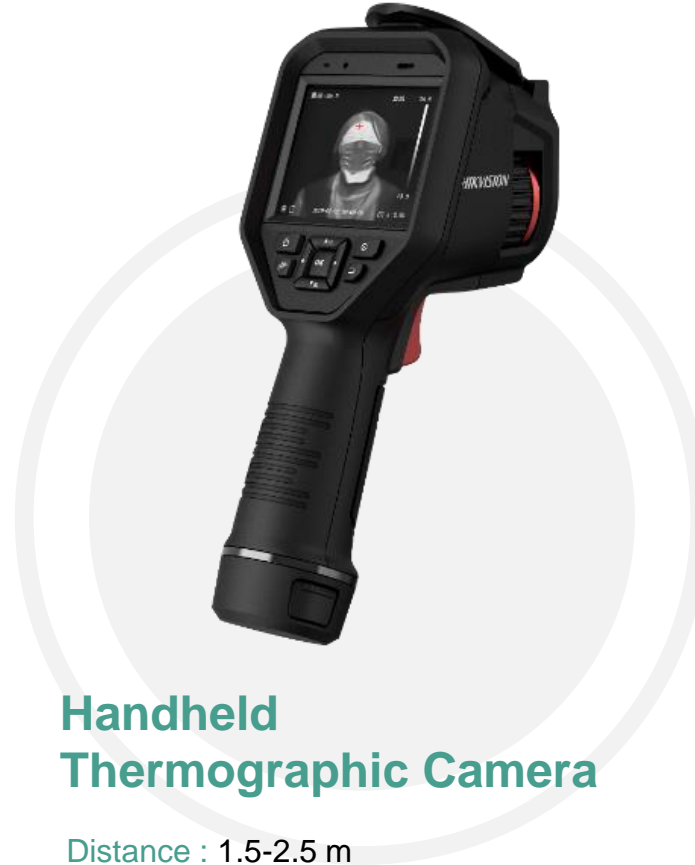
Field Performance



Handheld Fever Screening Solution



VS



Forehead Thermometer

Distance : 0.01-0.03 m

Speed : 1-5 seconds

Display: Numeric only

Efficiency: 12 persons / minute

Information storage: No

Handheld Thermographic Camera

Distance : 1.5-2.5 m

Speed : Real-time

Display: Thermal images

Efficiency: 60 persons / minute

Information storage: Screenshots / Video

Wi-Fi supported

Thermographic Camera Advantages

- Secures a distance between the operator and the target persons, avoiding unnecessary physical contact
- Higher efficiency, more suitable for flow of fast moving crowds
- Easy to use and operate, only needs to read the maximum value on the screen
- Able to save screenshots of potentially risky persons as an evidence
- Can integrate with a PC/Mobile Client, as a flexible solution

Economical Fever Screening Solution

Solution Components

Bullet/Turret Fever Screening Thermographic Camera + Tripod
+ Tripod adaptor + iVMS-4200+ PoE Switch

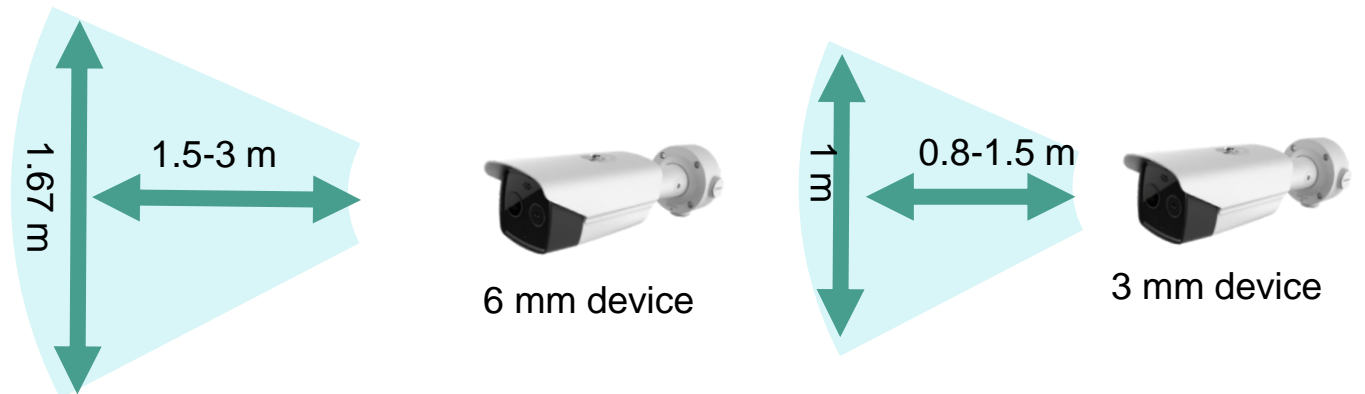
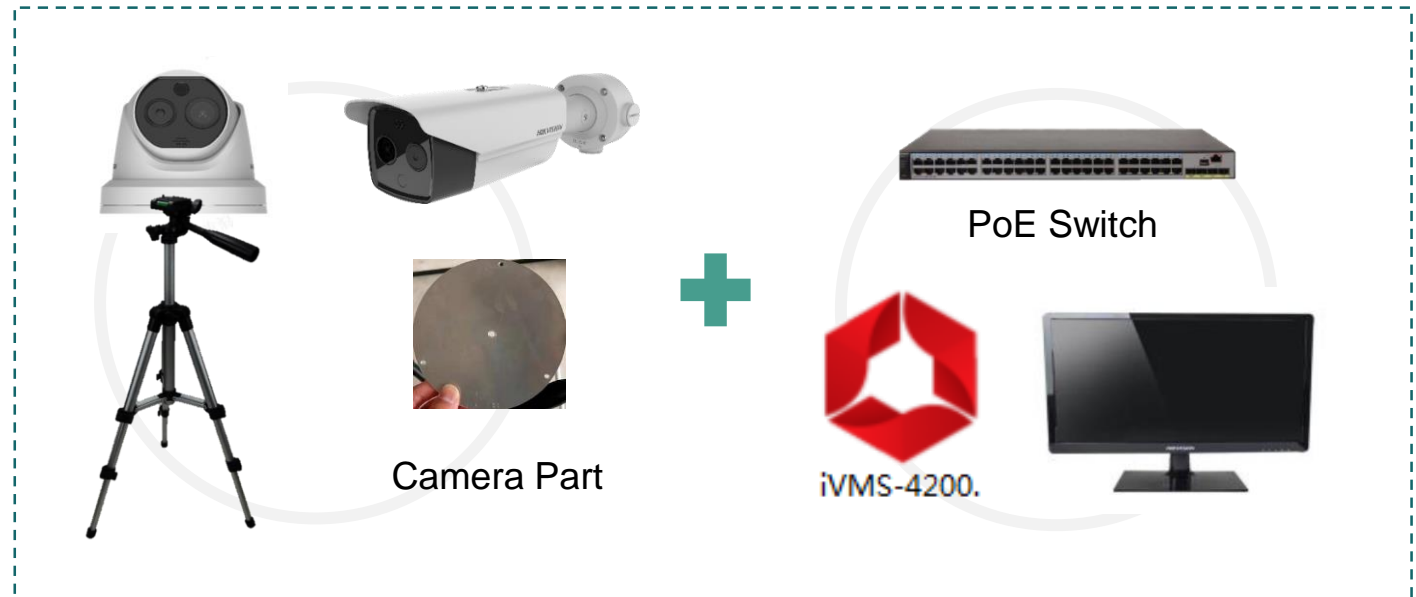
Solution Advantages

- Bullet/Turret Fever Screening Thermographic Camera supports temperature-exception **audio alarms** to notify the operator in time
- Supports **AI human body detection**, screening multiple targets at the same time, with reduced false alarms
- Accuracy is $\pm 0.5\text{ }^{\circ}\text{C}$, satisfying preliminary fever screening requirements
- Supports **4 MP optical channel**, satisfying regular monitoring requirements
- Easy installation and simple configuration

Installation Tips

The camera is recommended to install at a height of **1.5 meters**, keeping the distance between the targets and the camera at **0.8 to 1.5 m (3 mm camera) or 1.5 to 2.5 m (6 mm camera)**

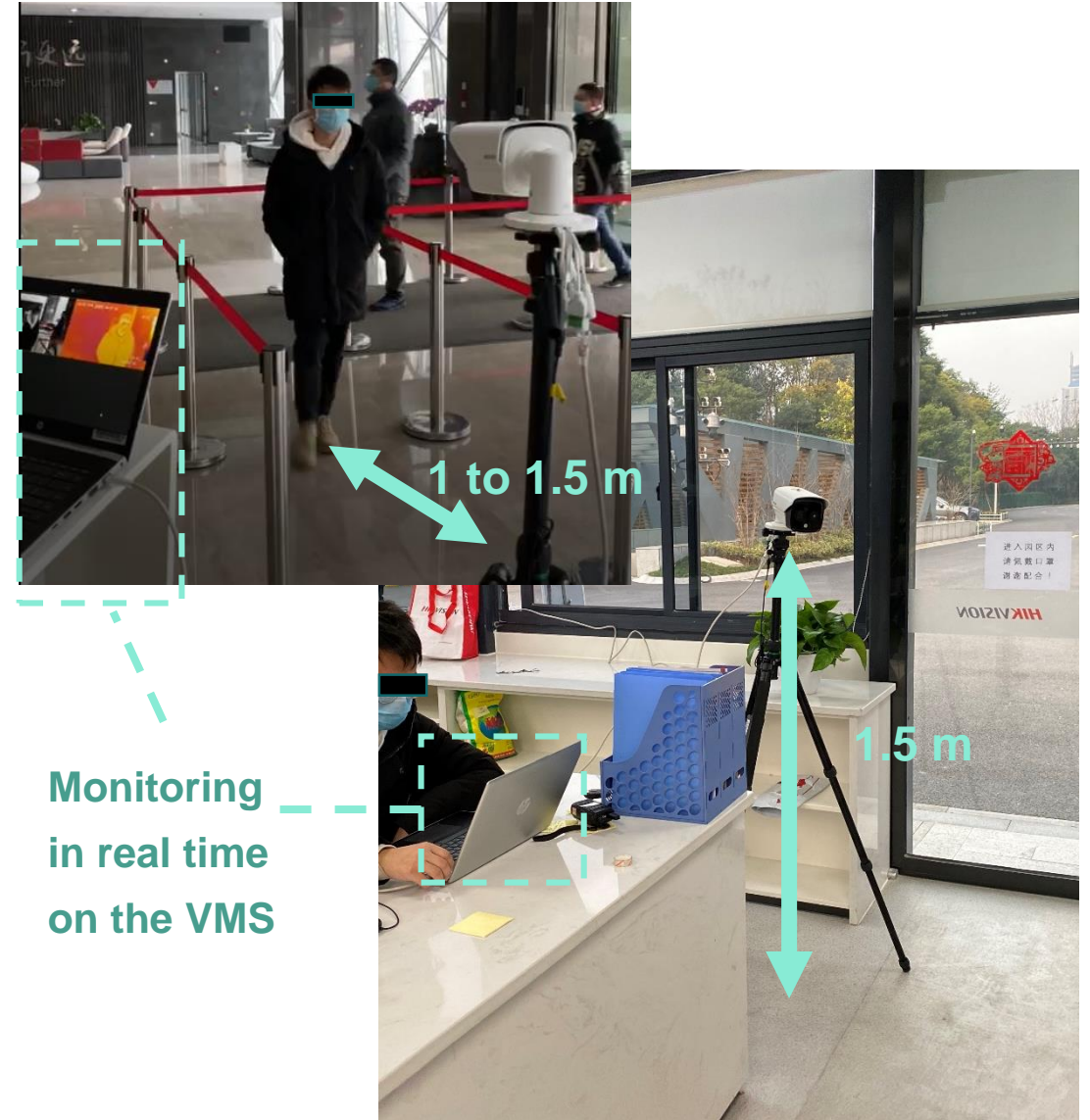
- Recommend to install in a stable **indoor** environment without wind



Thermographic camera coverage area

Economical Fever Screening Solution

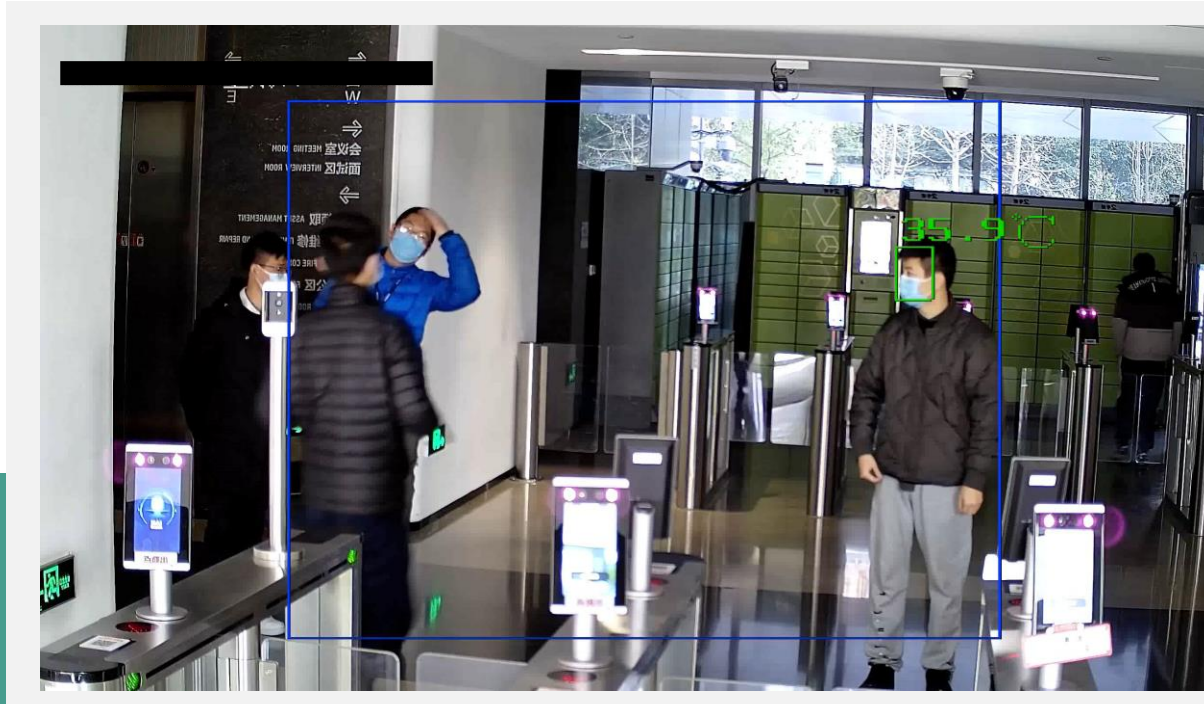
Field Performance



Economical Fever Screening Solution

Multi-person Fever Screening

- Reduce false alarms triggered by AI body detection
- Detection of up to 30 persons at a time
- Recommended distance between targets and camera is 0.8 to 1.5 m for a 3 mm thermal lens



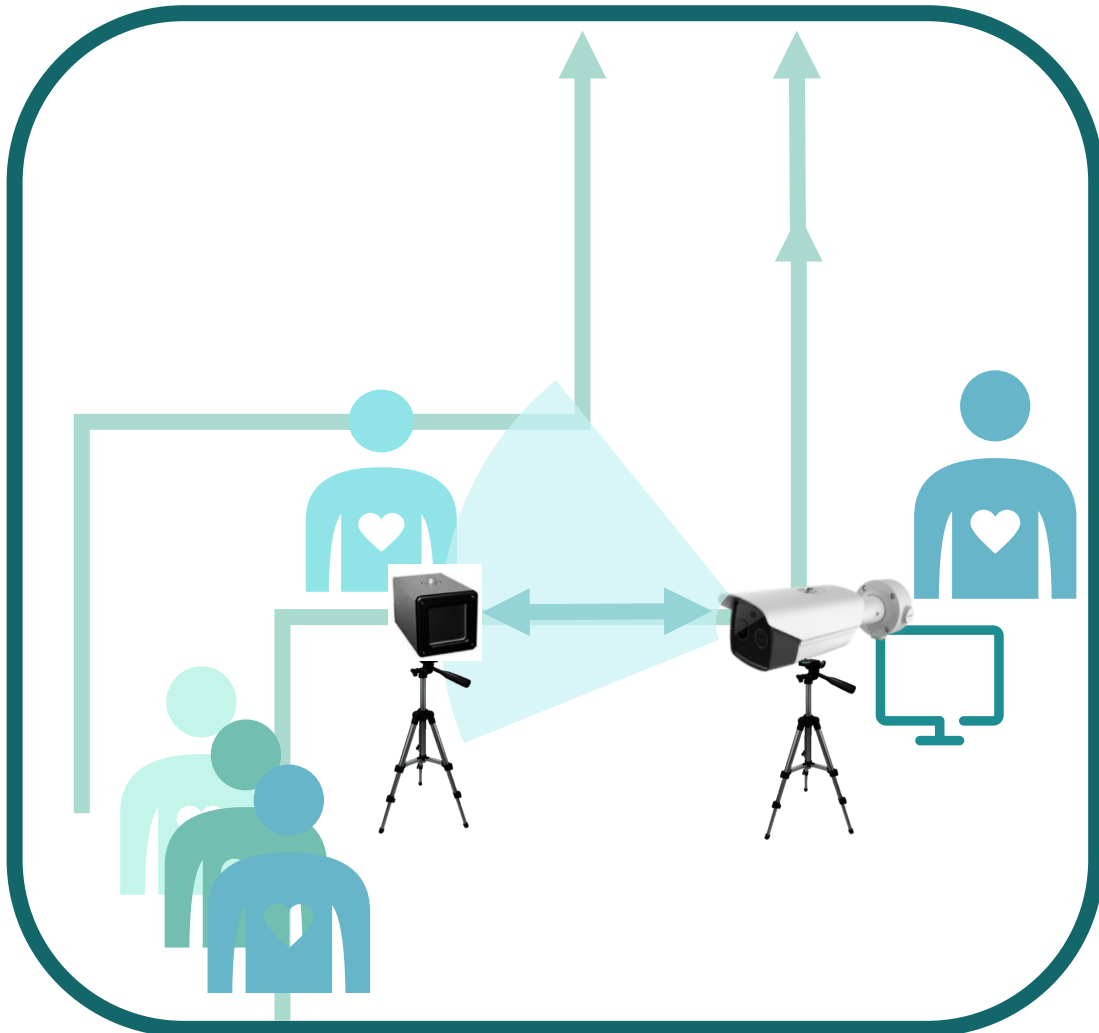
Optical channel



Thermal channel

*In this footage, a person places a bottle of warm water on his forehead to simulate abnormal body temperature and the system alarms.

High-End Fever Screening Solution



Solution Components

Bullet/Turret Fever Screening Thermographic Camera

+ Tripod + Tripod adaptor + iVMS-4200 + PoE Switch + **Blackbody calibrator**

Solution Advantages

- With higher accuracy $\pm 0.3\text{ }^{\circ}\text{C}$, the solution can reduce understated missing alarms

Installation Tips

- The camera is recommended to install at a height of **1.5 meters**
- The blackbody calibrator is used together with the camera, **1 m (3 mm device)**, **2 m (6 mm device)** or **5 m (2637/B)** away from the camera
- Make sure that the blackbody calibrator always appears in the **upper left / upper right corner** of the camera's view.
- Make sure that the blackbody calibrator **would not be blocked** by other targets during temperature measurement
- Recommend to install in a stable **indoor** environment without wind

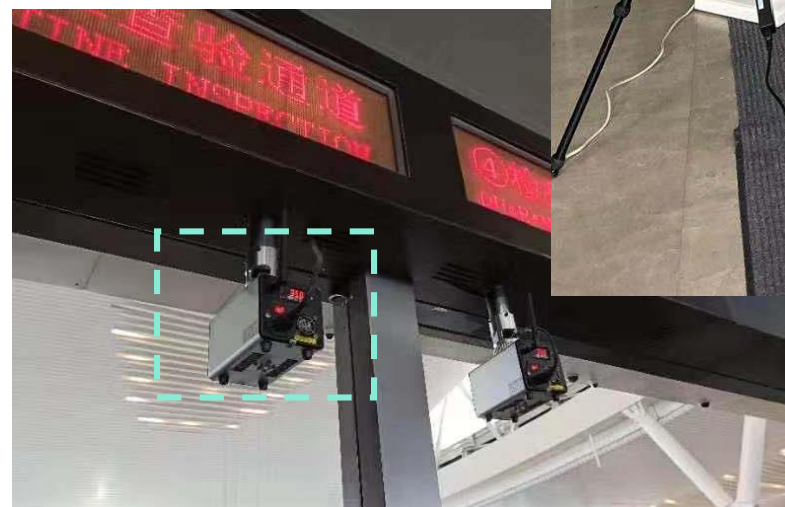
High-End Fever Screening Solution



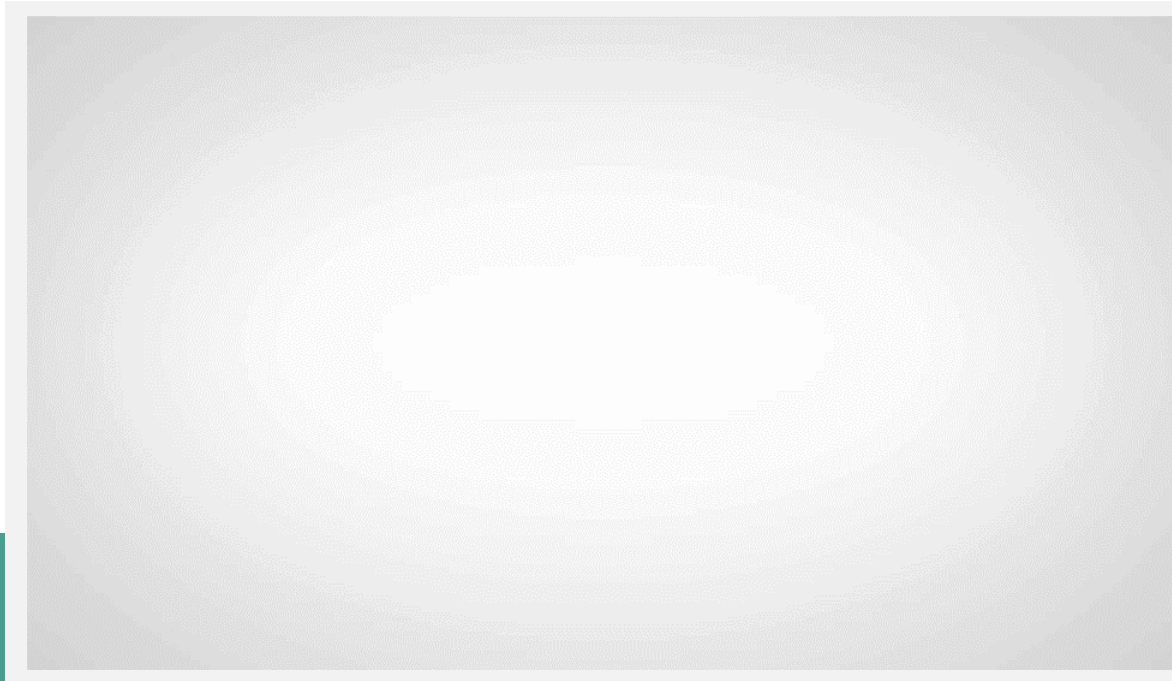
Video Of The Thermal & Optical Channels

Temporary Installation & Monitoring Scheme

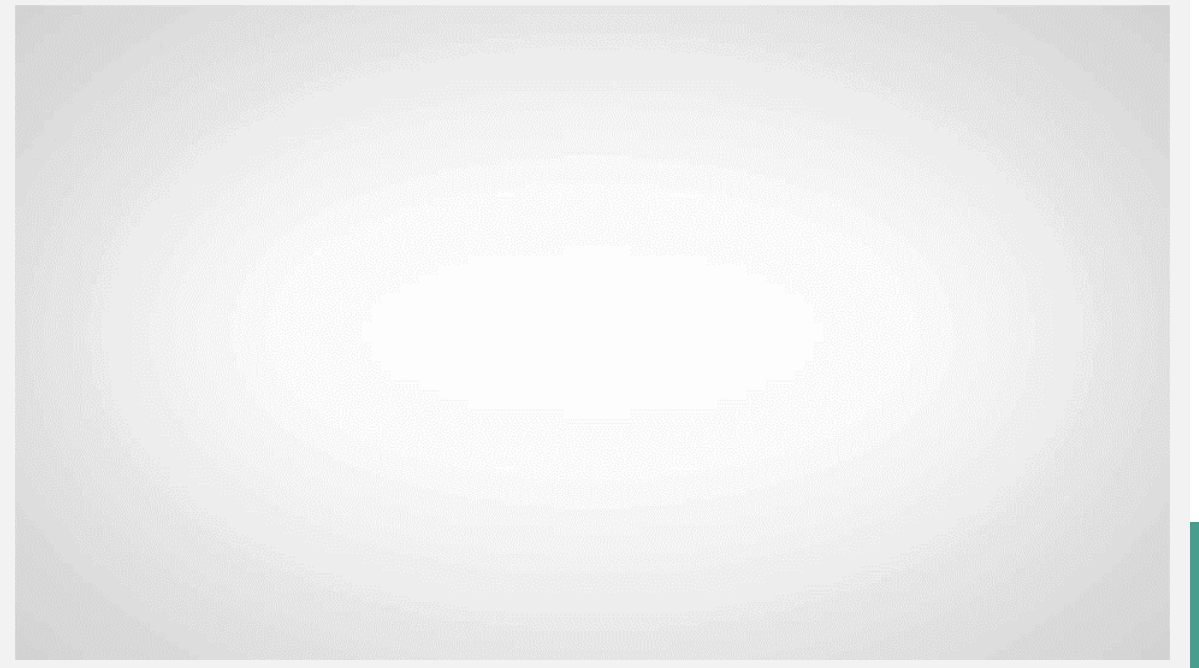
Long-term Installation Scheme



Configurations



Without Blackbody



With Blackbody

Applications

Hospital



Shop



Station



Airport



Railway



Office



School



Factory



Product Showcase – High-End Thermal Products

DS-2TD2637B-10/P DS-2TD2636B-15/P

- Thermal: 384 × 288;
- Lens: 10mm / 15 mm;
- Optical: 2688 × 1520;
- Optical lens: 4mm / 6 mm;
- Accuracy: $\pm 0.5^{\circ}\text{C}$
 $\pm 0.3^{\circ}\text{C}$ (with blackbody)
- Range: 30-45 $^{\circ}\text{C}$



DS-2TP21B-6AVFW

- Thermal resolution: 160 × 120 ;
- Optical resolution: 2M/5M/8MP configurable;
- Accuracy: $\pm 0.5^{\circ}\text{C}$
- Range: 30-45 $^{\circ}\text{C}$
- Touch screen
- Bi-spectrum image fusion
- Supports Wi-Fi
- Supports audio alarms
- Automatic screen capture & upload

Product Showcase – Economical Thermal Products



DS-2TD2617B-3/6PA(B)

- Thermal: 160 × 120;
- Lens: 3 mm / 6 mm;
- Optical: 2688 × 1520;
- Optical lens: 4 mm / 8 mm;
- Video mode: Bi-spectrum image fusion;
- Accuracy: $\pm 0.5^{\circ}\text{C}$
 $\pm 0.3^{\circ}\text{C}$ (with blackbody)
- Range: 30-45°C
- Supports audio alarms



DS-2TD1217B-3/6PA(B)

- Thermal: 160 × 120;
- Lens: 3 mm / 6 mm;
- Optical: 2688 × 1520;
- Optical lens: 4 mm / 8 mm;
- Video mode: Bi-spectrum image fusion;
- Accuracy: $\pm 0.5^{\circ}\text{C}$
 $\pm 0.3^{\circ}\text{C}$ (with black body)
- Range: 30-45°C
- Supports audio alarms



Accessories

Blackbody calibrator

- Temperature resolution: 0.1°C
- Accuracy: $\pm 0.1^{\circ}\text{C}$
- Temperature stability: $\pm 0.1^{\circ}\text{C}/\text{h}$
- Effective emissivity: 0.97 ± 0.02
- Operating temperature: 0 to 30°C

Tripod

- UNC 1/4"-20 tripod connection
- It is recommended to purchase the tripod at local to meet the standards

Advantages of Hikvision's Thermographic Fever Screening Solutions

AI Human Body Detection

Hikvision Bullet/Turret Fever Screening Thermographic Cameras feature AI human body detection to fix the measurement areas to human bodies, thus reducing false alarms caused by other heat sources.

Embedded Audio Alarms

With a built-in audio module, Hikvision Bullet/Turret Fever Screening Thermographic Cameras can trigger alarms to notify operators immediately when a person with a fever passes by.



Unique Self-developed Algorithm

Benefitting from Hikvision's self-developed temperature measurement algorithm and big data obtained by lots of cases, the accuracy of temperature measurement is highly reliable.

One-Stop Solution

As a world's leading security solution provider, Hikvision offers a rich product portfolio including thermographic cameras, NVR, switches, etc., which is easier for clients to set up a complete and professional solution.

FAQ

Q: Can the fever screening thermographic camera be installed outdoors?

A: Outdoor wind and sun can easily affect the surface temperatures of human bodies and the working status of the camera, which results in a deviation between the measured body surface temperature and the actual body temperature. To ensure the accuracy, we strongly recommend applying the solutions indoors.

Q: Can the accuracy of fever screening thermographic cameras reach $\pm 0.1^{\circ}\text{C}$?

A: No. At present, cameras with accuracy higher than $\pm 0.5^{\circ}\text{C}$ require real-time calibration with a blackbody and intelligent compensation. The accuracy of a blackbody calibrator is currently $\pm 0.1^{\circ}\text{C}$. So it is impossible to achieve $\pm 0.1^{\circ}\text{C}$ accuracy by the cameras. Solutions with higher accuracy $\pm 0.3^{\circ}\text{C}$ are available.

Q: Can the camera detect human bodies for temperature measurement?

A: The camera detects human bodies when screening. It supports up to 30 persons at a time. But still we recommend to carry out temperature measurement person by person.

Q: Will other heat sources (such as tea cups, kettles, etc.) cause false alarms?

A: The cameras are able to use human body detection technology, so other heat sources **will not cause false alarms**.

Q: When can I use the fever screening function after a camera is turned on?

A: The cameras need to be warmed up before using. Turn them on and wait for **5 minutes** (handheld camera), **30 minutes** (bullet / turret camera).

Q: What is a blackbody calibrator? What should be noticed before purchasing it?

A: A blackbody is a **standard temperature source**, the thermographic cameras are able to **calibrate** based on the temperature of a blackbody calibrator.

The blackbody only needs to be powered, no internet connection required.

Hikvision thermal cameras are available with a blackbody to **increase accuracy**.

Thanks



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