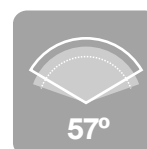# Thermal Body Temperature Camera

Operation Manual

2020 DEC. V2.0

| DC 12V | Alarm | CMOS | IVS | -20~65°C | 57° |

Contents

Contents

Safety Precautions

Dear Valued Customer,

Thank you for using our products. If you encounter any problem when using the product, please contact your direct supplier, and we will provide you with immediate service through them.
We reserve the right to make any software or hardware upgrade to the product without prior notice.
Please read and follow the product manual carefully before using the product.

Please read the following safety guidelines carefully before using the product.
Make sure that you have followed and operate the product in the proper way.
Please store this equipment away from children and/or infants in an unreachable area.

- Please use only the recommended power source.
- Do not attempt to disassemble, modify or heat the product.
- Avoid dropping or hitting the product on the ground or surface.
- To avoid injury, do not touch inside of the product after it has been dropped or when it's damaged.
- If the product emits smoke, odor or other abnormalities, please stop using the product immediately.
- Do not use organic solvents such as alcohol, benzene, or paint thinner to clean the product.
- Do not allow any liquid or foreign objects to enter the machine.
- Do not place the battery near heat sources or expose it to flame.
- Do not touch the power cord with wet hands.
- Do not use this device for power outlets or wiring accessories that exceed the specified voltage.
- Do not use a damaged power cable, plug, or one that is not fully plugged into an electrical outlet.
- Avoid contact with metal objects (such as pins or keys) or stains on the terminals or plugs.
- Please place and use this product at 0°C~40°C, avoid direct sunlight, or near the heat sources.
- Do not install this equipment in a humid environment.
- Do not expose this equipment to smokey and dusty environments.
- Avoid strong collisions, do not drop the machine.
- Please keep this product at a safe level, install it in a proper place, and pay attention to prevent this product from falling.
- Please install in a well-ventilated place, do not block the ventilation opening of this product.
- Use this device within the range of recommended current and voltage input/output.
- This equipment will be on for a long period of time, please do not place flammable and explosive materials next to the equipment to avoid safety hazards.

A. Product Introduction

Temperature measurement thermal imaging adopts intelligent processor chips, intelligent video processors,and deep neural network processors.

It is a perfect combination of temperature measurement access control management, actively carry out image facial morphology, and actively recognize human face real-time intelligent processing and calculation processing. Different environments can also be selected in addition to synchronous temperature measurements for indoor, outdoor, and remote settings.

On top of that, simultaneous calculations to detect the current human body temperature quickly and accurately can also analyze and detect the real-time voice output warning if the temperature exceeds 37.5°C. It also provides the need for alarm sound and light warning on dry contact supply equipment.

It combines face recognition and active temperature detection, so a person is suspected of having a fever shall notify the controller.

It can prevent people with abnormal body temperature from entering and optimize people's flow to reduce the efficiency of measuring body temperature one by one manually. This can also avoid the risk of direct contact with suspected infected people and protect themselves and others.

Take the initiative to complete all passing personnel's body temperature, fully raise the surface to improve the efficiency and accuracy of inspection prevention and achieve rapid and straightforward results.

B. **Product Specifications**

Image Sensor	CMOS image sensor
Signal Mode	NTSC/PAL
Image Signal Processing System	Digital signal processing system
Viewing Angle	Viewing angle 57 degrees, Temperature Measuring 33 degrees
Effective Pixels	Image resolution 1296 (H) x 736 (V)
	Effective temperature measurement pixels 32(H) x 32(V)
Input Voltage	DC12V 1.5A
Power Consumption	170mA~280mA (Voice)
Video Image Mode	AI processor
AI Mode Temperature	Deep neural network processor
Measurement Temperature	Thermopile far-infrared sensor
Measurement Distance Best Distance for	>3 meters
Temperature Measurement Temperature	1~1.5 meters
Measurement Response Time Working Environment	<1Sec
Temperature Storage Environment	-20~65°C
Temperature	-40~85°C
Audio Output	Speaker output 8Ω2W
Video Output Face Detection Count	HD/HDMI (optional)
(Measurement Rate) Temperature Measurement	1~5 people (95%↑)
Distance and Temperature Error	1m↓ ±0.3°C / 3m↓ ±0.5°C
Language	Traditional Chinese, Simplified Chinese, & English (Select one)
Working Temperature	Image sensor-30°C-85°C、Temperature 15-42°C
Dimensions	205 x 93 x 83 mm
Weight	About 700g

C. **Setup**

Get the image and set the camera menu from the video recorder or monitor.
Make or change the settings in each menu.

Intelligent Surveillance
AE Mode
Color Adjust
mage Adjust
System Setting
Information
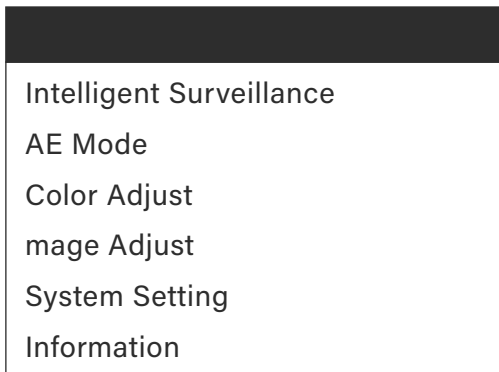
1. Intelligent surveillance

1.1 Set Up Face Detection

1.2 Go to Intelligent Surveillance option and press▶ to enter the options to set the face sensitivity and
heat map style.

2. AE mode

2.1 Go to AE Mode and press▶ to enter options to set exposure compensation mode.

3. Color adjust

3.1 Go to Color Adjust and press▶ to enter options to set color adjustment options and white balance.

4. Image Adjust

4.1 Go to Image Adjust and press▶ to enter options to set day/night shutter settings
(this product does not support).

5. System setting

5.1 Go to System Settings and press▶ to enter options to set language and time settings

6. Information

6.1 Information

1. Intelligent Surveillance

Set Face Detection

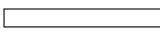Manual setup instructions starts from here.

a. Press ⓄⓀ button to enter the main menu.

b. Press ▶ to enter Intelligent surveillance page, and use ▲▼ buttons to select.
Press ▶ to enter. Press ▲▼ to adjust，press ⓄⓀ to exit the storage mode. Press ▶ to save and exit.

Intelligent surveillance	
Intelligent surveillance	Face note ◎
AE mode	Close IS
Color adjust	
Image Adjust	
System setting	
Information	

Face note		
Face sensitivity	▬▬▭▭	1
Thermal map	▭▭▭▭	0
Frame	On / Off	
Set range	(Right click setting)	
Hot zone display	On / Off	

1.1 Face note:

- Face sensitivity

  Face sensitivity is to adjust the speed of face detection and to quick display the face note, 0 being the fastest, 2 being the slowest, and the initial setting is 1.

- HeatMap Style

  The heat map style mainly changes the color gradation distribution of the heat map, providing 0~4 options, and the initial setting is 0.

- Frame

  When setting to capture a human face, select the marked face to be displayed in a box.

- Set range

  Set the warning area range.

- Hot zone display

  Set the range display of the guard zone.

2. AE Mode

Set AE Mode

a. Press the ⓄⓀOK button on the remote control to enter the display menu.

b. Press▶ button to enter AE Mode, press🔺🔻buttons to select items. Select and press▶to enter, and use 🔺🔻to adjust. Press⊙Ⓚto confirm and exit setup page. Press ▶to save and exit the setting.

2.1 Standard AE:

- Smart WDR

  Auto-detects and adjust the exposure. When strong light sources illuminate high-brightness areas and shadows, and areas with low relative brightness in the backlight are present in the image simultaneously, the image is compensated for light contrast. The larger the value, the more the compensation effect, ranging from 0 to 20 selection. The initial setting is 4.

AE Mode	
Intelligent surveillance	Standard A ◎
AE mode	BLC
Color adjust	HLC
Image Adjust	
System setting	
Information	

Standard A	
Smart WDR	▄▄▄▄▄▄▄▄▄░░░░ 4

2.2 BLC

- Level

  When a strong light source illuminates the background, the observed object is surrounded by a bright field, and the screen is dim. Select auto, low, medium, or high to make the observed object more obvious and clearer.

AE Mode	
Intelligent surveillance	Standard A
AE mode	BLC ◎
Color adjust	HLC
Image Adjust	
System setting	
Information	

BLC	
Level	Auto
	Low
	Medium
	High

BLC Off   BLC On

2.3 HLC

- Set guard zone
  Set the range of strong light suppression area.

AE Mode	
Intelligent surveillance	Standard A
AE mode	BLC ◎
Color adjust	HLC
Image Adjust	
System setting	
Information	

HLC	
Set guard zone	(Right click to set)
Darkness compensation intensity	High
	Low
	Medium
Mask gray level	[＿＿＿] 1

- Darkness compensation intensity (Level)
  When a strong light source illuminates the background, the observed object is surrounded by a bright field, and the screen is dim. Select auto, low, medium, or high to make the observed object more obvious and clearer.

- Mask grayscale
  Set the color depth to be shielded in the over-exposed area. There are 1 ~ 6 levels, the larger the number, the closer to gray. The initial setting is 1.

HLC Off

HLC On

HLC zone setting: The red square is the HLC zone setting

3. Color Adjust

Set Color Adjustment

a. Press the ⓞⓚbutton on the remote control to enter the display menu.

b. Press▶button to enter color adjust page, use ▲▼select items. Select and press ▶to enter, use ▲▼to adjust, set to confirm, press ⓞⓚto exit the storage mode, then press ▶to save and exit.

3.1 Color adjust

- ■ Auto White Balance
  Choose to set ATW2-10.5k (default) color temperature range auto white balance.
  Choose auto white balance for ATW2-8.5k color temperature range.

- ■ Brightness
  Set the screen brightness ranging from 0 to 99. The initial setting is 50.

- ■ Color-Red
  Set the screen color-red intensity ranging from 0 to 99. The initial setting is 50.

- ■ Color-Green
  Set the screen color-green intensity ranging from 0 to 99. The initial setting is 50.

- ■ Color-Blue
  Set the screen color-blue intensity ranging from 0 to 99. The initial setting is 56.

- ■ Contrast
  Set the screen contrast ranging from 0 to 99. The initial setting is 56.

Color Adjust
Intelligent surveillance
AE mode
Color adjust ◎
Image Adjust
System setting
Information

Color adjust	
White balance	ATW2-10.5k/ATW2-8.5k
Brightness	50
Color-red	50
Color-green	50
Color-blue	56
Contrast	50

4. Image Adjustment

Setup Image Adjustment

    a. Press the ⓄⓀbutton on the remote control to enter the display menu.

    b. Press ▶button to enter image adjust page. Use ▲▼ select items. Select and press ▶ to enter, use ▲▼to adjust, set to confirm, press ⓄⓀ to exit the storage mode, then press ▶ to save and exit.

  ※ Except for the external input function with an open setting, the color, black and white, auto-progressive, and auto-standard functions are not issued.

Image Adjust	
Intelligent surveillance	
AE mode	
Color adjust	
Image Adjust ◎	
System setting	
Information	

Image Adjust	
Day and night mode	External input
Digital low shutter	Auto
HDNR noise reduction	16
Sharpness	2
Temperature compensation	50
Temperature measurement mode Indoor	Indoor

4.1 Ext

- Digital low shutter

  Auto、1/60、1/120、1/240、1/500、1/2000、1/5000、1/10000、1/100000、512x、256x 、128x、64x、32x、16x、8x、5x、4x、3x、2x。

  ※ Increase the exposure time to enhance sensitivity. Even in a low-light, dark environment, the picture is still bright.

- HDNR

  HDNR strength ranging from 0 to 32. The initial setting is 16.

- Sharpness

  Set the sharpness of the screen ranging from 0 to 7, the larger the number, the stronger the sharpness intensity. The initial setting is 2.

- TMP offset

  Temperature compensation: If the ambient temperature is compensated, it is used as an error compensation adjustment. The preset value is 50 to compensate 0°C, plus 1 to compensate 0.1°C, and the adjustment error range is ±5°C.

  ※ Please set up in a suitable constant temperature environment during installation to perform this machine's temperature compensation correction. You can refer to the body temperature measurement of an ear thermometer available in the market to obtain the best temperature detection by fine-tuning compensation.

- TMP Measurement

  Indoor and outdoor options

5. System Setting

a. Press the ⓄⓀ button on the remote control to enter the display menu.

b. Press ▶ button to enter image adjust page. Use ▲▼ select items. Select and press ▶ to enter, use ▲▼ to adjust, set to confirm, press ⓄⓀ to exit the storage mode, then press ▶ to save and exit.

5.1 System setting

- Language

  Support Traditional Chinese and English in main menu and audio setting. Press ▶ to set the language in the screen display.

System setting	
Intelligent surveillance	Language
AE mode	Monitor
Color adjust	Video Standard
Image Adjust	System Time
System setting ◎	IP Address
Information	Other

Language	
Language	中文
	English

5.2 Monitor

- LCD / CRT Select the type of monitor used LCD / CRT

  LCD mode can adjust the level, the contrast intensity is ranging from 0 to 37.
  The initial setting (default) is 24.
  CRT mode can adjust the level, the contrast intensity is ranging from 0 to 37.
  The initial setting (default) is 20.

System setting	
Intelligent surveillance	Language
AE mode	Monitor
Color adjust	Video Standard
Image Adjust	System Time
System setting ◎	IP Address
Information	Other

Monitor	
Monitor	LCD
Strength	▬▬▬▭ 24

5.3 Video standard

- Use ▶to set video standard NTSC / PAL. System auto restart.
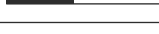
System setting	
Intelligent surveillance	Language
AE mode	Monitor
Color adjust	Video Standard
Image Adjust	System Time
System setting ◎	IP Address
Information	Other

System setting	
Language	
Monitor	
Video Standard	NTSC / PAL
System Time	
IP Address	
Other	

5.4 System time

- System time must calibrate to the correct time to record temperature measurement time on the saved pictures.
  Select year, month, day, hour, minute, second, and update the information immediately after adjustment and storage.

System setting	
Intelligent surveillance	Language
AE mode	Monitor
Color adjust	Video Standard
Image Adjust	System Time
System setting ◎	IP Address
Information	Other

System setting	
Year	2020
Month	6
Day	6
Hour	8
Minute	0
Second	0

5.5 IP Address - Not supported

- IP address setting is mainly to set a fixed network IP address to capture a single picture. Select number 1, number 2, number 3, number 4, and update the information immediately after adjustment and storage.

System setting	
Intelligent surveillance	Language
AE mode	Monitor
Color adjust	Video Standard
Image Adjust	System Time
System setting ◎	IP Address
Information	Other

IP Address	
Number 1	192
Number 2	168
Number 3	0
Number 4	2

5.6 Other

- Show ID/Icon

  Set whether to display Pelco ID and exposure mode

  (Off, display ID/Icon, display ID, display Icon)

- LED Brightness

  Select LED brightness ranging from 0 to 100, the larger the value the brighter, the smaller the darker. The initial setting (default) is 100.

- Volume

  Select the volume ranging from 0 to 10, 10 being the loudest, and 0 being least volume. The initial setting (default) is 8.

System setting	
Intelligent surveillance	Language
AE mode	Monitor
Color adjust	Video Standard
Image Adjust	System Time
System setting ◎	IP Address
Information	Other

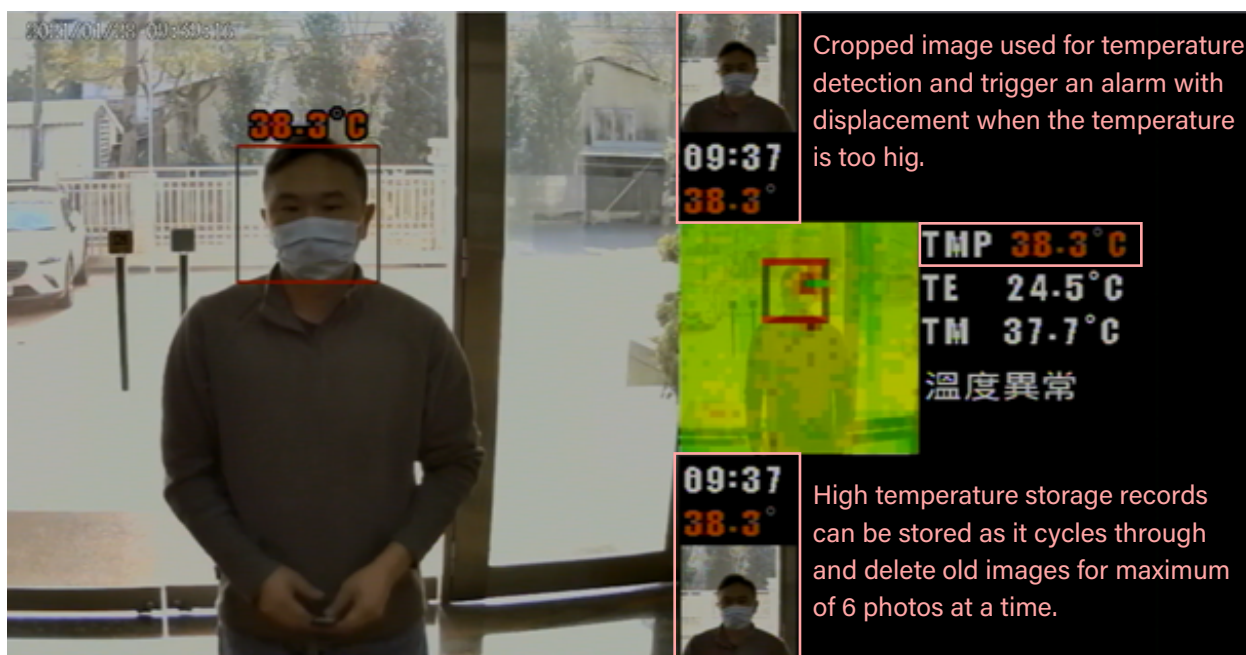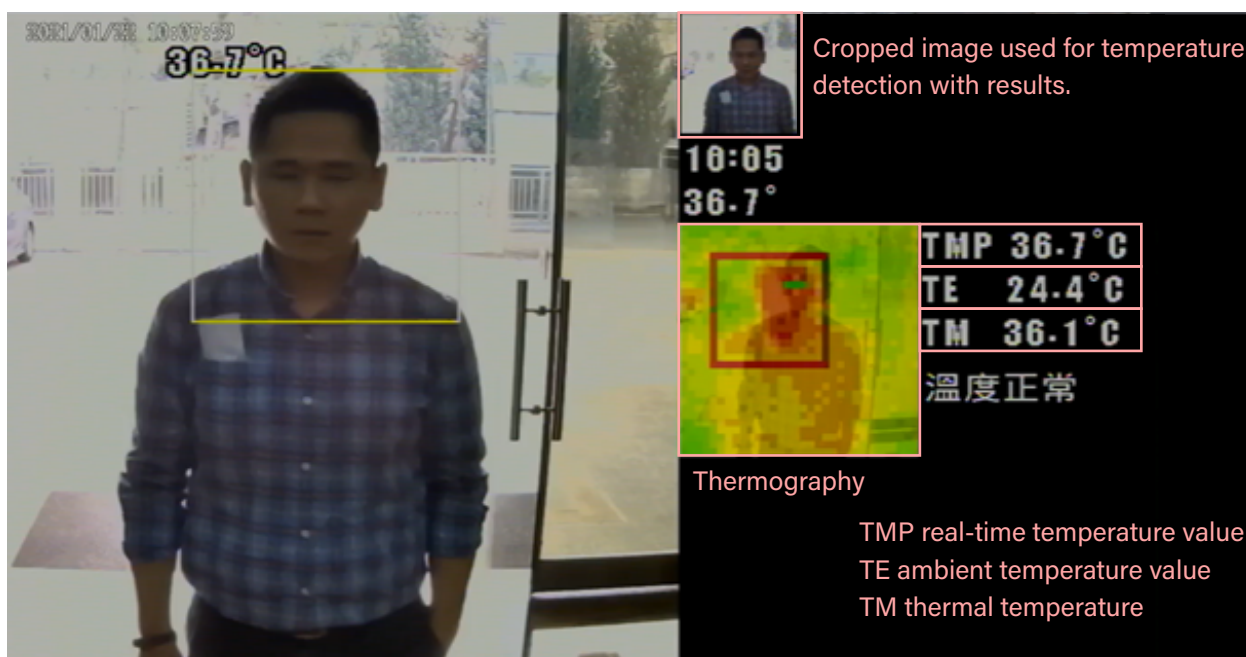| Other	
Show ID/Icon	Close/Show ID/Icon /Show Icon/Show ID
LED Brightness	100
Volume	8

6. Information

a. Press⬣⬣ buttons on the remote control to get the version information.
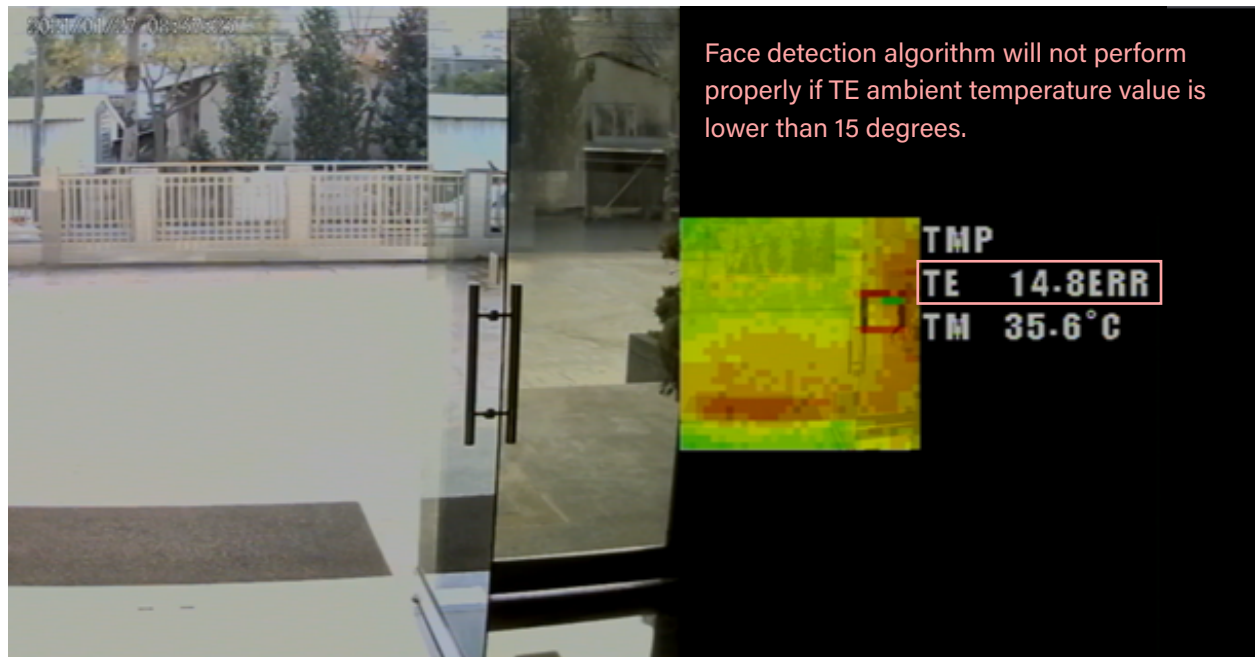
b. Enter Information page

System setting	
Intelligent surveillance	AVS65P AI860
AE mode	NTS 60HZ
Color adjust	PID:53
Image Adjust	FW:474
System setting	
Information ◎	FW2:V474E 2518

7. Temperature and Message Menu

Measured Temperature	Face Detection PIP	Temperature Display Value	Voice Broadcast	Text Display Value	Trigger an Alarm	Mask Notification and Voice
>42	NO	NO	Excessive Temperature	Excessive Temperature	YES	NO
39.1~42	YES	YES	Excessive Temperature	Excessive Temperature	YES	YES
37.6~39.0	YES	YES	Temperature abnormalities	Temperature abnormalities	YES	YES
34.4~37.5	YES	YES	Normal Temperature	Normal Temperature	NO	YES
32~34.3	NO	YES	NO	Abnormal Temperature	NO	NO
<32	NO	NO	NO	Abnormal Temperature	NO	NO

Cropped image used for temperature detection with results.

10:05
36.7°

TMP 36.7°C
TE 24.4°C
TM 36.1°C
溫度正常

Thermography

TMP real-time temperature value
TE ambient temperature value
TM thermal temperature

Cropped image used for temperature detection and trigger an alarm with displacement when the temperature is too hig.

09:37
38.3°

TMP 38.3°C
TE 24.5°C
TM 37.7°C
溫度異常

09:37
38.3°

High temperature storage records can be stored as it cycles through and delete old images for maximum of 6 photos at a time.

Face detection algorithm will not perform properly if TE ambient temperature value is lower than 15 degrees.

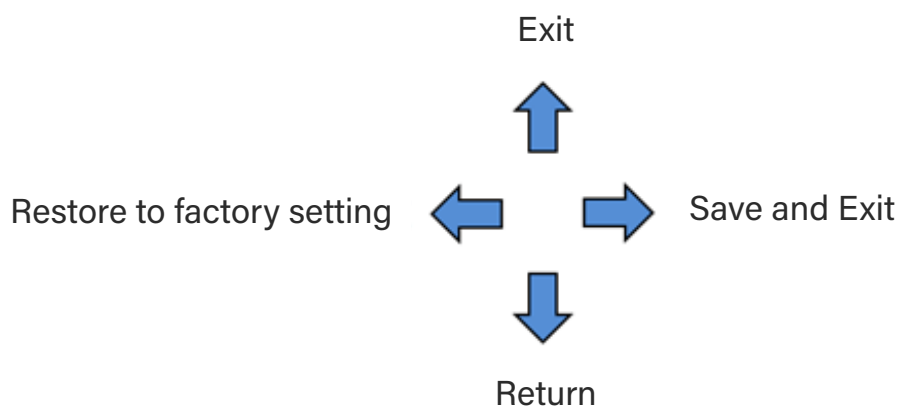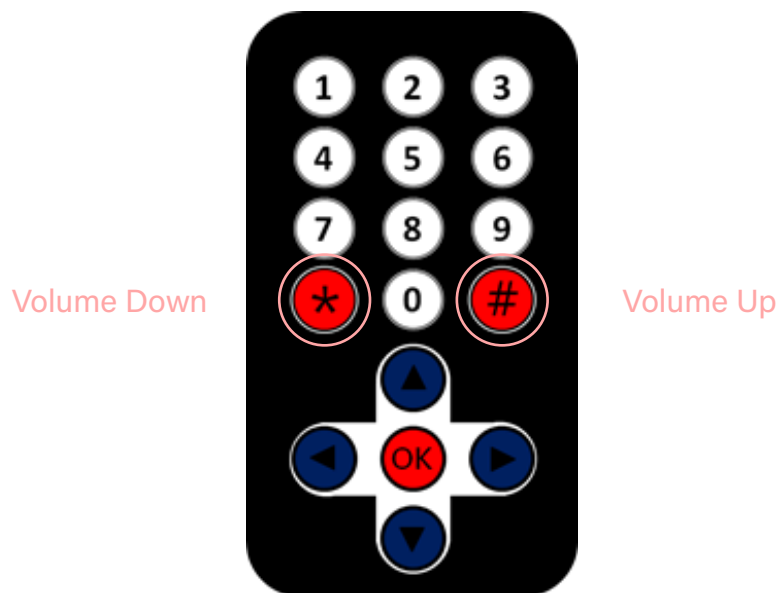TMP
TE   14·8ERR
TM 35·6°C

8. Installation Diagram

1. The installation environment is only for indoor use, avoid installation in the backlit environment as it will affect the temperature judgment.
2. Camera setting needs to be front facing to detect face of user, it will display temperature as confirmation for completion.
3. Thermal imaging and temperature measurement perform best when installed at 2 meter in height (same as the ear thermometer gun), should be calibrated with ear thermometer gun after setting up to 3~5 minutes.
4. 90% of the environment testing can be calibrated automatically, no need for manual calibration.

15~20°

33°

1.9m

1m   1m   1.5m
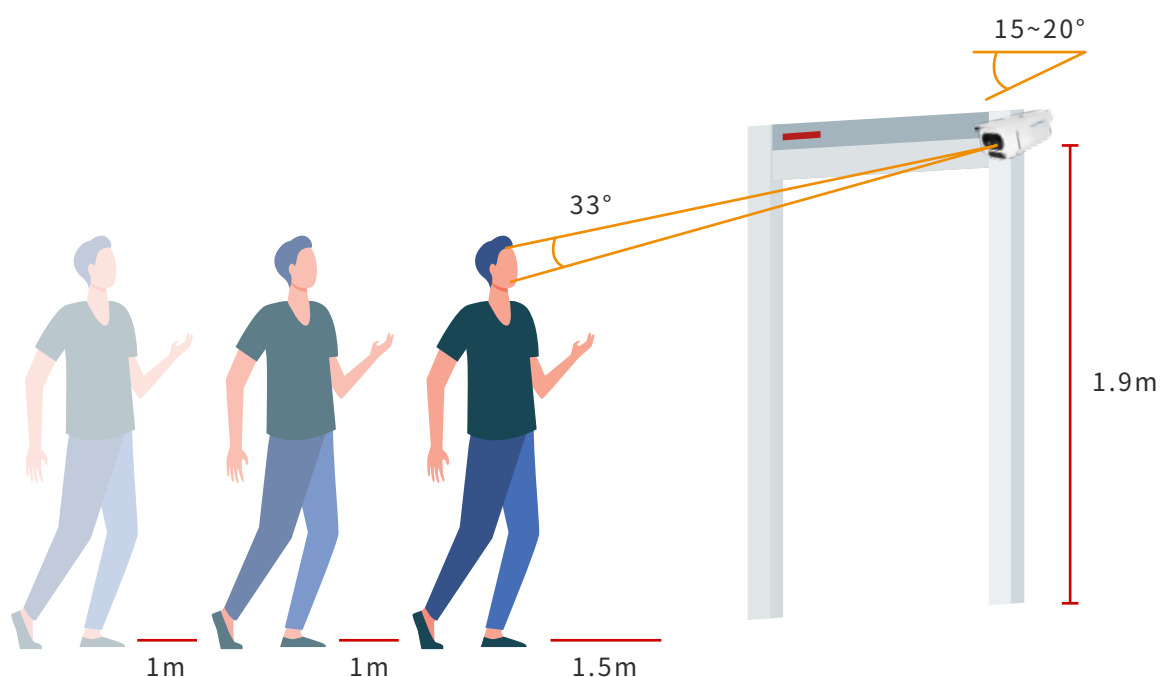
9. Infrared remote control with control description.

Press the OK button on the remote to enter the display menu.
Press ▶ to enter ▲▼ setting mode, and press ⓞⓚ to exit save mode, then press ▶ to save and exit.

Exit

Restore to factory setting ⬅ ➡ Save and Exit

Return

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