

Fever Screening Thermal Solutions and Products

HIKVISION[®]

HIKVISION THERMAL



Principle

Thermal principle
introduction



Process

Thermal fever
screening process



Solutions

Fever screening
solutions



Products

Product showcase
Successful cases
FAQ



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.

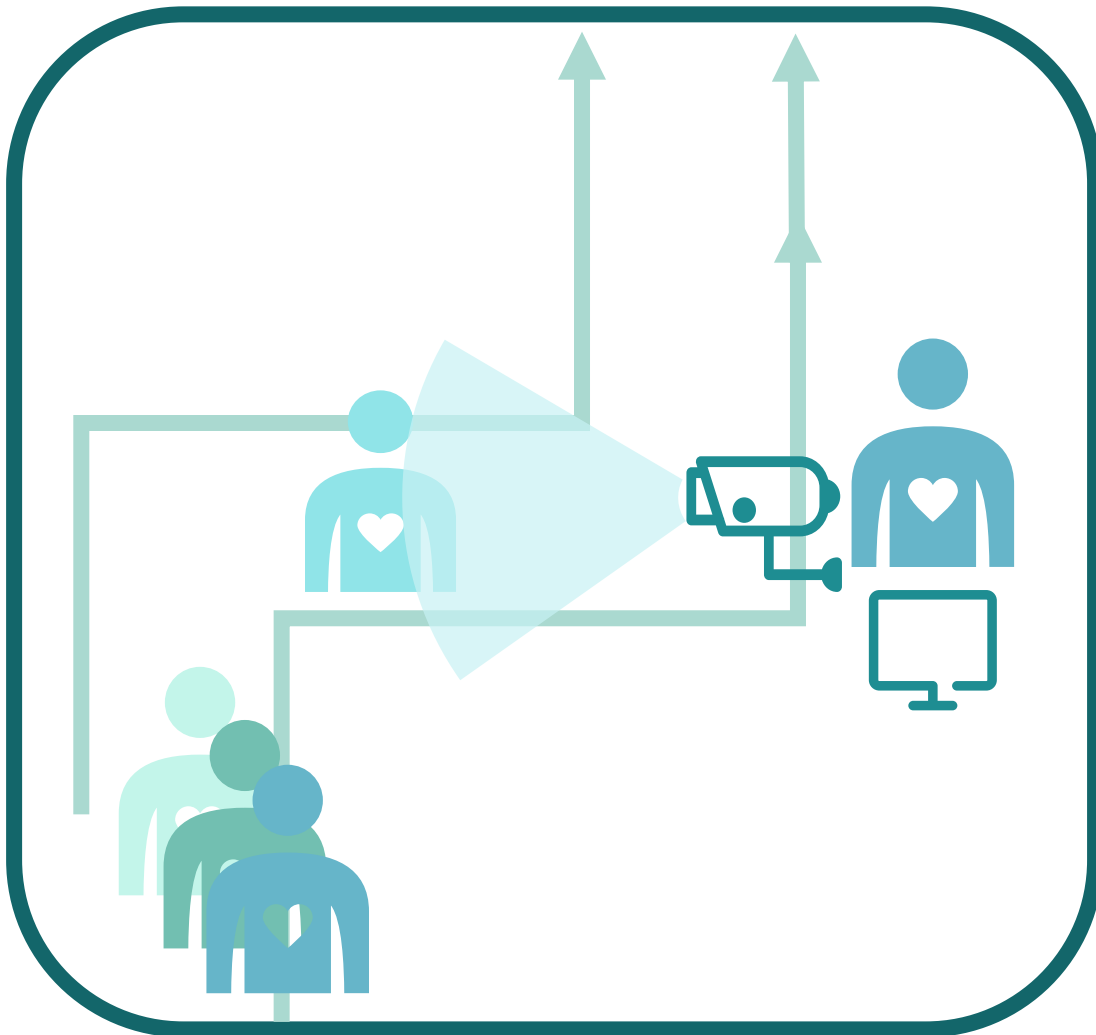
Advantages



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

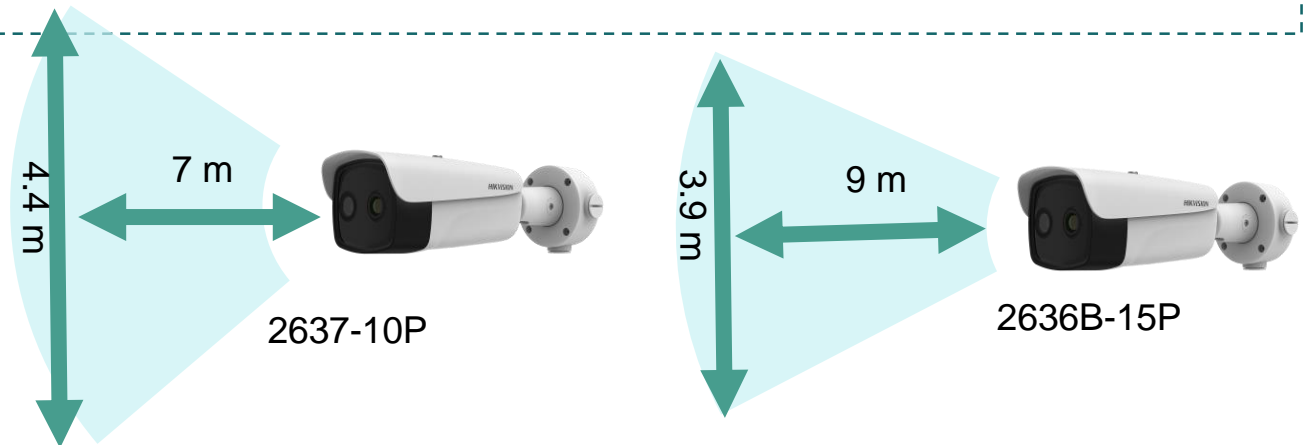
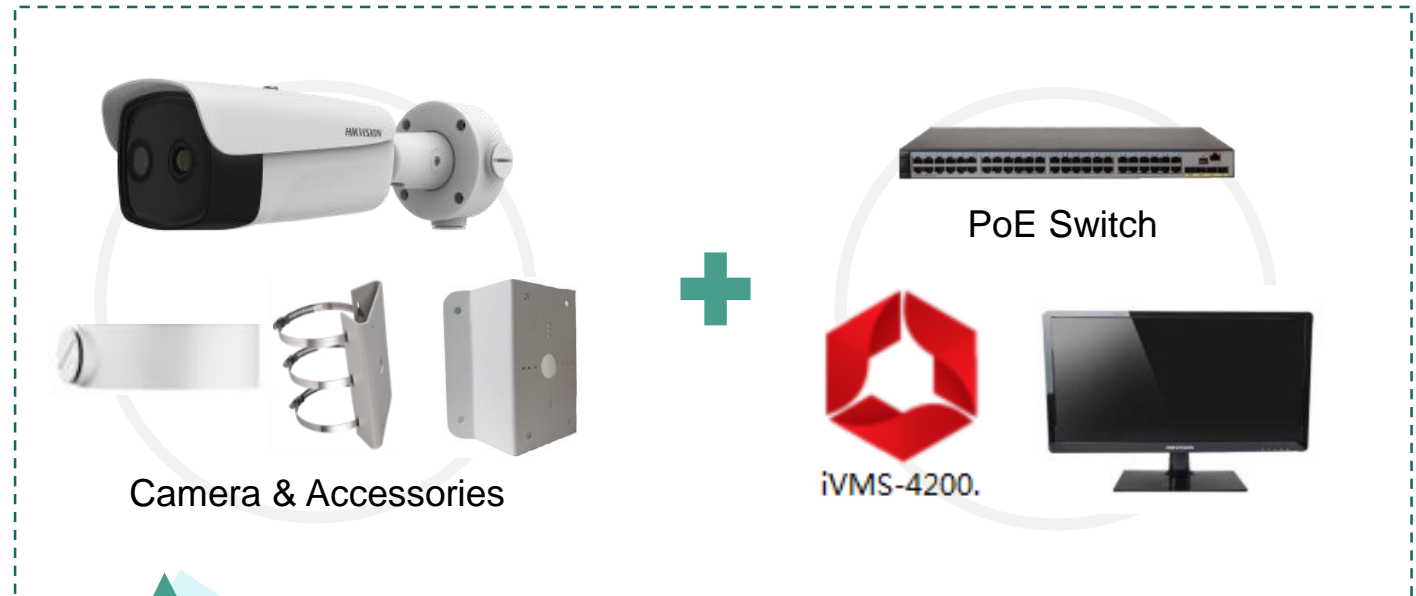
HD Bullet Fever Screening Thermographic Camera +
Accessories + iVMS-4200 + PoE Switch

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 **±0.5 °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

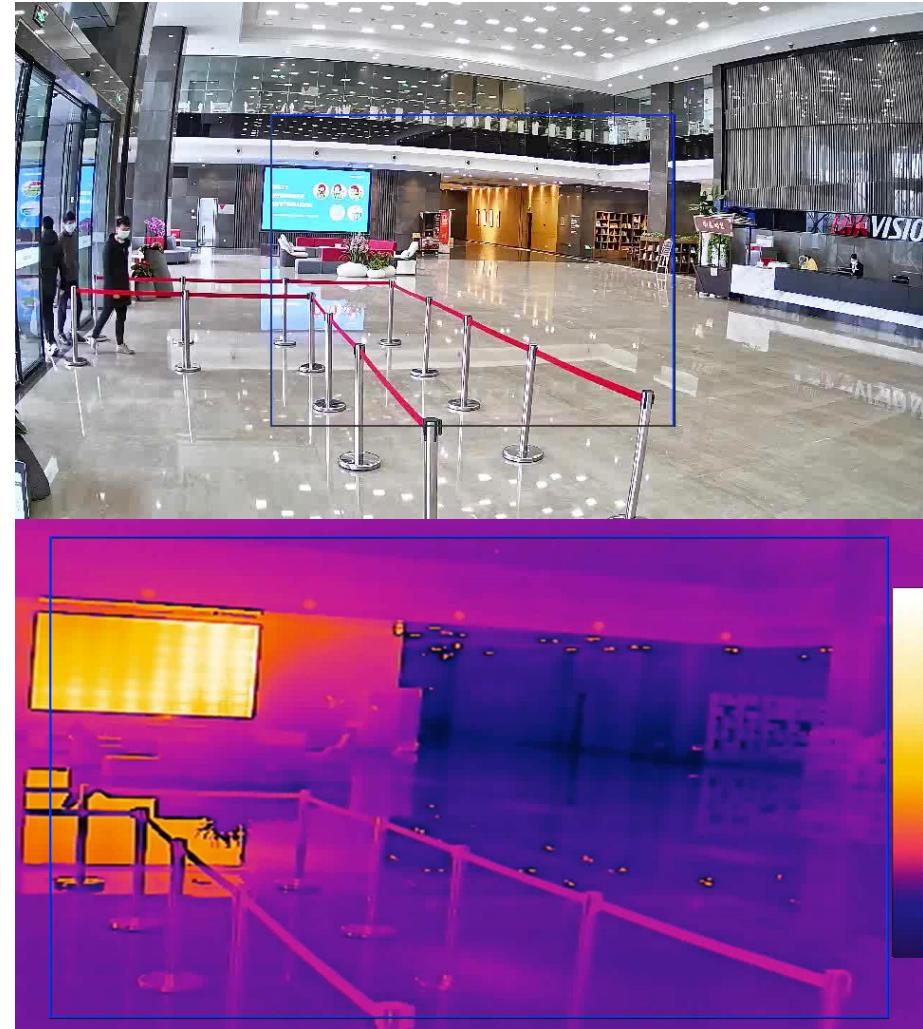
Professional Fever Screening Solution

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 **±0.5 °C**, satisfy preliminary fever screening requirements

Installation Tips

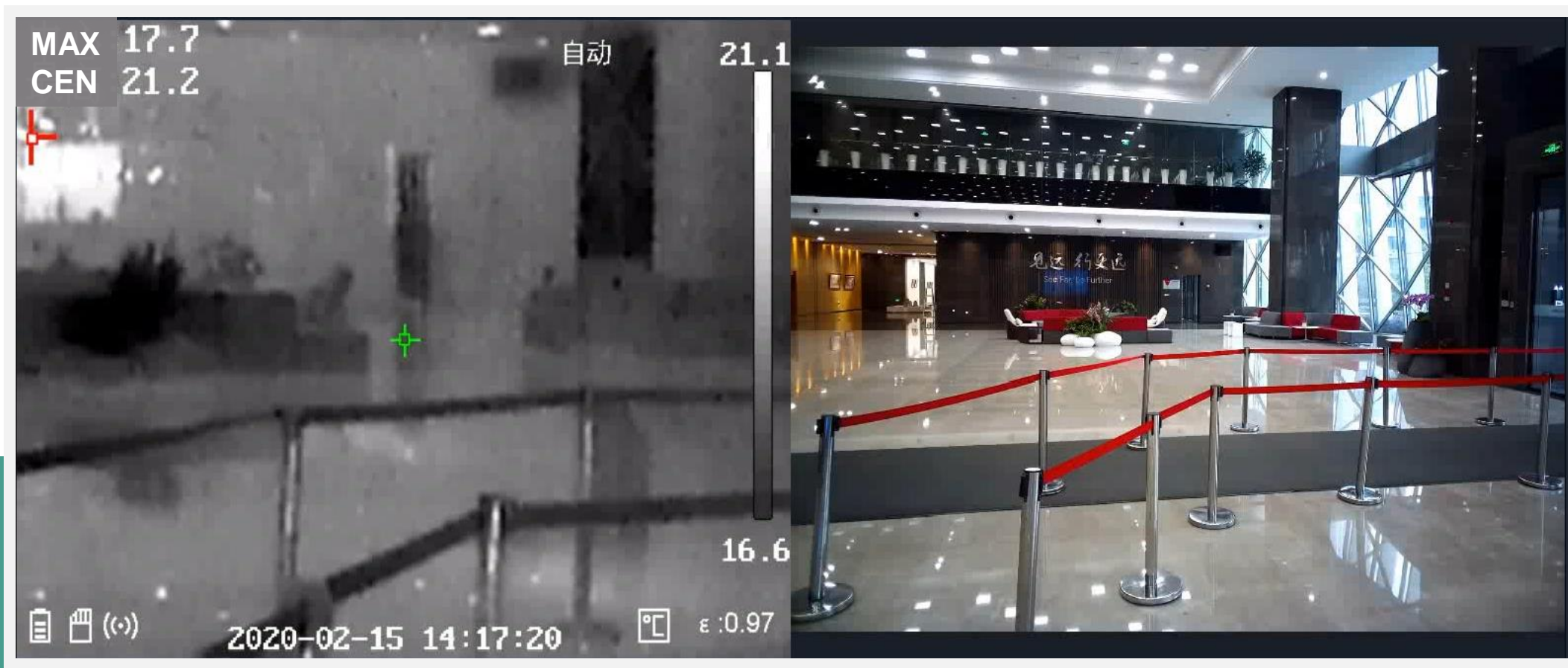
- The camera is recommended to install at a height of **1.5 meters**, keeping the distance between the targets and the camera at **1.5 to 2.5 meters**
- Recommend to install in a stable **indoor** environment without wind
- People pass by the thermographic camera one by one



1.5 m

Handheld Fever Screening Solution

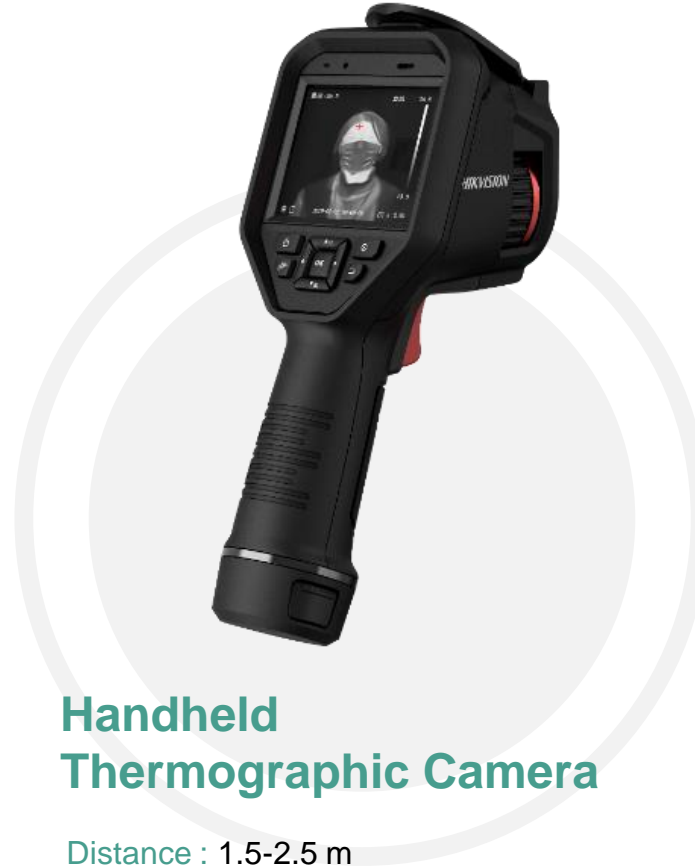
Field Performance



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

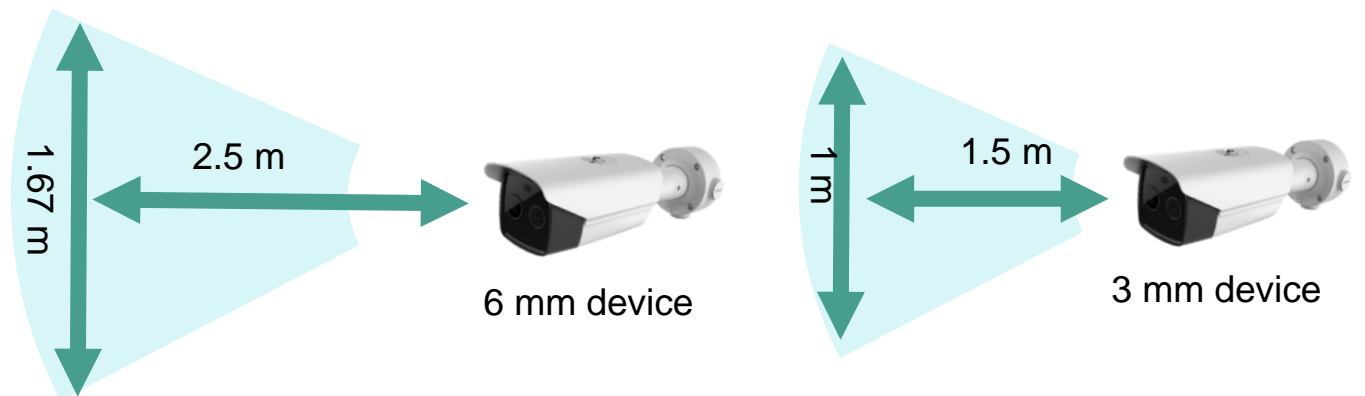
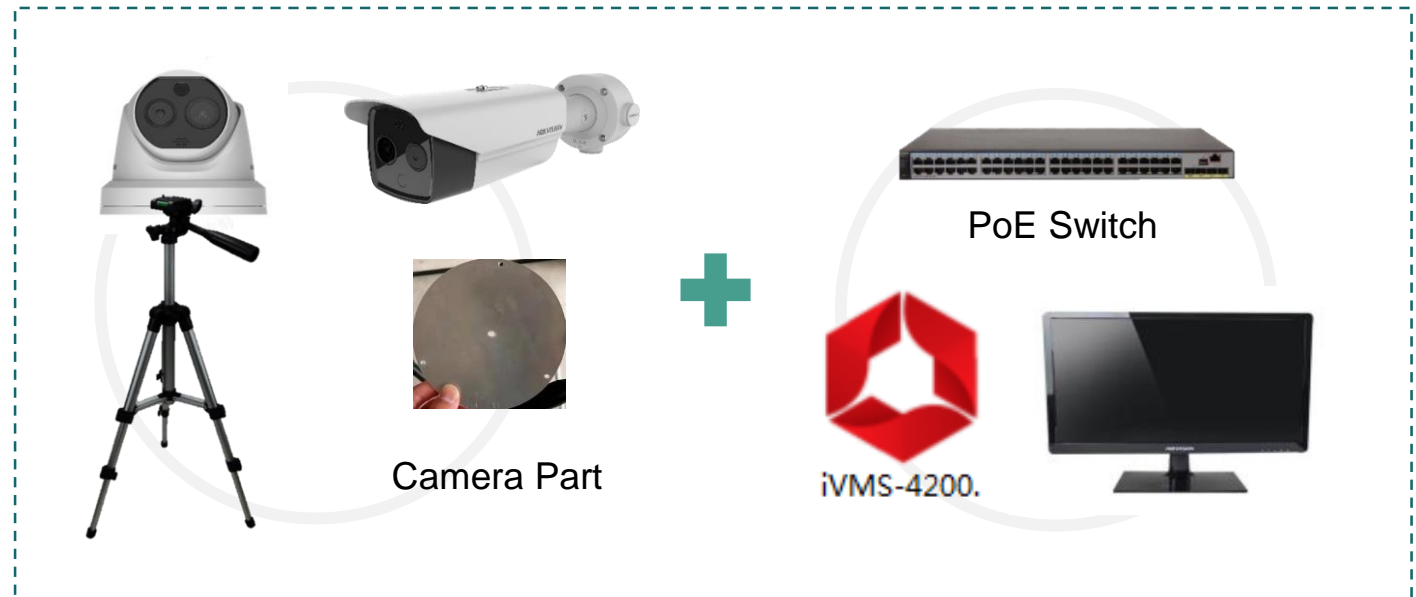
Solution Advantages

- 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)**

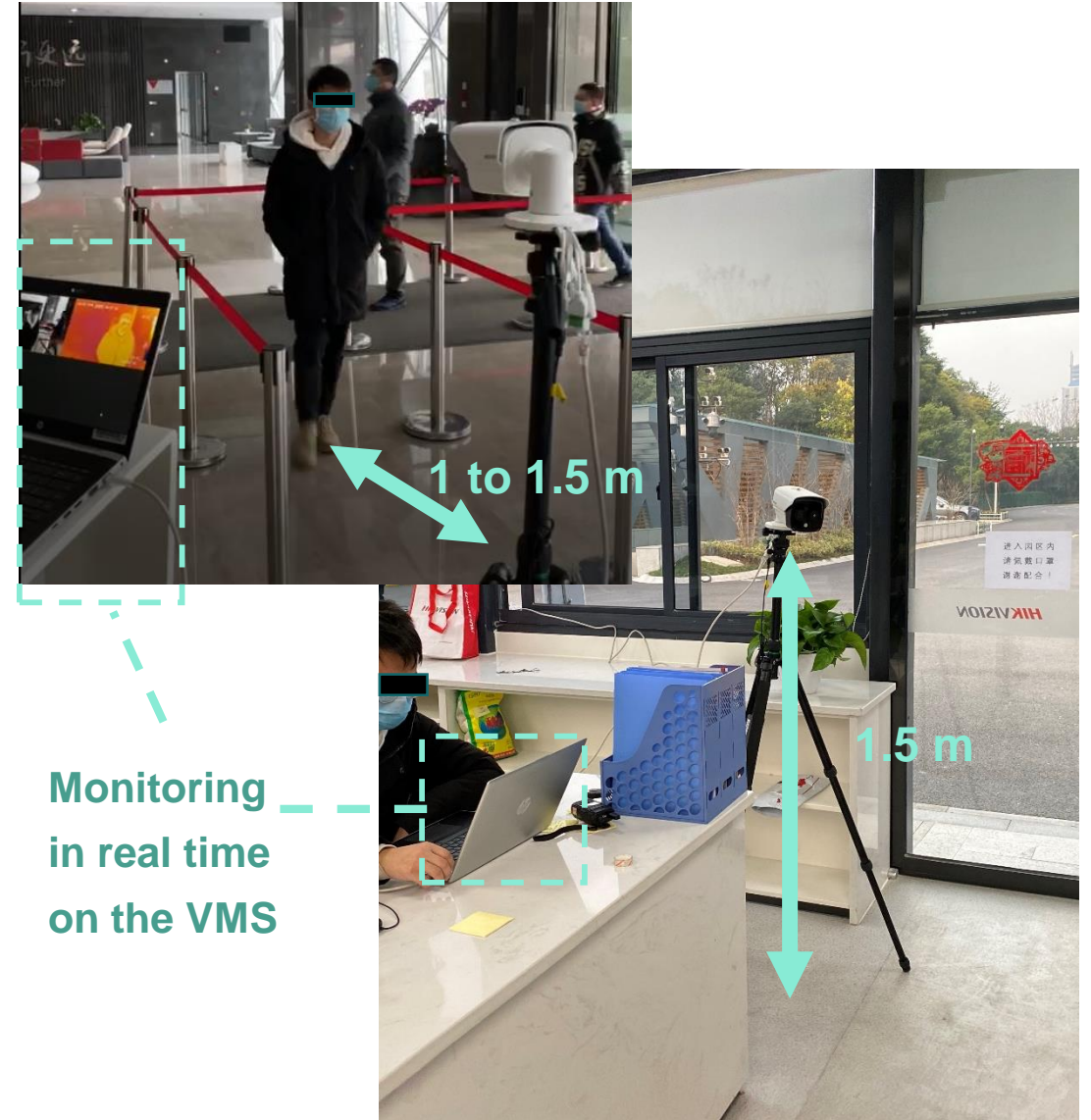
- Recommend to install in a stable **indoor** environment without wind



Thermographic camera coverage area

Economical Fever Screening Solution

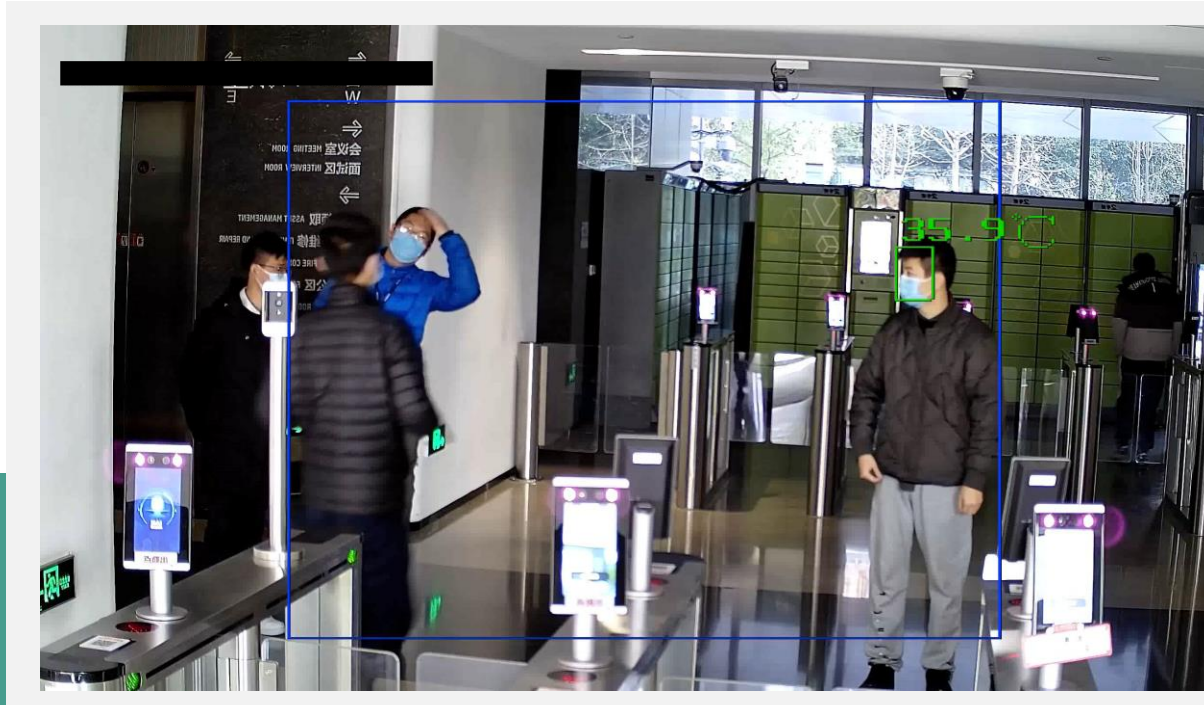
Field Performance



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



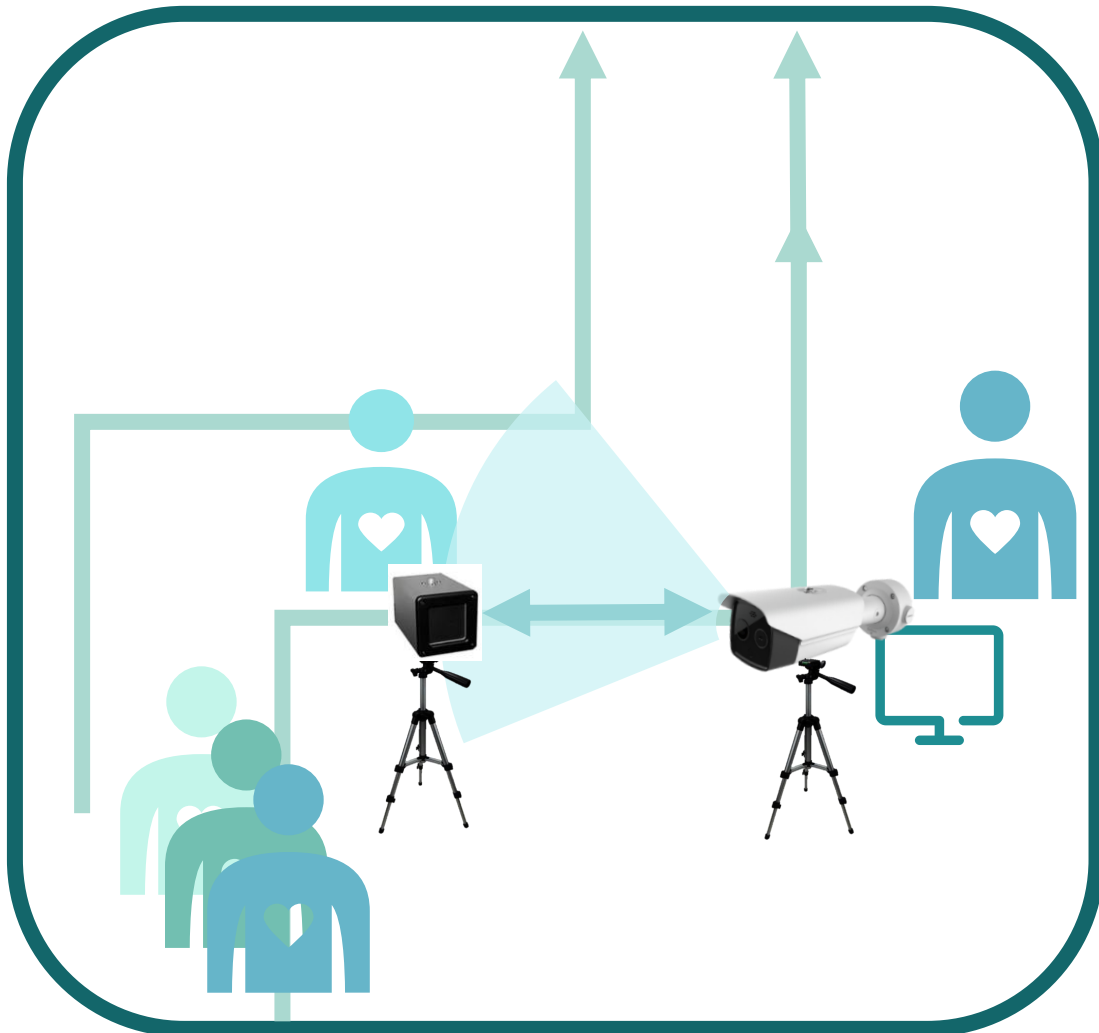
Optical channel



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



Applications

Hospital



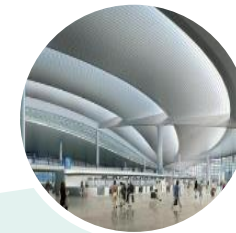
Shop



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: ±0.5°C
± 0.3°C (with blackbody)
- Range: 30-45°C



DS-2TP21B-6AVFW

- Thermal resolution: 160 × 120 ;
- Optical resolution: 2M/5M/8MP configurable;
- Accuracy: ±0.5°C
- Range: 30-45°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**.

Currently, Hikvision's blackbody calibrators only support Chinese power supply standards **without certification overseas**.

Thanks



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