Temperature Mask Screener

User’s Manual
IMPORTANT SAFETY INFORMATION

This section presents important information intended to ensure safe and effective use of this product.

Read this section carefully and store it in an accessible location.

SAFETY PRECAUTIONS

● If the device becomes unresponsive, reset and restart it by powering off and on again.
● When using the device, avoid hard objects from impact and knock, and do not scratch with sharp objects to prevent damage to the device casing.
● Wipe the display and panel lightly with a soft cloth and other materials. Avoid using water and detergent.
● In the installation and use of this product, all nation and region electrical regulations must be checked.
● If the device does not work properly, do not disassemble it for repair, otherwise the device warranty will be invalid.
● Avoid extreme high temperature (or low temperature), high humidity, vibration, radiation, chemical corrosion and other harsh or extreme environments during installation and use.
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1. OVERVIEW

1.1 INTRODUCTION

The temperature mask screener, is a facial recognition and body temperature detection device which is capable of detecting temperature abnormity without actual physical contact at different application fields. It alerts when abnormal body temperature and recognizes face while wearing or without wearing a mask.

It is widely used in schools, hospitals, shops, companies, stations and buildings for body temperature detection, personnel verification and attendance. The high body temperature people can be prompt detected and quarantined, and the safety of environment is highly secured.

1.2 PACKING LIST

Packaging components may vary depending on different application.

Enclosed accessories are listed as the following:

<table>
<thead>
<tr>
<th>No.</th>
<th>Name</th>
<th>Quantity</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Main Device</td>
<td>1</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>Wall mount Kit</td>
<td>1</td>
<td>50mm(W) x 70mm(H)</td>
</tr>
<tr>
<td>3</td>
<td>Adapter</td>
<td>1</td>
<td>DC12V 2A</td>
</tr>
<tr>
<td>4</td>
<td>Power Cord</td>
<td>1</td>
<td>US/EU/UK/AU</td>
</tr>
<tr>
<td>5</td>
<td>Convert Plate</td>
<td>1</td>
<td>Convert Wall Mount to 75mm</td>
</tr>
<tr>
<td>6</td>
<td>Quick Installation Guide</td>
<td>1</td>
<td>-</td>
</tr>
</tbody>
</table>

The actual accessories are shown below:

- Main Device
- Wall Mount Kit
- Adapter
- Power Cord
- Convert Plate
- Quick Installation Guide
1.3 Appearance and Components

1.3.1 Appearance

- Dimension: 10(L)5.5(W)*1.1(H) inch
- Screen: 8-inch diagonal
- Weight: 4 lbs.

1.3.2 Dimension

![Dimension Diagram]

- 79mm
- 136mm
- 26mm
- 252mm
- 6mm
1.3.3 Connectors

<table>
<thead>
<tr>
<th>No</th>
<th>Name</th>
<th>Description</th>
<th>Label</th>
</tr>
</thead>
<tbody>
<tr>
<td>①</td>
<td>Network port</td>
<td>RJ45</td>
<td></td>
</tr>
<tr>
<td>②</td>
<td>Power supply</td>
<td>DC12V IN</td>
<td>DC12V IN</td>
</tr>
<tr>
<td>③</td>
<td>USB</td>
<td>USB 2.0</td>
<td></td>
</tr>
<tr>
<td>④</td>
<td>Digital Output</td>
<td>A+/B-</td>
<td>KZ_OUT</td>
</tr>
<tr>
<td>⑤</td>
<td>WG IN</td>
<td>12V, GND, D0, D1</td>
<td>WG IN</td>
</tr>
<tr>
<td>⑥</td>
<td>WG OUT</td>
<td>12V, GND, D0, D1</td>
<td>WG OUT</td>
</tr>
<tr>
<td>⑦</td>
<td>RS485</td>
<td>RS485+ / RS485-</td>
<td>RS485</td>
</tr>
</tbody>
</table>
2. INSTALLATION AND OPERATION

2.1 WALL-MOUNT INSTALLATION

2.1.1 INSTALLATION AND FIXING

✓ Release the 2 screws and take out the wall bracket from the device.
✓ Check the installation height of the face recognition monitor. It is recommended to fix the bracket on the wall about 1.5m height.
✓ Carefully align and push the main unit into the bracket mounted on the wall.
✓ Align the bracket holes and gently slide it down tightly. After connecting the wires, fix the bottom cover with screws.

The instruction is shown as below diagram:
2.2 CONNECTING NETWORK

To configure the device, connect PC to device. Two ways can be used to connect the device and PC. Select either one of the ways.

2.2.1 CONNECT TO PC DIRECTLY

Connect device and PC with a network cable through RJ-45 port.

The default IP address on device is 192.168.2.10. Therefore, set PC IP address at the same network segment, for example, 192.168.2.1.

Follow the steps below to set PC IP address at 192.168.2.1.

- Right-click on the network icon at right side of task bar.
- Select [Open Network and Sharing Center].
- Click [Ethernet].
- In Ethernet Status window, select [Properties].
- Double-click on [Internet Protocol Version 4(TCP/IPv4)].
Select [Use the following IP address]. Input [IP address] and [Subnet mask].

2.2.2 CONNECT BY LAN

The IP address on device is set at DHCP which automatically obtains an IP address from LAN (Local Area Network). Simply connect both device and PC on LAN.

Power up the device and check the IP address obtained from LAN. The IP address is shown at the lower-right corner of display.
2.3 Web Configuration

2.3.1 Login Device

On PC, open web browser (Chrome recommended) to login the device.

Input the default IP address, 192.168.2.10, or the IP obtained from LAN in URL column. Select the language preferred. Input the default account ID and PW:

**ID:** admin  
**PW:** admin345

![Login Screen](image)

**Change Username and ID.** Select admin /Change Password

![Change Password](image)

**Lost Username / Password.** In the event username /password is lost. Select [Forgot Password]. Please provide the MAC address of device to supplier for support to reset.

![Forgot Password](image)
2.3.2 View Device Information

The device information page shows the device software version and mac address.

2.3.3 Personnel Management

1. Registration
Register the face image in device. Select photo, input name (the name is suggested to input English or number), select the permanent authorization, and click [OK] to register.
2. **Import Registration**
   The registration database can be imported. Click [Upload file] to select database file. Click [OK] to upload.

![Import Registration](image)

3. **Personnel query**
   Query the relevant information of registered person according to the ID or name. Click [Delete] to delete this person. Click [Export] to export the personnel database and save as a file in PC.

![Personnel query](image)

4. **Access Record**
   The access records can be reviewed in Pass Record. Click [Register] to register this person if the person not registered yet. Click [Export] to export the access record as a file and save in PC.

![Access Record](image)
2.3.4 Device Management

1. Detection management

This page is to configure detection settings. It is divided into four parts: recognition mode, site map configuration, body temperature settings, and mask settings. Set the settings depending on the requirements.

Identification Settings

[on/off]: This is set to enable facial recognition to verify registered persons.

[verification mode]: This disables facial recognition.

Temperature Detection setting

[Switch]: Select to enable temperature detection

[Abnormal temperature is prohibited]: Select to prohibit abnormal temperature person's access.

[Terminal temperature unit]: Select temperature unit as Celsius or Fahrenheit.

[Normal body temperature]: Set normal temperature range.

Mask Setting

[Switch]: Select to enable mask detection.

[No Mask Allowed]: Select to prohibit no mask.

Live Detection

[Live Detection]: Select to recognize real human face only. This option prevents fake image from picture or mobile screen.
2. Basic Management
This configures general setting for device, such as light, volume, and display.

Fill light control
[Default Mode]: Select this option to enable automatically emitting auxiliary light in dark environment.
[Custom Control]: Specify the time to emit auxiliary light.
[Terminal IP Display]: Select to show device IP address on screen.
[Volume Control]: Set the speaker volume.
[Brightness Control]: Set the display brightness.
[Enter Screen time]: Set the time to enter screen saver. The range is 0~60 seconds. Set 0 for disable.
[Off screen time]: Set the time to turn off display. The range is 0~60 seconds. Set 0 for disable.
3. **Customize**
   This page is to upload logo.

   **Logo Setting**
   This is to upload the device identification logo on the lower-left corner of display. The default does not show a logo. Select [logo customization] and choose a logo file to upload logo file. The file format should be PNG.
4. **Time Setting**

The device is capable of automatically synchronize the time to network time server.

Select [Automatically synchronize NTP time] and fill the server address in the columns. Select [Set the time manually] to manually synchronize the time with PC.
2.3.5 **Network Settings**

1. **Server Settings**
   Business server address: It is a private application. Fill the server address.

   ![Server Settings Image]

   - **Server Address**: 123.123.123.123
   - **Example**: 192.168.1.8080

2. **Basic management**
   In this page, set the network as [DHCP] or [Static IP] to specify an IP address.

   ![Basic Management Image]
2.3.6 SYSTEM SETTINGS

Manually restart the device, restore factory settings, and upgrade the software.

[Restart]: Reboot the device.
[Reset]: Return to factory default. All the settings and data will be reset.

Upgrade
Upload device firmware. Click [Select the file] to select firmware file which is in (.tar). Click [Upgrade] to start uploading firmware.
3. SPECIFICATION

3.1 PRODUCT FEATURES

- Capable of live body recognition
- Patented facial recognition algorithm, capable to recognize faces with high accuracy, response time < 0.5s
- Capable of body temperature detection - range between 30°C ~ 45°C, accurate to 0.1°C, with discrepancy ±0.3°C
- Capable of recognition for facial identify with wearing a mask
- Capable of mask detection, alerting while not wearing a mask
- Built-in high-performance NPU
- Linux operating system, high reliability
- MTBF > 50,000h
- Capable of storing 24,000+ facial images and up to 50,000 (max 160,000) access records
- Operating temperature: 15°C~35°C
- Support multiple interfaces (I/O, WG26, WG34, RJ45)
- 8 inches HD display, image display without delay
- Automatic gain and auto white balance, capable to display true color of image
- Built-in dimming light level sensor, high accuracy for low-light recognition
- 2D/3D noise reduction and anti-fog technology, low-light recognition smoothening capability
- Support intelligent lightfilled setting
### 3.2 TECHNICAL SPECIFICATIONS

#### 3.2.1 TEMPERATURE DETECT SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>15°C~35°C (In door)</td>
</tr>
<tr>
<td>Temperature detection range</td>
<td>30°C ~ 45°C</td>
</tr>
<tr>
<td>Accuracy</td>
<td>0.1°C</td>
</tr>
<tr>
<td>Variation Range</td>
<td>±0.3°C</td>
</tr>
<tr>
<td>Detecting Distance (Horizontal)</td>
<td>35~50cm</td>
</tr>
<tr>
<td>Abnormal Warning</td>
<td>Exceed 37.3°C forehead temperature</td>
</tr>
<tr>
<td>Precautions</td>
<td>20~30 mins device warm up is recommended before use to ensure highest accuracy</td>
</tr>
</tbody>
</table>

#### 3.2.2 FACIAL RECOGNITION SPECIFICATIONS

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detecting Range (Vertical)</td>
<td>0.8~2.2m, adjustable angle</td>
</tr>
<tr>
<td>Face Angle</td>
<td>Horizontal 30° Vertical 30°</td>
</tr>
<tr>
<td>Response Time</td>
<td>&lt; 0.5 seconds</td>
</tr>
<tr>
<td>Storage Capacity</td>
<td>50,000 (max 160,000) access records</td>
</tr>
<tr>
<td>Facial Image Capacity</td>
<td>24,000 face images</td>
</tr>
<tr>
<td>Face Recognition Accuracy</td>
<td>&gt;99.25%</td>
</tr>
</tbody>
</table>
### 3.2.3 Camera Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camera</td>
<td>Binocular camera, Visible and near infrared, Support live body detection</td>
</tr>
<tr>
<td>Effective MegaPixels</td>
<td>2.1M Pixels, 1920*1080</td>
</tr>
<tr>
<td>Minimum Illumination</td>
<td>multicolor 0.01Lux @F1.2(ICR); Black and white 0.001Lux @F1.2 (ICR)</td>
</tr>
<tr>
<td>Signal to Noise Ratio</td>
<td>≥50db(AGC OFF)</td>
</tr>
<tr>
<td>Wide Dynamic</td>
<td>120db · ISP algorithm face partial exposure</td>
</tr>
<tr>
<td>Remote Device Upgrade</td>
<td>support</td>
</tr>
</tbody>
</table>

### 3.2.4 Interfaces

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital Output</td>
<td>1 x digital output</td>
</tr>
<tr>
<td>Network</td>
<td>1 x RJ45 10M/100M Ethernet port</td>
</tr>
<tr>
<td>USB</td>
<td>1 USB</td>
</tr>
<tr>
<td>WG</td>
<td>1 x WG in, 1 x WG out</td>
</tr>
</tbody>
</table>
### 3.2.5 Hardware Specifications

<table>
<thead>
<tr>
<th>Item</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Processor</td>
<td>Dual-core processor + 1G RAM + 16G (max 64G) Flash</td>
</tr>
<tr>
<td>OS</td>
<td>Linux</td>
</tr>
<tr>
<td>Image Sensor</td>
<td>1/2.8&quot; Progressive Scan CMOS</td>
</tr>
<tr>
<td>Speaker</td>
<td>Standard and pre-recorded contents</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>Indoor recommended 0 ~ 90% RH</td>
</tr>
<tr>
<td>Anti-static</td>
<td>Contact ±6KV, Air ±8KV</td>
</tr>
<tr>
<td>Power Requirement</td>
<td>DC12V/2A</td>
</tr>
<tr>
<td>Power Consumption</td>
<td>20W(MAX)</td>
</tr>
<tr>
<td>Dimension</td>
<td>252(L)*136(W)*26(H)mm</td>
</tr>
<tr>
<td>Screen Size</td>
<td>8 inches</td>
</tr>
<tr>
<td>Column Aperture</td>
<td>36mm</td>
</tr>
<tr>
<td>Weight</td>
<td>1.7KG</td>
</tr>
</tbody>
</table>
4. FAQ

Q1. What happens in case the memory for access record is full?
A. The oldest records will be overwritten by new records. The memory keeps working.

Q2. When open web browser to login device, no response from device.
A. Try to refresh the screen by clicking refresh on web browser.

Q3. When upload firmware, select firmware file and click “upgrade”, but no reaction at all.
A. Recommend to use Google Chrome to implement firmware upload and other configuration.

Q4. Try to login device, but no idea about the IP address for login.
A. When doing the initial setup for device, it is recommended to enable “showing IP address” which can be found at “Device Settings”. The IP address can be shown on display.

Q5. Cannot detect any face in dimming environment.
A. It is recommended to set auxiliary light as “Auto” which automatically emits light while the ambient light is insufficient.

Q6. Can possibly take face picture and register by device directly?
A. When stand and face the device, the camera takes the picture for a person and adds an item for access record. Login the device by web browser and check the access record. On the record item, click “Register” to add this person.

Q7. Is it necessary to take another picture with mask wearing face for mask detection?
A. Whatever the picture is with or without mask wearing, it is capable to detect face with or without mask wearing.

Q8. Is the device able to connect to an automatic door/gate and control it?
A. One device connects to an automatic door/gate and controls an automatic door/gate. Mostly connect the trigger wires from door/gate to the connector of KZ_OUT on device.

Q9. When installing many units of devices, how to manage all these devices?
A. Simply connect all the devices on local area network (LAN). Use a PC and login to each device by its IP address.

Q10. How to duplicate the face database to many devices?
A. Designate one of the devices as main device. All the face images should be build-up by this device. Login to this device, export the face database in “Personnel Query” and save as a file on PC. Login to other devices, import this face database file from PC.
Gate/Door Access Control

The temperature mask screener has an integrated “dry contact” relay switch which can be integrated with 3rd party gate/door actuator systems.

Connect to relay via the cable assembly port marked “KZ”.

The relay is in a “normally open state”.

The relay is set to “closed” state when access is granted as defined in Detection Management.

---

<table>
<thead>
<tr>
<th>Wire Separated, Gate Closed</th>
<th>Wire Short, Gate Open</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gate</td>
<td>Gate</td>
</tr>
<tr>
<td>Trigger Wires</td>
<td>Trigger Wires</td>
</tr>
<tr>
<td>Pin 1</td>
<td>Pin 1</td>
</tr>
<tr>
<td>Pin 2</td>
<td>Pin 2</td>
</tr>
</tbody>
</table>

Wire separated → Gate keeps closed

Wire short → Gate is triggered to open

---

On the device, there is a switch on mainboard. There are 2 states for the switch:

<table>
<thead>
<tr>
<th>Unverified, Switch Open</th>
<th>Verified, Switch Close</th>
</tr>
</thead>
<tbody>
<tr>
<td>Switch</td>
<td>Switch</td>
</tr>
<tr>
<td>KZ Out</td>
<td>KZ Out</td>
</tr>
</tbody>
</table>

Detection unverified → Switch keeps opened

Detection verified → Trigger switch to close

---

Therefore, connect the 2 pins of trigger wires from gate to the 2 holes of KZ Out connector from device.

---

Normally, the switch is normal open and the gate is normal closed.

When detection is verified, the switch is triggered to close and the gate is triggered to open.