



Thermal Camera  
Temperature Screening Kiosk  
Model: **PDI-TK8**

	MODEL: <b>PDI-TK8 Temperature Scanner</b>	Document Number: PD196-416R2
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## SAFETY INSTRUCTIONS

NOTE: Temperature Screenings are designed to provide an initial body temperature measurement to detect fever, yet this device is not FDA-cleared or approved. The measurement should not be solely or primarily relied upon to diagnose or exclude a diagnosis of COVID-19, or any other disease. Secondary evaluation methods (e.g., non-contact infrared thermometer (NCIT) or clinical grade contact thermometer) are used to confirm an elevated body temperature or fever.

1. This device is not FDA-cleared or approved.
2. The device's intended use is for only one person at a time.
3. Temperature accuracy is  $\pm 0.9^{\circ}\text{F}$  ( $0.5^{\circ}\text{C}$ ).
4. The temperature threshold to determine if a user has fever defaults to  $99.5^{\circ}\text{F}$  ( $37.5^{\circ}\text{C}$ ).
5. To calibrate after reboot, wait 15min for Ambient temperature calibration of the device.
6. The device works only in indoor or semi indoor environments. Avoid direct sunlight or rain.
7. Elevated body temperature in the context of use should be confirmed with secondary FDA approved evaluation methods (e.g., an NCIT or clinical grade contact thermometer)

## SPECIFICATIONS TO OPERATE

The device's intended use is for only one person at a time.

To ensure an accurate measurement, follow these operating parameters:

<b>Recognition Technology: IR Array Thermography Facial Temperature Detection and Facial Mask Wearing Recognition</b>	
Camera Type	Wide horizontal angle dynamic camera, automatic white balance, automatic backlight optimization
Recognition Time	0.3 sec
Focusing Height	42" to 72" (1.0 to 1.8 m)
Temperature Measurement Range	68-212°F (20-100°C)
Temperature Measurement Distance	2ft (0.61m)
Temperature Accuracy	$\pm 0.9^{\circ}\text{F}$ ( $0.5^{\circ}\text{C}$ )
Operating Environment	$-10^{\circ}\text{C} \sim +60^{\circ}\text{C}$
Working Humidity	20%-95%Non-condensing
Ambient Temperature Calibration	Allow 15min after reboot to calibrate the ambient temperature of the device.
Storage Temperature	$-30^{\circ}\text{C} \sim +80^{\circ}\text{C}$

## PREPARE THE AREA WHERE YOU WILL USE THERMAL IMAGING SYSTEM

- Room temperature should be 68-76°F (20-24°C) and relative humidity 10-50 percent.
- Try to control other items that could impact the temperature measurement:
  - o Avoid reflective backgrounds (for example, glass, mirrors, metallic surfaces) to minimize reflected infrared radiation.
  - o Use in a room with no draft (movement of air), out of direct sunlight and away from radiant heat (for example, portable heaters, electrical sources, cup of hot liquid on the hand, cigarette).
  - o Avoid strong lighting (for example, incandescent, halogen and quartz tungsten halogen light bulbs).

## PREPARE THE THERMAL IMAGING SYSTEM

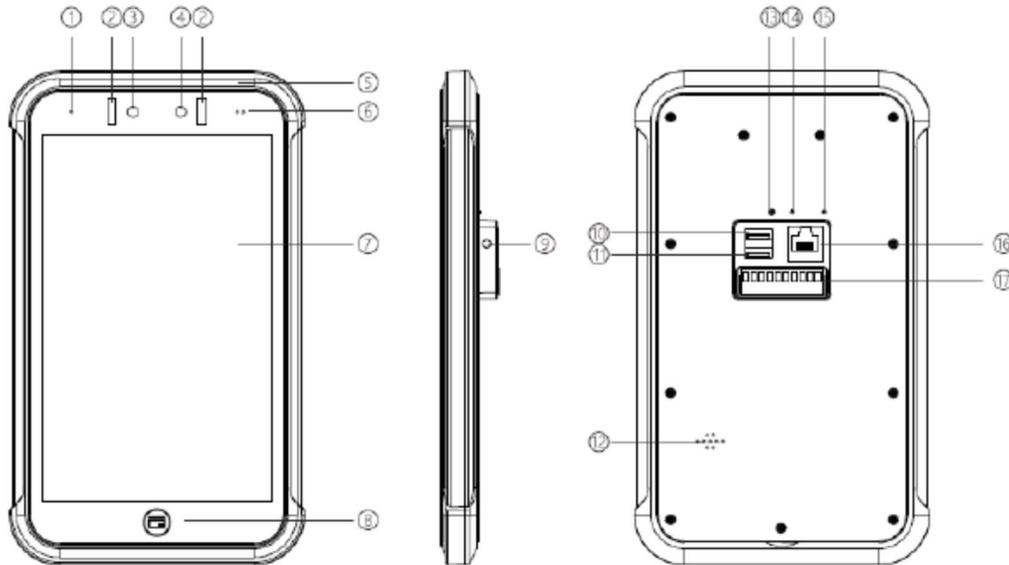
- If the device is off, turn it on and wait 15 minutes before use to warm it to ambient room temperature.
- Dirty or scratched lenses can impair the ability of the Thermal Imaging System to measure the temperature accurately. It is recommended to maintain the Thermal Imaging System to ensure the right functioning of the device.

## PREPARING THE PERSON BEING EVALUATED

For thermal measurement, the person handling the system should make sure the person being evaluated:

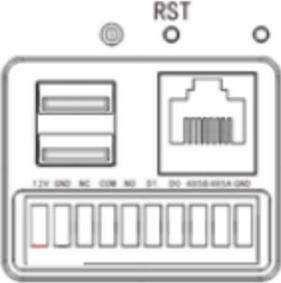
- Does not have any unnecessary face obstructions before measurement (glasses, hat, headband, or scarf), the person's hair is pulled away from the face, and the person's face is clean and dry.
  - o Exception: mask covering only the nose and mouth are taken into account specifically during thermal measurement, and do not affect the thermal measurement accuracy.
- Does not have a higher or lower face temperature from wearing excessive clothing or head covers (for example, headbands, bandanas) or from using facial cleansing products (for example, cosmetic wipes).
- Has waited at least 15 minutes in the measurement room or 30 minutes after exercising, strenuous physical activity, bathing, or using hot or cold compresses on the face, coming from external cold/hot environment.

**PRODUCT FEATURES AND WIRING DIAGRAM**  
**PRODUCT FEATURES**



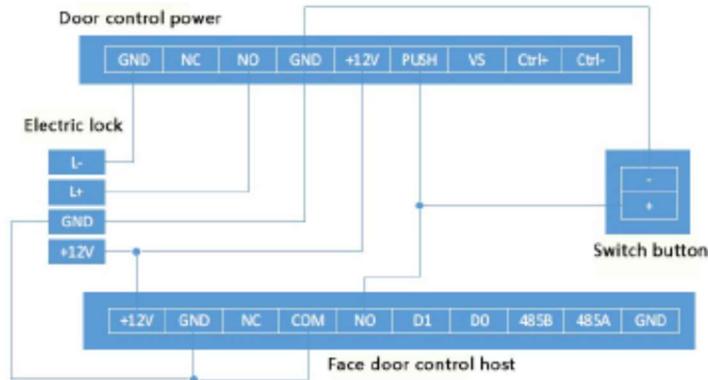
Component ID Number	Description
1	Microphone
2	Infrared complementary light
3	RGB camera
4	IR camera
5	Pass/Fail Light (green = pass, red = fail)
6	Human detection (infrared laser range)
7	Multi-point capacitive touchscreen
8	Card reading
9	Fixed screw holes
10	USB debug port
11	USB 3.0
12	Speaker holes
13	Anti-dismantle (can be used as system reset button)
14	N/A
15	Upgrade (factory mode)
16	Ethernet port
17	10pin function interface

## WIRING DIAGRAM

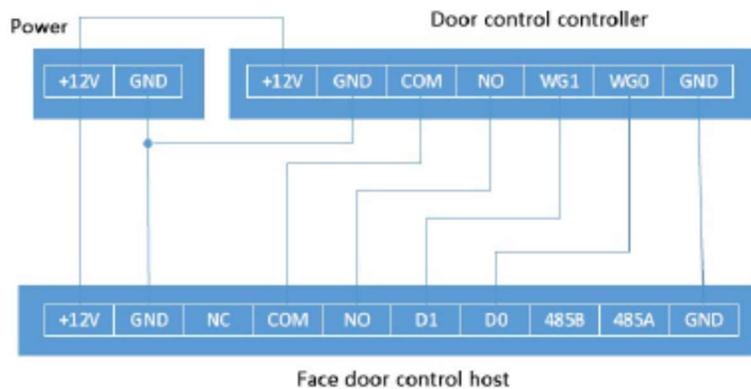
Interface schematic		Interface Description			
	DEBUG	USB port			
	USB3.0	USB3.0 port			
	Network port	1000M port			
	1	12V	6	D1	
	2	GND	7	D0	
	3	NC	8	485B	
4	COM	9	485A		
5	NO	10	GND		

**Note:** The electric lock need a separate power supply dedicated access, conditional increase UPS ups.

## ELECTRONICALLY CONTROLLED DOOR LOCK BUTTON CONNECTION



## ACCESS CONTROLLER CONNECTION



Note: NO and COM composition is normally open, NC and COM composition is normally closed, respectively, to the access controller NO, NC and COM terminals.

## INSTALLATION OF FLOOR STAND (PD190-003)

These instructions cover the installation of the standard design of the frame assembly PD190-003. Any customizations may not be specifically outlined in these instructions.

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### SAFETY

1. Always wear safety glasses/goggles to prevent injury from debris.
2. Follow the installation/removal instructions for your existing products.

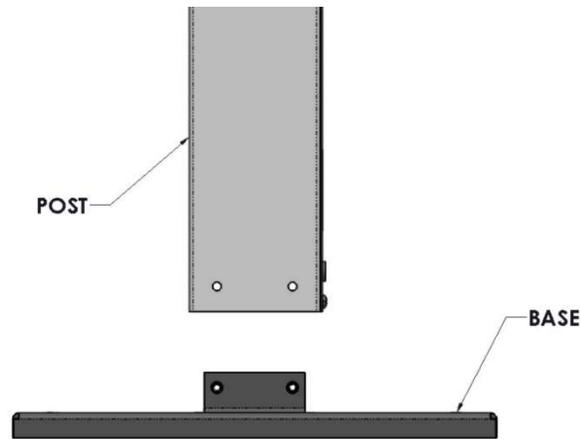
### TOOLS REQUIRED

1. 1/8" hex wrench
2. Safety glasses/goggles

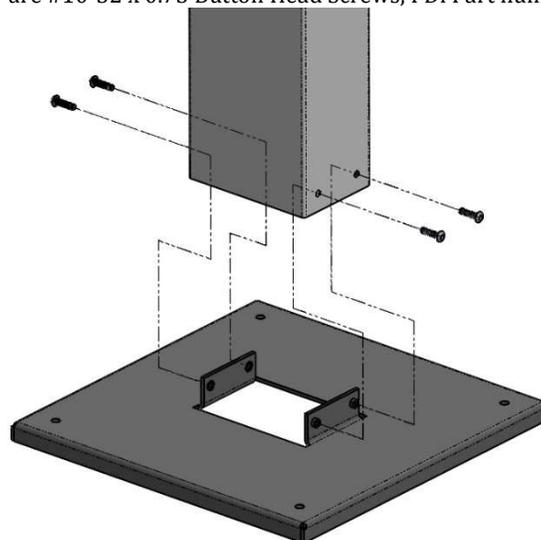
### INSTALLATION

#### Included Hardware:

- 4 each; **PDIBHSCS103275** – Button Head Screws, #10-32 x 0.75 long.
1. Remove the base from its box and lay flat on the work surface. This will weigh approximately 7 pounds.
  2. Remove the post from its box. This will weigh approximately 14 pounds.
  3. Holding the post, orient the post so the holes at the bottom are in the same direction as the holes in the tabs on the base (see figure below).



4. Slide the post over the tabs and align the holes in the two pieces. Attach them with the four (4) screws that were included in the package with the base. They are #10-32 x 0.75 Button Head Screws, PDi Part number PDIBHSCS103275.

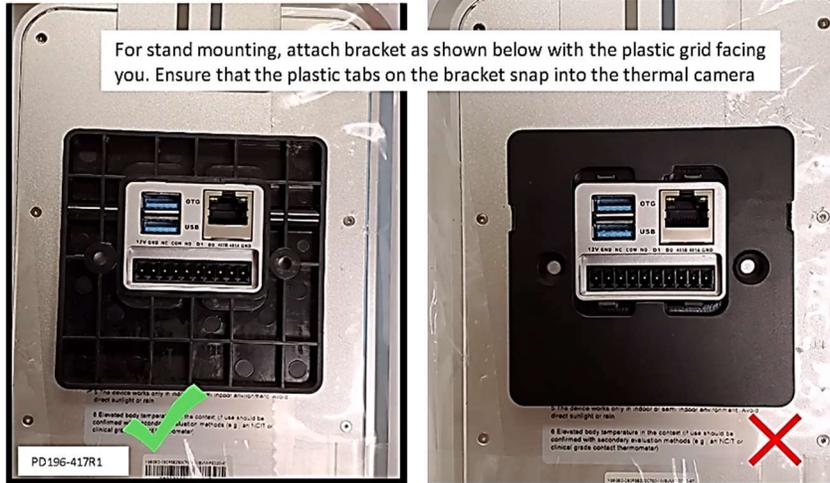


5. The Frame is designed to be able to be anchored to the floor if desired. If anchoring the Frame, the holes are sized for 1/4" anchor bolts. The anchor bolts are not included with the Frame.

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**INSTALLATION GUIDE: CONNECTING THE THERMAL CAMERA UNIT TO THE FLOOR STAND**

Pass the data cable and power cable into the column through the opening. Attach bracket as shown below.



Straighten the wire and insert it into the corresponding interface of the unit.

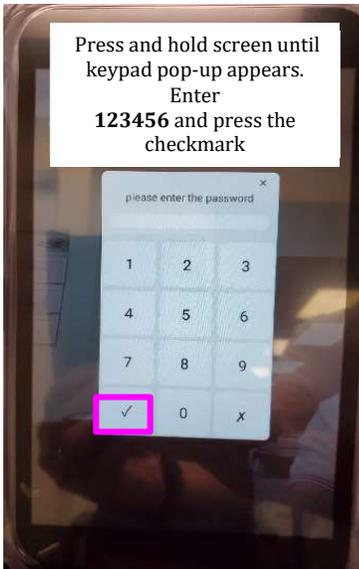


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### SOFTWARE USER GUIDE: CONNECTING THE UNIT TO YOUR NETWORK

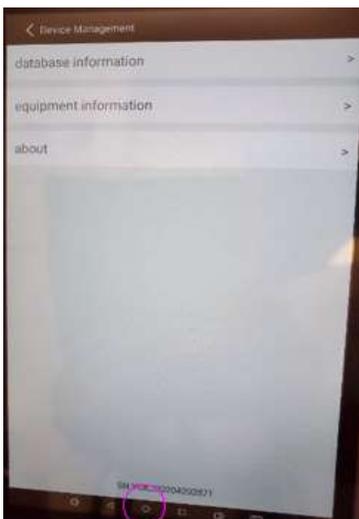


Connect the 10-position phoenix connector to the back of the PDI-TK8 unit (**Note:** the red power and black ground wires are on the left side of the unit as you're looking at the back of the unit). Next, plug the unit into the wall receptacle for power.

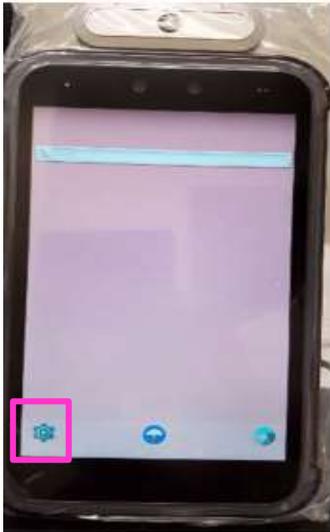


When the unit boots it will automatically start the application.

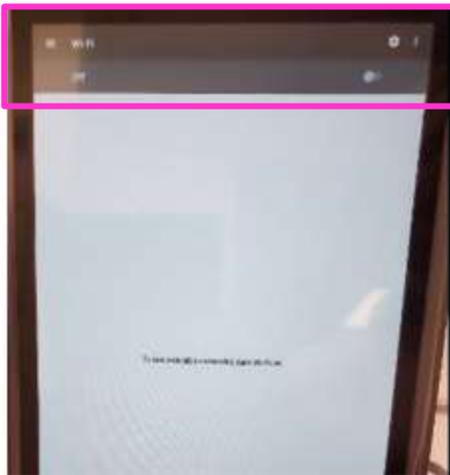
You must exit from the application to configure the unit on your network. Do this by pressing on the touchscreen until you see the pop-up keypad. Enter the default password, **123456** and press the checkmark.



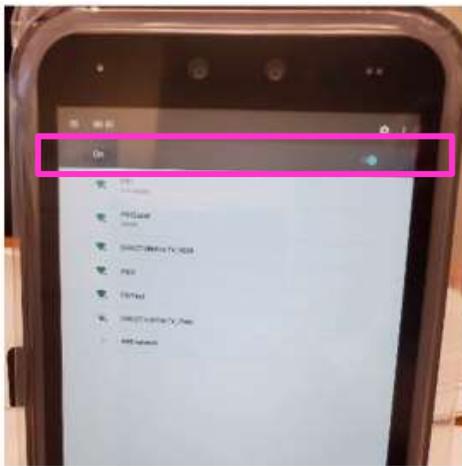
Then press the **Show Desktop** icon at the bottom of the tablet screen.



Select the **Settings** icon in the lower left corner of the display to show the Android system menu.



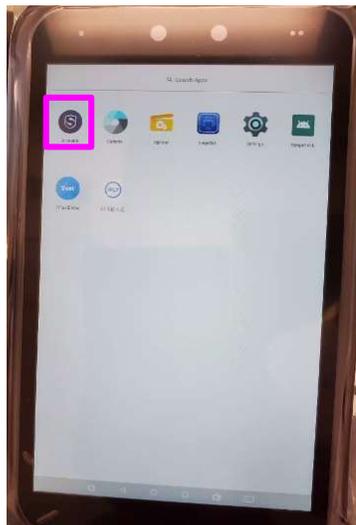
If WiFi is not enabled turn it on by sliding the button to the right.



Connect to a wireless network of your choice and note the IP address.



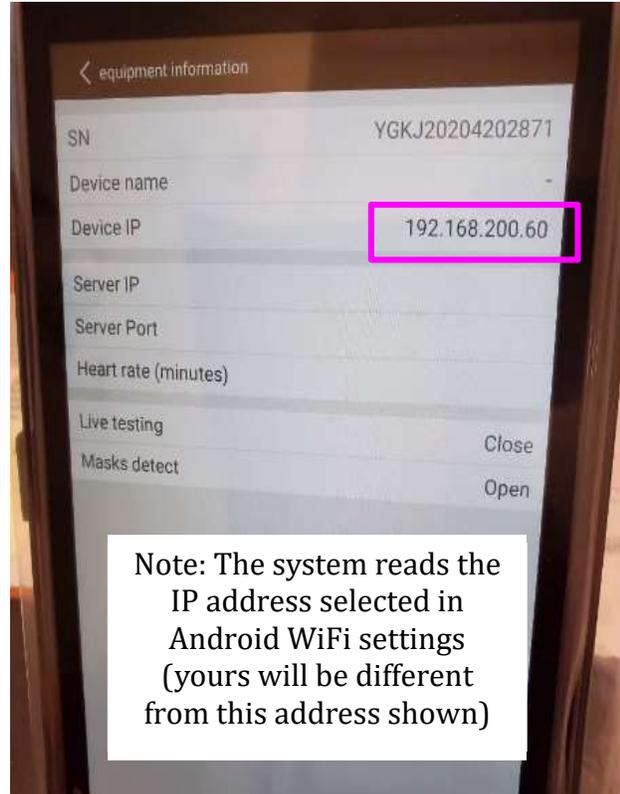
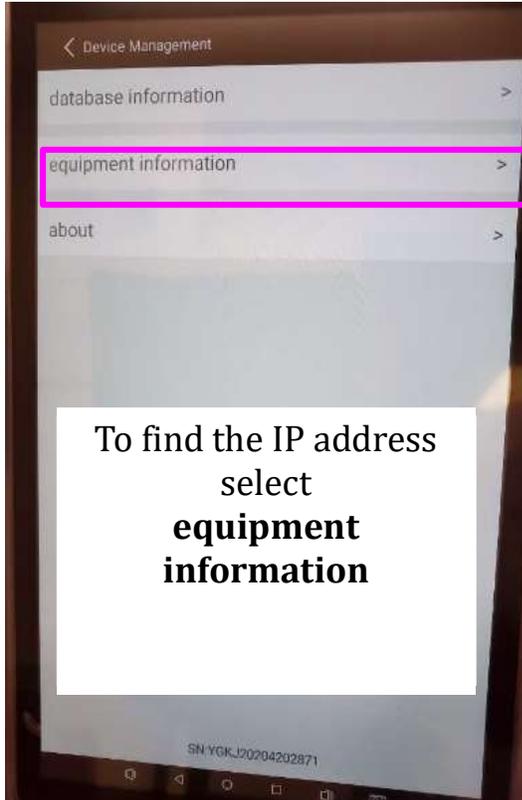
Return to the desktop screen and swipe up to display the apps page.



Select the app named BIOMATRIX.

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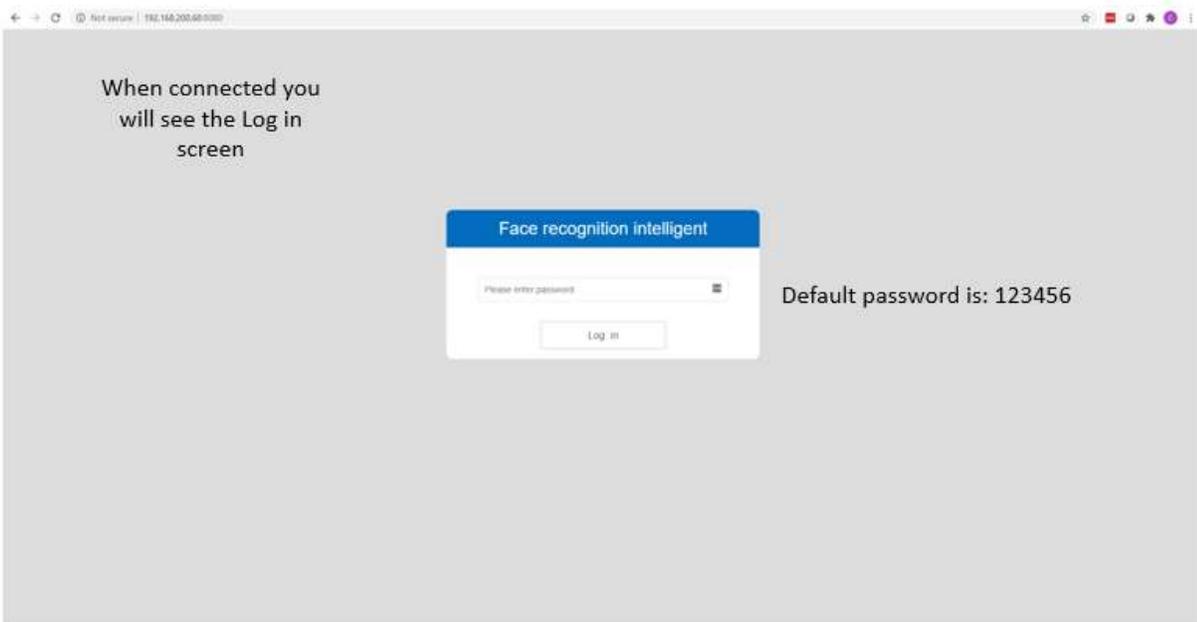
To display the IP Address to enter in your network PC browser, go to Device Management on the tablet. Select Equipment Information.



Now that you know the IP address enter it into your internet browsers address line on your network PC. Make certain to include the port :8080 in the string. In this case enter **http://192.168.200.60:8080**

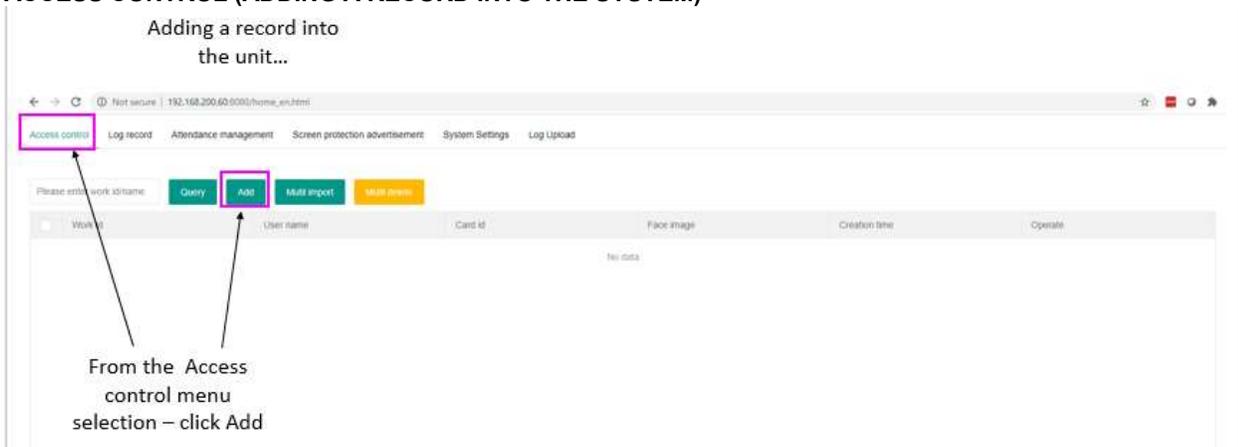


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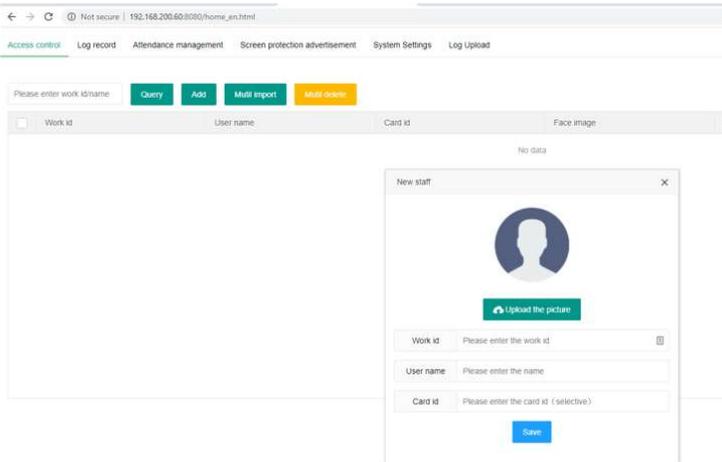
Congratulations! You have now connected to the device to your PC.

### ACCESS CONTROL (ADDING A RECORD INTO THE SYSTEM)



From your PC, log into the system using default password **123456**.

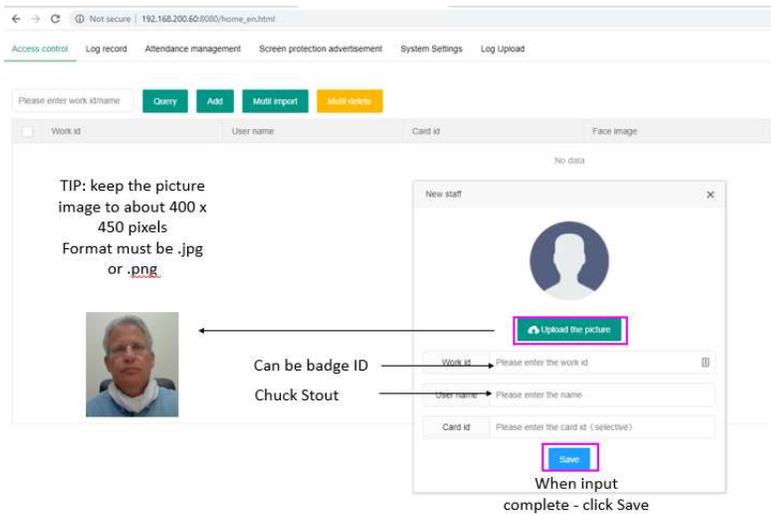
From the Access Control menu, click Add. When you click on **Add**, a record pop-up appears as shown next.



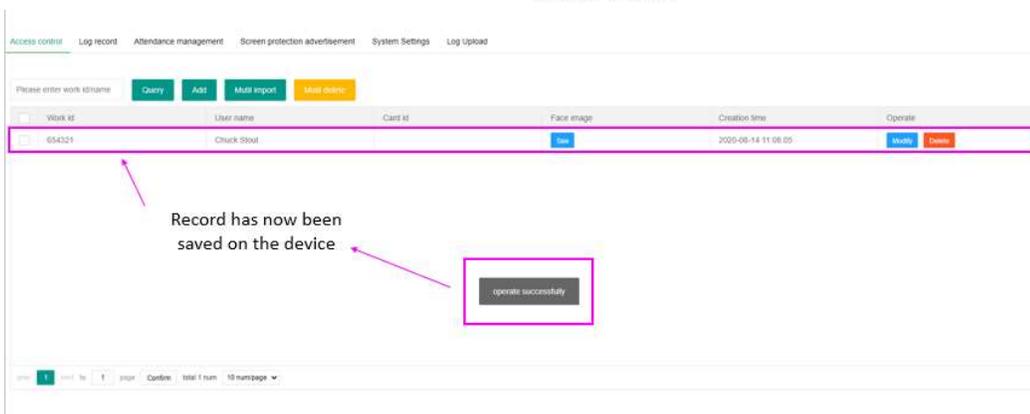
Click on the button to **Upload the picture** and navigate to where the image picture is located. The format of the picture can be either .jpg or .png but must be about 400 x 450 pixels.

If you receive a **face detect error**, please resize the image.

If an error message displays **please specify the file** – it means that the software is not recognizing the file type. Try reopening and resaving the image as a .jpg or .png file type.



Then enter, if desired, the badge ID and the name. Note: including the name will allow the system to display the name when the temperature is displayed. Click **Save** to complete the record entry.



If all data is valid the system reports **operate successfully**, and the record is added.

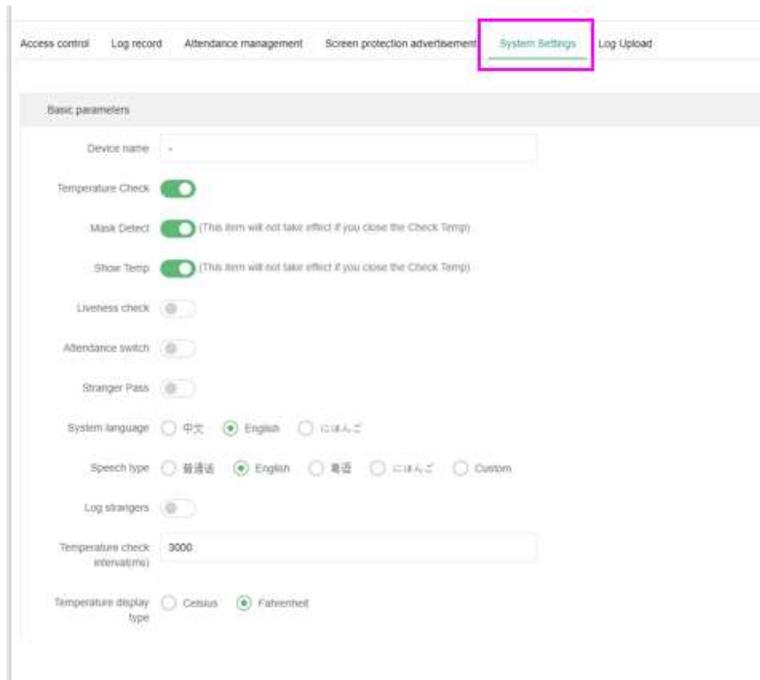
You can now continue to add records to the system. The capacity for record storage is up to 10,000 faces.

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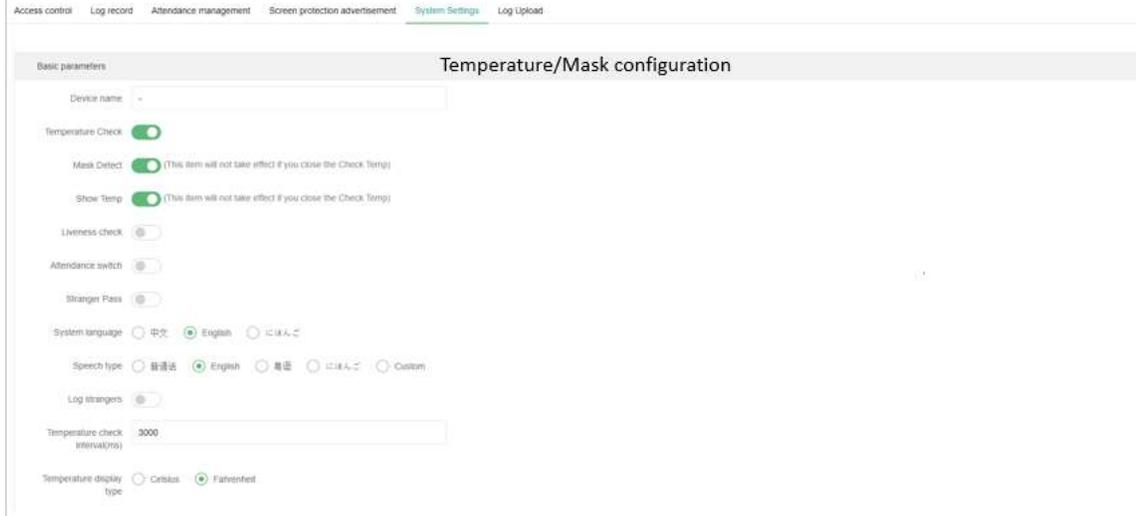
## SYSTEM SETTINGS

This menu selection controls features of the device related to:

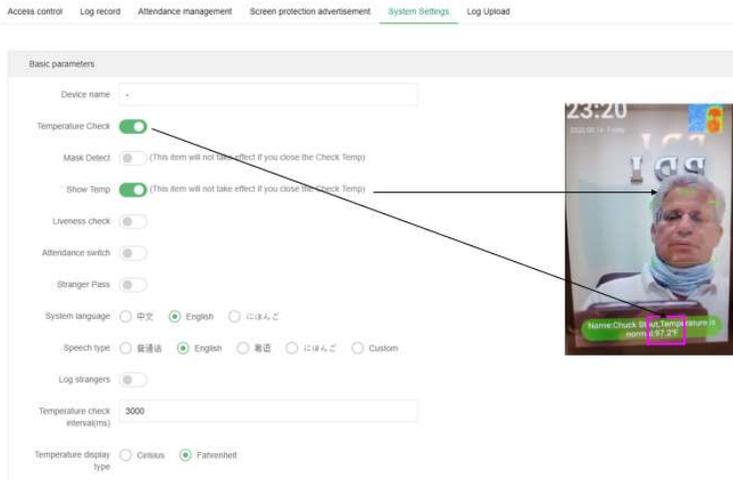
- Information that is displayed on the device,
- Whether the device can use photo images or the live camera for face detect comparison,
- How the system can be used to track clock-in/clock-out functionality (attendance check),
- Whether the system will report and allow access to strangers. A stranger is an image that has not been stored in the database,
- Language settings for the device (both displayed and spoken language),
- Temperature scale (°F / °C),
- Additional settings to
  - Reset the system
  - Reset the software
  - Synchronize time/date
  - Upload new system software (.apk)



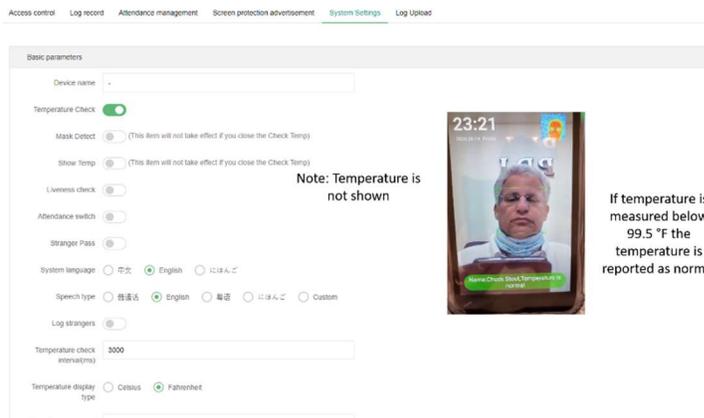
## TEMPERATURE/MASK CONFIGURATION



**Temperature Check** – when *Enabled* will display the temperature. If used with **Show Temp** will also display the measured temperature as part of the text string at the bottom of the display.



**Show Temp Enabled** – when enabled will also display the temperature at the bounding rectangle around the subject face.

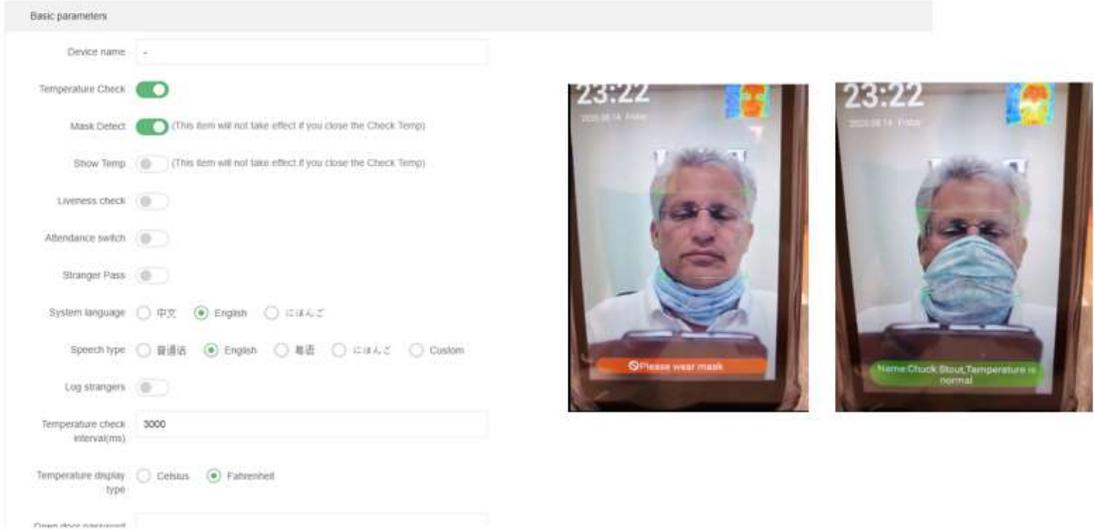


**Show Temp Disabled** – in this setting note there is no display of the temperature, but the system will still report if the temperature is normal.

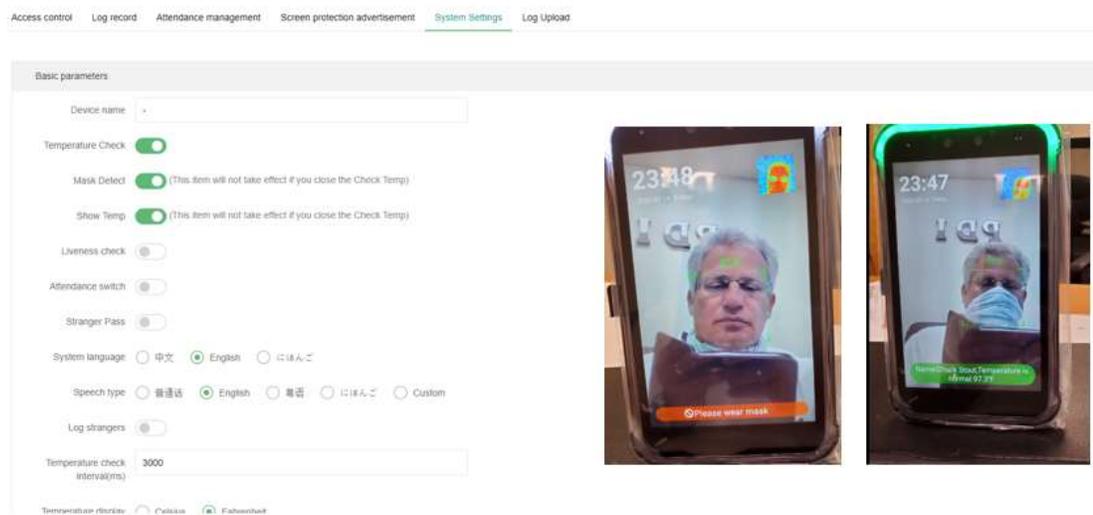


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**Temperature Check and Mask Detect Enabled.** Note if **Mask Detect** is *Enabled* then the system will prompt to 'Please wear mask' with a message at the bottom of the screen and with an audio message. Once the mask is put on the system will report the result.



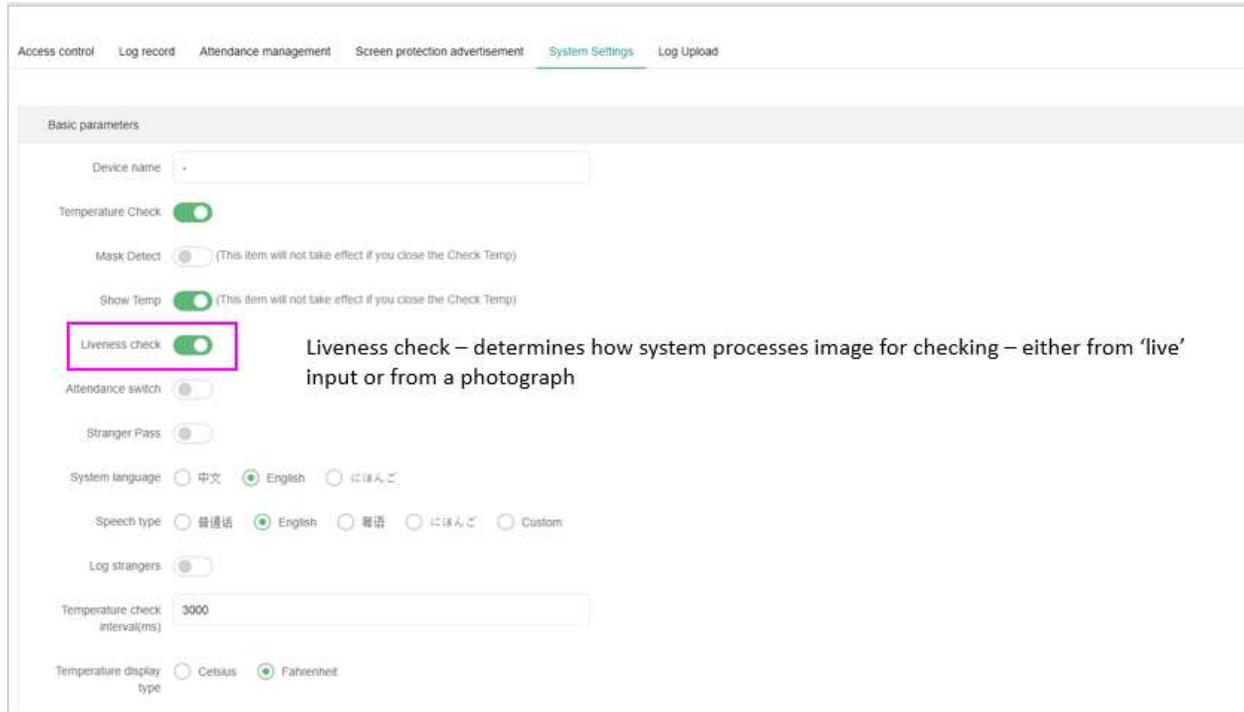
**Temperature Check, Mask Detect and Show Temp all Enabled.**  
In this setting the subject must wear a mask and temperatures are displayed.



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## LIVENESS CHECK

Liveness Check determines how the system processes image for checking – either from ‘live’ input or from a photo database.



Access control Log record Attendance management Screen protection advertisement **System Settings** Log Upload

Basic parameters

Device name: -

Temperature Check:

Mask Detect:  (This item will not take effect if you close the Check Temp)

Show Temp:  (This item will not take effect if you close the Check Temp)

**Liveness check:**  Liveness check – determines how system processes image for checking – either from ‘live’ input or from a photograph

Attendance switch:

Stranger Pass:

System language:  中文  English  日本語

Speech type:  普通话  English  粤语  日本語  Custom

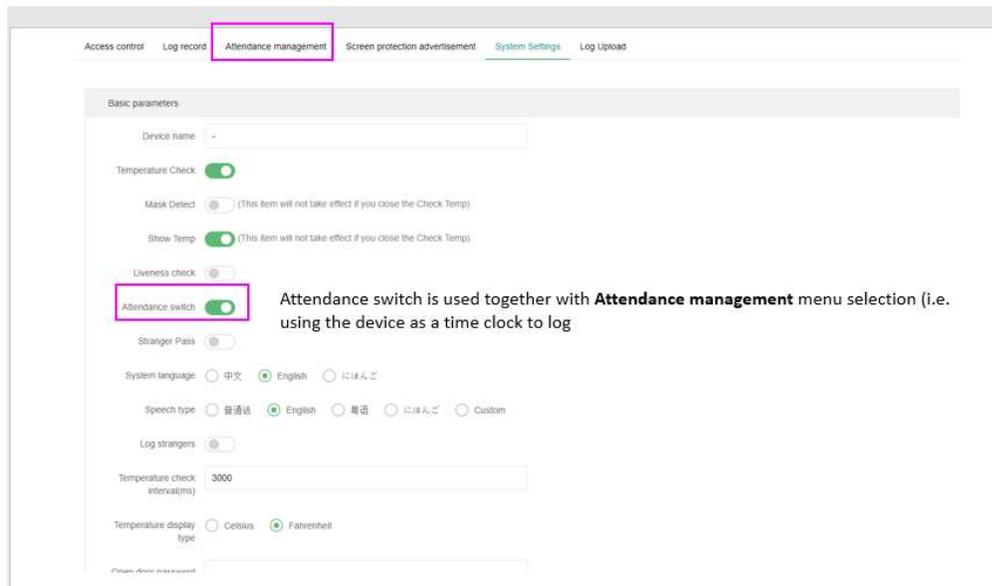
Log strangers:

Temperature check interval(ms): 3000

Temperature display type:  Celsius  Fahrenheit

## ATTENDANCE MANAGEMENT

**Attendance switch** – used in conjunction with **Attendance management** menu to log time-in/out functions as a time clock.



Access control Log record **Attendance management** Screen protection advertisement System Settings Log Upload

Basic parameters

Device name: -

Temperature Check:

Mask Detect:  (This item will not take effect if you close the Check Temp)

Show Temp:  (This item will not take effect if you close the Check Temp)

Liveness check:

**Attendance switch:**  Attendance switch is used together with Attendance management menu selection (i.e. using the device as a time clock to log

Stranger Pass:

System language:  中文  English  日本語

Speech type:  普通话  English  粤语  日本語  Custom

Log strangers:

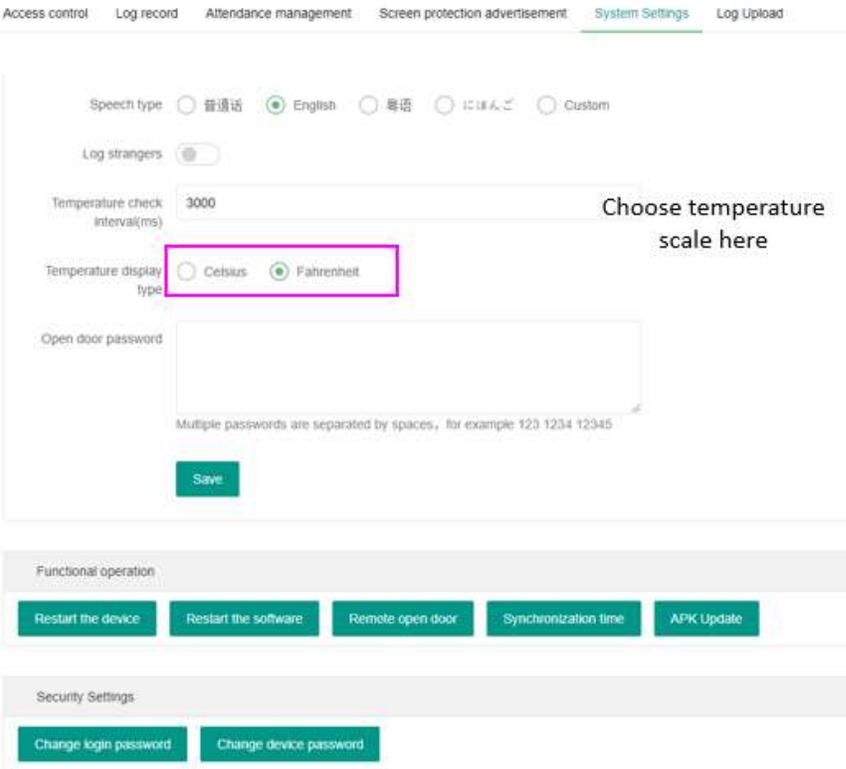
Temperature check interval(ms): 3000

Temperature display type:  Celsius  Fahrenheit



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**TEMPERATURE SCALE** – select either Fahrenheit or Celsius.



Access control   Log record   Attendance management   Screen protection advertisement   **System Settings**   Log Upload

Speech type:  普通话    English    粤语    日本語    Custom

Log strangers:

Temperature check interval(ms): 3000

Temperature display type:  Celsius    Fahrenheit

Open door password:

Multiple passwords are separated by spaces, for example 123 1234 12345

Save

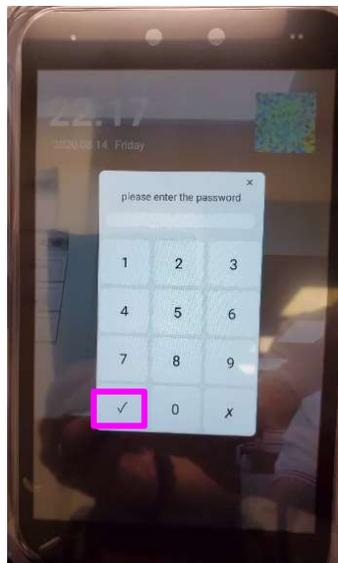
Functional operation

Restart the device   Restart the software   Remote open door   Synchronization time   APK Update

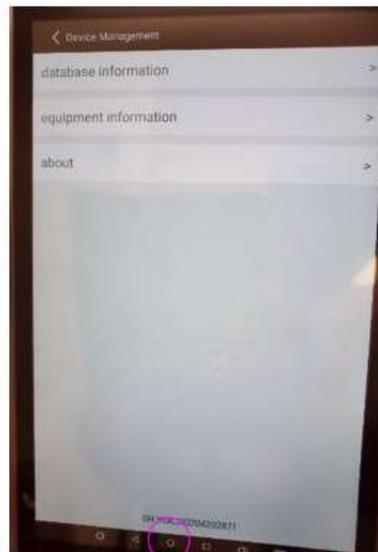
Security Settings

Change login password   Change device password

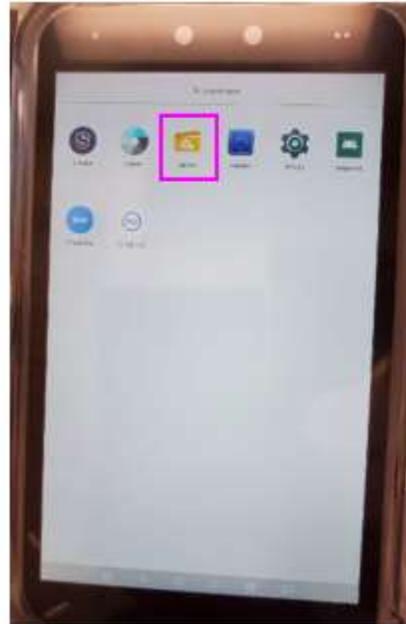
**CHANGING THE SYSTEM VOICE** – this feature allows the system administrator to change the voice files that are played automatically by the system. Changes need to be made at the file management level to change the voice files as described below. Exit the application and press the desktop icon as shown here.



Press and hold screen until keypad pop-up is displayed.  
Enter **123456** and press the checkbox



Once at the desktop swipe up from bottom of display to open the **Search Apps** page and select **Explorer**



The new voice files should be stored on a USB thumb drive.

In this version of the software, the system is looking for the voice files in hard coded .mp3 files with specific text string names. See the mapping in the table below. Your system has been pre-loaded with the voice files shown below in the .mp3 file string column.

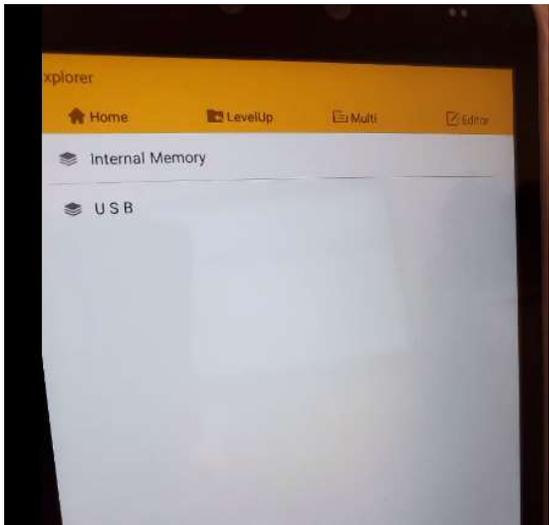
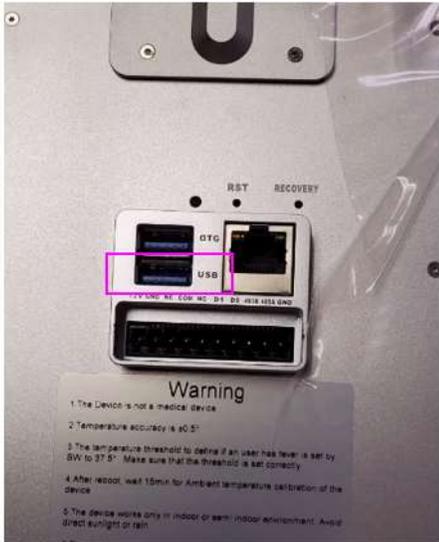
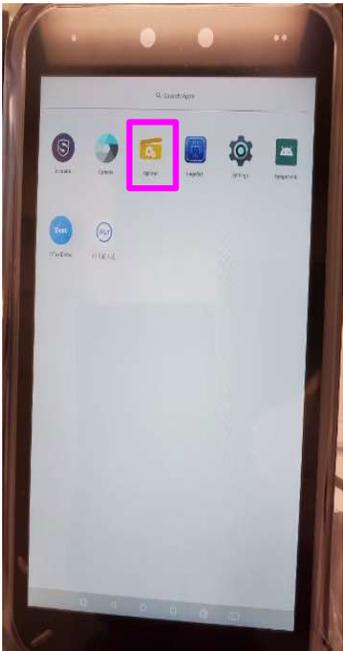
**Important Note: If you want to change any of the voice files, make sure to create the .mp3 file and save to the exact text string filename that matches the functionality that you desire. For example: If you want to change "Please come closer to the camera" to a different message, such as "Please come closer" make sure to copy the new .mp3 file to qingkaojin\_cus.mp3 to write over the current file.**

Save these mp3 files to your USB thumb drive.

Filename	.mp3 file string
qingchongxincewen_cus.mp3	"Please - take your temperature again"
qingkaojin_cus.mp3	"Please come closer to the camera"
qingpeidaikouzhao_cus.mp3	"Please wear your mask"
qingtongxing_cus.mp3	"Temperature check is complete - please proceed"
tiwenyichang_cus.mp3	"High temperature detected"
tiwenzhengchang_cus.mp3	"Your temperature is normal"

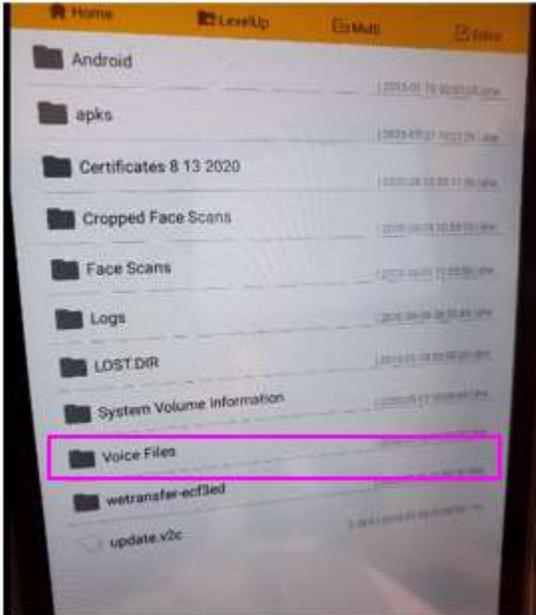
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From the **Explorer** menu on the PDI-TK8 tablet, insert the USB thumb drive into the slot on the back of the unit. **NOTE:** Make sure you plug the drive into USB and not OTG. The USB port is the bottom connector on both the tablet and the stand.



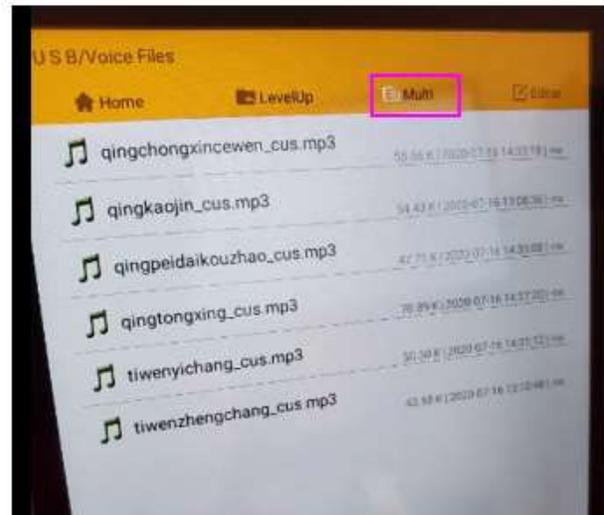
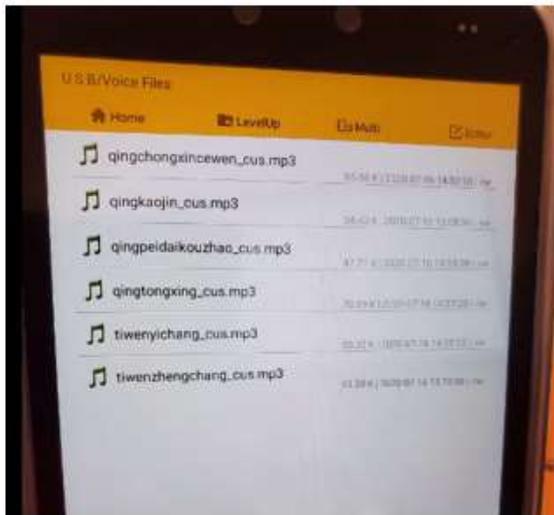
The **Explorer** menu should now display both Internal Memory and USB

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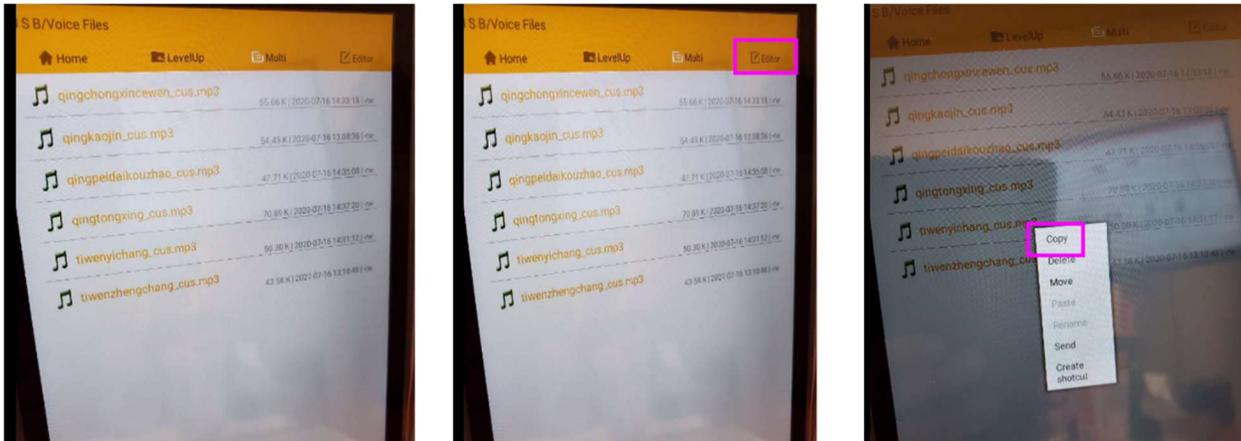
Select the USB option and navigate to the folder Voice Files

You will see your voice mp3 files listed. Use the **Multi** menu item to select multiple files in the list.

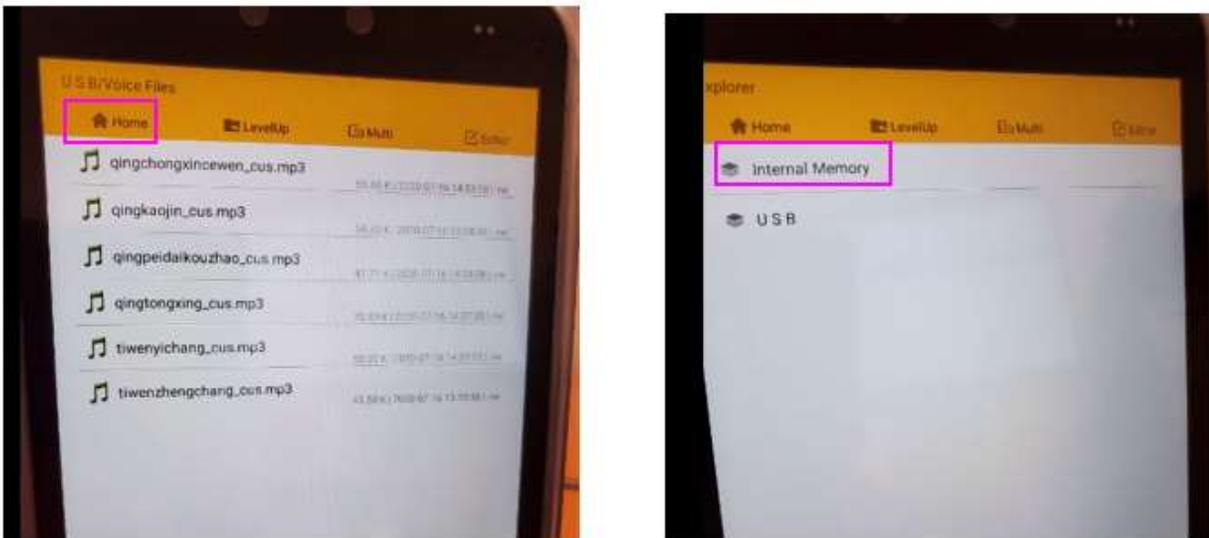


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Note that when selected the text color is gold. When each file has been selected click on the **Editor** menu item and select **Copy**.

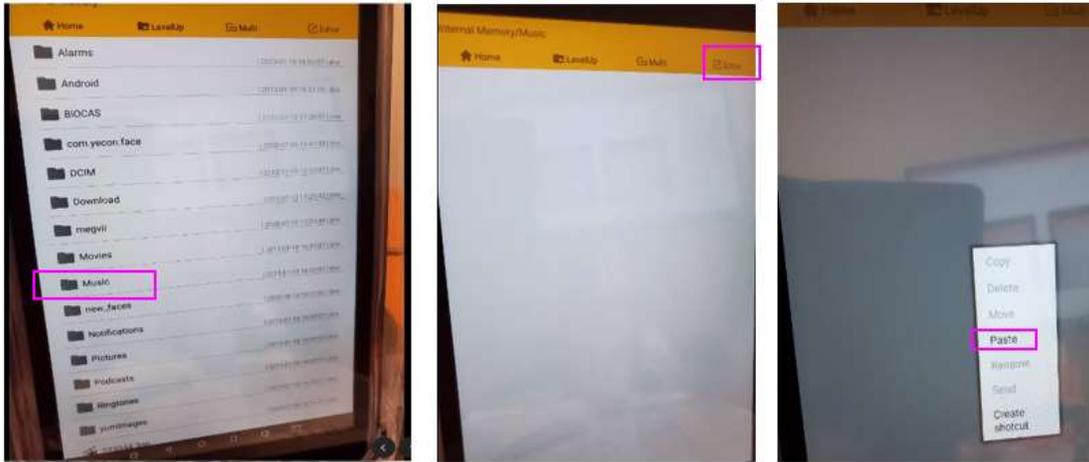


Next, copy these files to the internal memory of the PDI-TK8 device. Select **Home** and then **Internal Memory**

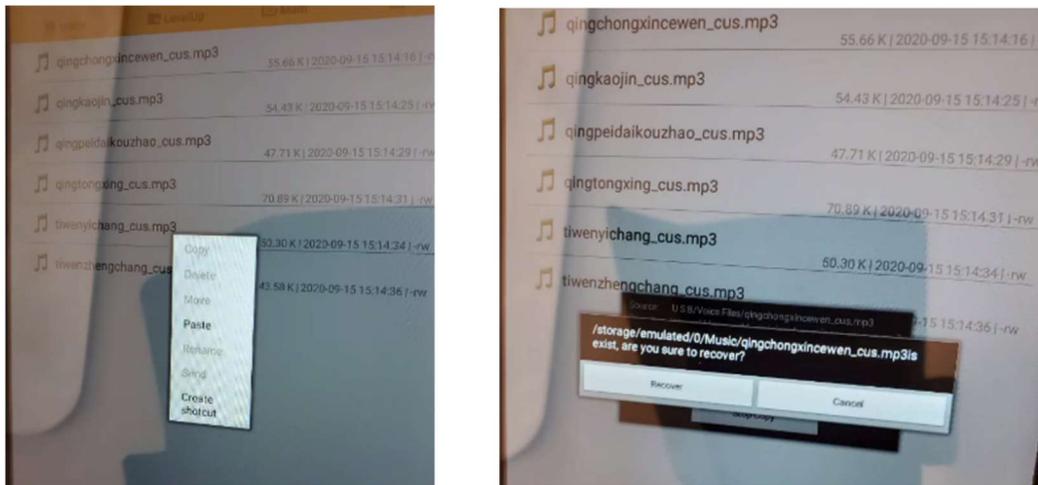


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From Internal Memory navigate to the **Music** folder and select. The window will display the default files. Select **Editor** and then select **Paste**.



At the prompt "(Filename) exist, are you sure to recover?" Select RECOVER for each file in the list.

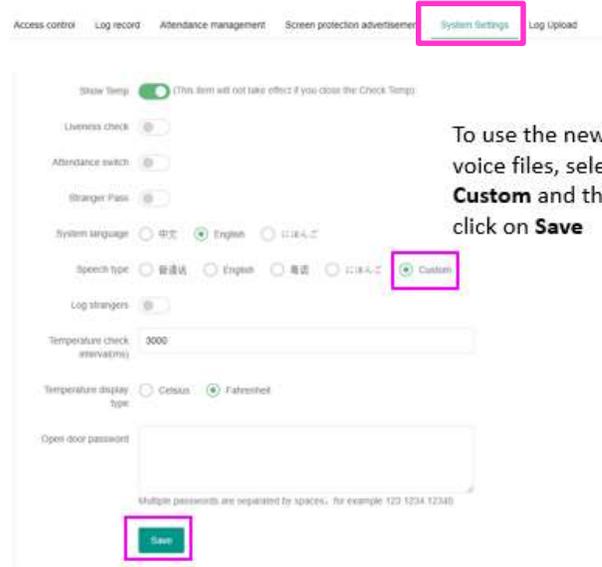


Now the new voice files are loaded into the device.

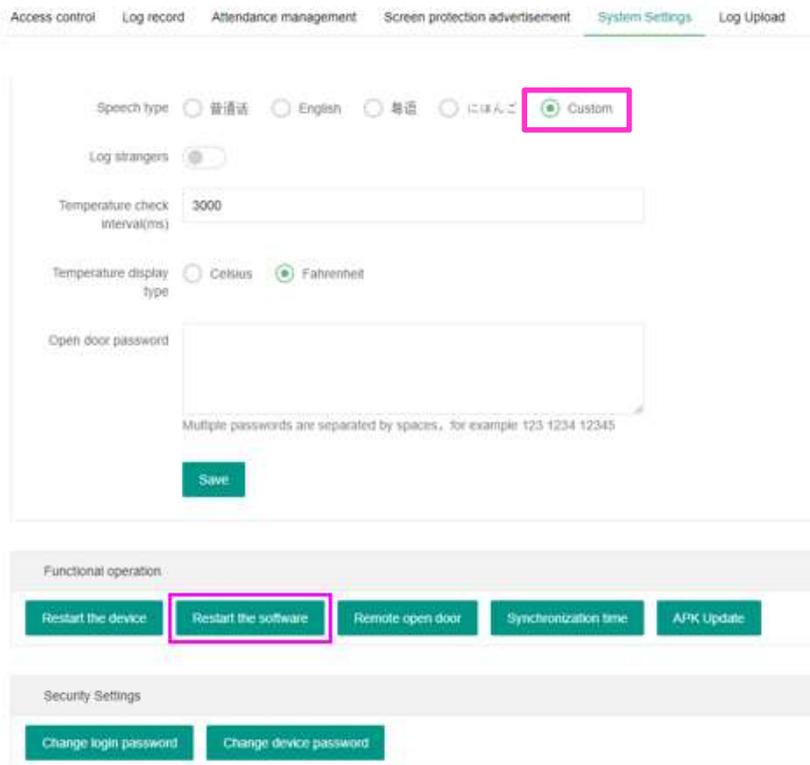
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The last step is to let the PC software know to use the new voice files in the Music folder.

In the PC software under **System Settings** select the **Custom** radio button then click **Save**.



Next, **Restart the software**. To calibrate after reboot, wait 15min for Ambient temperature calibration of the device. No other calibration is required.

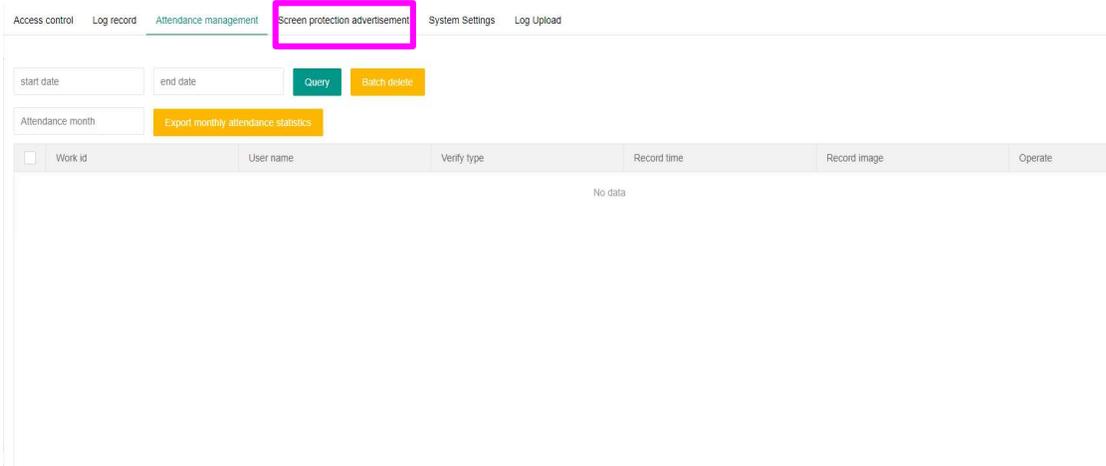


Then click **Restart the software**. The system will reboot and auto-start the thermal scanner software with the new voice files

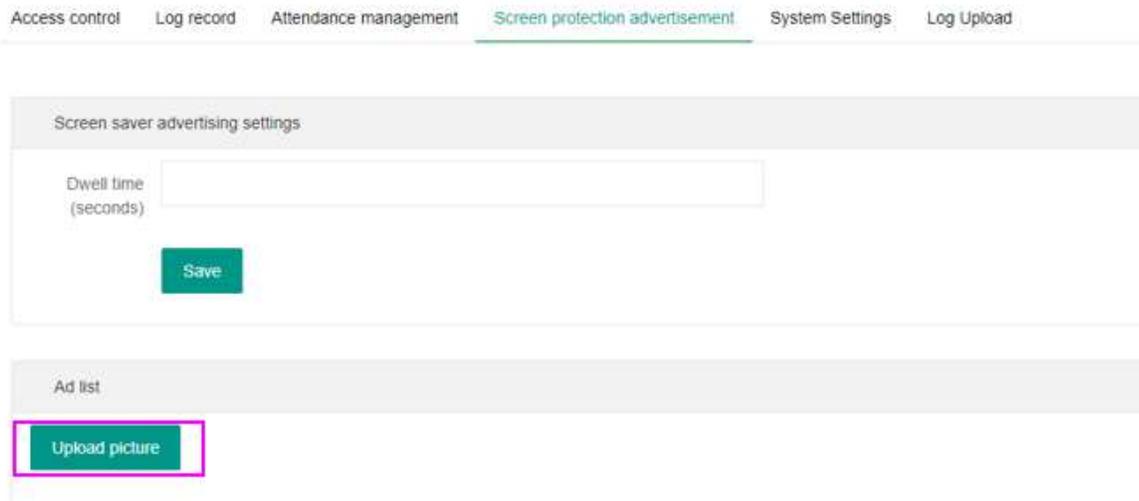
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**SCREENSAVER/SCREEN PROTECTION ADVERTISEMENT**

This is the screen saver image that will display on the screen when the system is dormant.

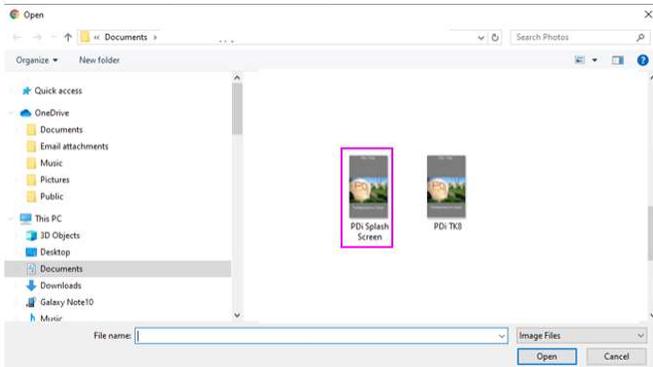
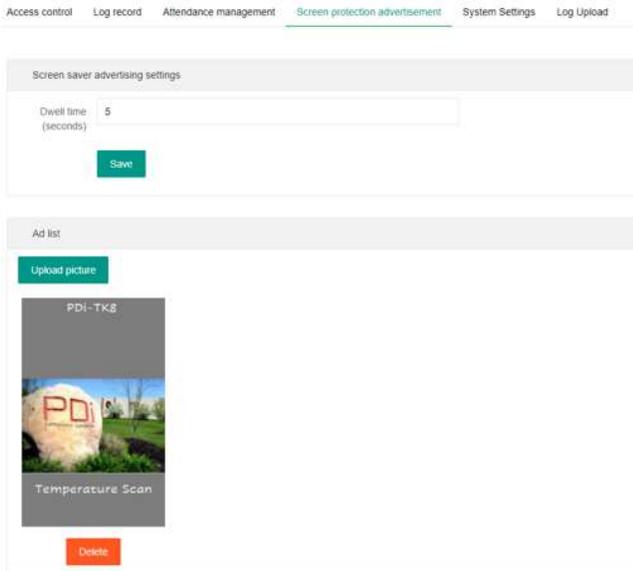


Upload the screen saver image from your storage device.

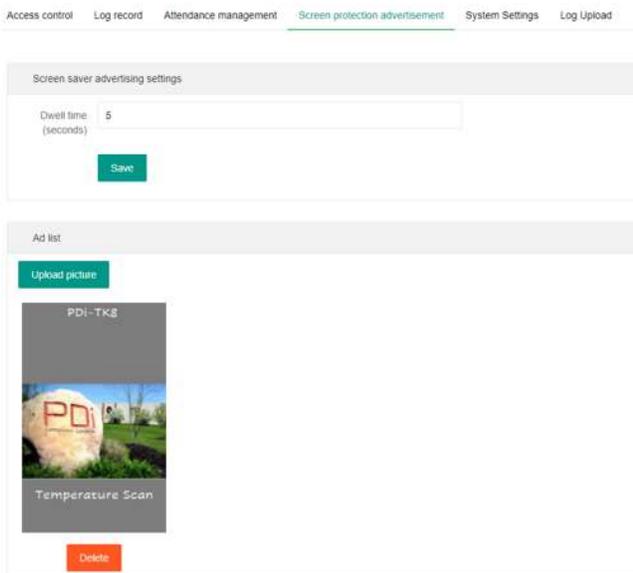


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Sample PDi screen saver uploaded.



Select the image and click on Open



Set the dwell time to the desired time in seconds and **Restart the software.**

## SYNCHRONIZATION TIME

To synchronize the system time with your PC, select **Synchronization time**. After a few seconds the device updates with the synchronized time.

Access control   Log record   Attendance management   Screen protection advertisement   System Settings   Log Upload

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Speech type:  普通话    English    粤语    にほんご    Custom

Log strangers:

Temperature check interval(ms):

Temperature display type:  Celsius    Fahrenheit

Open door password:

Multiple passwords are separated by spaces, for example 123 1234 12345

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Functional operation

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Security Settings

## LOG RECORD

This feature displays all the records that have been scanned into the system. For each record the time is recorded along with the image capture, the name and measured temperature. You can query individual records, selectively delete records, perform batch delete operation and export the text data to an Excel spreadsheet.

Access control   Log record   Attendance management   Screen protection advertisement   System Settings   Log Upload

---

Cumulative check: **38/Person**  
 Accumulated fever: **0/Person**  
 Check today: **13/Person**  
 Fever today: **0/Person**

Start date:    End date:    All records        

Work id	User name	Temperature	Device name	Check type	Record time	Record image	Operate
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 16:08:20	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 16:08:16	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 16:08:11	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 16:07:30	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 16:07:24	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 16:06:28	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 16:06:24	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.0 °F	-	Face	2020-08-14 14:53:19	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 14:53:14	<input type="button" value="See"/>	<input type="button" value="Delete"/>
654321	Chuck Stout	97.2 °F	-	Face	2020-08-14 14:53:10	<input type="button" value="See"/>	<input type="button" value="Delete"/>

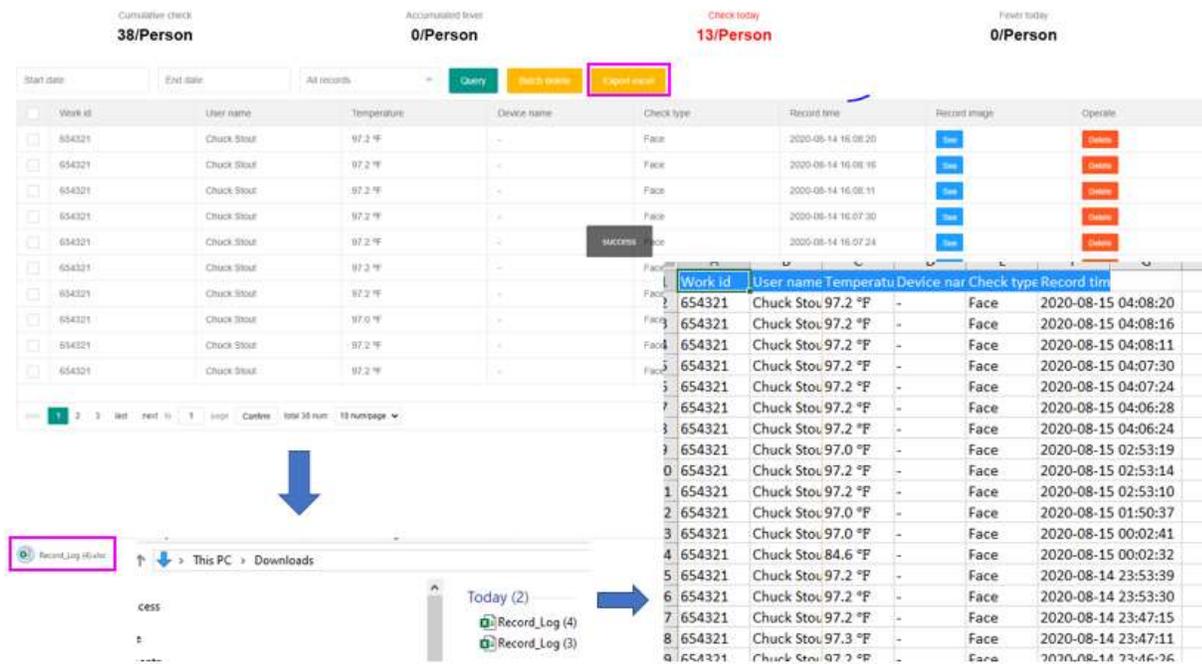
 
  
  
  
  
  
  
 total 38 num  
 num/page

System will store each thermal sample. Log can be exported to excel

To preview an image, click the button “SEE” as a convenient way to ensure you have the correct image per record.



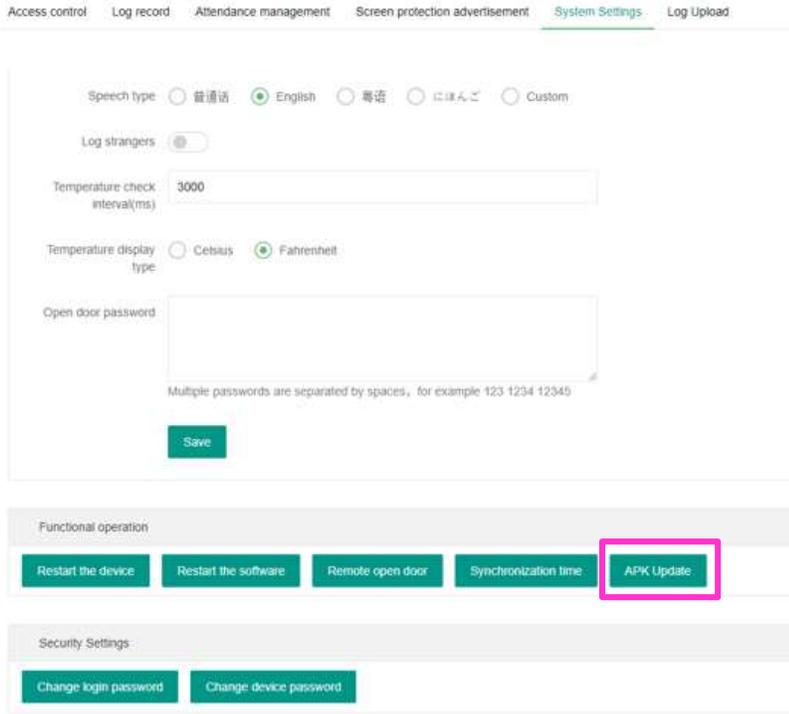
To export, click on the **Export excel** button. The file will be written to the download folder on your PC and may then be opened in Excel. **Note:** there are no images uploaded with the log file.



### APK UPDATE

Should a software update be required, select this option and navigate to where the new .apk file is located. Then select **APK Update** to update the system software.

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The new .apk will be downloaded and installed on the system. Once the unit is back at the Android desktop swipe up and select the application named BIOMATRIX.



**ADDITIONAL INFORMATION**

Additional information is available online at [www.pdiarm.com](http://www.pdiarm.com).

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**LIMITED WARRANTY**

PDi Communication Systems Inc., (“PDi”) standard warranty information is found at [pdiam.com](http://pdiam.com). For information regarding authorized servicing and all other information pertaining to this warranty, please contact PDi COMMUNICATION SYSTEMS, INC. at 40 Greenwood Ln, Springboro, Ohio 45066 or phone 800-628-9870 and ask for the PDi ProServices team.