

# User Manual

## Horus H1 Attendance Device

Date: April 2023

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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## 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 Horus H1 attendance device.

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






## Document Conventions

Conventions used in this manual are listed below:

### GUI Conventions

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 Overview

Horus H1 is a multi-functional handheld portable terminal with industrial design which can integrate built-in Facial Recognition, RFID, Barcode, NFC, Fingerprint and other functions. Horus H1 also embedded GPS chip for locating attendance, support on plentiful communication protocols (Wi-Fi, 3G, 4G, Bluetooth) can make the method of attendance more diversified and flexible. It is suitable for corporate personnel inspection, factory and construction sites.

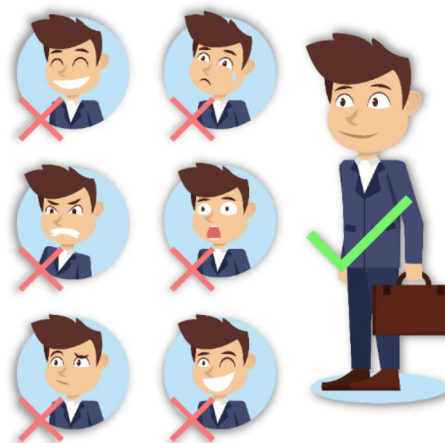
## 2 Instructions to use

### 2.1 Standing Position, Facial Expression and Standing Posture

#### Usage Scenario



#### Recommended Facial Expression





### **Recommended Standing Posture**

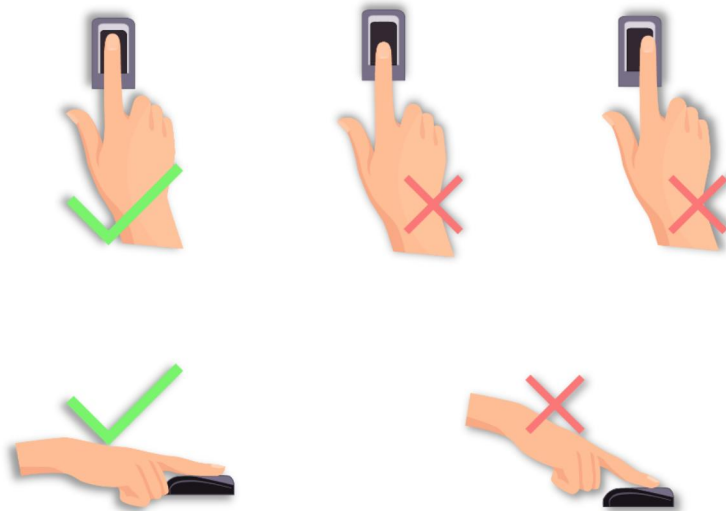


**Note:** During enrollment and verification, please maintain natural facial expression and standing posture.

## 2.2 Finger Positioning

### Recommended Fingers

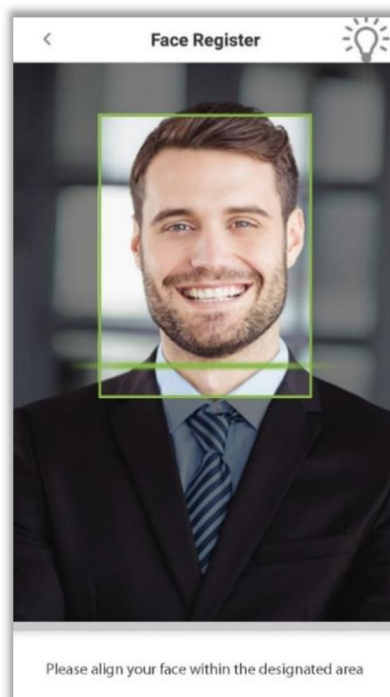
The recommended fingers to enroll and verify are Index finger, Middle finger, or Ring finger. Avoid using the Thumb or Little finger as they are difficult to accurately press onto the fingerprint reader.



 **Note:** Please press your fingers onto the fingerprint reader firmly for registration and identification.

## 2.3 Face Enrollment

During enrollment, stand and focus on the center of the screen. Please face the camera and stand still The enrollment page is shown below:






## 2.4 Home Screen

After plugging in the device, the Home screen appears as shown below:

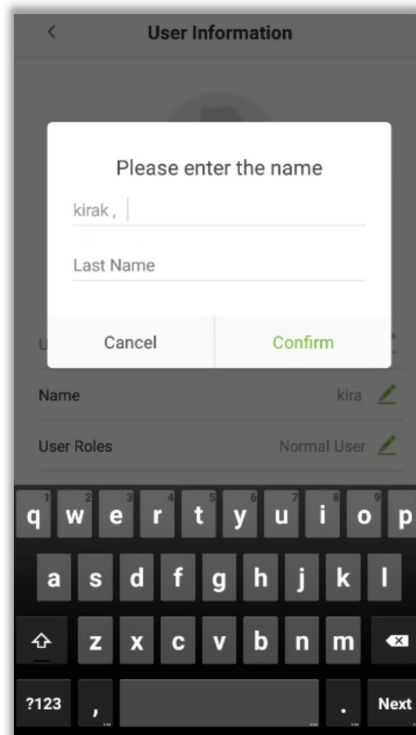
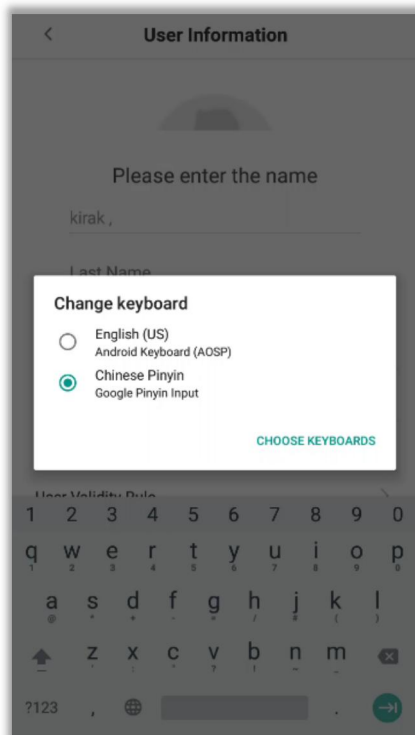
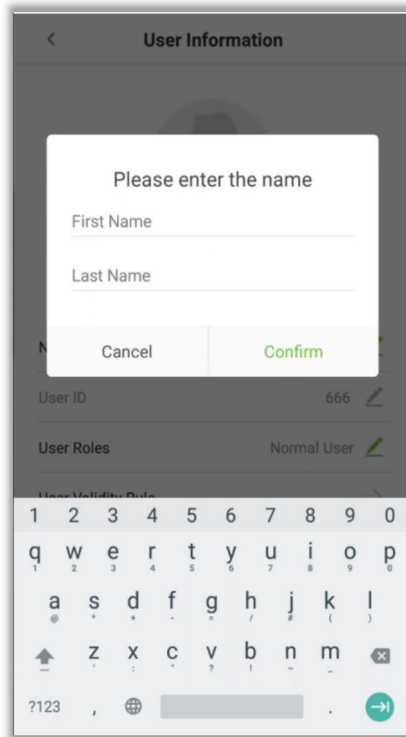




### Note:

1. Tap on  to open the verification screen and enter the Personnel ID.
2. Tap on  to open the main menu. If a Super Administrator has already been registered for this device, other users will need the permission of the Super Administrator to enter the main menu.
3. Drag the  icon upwards, to select the attendance status.

## 2.5 Virtual Keyboard

The device supports two types of Keyboards namely English and Chinese.




 **Note:** Long press the  icon to switch between the keyboards.

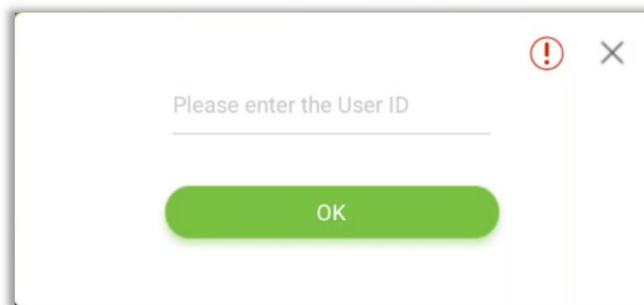
## 2.6 Verification Modes


### 2.6.1 Password Verification

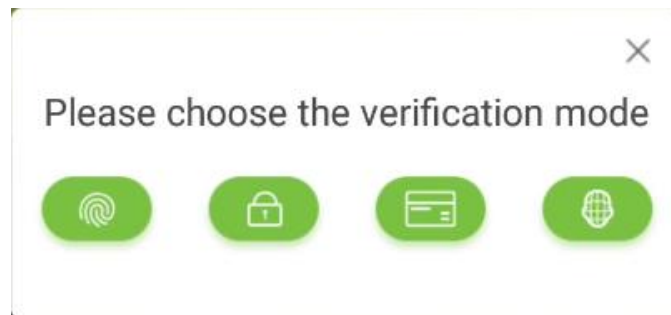
When a user inputs his/her User ID and password into the device, the data will be compared to the User ID's and Passwords saved in the system. It is recommended for Administrator users.

Tap on the  icon on the main screen to open the 1:1 Password verification mode.

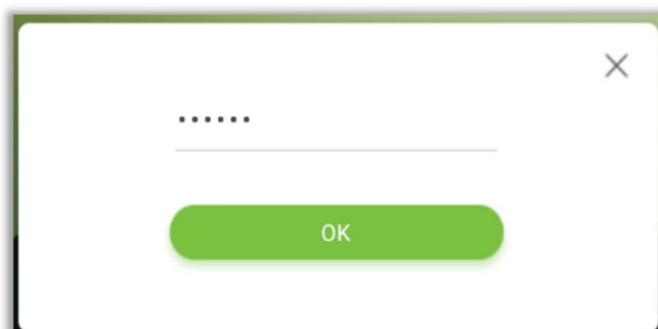
1. Enter the User ID and press **[OK]**.



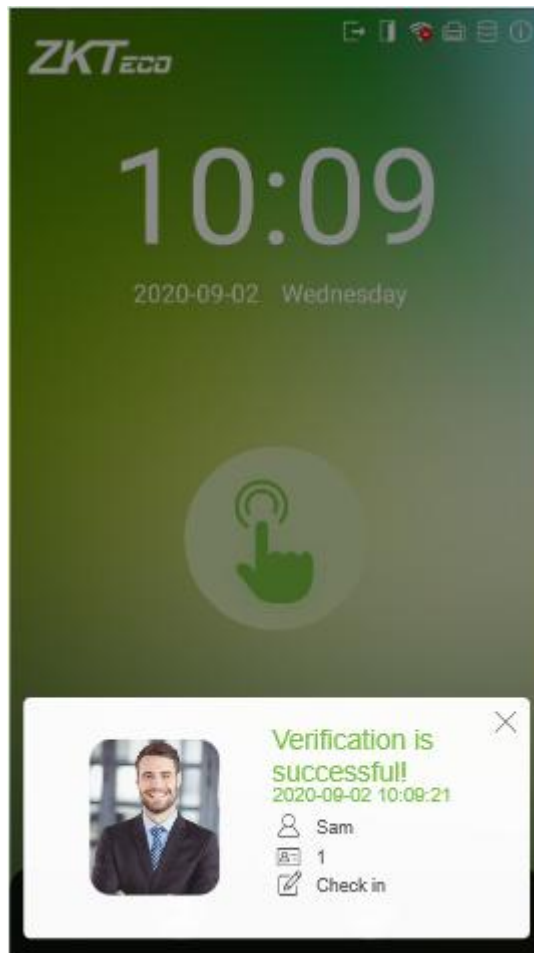
If a user has registered a Face, Fingerprint and Card in addition to his/her password and the verification method is set to Fingerprint/ Password/ Card/ Face verification, the following screen will appear. Select the password icon  to open password verification mode.



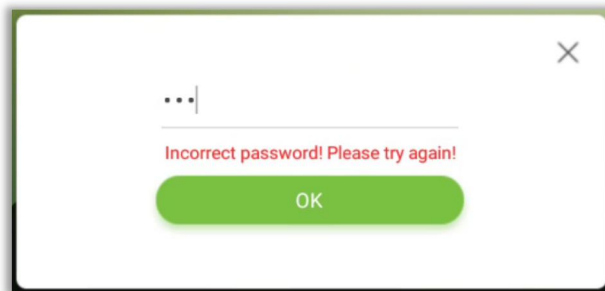
2. Enter the Password and press **[OK]**.



3. After successful verification, the success message appears as shown below:



- 4. If the verification is failed, the error message appears as shown below:

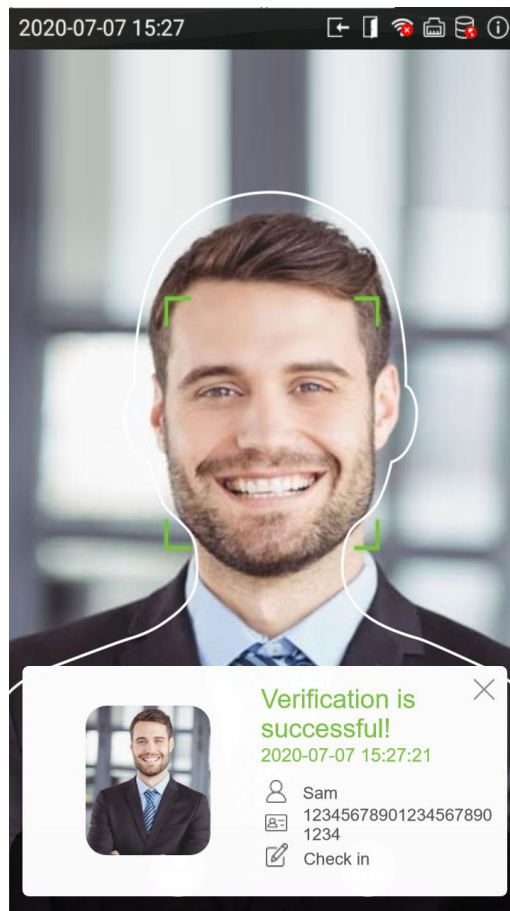


## 2.6.2 Facial Verification


### 1:N Face Verification

In 1:N Face Verification mode, the device compares the acquired facial images with all the facial templates that are stored in the device.

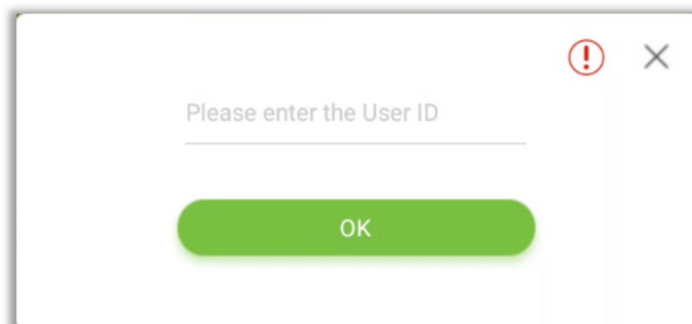
The verification screen appears as shown below:




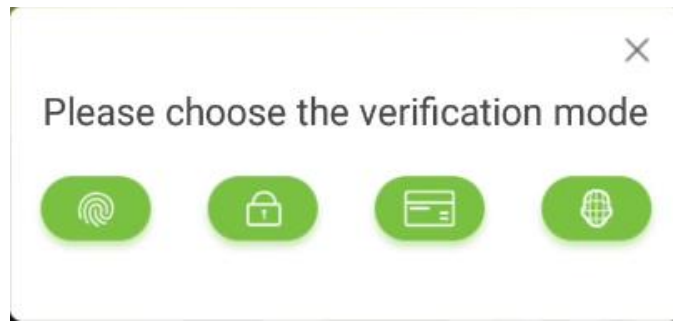
### 1:1 Face Verification

In 1:1 Face Verification mode, the device compares the acquired facial image with the facial template registered to the corresponding User ID. Press  on the main interface and open the 1:1 Face Verification mode.

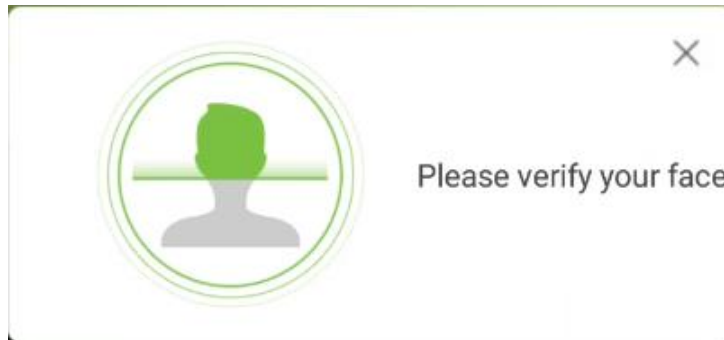
1. Input the User ID and click **[OK]**.



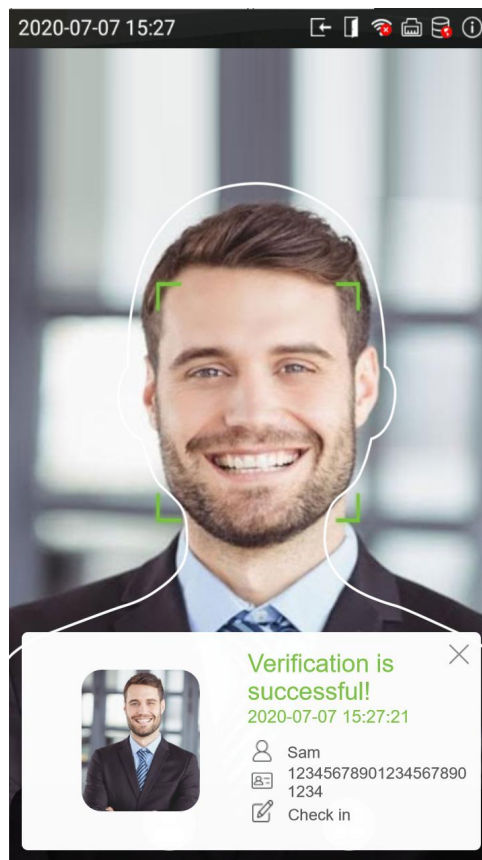
If a user has registered a Fingerprint, Password and Card in addition to his/her face and the verification mode is set to Fingerprint/ Password/ Card/ Face verification, the following screen will appear. Select the face icon  to enter facial verification mode.



- 2. After the prompt "Please verify your face ", follow the prompts for face verification.

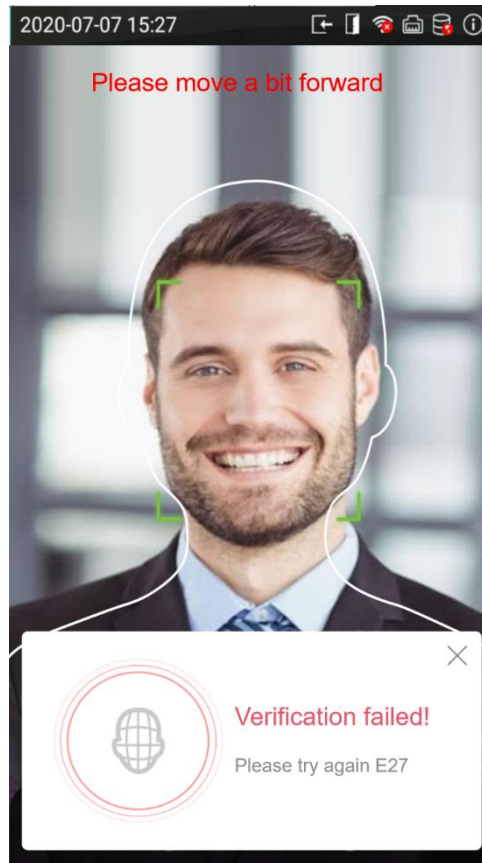


- 3. After successful verification, the success message appears as shown below:



- 4. If the verification is failed, the error message appears as shown below:



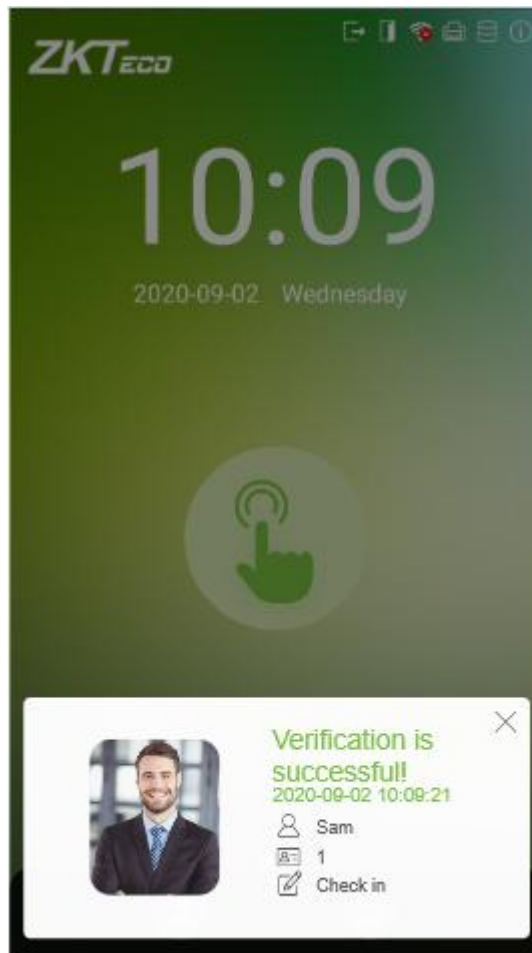


### 2.6.3 Fingerprint Verification (Optional)

#### 1:N Fingerprint Verification


In this verification mode, the device compares the fingerprint that is being pressed onto the fingerprint reader with all of the fingerprint templates that is stored in the device.

To open the fingerprint verification mode, simply press your finger on the fingerprint reader.




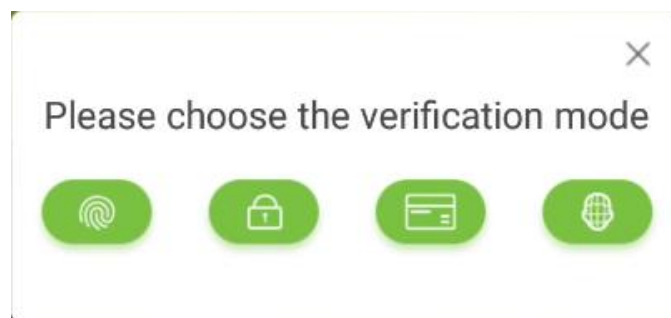
### 1:1 Fingerprint Verification

In this verification mode, the device compares the fingerprint that is being pressed onto the fingerprint reader with the fingerprint templates associated with the respective User ID. This method can be used when the system has trouble in recognizing the user's fingerprints.

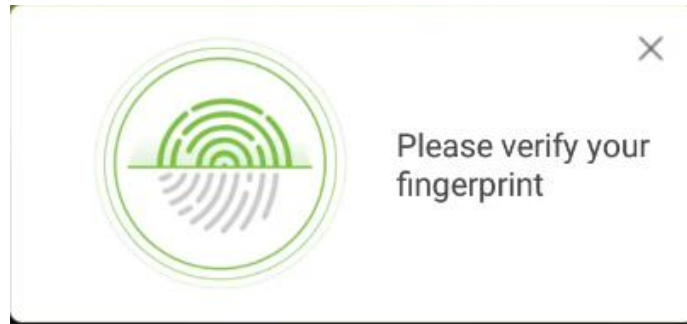
Press the  icon on the main screen to enter 1:1 fingerprint verification mode.

1. Enter the User ID and press **[OK]**.

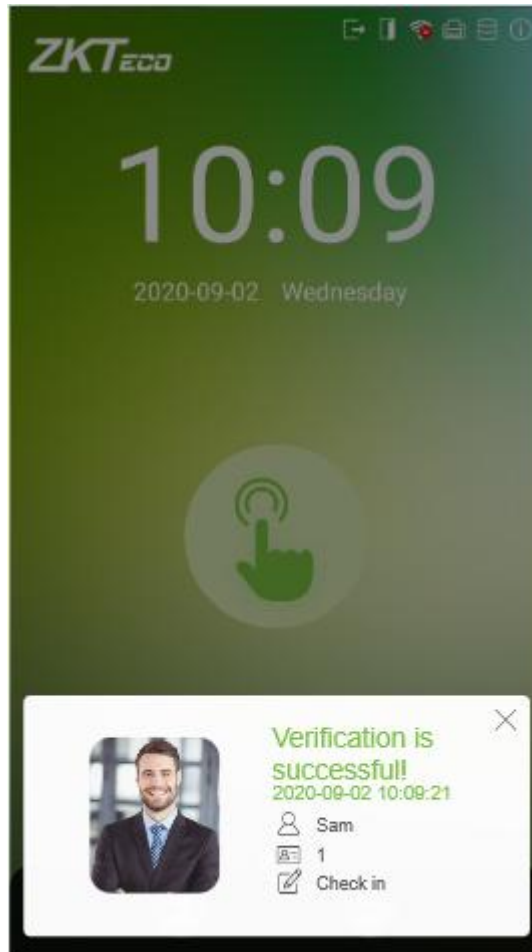
If a user has registered Face, Password and Card in addition to his/her fingerprint and the verification method is set to Fingerprint/ Password/ Card/ Face verification, the following screen will appear. Select the fingerprint icon  to enter fingerprint verification mode.



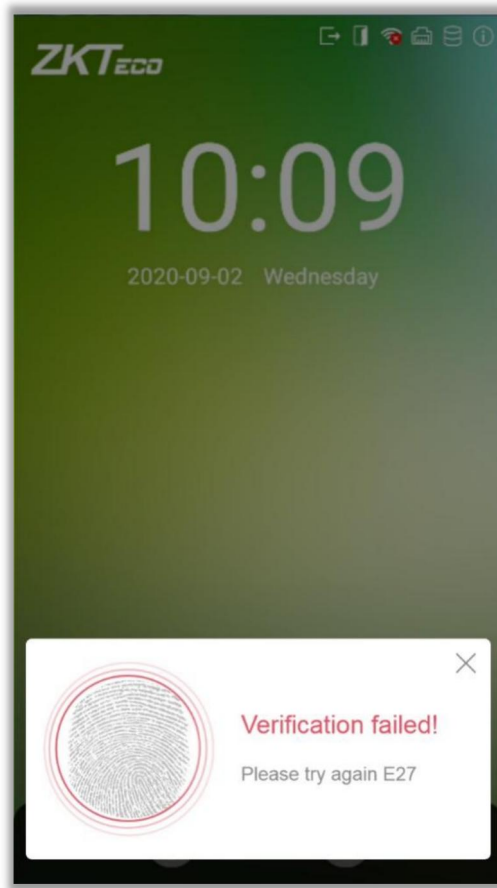
2. Press the finger on the fingerprint reader to proceed with verification.



- 3. After successful verification, the success message appears as shown below:



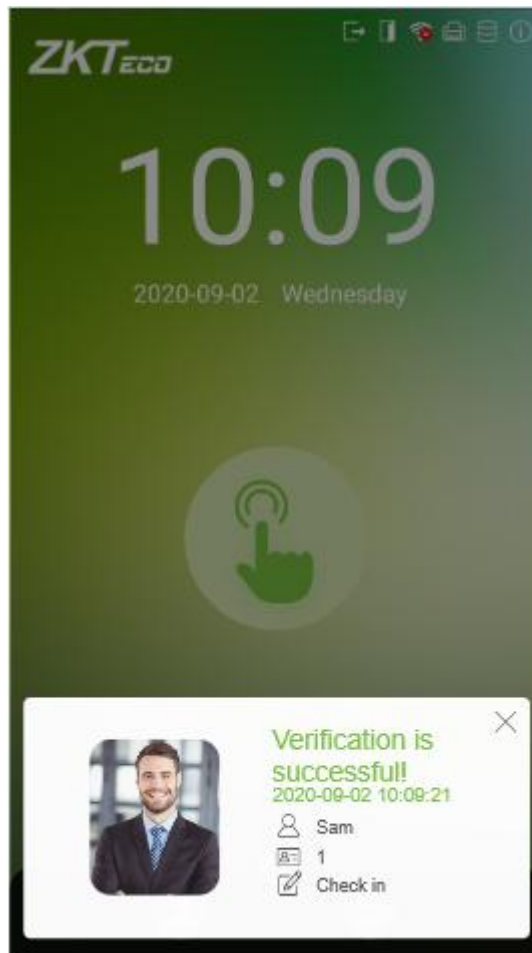
- 4. If the verification is failed, the error message appears as shown below:




## 2.6.4 Card Verification

### 1:N Card Verification

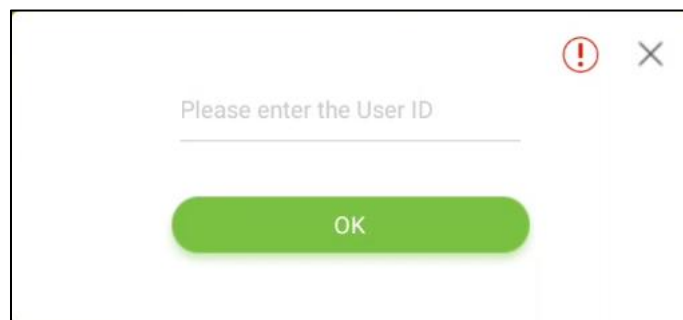
Place the registered card on the card reader. If the verification is successful, the message appears as shown below:




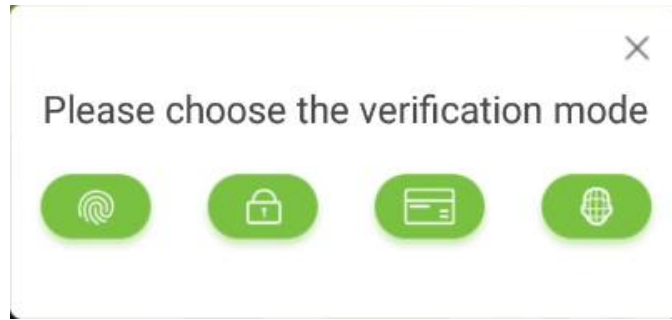
### 1:1 Card Verification

Press the  icon on the main screen to open the 1:1 card verification mode.

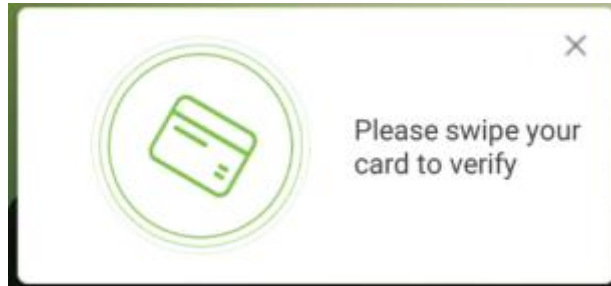
1. Enter the User ID and press **[OK]**.



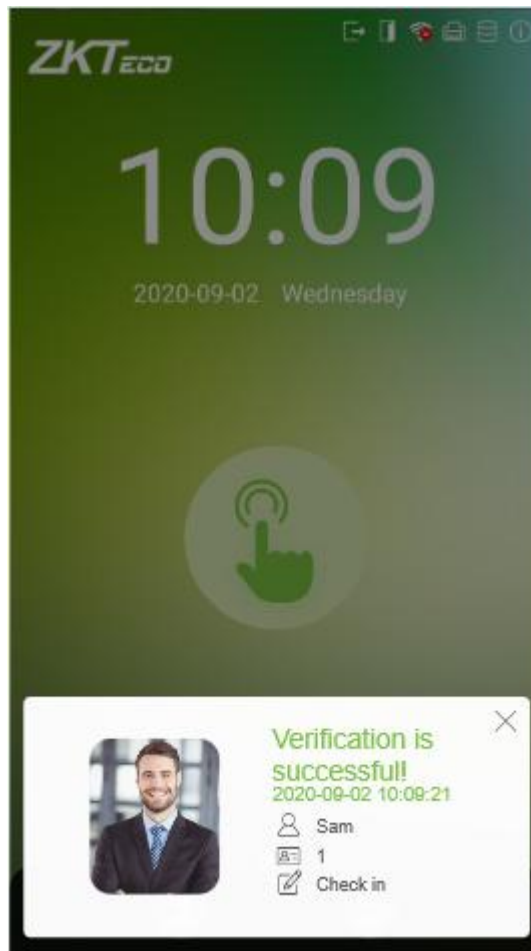
If a user has registered Face, Password and Fingerprint in addition to his/her card and the verification method is set to Fingerprint/ Password/ Card/ Face verification, the following screen will appear. Select the card icon  to enter card verification mode.



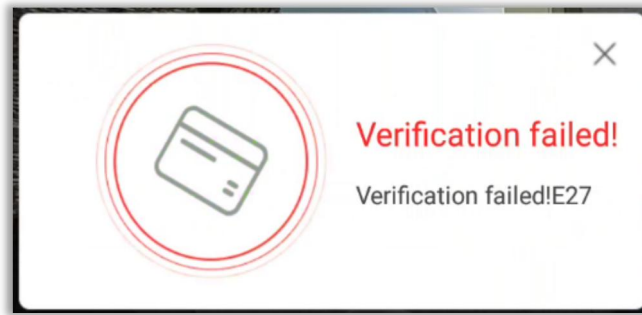
- 2. Swipe the card to verify.



- 3. After successful verification, the success message appears as shown below:

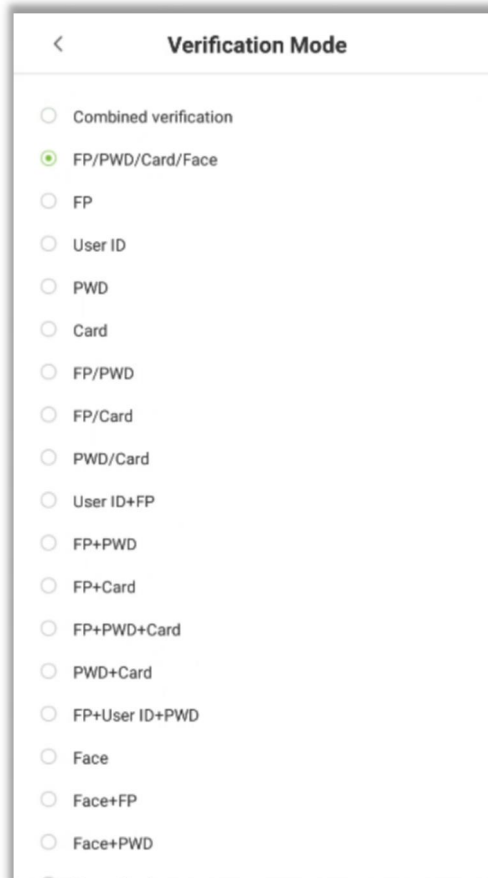


- 4. If the verification is failed, the error message appears as shown below:



### 2.6.5 Combined Verification

To increase the security, this device offers the option of using multiple forms of verification methods. A total of 21 different verification combinations can be used, as shown below:




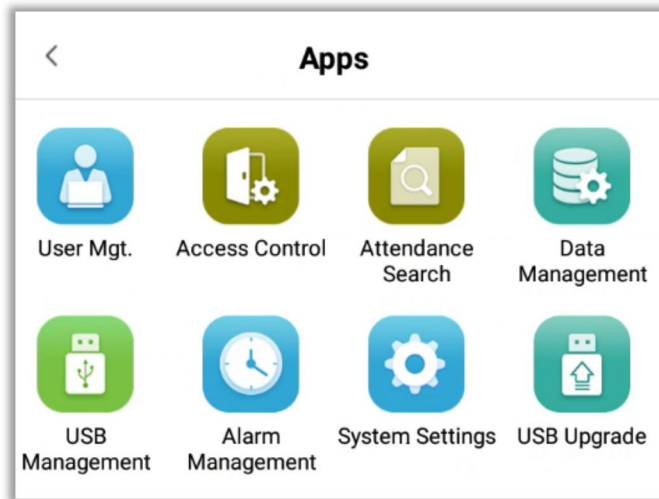
 **Note**

1. "/" means "or" and "+" means "and".



Combined verification requires users to register the information needed to complete verification. Otherwise, users may not be able to complete the verification process. For example, when the User A registers with his/her fingerprint data, and the system's verification mode is set as "FP + PWD", the user will not be able to complete the verification process.

### 3 Main Menu

Tap on  to open the main menu.



Menu	Function
<b>User Management</b>	Add, Edit and View user information.
<b>Access Control</b>	Set Access control options, Time rules, Holiday settings, Verification combination, Access group, Anti-Passback and Duress alarm settings.
<b>Attendance Search</b>	Display the detailed attendance records of all users.
<b>Data Management</b>	Delete the data from the device.
<b>USB Management</b>	Use a USB device to upload and download.
<b>Alarm Management</b>	Once an alarm has been set, the device will automatically play the preselected ringtone when the designated time is reached. It will stop ringing after the alarm time is elapsed.
<b>System Settings</b>	Set the Network, Date and Time, Attendance parameters, Cloud service, Wiegand, Display and Sound, Biometric Parameters, Auto-testing, Advance settings of the device.
<b>USB Upgrade</b>	Upgrade the Firmware of the device through USB.

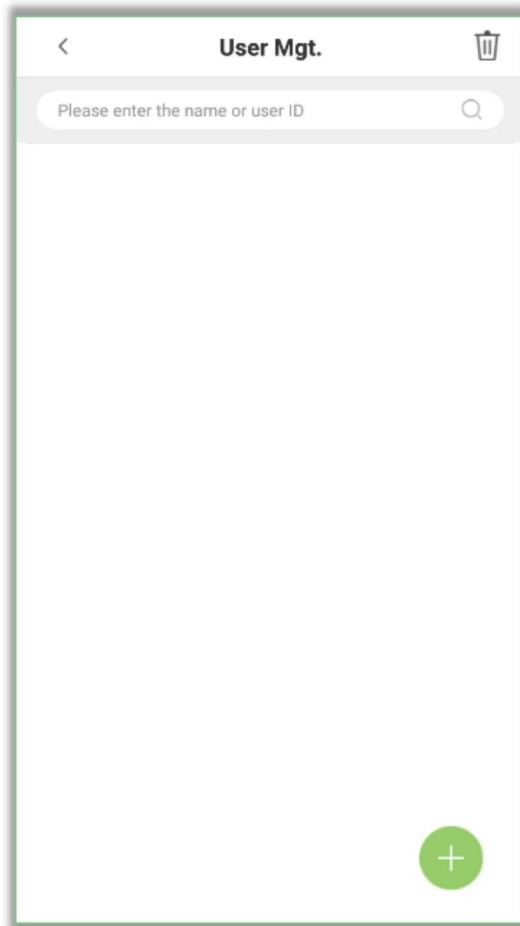
 **Note:** If the device does not have a Super Administrator, any user can open the menu by pressing the  key. After a Super Administrator has been set on the device, verification will be required to open the menu. Once password verification is successful, users can enter the menu. To ensure the security of the device, we recommend registering an administrator the first time you use this device. For detailed operating instructions, please see section [Add User](#).



## 4 User Management

### 4.1 Add User

Tap  on the **[User Management]** interface to open the interface to add a user.



#### **Add User Details**

Enter the User ID in the **[User ID]** field and the Username in the **[Name]** file.

**New User**

User ID \* Please enter the User ID

Name Please enter the name

User Roles Normal User

Fingerprint None

Card Number None

Password None

Face None



Verification Mode

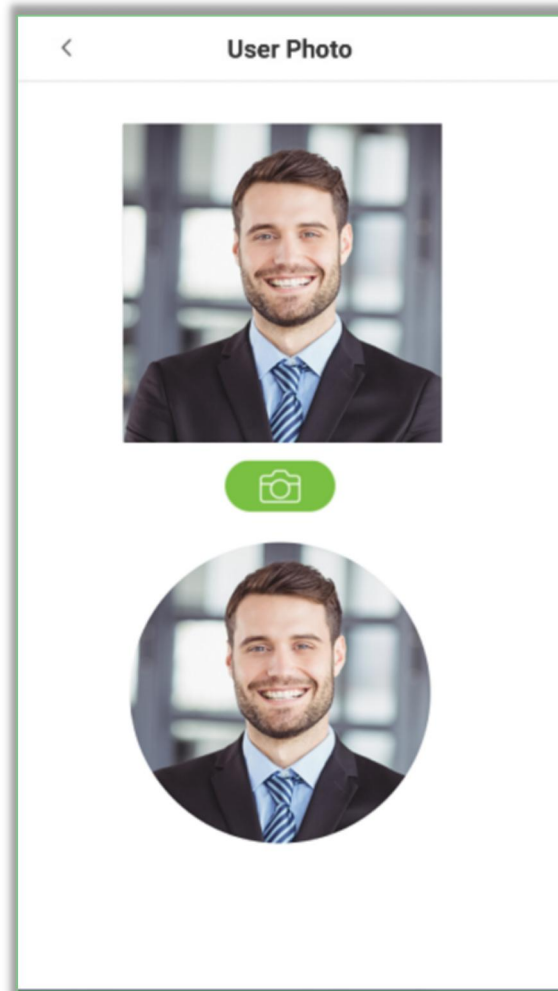



**Notes:**

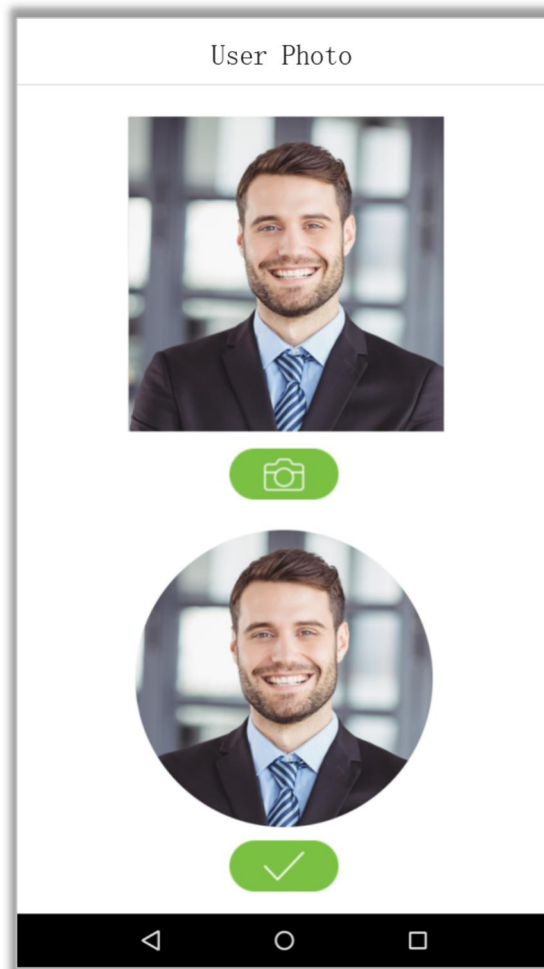
1. The name refers to the Username. The maximum length is 24 characters.
2. By default, the device supports 1 to 14 digits of User ID.
3. User ID can be changed at the first time they are used to log in to the system. After first login, the User ID cannot be changed.
4. The message "This User ID already exists!" indicates that the ID number you have input is already being used. Please enter another ID number.

## **Register User Photo**

1. Tap on the  icon to open the camera interface. User should face the lens and then adjust the position. Tap on the  icon to take a photo.



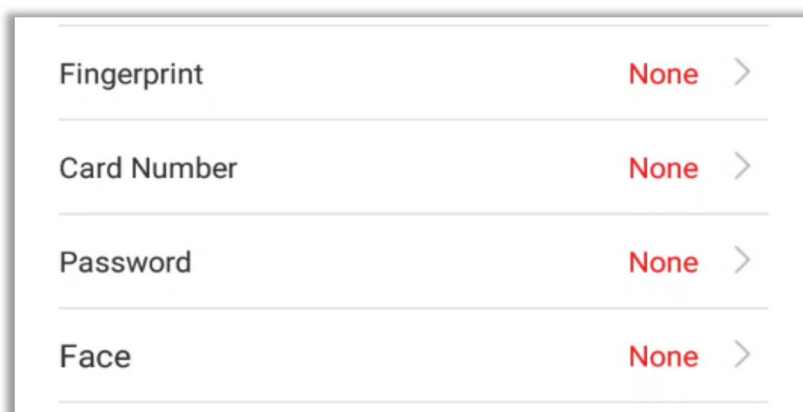
2. Tap  on the bottom of the interface to complete adding the photo.



### **Register Verification Modes**

The verification mode is the method used to verify a login. This includes registering Face, Password, Fingerprints (optional), or Card number. Select a verification mode that best suits your needs.

After setting the User ID, user can set the Fingerprint (optional), Card, Face and Password as following:



### Register Fingerprints (optional)

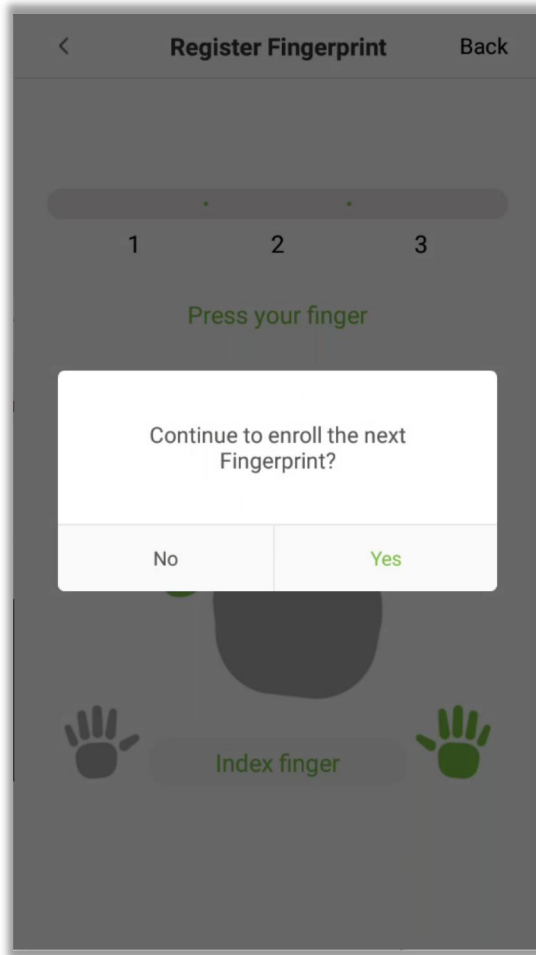
1. On the user registration interface, tap on **[Fingerprint]** to enter the fingerprint registration page. Select the icon on the left or right side of the screen and then tap on the finger you would like to register a fingerprint.



2. Press the same finger on the fingerprint reader three times. The Green bar indicates that the fingerprint was registered successfully.
3. If you press different fingers onto the fingerprint scanner during the 2<sup>nd</sup> and 3<sup>rd</sup> times, you will be prompted as "Please use the same finger".

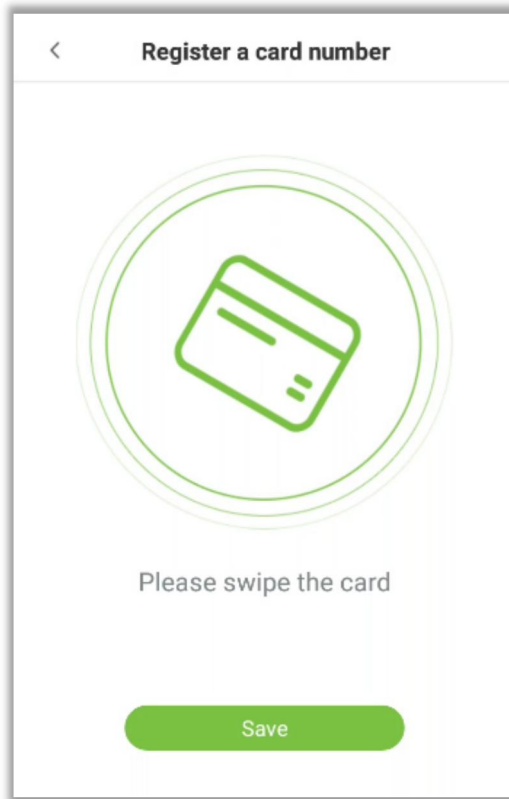


4. If the fingerprint is successfully registered, a "Continue to enroll the next fingerprint?" dialog box will appear. Tap on **[Yes]** to register the next fingerprint, or **[No]** to return to the fingerprint registration interface.





### Register Card Number

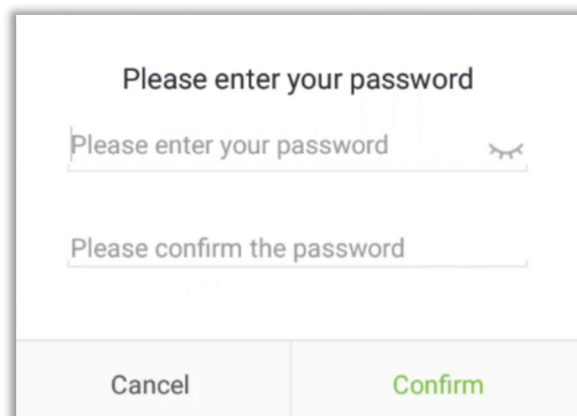
On the user registration interface, tap on the **[Card Number]** to open the card number registration page. After the prompt is successful, click **Save**.



### Register Password

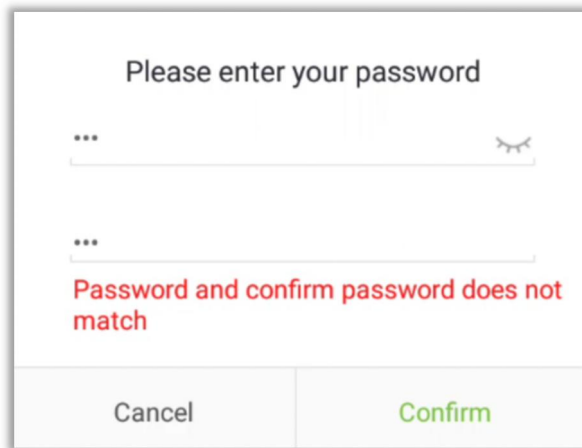
1. On the user registration interface, click **[Password]** to enter the register password page. Enter the password in the **[Enter the password]** field, then re-enter the password in the **[Confirm password]** field. Then, tap on **[Save]**.

**Note:** The user password must be an 8-digit number). Tap on  to conceal the password; tap on  to make the password visible, as shown below:



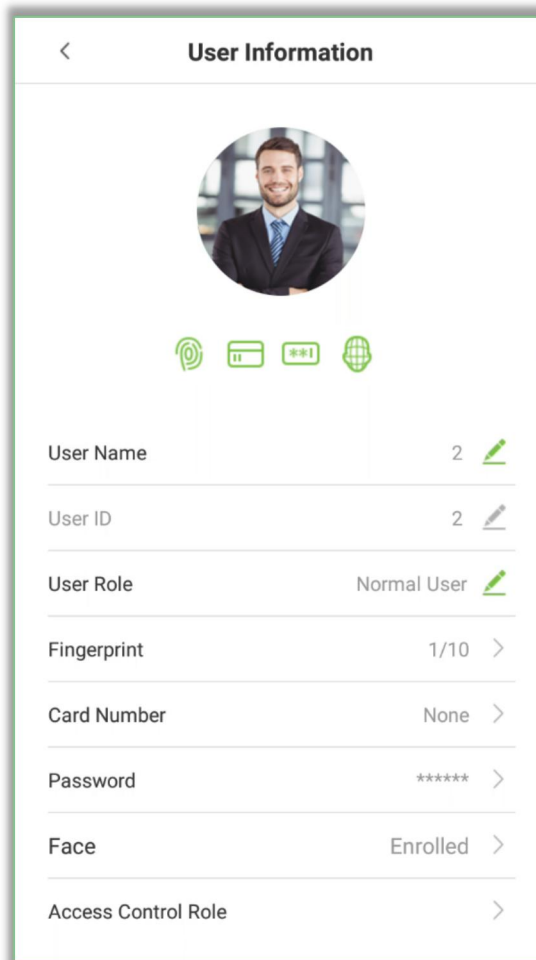


2. If the password in both the fields does not match, you have to re-enter the passwords.

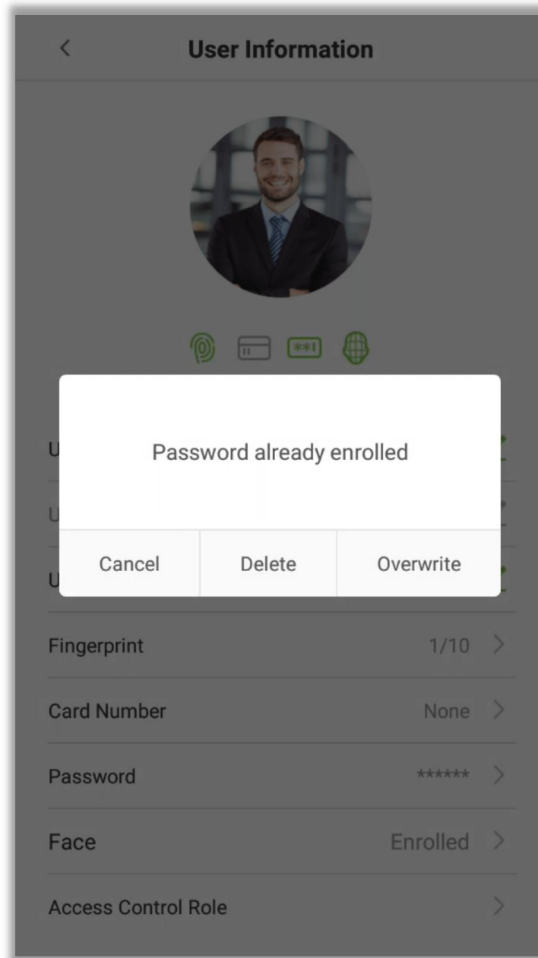


### Delete/Overwrite registered passwords

1. On the User management interface, tap a user in the user list to open the user information page, and then tap on **[Password]**.



2. Press **[Delete]**/**[Overwrite]** in the dialog window that pops up.



### Register Face

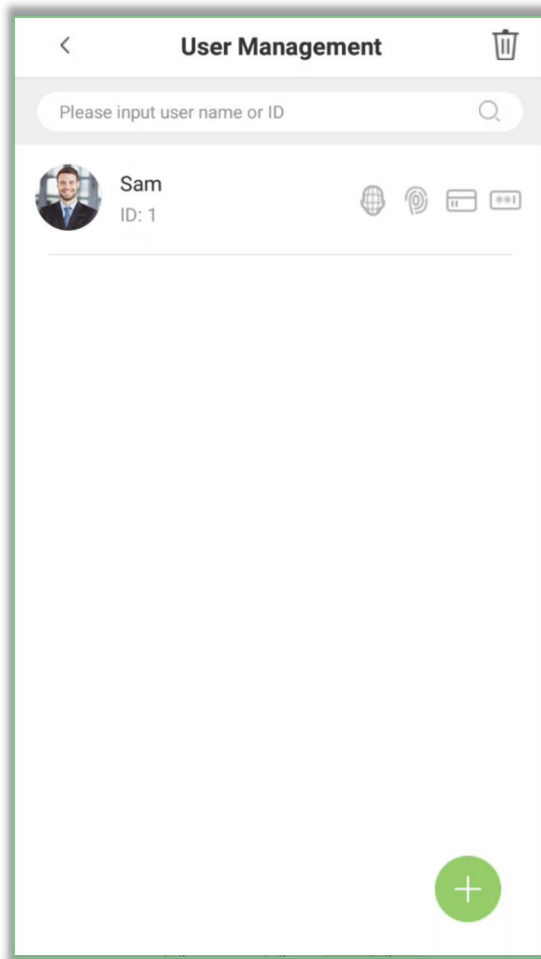
On the user registration interface, tap on **[Face]** to open the face registration page. Move and adjust your face on the registration area.



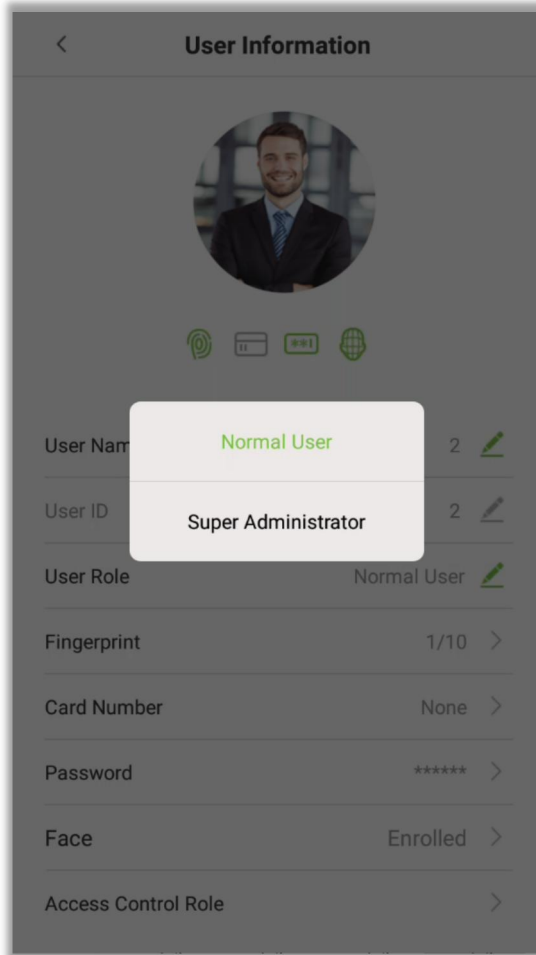
### **User Role**

Users who use this device have two types of permissions namely Normal user and Super Administrator. After a Super Administrator is registered on the device, normal user can only verify their identities using the verification methods that have already been registered. Super administrator has the same privileges as normal user, but can also open the main menu.

1. On the **[User Management]** interface, tap on a user in the user list to view the user's information.



2. Once you have entered the "User Information" interface, tap on **[User Role]** and select **[Normal User]** or **[Super Administrator]** in the window that appears.



**Note:** When a user is given Super Administrator privileges, verification is required to open the main menu. The verification process depends on the verification method that was used during user registration. See the description in section [Verification Modes](#).

### **Period of Validity Settings**

Set a validity period for an employee's verification process. The employee will only be able to verify an account during this period, and will be regarded as an invalid employee after this period.

It is valid between the starting and ending date; this offers precision up to specific days. A day is the period from 00:00 until 23:59, after which the employee will be regarded as invalid.

1. On the **[User Information]** interface, tap on **[User Validity Rule]** field.



Note: If the field is not found, you need to click **System Settings ->Attendance Parameters->**

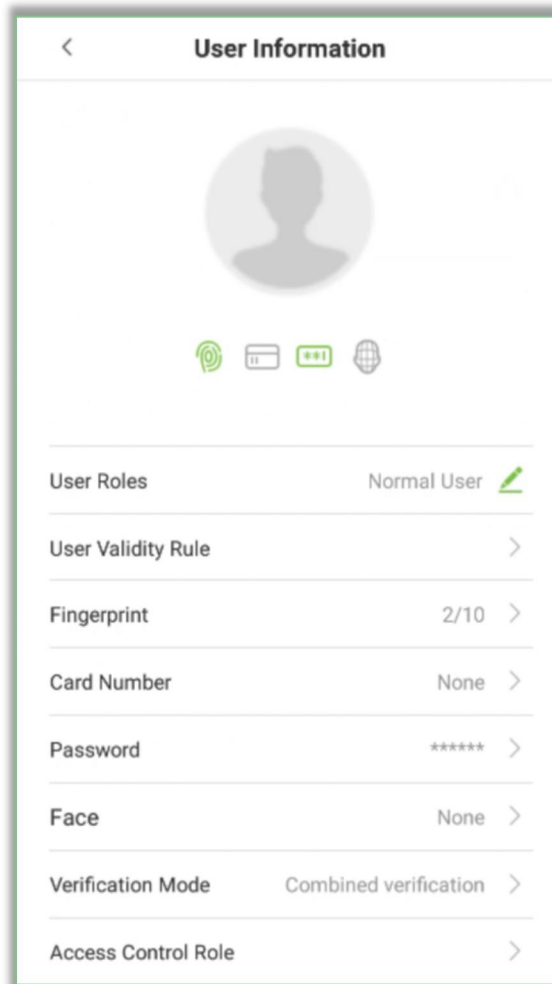
**Enable User Validity Settings** in the main menu, and the item **"User Validity Rule"** will appear in the user management interface.

2. Set the User validity rule.

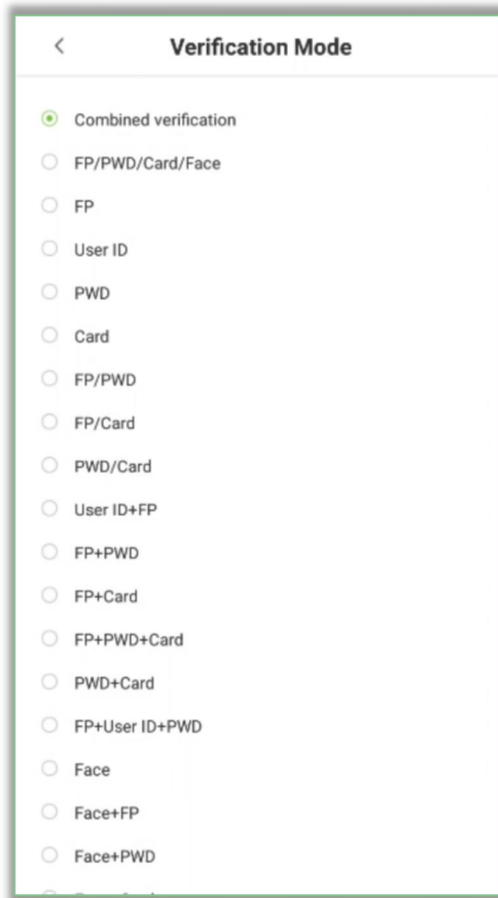


### **Verification Mode**

1. Tap on the [Verification Mode] field on the User information interface.

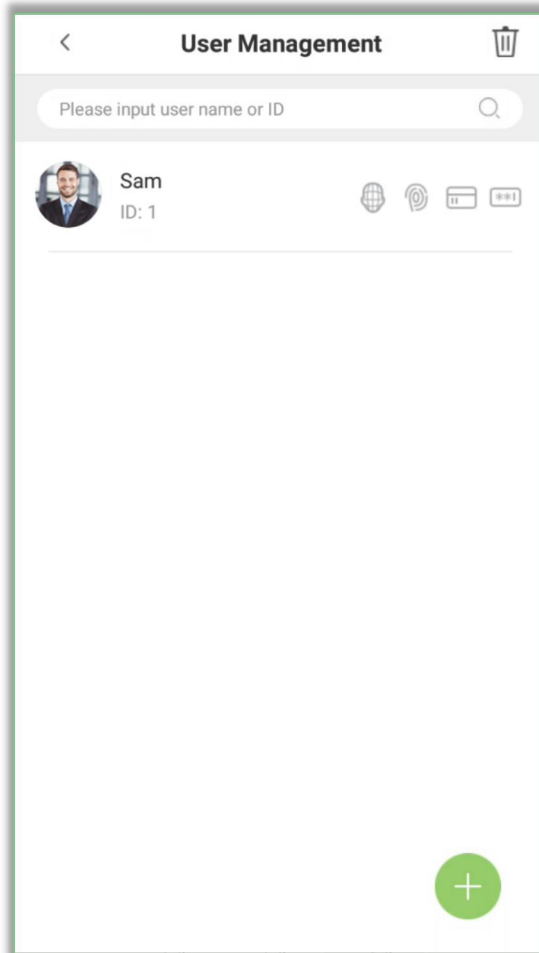


2. Select [**Verification Mode**], and then tap on [**OK**].



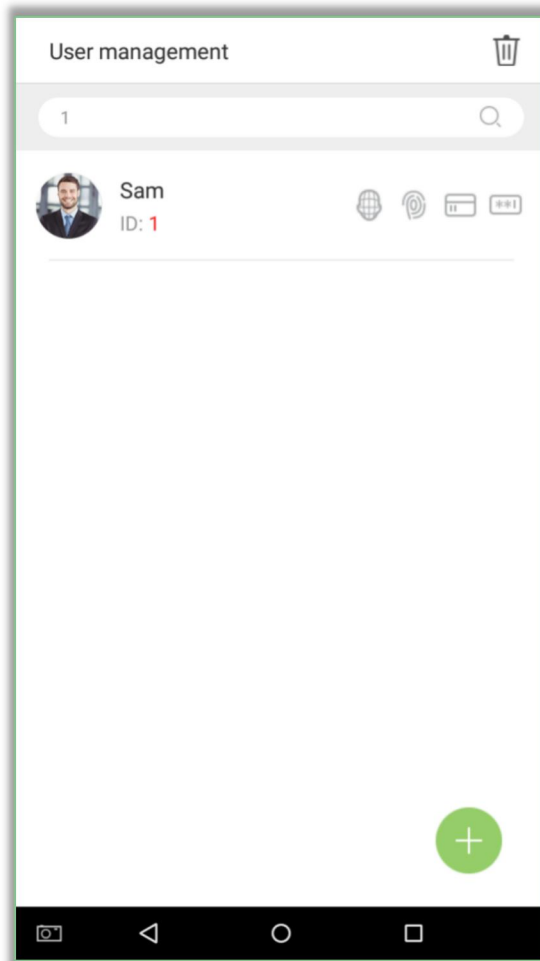
## 4.2 Search a User

1. Tap on the **Search bar** on the **[User Management]** interface and enter the keyword(Note: Search the users based on their IDs, Surnames, etc).



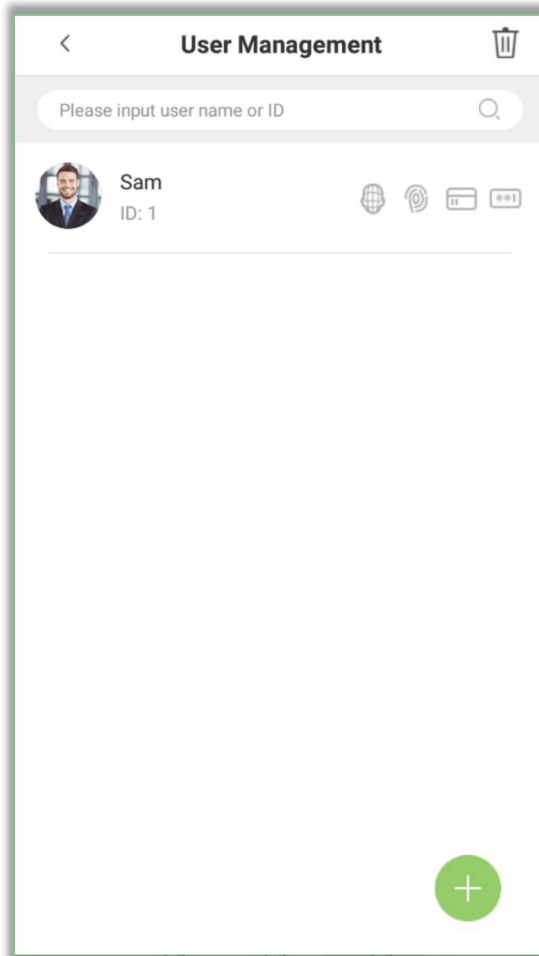


- 2. Automatically the search result will be displayed based on the query conditions.

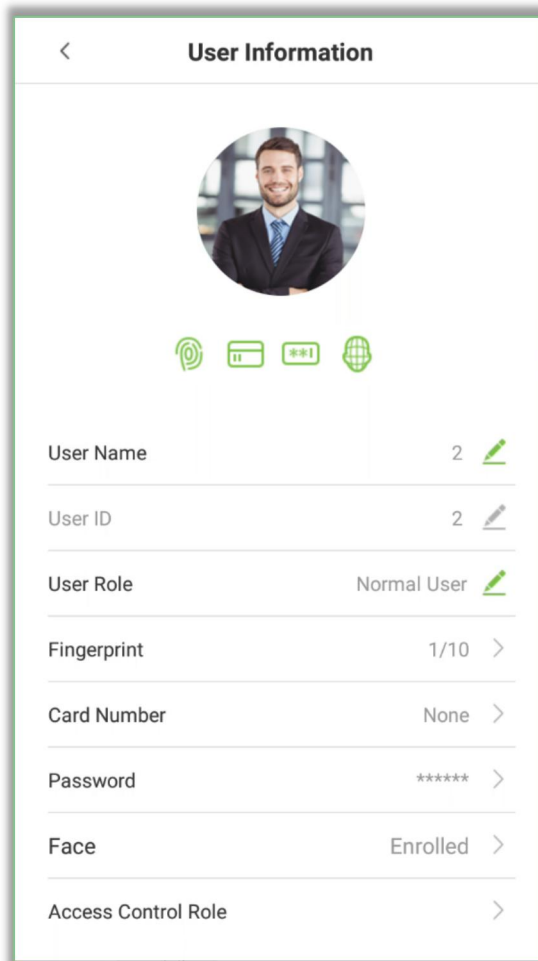



## 4.3 Edit a User

1. Select a user on the user list.




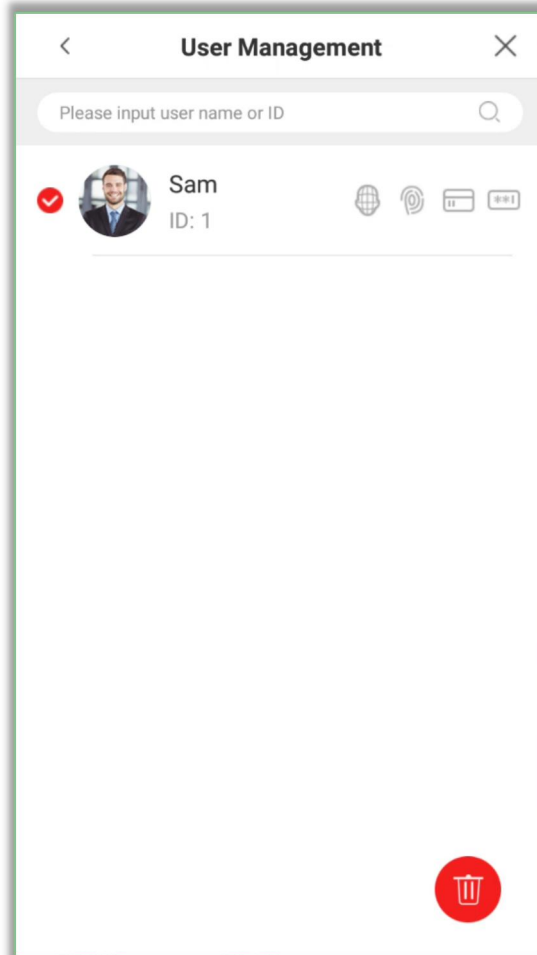
2. Edit the required details of the user.




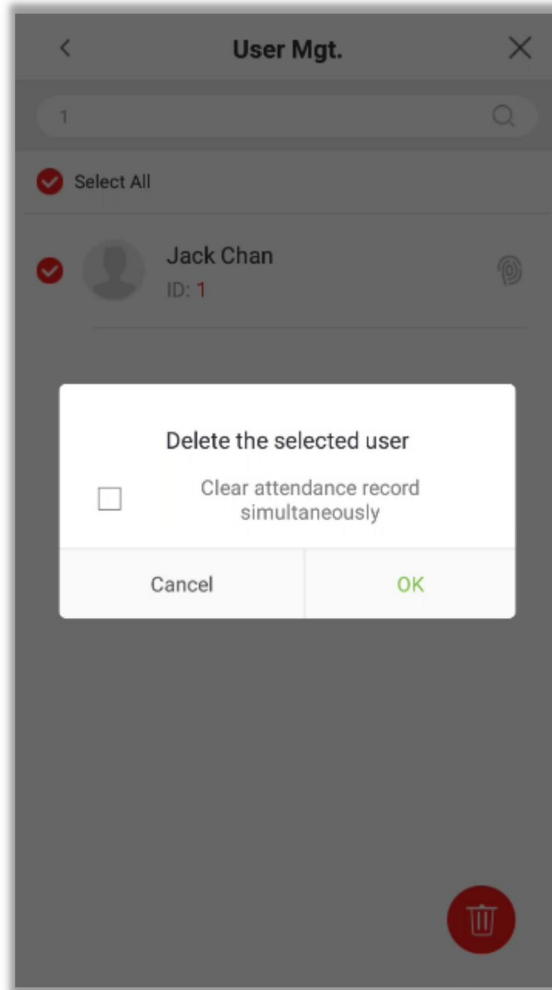
 **Note:** The User ID field cannot be modified. For other details of adding the user details, please refer [Add User](#).


## 4.4 Delete User

1. On the **User Management** interface, tap on the  button in the upper right corner of the interface.



2. Select the user to be deleted and tap on  icon in the lower right corner and a window will pop up. Select the checkbox if the user wishes to delete the Attendance records simultaneously. Tap on **[OK]** (This option can be selected or left unselected based on your requirements).



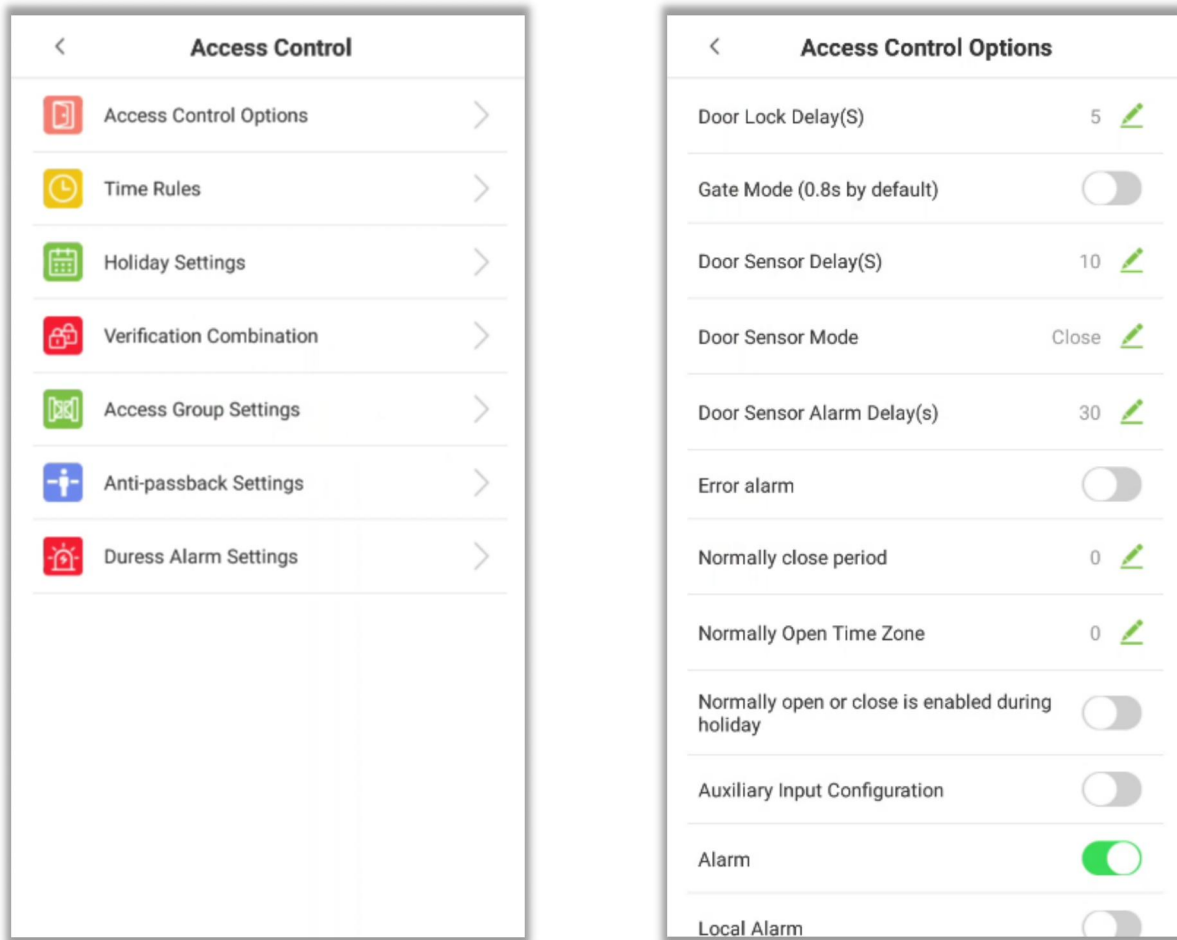
 **Note:** If **[Clear attendance record simultaneously]** is selected, all the related information of the user will be cleared.

## 5 Access Settings

The access management allows users to set Access control parameters, Time rules, Holidays, Verification combinations, Access Groups, Anti-Passback settings, Duress Settings, etc.

### 5.1 Access Control Options

Tap **[Access Settings]** in the main menu.



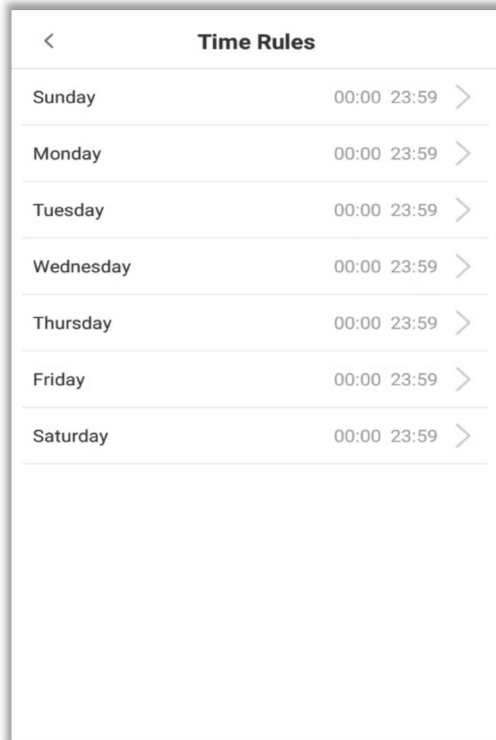
Menu Options	Function Description
<b>Door lock delay</b>	The length of time that the device controls the electric lock to be in unlock state. Valid value: 1~10 seconds; 0 second represents disabling the function.
<b>Gate Mode</b>	Toggle between ON or OFF switch to get into gate mode or not. When set to ON, on this interface will remove Door lock delay, Door sensor delay and Door sensor type options.
<b>Door sensor delay</b>	If the door is not locked and is being 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.
<b>Door sensor mode</b>	There are three Sensor types: Close, Normal Open and Normal Closed. Close: It means door sensor is not in use.

	Normal Open: It means the door is always left opened when electric power is on. Normal Closed: It means the door is always left closed when electric power is on.
<b>Door sensor alarm delay</b>	When the state of the door sensor is inconsistent with that of the door sensor type, an alarm will be triggered after a specific time period, i.e. the Door Alarm Delay. The valid value ranges from 1 to 999 seconds. 0 indicates an immediate alarm.
<b>Error alarm</b>	If enabled, when the number of failed verifications reaches 3 times, an alarm will be triggered.
<b>Normally close period</b>	Time period is scheduled for the "Normal Close" mode so that no one can gain access during this period.
<b>Normally Open Time Zone</b>	Scheduled time period for "Normal Open" mode, so that the door is always left open during this period.
<b>Normally open or close is enabled during holiday</b>	To set if Normal Close Period or Normal Open Period settings are valid during the holiday time period. Choose ON to enable the functions during a holiday.
<b>Auxiliary Input Configuration</b>	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.
<b>Alarm</b>	The default is Off.
<b>Local Alarm</b>	Transmits a sound alarm or disassembly alarm from the local. When the door is closed or the verification is successful, the system will cancel the alarm from the local.
<b>External Alarm</b>	The default is Off.
<b>Reset Access Settings</b>	The restored access control parameters include door lock delay, door sensor delay, door sensor mode, normally close period, normally open time zone, auxiliary input configuration and alarm. However, the access control data in Data Mgt. is excluded.

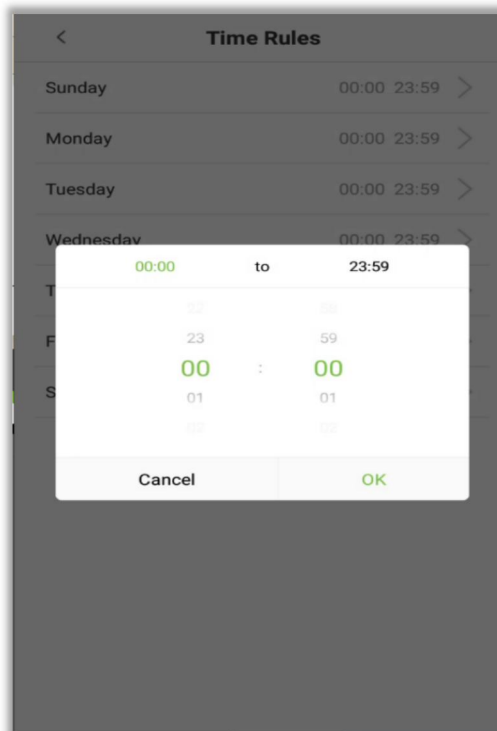
## 5.2 Time Rules Setting

**Time Rule** is the minimum time unit of access control settings and a maximum of 50 **Time Rules** can be set for the system. Each **Time Rule** consists of 7 time periods (a week) and 3 holiday time schedules, and each time section is valid for 24 hours.

The user may set a maximum of 3 time periods for every time rule. The relationship among these time periods is "or". When the verification time falls in any one of these time periods, the verification is valid. The time period format is HH:MM-HH:MM in the 24-hour system with precision to minute.



Tap the date on which time rule settings is required. Set the starting and ending time, and then press [OK].





## Notes

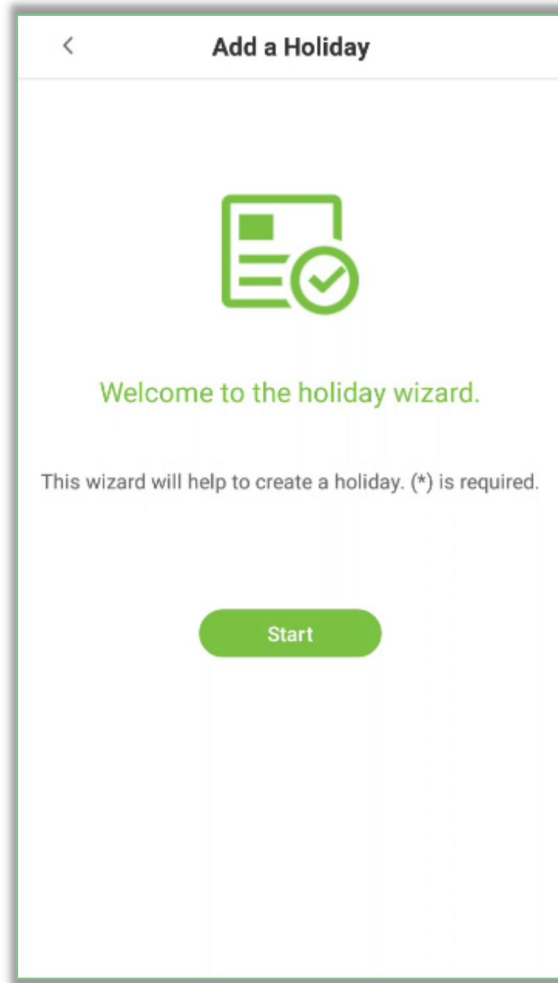
1. When the ending time is earlier than the starting time, such as 23:57 to 23:56, it indicates that access is prohibited all day. When the ending time is later than the starting time, such as 00:00 to 23:59, it indicates that the interval is valid.
2. The effective time period to unlock the door is open all day (00:00 to 23:59) or when the ending time is later than the starting time, such as 08:00 to 23:59.
3. The default time zone 1 indicates that door is open all day long and it cannot be edited.

## 5.3 Holiday Setting

Whenever there is a holiday, the user may need a special access time; but changing everyone's access time one by one is extremely cumbersome, so you can set a holiday access time which is applicable to all the users, and the user will be able to open the door during the holidays. The time period set here is taken as the standard.

## **Add Holiday**

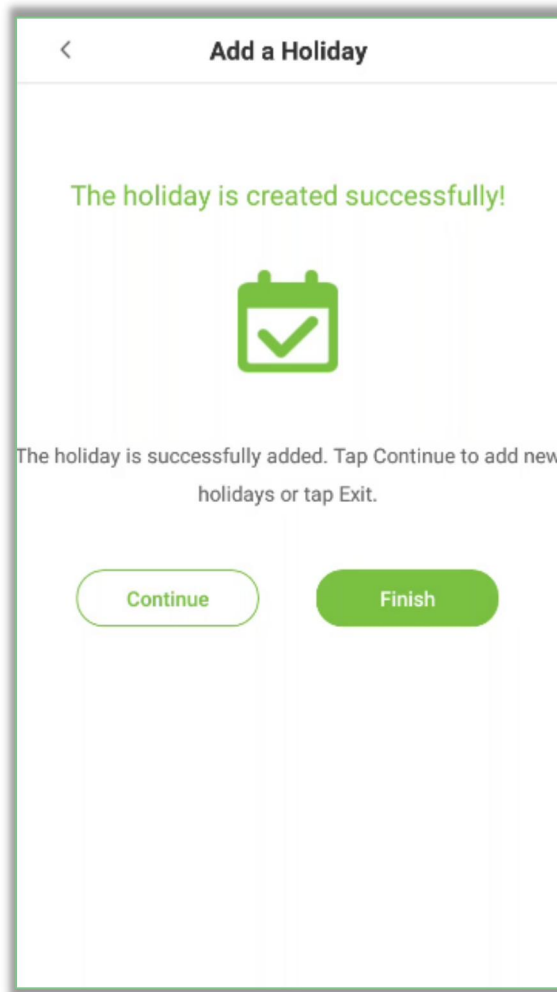
1. Tap  on the **[Holiday setting]** interface to open the Holiday setting interface.



2. Select a date and the type of the holiday. Enable **[Repeat]** if the holiday repeats every year.

The screenshot shows a mobile application interface for adding a holiday. The title bar at the top contains a back arrow on the left and the text "Add a Holiday" in the center. Below the title bar, there are three input fields stacked vertically. The first field is labeled "Please select the date \*" and has a right-pointing chevron icon. The second field is labeled "Type of Holiday \*" and also has a right-pointing chevron icon. The third field is labeled "Repeat" and has a green toggle switch that is currently turned on. At the bottom of the screen, there are two buttons: "Back" (white with a green border) and "Next" (solid green).

3. Click **Finish** and a new holiday is created successfully.

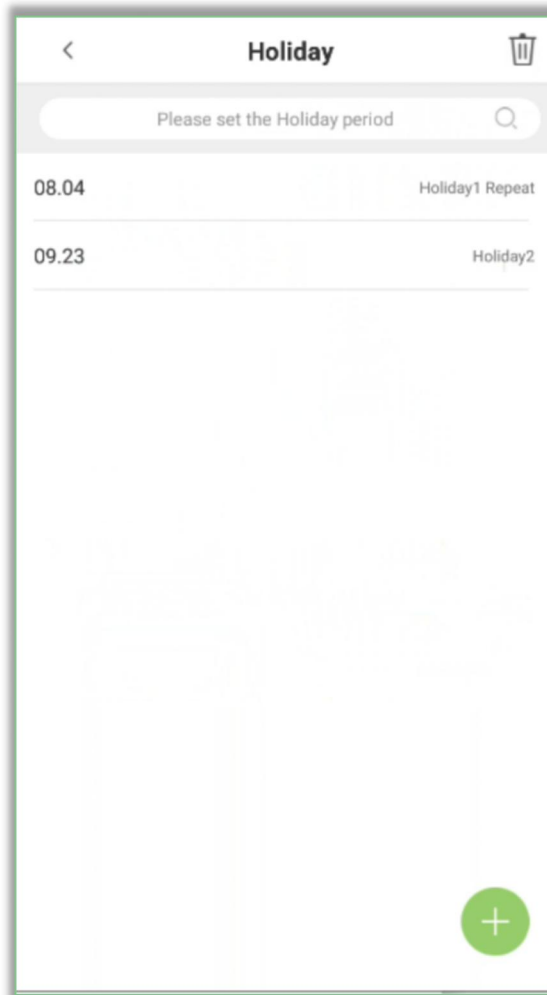



## **Edit Holiday**

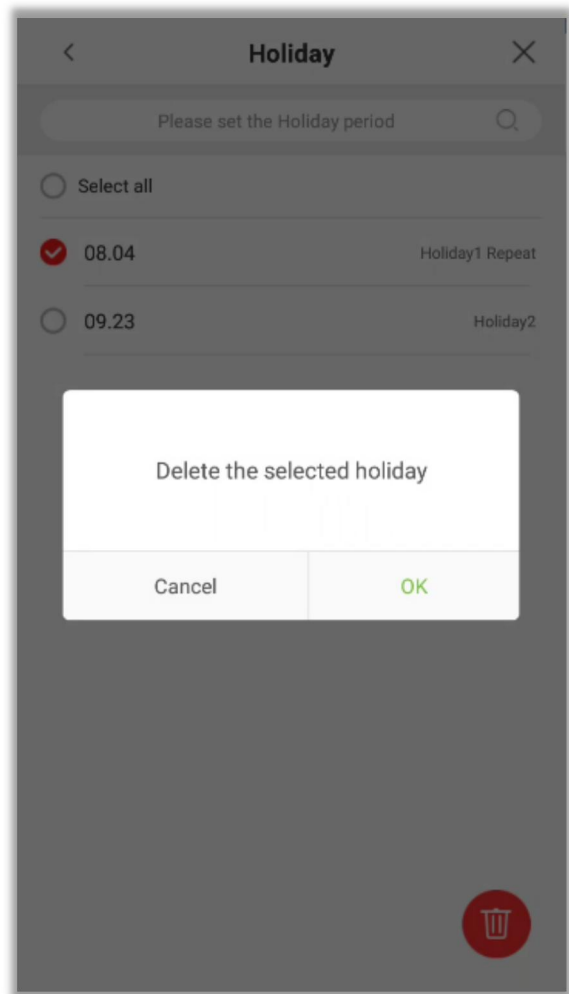
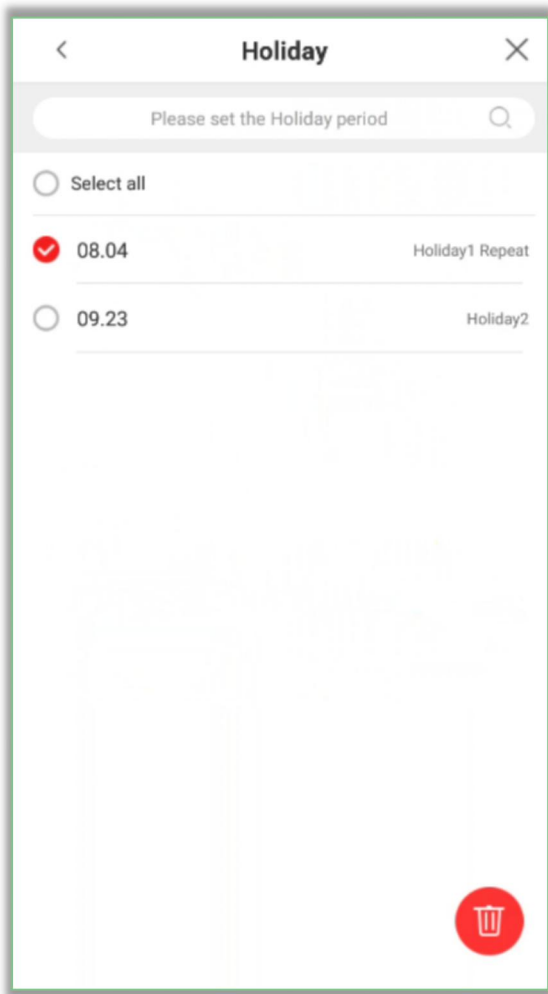
On the “Holiday” interface, tap on the holiday to modify.

## **Delete Holiday**

1. On the “Holiday” interface, tap on  icon in the upper right corner of the interface.



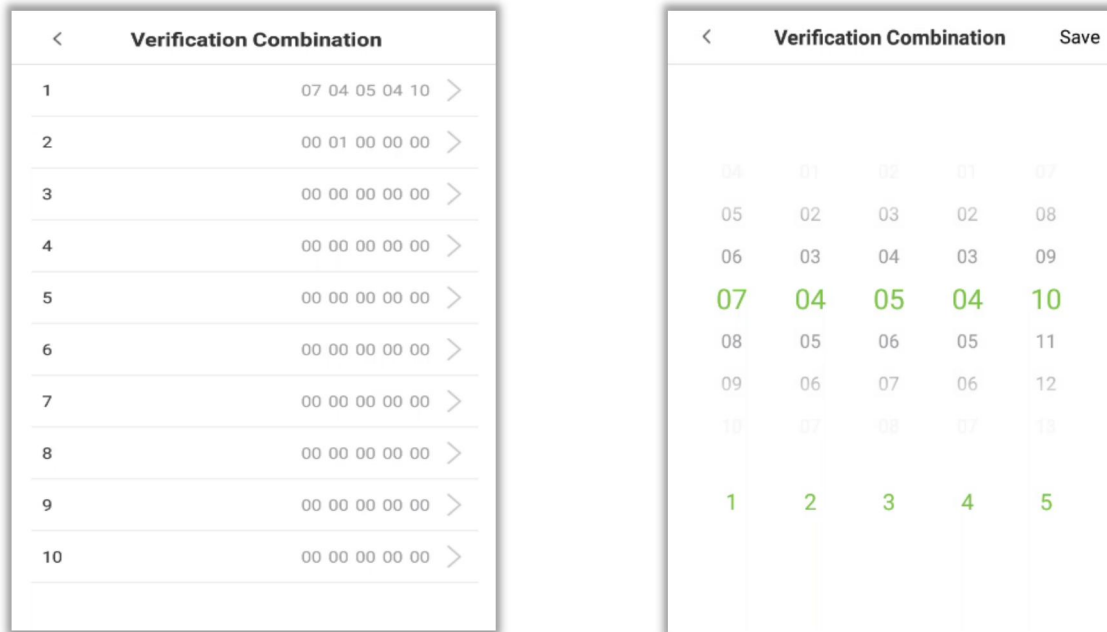
2. Select the holiday which you would like to delete, tap on the  button in the lower right corner and a window will pop up.



3. Tap on **[OK]** to delete the holiday.

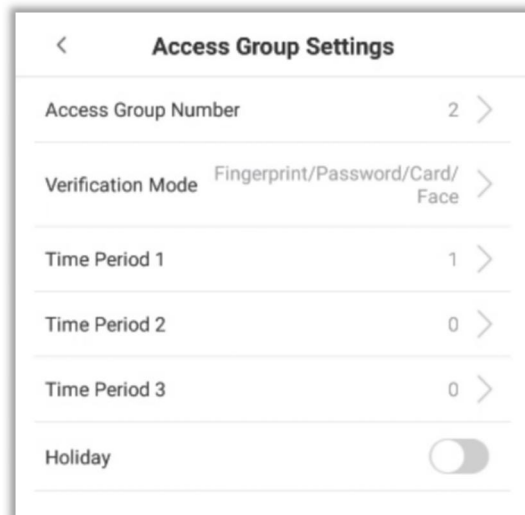
## 5.4 Verification Combination

Verification Combination function refers to a function that requires any member in different access control groups or multiple members in the same access control group to verify in turn (without sequence) within a certain period of time (the interval is 8 seconds), and then the door can be opened. It is mainly used in some special occasions with relatively high requirements. There can be a maximum of 5 personnel in each group, and a maximum of 10 groups can be set. The interface is as follows:



## 5.5 Access Group Settings


The Access Control group setting is used to create an Access Group and configure Time Period as per the requirements. For the newly created access control group, the Verification mode, Time period and Holiday can be set accordingly. The interface is given below:

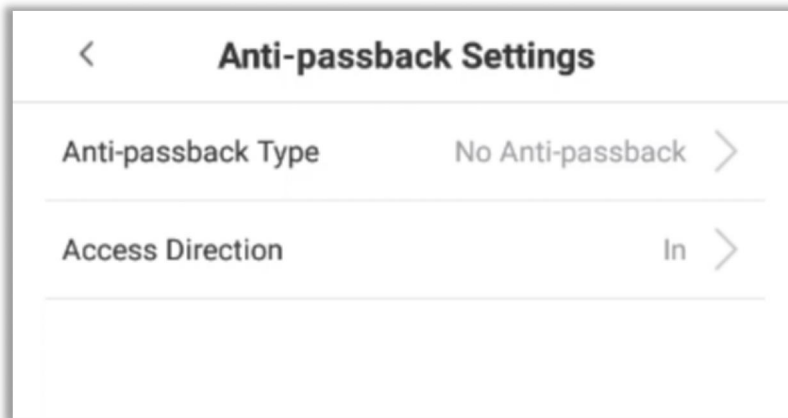


## 5.6 Anti-Passback Setup

Anti-Passback function is to detect whether the user's access is authorized by verifying the user's last access record and the local access control direction, which can effectively prevent tailing. It can be divided into three types: Anti-Passback Out, Anti-Passback In, Anti-Passback In/Out.

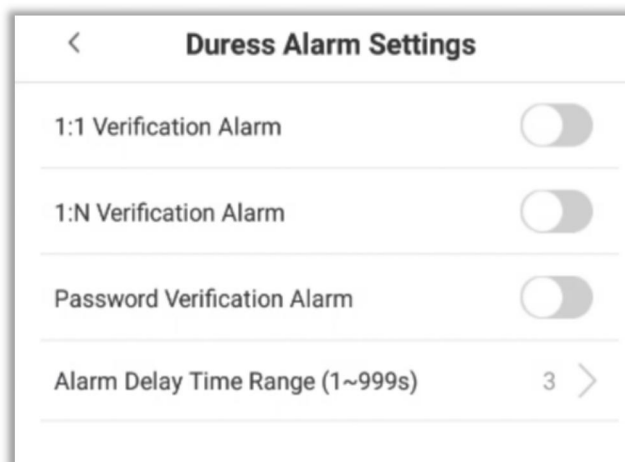
- **Anti-passback Out:** After a user checks out, only if the last record is a check-in record, the user can check-out again; otherwise, the alarm will be triggered. However, the user can check-in freely.
- **Anti-passback In:** After a user checks in, only if the last record is a check-out record, the user can check-in again; otherwise, the alarm will be triggered. However, the user can check-out freely.
- **Anti-passback In/Out:** After a user checks in/out, only if the last record is a check-out record, the user can check-in again; or if it is a check-in record, the user can check-out again; otherwise, the alarm will be triggered.

 **Note:** When the user has no record during the first verification, the anti-passback rule is applied directly. This access direction depends on the selection of the control direction of the device, corresponding to the state of the device. The interface is as follows:



## 5.7 Duress Alarm Settings

Duress alarm refers to the alarm when the specified user verifies the duress fingerprint and duress password in an emergency. After using the duress fingerprint and duress password, the alarm will be delayed according to the alarm delay parameters to achieve the purpose of duress alarm. The specific parameter setting interface is as follows:

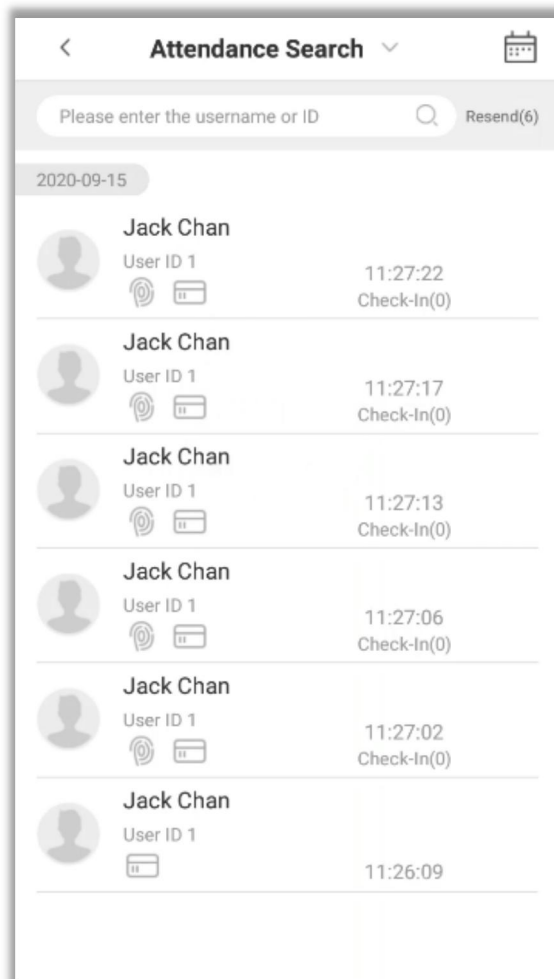




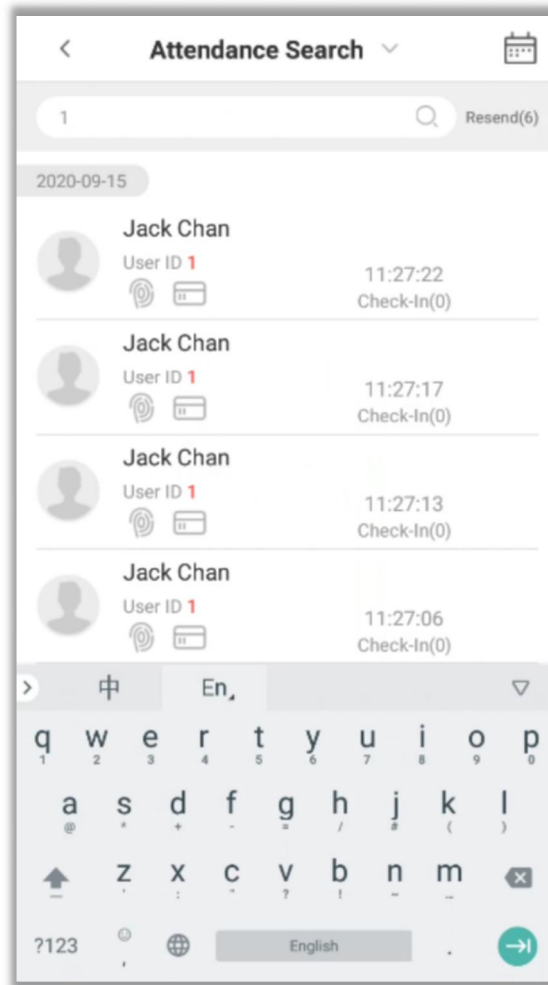
## 6 Attendance Search


The user's attendance records will be saved in the device, making it easier to find users' attendance records. The users can search for Attendance Logs and Visitor photos.

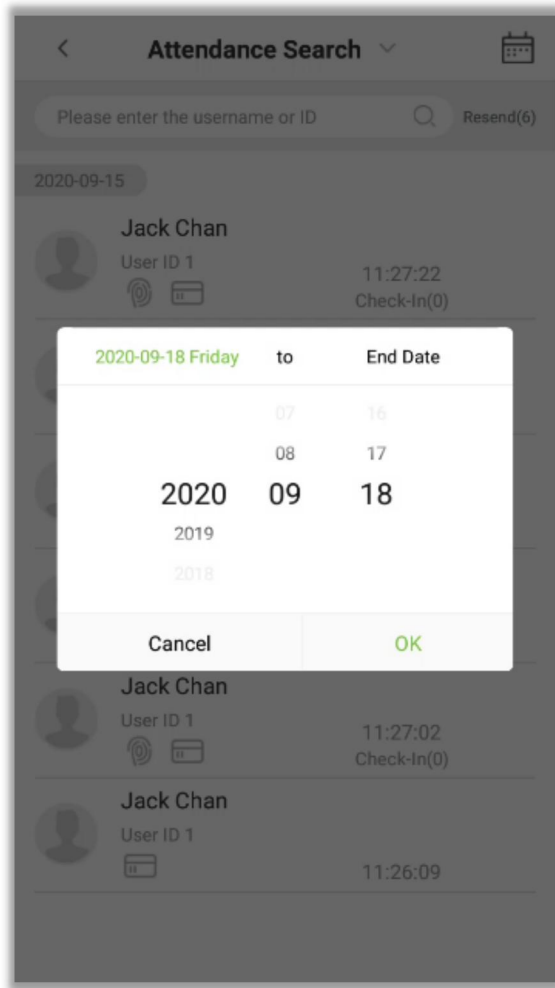
1. Tap [**Attendance Search**] in the main menu, and the attendance record appears as shown below:



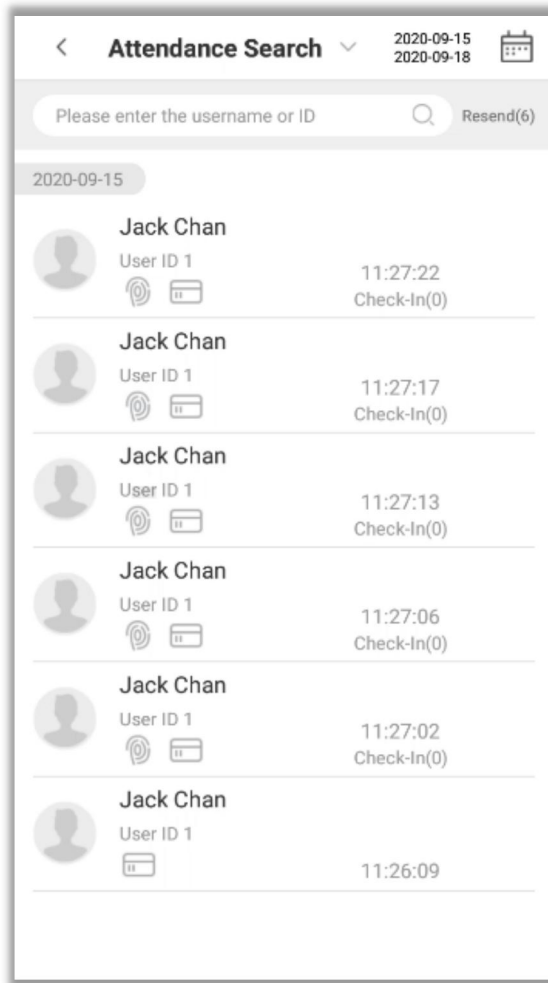
2. Enter the query conditions such as the User ID, First or Last name of an employee in the search bar. Automatically the system displays the users with information that is relevant to the search query.



3. Tap on the  icon to access the following window where you can select the [Starting Date] and [Ending Date] to search the records.
4. After setting the Start and End date, tap on **[OK]**.



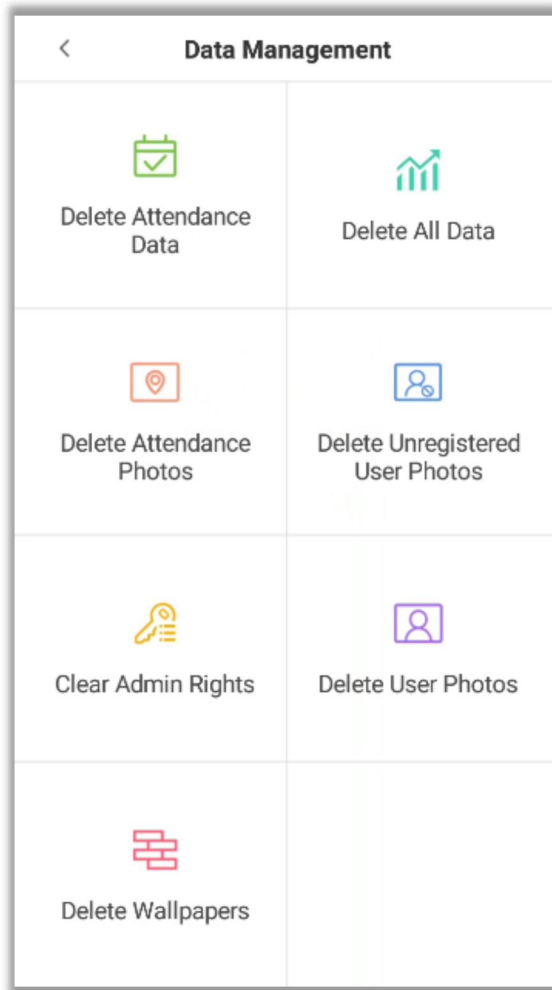
- 4. The search results will be displayed as shown below:



## 7 Data Management

The Data Management menu is used to manage the Device's data, including Deleting Attendance data, Deleting All data, Deleting Attendance photos, Deleting Unregistered user photos, Clearing Admin rights, Deleting user photos, and Deleting wallpapers.

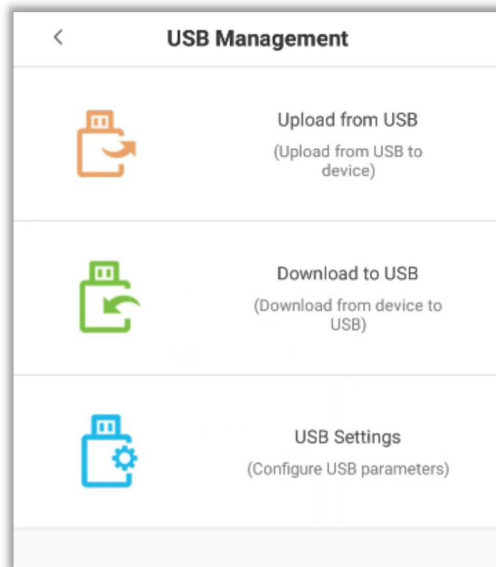
Tap on **[Data Management]** in the main menu.



Menu	Function Description
<b>Delete Attendance Data</b>	<ol style="list-style-type: none"> <li>1. Deletes all the attendance data</li> <li>2. Deletes the attendance logs within a specified time range.</li> </ol>
<b>Delete All Data</b>	Deletes all the data in the device including attendance logs, attendance pictures, blacklist pictures, fingerprint/ facial biometric data, privileges of the Super Admin, user photos, user data, and access control data.
<b>Delete Attendance Photos</b>	<ol style="list-style-type: none"> <li>1. Deletes all the attendance photos</li> <li>2. Deletes invalid user accounts</li> <li>3. Deletes the attendance photos within a specified time range.</li> </ol>
<b>Delete Unregistered User Photos</b>	<ol style="list-style-type: none"> <li>1. Delete all the unregistered user photos</li> <li>2. Deletes the unregistered user photos within the specified time range.</li> </ol>
<b>Delete Admin Rights</b>	Deletes all the Admin privileges.
<b>Delete User Photos</b>	Delete all the user photos.
<b>Delete wallpapers</b>	Delete all the wallpapers stored in the device.

## 8 USB Management

The USB management functions include upload from USB, download to USB and USB disk settings.




Menu	Function Description
<b>Upload from USB</b>	Uploads the USB disk content to the device.
<b>Download to USB</b>	Downloads the data from the device to the USB disk.
<b>USB Settings</b>	Configure the parameters of USB disk.

## 9 Alarm Management

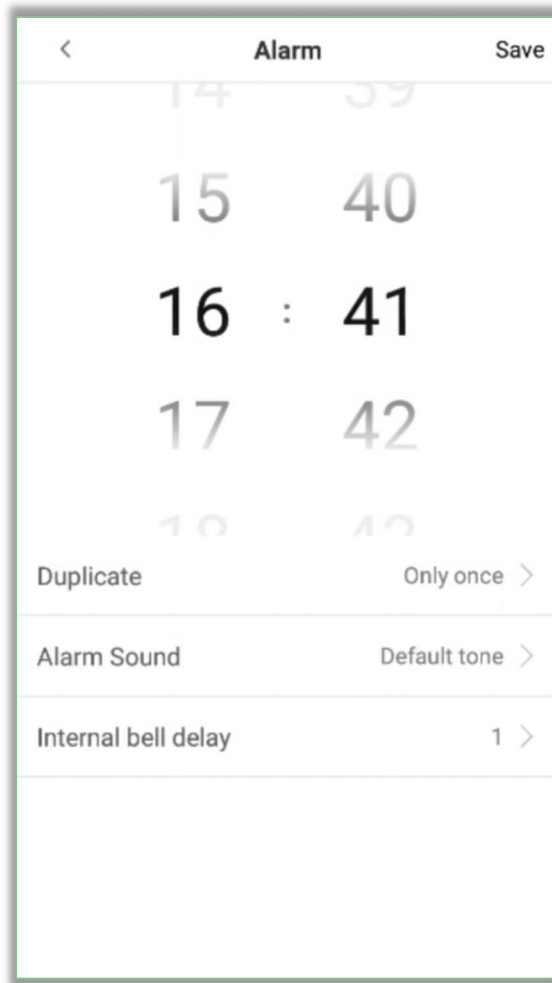
Once an alarm has been set, the device will automatically play the preselected ringtone when the designed time is reached. It will stop ringing after the alarm time elapsed.

### 9.1 Add Alarm

1. On the alarm management interface, tap on  to open the **"Add Alarms"** page.

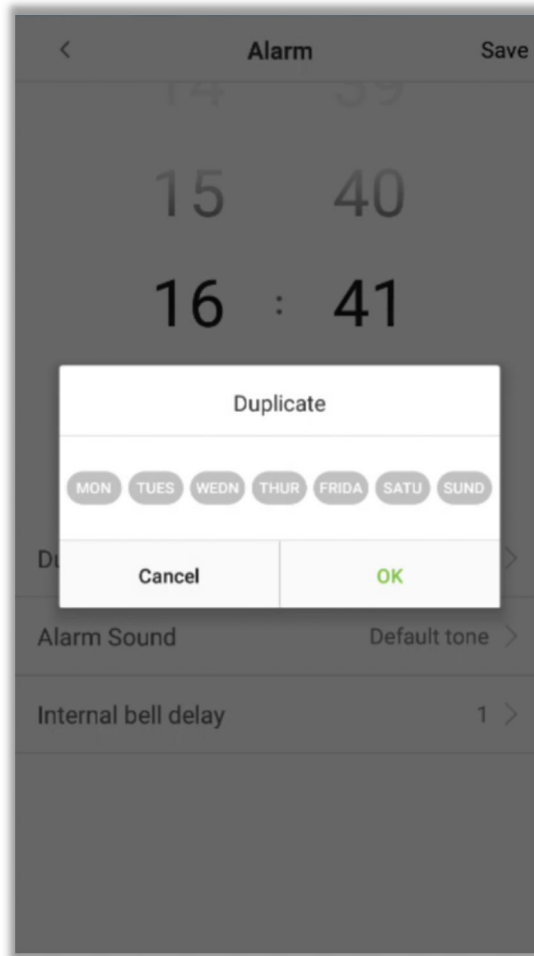


- 2. Set the time to trigger an alarm. Select the **[Hour]** and **[Minute]**.

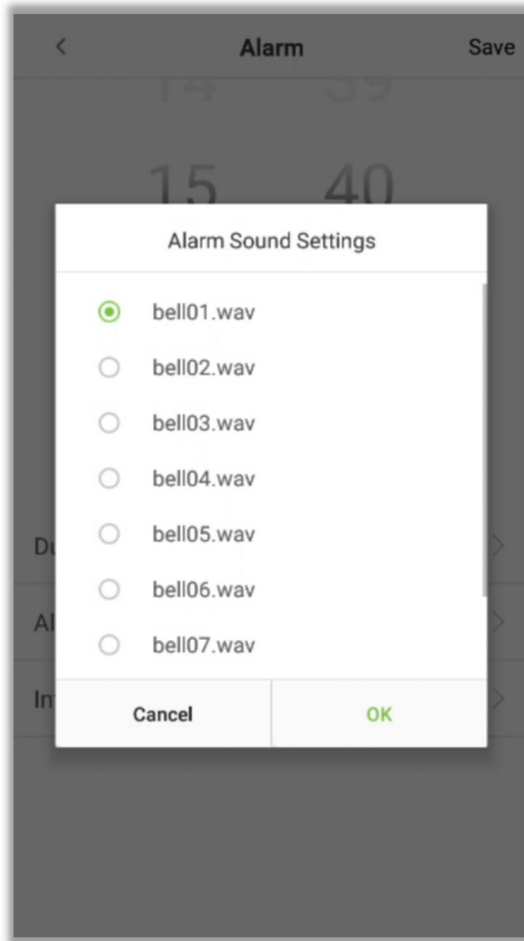




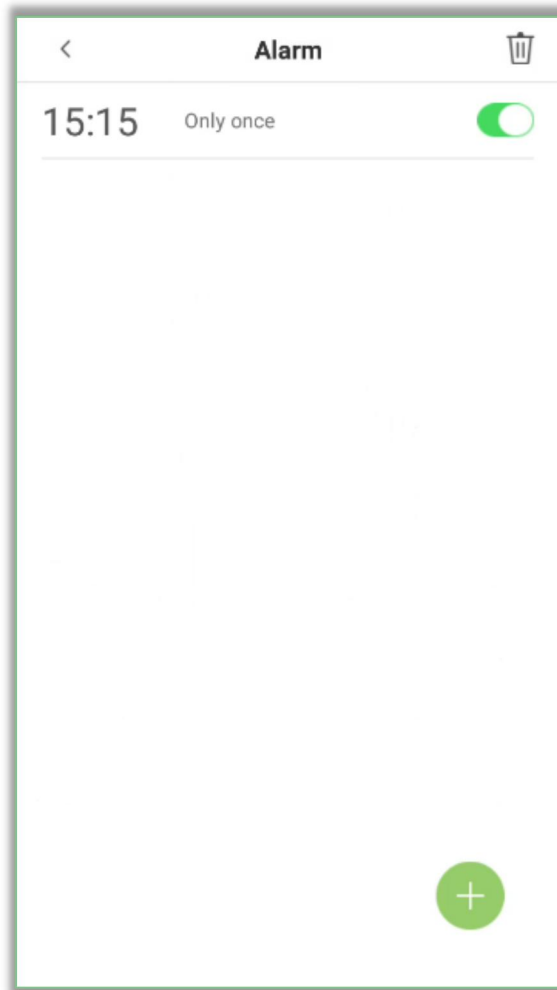
3. Duplicate-- The default is set to "Only once". To copy the settings to other days, tap on the **[Duplicate]** button and a window will pop up. Select the date and tap on **[OK]**.



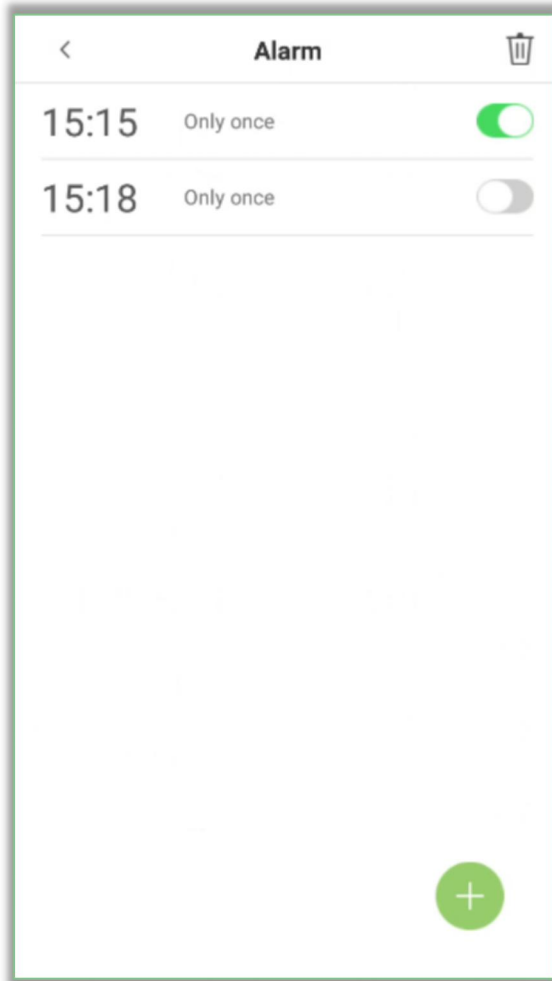
4. Tap on **[Alarm Sound]** and a window will pop up. Select a ringtone and tap on **[OK]**.



5. Tap on **[Save]** and the alarm will be successfully added. The alarm will be enabled by default on the specified time.

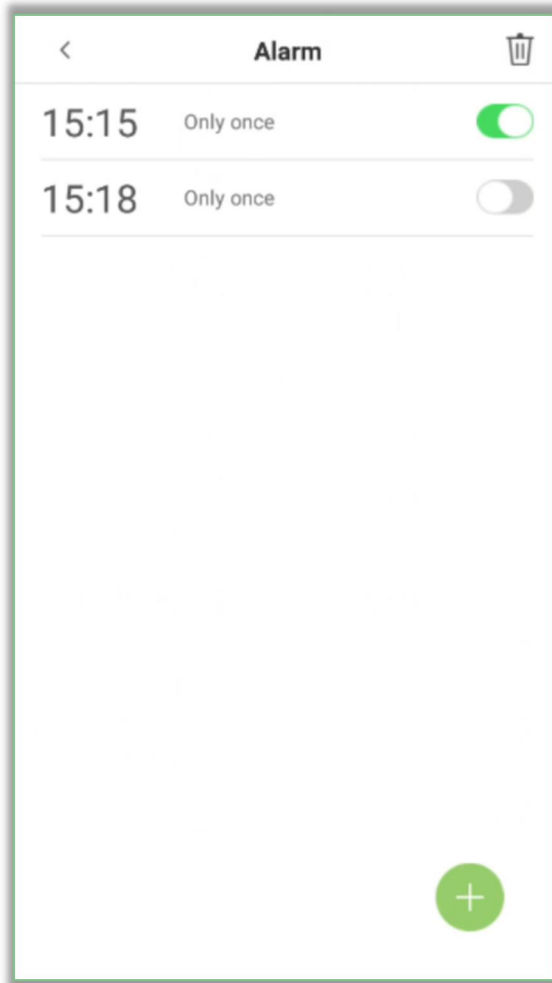


- 6. Toggle the Alarm button to change the alarm's status.

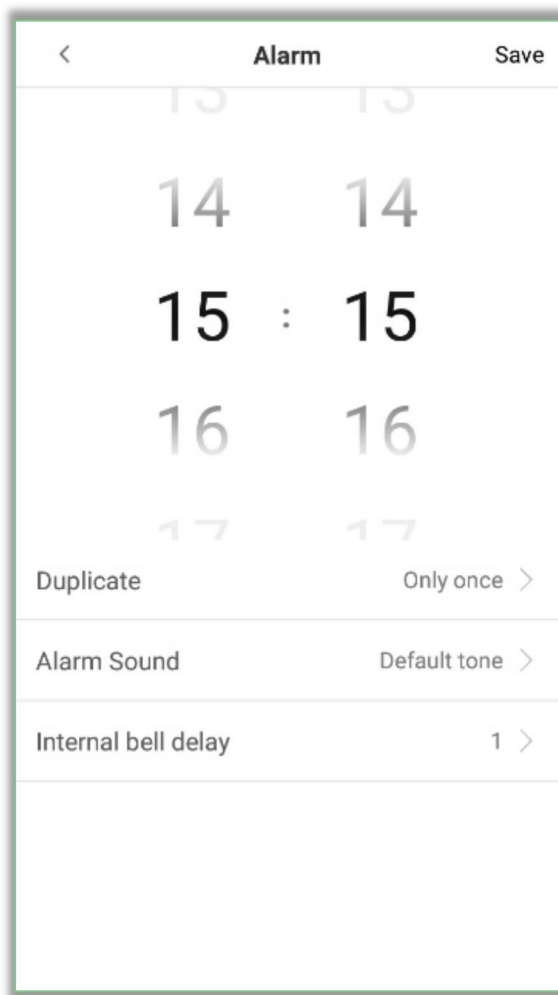


## 9.2 Edit Alarm

1. Select an alarm from the alarm list.




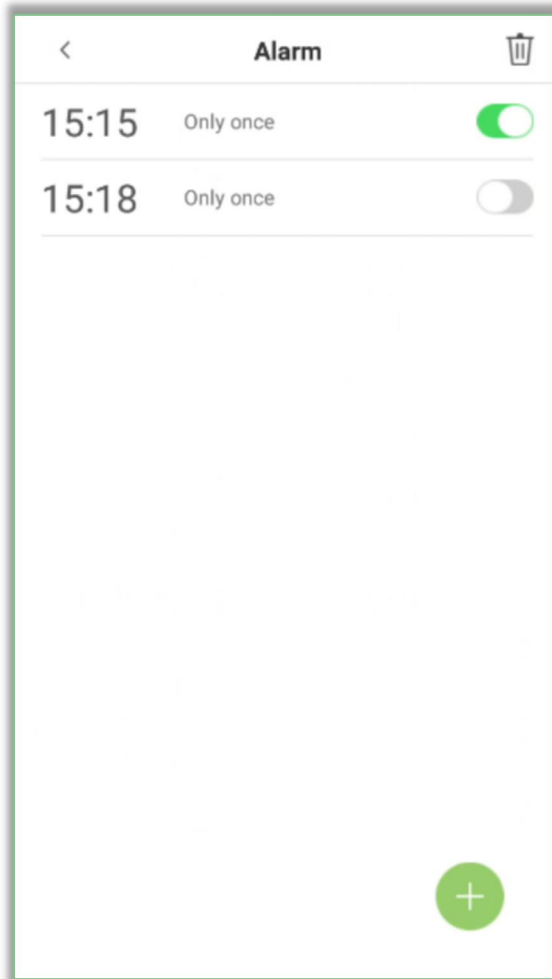
- 2. Edit the alarm time and other settings as per the requirements.




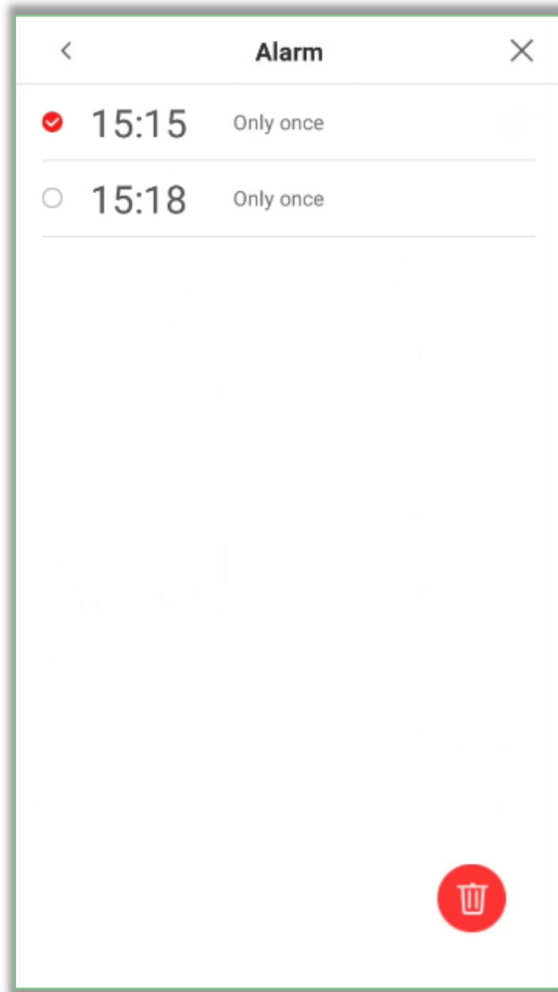
See [Add Alarm](#) for more details.

## 9.3 Delete Alarm

1. On the Alarm Management interface, tap on the  button on the upper right corner.

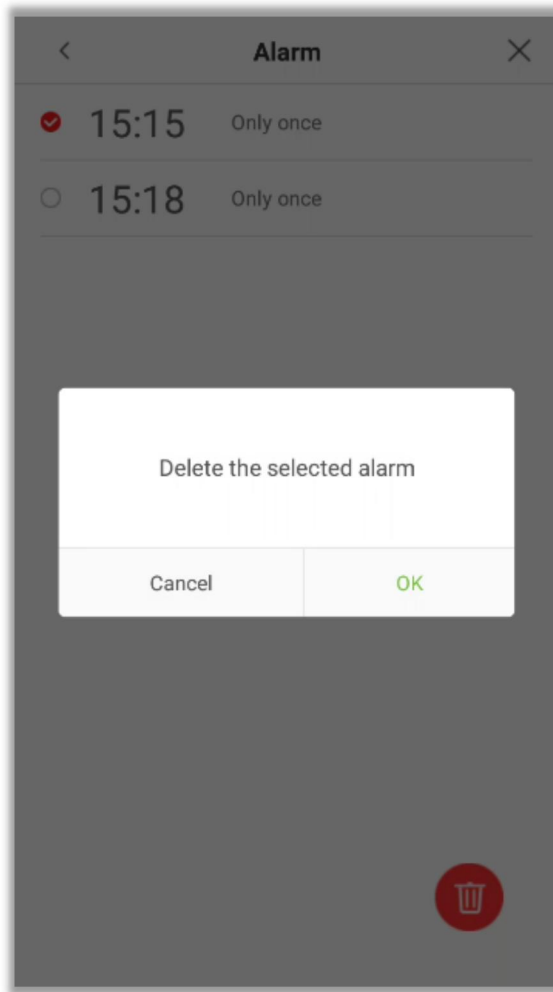


2. Select the alarm that you would like to delete, and then tap on  button on the lower right-corner of the interface.





3. Tap on **[OK]** to delete the alarm.



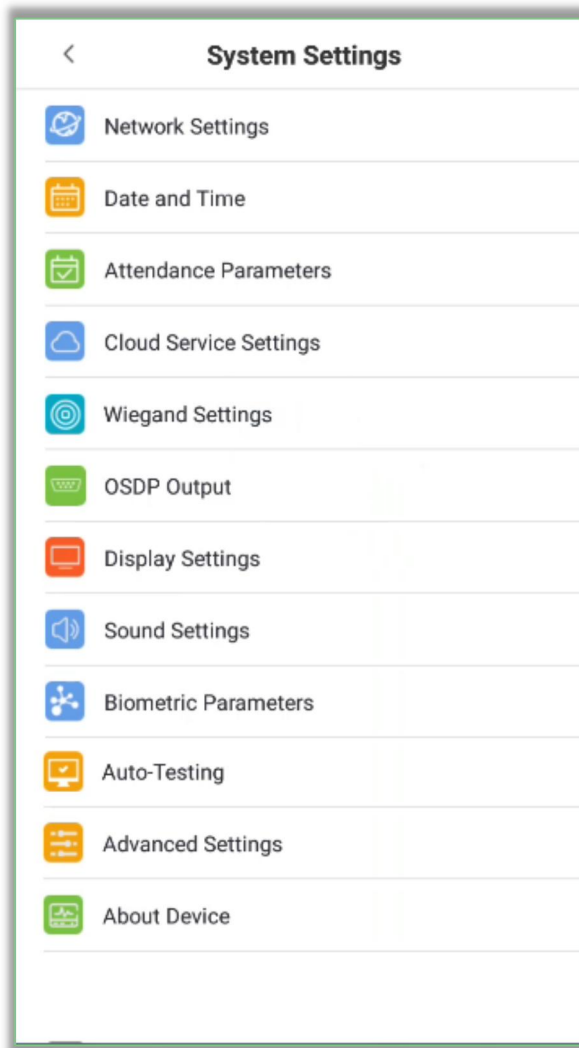
4. The alarm is now deleted and will not appear on the list.



## 10 System Settings

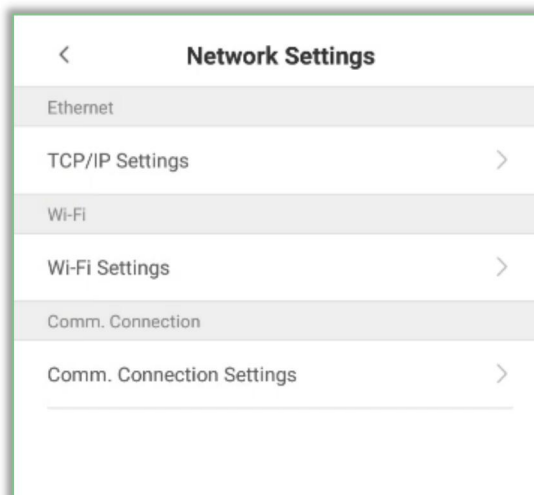
The System Settings maximizes the device's ability to meet the user requirements by optimizing the device's performance.

In the main menu, tap on **[System Settings]**.



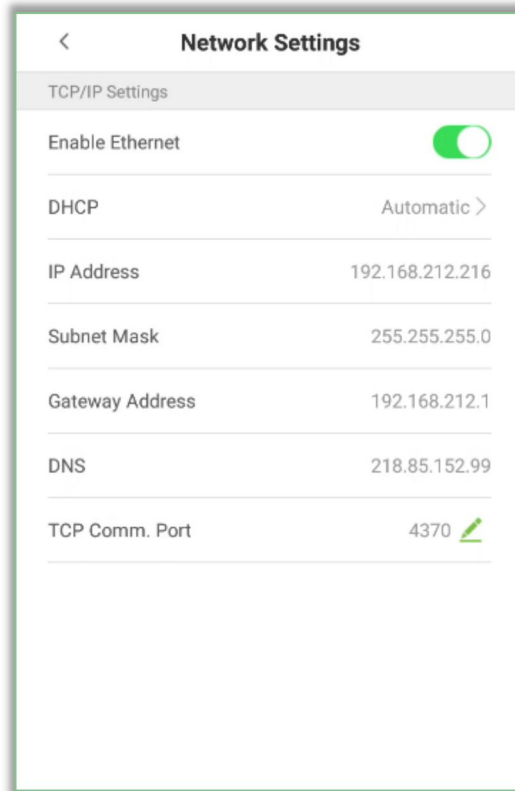
## 10.1 Network Settings

On the system settings list, tap on **[Network Settings]** to enter the Network Settings interface:



### 10.1.1 Ethernet Settings

When the device needs to communicate with a PC via Ethernet, the network must be set up to make the device and the system in the same network segment. When the device is not connected to the network, tap on **[TCP/IP Settings]** on the “Network Settings” interface. The following page will display:



Menu	Function Description
<b>Enable Ethernet Switch</b>	Enable to modify the Ethernet Network Address parameters. If this is not enabled, users cannot modify the Ethernet Network Address parameters.
<b>DHCP</b>	Enable DHCP to assign an IP address to the internal network or network service provider. If DHCP is on, you cannot manually set the IP of the device.
<b>IP Address</b>	The default IP is 0.0.0.0 (can be changed).
<b>Subnet Mask</b>	The default IP is 0.0.0.0 (can be changed).
<b>Gateway Address</b>	The default IP is 0.0.0.0 (can be changed).
<b>DNS</b>	The default IP is 0.0.0.0 (can be changed).
<b>TCP COMM Port</b>	The default TCP port is 4370 (can be changed).
<b>Note</b>	When the device is not connected to the network, the parameters such as IP Address and Subnet mask are 0.0.0.0. When the device is connected to the network, the parameters such as IP Address and Subnet mask are automatically displayed as set values.

### 10.1.2 Wi-Fi Settings

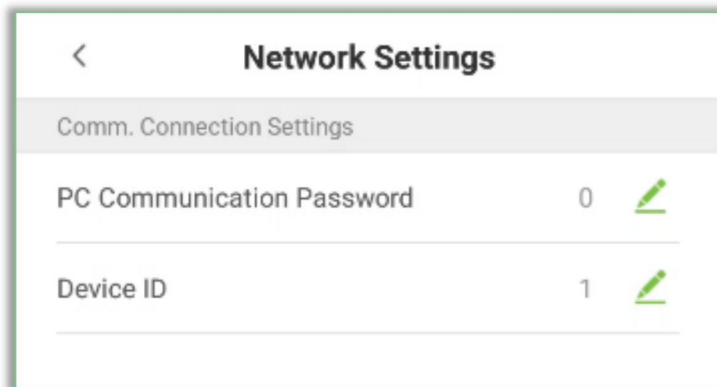
Tap on **[Wi-Fi Settings]** to open the Network Settings interface.



### 10.1.3 Comm. Connection Settings

To improve the security and confidentiality of the access data, the user needs to set a connection password. Before obtaining a successful connection between the PC software and the device, the connection password must be entered correctly.

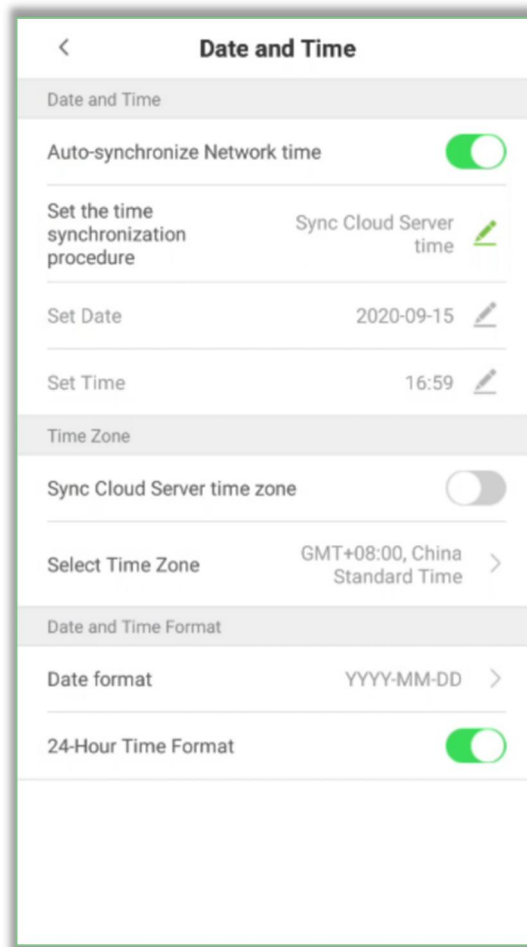
On the **Network Settings** interface, tap on **[Comm. Connection Settings]**.



Menu	Function Description
<b>PC Communication password</b>	It is used to gain the connection permission when using offline SDK or PULL SDK connection. If the password is not correct, the communication connection cannot be built. The value ranges from 0 to 999999. When the value is 0, there is no code status.
<b>Device ID</b>	The ID ranges from 1 to 255. If the system is using the RS232/RS485 communication method, please input the device ID during software communication.

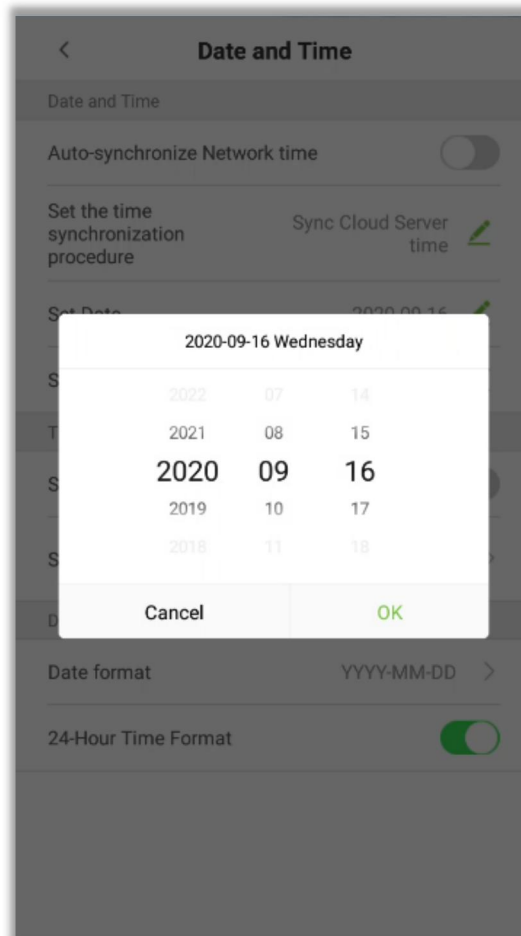
## 10.2 Date and Time

In system settings, tap on [Date and time] to enter the date and time settings interface:

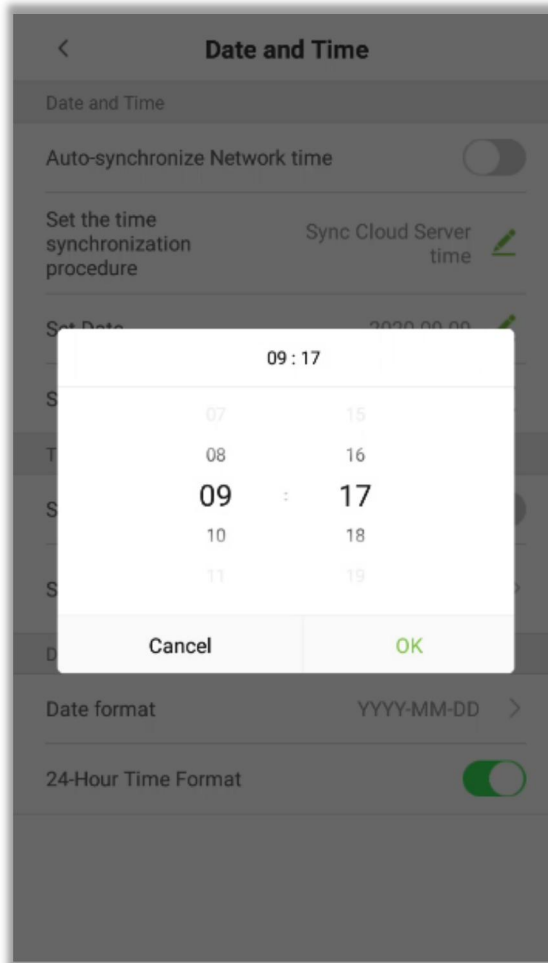


## 10.2.1 Date and Time Settings

1. Tap on **[Set Date]** and swipe up and down to set the Year, Month, and Day. Tap on **[OK]**.



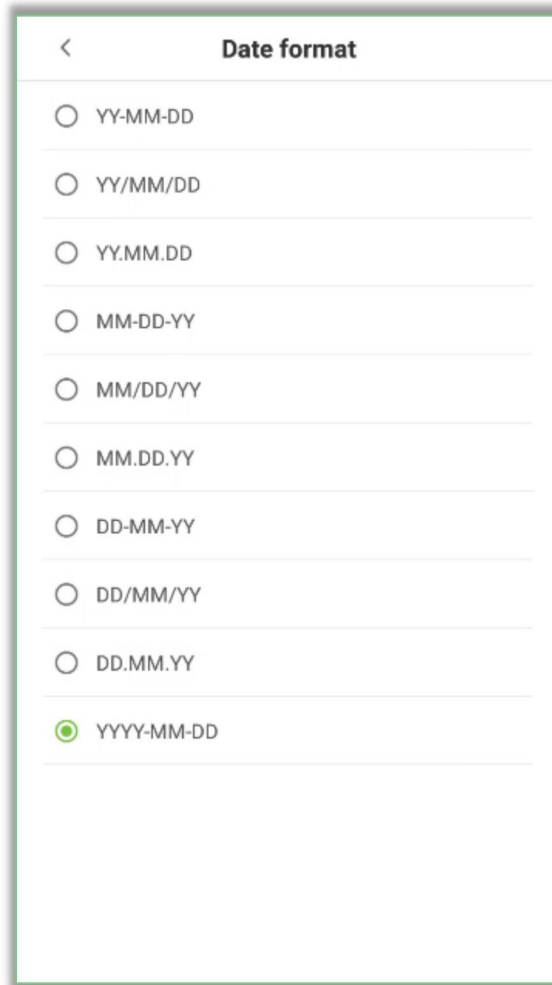
2. Tap on **[Set Time]** and swipe up and down to set the Hour and Minute. Tap on **[OK]**.



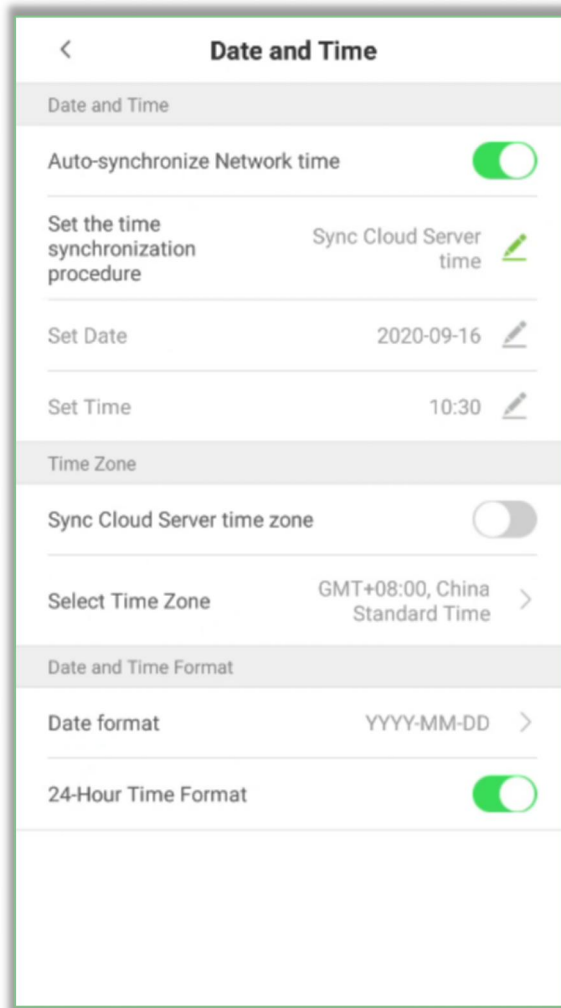


## 10.2.2 Date and Time Format Settings

1. Tap on **[Date Format]** and select the desired date format.



2. Tap on **[24-Hour Time]** to set the 24-Hour time format.



**Auto-Synchronize Network Time:** Enabled by default, and the device synchronizes the current Network time. If disabled, the user can set the date and time.

**Sync Cloud Server Time:** Synchronizes the time of the Server of the software to which the device is connected.

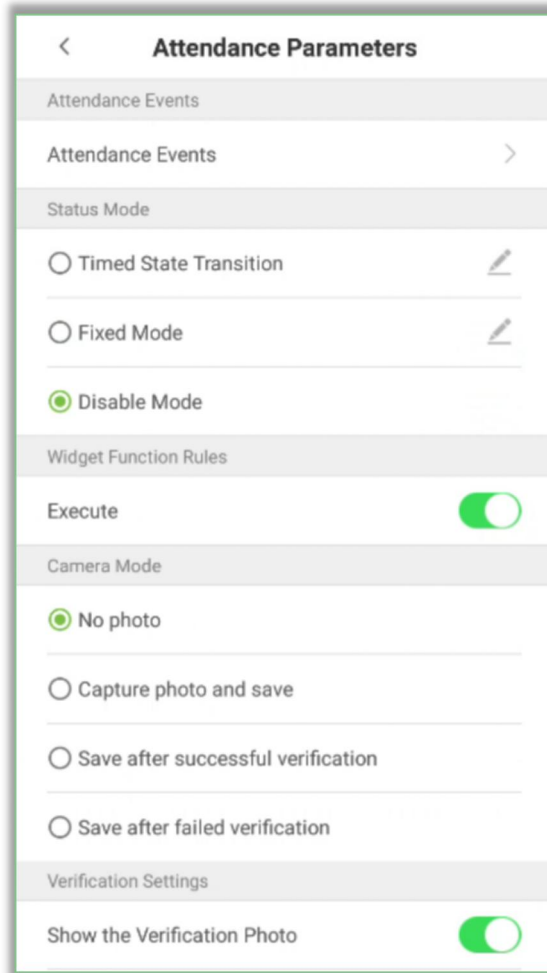
**Sync Network Time:** Synchronizes the actual time of the Internet.

**Sync Cloud Server Time Zone:** Enabled by default, and the device synchronizes the time zone issued by the software.

**Select Time Zone:** The default Time zone is GMT + 8: 00. The user can modify as per the actual conditions.

## 10.3 Attendance Parameters

In System settings, tap on [**Attendance Parameters**] to open the attendance parameters settings interface.



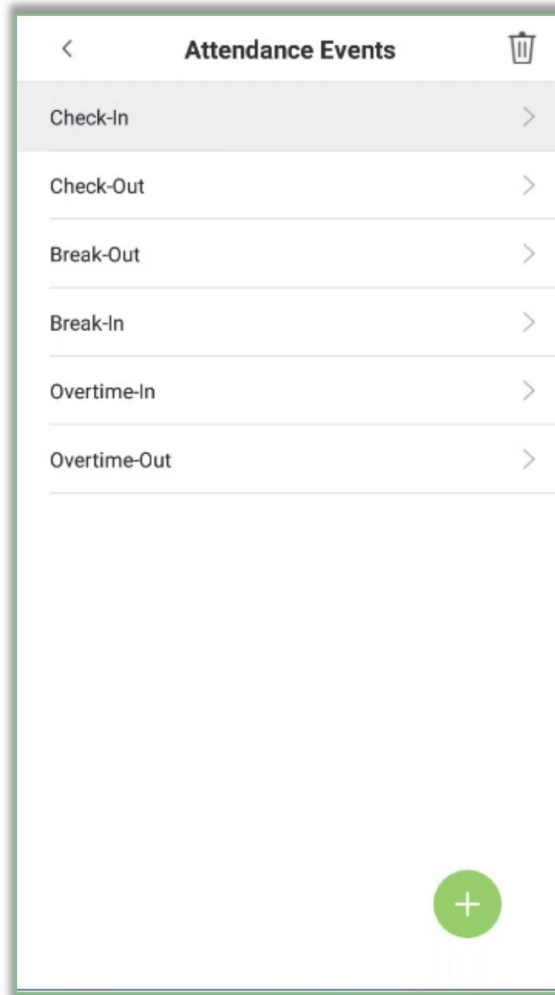
### 10.3.1 Attendance Events

Attendance Events are used to record the clock-in/out status. There are 6 default attendance statuses, including Clock-in, Clock-out, Break-out, Break-in, Overtime-in, Overtime-out. The 6 default statuses cannot be deleted or modified.

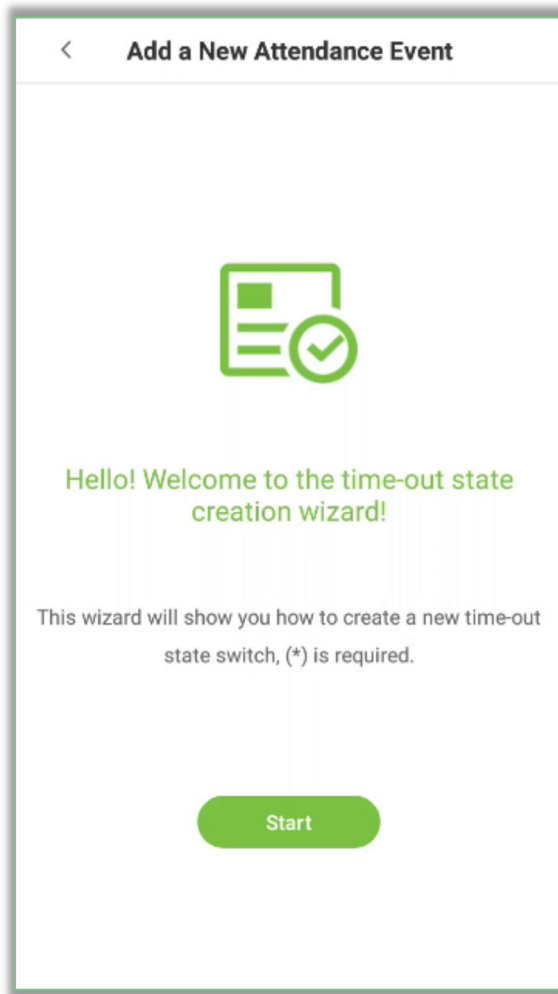
## **Add Attendance Events**

Tap on **[Attendance Events]**.


1. On the “Attendance Events” interface, tap on  to open the “Attendance Event” interface.

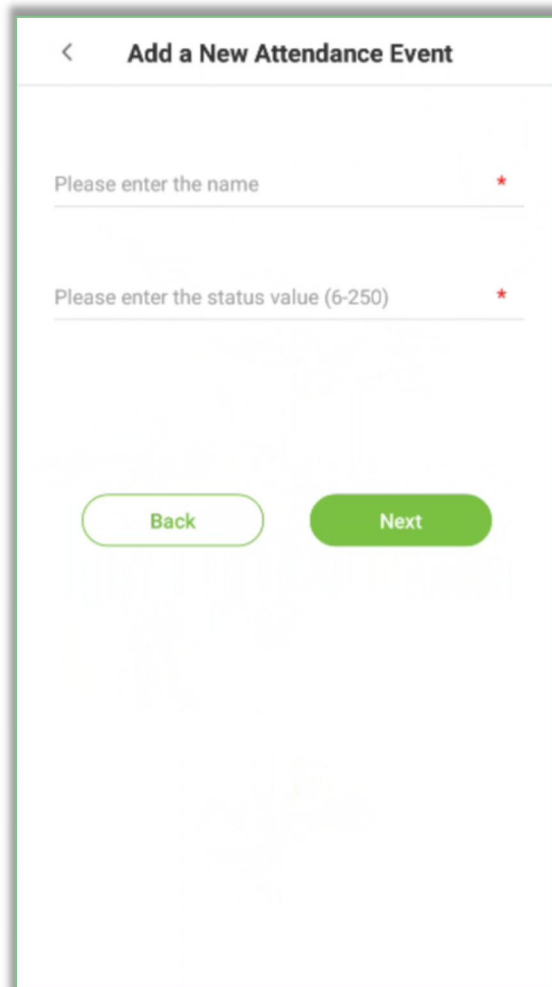


2. In the attendance event creation wizard, tap on **[Start]**.



3. Enter the **[Name]** and **[Status Value]** of the new attendance event.

 Note: The maximum length of the name is 24 characters. The status values must be unique and cannot be duplicated. The value ranges from 6 to 250.



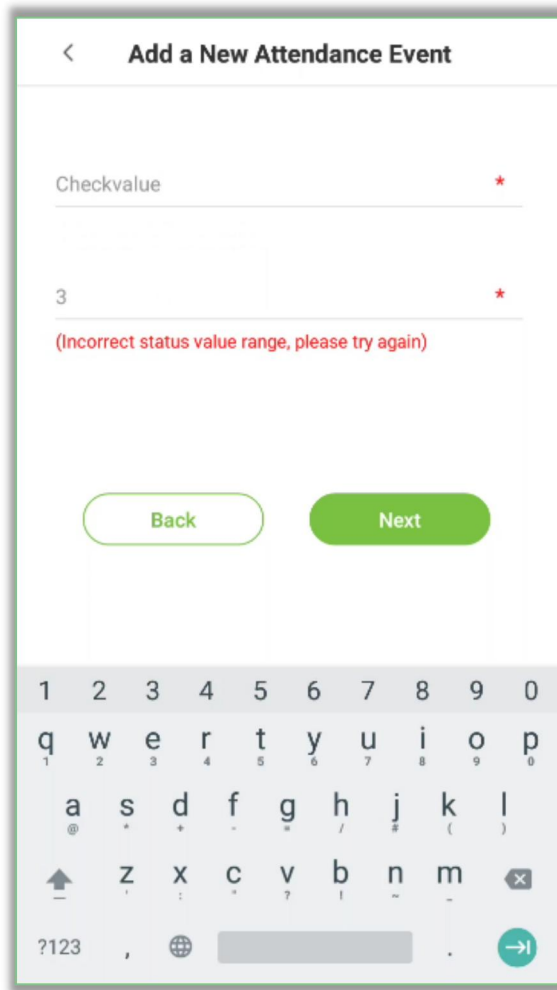
< Add a New Attendance Event

Please enter the name \*

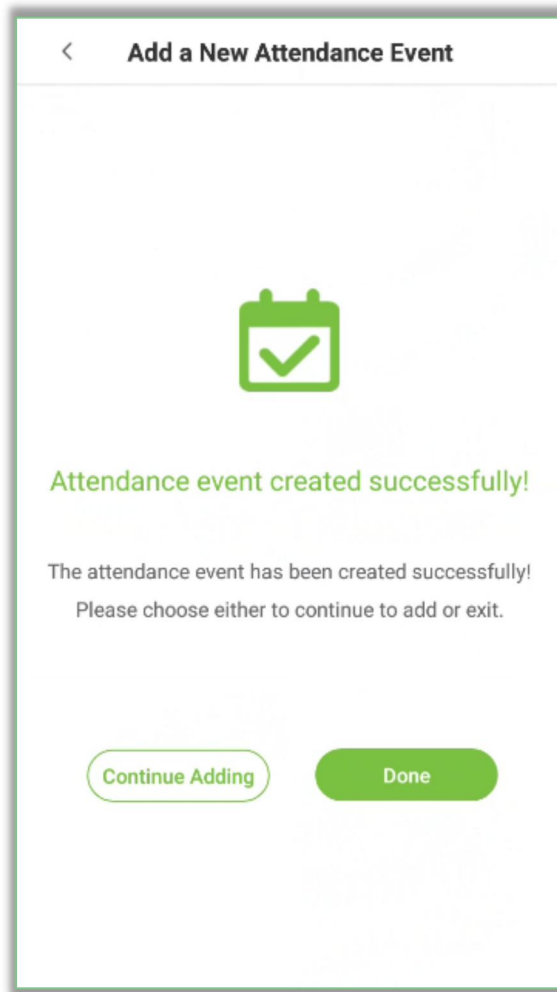
Please enter the status value (6-250) \*

Back Next

4. If the input status value repeats or exceeds the limit, the following message will appear.



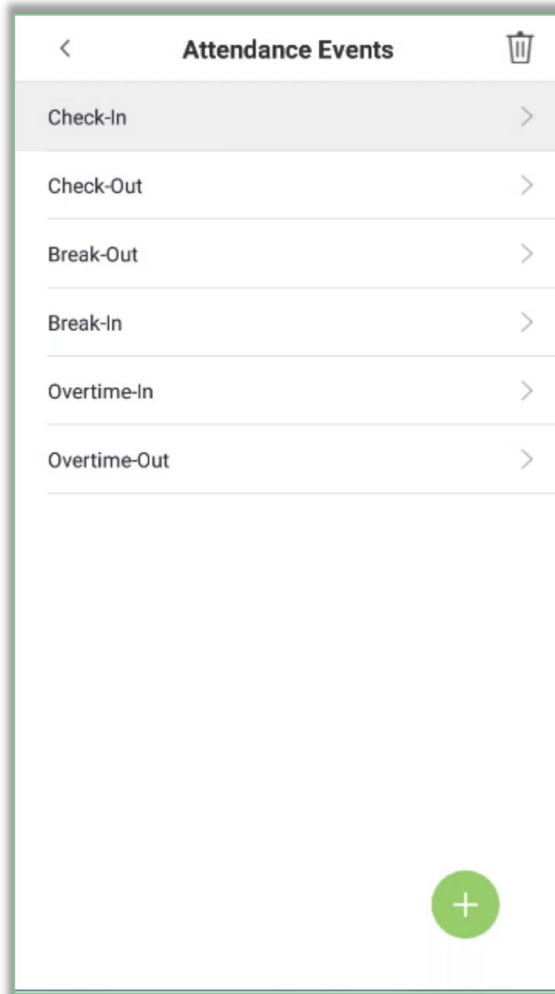
5. If the Attendance Event is created successfully, the success message appears as shown below:





## **Edit Attendance Events**

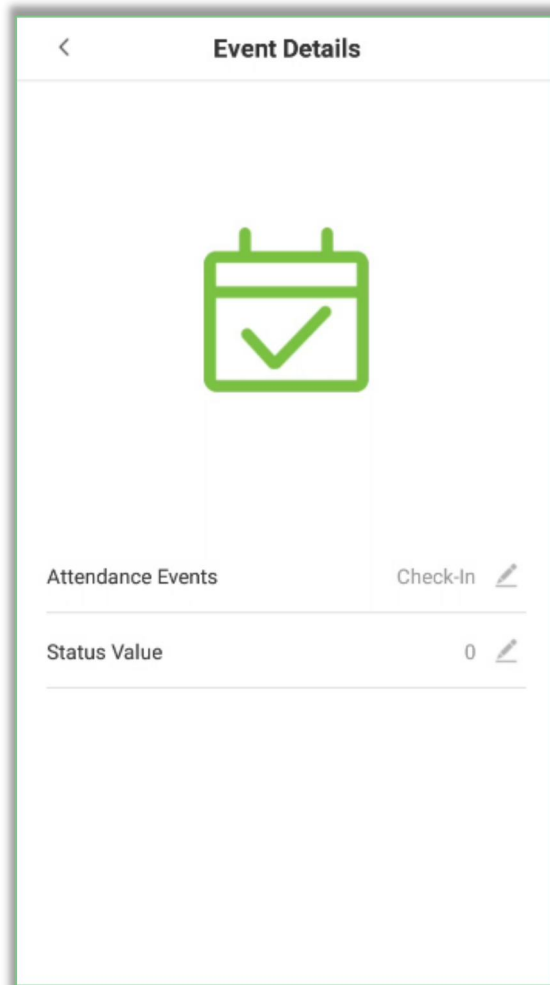
1. Select an attendance event.



2. Tap on **[Name]** or **[Status Value]** to edit.




Note: The first 6 attendance events cannot be edited. The status values must be unique and cannot be duplicated



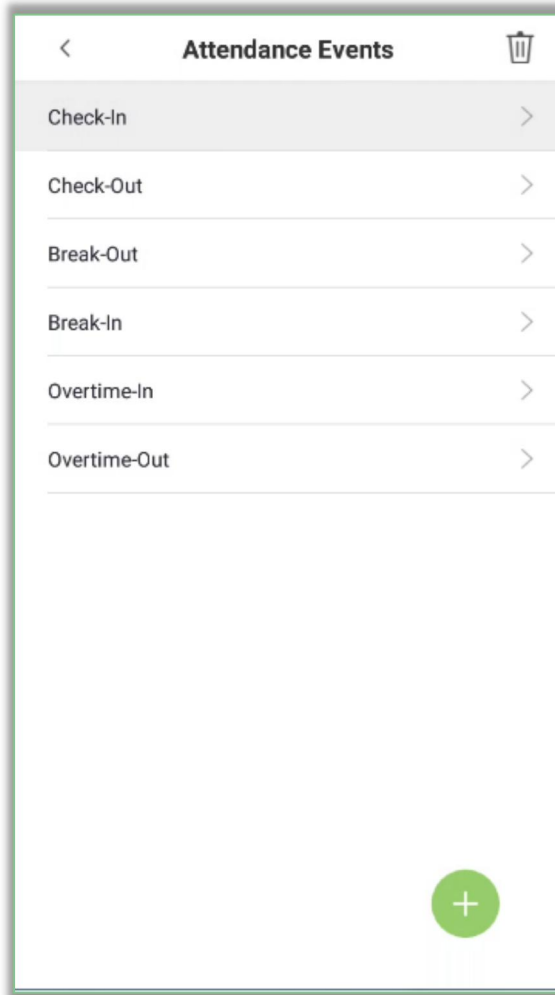
For further information, see [Add Attendance Events](#).

## **Delete Attendance Events**

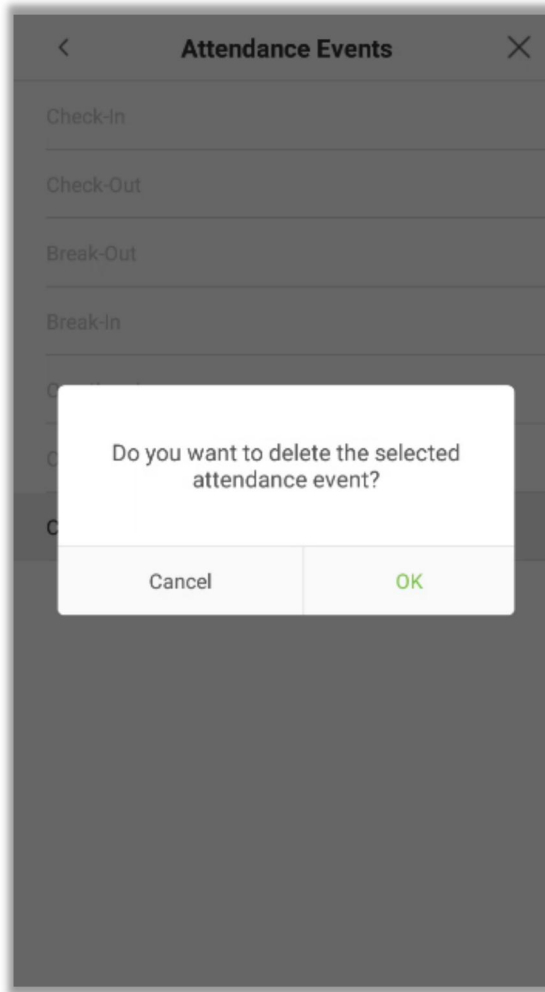
1. Select an attendance event and tap on the  icon on the upper right corner.



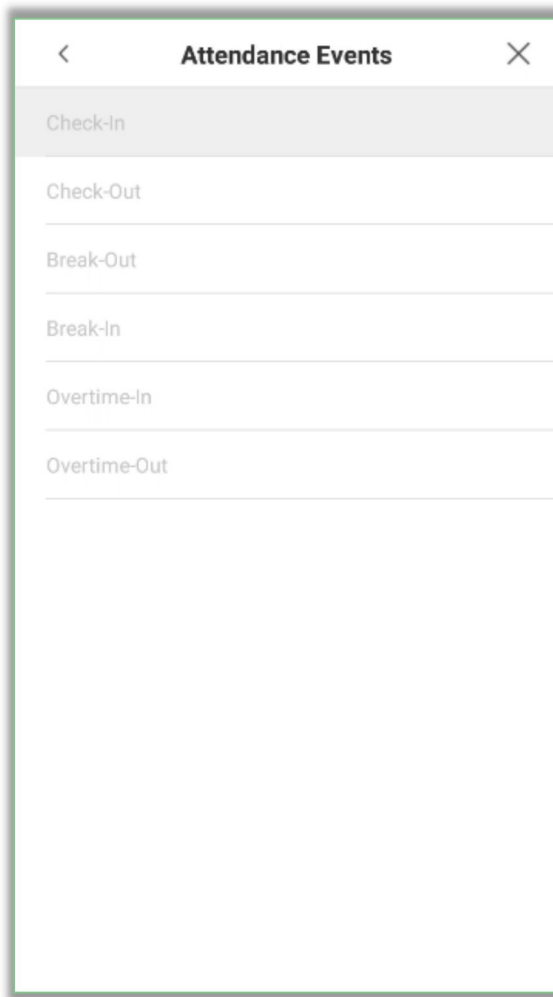
Note: The first 6 events cannot be deleted, so the delete button will not appear).



2. Tap on **[OK]** on the appearing window to delete the attendance event.



3. The event is now deleted and will not appear on the list.



### 10.3.2 Status Mode


There are three modes for attendance statuses.

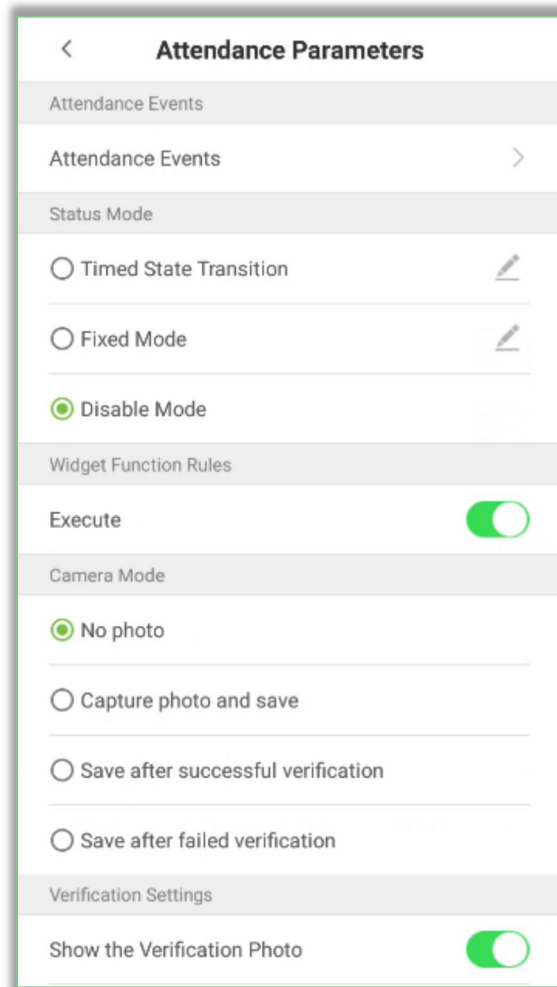
**Timed State Transition:** Displays different attendance statuses at different times.

**Fixed Mode:** There is only one fixed attendance mode.

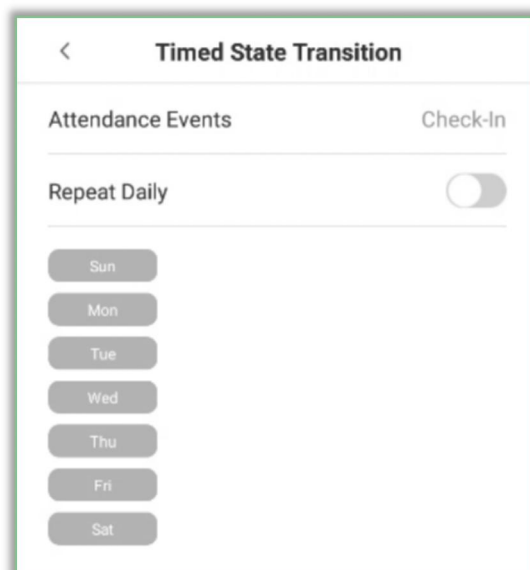
**Disable Mode:** The Status mode will not be used.

## **Timed State Transition**

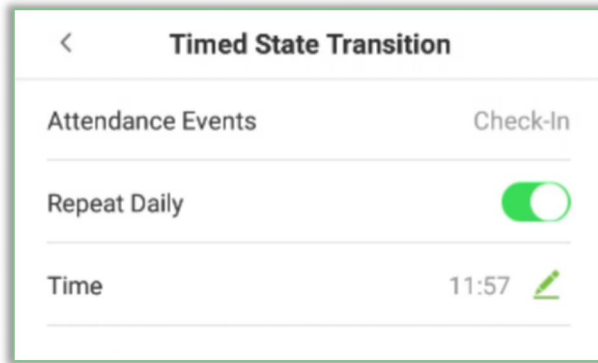
1. After selecting the "Timed State Transition" button, tap on the  button to set the related parameters.



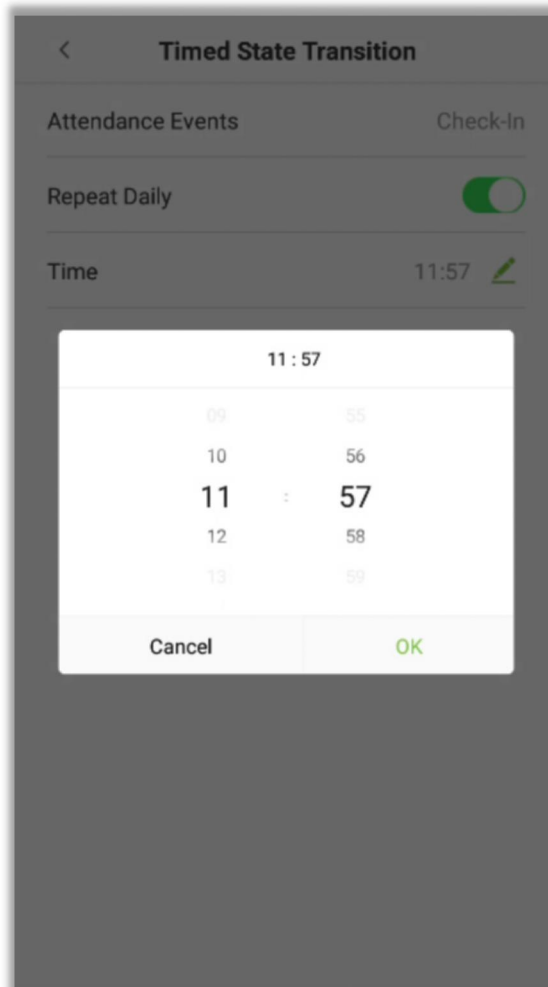
2. On the Timed State Transition interface, tap on **[Check in]**, then tap on **[Repeat Daily]**.



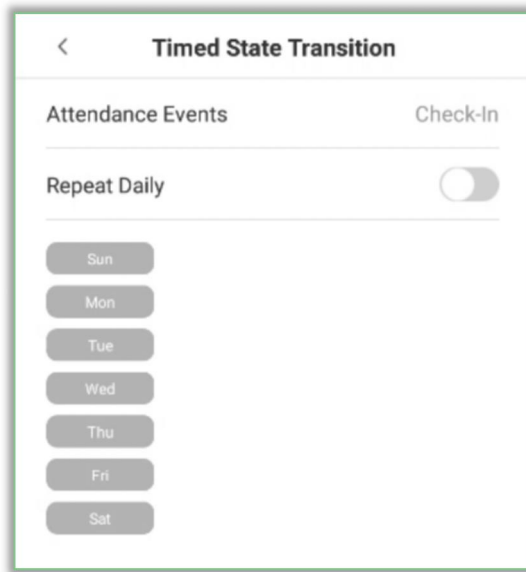
- When the **[Repeat daily]** option is enabled, the following screen will be displayed.



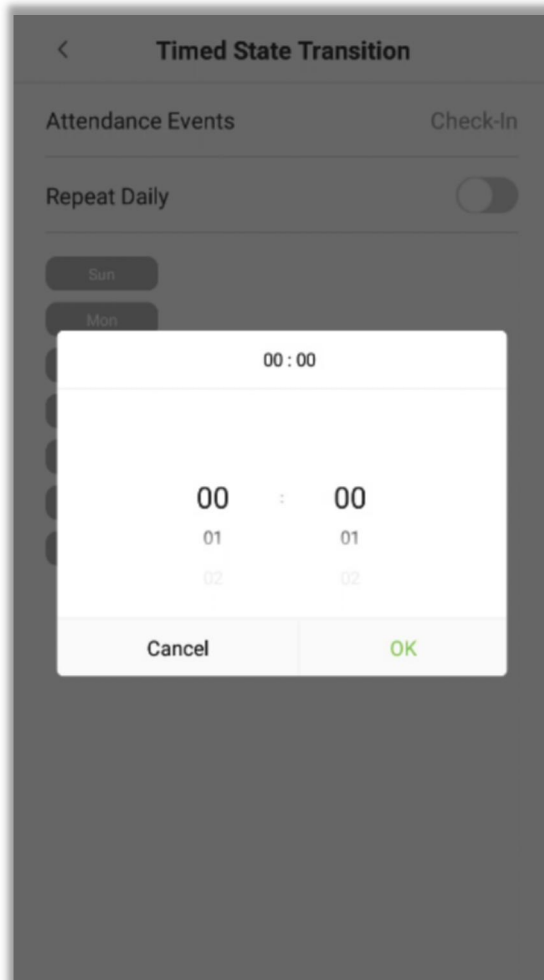
- Tap on the **[Time]** button and swipe up and down to set the time. Tap on **[OK]**.



- 5. When the **[Repeat Daily]** option is disabled, the following screen will be displayed.

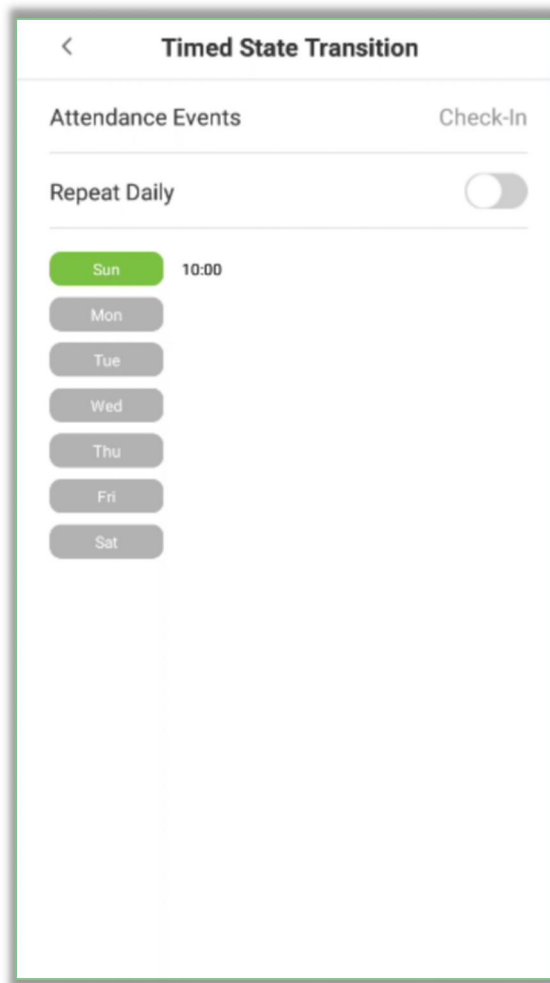



- 6. Tap on the button for the date you would like to set, then swipe up and down to set the corresponding time. Tap on **[OK]**.






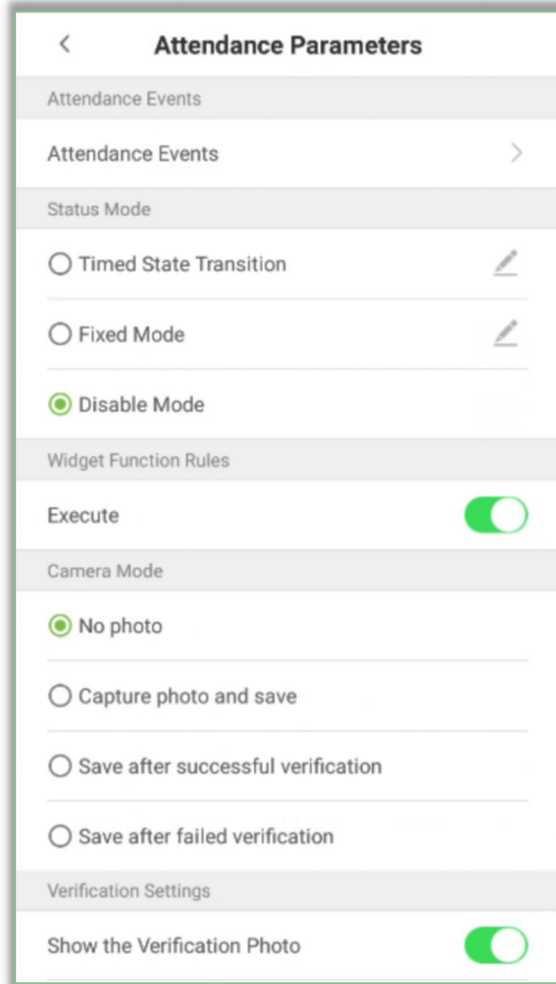
7. After applying the settings, the interface appears as shown below:



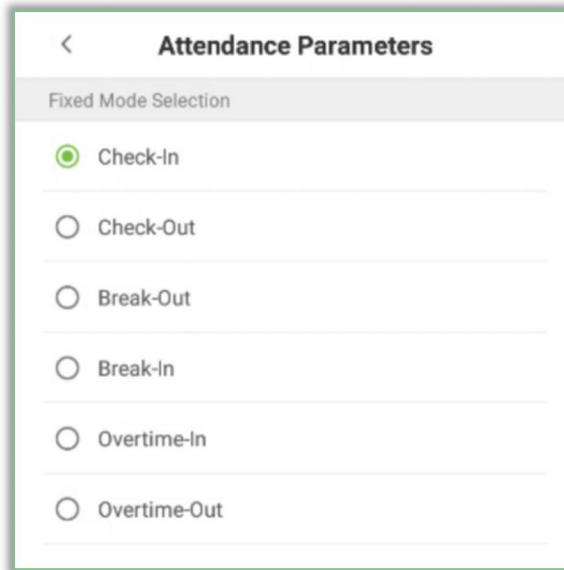
 Note: The settings process for "Clock out", "Break out", "Break in", "Overtime in", and "Overtime out" is the same as "Clock in".

## **Fixed Mode**

1. The status mode is set to "Fixed Mode", tap on the  button to open the Fixed Mode options menu.

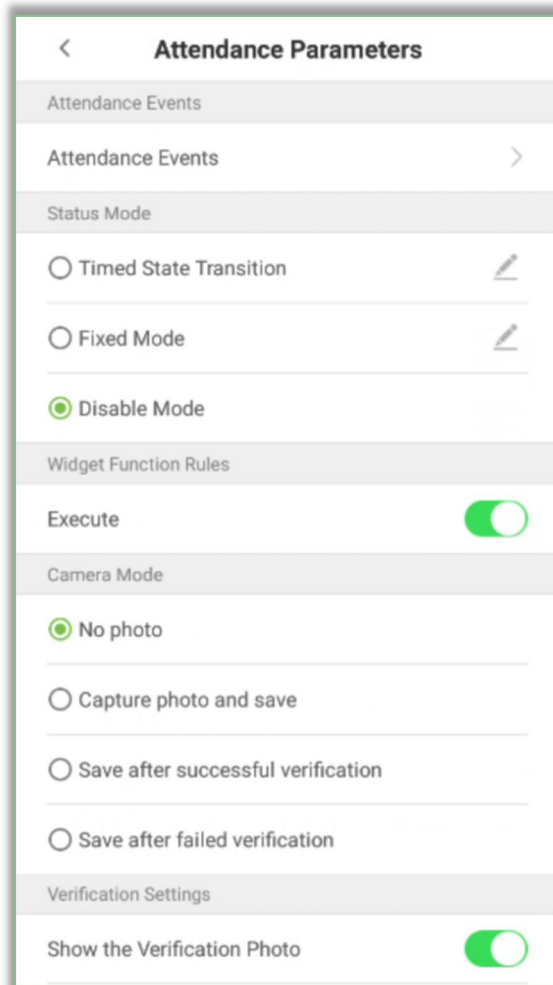


2. In the Fixed Mode selection menu, select the attendance status that the user would like to set.



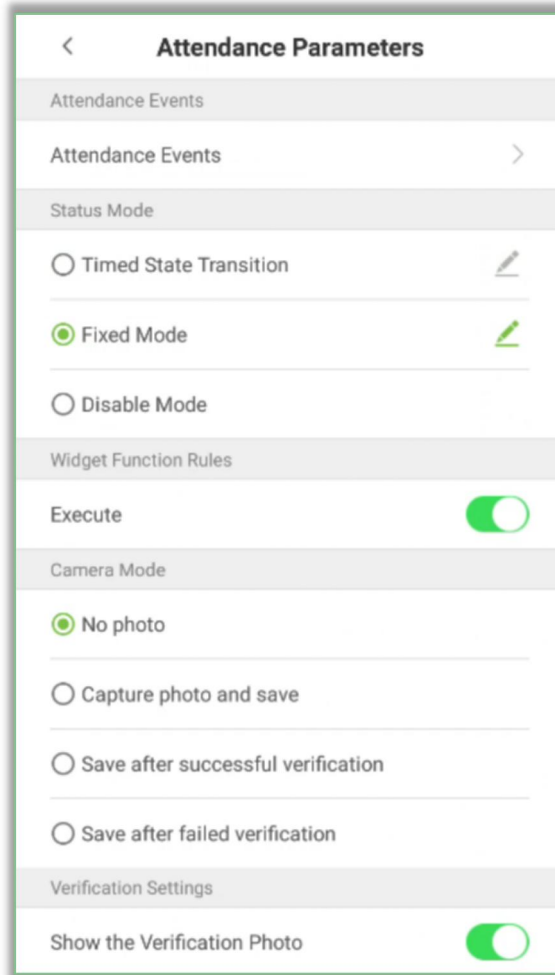
### **Disable Mode**

Select the Status Mode as "Disable Mode".



### 10.3.3 Widget Function Rules

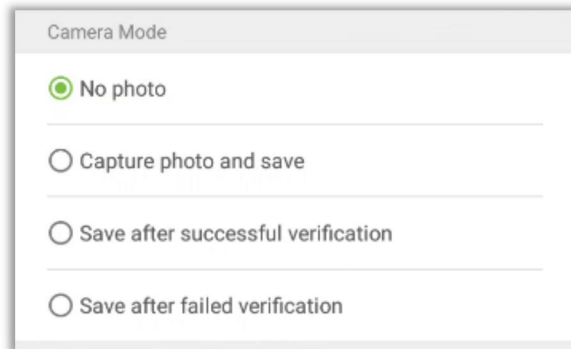
Tap on the **[Execute]** toggle button to enable. The main interface will display the attendance status widget.



### 10.3.4 Camera Mode

Here, the user can set the procedure of capturing and saving the user photos after verification as per the requirements.

Tap on the [**Camera Mode**] to set the required parameters.



**No Photo:** User's photo will not be saved during verification.

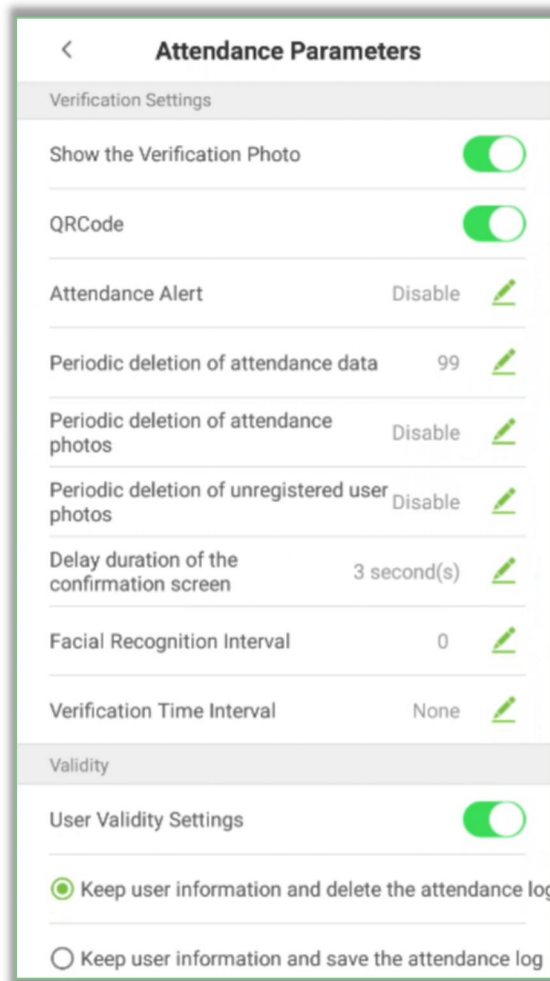
**Capture Photo and Save:** User's photo will be taken and saved during verification.

**Save after Successful Verification:** When the user verification is successful, the photo is taken and saved.

**Save after Failed Verification:** When the user verification is failed, the photo is captured and saved.

### 10.3.5 Verification Settings

Here, the user can configure the parameters for user verification.



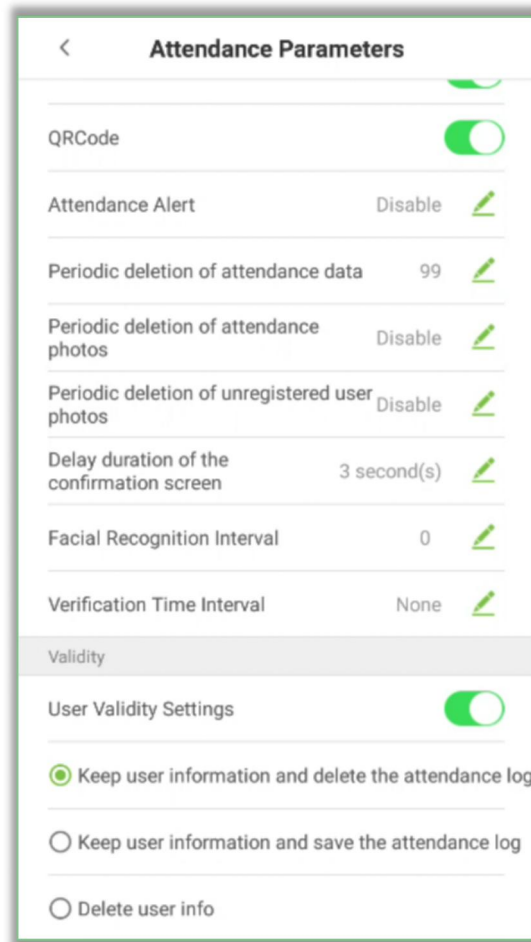
Menu	Function Description
<b>Show the Verification Photo</b>	If it is enabled, the user photo will be displayed after verification. If not, the user photo will not be displayed.
<b>QR Code</b>	If it is enabled, the camera can recognize the QR code image on the ZKBioSecurity Mobile APP captured by the lens or the QR code scanner. Find the attendance QR code on the ZKBioSecurity Mobile App. Align it with the QR code scanner at the bottom right corner of Horus H1. You can check in/out when verification is successful.  About how to set the attendance QR code, please refer to Chapter 7.5 of the <b>[ZKBioSecurity Mobile APP User Manual]</b> .
<b>Attendance Alert</b>	When the remaining record memory space reaches a set value, the device will automatically display a warning. When the value is set as 0,

	the function will be disabled.
<b>Periodic deletion of Attendance Data</b>	When the attendance record memory has reached the full capacity, the device will automatically delete a set value of old attendance records. When the value is set as 0, the function will be disabled.
<b>Periodic deletion of Attendance Photos</b>	When the capacity of attendance photos have reached the full capacity, the device will automatically delete a set value of old attendance photos. When the value is set as 0, the function will be disabled.
<b>Periodic deletion of unregistered user's photos</b>	When the capacity of blocklisted photos have reached the full capacity, the device will automatically delete a set value of old blocklisted photos. When the value is set as 0, the function will be disabled.
<b>Delay duration of the Confirmation Screen</b>	This is the time duration at which the user's information will be displayed on the system's screen after successful verification. Unit: seconds.
<b>Facial Verification Interval</b>	Set the facial template matching time interval as needed. The valid range is 0 to 9 seconds.
<b>Verification Time Interval</b>	Set the verification time interval as needed. The valid range is 0 to 999999 seconds.

### 10.3.6 Validity Period of User Information

This is used to determine if the user validity periods are enabled or disabled when registering the users.

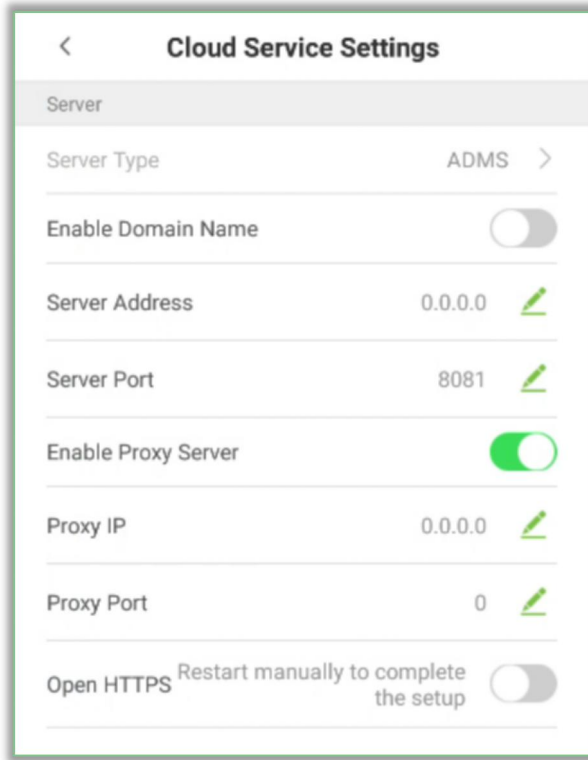
1. Tap on the **[User Validity Settings]** button.
2. When this feature is enabled, the following screen will display. Configure the desired parameters.





## 10.4 Cloud Service Settings

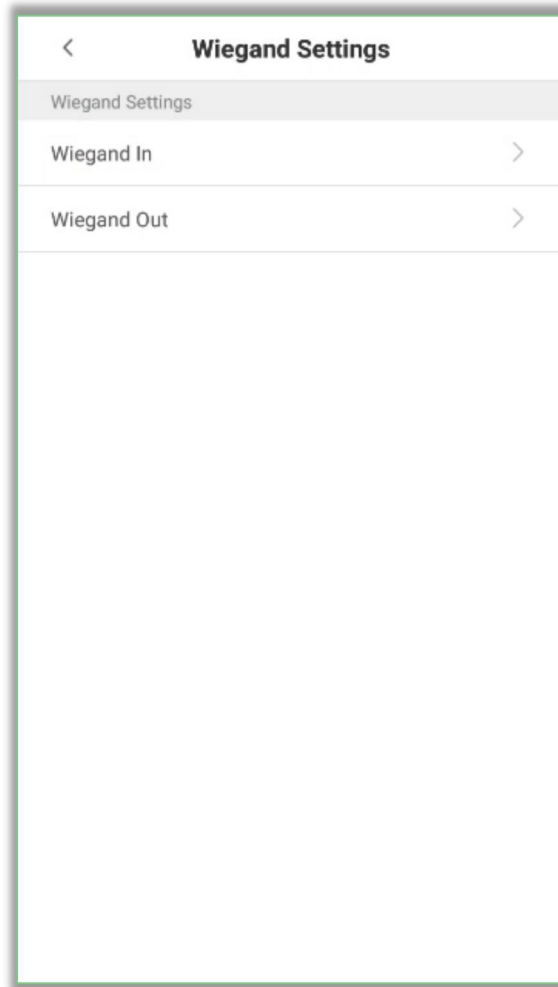
In the System Settings list, tap on **[Cloud Service Settings]** to open the Cloud service settings interface.



Item		Descriptions
<b>Enable Domain Name</b>	<b>Server Address</b>	When this function is enabled, the domain name mode "http://..." will be used, such as <a href="http://www.XYZ.com">http://www.XYZ.com</a> , while "XYZ" denotes the domain name when this mode is turned ON.
<b>Disable Domain Name</b>	<b>Server Address</b>	IP Address of the ADMS Server.
	<b>Server Port</b>	Port used by the ADMS Server.
<b>Enable Proxy Server</b>		When you choose to enable the proxy, you need to set the IP Address and Port number of the proxy server.
<b>Open HTTPS</b>		If enabled, the device needs to be restarted to take effect, and the data is uploaded to the push device. The address is changed from HTTP to HTTPS.

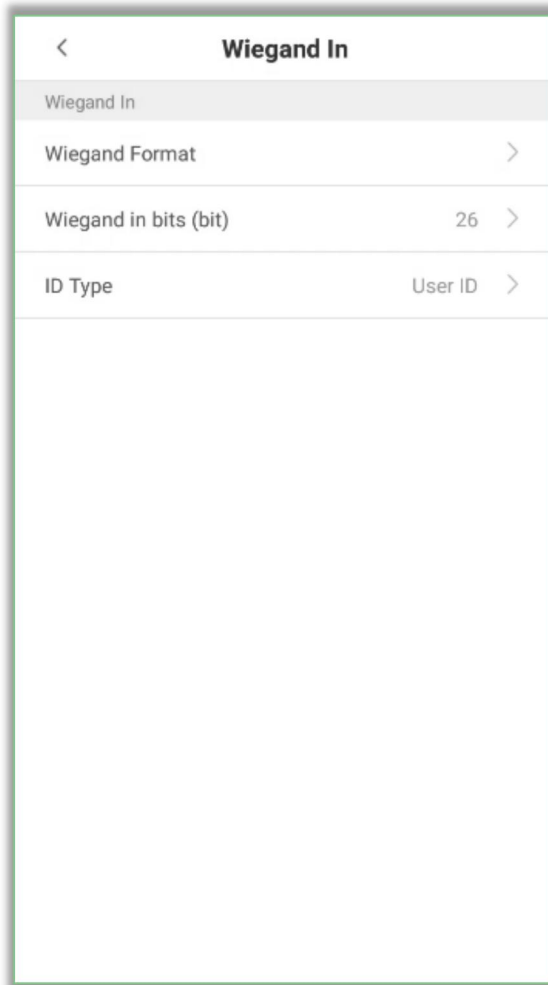
## 10.5 Wiegand Settings

Tap on [**Wiegand Settings**] in the system setting list to access the interface as shown below.



### 10.5.1 Wiegand In


Tap on [**Wiegand In**] to open the “Wiegand In” settings interface.



Menu	Function Description
<b>Wiegand Format</b>	The Wiegand value could be 26bits, 34bits, 36bits, 37bits, or 50bits.
<b>Wiegand in bits</b>	Number of bits of Wiegand data. After choosing [ <b>Wiegand input bits</b> ], the device will use the set number of bits to find the suitable Wiegand format in [ <b>Wiegand Format</b> ].
<b>ID type</b>	The ID type can be <b>User ID</b> or <b>Card number</b> .

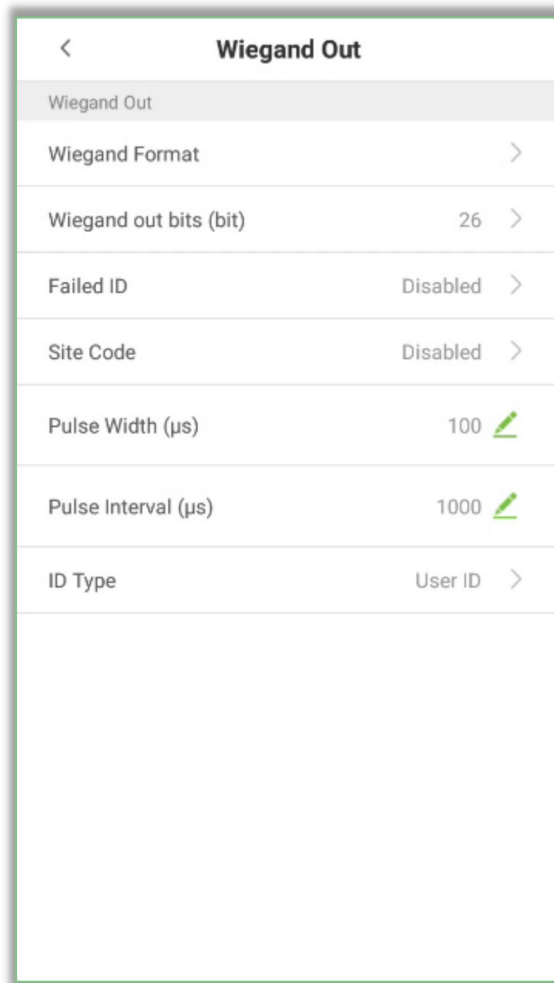


It is composed of 50 binary numbers. The first bit is the even parity bit of 2 to 25 bits, the 50<sup>th</sup> bit is the odd parity bit of 26 to 49 bits, the 2<sup>nd</sup> to 17<sup>th</sup> bit is the site code, and the 18<sup>th</sup> to 49<sup>th</sup> bit is the card number.

 Note: C is card number, E is even parity, O is odd parity, F is facility code, M is manufacturer code, P is parity position, S is site code.

### 10.5.2 Wiegand Out

Tap on [**Wiegand Out**] to open the following interface.

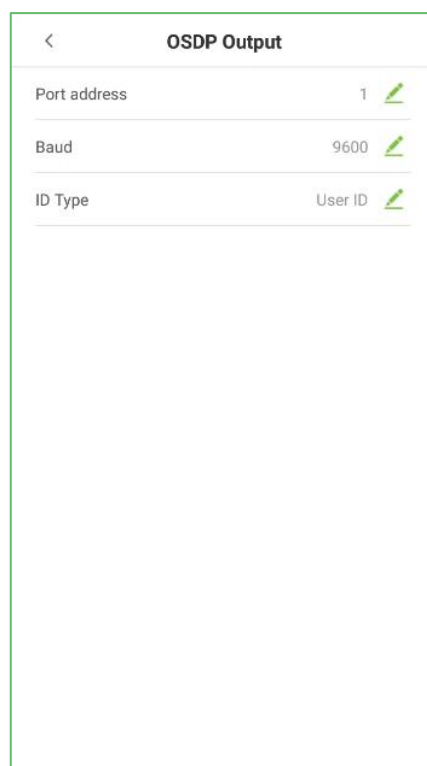


Menu	Function Description
<b>Wiegand Format</b>	The Wiegand value could be 26bits, 34bits, 36bits, 37bits, 50bits.
<b>Wiegand Out bits</b>	After choosing the Wiegand format, you can select one of the corresponding output digits in the Wiegand format.
<b>Failed ID</b>	If the verification is failed, the system will send the failed ID to the device and replace the card number or Personnel ID with the new ones.

<b>Site code</b>	It is similar to device ID except that it can be set manually and repeatable with different devices. The default value ranges from 0 to 256.
<b>Pulse Width(μs)</b>	The time width represents the changes of the quantity of electric charge with high-frequency capacitance regularly within a specified time.
<b>Pulse Interval(μs)</b>	The time interval between two pulses.
<b>ID type</b>	Supports User ID and Card number.

## 10.6 OSDP Output

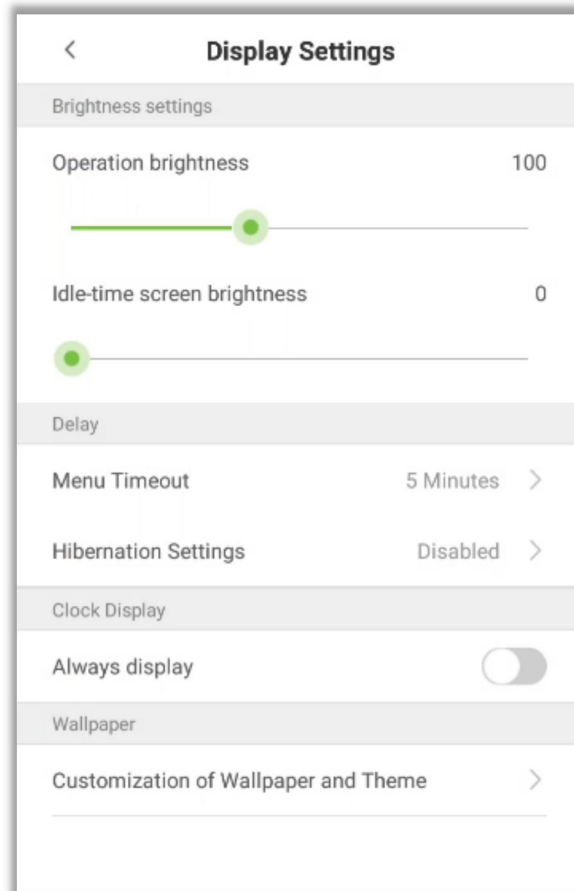
- On the **System Settings** interface, tap **OSDP Output** to enter the OSDP output settings interface.



- The device can connect the external devices such as a printer via RS232, OSDP output is used for setting the Serial port address, Baud rate and ID type.

## 10.7 Display Settings

In the system settings list, tap on **[Display Settings]** to open the display settings page:

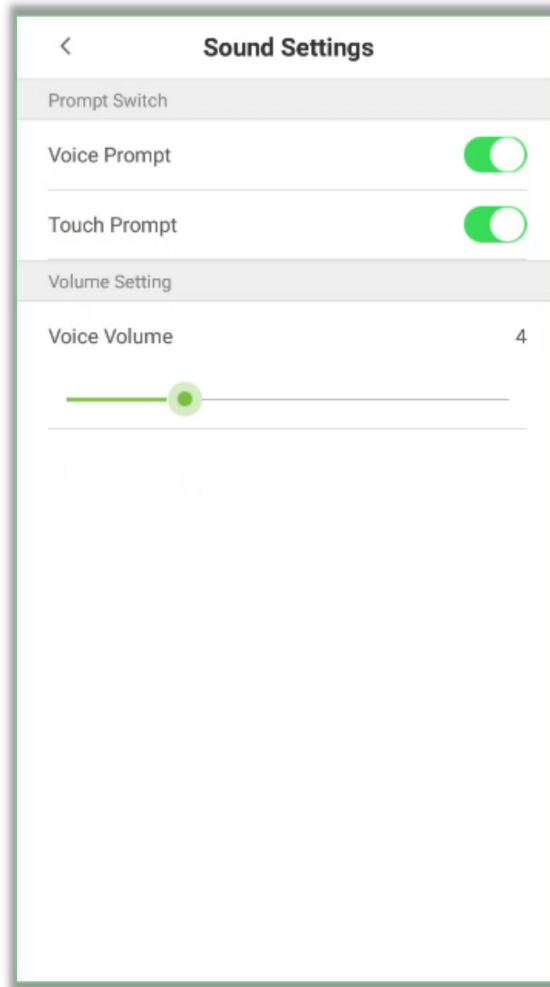


Menu		Function Description
<b>Brightness Setting</b>	<b>Operation Brightness</b>	Set the device brightness while operating such as Face recognition.
	<b>Idle-Time Screen Brightness</b>	Screen brightness when the device is in standby mode.
<b>Delay</b>	<b>Menu Timeout</b>	<p>Menu timeout occurs when no operations are performed for a certain amount of time after a user has entered the menu. Then the device goes to standby mode.</p> <p>The options include: 30 seconds, 1 minute, 2 minutes, 5 minutes, 10 minutes, or disabled. When this feature is disabled, the menu (including sub-menus) will not automatically close. Users must press "Exit" to exit the menu.</p>
	<b>Hibernation Settings</b>	After verification, it is the time from pop-up verification result to jump to the standby interface. The range is from 5 to 30 seconds.
<b>Clock display</b>	<b>Always display</b>	The clock will be always displayed.
<b>Wallpaper</b>	<b>Customization of Wallpaper and Theme</b>	The user can choose the favourite wallpaper from the theme wallpaper interface to improve the user experience.



## 10.8 Sound Settings

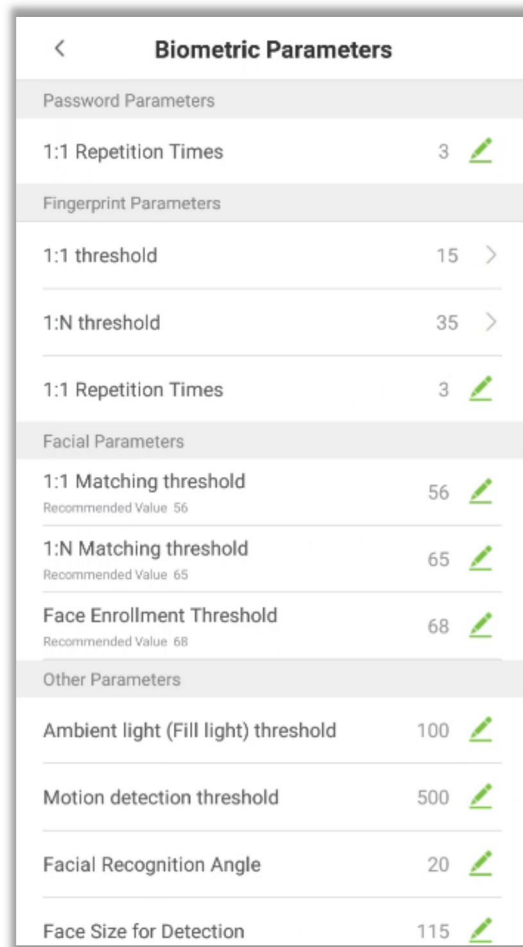
On the system settings list, tap on **[Sound Settings]** to open the interface of sound settings.



Menu	Function Description
<b>Voice prompt</b>	When voice prompt is enabled, users will receive the voice prompts. Voice prompts will not be received when this setting is disabled. When disabled and then re-enabled, the volume level will be set to 1.
<b>Touch prompt</b>	This option enables/disables the touchscreen prompt. When enabled, users will receive touchscreen prompts. When disabled, no touchscreen prompts will be received.
<b>Voice volume</b>	This option is used to adjust the volume. This can only be used if audio prompts are enabled. It can be set from 0 to 15.

## 10.9 Biometric Parameters

On the system settings list, tap [**Biometric Parameters**] to open the “Biometric Parameters” interface.



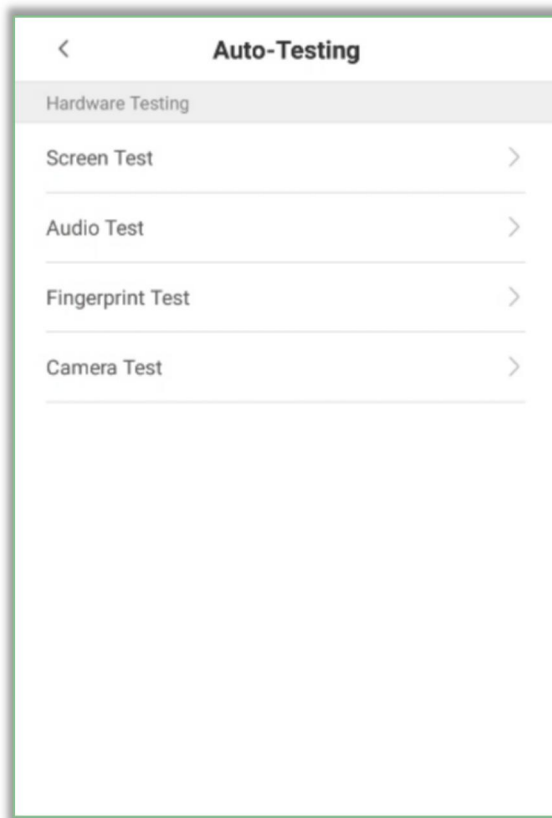
Menu		Function Description
<b>Password Parameters</b>	<b>1:1 Repetition Times</b>	The upper limit of the number of failed verification under 1:1 verification. When the number of failed verification reaches the set value, the system will return to the standby interface.
<b>Fingerprint Parameters</b>	<b>1:1 Threshold</b>	When conducting 1:1 fingerprint verification, fingerprint data is collected and instantly compared with fingerprint data using a 1:1 algorithm. This is converted into a value that is then compared to a set value. If the value of the scanned fingerprint exceeds that of the set value, the verification passes. If it does not, the verification fails.  The higher the threshold, the more accurate the matching; the lower the threshold, the higher the matching success rate.
	<b>1:N Threshold</b>	When conducting 1: N verification, fingerprint data is collected and instantly compared with all fingerprint templates on the system using a 1: N algorithm. This is converted into a value that is compared to a set value. If the value of the scanned fingerprint

		<p>exceeds that of the set value, the verification has passes. If it does not, the verification fails.</p> <p>The higher the threshold, the more accurate the matching; the lower the threshold, the higher the matching success rate.</p>
	<b>1:1 repeat times</b>	<p>The upper limit of the number of failed verification under 1:1 verification. When the number of failed verification reaches the set value, the system will return to the standby interface.</p>
<b>Facial Parameters</b>	<b>1:1 matching threshold</b>	<p>When conducting 1:1 face verification, face data is collected and instantly compared with face data using a 1:1 algorithm. This is converted into a value that is then compared to a set value. If the value of the scanned face exceeds that of the set value, the verification passes. If it does not, the verification fails.</p> <p>The higher the threshold, the more accurate the matching; the lower the threshold, the higher the matching success rate.</p>
	<b>1:N matching threshold</b>	<p>When conducting 1: N verification, face data is collected and instantly compared with all face templates on the system using a 1:N algorithm. This is converted into a value that is compared to a set value. If the value of the scanned face exceeds that of the set value, the verification has passes. If it does not, the verification fails.</p> <p>The higher the threshold, the more accurate the matching; the lower the threshold, the higher the matching success rate.</p>
	<b>Face Enroll Threshold</b>	<p>In face recognition, the higher the threshold is set, the higher the accuracy of face recognition will be, which may lead to unrecognizable. On the contrary, if the threshold is too low, the accuracy of face recognition will be lower, which may lead to misjudgment and other phenomena. The default value is 76.</p>
<b>Other Parameters</b>	<b>Ambient light(Fill light)threshold</b>	<p>Detect ambient light brightness. When the brightness of the surrounding environment is less than the threshold, the complementary light is turned on; when the brightness is greater than the threshold, the complementary light is not turned on.</p> <p>The default value is 80.</p>
	<b>Motion detection threshold</b>	<p>Detect whether there is a moving person in front of the device to determine whether the face recognition function is enabled. The default value is 100.</p>
	<b>Facial Recognition Angle</b>	<p>To limit the face angle at face recognition, the recommended threshold is 20.</p>
	<b>Face Size For Detection</b>	<p>The size of the face when face recognition. The range is 65-320 cm. The smaller the value, the farther the detectable distance is; otherwise, the closer it is.</p>

	<b>Support IR anti-counterfeiting</b>	It supports face anti-counterfeiting. After enable, it can anti-counterfeiting recognition on face photos to ensure the authenticity of face.
	<b>Prevent simultaneous facial recognition from multiple entrances</b>	<p>When multiple devices are installed on the side-by-side entrance, please enable this function to prevent multiple devices from simultaneously recognizing the face.</p> <p>Set the threshold to three types: high, medium, and low. The higher the threshold, the narrower the distance between the guide lines and the smaller the face recognition range on the screen. When setting the threshold, it is recommended to open auxiliary line correction function.</p>

## 10.10 Auto-testing

On the system settings list, tap [**Auto-Testing**] to open the auto testing interface.

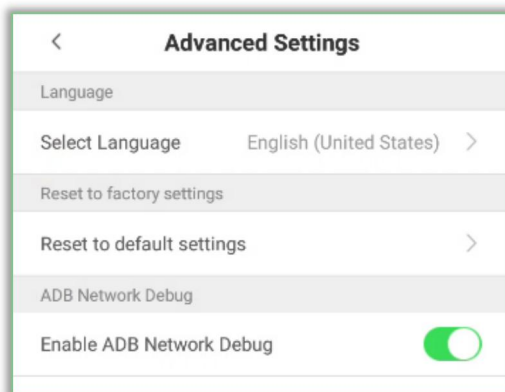


Menu	Function Description
<b>Screen Test</b>	Tests the screen's display. The screen will be tested to display red, green, blue, white, and black colors. It also checks if the screen color is uniformly correct across each area of the screen. Tap on anywhere on the screen during testing to continue testing. Tap on the <b>Back</b> key to exit testing.
<b>Audio Test</b>	The device automatically tests the audio prompts by playing the audio files that

	are stored in the device to test if the device's audio files are complete and if the audio effects are working properly. Tap on the back key to exit testing.
<b>Fingerprint Test</b>	Tests if the fingerprint scanner is functioning properly, It also checks to see if the fingerprint image is clear and noticeable.
<b>Camera Test</b>	Tests if the camera is functioning properly. It also checks to see if the image quality is clear and noticeable.

## 10.11 Advanced Settings

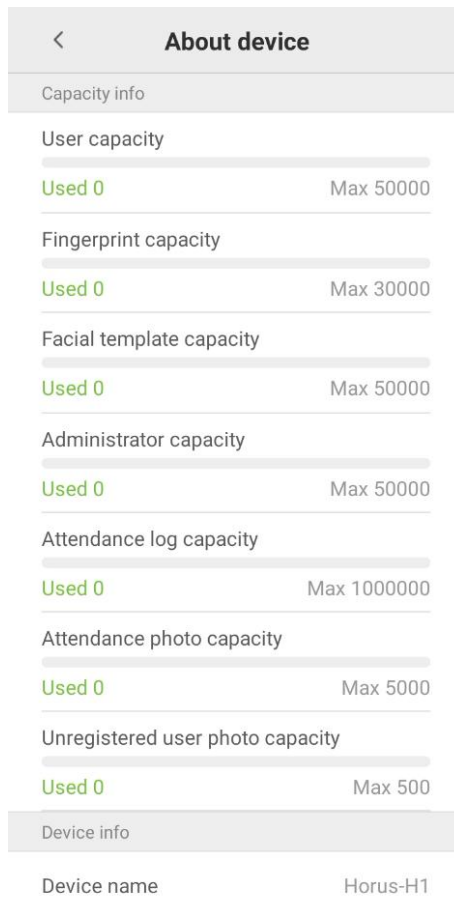
On the system settings list, tap [**Advanced settings**] to open the “Advanced settings” interface.



Menu Options	Function Description
<b>Select language</b>	Select the language as English or Simplified Chinese.
<b>Restore Factory Settings</b>	Restores the settings of the device, including communication settings, system settings to the default factory settings.
<b>ADB Network Debug</b>	ADB tool means Android debug bridge tools. It is a command line window, which is used to interact with the simulator or real device through the system.

## 10.12 About the Device

On the system settings list, tap **[About the Device]** to open the “About the Device” interface.



Menu	Function Description
<b>Capacity Information</b>	Displays the current device's capacity of users, fingerprints (optional), facial templates, Administrators, Attendance logs, Attendance photos, Unregistered user photos, and User photos.
<b>Device Information</b>	Displays the device's Name, Serial Number, MAC Address, Algorithm version, Platform information, and Manufacturer details.
<b>Version</b>	Displays all the versions of all the system's apps, such as the system settings, data management, and other installed apps.

## 11 USB Upgrade

The device's firmware can be upgraded through a USB drive with the upgrade file. Before performing this operation, please ensure that the USB drive contains the correct upgrade file and is properly inserted into the device.

**Note:** If you need to upgrade the firmware, please contact our team. Firmware upgradation is not recommended without any necessity.

## **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 civilian 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 citizen'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.

As a final point, 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 period 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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