

User Manual

RevFace15[TI]

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Doc Version: 1.0

English

Thank you for choosing our product. Please read the instructions carefully before operation. Follow these instructions to ensure that the product is functioning properly. The images shown in this manual are for illustrative purposes only.



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If there is any issue related to the product, please contact us.

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About the Company

ZKTeco is one of the world's largest manufacturer of RFID and Biometric (Fingerprint, Facial, Finger-vein) readers. Product offerings include Access Control readers and panels, Near & Far-range Facial Recognition Cameras, Elevator/floor access controllers, Turnstiles, License Plate Recognition (LPR) gate controllers and Consumer products including battery-operated fingerprint and face-reader Door Locks. Our security solutions are multi-lingual and localized in over 18 different languages. At the ZKTeco state-of-the-art 700,000 square foot ISO9001-certified manufacturing facility, we control manufacturing, product design, component assembly, and logistics/shipping, all under one roof.

The founders of ZKTeco have been determined for independent research and development of biometric verification procedures and the productization of biometric verification SDK, which was initially widely applied in PC security and identity authentication fields. With the continuous enhancement of the development and plenty of market applications, the team has gradually constructed an identity authentication ecosystem and smart security ecosystem, which are based on biometric verification techniques. With years of experience in the industrialization of biometric verifications, ZKTeco was officially established in 2007 and now has been one of the globally leading enterprises in the biometric verification industry owning various patents and being selected as the National High-tech Enterprise for 6 consecutive years. Its products are protected by intellectual property rights.

About the Manual

This manual introduces the operations of **RevFace15[TI]** Product.

All figures displayed are for illustration purposes only. Figures in this manual may not be exactly consistent with the actual products.

Features and parameters with ★ are not available in all devices.

Document Conventions

Conventions used in this manual are listed below:

GUI Conventions

For Software	
Convention	Description
Bold font	Used to identify software interface names e.g., OK , Confirm , Cancel
>	Multi-level menus are separated by these brackets. For example, File > Create > Folder.
For Device	
Convention	Description
<>	Button or key names for devices. For example, press <OK>
[]	Window names, menu items, data table, and field names are inside square brackets. For example, pop up the [New User] window
/	Multi-level menus are separated by forwarding slashes. For example, [File/Create/Folder].

Symbols






Convention	Description
	This implies about the notice or pays attention to, in the manual
	The general information which helps in performing the operations faster
	The information which is significant
	Care taken to avoid danger or mistakes
	The statement or event that warns of something or that serves as a cautionary example.


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1 Safety Measures

The below instructions intend to ensure that the user can use the product correctly to avoid danger or property loss. The following precautions are to keep users safe and prevent any damage. Please read carefully before installation.

 Noncompliance with instructions could lead to product damage or physical injury (may even cause death).

1. **Read, follow, and retain instructions** - All safety and operational instructions must be properly read and followed before bringing the device into service.
2. **Do not ignore warnings** - Adhere to all warnings on the unit and in the operating instructions.
3. **Accessories** - Use only manufacturer-recommended or product-sold accessories. Please do not use any other components other than manufacturer suggested materials.
4. **Precautions for the installation** – Do not place this device on an unstable stand or frame. It may fall and cause serious injury to persons and damage to the device.
5. **Service** - Do not try to service this unit yourself. Opening or removing covers may expose you to hazardous voltages or other hazards.
6. **Damage requiring service** - Disconnect the system from the Mains AC or DC power source and refer service personnel under the following conditions:
 - When cord or connection control is affected.
 - When the liquid spilled, or an item dropped into the system.
 - If exposed to water or due to inclement weather (rain, snow, and more).
 - If exposed to water or due to inclement weather (rain, snow, and more).

Just change controls defined in operating instructions. Improper adjustment of the controls may result in damage and involve a qualified technician to return the device to normal operation.

And do not connect multiple devices to one power adapter as adapter overload can cause over-heat or fire hazard.

7. **Replacement parts** - When replacement parts are needed, service technicians must only use replacement parts provided by the supplier. Unauthorized substitutes can result in a burn, shock, or other hazards.
8. **Safety check** - On completion of service or repair work on the unit, ask the service technician to perform safety checks to ensure proper operation of the device.
9. **Power sources** - Operate the system only from the label's power source form. If the sort of AC adapter to use is unclear, call your dealer.

- 10. Lightning** - Can install external lightning conductors to protect against electrical storms. It stops power-ups from destroying the system.

Recommended installing the devices in areas with limited access.

Electrical Safety

- Before connecting an external cable to the device, complete grounding properly, and set up surge protection; otherwise, static electricity will damage the mainboard.
- Make sure that the power has been disconnected before you wire, install, or dismantle the device.
- Ensure that the signal connected to the device is a weak-current (switch) signal; otherwise, components of the device will get damaged.
- Ensure that the standard voltage applicable in your country or region is applied. If you are not sure about the endorsed standard voltage, please consult your local electric power company. Power mismatch may cause a short circuit or device damage.
- In the case of power supply damage, return the device to the professional technical personnel or your dealer for handling.
- To avoid interference, keep the device far from high electromagnetic radiation devices, such as generators (including electric generators), radios, televisions, (especially CRT) monitors, or speakers.

Operation Safety

- If smoke, odour, or noise rise from the device, turn off the power at once and unplug the power cable, and then please contact the service centre.
- Transportation and other unpredictable causes may damage the device's hardware. Check whether the device has any intense damage before installation.
- If the device has major defects that you cannot solve, contact your dealer as soon as possible.
- Dust, moisture, and abrupt temperature changes can affect the device's service life. You are advised not to keep the device under such conditions.
- Do not keep the device in a place that vibrates. Handle the device with care. Do not place heavy objects on top of the device.
- Do not apply rosin, alcohol, benzene, pesticides, and other volatile substances that may damage the device enclosure. Clean the device accessories with a piece of soft cloth or a small amount of cleaning agent.
- If you have any technical questions regarding usage, contact certified or experienced technical personnel.

**Note**

- Make sure whether the positive polarity and negative polarity of the DC 12V AC adapter is connected correctly. A reverse connection may damage the device. It is not advisable to connect the AC 24V AC adapter to the DC 12V input port.
- Make sure to connect the wires following the positive polarity and negative polarity shown on the device's nameplate.
- The warranty service does not cover accidental damage, damage caused by mis-operation, and damage due to independent installation or repair of the product by the user.

2 Overview

RevFace15[TI] uses **Thermal Imaging Intelligent Engineering Facial Recognition** algorithms and the latest **Computer Vision Technology**. It supports both facial and palm verification with large capacity and quick recognition and also improves security performance in all aspects.

It accepts touchless recognition technology and new functions namely **Temperature Detection** and **Masked Individual Identification** which eliminates hygiene concerns effectively. It is also equipped with the ultimate **Anti-Spoofing** algorithm for facial recognition against almost all types of fake photos and videos attack. It has 3-in-1 palm recognition (Palm Shape, Palm Print, and Palm Vein) that is performed in 0.35 sec per hand; the palm data acquired is compared with a maximum of 3,000 palm templates.

The terminal with temperature and mask detection is a perfect device to help reduce the spread of germs and help prevent infections at each access point of any premises and public areas such as hospitals, factories, schools, commercial buildings, stations during the recent global public health issue with its fast and accurate body temperature measurement and masked individual identification functions during facial and palm verification.

Features

- Visible Light Facial Recognition.
- Better hygiene with touchless biometric authentication, temperature detection and masked individual identification.
- Thermal Imaging Temperature Detection with high-speed detection of 0.1s within measurement distance of 30cm to 120cm.
- Anti-spoofing algorithm against printed photo attack (laser, color and B/W photos), videos attack and 3D mask attack.
- Multiple Verification Methods: **Password / Face / Palm.**

Other Specifications

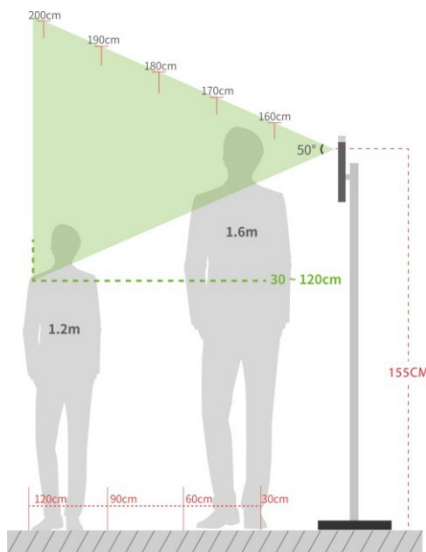
- Mask detection.
- Body temperature detection.
- Temperature Measurement Distance: **30cm ~ 120cm (0.98ft~ 3.94ft).**
- Temperature Measurement Accuracy: **±0.3°C (±0.54°F)**
(Tested at a distance of 80cm (2.63ft) under 25°C (77° F) temperature)
- Temperature Measurement Range: **20°C ~ 50°C (68°F ~ 122°F)**

3 Instruction for Use

Before getting into the device features and functions, it is recommended to be familiar with the below fundamentals.

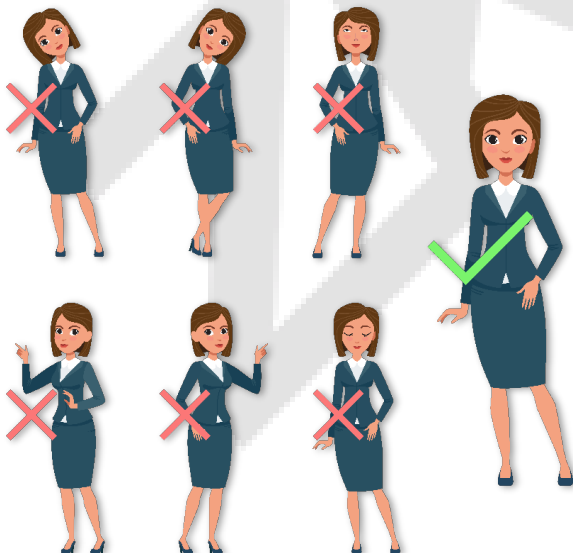
3.1 Standing Position, Posture and Facial Expression

- **The recommended distance**



The distance between the device and a user whose height is in a range of 1.55m-1.85m is recommended to be 0.3-2.5m. Users may slightly move forward or backward to improve the character of facial images captured.

- **Recommended Standing Posture and Facial Expression**



Standing Posture



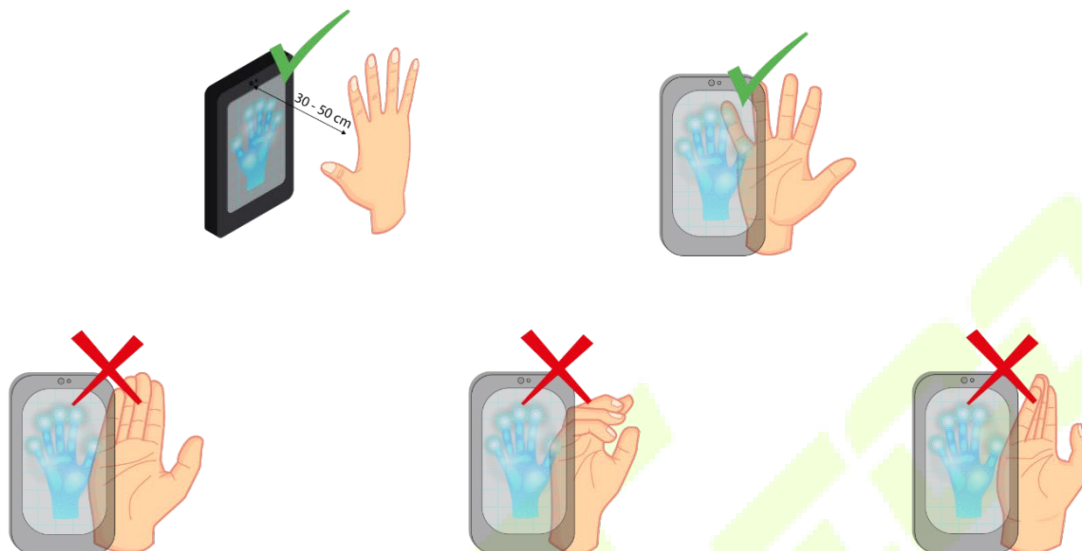
Facial Expression

NOTE: Please keep your facial expression and standing posture natural while enrolment or verification.

3.2 Palm Registration

Place your palm in the palm multi-mode collection area, such that the palm is placed parallel to the device.

Make sure to keep space between your fingers.



NOTE: Place your palm within 30cm - 50cm of the device.

3.3 Face Registration

Try to keep the face in the centre of the screen during registration. Please face towards the camera and stay still during face registration. The screen should look like this:



Correct face registration and authentication method

● Recommendation for registering a face

- When registering a face, maintain a distance of 40cm to 80cm between the device and the face.
- Be careful to keep your facial expression natural and not to change. (smiling, drawn face, wink, etc.)
- If you do not follow the instructions on the screen, the face registration may take a longer time or may fail.
- Be careful not to cover the eyes or eyebrows.
- Do not wear hats, masks, sunglasses, or eyeglasses.
- Be careful not to display two faces on the screen. Register one person at a time.
- It is recommended for a user wearing glasses to register both faces with and without glasses.



● Recommendation for authenticating a face

- Ensure that the face appears inside the guideline displayed on the screen of the device.
- Sometimes, authentication may fail due to the change in the wearing glasses then the one used while registration. In such a case, you may require authenticating your face with the previously worn glasses. If your face was registered without glasses, you should authenticate your face without glasses further.
- If a part of the face is covered with a hat, a mask, an eye patch, or sunglasses, authentication may fail. Do not cover the face, allow the device to recognize both the eyebrows and the face.

3.4 Standby Interface

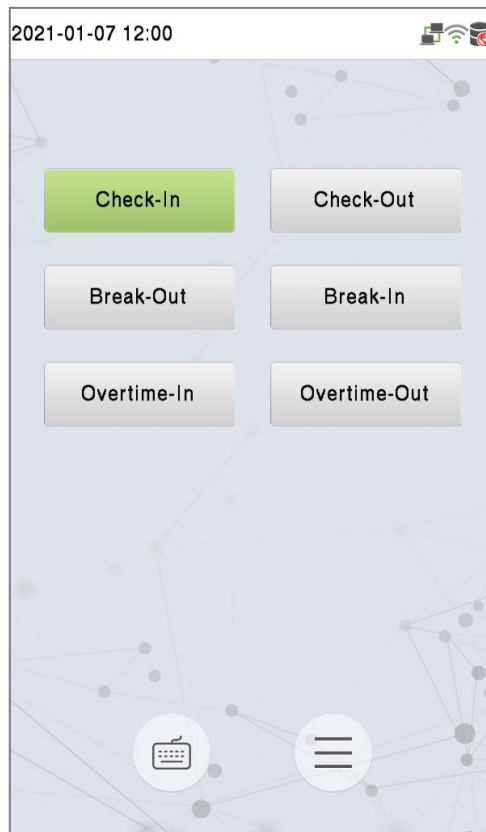
After connecting the AC adapter, the following standby interface is displayed:



- Tap  to enter the User ID input interface.
- When there is no Super Administrator set in the device, tap  to go to the menu.
- After adding a Super Administrator on the device, it requires the Super Administrator's verification before opening the menu functions.

NOTE: For the security of the device, it is recommended to register a super administrator the first time you use the device.

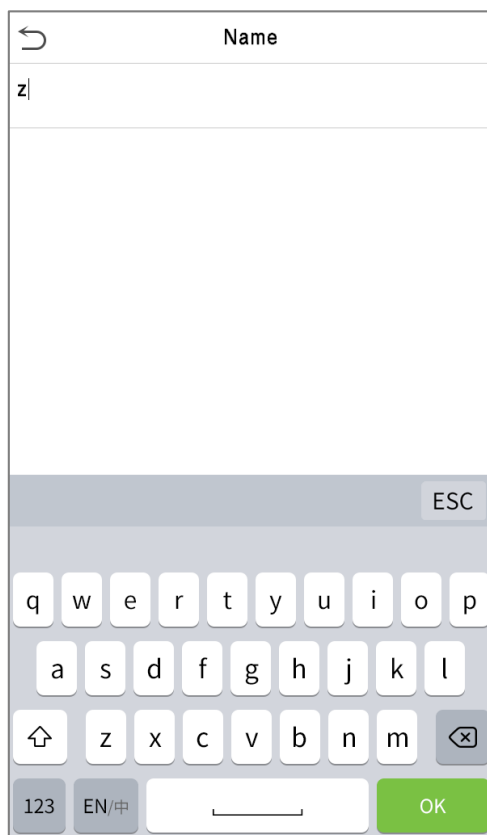
- The punch state options can also be displayed and used directly on the standby interface. Tap anywhere on the screen apart from the icons, and six shortcut keys appears on the screen, as shown in the figure below:



- Press the corresponding punch state key to select your current punch state, which is displayed in green.

NOTE: The punch state options are off by default and need to select other mode options in the ["9.4 Punch States Options"](#) to get the punch state options on the standby screen.

3.5 Virtual Keyboard



NOTE:

The device supports the input in Chinese language, English language, numbers, and symbols.

- Tap **[En]** to switch to the English keyboard.
- Press **[123]** to switch to the numeric and symbolic keyboard.
- Tap **[ABC]** to return to the alphabetic keyboard.
- Tap the input box, a virtual keyboard appears.
- Tap **[ESC]** to exit the virtual keyboard.

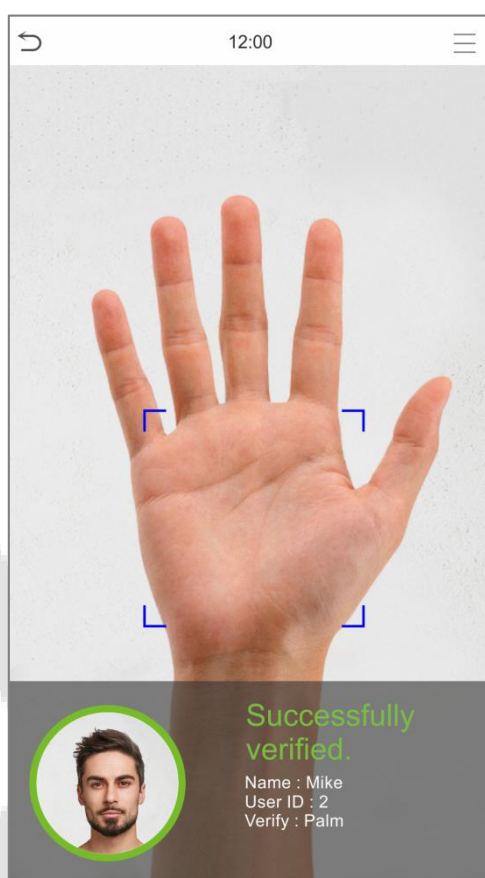
3.6 Verification Mode

3.6.1 Palm Verification


- **1: N Palm Verification mode**

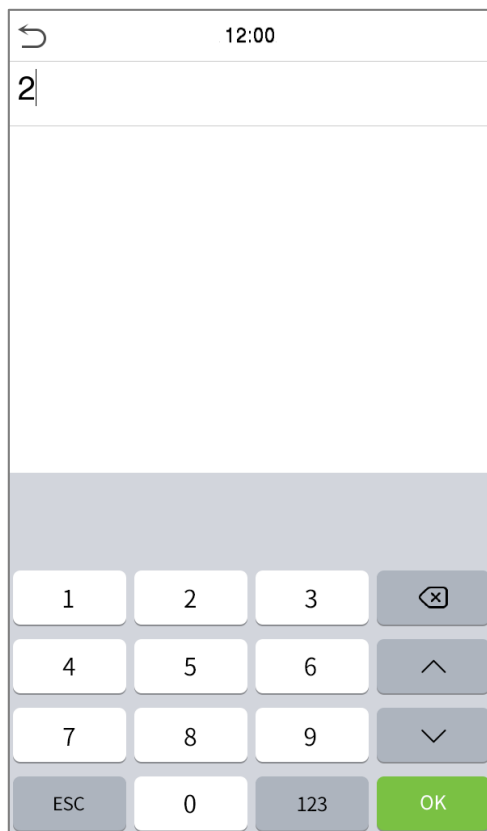
In this verification mode, the device compares the palm image collected by the palm collector with all the palm data available in the device.


The device automatically distinguishes between the palm and the face verification mode as the user places his/her palm in the scanning area. Then the palm image is collected by the palm collector, and the device matches the collected palm image with all the registered palm and returns an output.

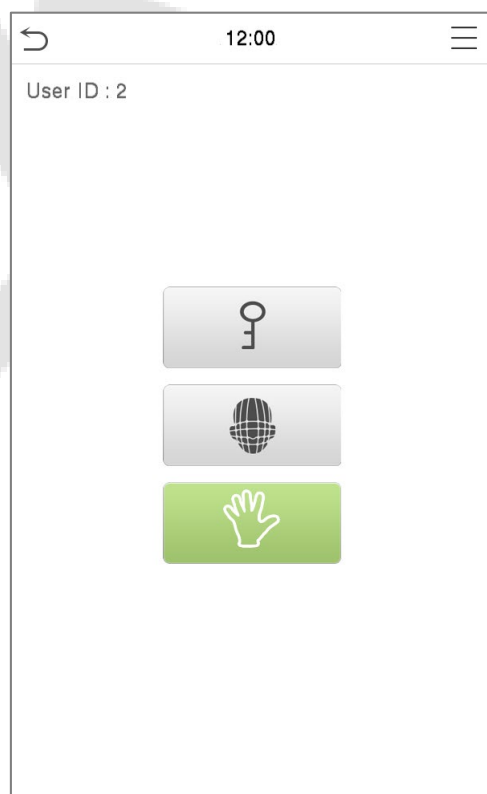


- **1: 1 Palm Verification mode**

Tap the  button on the main screen to enter 1:1 palm verification mode and input the user ID, and press [OK], as shown in the image below.



If the user has registered the face and password in addition to his/her palm, and the verification method is set to Password / Face / Palm verification, the following screen will appear. Select the palm icon  to enter palm verification mode. Then place your palm for verification.

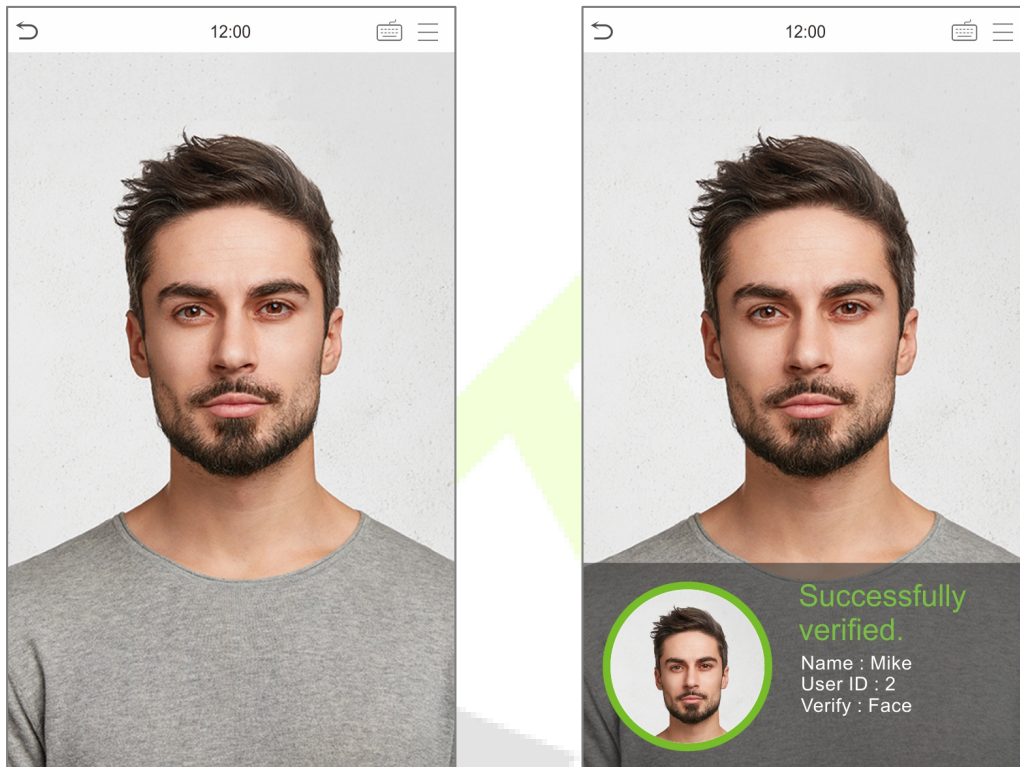


3.6.2 Facial Verification

- **1:N Facial Verification**

1. Conventional verification

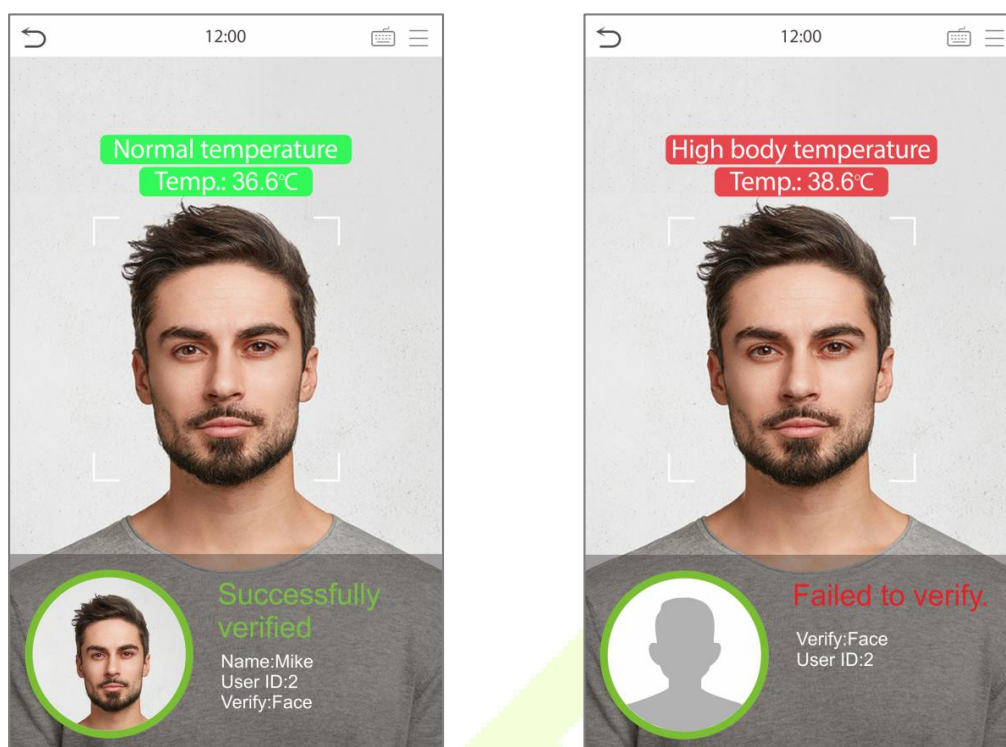
In this verification mode, the device compares the collected facial images with all face data registered in the device. The following is the pop-up prompt of a successful comparison result.



2. Enable temperature screening with infrared

When the user enables the **Enable temperature screening with infrared** function, during user verification, in addition to the conventional verification method, the user's face must be aligned with the temperature measurement area to measure the body temperature before the verification can be conducted. The following are the popups of the comparison result prompt interface.

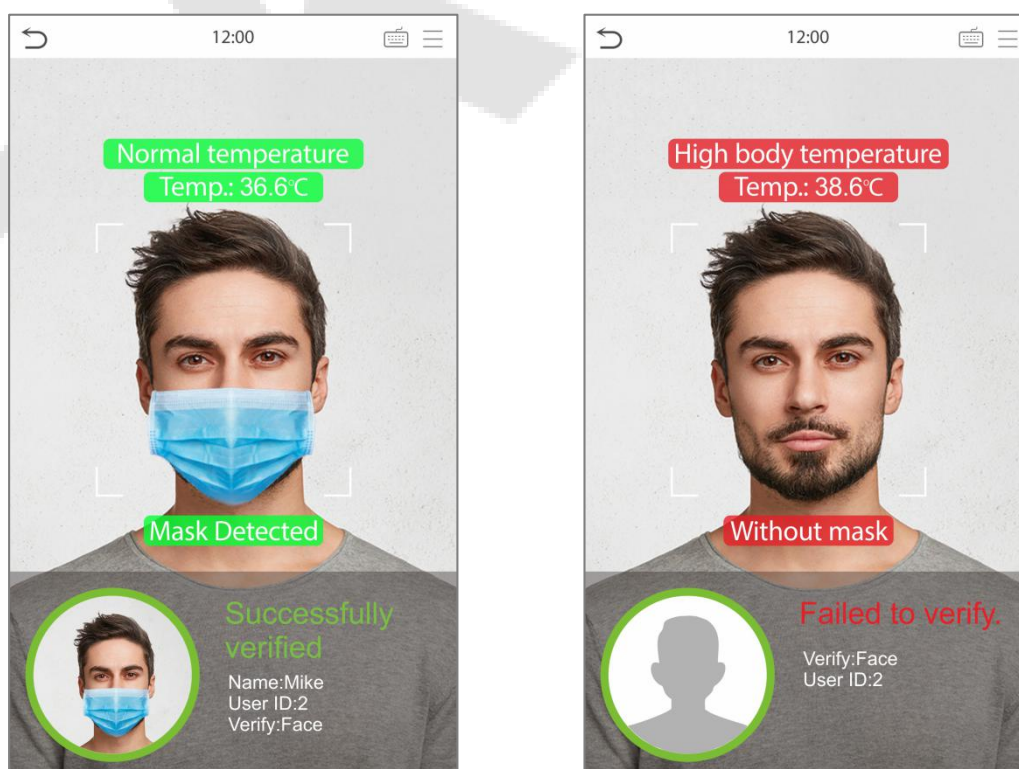
Note: This function is only applicable to products with temperature measurement module.



3. Enable mask detection

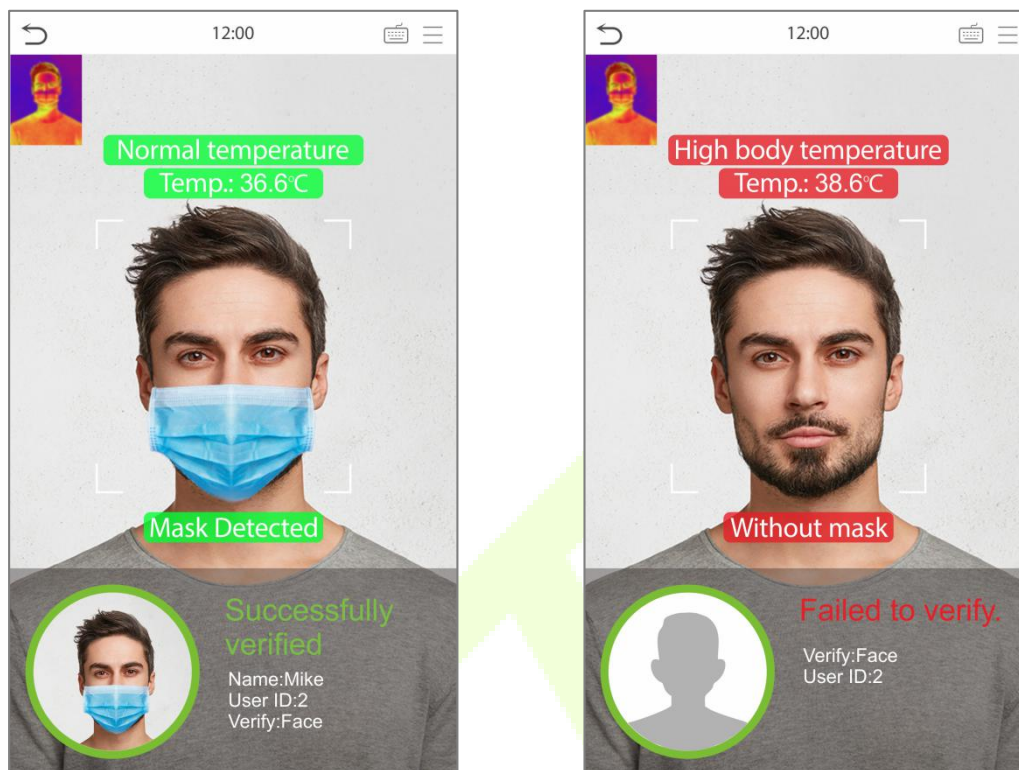
When the user enables the **Enable mask detection** function, the device identifies whether the user is wearing a mask while verification or not. The following are the popups of the comparison result prompt interface.

Note: This function is only applicable to products with temperature measurement module.




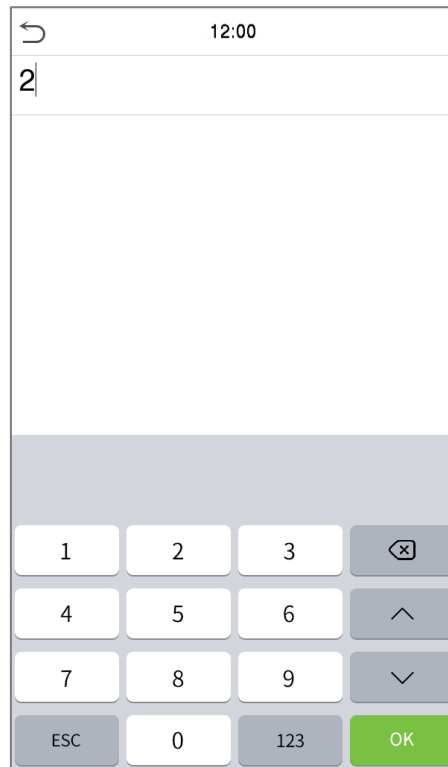
4. Display Thermodynamics Figure


When the user enables the **Display Thermodynamics Figure** function, the thermal image of the person is displayed in the upper left corner of the device, while verification. As shown in the images below:

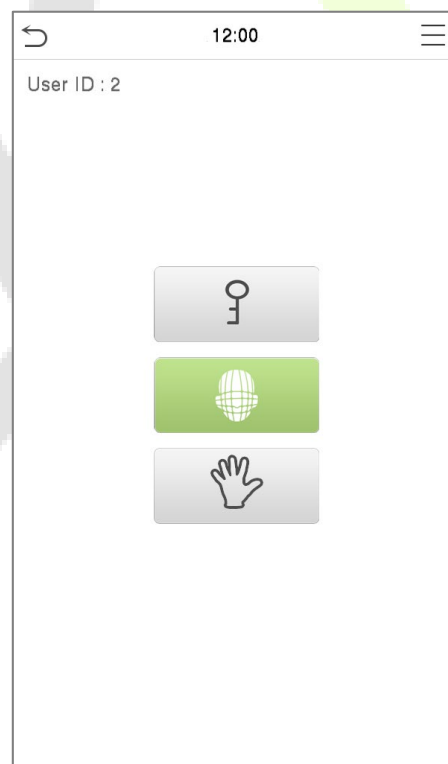


● 1:1 Facial Verification

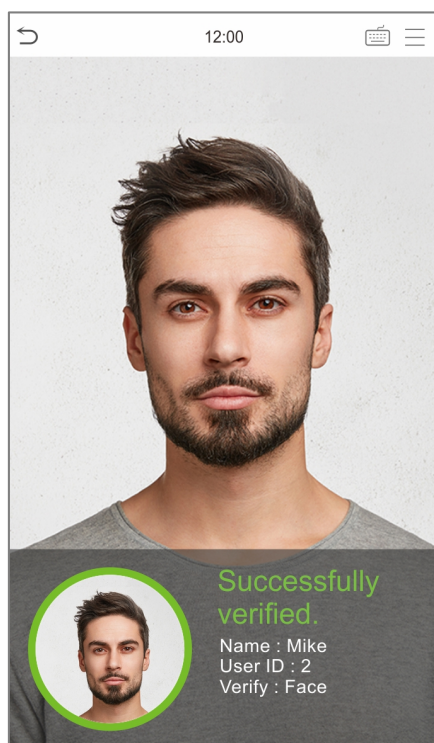
In this verification mode, the device compares the face captured by the camera with the facial template related to the entered user ID. Press  on the main interface and enter the 1:1 facial verification mode and enter the user ID and tap **[OK]**.



If the user has registered palm and password in addition to the face, and the verification method is set to Password/ Face/ Palm verification, the following screen will appear. Select the  icon to enter the face verification mode.




After successful verification, the prompt box displays "**Successfully verified**", as shown below:

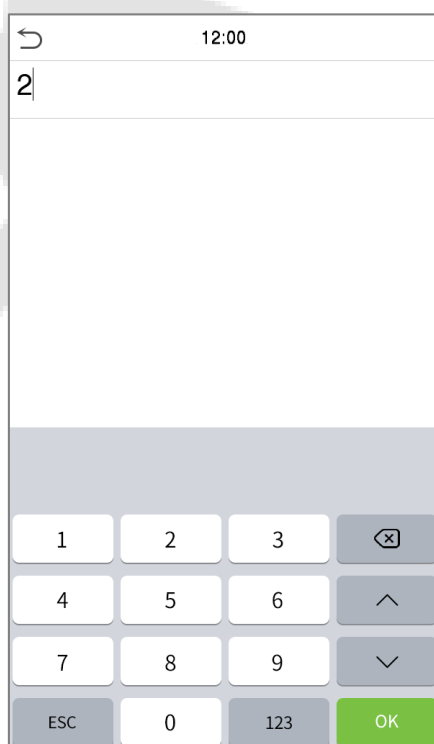



If the verification is failed, it prompts **“Please adjust your position!”**.

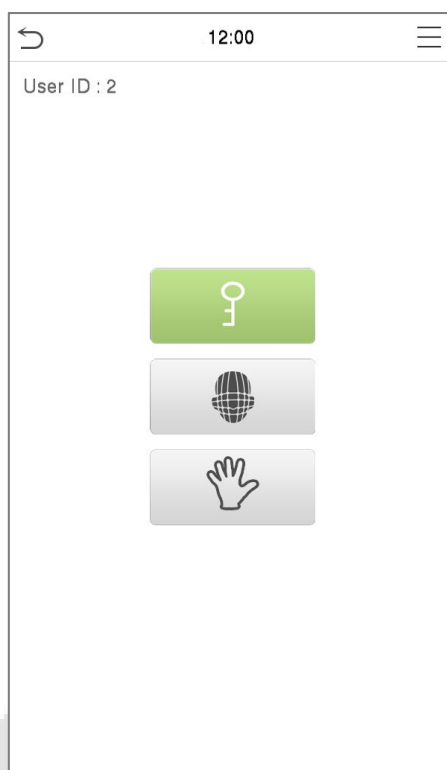
3.6.3 Password Verification

The device compares the entered password with the registered password of the given User ID.

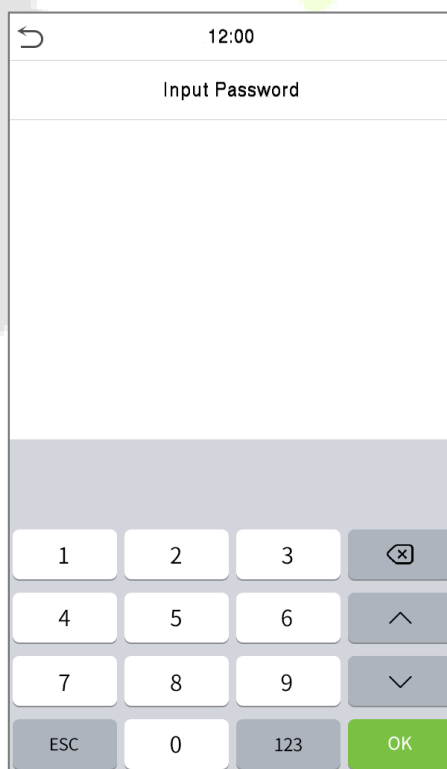
Tap the  button on the main screen to enter the 1:1 password verification mode. Then, input the user ID and press [OK].



If the user has registered palm and face in addition to a password, and the verification method is set to Password/ Face/ Palm verification, the following screen will appear. Select the  icon to enter password verification mode.

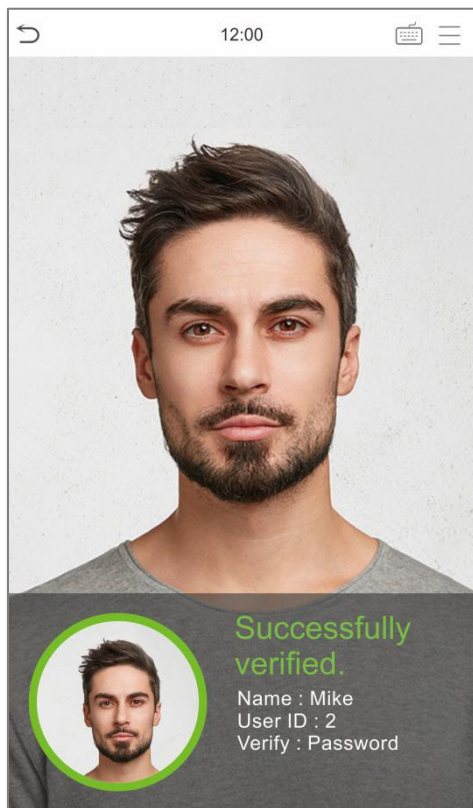


Input the password and press [OK].

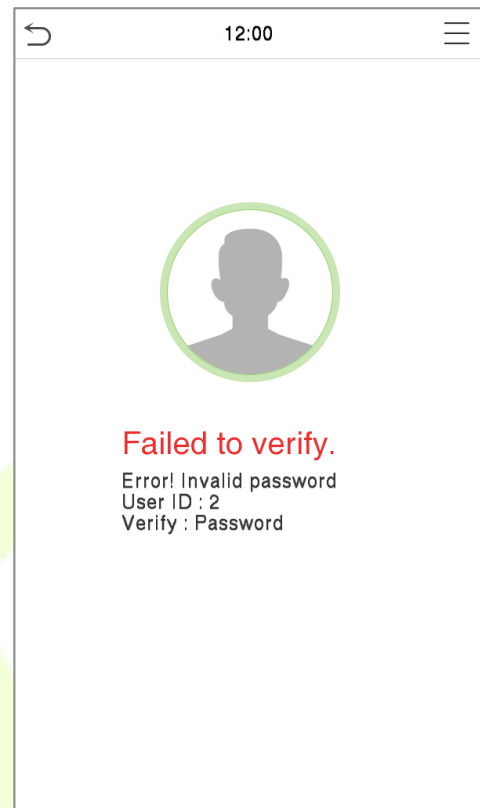


Following are the display screen after entering a correct password and a wrong password respectively.

Verification is successful:



Verification is failed:



3.6.4 Combined Verification

To increase security and accessibility, the device offers the option of using multiple forms of verification methods. A total of 7 different verification combinations can be used, as shown below:

Combined Verification Symbol Definition

Symbol	Definition	Explanation
/	or	This method compares the entered verification of a person with the related verification template previously stored to that Personnel ID in the Device.
+	and	This method compares the entered verification of a person with all the verification template previously stored to that Personnel ID in the Device.

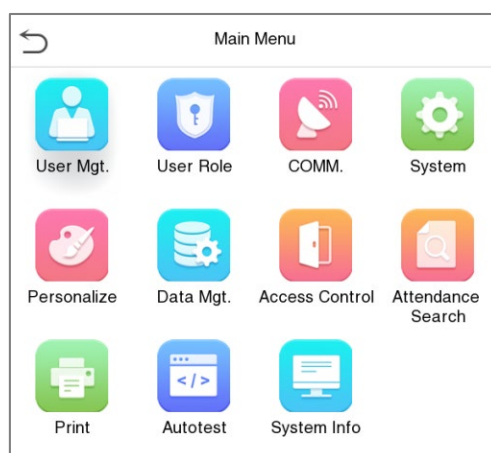
Verification Mode	
<input checked="" type="radio"/>	Password/Face/Palm
<input type="radio"/>	User ID only
<input type="radio"/>	Password
<input type="radio"/>	Face only
<input type="radio"/>	Face+Password
<input type="radio"/>	Palm
<input type="radio"/>	Palm+Face

Procedure to set for Combined Verification Mode

- Combined verification requires personnel to register all the different verification methods. Otherwise, employees may not be able to successfully verify through the combined verification process.
- For instance, when an employee has registered only the face data, but the Device verification mode is set as **"Face + Password"**, the employee will not be able to complete the verification process successfully.
- This is because the Device compares the scanned face template of the person with registered verification template (both the Face and the Password) previously stored to that Personnel ID in the Device.
- But as the employee has registered only the Face but not the Password, the verification will not get completed and the Device displays **"Verification Failed"**.

4 Main Menu

Press  on the Standby interface to enter the **Main Menu**, the following screen will be displayed:



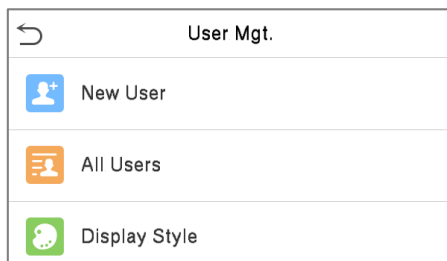
Function Description

Menu	Descriptions
User Mgt.	To Add, Edit, View, and Delete information of a User.
User Role	To set the permission scope of the custom role and enroller for the users, that is, the rights to operate the system.
COMM.	To set the relevant parameters of Network, Serial Comm., PC Connection, Wireless Network, Cloud Server, Wiegand and Network Diagnosis.
System	To set parameters related to the system, including Date & Time, Access Logs Setting, Face, and Palm parameter, Resetting to factory settings and Detection Management.
Personalize	To customize settings of User Interface, Voice, Bell Schedules, Punch State Options and Shortcut Key Mappings settings.
Data Mgt.	To delete all relevant data in the device.
Access Control	To set the parameters of the lock and the relevant access control device including options like Time schedule, Holiday Settings, Combine verification, Anti-Passback Setup, and Duress Option Settings.
Print	To set printing information and functions (if printer is connected to the device).
Attendance Search	To query the specified Attendance record, check Attendance Photos and Blocklist attendance photos.
Autotest	To automatically test whether each module functions properly, including the LCD Screen, Audio, Camera, and real-time clock.
System Info	To view Data Capacity and Device and Firmware information of the current device.

5 User Management

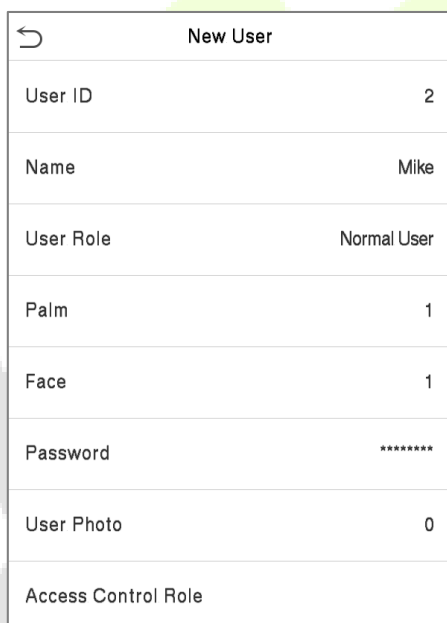
5.1 User Registration

Tap **User Mgt.** on the main menu.



5.1.1 User ID and Name

Tap **New User** and enter the **User ID** and **Name**.

A screenshot of a mobile application form titled "New User". It has a back arrow icon on the left. The form contains several input fields with labels and values: "User ID" with value "2", "Name" with value "Mike", "User Role" with value "Normal User", "Palm" with value "1", "Face" with value "1", "Password" with value "*****", "User Photo" with value "0", and "Access Control Role" which is empty.

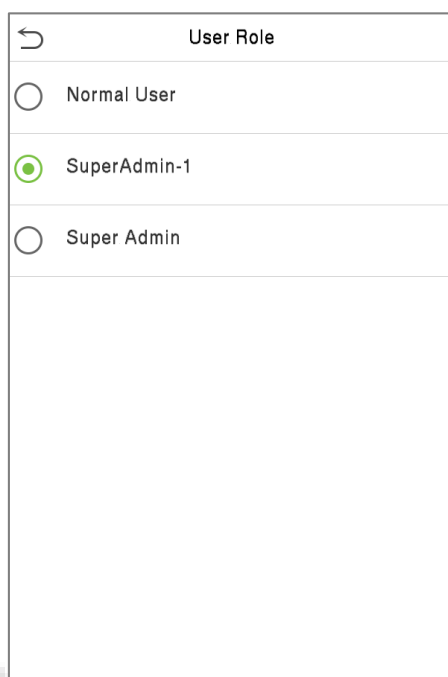
Notes:

- 1) A name can take up to 17 characters.
- 2) The user ID may contain 1-9 digits by default.
- 3) You can modify your ID during the initial registration but not after registration.
- 4) If a message "**Duplicated!**" pops up, you must choose another ID as the entered User ID already exists.

5.1.2 User Role

On the New User interface, tap on **User Role** to set the user's duty as either **Normal User** or **Super Admin**.

- **Super Admin:** The Super Administrator owns all management privileges in the Device.
- **Normal User:** If the Super Admin is registered already in the device, then the Normal Users will not have the privilege to manage the system and can only access authentication verifications.
- **User Defined Roles:** The Normal User can also be assigned custom roles with **User Defined Role**. The user can be permitted to access several menu options as required.



User Role	
<input type="radio"/>	Normal User
<input checked="" type="radio"/>	SuperAdmin-1
<input type="radio"/>	Super Admin

Note: If the selected user role is the Super Admin, the user must pass the identity authentication to access the main menu. The authentication is based on the authentication method(s) that the super administrator has registered.

5.1.3 Palm

Tap **Palm** in the **New User** interface to enter the palm registration page.

- Select the palm to be enrolled.
- Please place your palm inside the guiding box and keep it still while registering.
- A progress bar shows up while registering the palm and a **"Enrolled Successfully"** message is displayed as the progress bar completes.
- If the palm is registered already then, the **"Duplicate Palm"** message shows up. The registration interface is as follows:



5.1.4 Face

Tap **Face** in the **New User** interface to enter the face registration page.

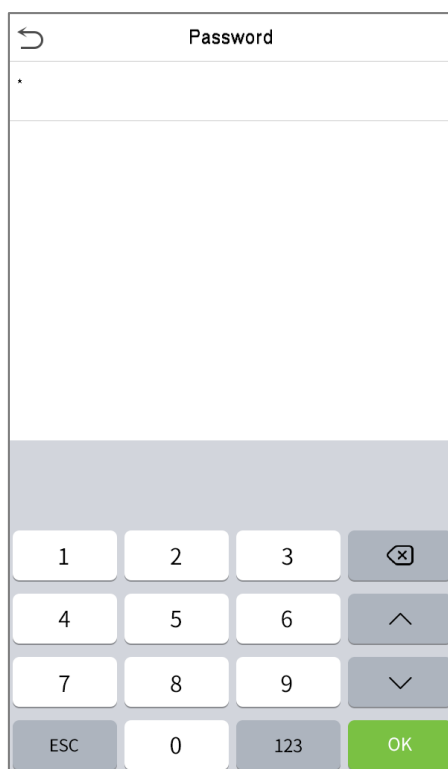
- Please face towards the camera and position yourself such that your face image fits inside the white guiding box and stay still during face registration.
- A progress bar shows up while registering the face and the **"Enrolled Successfully"** message is displayed as the progress bar completes.
- If the face is registered already then, the **"Duplicate Face"** message shows up. The registration interface is as follows:



5.1.5 Password

Tap **Password** in the **New User** interface to enter the password registration page.

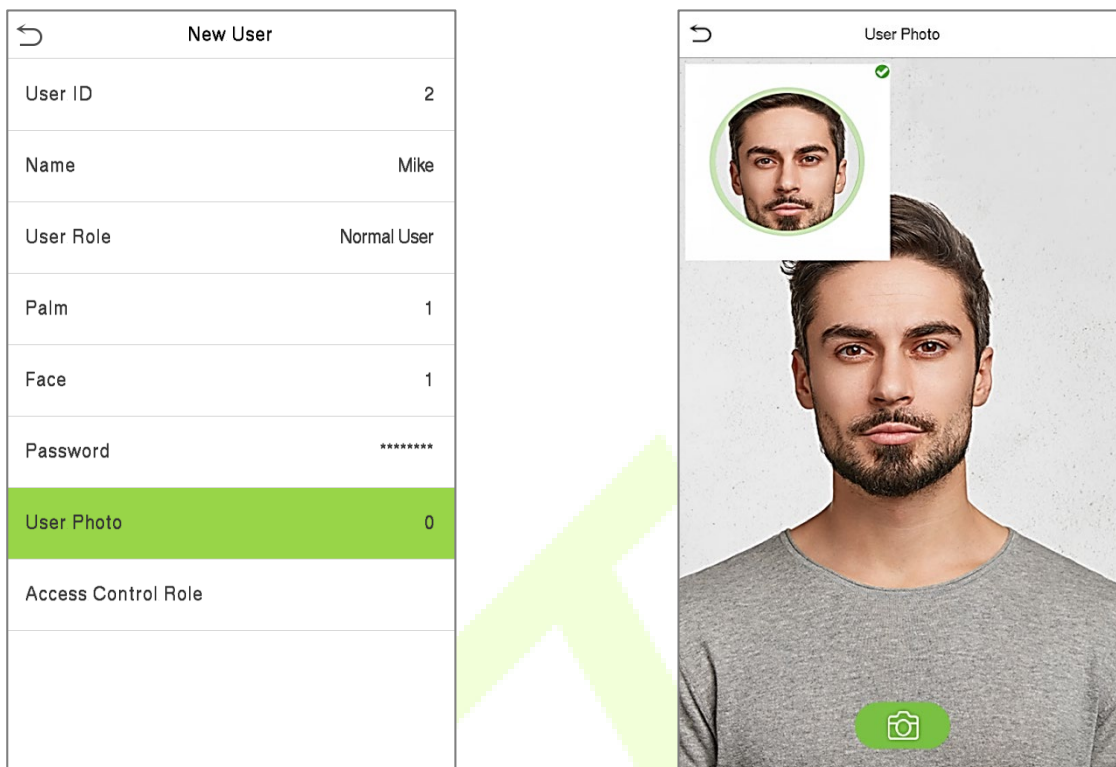
- On the Password interface, enter the required password and re-enter to confirm it and tap **OK**.
- If the re-entered password is different from the initially entered password, then the device prompts the message as "**Password not match!**", where the user needs to re-confirm the password again.



Note: The password may contain 1 to 8 digits by default.

5.1.6 User photo

Tap on **User Photo** in the **New User** interface to go to the User Photo registration page.



- When a user registered with a photo authenticates successfully, the user's registered photo is displayed.
- Tap **User Photo** to open the device's camera, then tap the camera icon to take a photo. The captured photo is displayed on the top left corner of the screen and the camera opens up again to take another photo, after taking the initial photo.

Note: While registering a face, the system automatically captures a picture as a user photo. If you do not register a user photo, the system automatically sets the picture captured while registration as the default photo.

5.1.7 Access Control Role

The **Access Control Role** sets the door access privilege for each user. It includes the access group, verification mode and also facilitates setting the group access time-period.

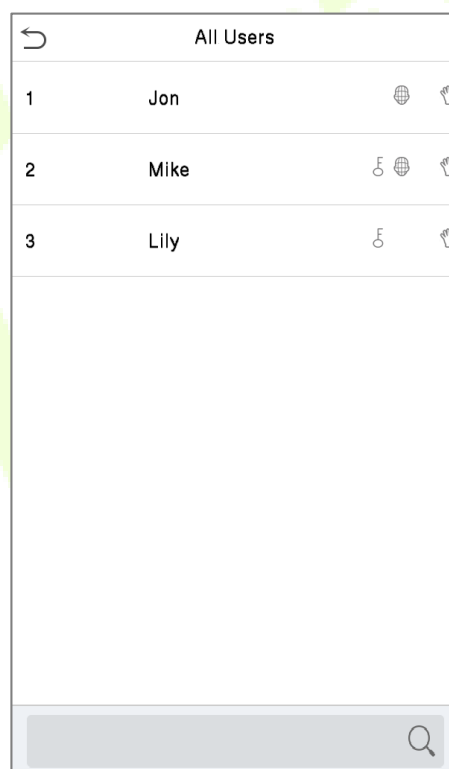
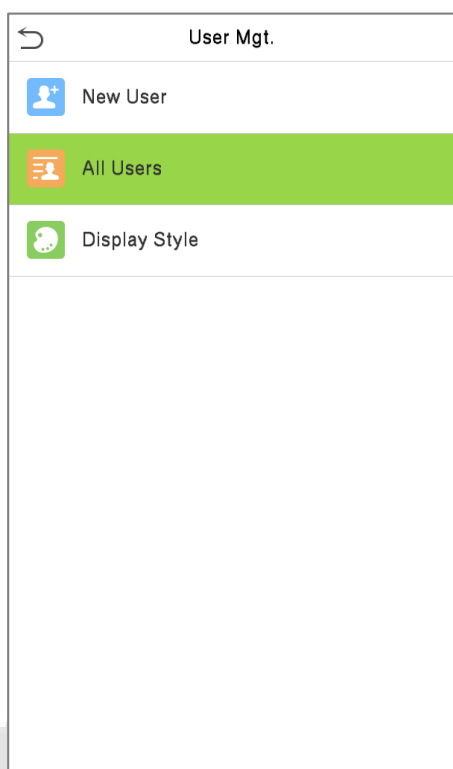
- Tap **Access Control Role > Access Group** to assign the registered users to different groups for better management. New users belong to Group 1 by default and can be reassigned to other groups. The device supports up to 99 Access Control groups.
- Tap **Time Period**, to select the time to use.

Access Control	
Access Group	1
Time Period	

5.2 Search User

On the **Main Menu**, tap **User Mgt.**, and then tap **All Users** to search a User.

- On the **All Users** interface, tap on the search bar on the user's list to enter the required retrieval keyword (where the keyword may be the user ID, surname, or full name) and the system will search for the related user information.



5.3 Edit User

On the **All Users** interface, tap on the required user from the list and tap **Edit** to edit the user information.

User : 2 Mike	
Edit	
Delete	

Edit : 2 Mike	
User ID	2
Name	Mike
User Role	Normal User
Palm	1
Face	1
Password	*****
User Photo	0
Access Control Role	

NOTE: The process of editing the user information is the same as adding a new user, except that the User ID cannot be modified when editing a user. The process in detail refers to "[5.1 User Management](#)".

5.4 Delete User

On the **All Users** interface, tap on the required user from the list and tap **Delete** to delete the user or specific user information from the device. On the **Delete** interface, tap on the required operation and then tap **OK** to confirm the deletion.

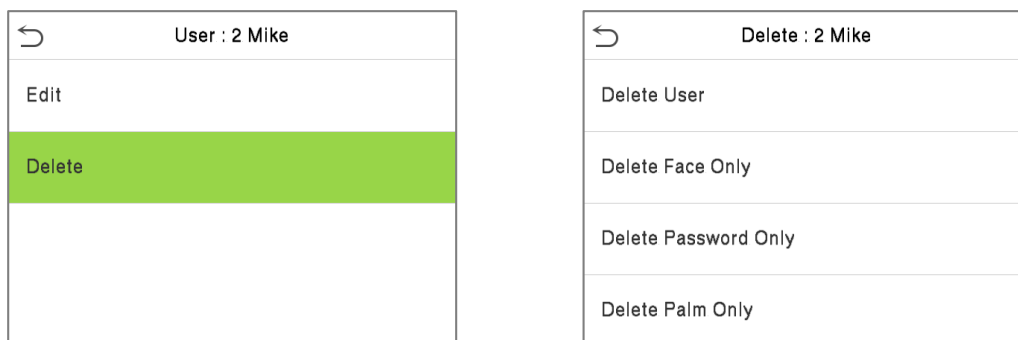
Delete Operations

Delete User: Deletes all the user information (deletes the selected User as a whole) from the Device.

Delete Face Only: Deletes the Face information of the selected user.

Delete Password Only: Deletes the password information of the selected user.

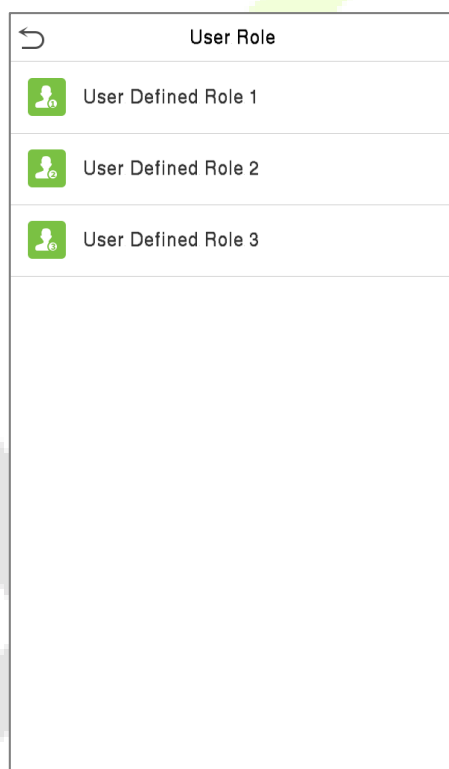
Delete Palm Only: Deletes the Palm information of the selected user.



5.5 User Role

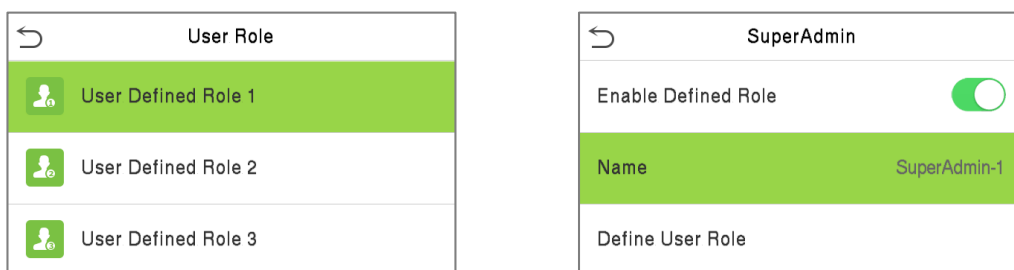
User Role facilitates assigning some specific permissions to certain users based on the requirement.

- On the **Main** menu, tap **User Role** > **User Defined Role** to set the user-defined permissions.
- A total of 3 different custom roles can be added. It is the custom operating scope of a user.

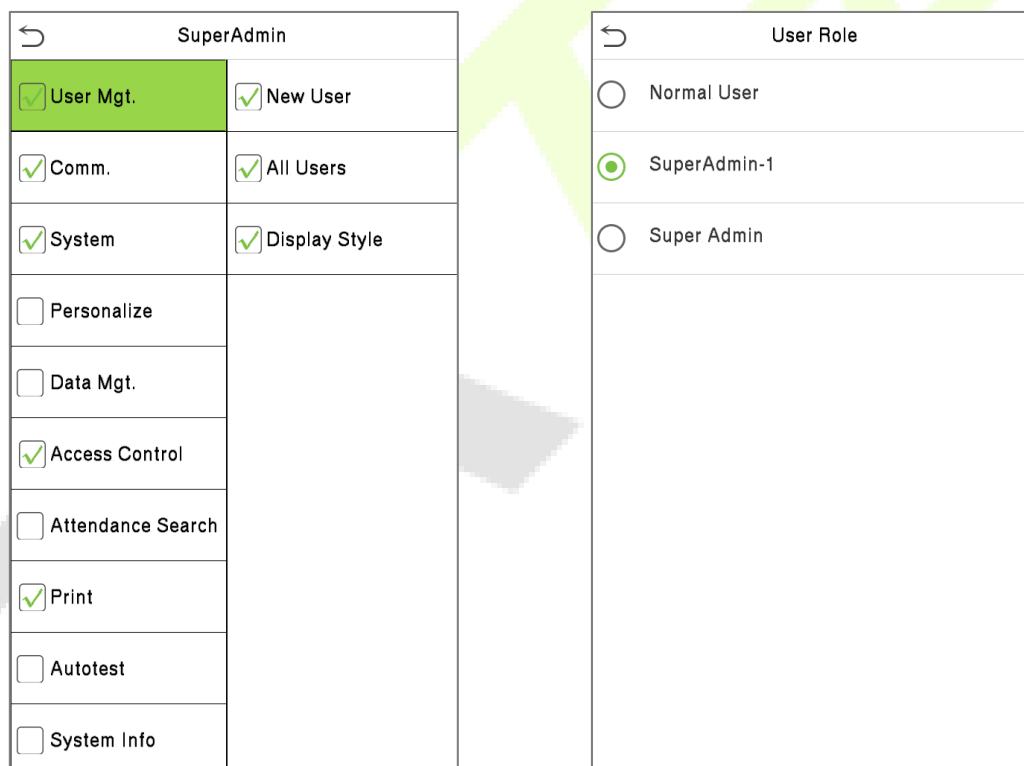


- On the **User Defined Role** interface, toggle **Enable Defined Role** to enable or disable the user-defined role.

- Tap on **Name** and enter the custom name of the role.



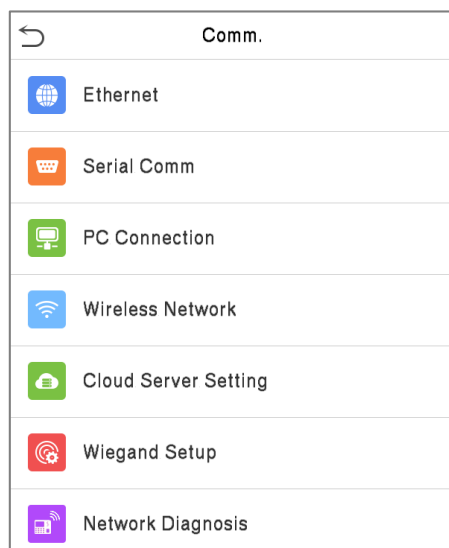
- Then, tap on **Define User Role** and select the required privileges to assign to the new role, and then tap on the **Return** button.
- During privilege assignment, the **Main Menu** function names will be displayed on the left and its sub-menus will be listed on its right.
- First, tap on the required **Main Menu** functions, and then select its required sub-menus from the list which the user can access.



Note: If the User Role is enabled for the device, tap on **User Mgt. > New User > User Role** to assign the created roles to the required users. But if there is no super administrator registered in the device, then the device will prompt "**Please enroll super admin first!**" when enabling the User Role function.

6 Communication Settings

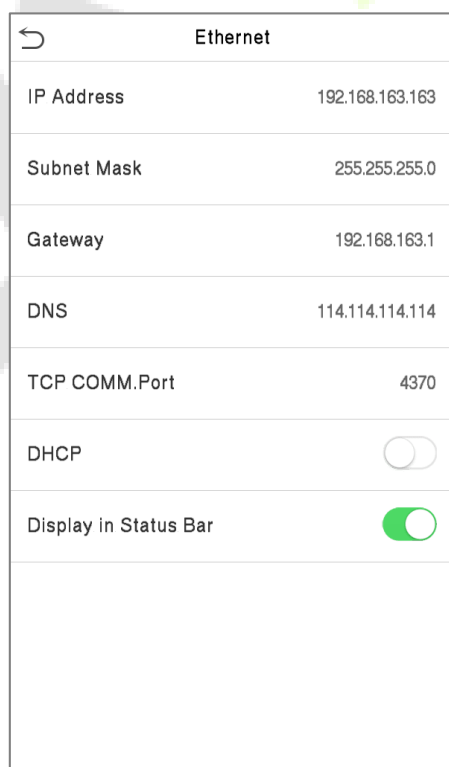
Tap **COMM.** on the **Main Menu** to set the Ethernet PC connection, Cloud Server setting and Wiegand.



6.1 Network Settings

When the device needs to communicate with a PC over the Ethernet, you need to configure network settings and ensure that the device and the PC connect to the same network segment.

Tap **Ethernet** on the **Comm.** Settings interface to configure the settings.



Function Description

Function Name	Descriptions
IP Address	The default IP address is 192.168.1.201. It can be modified according to the network availability.
Subnet Mask	The default Subnet Mask is 255.255.255.0. It can be modified according to the network availability.
Gateway	The default Gateway address is 0.0.0.0. It can be modified according to the network availability.
DNS	The default DNS address is 0.0.0.0. It can be modified according to the network availability.
TCP COMM. Port	The default TCP COMM Port value is 4370. It can be modified according to the network availability.
DHCP	Dynamic Host Configuration Protocol dynamically allocates IP addresses for clients via server.
Display in Status Bar	Toggle to set whether to display the network icon on the status bar.

6.2 Serial Comm

Serial Comm function establishes communication with the device through a serial port (RS232/ Printer/ RS485/ Master Unit).

Tap **Serial Comm.** on the **Comm.** Settings interface.

Serial Comm

Serial Port RS485(PC)

Baudrate 115200

Serial Port

☐ no using

☐ RS232(PC)

☐ Print Function

☒ RS485(PC)

☐ Master Unit

Function Description

Function Name	Descriptions
Serial Port	<p>no using: No communication with the device through the serial port.</p> <p>RS232(PC): Communicates with the device through the RS232 serial port.</p> <p>RS485(PC): Communicates with the device through the RS485 serial port.</p> <p>Print Function: The device can be connected to the printer when RS485 enables the print function.</p>

	Master Unit: When RS485 is used as the function of “ Master unit ”, it can be connected to a card reader.
Baud Rate	<p>There are 4 baud rate options at which the data communicates with PC. They are: 115200 (default), 57600, 38400, and 19200.</p> <p>The higher is the baud rate, the faster is the communication speed, but also the less reliable.</p> <p>Hence, a higher baud rate can be used when the communication distance is short; when the communication distance is long, choosing a lower baud rate is more reliable.</p>

6.3 PC Connection

Comm Key facilitates to improve the security of data by setting the communication between the device and the PC. Once the Comm Key is set, a password is required to connect the device to the PC software.

Tap **PC Connection** on the **Comm.** Settings interface to configure the communication settings.

PC Connection	
Comm Key	*****
Device ID	1

Function Description

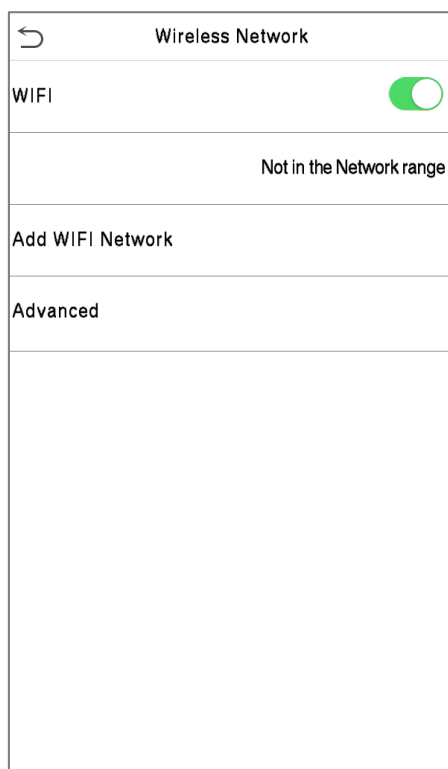
Function Name	Descriptions
Comm Key	The default password is 0 and can be changed. The Comm Key can contain 1-6 digits.
Device ID	It is the identification number of the device, which ranges between 1 and 254. If the communication method is RS232/RS485, you need to input this device ID in the software communication interface.

6.4 Wireless Network


The device provides a Wi-Fi module, which can be built-in within the device module or can be externally connected.

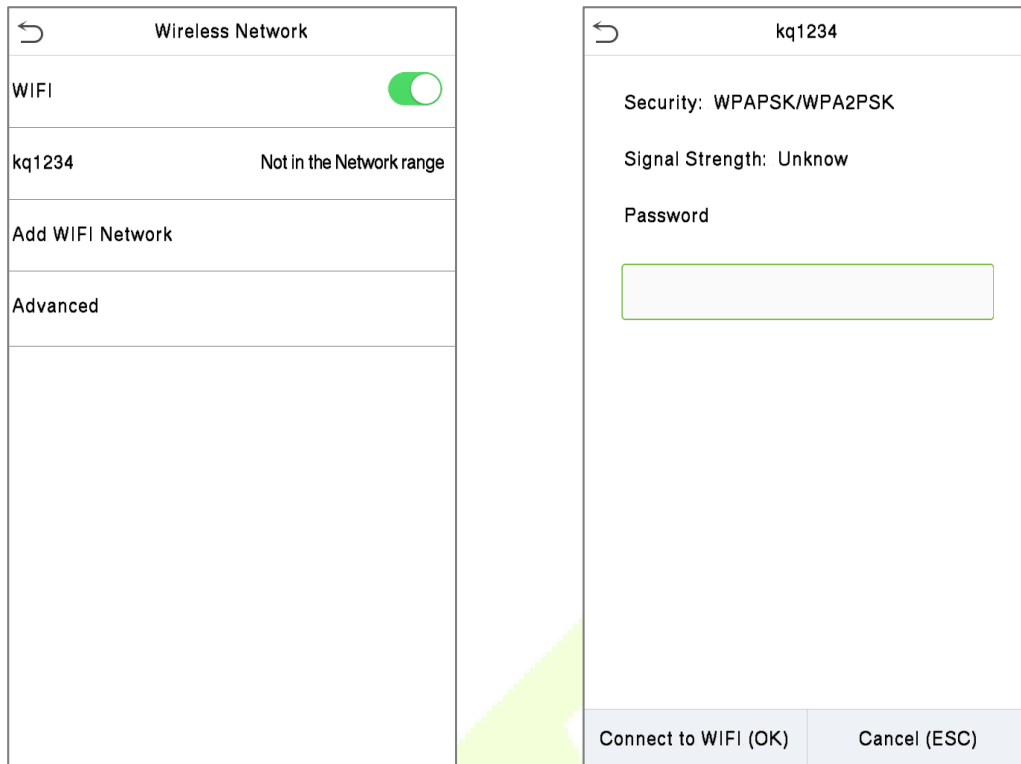
The Wi-Fi module enables data transmission via Wi-Fi (Wireless Fidelity) and establishes a wireless network environment. Wi-Fi is enabled by default in the device. If you don't need to use the Wi-Fi network, you can toggle the Wi-Fi to disable the button.

Tap **Wireless Network** on the **Comm.** Settings interface to configure the Wi-Fi settings.




Searching the Wi-Fi Network

- WIFI is enabled in the device by default. Toggle the  button to enable or disable WIFI.
- Once the Wi-Fi is turned on, the device will search for the available Wi-Fi within the network range.
- Tap on the required Wi-Fi name from the available list and input the correct password in the password interface, and then tap **Connect to WIFI (OK)**.



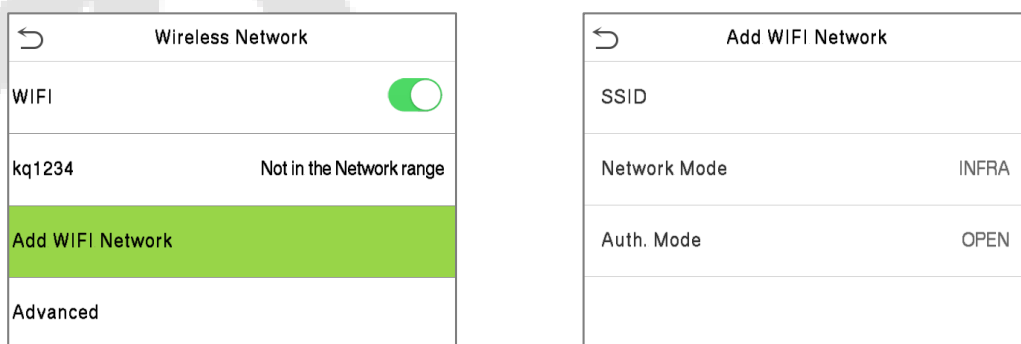
WIFI Enabled: Tap on the required network from the searched network list.

Tap on the password field to enter the password and tap on **Connect to WIFI (OK)**.

- When the WIFI is connected successfully, the initial interface will display the Wi-Fi  logo.

Adding WIFI Network Manually

The WIFI can also be added manually if the required WIFI does not show on the list.



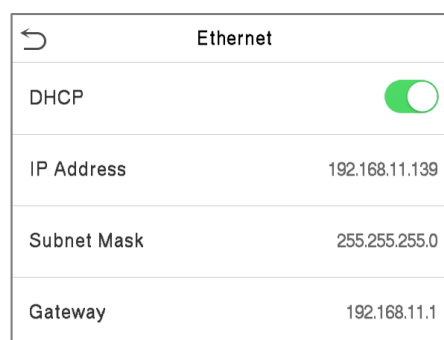
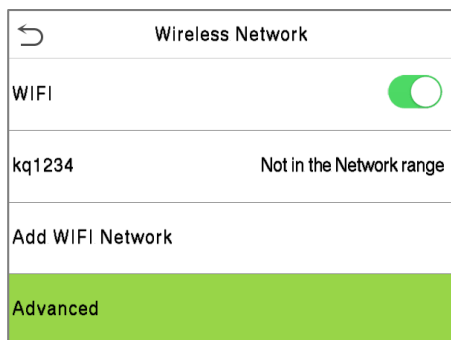
Tap on **Add WIFI Network** to add the WIFI manually.

On this interface, enter the WIFI network parameters. (The added network must exist.)

NOTE: After successfully adding the WIFI manually, follow the same process to search for the added WIFI name. Click [here](#) to view the process to search the WIFI network.

Advanced Setting

On the **Wireless Network** interface, tap on **Advanced** to set the relevant parameters as required.

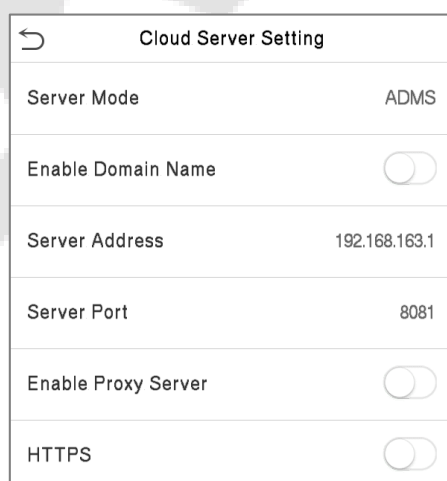


Function Description

Function Name	Description
DHCP	Dynamic Host Configuration Protocol (DHCP) dynamically allocates IP addresses to network clients. If the DHCP is enabled, then the IP cannot be set manually.
IP Address	The IP address for the WIFI network, the default is 0.0.0.0. It can be modified according to the network availability.
Subnet Mask	The default Subnet Mask of the WIFI network is 255.255.255.0. It can be modified according to the network availability.
Gateway	The default Gateway address is 0.0.0.0. It can be modified according to the network availability.

6.5 Cloud Server Setting

Tap **Cloud Server Setting** on the **Comm.** Settings interface to connect with the ADMS server.



Function Description

Function Name		Description
Enable Domain Name	Server Address	Once this mode is turned ON , the domain name mode “http://...” will be used, such as http://www.XYZ.com, while “XYZ” denotes the domain name.
Disable Domain Name	Server Address	The IP address of the ADMS server.
	Server Port	Port used by the ADMS server.
Enable Proxy Server		The IP address and the port number of the proxy server is set manually when the proxy is enabled.
HTTPS		Based on HTTP, transmission encryption and identity authentication ensure the security of the transmission process.

6.6 Wiegand Setup

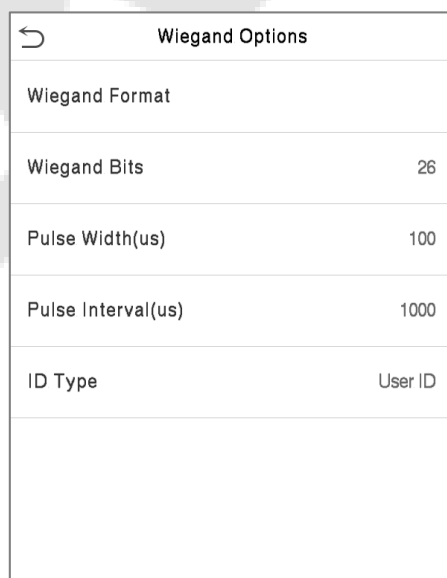
It is used to set the Wiegand input and output parameters.

Tap **Wiegand Setup** on the **Comm.** Settings interface to set the Wiegand input and output parameters.



Wiegand Setup	
Wiegand Input	
Wiegand Output	

6.6.1 Wiegand input



Wiegand Options	
Wiegand Format	
Wiegand Bits	26
Pulse Width(us)	100
Pulse Interval(us)	1000
ID Type	User ID

Function Description

Function Name	Descriptions
Wiegand Format	Its value can be 26 bits, 34 bits, 36 bits, 37 bits, and 50 bits.
Wiegand Bits	The number of bits of the Wiegand data.
Pulse Width(us)	The value of the pulse width sent by Wiegand is 100 microseconds by default, which can be adjusted within the range of 20 to 100 microseconds.
Pulse Interval(us)	The default value is 1000 microseconds and can be adjusted within the range of 200 to 20000 microseconds.
ID Type	Select between the User ID and card number.

Various Common Wiegand Format Description:

Wiegand Format	Description
Wiegand26	<p>ECCCCCCCCCCCCCCCCCCCCCCCCCO</p> <p>It consists of 26 bits of binary code. The 1st bit is the even parity bit of the 2nd to 13th bits, while the 26th bit is the odd parity bit of the 14th to 25th bits. The 2nd to 25th bits is the card numbers.</p>
Wiegand26a	<p>ESSSSSSSSCCCCCCCCCCCCCCCCCO</p> <p>It consists of 26 bits of binary code. The 1st bit is the even parity bit of the 2nd to 13th bits, while the 26th bit is the odd parity bit of the 14th to 25th bits. The 2nd to 9th bits is the site codes, while the 10th to 25th bits are the card numbers.</p>
Wiegand34	<p>ECCCCCCCCCCCCCCCCCCCCCCCCCCCCCO</p> <p>It consists of 34 bits of binary code. The 1st bit is the even parity bit of the 2nd to 17th bits, while the 34th bit is the odd parity bit of the 18th to 33rd bits. The 2nd to 25th bits is the card numbers.</p>
Wiegand34a	<p>ESSSSSSSSCCCCCCCCCCCCCCCCCCCCCO</p> <p>It consists of 34 bits of binary code. The 1st bit is the even parity bit of the 2nd to 17th bits, while the 34th bit is the odd parity bit of the 18th to 33rd bits. The 2nd to 9th bits is the site codes, while the 10th to 25th bits are the card numbers.</p>
Wiegand36	<p>OFFFFFFFFFFFFFFFFFFCCCCCCCCCCCCCCCCMME</p> <p>It consists of 36 bits of binary code. The 1st bit is the odd parity bit of the 2nd to 18th bits, while the 36th bit is the even parity bit of the 19th to 35th bits. The 2nd to 17th bits is the device codes. The 18th to 33rd bits is the card numbers, and the 34th to 35th bits are the manufacturer codes.</p>
Wiegand36a	<p>FFFFFFFFFFFFFFFFFFFFFFFFCCCCCCCCCCCCCCCCCO</p> <p>It consists of 36 bits of binary code. The 1st bit is the even parity bit of the 2nd to 18th bits, while the 36th bit is the odd parity bit of the 19th to 35th bits. The 2nd to 19th bits is the device codes, and the 20th to 35th bits are the card numbers.</p>

Wiegand37	OMMMMMSSSSSSSSSSSSSCCCCCCCCCCCCCCCCCCCCE It consists of 37 bits of binary code. The 1 st bit is the odd parity bit of the 2 nd to 18 th bits, while the 37 th bit is the even parity bit of the 19 th to 36 th bits. The 2 nd to 4 th bits is the manufacturer codes. The 5 th to 16 th bits is the site codes, and the 21 st to 36 th bits are the card numbers.
Wiegand37a	EMMMFFFFFFFFFSSSSSSCCCCCCCCCCCCCCCCCCCO It consists of 37 bits of binary code. The 1 st bit is the even parity bit of the 2 nd to 18 th bits, while the 37 th bit is the odd parity bit of the 19 th to 36 th bits. The 2 nd to 4 th bits is the manufacturer codes. The 5 th to 14 th bits is the device codes, and 15 th to 20 th bits are the site codes, and the 21 st to 36 th bits are the card numbers.
Wiegand50	ESSSSSSSSSSSSSSSSSCCCCCCCCCCCCCCCCCCCCCCCCCCCCCO It consists of 50 bits of binary code. The 1 st bit is the even parity bit of the 2 nd to 25 th bits, while the 50 th bit is the odd parity bit of the 26 th to 49 th bits. The 2 nd to 17 th bits is the site codes, and the 18 th to 49 th bits are the card numbers.

"C" denotes the card number; "E" denotes the even parity bit; "O" denotes the odd parity bit;
"F" denotes the facility code; "M" denotes the manufacturer code; "P" denotes the parity bit; and "S"
denotes the site code.

6.6.2 Wiegand output

Wiegand Options	
SRB	<input type="checkbox"/>
Wiegand Format	
Wiegand output bits	26
Failed ID	Disabled
Site Code	Disabled
Pulse Width(us)	100
Pulse Interval(us)	1000
ID Type	User ID

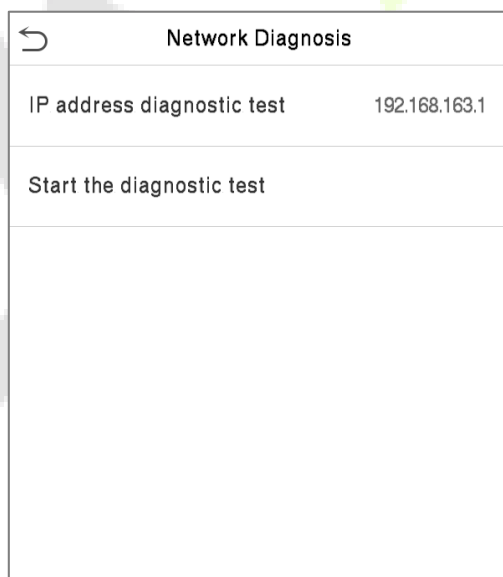
Function Description

Function Name	Descriptions
SRB	When SRB is enabled, the lock is controlled by the SRB to prevent the lock from opening due to device removal.
Wiegand Format	Its value can be 26 bits, 34 bits, 36 bits, 37 bits, and 50 bits.
Wiegand output bits	After selecting the required Wiegand format, select the corresponding output bit digits of the Wiegand format.
Failed ID	If the verification fails, the system will send the failed ID to the device and replace the card number or personnel ID with the new one.
Site Code	It is similar to the device ID. The difference is that a site code can be set manually and is repeatable on a different device. The valid value ranges from 0 to 256 by default.
Pulse Width(us)	The time width represents the changes in the quantity of electric charge with regular high-frequency capacitance within a specified time.
Pulse Interval(us)	The time interval between pulses.
ID Type	Select the ID types as either User ID or card number.

6.7 Network Diagnosis

It helps to set the network diagnosis parameters.

Tap **Network Diagnosis** on the Comm. Settings interface. Enter the IP address that needs to be diagnosed and tap **Start the diagnostic test** to check whether the network can connect to the device.

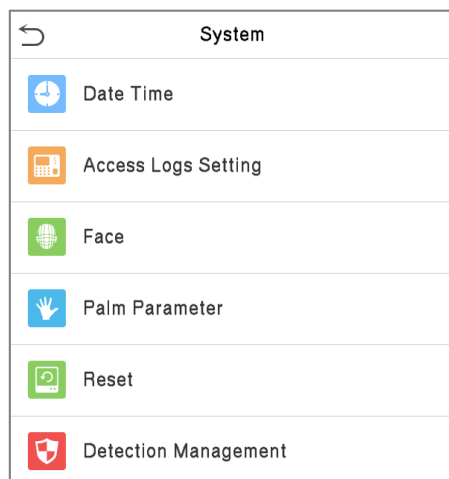


Network Diagnosis	
IP address diagnostic test	192.168.163.1
Start the diagnostic test	

7 System Settings

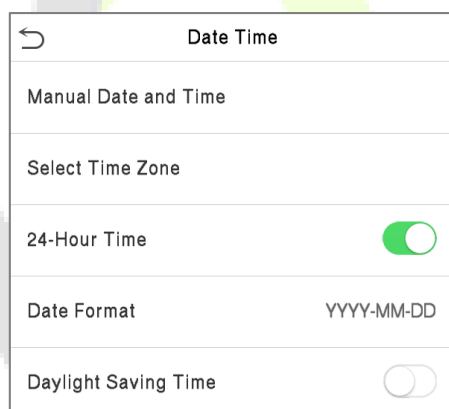
It helps to set related system parameters to optimize the accessibility of the device.

Tap **System** on the **Main Menu** interface to get into its menu options.



7.1 Date and Time

Tap **Date Time** on the **System** interface to set the date and time.



- Tap **Manual Date and Time** to manually set date and time and tap **Confirm** to save.
- Tap **Select Time Zone** to select a time zone then tap the return button to save and exit.
- Tap **24-Hour Time** to enable or disable this format. If enabled, then select the **Date Format** to set the date format i.e., the way date should be displayed on the device.
- ★ Tap **Daylight Saving Time** to enable or disable the function. If enabled, tap **Daylight Saving Mode** to select a daylight-saving mode and then tap **Daylight Saving Setup** to set the switch time.

Daylight Saving Setup	
Start Month	1
Start Week	1
Start Day	Sunday
Start Time	00:00
End Month	1
End Week	1
End Day	Sunday
End Time	00:00

Week Mode

Daylight Saving Setup	
Start Date	00-00
Start Time	00:00
End Date	00-00
End Time	00:00

Date Mode

- When restoring the factory settings, the time (24-hour) and date format (YYYY-MM-DD) can be restored, but the device date and time cannot be restored.

NOTE: For example, if a user sets the time of the device (18:35 on March 15, 2019) to 18:30 on January 1, 2020. After restoring the factory settings, the time of the device will remain at 18:30 on January 1, 2020.

7.2 Access Logs Setting

Tap **Access Logs Setting** on the System interface.

Access Logs Setting	
Camera Mode	No photo
Display User Photo	<input checked="" type="checkbox"/>
Access Log Alert	99
Periodic Del of Access Logs	Disabled
Periodic Del of ATT Photo	99
Periodic Del of Blocklist Photo	99
Authentication Timeout(s)	3
Face comparison interval(s)	1

Function Description

Function Name	Description
Camera Mode	<p>Choose whether to capture and save the current snapshot image during verification. There are 5 modes:</p> <p>No Photo: No photo is taken during user verification.</p> <p>Take photo, no save: Photo is taken but not saved during verification.</p> <p>Take photo and save: All the photos taken during verification is saved.</p> <p>Save on successful verification: Photo is taken and saved for each successful verification.</p> <p>Save on failed verification: Photo is taken and saved only for each failed verification.</p>
Display User Photo	Choose whether to display the user photo when the user passes the verification.
Access Log Alert	<p>When the record space of the attendance access reaches the maximum threshold value, the device automatically displays the memory space warning. Users may disable the function or set a valid value between 1 and 9999.</p>
Periodic Del of Access Logs	<p>When access logs reach its maximum capacity, the device automatically deletes a set of old access logs.</p> <p>Users may disable the function or set a valid value between 1 and 999.</p>
Periodic Del of ATT Photo	<p>When attendance photos reach its maximum capacity, the device automatically deletes a set of old attendance photos.</p> <p>Users may disable the function or set a valid value between 1 and 99.</p>
Periodic Del of Blocklist Photo	<p>When block listed photos reach its maximum capacity, the device automatically deletes a set of old block listed photos.</p> <p>Users may disable the function or set a valid value between 1 and 99.</p>
Authentication Timeout(s)	<p>The amount of time taken to display a successful verification message.</p> <p>Valid value: 1~9 seconds.</p>
Face comparison Interval (s)	<p>The amount of time required to compare facial templates.</p> <p>Valid value: 0~9 seconds.</p>

7.3 Face Parameters

Tap **Face** on the **System** interface to go to the face parameter settings.

Face	1↓
1:N Threshold Value	92
1:1 Threshold Value	88
Face Enrollment Threshold	70
Face Pitch Angle	25
Face Rotation Angle	30
Image Quality	80
Minimum Face Size	80
LED Light Trigger Value	80
Motion Detection Sensitivity	4
Live Detection	<input type="checkbox"/>

Face	1↓
Image Quality	80
Minimum Face Size	80
LED Light Trigger Value	80
Motion Detection Sensitivity	4
Live Detection	<input type="checkbox"/>
Live Detection Threshold	5
Anti-spoofing using NIR	<input type="checkbox"/>
WDR	<input type="checkbox"/>
Anti-flicker Mode	50HZ
Face Algorithm	

FRR	FAR	Recommended Matching Thresholds	
		1:N	1:1
High	Low	85	80
Medium	Medium	82	75
Low	High	80	70

Function Description

Function Name	Description
1:N Threshold Value	<p>Under 1:N verification mode, the verification will only be successful when the similarity between the acquired facial image and all registered facial templates is greater than the set value.</p> <p>The valid value ranges from 65 to 120. The higher the thresholds, the lower the misjudgement rate and the higher the rejection rate, and vice versa. It is recommended to set the default value of 75.</p>

1:1 Threshold Value	<p>Under 1:1 verification mode, the verification will only be successful when the similarity between the acquired facial image and the user's facial templates enrolled in the device is greater than the set value.</p> <p>The valid value ranges from 55 to 120. The higher the thresholds, the lower the misjudgement rate and the higher the rejection rate, and vice versa. It is recommended to set the default value of 63.</p>
Face Enrollment Threshold	<p>During face enrollment, 1:N comparison is used to determine whether the user has already registered before.</p> <p>When the similarity between the acquired facial image and all registered facial templates is greater than the set threshold, it indicates that the face has already been registered.</p>
Face Pitch Angle	<p>It is the pitch angle tolerance of a face for facial template registration and comparison.</p> <p>If a face's pitch angle exceeds the set value, it will be filtered by the algorithm, i.e., ignored by the terminal thus no registration and comparison interface will be triggered.</p>
Face Rotation Angle	<p>It is the rotation angle tolerance of a face for facial template registration and comparison.</p> <p>If a face's rotation angle exceeds the set value, it will be filtered by the algorithm, i.e., ignored by the terminal thus no registration and comparison interface will be triggered.</p>
Image Quality	<p>It is the image quality for facial registration and comparison. The higher the value, the clearer image is required.</p>
Minimum Face Size	<p>It sets the minimum face size required for facial registration and comparison.</p> <p>If the minimum size of the captured image is smaller than the set value, then it will be filtered off and not recognized as a face.</p> <p>This value can also be interpreted as the face comparison distance. The farther the individual is, the smaller the face, and the smaller number of pixels of the face obtained by the algorithm. Therefore, adjusting this parameter can adjust the farthest comparison distance of faces. When the value is 0, the face comparison distance is not limited.</p>
LED Light Trigger Value	<p>This value controls the turning on and off of the LED light. The larger the value, the LED light will turn on or off more frequently.</p>
Motion Detection Sensitivity	<p>It sets the value for the amount of change in a camera's field of view known as potential motion detection that wakes up the terminal from standby to the comparison interface.</p> <p>The larger the value, the more sensitive the system would be, i.e., if a larger value is set, the comparison interface activates with much ease, and the motion detection is frequently triggered.</p>
Live Detection	<p>It detects the spoof attempt using visible light images to determine if the provided biometric source sample is of a real person (a live human being) or a false representation.</p>

Live Detection	It facilitates judging whether the captured visible image is a real person (a live human being). The larger the value, the better the anti-spoofing performance using visible light.
Anti-spoofing using NIR	It uses near-infrared spectra imaging to identify and prevent fake photos and videos attack.
WDR	Wide Dynamic Range (WDR) balances light and extends image visibility for surveillance videos under high contrast lighting scenes and improves object identification under bright and dark environments.
Anti-flicker Mode	It is used when WDR is turned off. It helps to reduce flicker when the device's screen flashes at the same frequency as the light.
Face Algorithm	It has facial algorithm related information and pause facial template update.

NOTE: Improper adjustment of the exposure and quality parameters may severely affect the performance of the device. Please adjust the exposure parameter only under the guidance of the after-sales service personnel of our company.

Process to modify the Facial Recognition Accuracy

- On the **System** interface, tap on **Face** and then toggle to enable Anti-Spoofing using NIR to set the anti-spoofing.
- Then, on the **Main Menu**, tap **Auto-Test > Test Face** and perform the face test.
- Tap three times for the scores on the right upper corner of the screen, and the red rectangular box appears to start adjusting the mode.
- Keep one arm distance between the device and the face. It is recommended not to move the face in a wide range.

7.4 Palm Parameters

Tap **Palm** on the **System** interface to configure the palm settings.

Palm Parameter	
Palm 1:1 Matching Threshold	576
Palm 1:N Matching Threshold	576

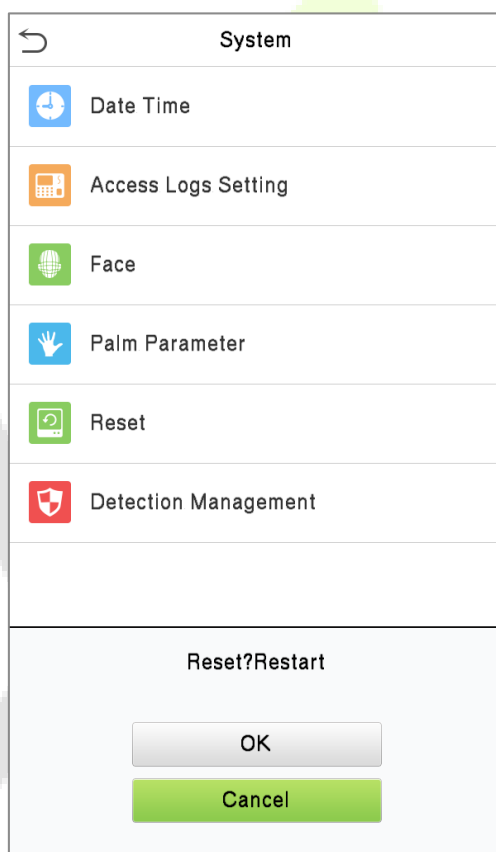
Function Description

Function Name	Description
Palm 1:1 Matching Threshold	The verification succeeds only when the similarity between the verifying palm and the user's registered palm is greater than the set value.
Palm 1:N Matching Threshold	Under the 1:N Verification Method, the verification succeeds only when the similarity between the verifying palm and all registered palm is greater than this value.

7.5 Factory Reset

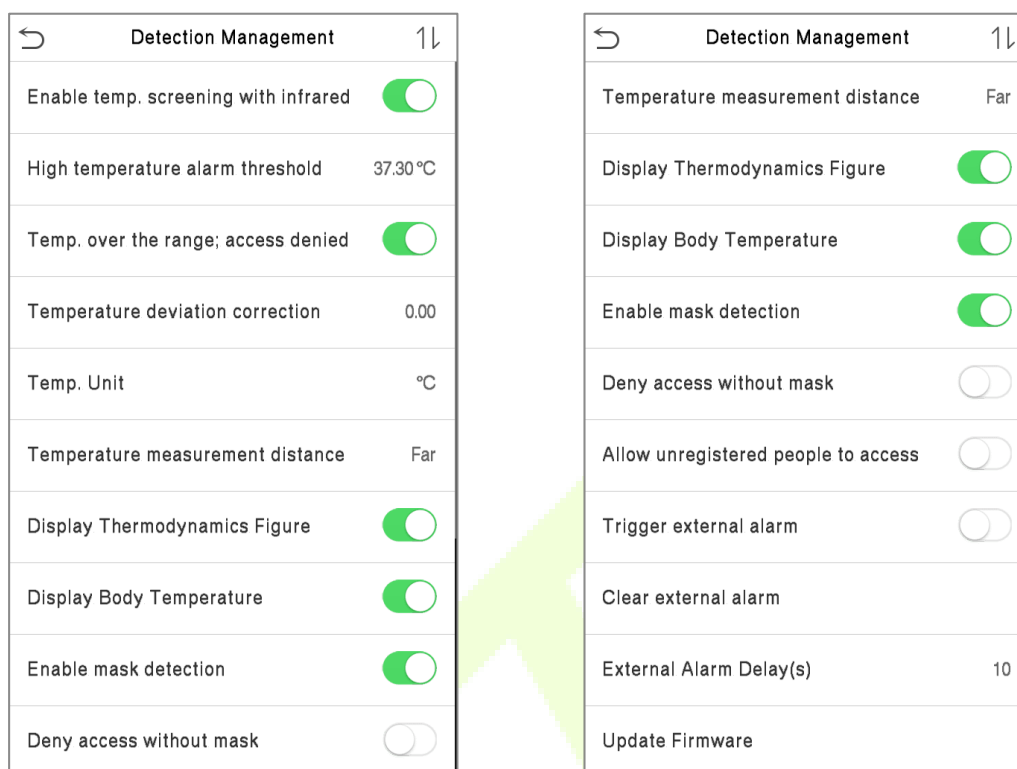
The Factory Reset function restores the device settings such as communication settings and system settings, to the default factory settings (this function does not clear registered user data).

Tap **Reset** on the **System** interface and then tap **OK** to restore the default factory settings.



7.6 Detection Management

Tap **Detection Management** on the **System** interface to configure the Detection Management settings.



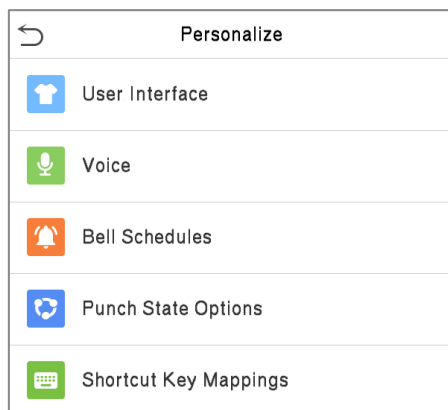
Function Description

Function Name	Description
Enable temp. screening with infrared	It enables or disables the infrared temperature measurement. When this function is enabled, users must pass the temperature screening in addition to identity verification before the access to be granted. To calculate body temperature, the user's faces must be matched with the temperature measurement region.
High temperature alarm threshold	It sets the value of the alarm threshold for high body temperature. When the temperature measured during verification is higher than the set value, the device will give a prompt and audio alarm. The default alarm threshold is 37.30°C.
Temp. over the range; access denied	When enabled, if the user's body temperature measured is above (or below) the alarm threshold, the user will not be granted access even if his/her identity is verified. When disabled, access is granted to the user if his/her identity is verified, regardless of his/her body temperature.

Temperature deviation correction	As the temperature measurement module reads a small range of variation of an observed value under unusual environments (humidity, extreme room temperature, etc.). The user can set the deviation value here according to the environment to reflect the true temperature of the person.
Temp. Unit	The body temperature unit can be switched between Fahrenheit (°F) and Celsius (°C) .
Temperature measurement distance	There are three modes while measuring temperature during the verification process. They are - Near, Close and Far .
Display Thermodynamics Figure	It enables or disables the display of the thermal image of a person. When enabled, the thermal image of the person is displayed in the upper left corner of the device during the detection process.
Display Body Temperature	It enables or disables the display of body temperature. When enabled, the device displays the user's body temperature value during the verification process.
Enable mask detection	It enables or disables the mask detection function. When enabled, the device identifies whether the user is wearing a mask or not during verification.
Deny access without mask	It enables or disables the access of a person without mask. When enabled, the device denies access of a person, if not wearing a mask.
Allow unregistered people to access	It enables or disables the access of unregistered person. When enabled, the device allows the person to enter without registration.
Enable capture of unregistered person	It enables or disables the capture photo of unregistered person. When enabled, the device automatically captures the photo of the unregistered person. Enabling this feature requires to enable Allow unregistered people to access .
Trigger external alarm	When enabled, if the user's temperature is higher than the set threshold value or the mask detection is enabled, but the mask is not worn by the person, the system triggers an alarm.
Clear external alarm	It clears the triggered alarm records of the device.
External Alarm Delay(s)	It is the delay(s) time for triggering an external alarm. It can be set in seconds. Users may disable the function or set a value between 1 to 255.
Update Firmware	Choose whether to update the thermal imaging temperature detection module software version.

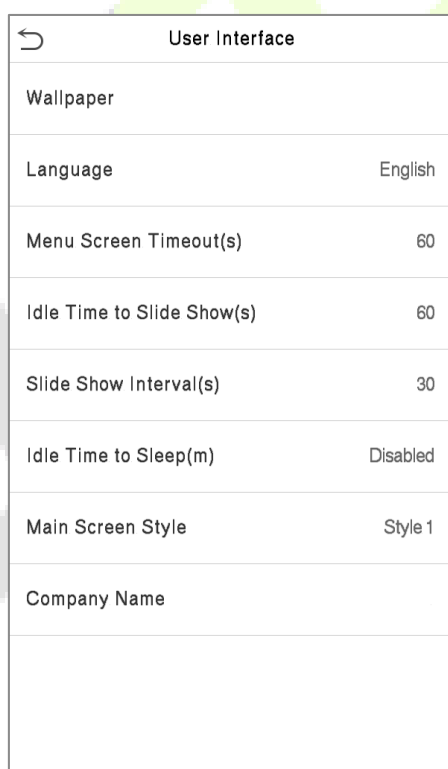
8 Personalize Settings

Tap **Personalize** on the **Main Menu** interface to customize interface settings, voice, bell, punch state options, and shortcut key mappings.



8.1 Interface Settings

Tap **User Interface** on the **Personalize** interface to customize the display style of the main interface.

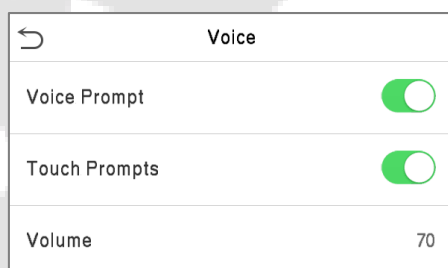


Function Description

Function Name	Description
Wallpaper	It helps to select the main screen wallpaper according to the user preference.
Language	It helps to select the language of the device.
Menu Screen Timeout (s)	When there is no operation, and the time exceeds the set value, the device automatically goes back to the initial interface. The function can either be disabled or set the required value between 60 and 99999 seconds.
Idle Time To Slide Show (s)	When there is no operation, and the time exceeds the set value, a slide show is displayed. The function can be disabled, or you may set the value between 3 and 999 seconds.
Slide Show Interval (s)	It is the time interval in switching between different slide show pictures. The function can be disabled, or you may set the interval between 3 and 999 seconds.
Idle Time to Sleep (m)	If the sleep mode is activated, and when there is no operation in the device, then the device will enter standby mode. Press any key or finger to resume normal working mode. This function can be disabled or set a value within 1-999 minutes.
Main Screen Style	The style of the main screen can be selected according to the user preference.
Company Name	Enter the company name here. When the company name option is turned on in the print information setting, the company name is printed.

8.2 Voice Settings

Tap **Voice** on the **Personalize** interface to configure the voice settings.

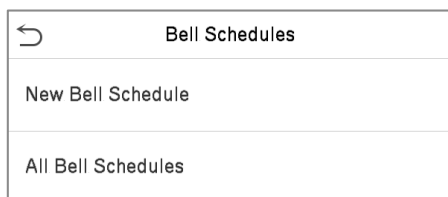


Function Description

Function Name	Description
Voice Prompt	Toggle to enable or disable the voice prompts during function operations.
Touch Prompt	Toggle to enable or disable the keypad sounds.
Volume	Adjust the volume of the device which can be set between 0-100.

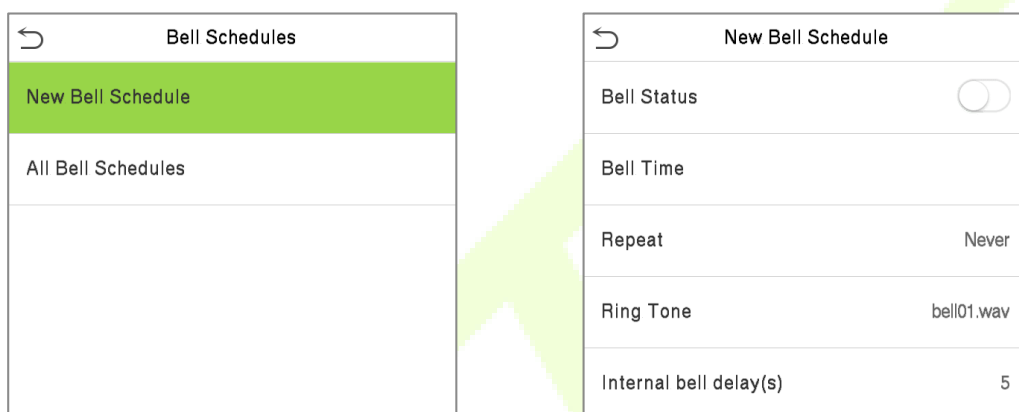
8.3 Bell Schedules

Tap **Bell Schedules** on the **Personalize** interface to configure the Bell settings.



New Bell Schedule

Tap **New Bell Schedule** on the **Bell Schedule** interface to add a new bell schedule.



Function Description

Function Name	Description
Bell Status	Toggle to enable or disable the bell status.
Bell Time	Once the required time is set, the device automatically triggers to ring the bell during that time.
Repeat	Set the required number of counts to repeat the scheduled bell.
Ring Tone	Select a ringtone.
Internal Bell Delay(s)	Set the replay time of the internal bell. Valid values range from 1 to 999 seconds.

All Bell Schedules

Once the bell is scheduled, on the **Bell Schedules** interface, tap **All Bell Schedules** to view the newly scheduled bell.

Edit the scheduled bell

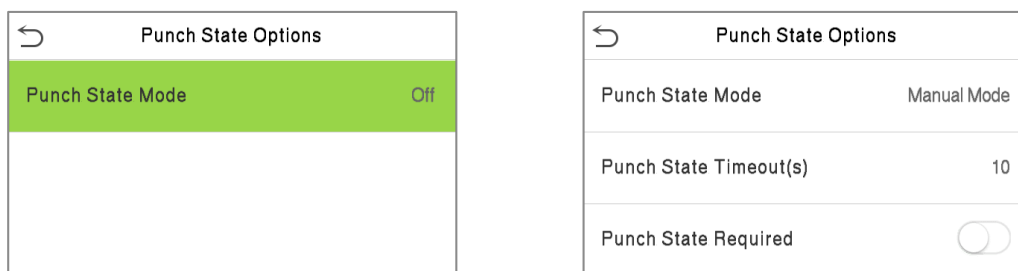
On the **All Bell Schedules** interface, tap on the required bell schedule, and tap **Edit** to edit the selected bell schedule. The editing method is the same as the operations of adding a new bell schedule.

Delete a bell

On the **All Bell Schedules** interface, tap the required bell schedule, and tap **Delete**, and then tap **Yes** to delete the selected bell.

8.4 Punch States Options

Tap **Punch States Options** on the **Personalize** interface to configure the punch state settings.



Function Description

Function Name	Description
Punch State Mode	<p>Off: It disables the punch state function. And the punch state key set under the Shortcut Key Mappings menu becomes invalid.</p> <p>Manual Mode: Switch the punch state key manually, and the punch state key will disappear after Punch State Timeout.</p> <p>Auto Mode: The punch state key will automatically switch to a specific punch status according to the predefined schedule which can be set in the Shortcut Key Mappings.</p> <p>Manual and Auto Mode: The main interface will display the auto-switch punch state key. However, the users will still be able to select an alternative that is the manual attendance status. After the timeout, the manual switching punch state key will become an auto-switch punch state key.</p> <p>Manual Fixed Mode: After the punch state key is set manually to a particular punch status, the function will remain unchanged until manually switched again.</p> <p>Fixed Mode: Only the manually fixed punch state key is shown. Users cannot change the status by pressing any other keys.</p>
Punch State Timeout(s)	It is the amount of time for which the punch state is displayed. The value ranges from 5~999 seconds.
Punch State Required	To choose whether an attendance state needs to be selected during verification.

8.5 Shortcut Key Mappings

Users may define shortcut keys for attendance status and functional keys on the main interface. So, on the main interface, when the shortcut keys are pressed, the corresponding attendance status or the function interface displays directly.

Tap **Shortcut Key Mappings** on the **Personalize** interface to set the required shortcut keys.

Shortcut Key Mappings	
F1	Check-In
F2	Check-Out
F3	Break-Out
F4	Break-In
F5	Overtime-In
F6	Overtime-Out

- On the **Shortcut Key Mappings** interface, tap on the required shortcut key to configure the shortcut key settings.
- On the **Shortcut Key** ("F1") interface, tap **function** to set the functional process of the shortcut key either as punch state key or function key.
- If the Shortcut key is defined as a function key (such as New user, All users, etc.), the configuration is done as shown in the image below.

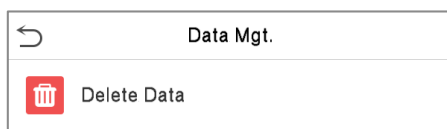
F1	
Punch State Value	0
Function	Punch State Options
Name	Check-In

F1	
Function	New User

- If the Shortcut key is set as a punch state key (such as check-in, check-out, etc.), then it is required to set the punch state value (valid value 0~250), name, and switch time.

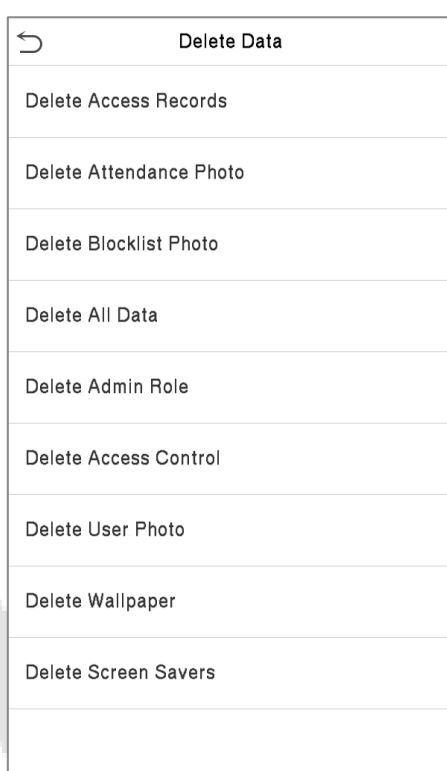
9 Data Management

On the **Main Menu**, tap **Data Mgt.** to delete the relevant data in the device.



9.1 Delete Data

Tap **Delete Data** on the **Data Mgt.** interface to delete the required data.

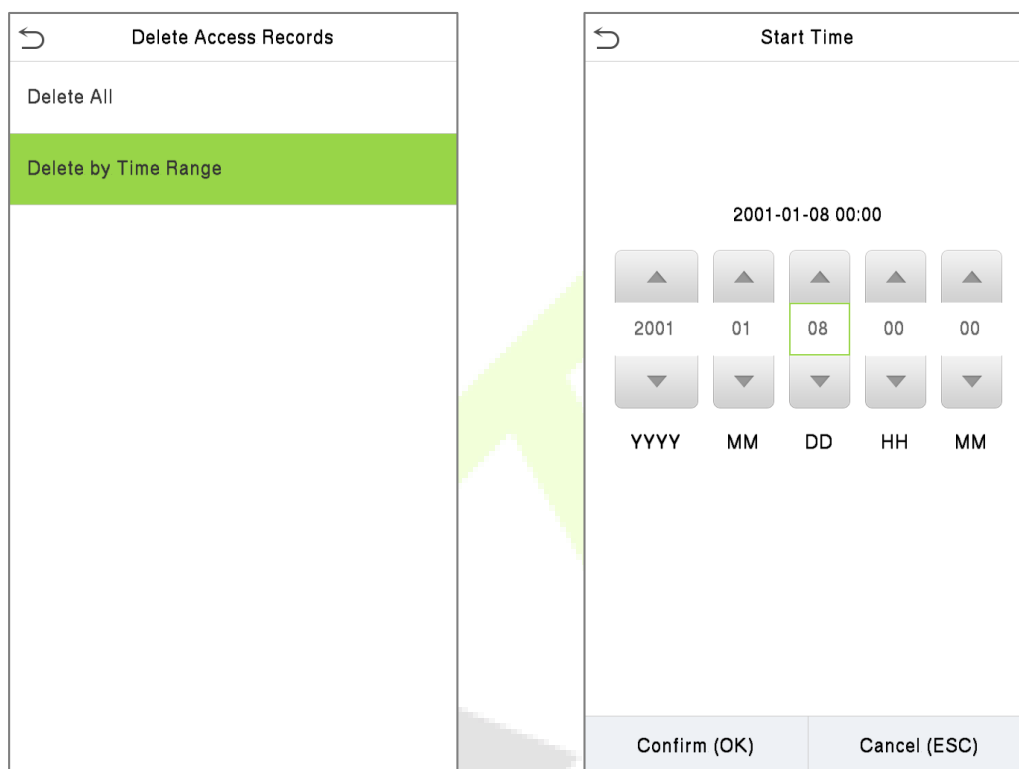


Function Description

Function Name	Description
Delete Access Records	To delete attendance data/access records conditionally.
Delete Attendance Photo	To delete attendance photos of designated personnel.
Delete Blocklist Photo	To delete the photos taken during failed verifications.
Delete All Data	To delete information and attendance logs/access records of all registered users.
Delete Admin Role	To remove all administrator privileges.
Delete Access Control	To delete all access data.

Delete User Photo	To delete all user photos on the device.
Delete Wallpaper	To delete all wallpapers in the device.
Delete Screen Savers	To delete the screen savers in the device.

The user may select Delete All or Delete by Time Range when deleting the access records, attendance photos or block listed photos. Selecting Delete by Time Range, you need to set a specific time range to delete all data within a specific period.

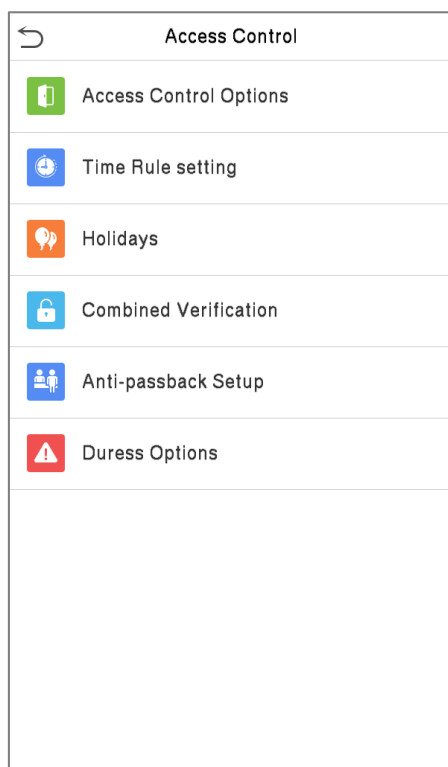


Select Delete by Time Range.

Set the time range and tap **OK**.

10 Access Control

On the **Main Menu**, tap **Access Control** to set the schedule of the door opening, locks control and to configure other parameters settings related to access control.

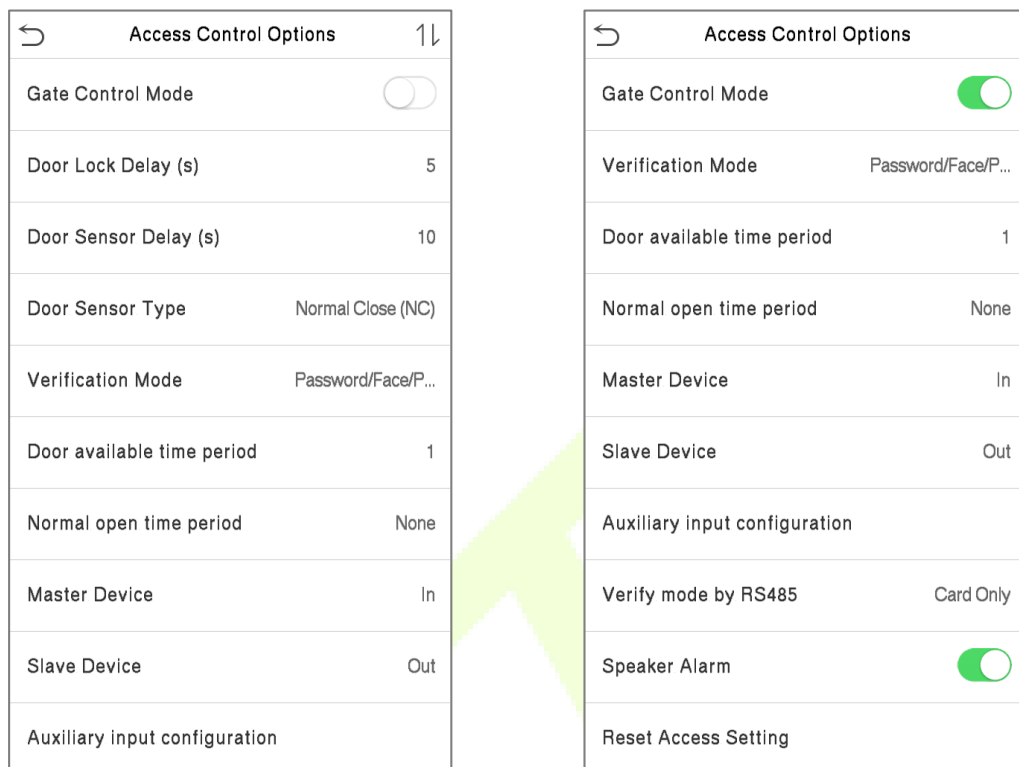


To gain access, the registered user must meet the following conditions:

- The relevant door's current unlock time should be within any valid time zone of the user's time period.
- The corresponding user's group must be already set in the door unlock combination (and if there are other groups, being set in the same access combo, then the verification of those group's members is also required to unlock the door).
- In default settings, new users are allocated into the first group with the default group time zone, where the access combo is "1" and is set in unlock state by default.

10.1 Access Control Options

Tap **Access Control Options** on the **Access Control** interface to set the parameters of the control lock of the terminal and related equipment.



Function Description

Function Name	Description
Gate Control Mode	It toggles between ON or OFF switch to get into gate control mode or not. When set to ON , the interface removes the Door lock relay, Door sensor relay, and Door sensor type options.
Door Lock Delay (s)	The length of time that the device controls the electric lock to be in unlock state. Valid value: 1~10 seconds; 0 seconds represents disabling the function.
Door Sensor Delay (s)	If the door is not locked and is left open for a certain duration (Door Sensor Delay), an alarm will be triggered. The valid value of Door Sensor Delay ranges from 1 to 255 seconds.
Door Sensor Type	There are three Sensor types: None , Normal Open , and Normal Closed . None : It means the door sensor is not in use. Normally Open : It means the door is always left open when electric power is on. Normally Closed : It means the door is always left closed when electric power is on.
Verification Mode	The supported verification mode includes Password/Face/Palm, User ID only, Password, Face only, Face + Password, Palm, and Palm + Face.

Door available time period	It sets the timing for the door so that the door is accessible only during that period.
Normal open time Period	It is the scheduled time-period for "Normal Open" mode so that the door is always open during this period.
Master Device	While configuring the master and slave devices, you may set the state of the master as Out or In . Out: A record of verification on the master device is a check-out record. In: A record of verification on the master device is a check-in record.
Slave Device	While configuring the master and slave devices, you may set the state of the slave as Out or In . Out: A record of verification on the slave device is a check-out record. In: A record of verification on the slave device is a check-in record.
Auxiliary input configuration	Sets the door unlock time period and auxiliary output type of the auxiliary terminal device. Auxiliary output types include None, Trigger door open, Trigger Alarm, Trigger door open and Alarm.
Verify mode by RS485	The verification mode is used when the device is used either as a host or slave. The supported verification mode includes Card only, and Card + Password.
Speaker Alarm	It transmits a sound alarm or disassembly alarm from the local. When the door is closed or the verification is successful, the system cancels the alarm from the local.
Reset Access Setting	The access control reset parameters include door lock delay, door sensor delay, door sensor type, verification mode, door available time period, normal open time period, master device, and alarm. However, erased access control data in Data Mgt. is excluded.

10.2 Time Schedule

Tap **Time Rule Setting** on the Access Control interface to configure the time settings.

- The entire system can define up to 50 Time Periods.
- Each time-period represents **10** Time Zones, i.e., **1** week and **3** holidays, and each time zone is a standard 24 hour period per day and the user can only verify within the valid time-period.
- One can set a maximum of 3 time periods for every time zone. The relationship among these time-periods is "**OR**". Thus, when the verification time falls in any one of these time-periods, the verification is valid.
- The Time Zone format of each time-period is **HH MM-HH MM**, which is accurate to minutes according to the 24-hour clock.

Tap the grey box to search the required Time Zone and specify the required Time Zone number (maximum up to 50 zones).

Time Rule[2/50]	
Sunday	[00:00 23:59] [00:00 ...]
Monday	[00:00 23:59] [00:00 ...]
Tuesday	[00:00 23:59] [00:00 ...]
Wednesday	[00:00 23:59] [00:00 ...]
Thursday	[00:00 23:59] [00:00 ...]
Friday	[00:00 23:59] [00:00 ...]
Saturday	[00:00 23:59] [00:00 ...]
holiday type 1	[00:00 23:59] [00:00 ...]
holiday type 2	[00:00 23:59] [00:00 ...]

On the selected Time Zone number interface, tap on the required day (that is Monday, Tuesday, etc.) to set the time.

Time Period 1

00:00 23:59

▲	▲	▲	▲
00	00	23	59
▼	▼	▼	▼
HH	MM	HH	MM

Confirm (OK)

Cancel (ESC)

Specify the start and the end time, and then tap **OK**.

NOTE:

- 1) The door is inaccessible for the whole day when the End Time occurs before the Start Time (such as **23:57~23:56**).

- 2) It is the time interval for valid access when the End Time occurs after the Start Time (such as **08:00~23:59**).
- 3) The door is accessible for the whole day when the End Time occurs after the Start Time (such that Start Time is **00:00** and End Time is **23:59**).
- 4) The default Time Zone 1 indicates that the door is open all day long.

10.3 Holidays

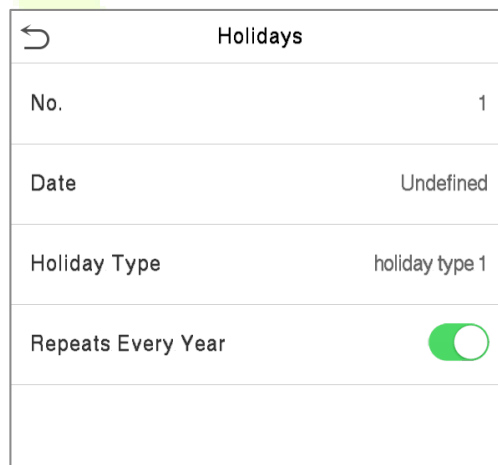
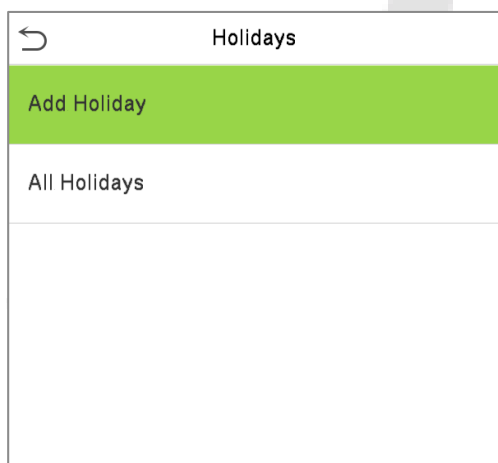
Whenever there is a holiday, you may need a distinct access time; but changing everyone's access time one by one is extremely cumbersome, so a holiday access time can be set that applies to all employees and the user will be able to open the door during the holidays.

Tap **Holidays** on the **Access Control** interface to set the Holiday access.



● Add a New Holiday

Tap **Add Holiday** on the **Holidays** interface and set the holiday parameters.



● Edit a Holiday

On the **Holidays** interface, select a holiday item to be modified. Tap **Edit** to modify holiday parameters.

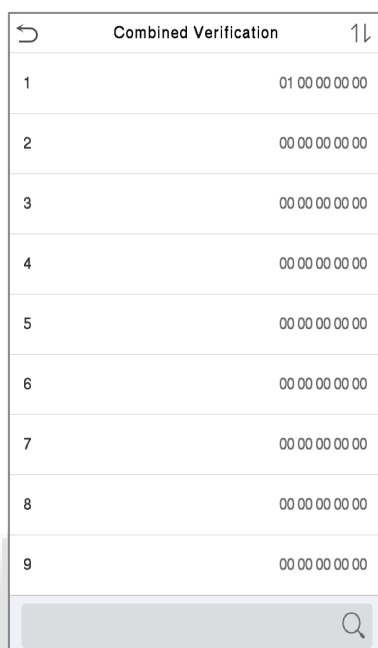
● Delete a Holiday

On the **Holidays** interface, select a holiday item to be deleted and tap **Delete**. Press **OK** to confirm the deletion. After deletion, this holiday does not display on the **All Holidays** interface.

10.4 Combined Verification

Access groups are arranged into different door-unlocking combinations to achieve multiple verifications and strengthen security. In a door-unlocking combination, the range of the combined number N is $0 \leq N \leq 5$ and the number of members N may all belong to one access group or may belong to five different access groups.

Tap **Combined Verification** on the **Access Control** interface to configure the combined verification setting.



Combined Verification	
1	01 00 00 00 00
2	00 00 00 00 00
3	00 00 00 00 00
4	00 00 00 00 00
5	00 00 00 00 00
6	00 00 00 00 00
7	00 00 00 00 00
8	00 00 00 00 00
9	00 00 00 00 00

On the combined verification interface, tap the Door-unlock combination to be set, and tap the **up** and **down** arrows to input the combination number, and then press **OK**.

For Example:

- If the **Door-unlock combination 1** is set as **(01 03 05 06 08)**. It indicates that the unlock combination 1 consists of 5 people and all the 5 individuals are from 5 groups, namely, AC Group 1, AC Group 3, AC Group 5, AC Group 6, and AC Group 8, respectively.
- If the **Door-unlock combination 2** is set as **(02 02 04 04 07)**. It indicates that the unlock combination 2 consists of 5 people; the first two are from AC Group 2, the next two are from AC Group 4, and the last person is from AC Group 7.
- If the **Door-unlock combination 3** is set as **(09 09 09 09 09)**. It indicates that there are 5 people in this combination; all of which are from AC Group 9.
- If the **Door-unlock combination 4** is set as **(03 05 08 00 00)**. It indicates that the unlock combination 4 consists of only three people. The first person is from AC Group 3, the second person is from AC Group 5, and the third person is from AC Group 8.

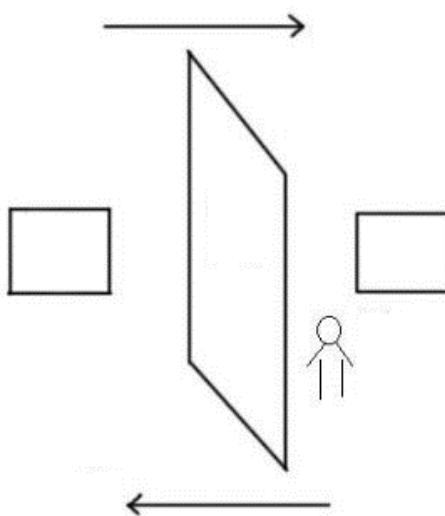
NOTE: To delete the door-unlock combination, set all Door-unlock combinations to 0.

10.5 Anti-Passback Setup

A user may be followed by some person(s) to enter the door without verification, resulting in a security breach. So, to avoid such situations, the Anti-Passback option was developed. Once it is enabled, the check-in and check-out record must occur alternatively to open the door to represent a consistent pattern.

This function requires two devices to work together:

One device is installed on the indoor side of the door (master device), and the other one is installed on the outdoor side of the door (the slave device). The two devices communicate via the Wiegand signal. The Wiegand format and Output type (User ID / Card Number) adopted by the master device and slave device must be consistent.



Tap **Anti-Passback Setup** on the **Access Control** interface.

Anti-passback Setup	
Anti-passback Direction	No Anti-passback

Anti-passback Direction	
<input checked="" type="radio"/>	No Anti-passback
<input type="radio"/>	Out Anti-passback
<input type="radio"/>	In Anti-passback
<input type="radio"/>	In/Out Anti-passback

Function Description

Function Name	Description
Anti-Passback direction	<p>No Anti-Passback: The Anti-Passback function is disabled, which means successful verification through either the master device or slave device can unlock the door. The attendance state is not saved in this option.</p> <p>Out Anti-Passback: The user can check-out only if the last record is a check-in record otherwise an alarm is raised. However, the user can check-in freely.</p> <p>In Anti-Passback: The user can check-in again only if the last record is a check-out record otherwise an alarm is raised. However, the user can check-out freely.</p> <p>In/Out Anti-Passback: In this case, a user can check-in only if the last record is a check-out or the user can check-out only if the last record is a check-in otherwise the alarm is triggered.</p>

10.6 Duress Options

Once a user activates the duress verification function with a specific authentication method(s), and when he/she is under coercion and authenticates using duress verification, the device unlocks the door as usual. At the same time, a signal is sent to trigger the alarm as well.

On the **Access Control** interface, tap **Duress Options** to configure the duress settings.

Duress Options	
Alarm on Password	<input type="checkbox"/>
Alarm Delay(s)	10
Duress Password	None

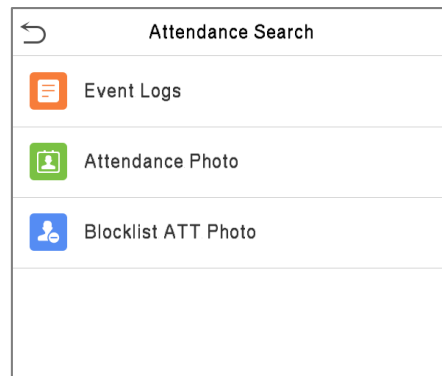
Function Description

Function Name	Description
Alarm on Password	When a user uses the password verification method, an alarm signal is generated only when the password verification is successful otherwise there is no alarm signal.
Alarm Delay (s)	The alarm signal does not transmit until the alarm delay time elapses. The value ranges from 1 to 999 seconds.
Duress Password	Set the 6-digit duress password. When the user enters this duress password for verification, an alarm signal is generated.

11 Attendance Search

Once the identity of a user is verified, the access record is saved in the device. This function enables users to check their access records.

Select **Attendance Search** on the **Main Menu** interface to search for the required Access/Attendance log.

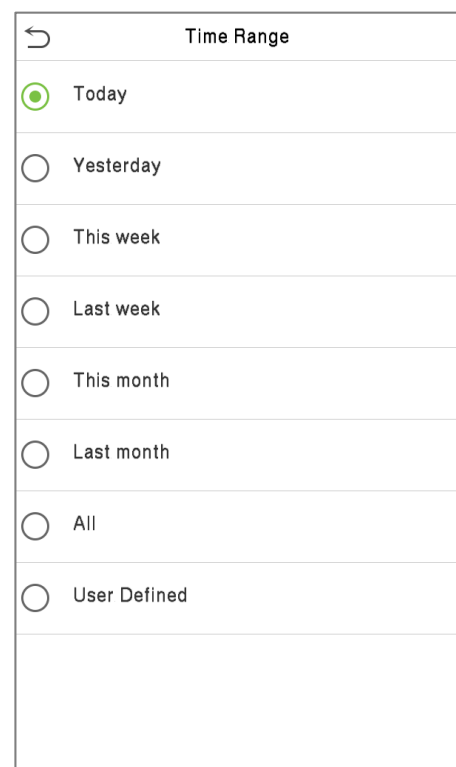
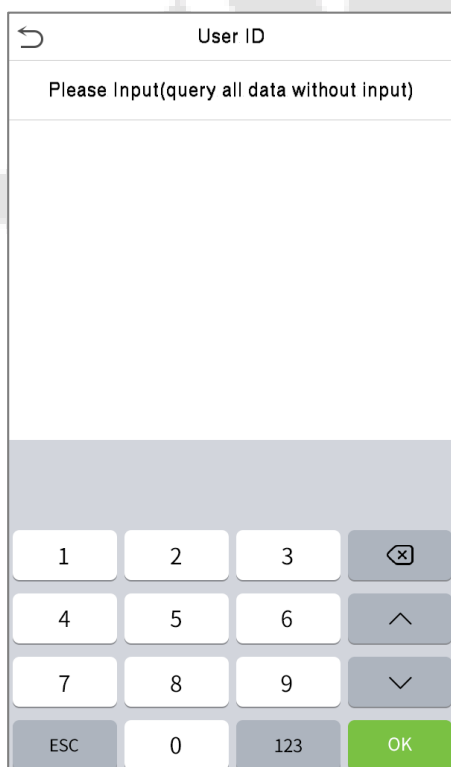


The process of searching for attendance and blocklist photos is similar to that of searching for access records. The following is an example of searching for access records.

On the **Attendance Search** interface, tap **Event Logs** to search for the required record.

1. Enter the user ID to be searched and tap **OK**. If you want to search for records of all users, tap **OK** without entering any user ID.

2. Select the time range in which the records need to be searched.



3. Once the record search completes. Tap the record highlighted in green to view its details.

Personal Record Search		
Date	User ID	Time
11-09		Number of Records:48
0		17:15 16:10 16:09 16:09 16:09
		16:09 16:09 16:09 16:09 15:10
		15:01 15:01 15:01 12:57 12:07
		16:09 16:09 16:09 16:09 15:29
		15:27 15:27 15:27 15:27 12:16
		12:16 12:16 12:16 12:16 12:16
		12:16 12:16 12:12 12:12 12:12
		12:12 12:12 12:12 12:12 12:11
		12:11 12:08 12:07 12:07 12:07
		12:07 12:07 12:07
11-08		Number of Records:05
1		15:00 15:00 15:00 15:00
0		15:00

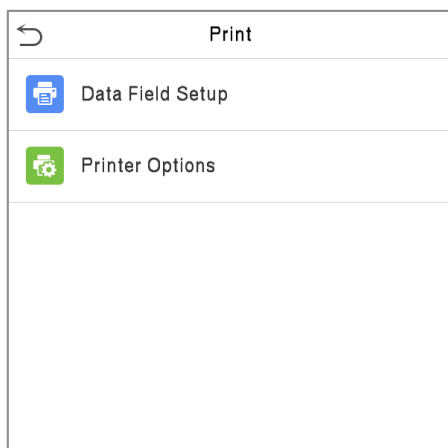
4. The below figure shows the details of the selected record.

Personal Record Search				
User ID	Name	Time	Mode	State
2	Mike	11-09 16:09 15	1	
2	Mike	11-09 16:09 15	1	
2	Mike	11-09 16:09 25	0	
2	Mike	11-09 16:09 25	0	
2	Mike	11-09 15:29 3	0	
2	Mike	11-09 15:27 15	0	
2	Mike	11-09 15:27 15	0	
2	Mike	11-09 15:27 15	0	
2	Mike	11-09 15:27 3	0	
2	Mike	11-09 12:16 15	0	
2	Mike	11-09 12:16 15	0	
2	Mike	11-09 12:16 15	0	
2	Mike	11-09 12:16 15	0	
2	Mike	11-09 12:16 15	0	
2	Mike	11-09 12:16 15	0	
2	Mike	11-09 12:16 15	0	
2	Mike	11-09 12:12 15	0	
Verification Mode : Face Status : Out				

12 Print Settings

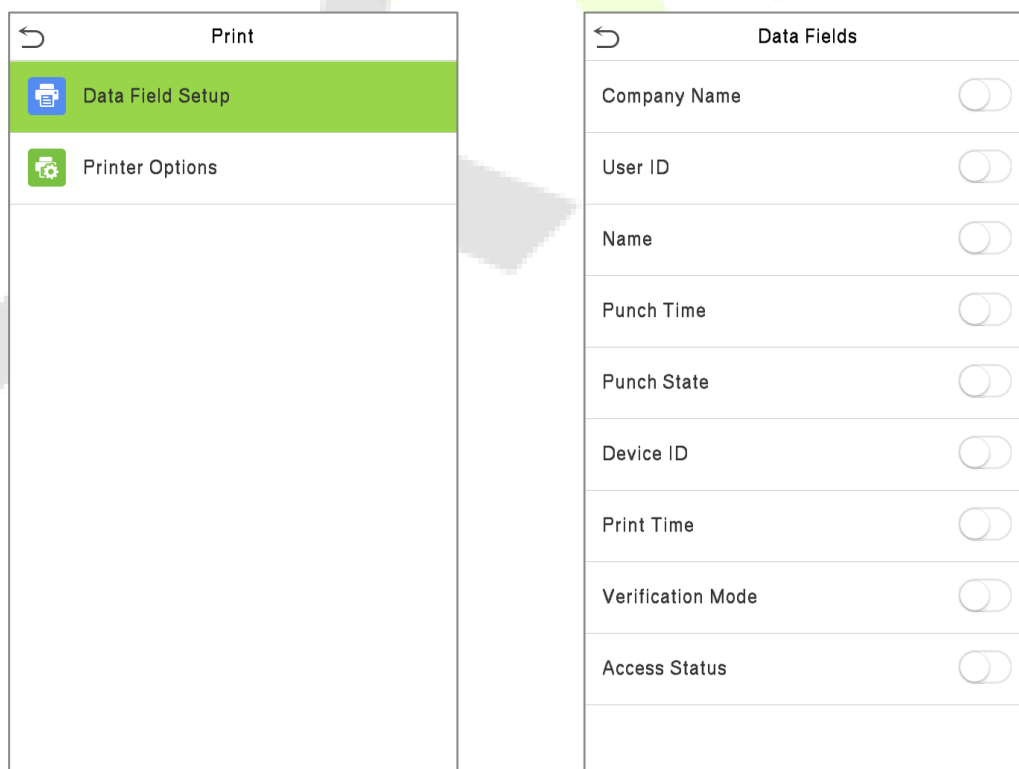
Devices with a printing function can print attendance records when a printer is connected (this function is optional and only implemented in some products).

Tap **Print** on the **Main Menu** interface.




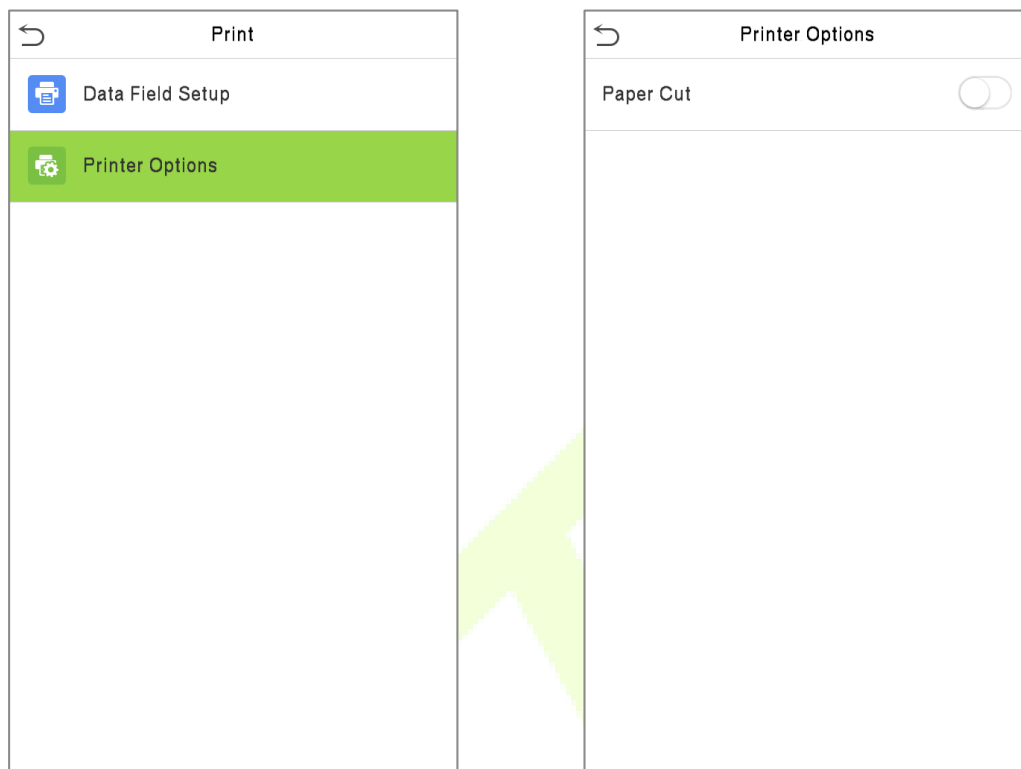
12.1 Print Data Field Settings

Select **Data Field Setup** on the **Print** interface. Toggle  button to turn on/off the fields requiring a print.



12.2 Print Options Settings

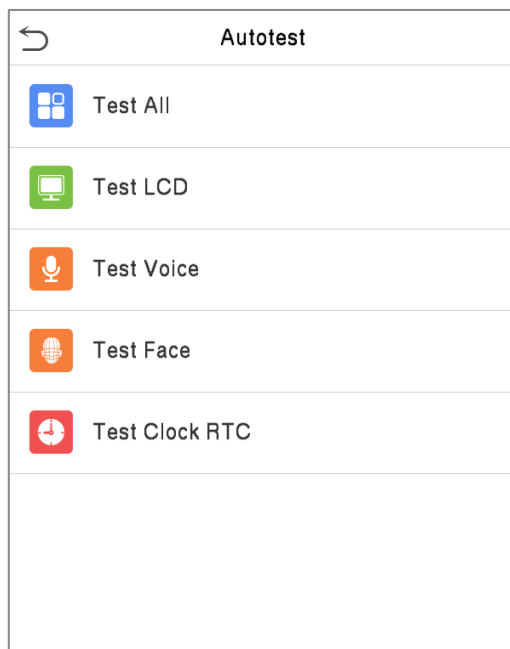
Select the **Printer Options** on the **Print** interface. Toggle  button to enable or disable the **Paper Cut** function.



Remarks: To turn on the **Paper Cut** function, it is required to connect the device with a printer with paper cutting function, so that the printer will cut papers according to the selected printing information while printing.

13 Autotest

Select **Main Menu**, tap **Autotest**. It enables the system to automatically test whether the functions of various modules are working normally, including the LCD, Voice, Camera, and Real-Time Clock (RTC).

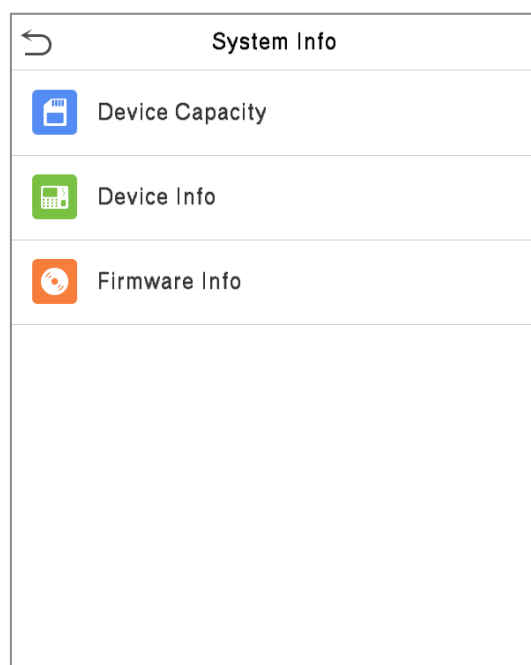


Function Description

Function Name	Description
Test All	To automatically test whether the LCD, Audio, Camera and RTC are working normally.
Test LCD	To automatically test the display of the LCD screen by displaying all the color bands including pure white and pure black to check whether the screen displays the colors accurately.
Test Voice	To automatically test whether the audio files stored in the device are complete and the voice quality is good.
Test Face	To test if the camera functions properly it checks the photos taken and determines if they are clear enough.
Test Clock RTC	To test the RTC. The device checks whether the clock works normally and accurately with a stopwatch. Touch the screen to start counting and press it again to stop counting.

14 System Information

On the **Main Menu**, tap **System Info** to view the storage status, the version information of the device, and firmware information.



Function Description

Function Name	Description
Device Capacity	Displays the current device's user storage, palm, password, and face storage, administrators, access records, attendance and blocklist photos, and user photos.
Device Info	Displays the device's name, serial number, MAC address, palm and face algorithm, platform information, and manufacturer and manufacture date.
Firmware Info	Displays the firmware version and other version information of the device.

15 Connect to ZKBioAccess IVS Software

15.1 Set the Communication Address

● Device side

1. Tap **COMM.** > **Ethernet** in the main menu to set the IP address and gateway of the device.

(**Note:** The IP address should be able to communicate with the ZKBioAccess IVS server, preferably in the same network segment with the server address)

2. In the main menu, tap **COMM.** > **Cloud Server Setting** to set the server address and server port.

Server address: Set the IP address as of the ZKBioAccess IVS server.

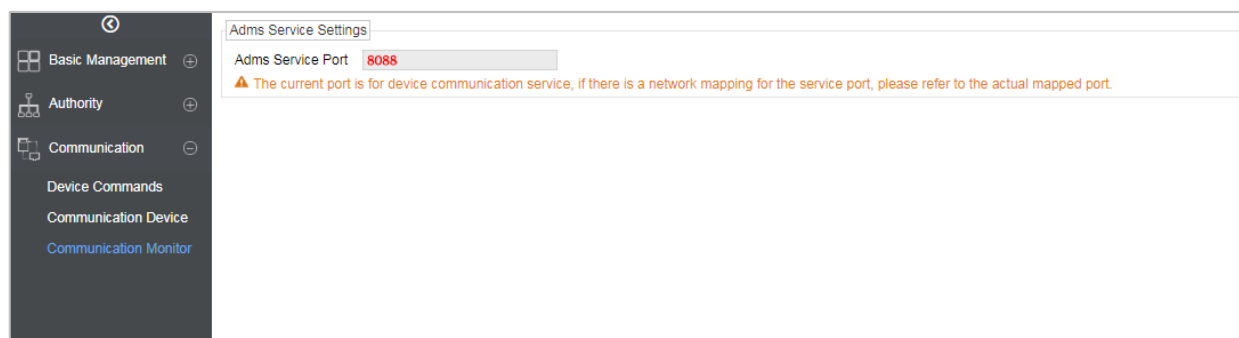
Server port: Set the server port as of ZKBioAccess IVS (The default is 8088).

Ethernet	
IP Address	192.168.163.150
Subnet Mask	255.255.255.0
Gateway	192.168.163.1
DNS	0.0.0.0
TCP COMM.Port	4370
DHCP	<input type="checkbox"/>
Display in Status Bar	<input checked="" type="checkbox"/>

Cloud Server Setting	
Server mode	ADMS
Enable Domain Name	<input type="checkbox"/>
Server Address	0.0.0.0
Server port	8081
Enable Proxy Server	<input type="checkbox"/>
HTTPS	<input type="checkbox"/>

● Software side

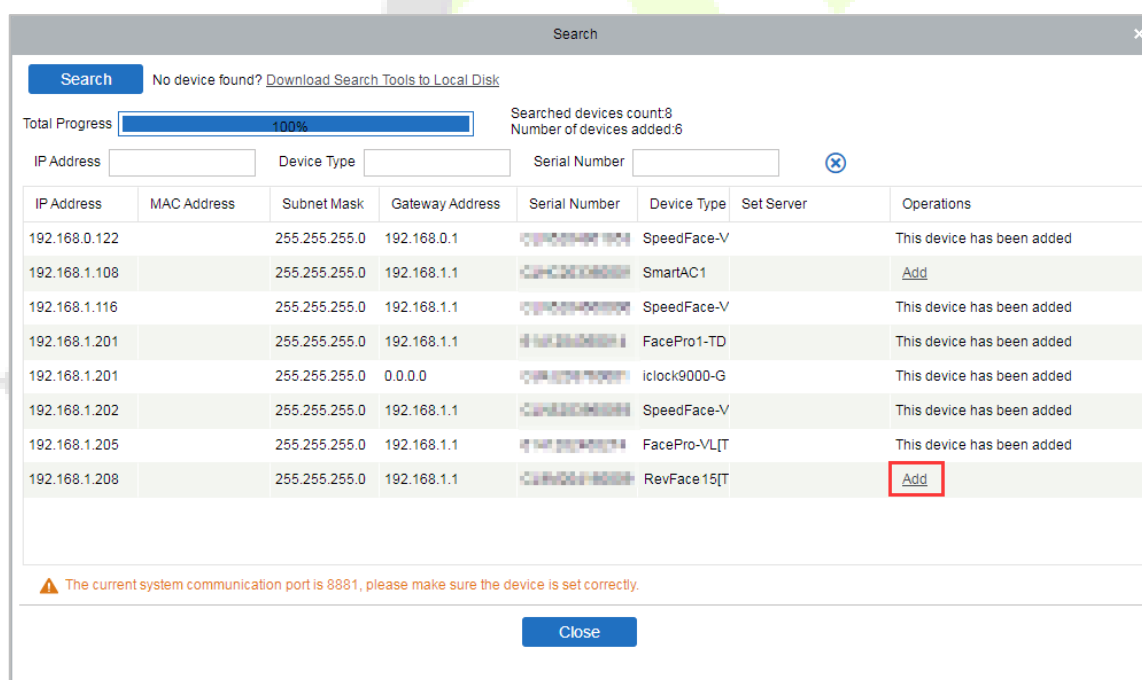
Login to ZKBioAccess IVS software, click **System** > **Communication** > **Communication Monitor** to set the ADMS service port, as shown in the figure below:



15.2 Add Device on the Software

Add the device by searching. The process is as follows:

- 1) Click **Access** > **Device** > **Search**, to open the Search interface in the software.
- 2) Click **Search** and it will prompt [**Searching.....**].
- 3) After searching, the list and the total number of access controllers are displayed.



- 4) Click [**Add**] in the operation column, a new window will pop-up. Select Icon type, Area, and Add to Level from each dropdown and click [**OK**] to add the device.

15.3 Add Personnel on the Software

1. Click **Personnel > Person > New**:

The screenshot shows the 'New' window for adding personnel. The top section contains the following fields:

- Personnel ID*: 236
- Department*: Ban Giam Đốc
- First Name:
- Last Name:
- Gender:
- Mobile Phone:
- Certificate Type:
- Certificate Number:
- Birthday:
- Email:
- Device Verification Password:
- Card Number:
- Biometrics Type:

Below these fields is a photo placeholder with 'Browse' and 'Capture' buttons. The bottom section has tabs for 'Access Control', 'Time Attendance', and 'Personnel Detail'. The 'Personnel Detail' tab is active, showing:

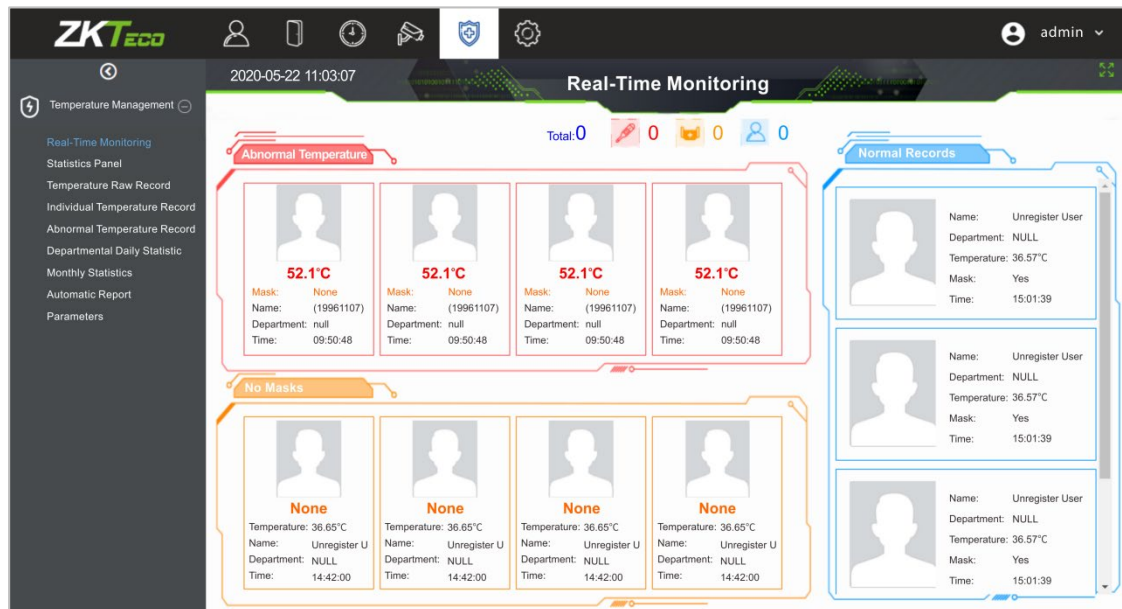
- Levels Settings:
 - ☒ General
 - ☒ HN
- Links: [Add](#), [Select All](#), [Unselect All](#)
- Settings:
 - Superuser: No
 - Device Operation Role: Ordinary User
 - Disabled: ☐
 - Set Valid Time: ☐

At the bottom are buttons: 'Save and New', 'OK', and 'Cancel'.

2. Fill in all the required fields and click [OK] to register a new user.
3. Click **Access > Device > Control > Synchronize All Data to Devices** to synchronize all the data to the device including the new users.

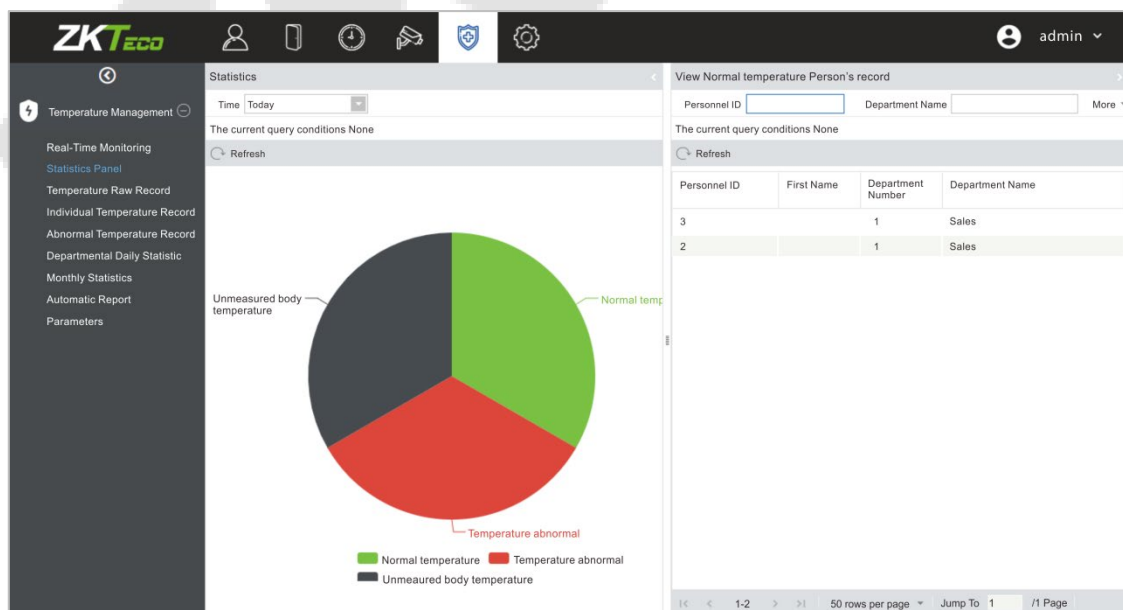
15.4 Real-time monitoring on the ZKBioAccess IVS Software

1. Click **Prevention > Epidemic > Temperature Detection > Real-time monitoring** to view all the personnel's events present under the Abnormal Temperature, No Masks, and Normal Records.



The user data of abnormal body temperature is displayed on the Abnormal Temperature information bar automatically according to the set temperature threshold.

2. Click **Epidemic > Temperature Management > Statistics Panel** to view the analysis of statistical data in the form of a pie-chart and view the personnel with normal temperature, abnormal temperature, and unmeasured body temperature. Also, detailed information of the personnel can be seen on the right by clicking on the particular category on the pie-chart.



NOTE: For other specific operations, please refer to *ZKBioAccess IVS User Manual*.

Appendix 1

Requirements of Live Collection and Registration of Visible Light Face Images

- 1) It is recommended to perform registration in an indoor environment with an appropriate light source without underexposure or overexposure on the face.
- 2) Do not place the device towards outdoor light sources like door or window or other harsh light sources.
- 3) Dark-color apparels other than the background color are recommended for registration.
- 4) Expose your face and forehead properly and do not cover your face and eyebrows with your hair.
- 5) It is recommended to show a normal facial expression. (A smile is acceptable, but do not close your eyes, or incline your head to any orientation).
- 6) Two images are required for a person with eyeglasses, one image with eyeglasses and the other without them.
- 7) Do not wear accessories like a scarf or mask that may cover your mouth or chin.
- 8) Please face right towards the capturing device and locate your face in the image capturing area as shown in the image below.
- 9) Do not add more than one face in the capturing area.
- 10) A distance of 50cm to 80cm is recommended for capturing the image. (the distance is adjustable, subject to body height).



Requirements for Visible Light Digital Face Image Data

The digital photo should be straight-edged, coloured, half-portrayed with only one person, and the person should be uncharted and in casuals. Persons who wear eyeglasses should remain to put on eyeglasses for getting photos captured.

- **Eye Distance**

200 pixels or above are recommended with no less than 115 pixels of distance.

- **Facial Expression**

A neutral face or smile with eyes naturally open is recommended.

- **Gesture and Angel**

The horizontal rotating angle should not exceed $\pm 10^\circ$, elevation should not exceed $\pm 10^\circ$, and depression angle should not exceed $\pm 10^\circ$.

- **Accessories**

Masks or coloured eyeglasses are not allowed. The frame of the eyeglasses should not cover the eyes and should not reflect light. For persons with thick eyeglasses frames, it is recommended to capture two images, one with eyeglasses and the other one without them.

- **Face**

Complete face with clear contour, real scale, evenly distributed light, and no shadow.

- **Image Format**

Should be in BMP, JPG, or JPEG.

- **Data Requirement**

Should comply with the following requirements:

- 1) White background with dark-coloured apparel.
- 2) 24bit true color mode.
- 3) JPG format compressed image with not more than 20kb size.
- 4) Resolution should be between 358 x 441 to 1080 x 1920.
- 5) The vertical scale of head and body should be in a ratio of 2:1.
- 6) The photo should include the captured person's shoulders at the same horizontal level.
- 7) The captured person's eyes should be open and with clearly seen iris.
- 8) A neutral face or smile is preferred, showing teeth is not preferred.
- 9) The captured person should be easily visible, natural in color, no harsh shadow or light spot or reflection in the face or background. The contrast and lightness level should be appropriate.

Appendix 2

Statement on the Right to Privacy

Dear Customers:

Thank you for choosing this hybrid biometric recognition product, which was designed and manufactured by ZKTeco. As a world-renowned provider of core biometric recognition technologies, we are constantly developing and researching new products, and strive to follow the privacy laws of each country in which our products are sold.

We Declare That:

1. All of our user fingerprint recognition devices capture only characteristics, not fingerprint images, and do not involve privacy protection.
2. None of the fingerprint characteristics that we capture can be used to reconstruct an image of the original fingerprint, and do not involve privacy protection.
3. As the provider of this device, we will assume no direct or indirect responsibility for any consequences that may result from your use of this device.
4. If you would like to dispute human rights or privacy issues concerning your use of our product, please directly contact your dealer.

Our other law-enforcement fingerprint devices or development tools can capture the original images of user's fingerprints. As to whether or not this constitutes an infringement of your rights, please contact your Government or the final supplier of the device. As the manufacturer of the device, we will assume no legal liability.

Lastly, we would like to further emphasize that biometric recognition is an advanced technology that will be certainly used in E-commerce, banking, insurance, judicial, and other sectors in the future. Every year the world is subjected to major losses due to the insecure nature of passwords. The Biometric products serve to protect your identity in high-security environments.

Eco-friendly Operation



The product's "eco-friendly operational period" refers to the time during which this product will not discharge any toxic or hazardous substances when used in accordance with the prerequisites in this manual.

The eco-friendly operational period specified for this product does not include batteries or other components that are easily worn down and must be periodically replaced. The battery's eco-friendly operational period is 5 years.

Hazardous or Toxic substances and their quantities

Component Name	Hazardous/Toxic Substance/Element					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent chromium (Cr6+)	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Chip Resistor	×	○	○	○	○	○
Chip Capacitor	×	○	○	○	○	○
Chip Inductor	×	○	○	○	○	○
Diode	×	○	○	○	○	○
ESD component	×	○	○	○	○	○
Buzzer	×	○	○	○	○	○
Adapter	×	○	○	○	○	○
Screws	○	○	○	×	○	○

○ indicates that the total amount of toxic content in all the homogeneous materials is below the limit as specified in SJ/T 11363—2006.

× indicates that the total amount of toxic content in all the homogeneous materials exceeds the limit as specified in SJ/T 11363—2006.

Note: 80% of this product's components are manufactured using non-toxic and eco-friendly materials. The components which contain toxins or harmful elements are included due to the current economic or technical limitations which prevent their replacement with non-toxic materials or elements.

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