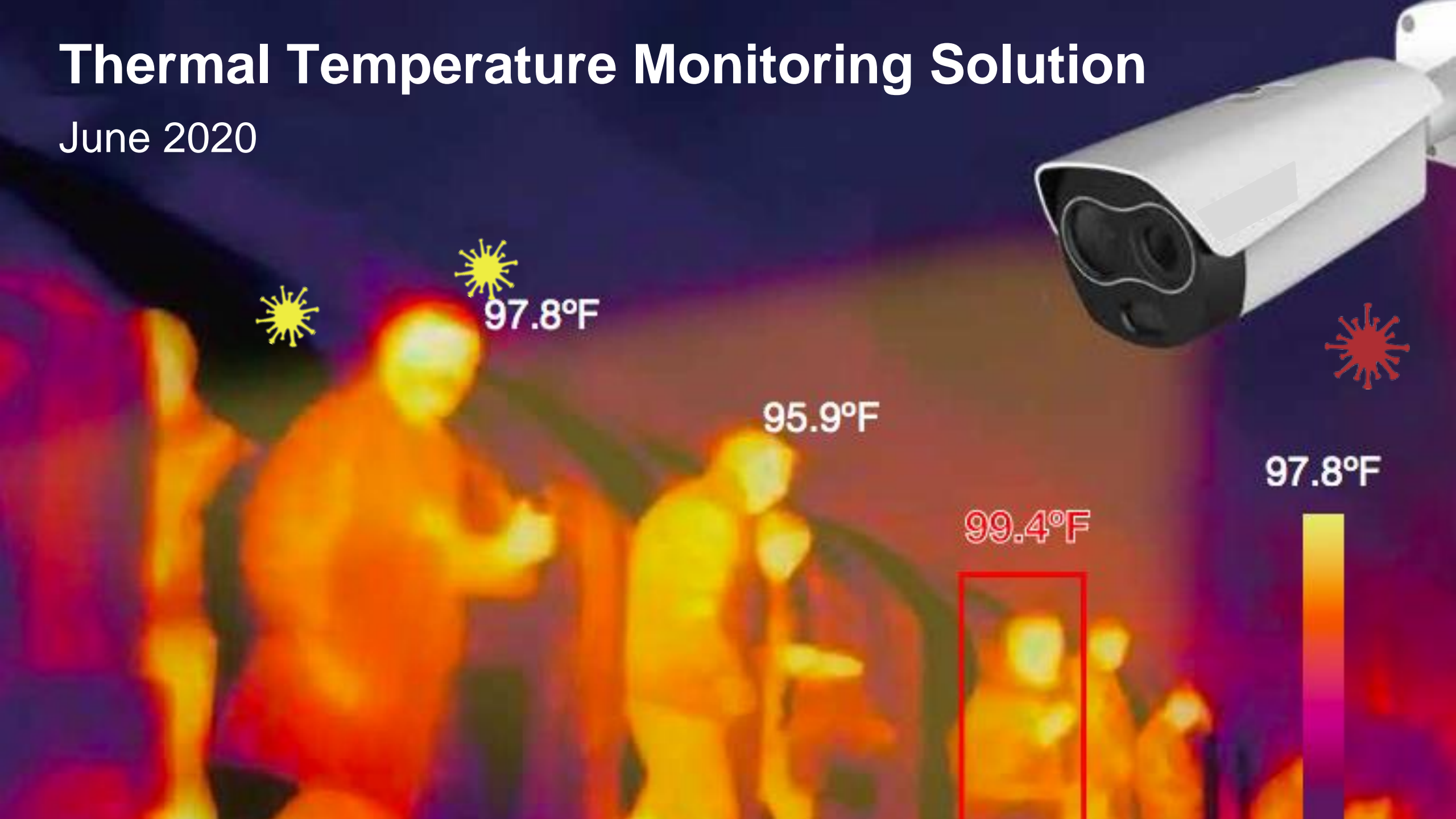


# Thermal Temperature Monitoring Solution

June 2020



# Today's Agenda:

1. Background
2. Applications
3. System Overview
4. ROI
5. Case Studies
6. Common Questions
7. Installation and Setup

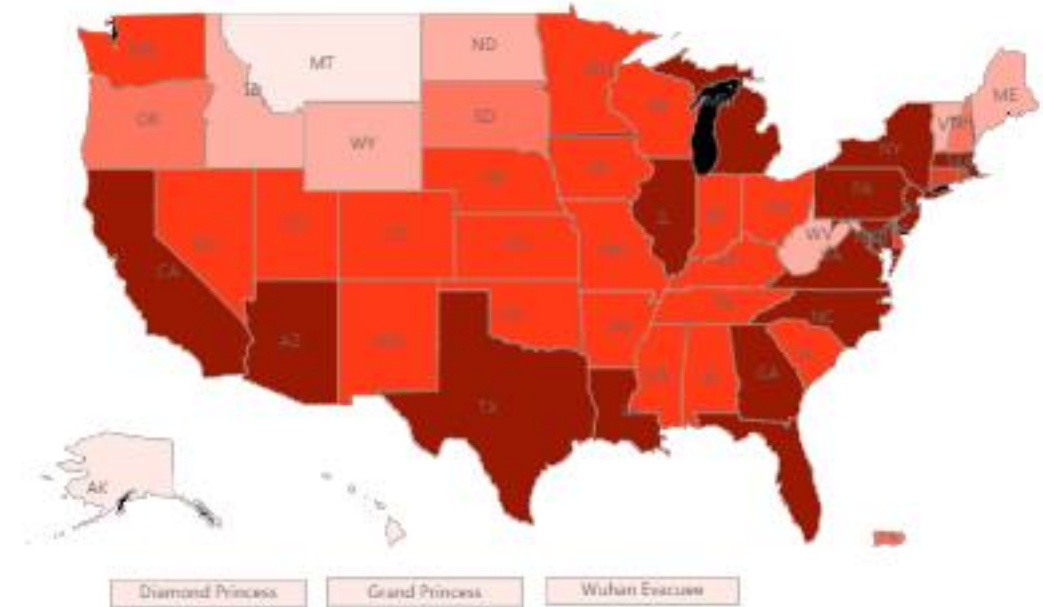
# Background

At the May of 2020, a novel coronavirus, referred to as COVID-19, has been spread out in USA and all around the world. The virus is characterized by human-to-human transmission, medical staff infection and community transmission. The disease has become a worldwide pandemic.

- More than 480,000 people died around the world , and 9.6 millions confirmed cases.
- All 50 states have reported cases of COVID-19 to CDC.
- Total USA COVID-19 cases: 2,500,000
- Total USA Deaths 126,800

*Information as of 6/25/2020*

States Reporting Cases of COVID-19 to CDC



# COVID-19 Symptoms

- Fever
- Cough
- Upper Respiratory Problems

## Stop the Spread

Airport passengers are screened with hand-held thermometers to look for individuals who may have the virus.



Hand-held thermometers can be unreliable due to skin temperature being colder than internal body temperature.

## Current Challenges

- Handheld solutions require the operator to be in close proximity of the subject, violating safe distance recommendations
- Manual recording is inefficient
- Personnel information collection is difficult
- Low efficiency of thermometer and infrared detection gun
- Manual temperature measurement workload, high risk
- Risk of cross contamination

## A Faster Alternative....

# Thermal Temperature Monitoring Solution

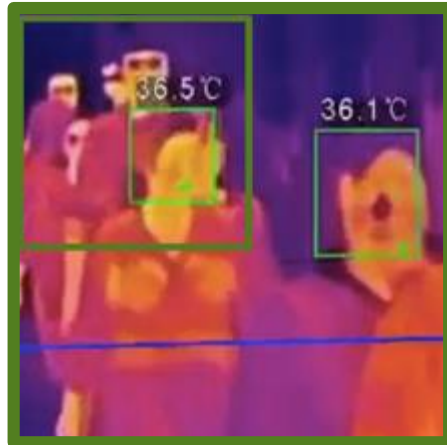
- Thermal imaging technology was also used during the SARS outbreak, which also saw high fevers.
- **Non-contact** automatic temperature monitoring. Operators do not have to be near people being screened for **higher social distancing**.
- **Accurate, multi-person monitoring**. A **faster, more sanitary way** to identify a person in a large group with an elevated temperature.
- **Records abnormal temperature** information automatically.
- Captures person's identity automatically with **facial recognition** system feature.



# Thermal Temperature Monitoring Solution



Ski Mask

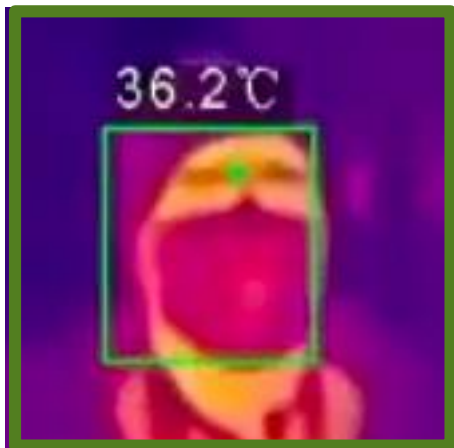


Multiple People



Helmet

- Ability to accurately read a person's temperature even with accessories covering their bodies.



Medical Mask



Sun Glasses /  
Hat



Hot Drink non-  
detection

# Applications

# Strong Adaptability

- Small scenes such as entrances and exits
- Large scenes such as airports and railway stations with dense personnel
- Deployed worldwide to screen tourists for temperature
- Best for indoor applications



**Airports**



**Rail**



**Hospitals**



**Schools**



**Churches**



**Entrance**



**Restaurants**



**Day Care**



**Bus Station**



**Casinos**

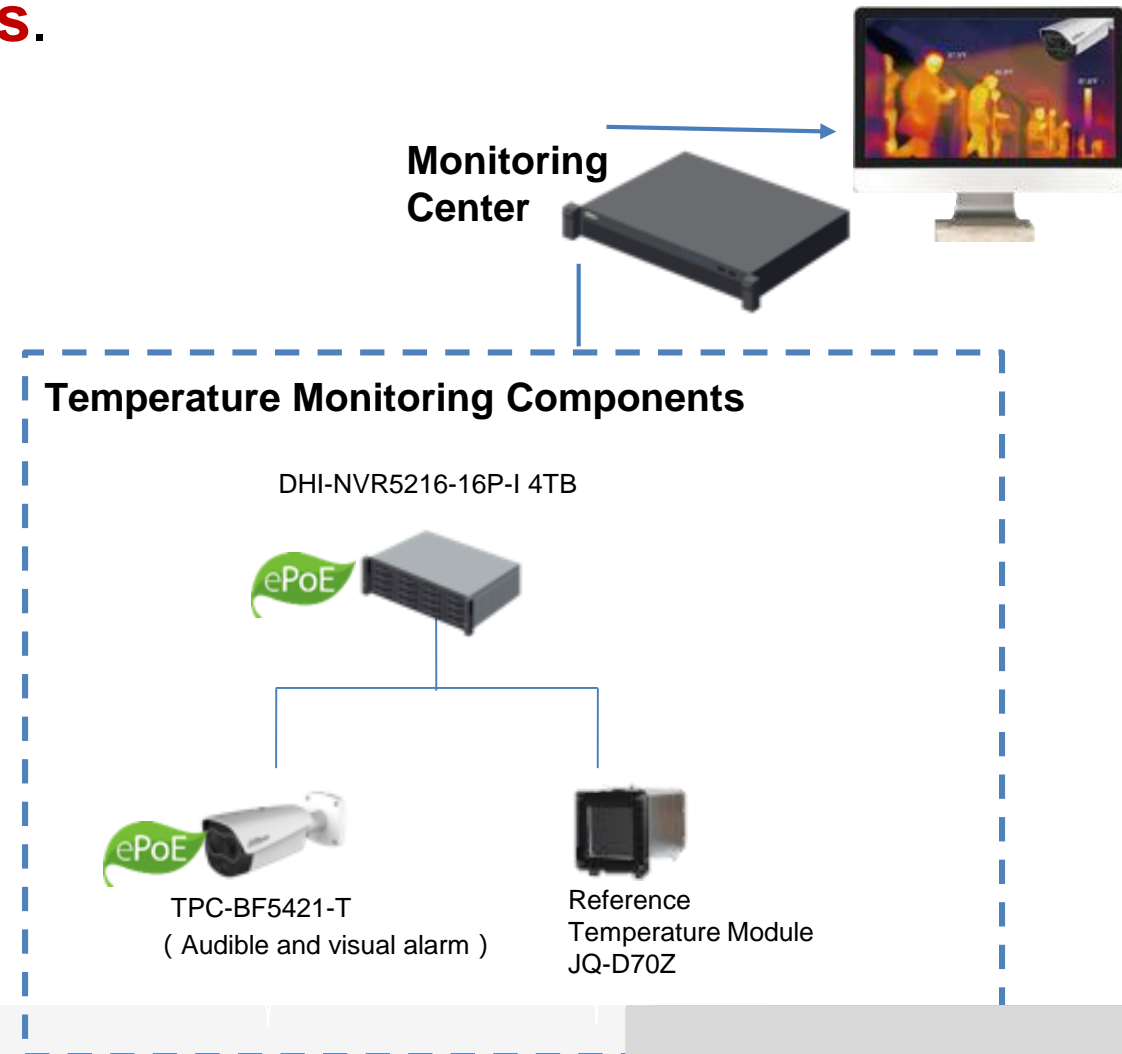


# System Overview

# Thermal Benefits

Thermal temperature monitoring solution is a **cutting-edge technology** that could play a **crucial role** in **monitoring temperatures**.

- Accurate, safe and efficient temperature monitoring
- Fast screening without personal contact
- Monitoring of multiple people at the same time for higher efficiency
- Visual alert when abnormal results are detected
- Facial identification to easily match with alarm



# Thermal Dual-lens

Detects the heat from multiple places on the body.

- **300x400 VOx** uncooled thermal sensor technology
- Athermalized Lens (thermal camera), Focus-free
- Visible: 1/2.8" 2MP progressive scan Sony CMOS
- Dual-lens:
  - Thermal 13mm / Visible 8mm
- Support Motion Detection, Color Palettes
- Support measure body temperature
- High Accuracy: Max ( $\pm 0.3^{\circ}\text{C}$ , with black-body/  $\pm 1^{\circ}\text{C}$ , without blackbody)
- Built-in 2/2 alarm in/out
- SD Card Slot up to 256GB
- IP67



**DH-TPC-BF5421-T**



**Visible Lens**

**IR Light**



**Thermal Lens**

**LED Light**

# What's in the Box

## DH-TPC-BF3221-T





# Reference Temperature Module

This unit provides a constant stable and accurate temperature surface for continuous calibration of the sensor. It can only be used with one thermal camera.

- Working Temperature: 40°C (environment temperature: +5.0°C - 50°C)
- Temperature Resolution: 0.1°C
- Temperature accuracy:  $\pm 0.2^{\circ}\text{C}$  (Single point)
- Temperature stability:  $\pm (0.1 \sim 0.2)^{\circ}\text{C}/30\text{min}$
- Effective emissivity:  $0.97 \pm 0.02$
- Power: 110V AC–220V AC
- Ambient temperature and humidity: 0~40°C/  $\leq 80\% \text{RH}$



**JQ-D70Z  
Blackbody**

# Tripod / Plate Installation

**Thermal Camera:** detects heat



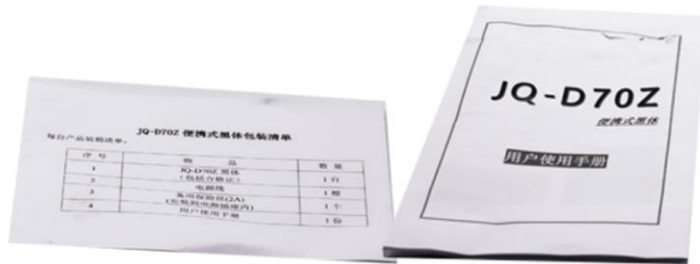
**Blackbody:** provides the thermal camera a temperature reference to compare with a human's body temperature

*Requires calibration prior to use*



# What's in the Box

## JQ-D70Z Blackbody



Temperature  
Measuring

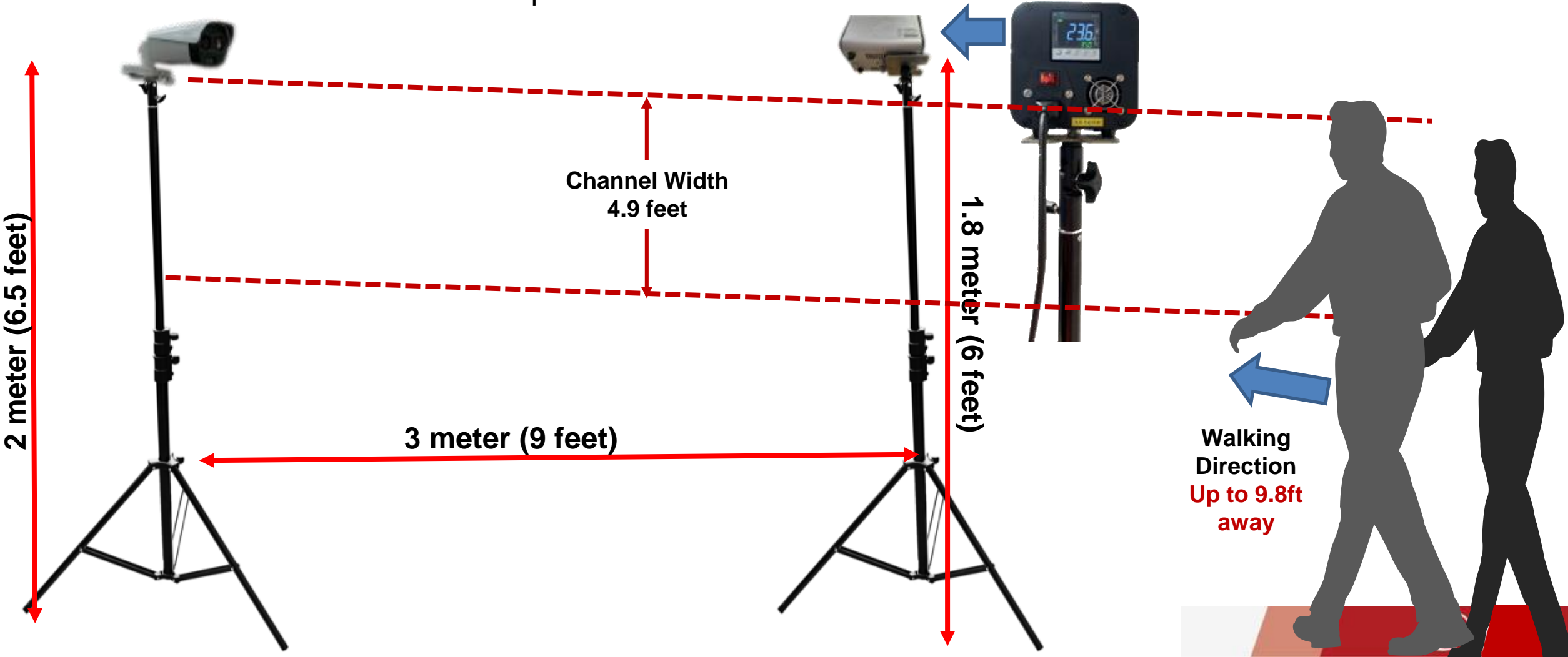
Connector Plate RQW026-00  
Sold separate

Tripod VCT-999  
Sold separate  
Or any standard tripod

# Tripod Setup

| Distance between camera and blackbody | Distance between the human forehead and the camera | Channel Width |
|---------------------------------------|--|---------------|
| 9.8ft (3m)                            | 9.8ft (3m)   | 4.9ft (1.5m)  |

- System components are portable for easy relocation if the system needs to be moved.
- Monitors multiple people from a distance of 9.8 feet away and 4.9 feet wide.
- Enables a fast assessment without personal contact.





# Solution Setup

- Avoid deploying in areas with
  - Direct sunlight
  - Backlight
  - Reflection
  - High temperature
  - Vibration
  - Low light
  - Humidity
  - Strong airflow
  - Strong electromagnetic forces
- Avoid deploying in areas that may cause **interference** such as
  - Heaters
  - Hot water points
  - Microwave ovens
  - High-power lamps
  - Radiators

# 16-Channel 1U 16PoE AI Network Video Recorder

- Industry embedded micro-controller
- 320Mbps (160Mbps when AI function enabled)
- 16-channel IP video access
- Up to 16-channel perimeter protection
- Up to 4-channel face recognition with normal IPC or visible light stream from dual head thermal camera
- 1-8 PoE Ports support ePoE & EoC
- Up to 20 face databases with 100,000 face pictures in total
- 1 HDMI / 1 VGA video output
- Alarm output capability allows for external system to alarm when over-temp is detected



**DHI-NVR5216-16P-I 4TB**



# What's in the Box

## DHI-NVR5216-16P-I



# Full Solution Components

## Temperature Measurement

**New**



JQ-D70Z  
Includes PSU cable

**New**



DH-TPC-BF5421-T  
PSU sold separate

**New**

1x Connector  
RQW026-00  
2 units required



A set of temperature measuring devices require two tripods and two connectors, one for the camera and one for the Blackbody device.

## Accessories



Camera Power Supply  
DH-PFM320D-US: DC12V 2A  
Or  
DH-PFM321D-US: DC12V1A

**New**

1x Tripod  
VCT-999  
2 units required



## Storage

**New**



DHI-NVR5216-16P-I 4TB



Switch (optional)  
DH-LR2110-8ET-120

## Display



DHL43-F600 (optional)



ROI

# ROI **9x** Faster vs Manual Readings

## Manual Temperature Monitoring with Forehead Thermometer



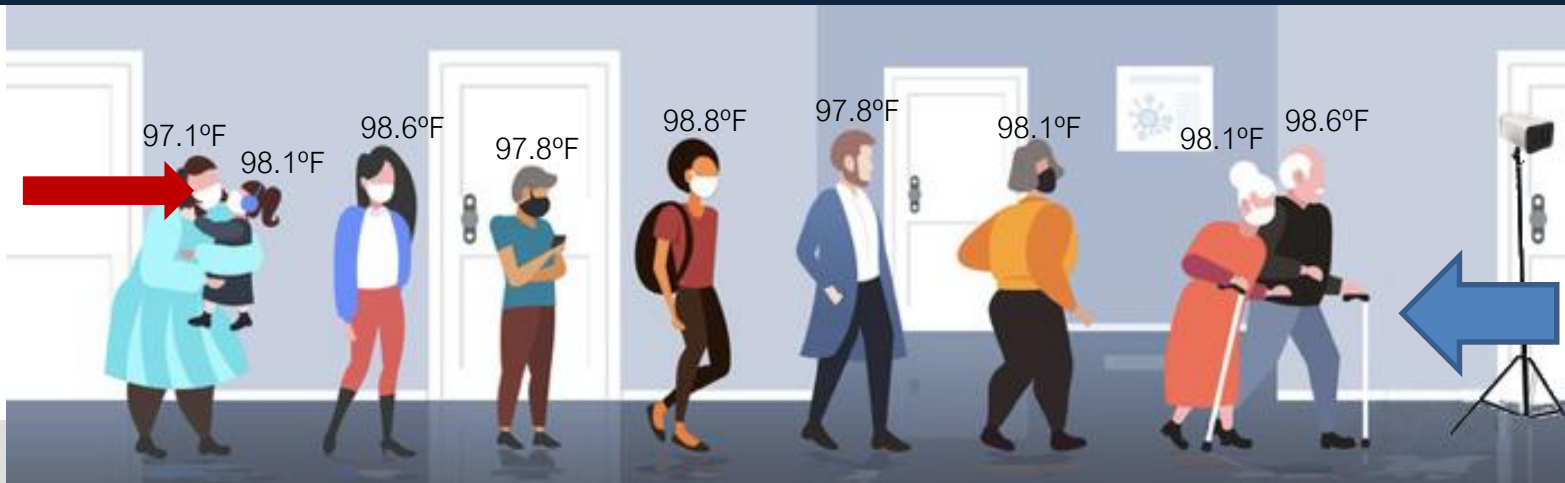
- Long lines increase risk for contamination and less social distancing.

Minimum of **3 seconds per person** to measure.

5,000 people = 4.2 hours

## Dahua Temperature Monitoring with Forehead Thermometer

Ability to detect an accurate temperature even when masks are worn.



**Measures 3 persons per second**

5,000 people = 30 minutes  
Higher accuracy of  $\pm 0.3^{\circ}\text{C}$



# ROI 3x's Faster vs Manual Readings

## Thermal Solution Benefits

### Enhanced Safety

- Reduced risk of cross-infection

### High Efficiency

- Non - contact temperature detection, quick screening
- Long distance, wide coverage and multi – person detection

### Low Cost


- Automatic early warning mechanism, saving manpower

### Dating Back

- Realize the historical data backtracking, data analysis combined with the platform

# System Flexibility

## Off Season

- Blackbody can be stored during the off season so the thermal camera and NVR can be used for standard surveillance.
- **ePoE** Solution for **long distance transmission** and the ability to **deploy over coaxial cable**. 

| Virus/Disease | Outbreak Year |
|---------------|---------------|
| SARS          | 2004          |
| AVIAN         | 2008          |
| SWINE         | 2010          |
| MERS          | 2012          |
| EBOLA         | 2014          |
| ZIKA          | 2016          |
| EBOLA         | 2018          |
| COVID-19      | 2020          |

# Case Studies

# Case Study

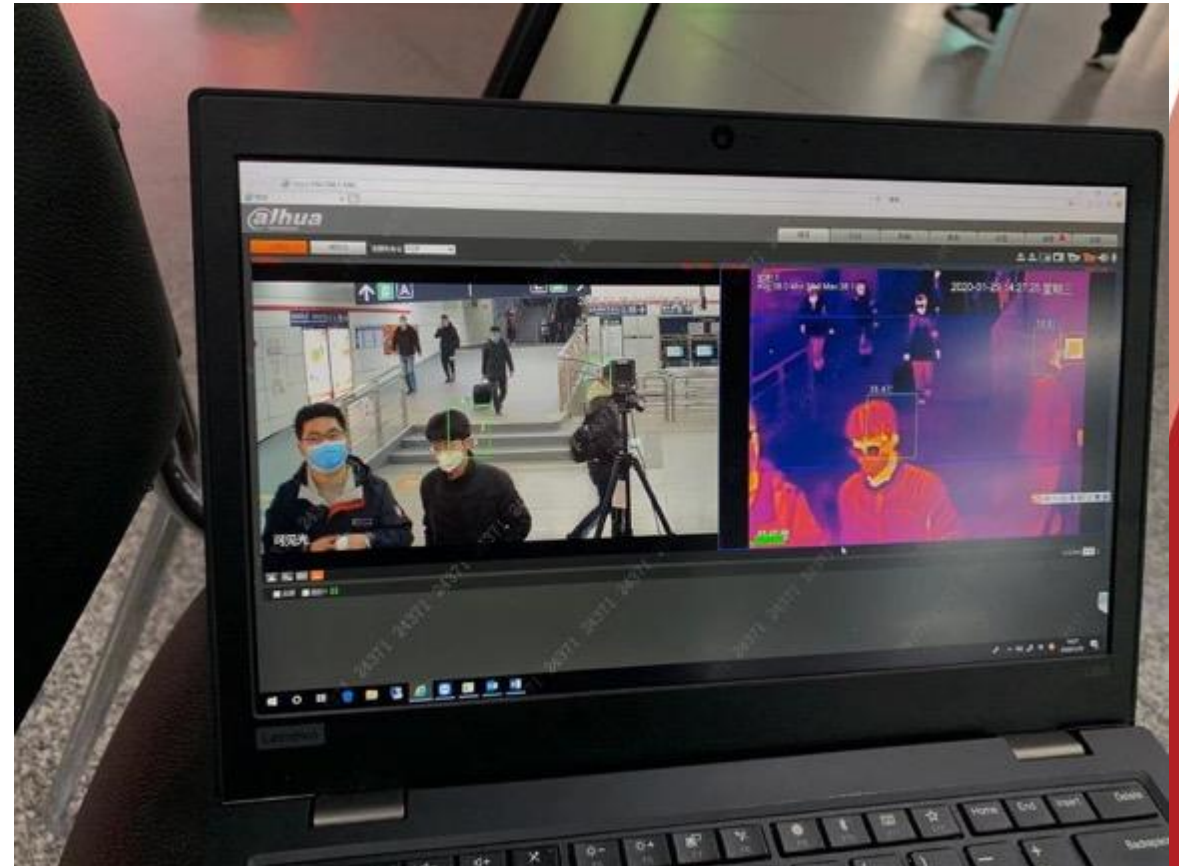
Dahua thermal human temperature monitoring solution helps Shanghai railway station, one of the busiest railway station in the world, to realize rapid temperature monitoring with dense crowds and find people with abnormal body temperature timely.





# Case Study

Hangzhou metro line 1 adopts Dahua thermal human temperature monitoring solution at Hangzhou east railway station, one of the largest transportation hubs in Asia. Offers remote non-contact temperature monitoring with high temperature measurement accuracy ( $\pm 0.3^{\circ}$  ).



# Common Questions

# FDA Approval:

- The current solution is not FDA approved.
- The camera does not detect COVID-19, and ultimately, only a doctor can determine whether someone's body temperature reflects if they are ill.

## Notice:

These products are **not medical devices** and are **not intended for use in the diagnosis, cure, mitigation, treatment, or prevention** of any disease or other medical condition.

The Thermal Temperature Monitoring Solution is **not for use in identifying or stopping the spread of the COVID-19**. Any association with using these devices within the medical industry or for medical purposes is not backed by any viable correlation or research.

This solution is ideal to identify individuals in a population that show higher than average temperature in relation to a sample population. These cameras are **not capable of finding individuals experiencing COVID-19 symptoms**. There is no way to decipher an infected individual who has no fever and no way of telling if a “hot” individual has a fever or other conditions have contributed to the rise in heat “such as sunburn.”

# HIPAA:

- The acronym “HIPAA” refers to the Health Insurance Portability and Accountability Act of 1996. Congress passed the act and President Bill Clinton signed it into law.
- HIPAA gave the Secretary of Health and Human Services the responsibility of creating a set of rules to govern the protection of private health information.
- Thermal technology has made it possible to use video surveillance **without violating patient privacy** or HIPPA regulations.
- Thermal products **do not individually identify people**. For example, although the camera identifies the temperature of each person in its field of view, that temperature reading is **not tied to any personal identifiable information** such as a name, address, social security number, or phone number.

## **Loaner Gear:**

Due to high demand, we are unable to process loaner gear for this solution.

## **Returns:**

Due to the current situation regarding the high demand of this solution, we will be unable to accept returns at this time.

## **Warranty:**

One year warranty on thermal camera and blackbody reference temperature module. As other devices included in the solution are backed by manufacturer's standard warranty.

## **Lead Time:**

30-day lead time

## **Service:**

We offers highly trained technical consultants to help with your on-site services.

## **Competition:**

In comparison to our top competitors, We offers comparative or better lead time, higher accuracy, and the ability to detect temperature even if the person is wearing a hat or face mask.

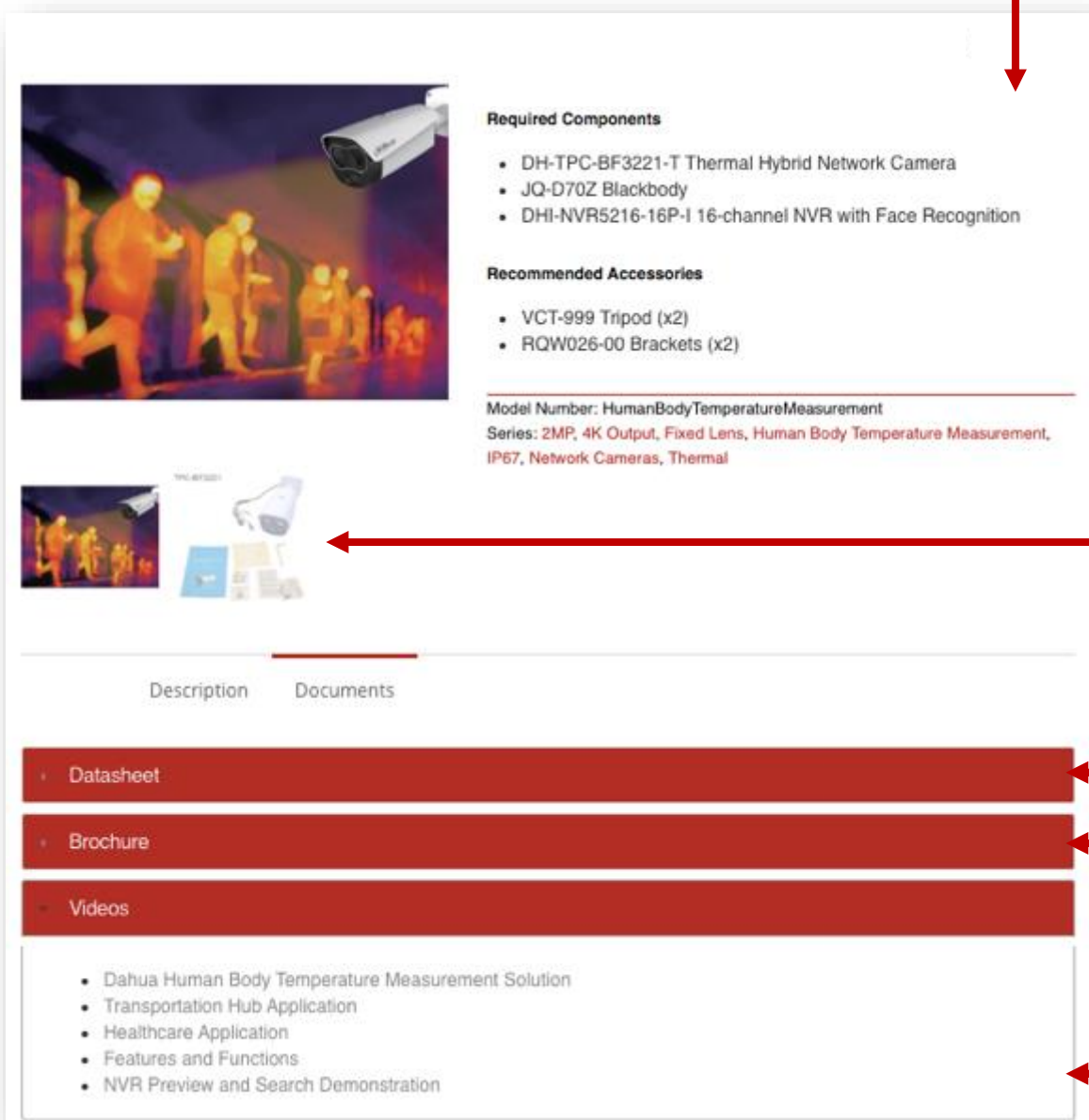
# **Set-up:**

- |   |  |
|---|--|
| <b>Can I see the alerts on a phone?:</b>      | Yes via DMSS app for iphone and Android  |
| <b>Can I see the alerts on DSS Express S:</b> | No. The current DSS Express S does not have Human Body Temperature option as an event. |
| <b>Do I need a PC to install this:</b>        | Yes, to set the camera with the Black Body   |
| <b>Do I need internet to install this?:</b>   | No.  |



- **Web Product Page:**

**Available Now! | 30-day Lead Time**



**Required Components**

- DH-TPC-BF3221-T Thermal Hybrid Network Camera
- JQ-D70Z Blackbody
- DHI-NVR5216-16P-I 16-channel NVR with Face Recognition

**Recommended Accessories**

- VCT-999 Tripod (x2)
- RQW026-00 Brackets (x2)

Model Number: HumanBodyTemperatureMeasurement  
Series: 2MP, 4K Output, Fixed Lens, Human Body Temperature Measurement, IP67, Network Cameras, Thermal

**Documents**

- Datasheet
- Brochure
- Videos

- Dahua Human Body Temperature Measurement Solution
- Transportation Hub Application
- Healthcare Application
- Features and Functions
- NVR Preview and Search Demonstration

- **Images of what's included**



- **Solution Datasheet**

- **Solution Brochure**



- **Sample Videos**