

UMX-10 Next Generation Iris Recognition System

User Manual
(v0.1.1, July 1, 2016)



Intuitive face display positioning



Internal automatic motorized tilt cameras



LAN / RS485 Support independent input and output
functions



Optional face image capture and face recognition

User graphics and screen shots in this guide may vary from actual
Some of the contents in this manual may differ from current operating library release

Introduction to the UMX-10 Iris Recognition System

This new iris recognition system offers highly intuitive, hands-free iris biometrics imaging in a compact and elegantly designed identification and authentication terminal for use in a wide range of identity management applications.

The front facing nominal 5.0 inch LCD serves to display the user's face image for fast, easy and highly natural positioning for proper iris image capture. The subject merely puts his or her face in the center of the LCD, and then moves toward the system to size his or her head to the brackets in the display to be in proper range. Image capture is fast and automatic. While user instructions are very simple, almost all subjects will be able to interact with the system without any directions.



UMX-10 Next Generation
Iris Recognition System

And the internal automatic tilt mechanism adjusts to the user's height or vertical position over a range of 50 cm (about 20 inches), making the UMX-10 ideal for countertop, desktop, wall mount or kiosk installations.

The UMX-10 is an embedded terminal, which means that all image processing and machine control is performed on the internal Linux-on-ARM mainboard. Typical connectivity to host systems is through TCP/IP (Ethernet). And iris biometric encoding and matching is typically performed on-board as well, so identification or authentication decisions are made locally for fast responsiveness. For access control, there are Wiegand connections for dedicated, local communications to door controllers or panels.

For all specifications, please see Specification section.

For complete depiction of all UMX-10 on-board screens, see "UMX-10 LCD Control Screens and On-Board Demo Application" manual.

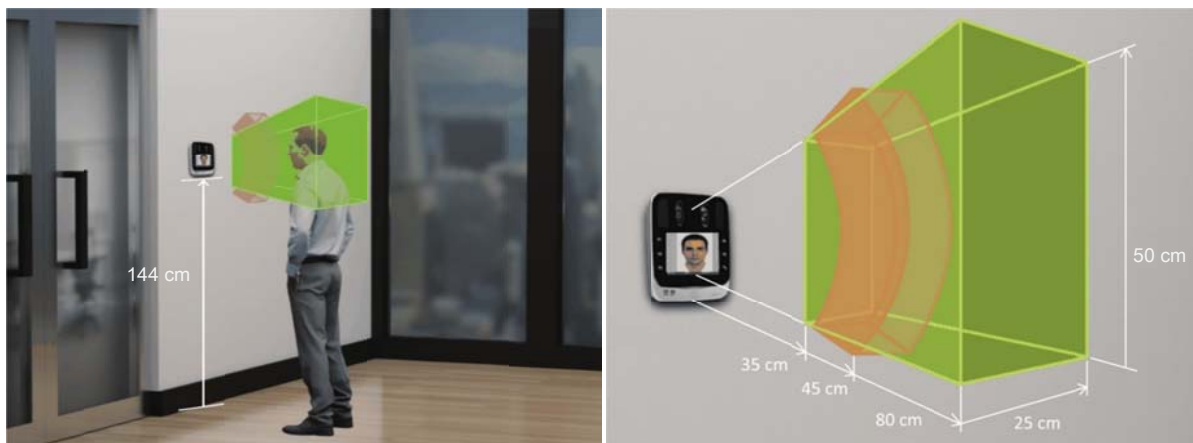
Key Features

- Iris user interface with intuitive LCD display face positioning, like smart phone “selfie”
- Contactless iris imaging at range of 35 to 45 cm stand-off
- Internal, automatic face and iris camera tilt mechanism with nominal height range of 50 cm
- Positioning guidance vocalizations selectable on / off and delay time. English standard, all other languages available with .wav file substitution
- Simultaneous dual iris recognition with typical capture speed of under 1 second
- On-board iris encoding and matching, with internal data base of up to 10,000 users in either 1:1 (authentication) or 1:N (identification) modes
- Optional Combined Face and Iris modes:
 - Face as primary modality, with face recognition rejects decisions automatically switch over to iris recognition
 - Supplemental face recognition in case of iris recognition failure-to-capture (FTC), so that face recognition follows iris recognition attempt
- Supports dual factor authentication with card or PIN
- Optimized imaging for difficult ambient lighting conditions
- Optimized image capture for most sunglasses, glasses, and facial veils
- Supports imaging of all iris colors
- Kensington lock slot standard
- Standard communications connectors and protocols for TCP/IP (Ethernet RJ-45), RS-484 and -232, dual Wiegand I/O, TTL, and dry contact relay
- Connection cables with press-in connectors included in accessories kit
- External audio connector
- Tamper switch on rear panel
- Access control (AC) configuration includes wall mount plate
- Integrated Smart Card reader (choice of basic MiFare / DesFire card or HID multi-class reader)
- Meets CE mark, FCC, IEC 62471 eye safety, and RoHS standards. Iris recognition meets ISO 19794-6 2011 standard
- Design and production meet ISO 9001 2011 standard

Accessories Kit

Includes:	ID Management Version	Access Control and Time & Attendance Versions
Power supply (IEC C13 female)	Yes	Yes
Power cord (IEC C14 male), power side connector type by country	Yes	Yes
Basic MiFare / DesFire card reader (internal)	No	Yes
Standard back cover	Yes	Yes
Wall mount bracket	No	Yes
ID I/O cables with push in connectors for device, and pig tails for external connections	Yes	No
Includes cables for RS 485, RS 232, TTL (2), dry contact relay		
AC I/O cables with push in connectors for device, and pig tails for external connections	No	Yes
Includes cables for Wiegand (2), RS 485, RS 232, TTL (2), dry contact relay		
Ferrite core and diode	Yes	Yes
Back cover / plate screw (M4) (not security type)	Yes	Yes

Mounting Instructions



Recommended mounting height and UI (left), Capture Volume of UMX-10 (right)

The recommended mounting height for the UMX-10 is 144cm (57 inches) from floor to the bottom of UMX-10. The mounting height can be adjusted to accommodate the height of the average user.

High ambient light and / or direct light into the UMX-10 should be avoided. Sunlight, halogen lamps or other strong illumination may reduce the performance of the UMX-10 and may result in increased failure-to-capture rates or failed authentication events.

The UMX-10 was designed for indoor use only. This unit is not weatherproof and must not be exposed to water, ice, extreme temperatures or other adverse weather conditions. If it is required to use this unit in outdoor or extreme environments contact local sales or support@cmi-tech.com for more information.

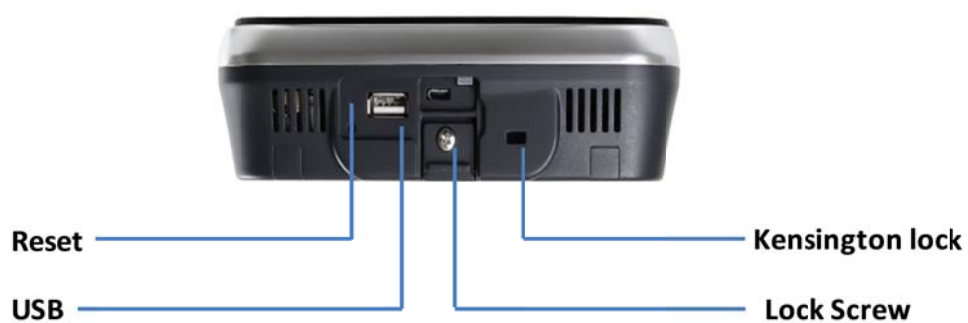
Note: Installation in extreme environments without proper protection may cause permanent damage and void warranty.

See System, Rear diagram for wall mounting instructions.

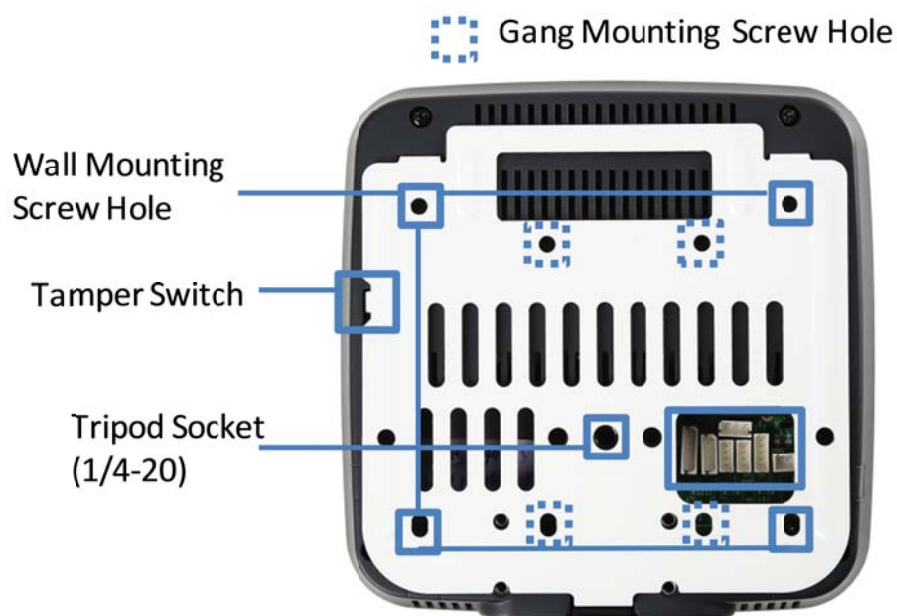
System, Front



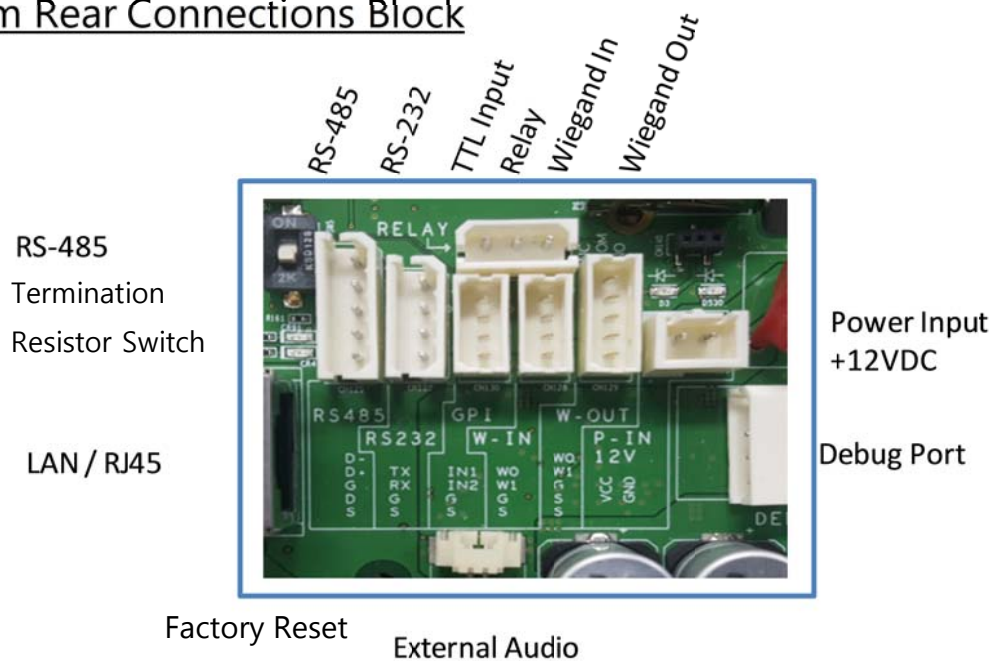
System, Bottom



System, Rear



System Rear Connections Block



User Interface for Iris Image Capture

- Position yourself facing straight at the LCD display. When the device detects your movement within 1.0 meter parameter, it initiates the image capture sequence. A rectangular-shaped user guide box will appear on the screen. If it is BLUE, it means you are too far from the device. Move forward.



- Move towards the system to size your face to the LCD display. If the user guide box flashes GREEN, it means you are at an appropriate position. Stop and hold your position until the device captures image of your face and/or iris.



- If you are standing too close to the device, your face will not fit in the LCD display. When the user guide box flashes RED, it means the device cannot capture your image because you are too close. Move back until the box turns green.

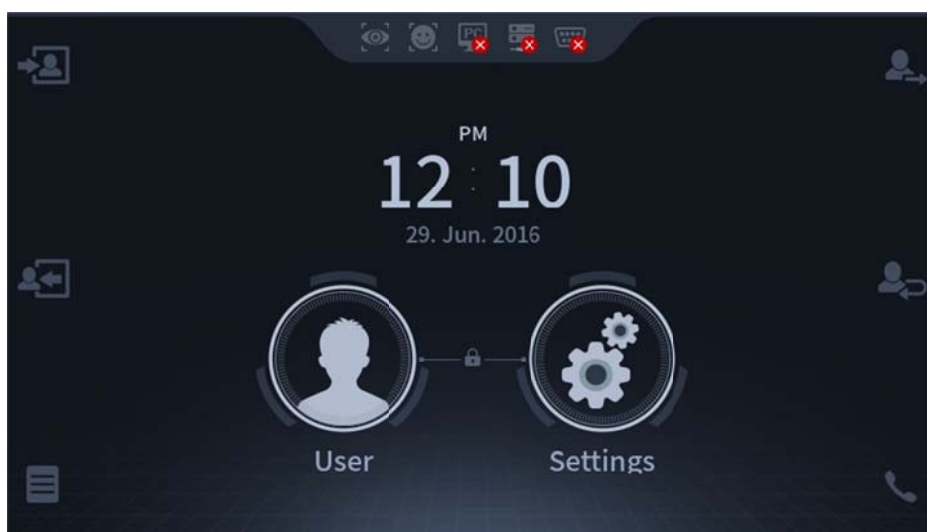


- UMX-10 captures the image of your face and iris automatically.

On-board Demonstration Application

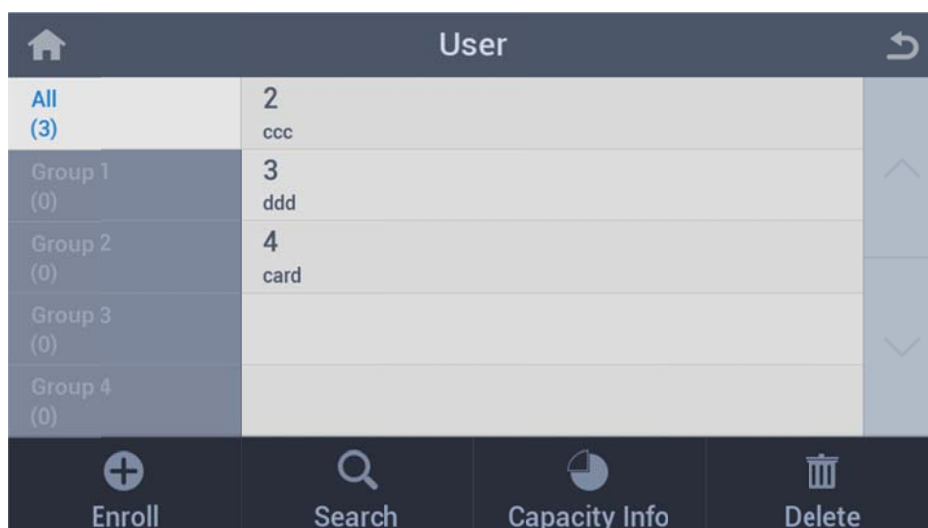
The on-board demonstration application shows the full capabilities of the UMX-10 for image capture including subject positioning with the face display user interface, enrollment, and on-board matching (authentication).

The system boots up in this demo application. It is initiated by the video based motion detector that first finds the subject from about 1 meter distance, and then continues the natural iris image capture sequence for capture in recognition / authentication mode.



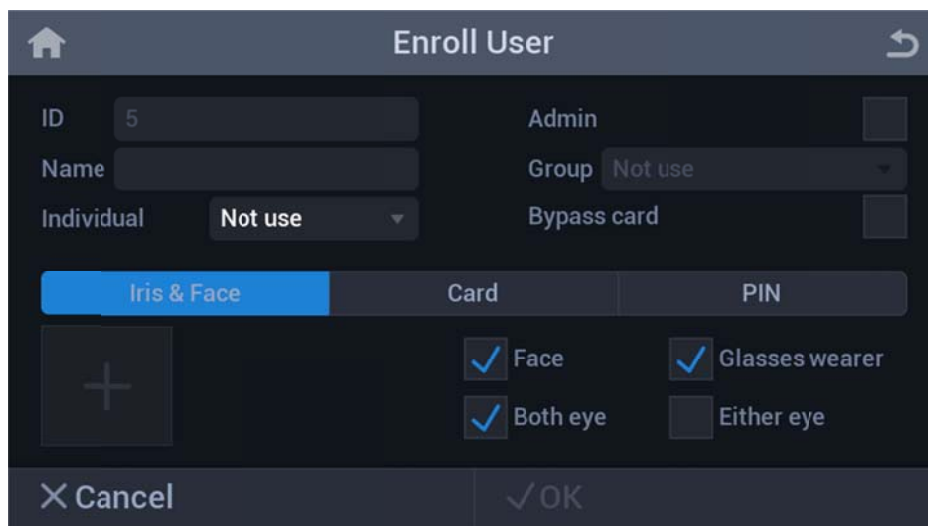
To switch to enrollment mode, press large User icon in center of main Launcher page. If the system is in image capture mode, press Home icon (🏠) on top left of active user interface display, which will stop Recognition mode and return system to Launcher page.

The following main User screen appears:



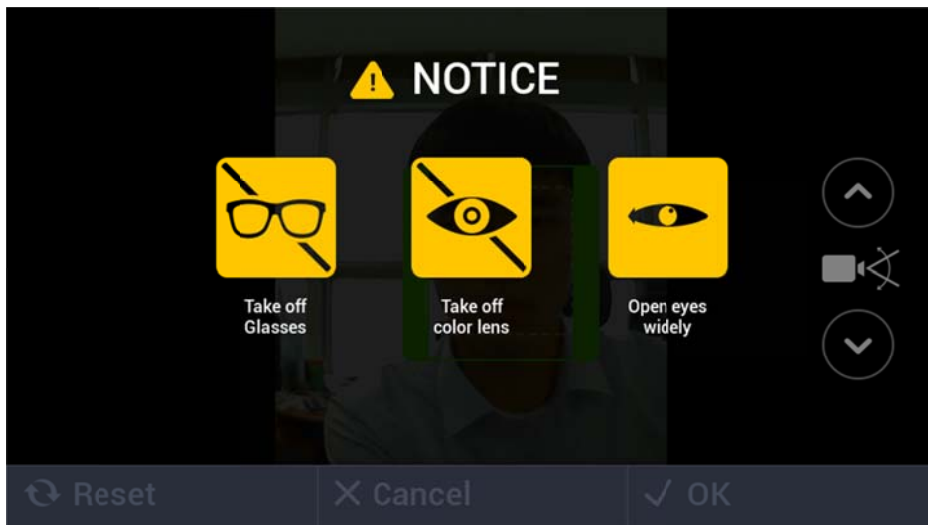
This user screen also allows simple database management. By tapping the **Delete** icon in the bottom right, one can easily delete information of enrolled users.

To enroll a new user, press the **Enroll** icon to bring up **Enroll User** screen.

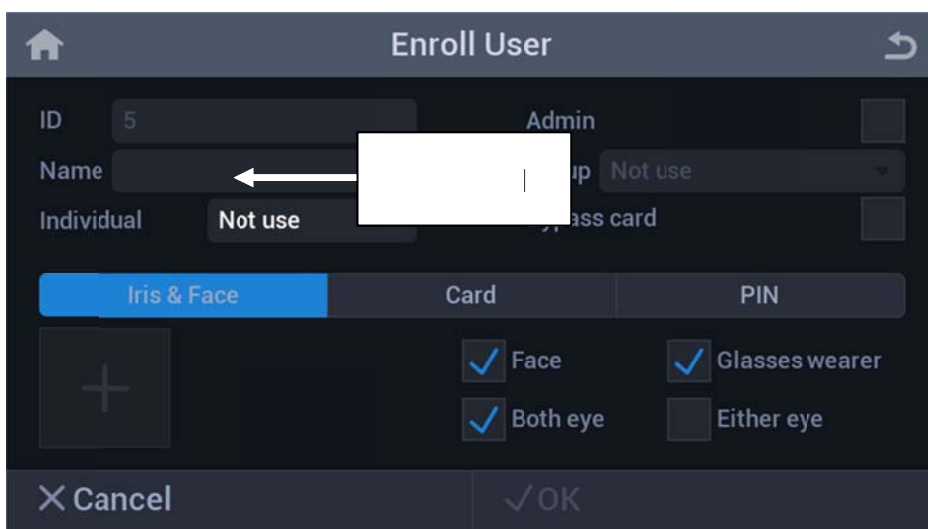


Press the plus(+) button in the bottom left to capture image of the new user.

An instruction screen will appear for 3 to 5 seconds, and then switch to the user interface.



After successfully capturing iris images, click on **✓OK** to accept images. The system then returns to Enroll User screen. Click on Name field to enter name of subject, then click on **✓OK** complete enrollment.



Press the Home icon (🏠) to return to the Launcher page to re-start Recognition and Authentication mode.

Summary of Specifications

Software and Platform Technical Specifications (Tentative)

Embedded CPU and OS	Freescall iMX6 Cortex A9 Quad Core ARM with Linux Yocto v1.8 OS
Iris on-board algorithm for encoding and matching	Optional
Face on-board algorithm for Combined Face and Iris encoding and matching	Optional
Web services configuration application (with embedded web server)	Yes, RESTful type SDK with C# and C++ versions for host side

Other Technical Specifications (Tentative)

Dimensions	166 x 166 x 43 mm(6.5 x 6.5 x 1.7 inches) without mounting wall plate
Weight	630 g without wall plate
On-board data size	Up to 10,000 iris template pairs, usable in either 1:1 (authentication) or 1:N (identification) modes Supports dual factor authentication
Iris image output	Meets new ISO 19794-6 2011 standard: MTF of minimum of 4.0 lp/mm @ ≥ 60% contrast, and 160 pixels across 1.0 cm iris
Iris image pixel resolution	640 x 480 pixels, 8 bit depth. Supports multiple formats.
Iris encoding and matching algorithm	Delta ID (ISO 19794-6 compliant)
Operational iris imaging distance (stand-off range) and depth of field	35 to 45 cm range (10 cm depth of capture range) in both Enrollment and Recognition modes
Iris positioning indicators	Face positioning within box in LCD display for X – Y Face sizing to bracket (or box) within LCD display for distance (Z) positioning with simultaneous color bar display for correct distance positioning: Blue: too far away Green: OK Red: too close Supplemental voice distance feedback standard. Convertible to local language via .wav file substitution.

Other Technical Specifications (Tentative) (continued)

Auto tilt	Yes, internal: +25 deg to -20 deg tilt
Iris inter-pupillary distance covered	45 to 85 mm
Iris time of capture	Typically about 0.5 second from time subject's eyes are placed within proper capture volume
IR illumination for iris imaging	Dual LED: wavelengths of 850 nm nominal (about 50%); and 750 nm nominal (about 50%)
Iris maximum user positioning speed	125 mm per second (4.9 inches per sec.) in "Z" direction (distance from front of system)
Face image capture	Standard 24 bit color (for reference image)
Face recognition imaging	Optional on-board encoding and matching. Algorithm tbd.
Audio	24 bit, 1.8 W embedded speaker Line out connector for external speaker
Operating temperature range	0 to 45°C
Humidity	10 to 90% RH, non-condensing
Illuminator eye safety standard	IEC 62471
Network interface	10/100 Base-T Ethernet (RJ45 connector)
Other standard ports	USB host or slave (for service only)
Standard mounting	¼ - 20 UNC (camera tripod).
Physical Access Control (PACS) configuration: other communications ports	Terminal and wired connectors for: Wiegand in/out, RS-232, RS-485, 2X TTL inputs, USB host (internal), USB slave (for service), 1 dry contact relay
Physical Access Control configuration: internal ID card reader	Standard: ISO /IEC 14443 A/B (MiFare) contactless reader Optional: HID multi-class reader (model to be determined)
Physical Access Control configuration: wall mounting with tamper switch	Detachable wall mount plate for easy installation. Tamper switch standard in PACS configuration
Power supply	Input 110 to 240V AC Output 12V DC, 3.5A. Provided standard with system.

Contact Information

CMITech Company, Ltd.

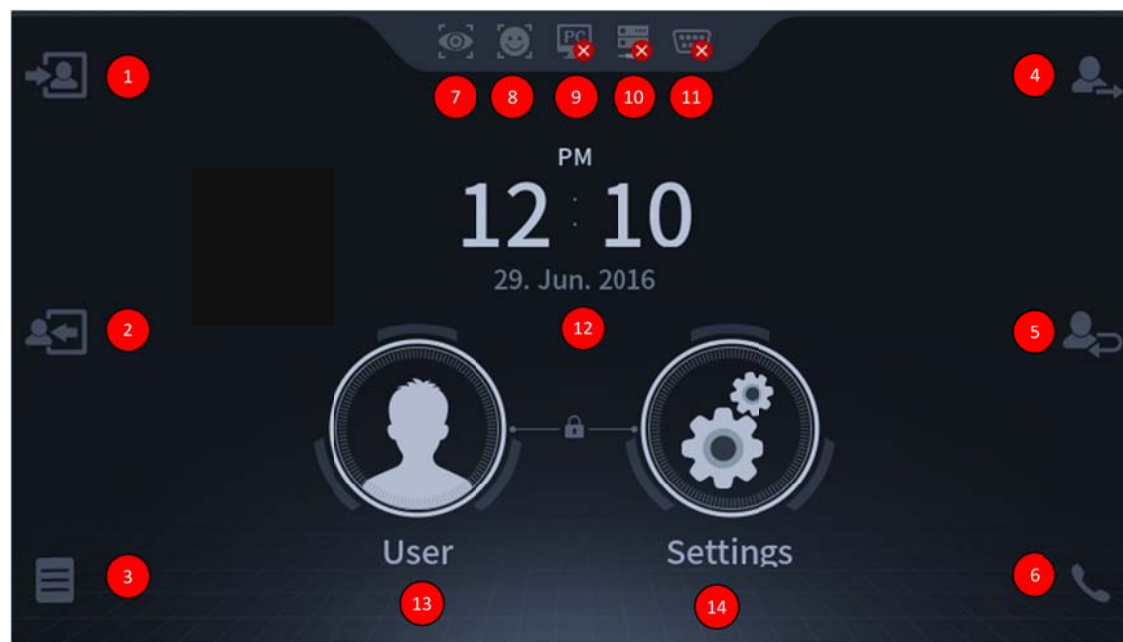
#904, 25, 248Beon-gil, Simin-daero, Dongan-gu,
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431-815 Republic of Korea
Tel : +82.70.8633.8278
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Appendix 1

UMX-10 LCD Control Screens and On-Board Demo Application



Main Launcher Page

- | | |
|---|---|
| ① Check Attendance (F1 Key) | ⑧ Notice Icon of Face mode is operating |
| ② Leave Work (F2 Key) | ⑨ Notice Icon of CMID manager is connected |
| ③ Supplement T&A (F3 Key) | ⑩ Notice Icon of IP network is connected |
| ④ Go Out (F4 Key) | ⑪ Notice Icon of Serial Communication is connected |
| ⑤ Return Button (same as F5 Key) | ⑫ Clock display |
| ⑥ Interphone Call Button (same as F6 Key) | ⑬ User Button for registration, search, modification and deletion |
| ⑦ Notice Icon of Iris mode is operating | ⑭ Settings Button for system configuration |

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2 Network

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 - 5.1.1 Dual Authentication
 - 5.1.2 Match Timeout
 - 5.1.3 Card Mode

6 Log

- 6.1 Log Info

User



1 Enroll User

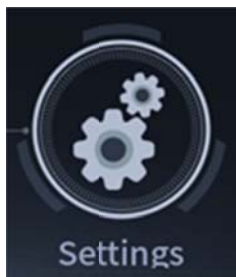
- 1.1 Name
- 1.2 Individual
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- 1.4 Iris & Face Process
 - 1.4.1 Face Capture
 - 1.4.1.1 Tracking Guide Box UI
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 - 1.4.2.1 Tracking Guide Box UI
 - 1.4.3 Save Data / Complete Enrollment
 - 1.4.4 Complete Enrollment
- 1.5 Card
 - 1.5.1 Save Data
- 1.6 Pin
 - 1.6.1 Input
 - 1.6.2 Save Data

2 Search

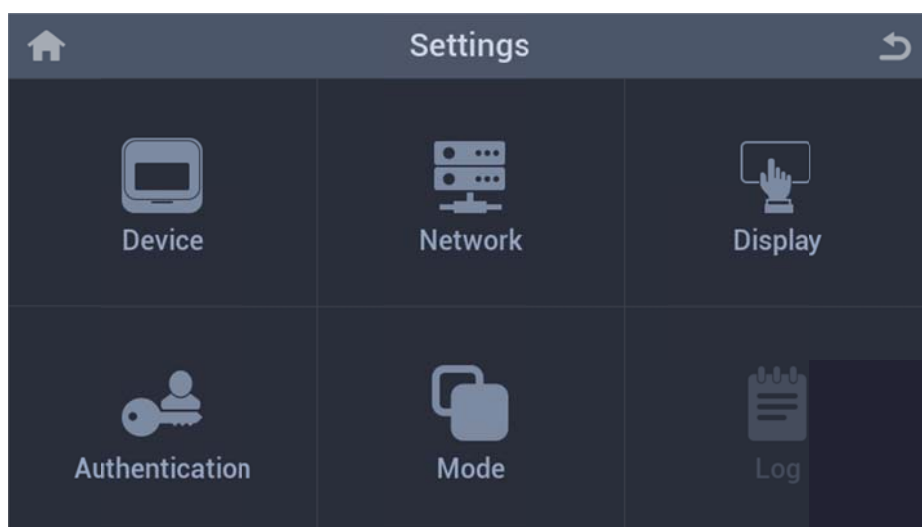
3 Capacity Info

4 Delete

Settings

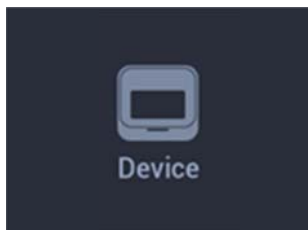


Tap the **Settings** icon in the home screen.



Device	Configuration for device operating
Network	Configuration for IP & serial communication
Display	Configuration for screen display
Authentication	Configuration for authentication method and T&A
Mode	Configuration for recognition operation
Log	Information of saved log and log search viewer (Note: In construction)

1 Device



Configure settings for device operation.

1.1 Configuration



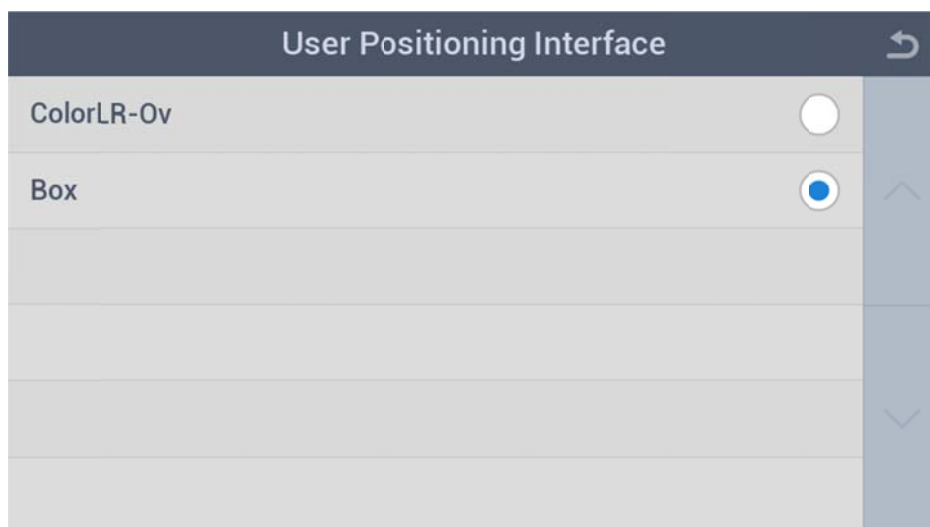
User Positioning Interface Select a guide display UI when enrollment and recognition

Motion wait time Set motion detection delay time from last recognition operating

Motion detect Select motion detection enable/disable for starting recognition

Debug Select Debug mode enable/disable (captures image stream for off-line analysis)

1.1.1 Configuration → User Positioning Interface

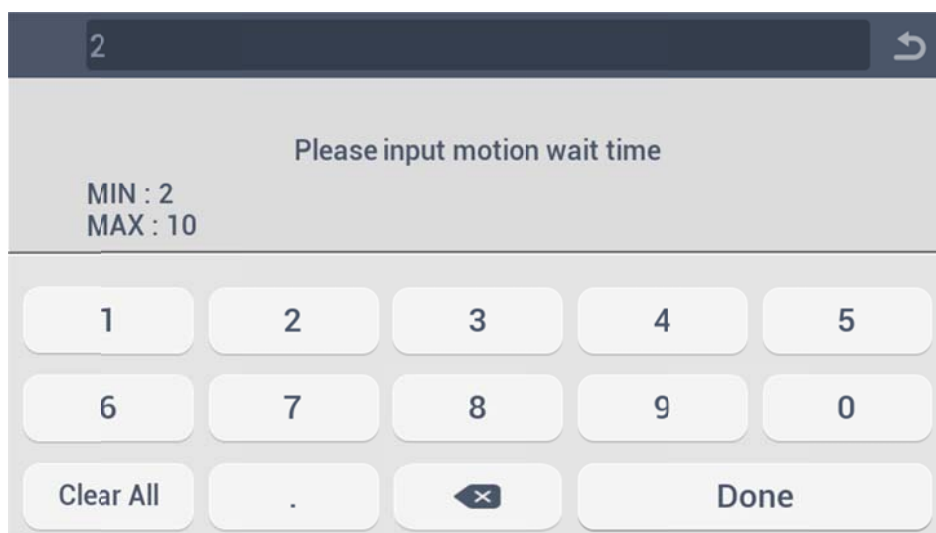


The screenshot shows a mobile application interface titled "User Positioning Interface". It features a list of two options: "ColorLR-Ov" and "Box". Each option has a corresponding radio button to its right. The "Box" option is selected, indicated by a blue dot in its radio button. To the right of the list is a vertical scrollbar with up and down arrow icons.

ColorLR-Ov Select Color overlay type guide UI display

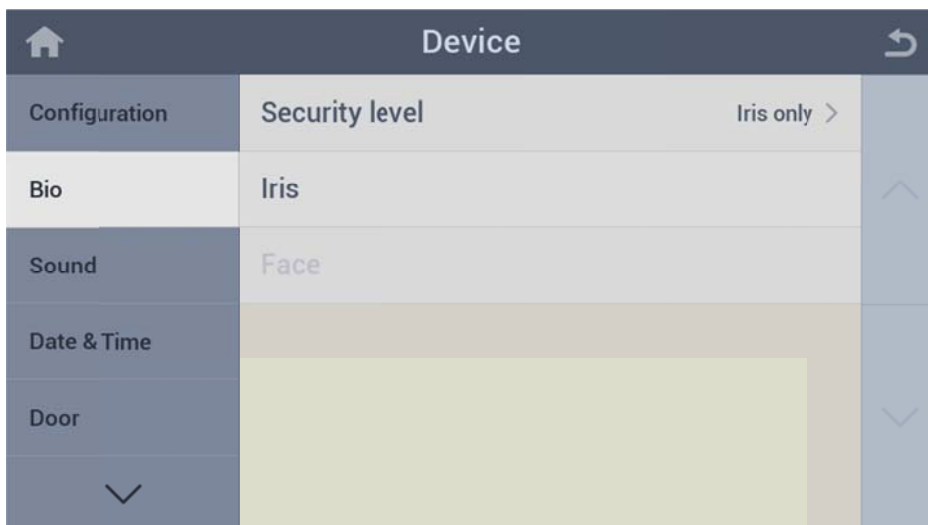
Box Select tracking box type guide UI display

1.1.2 Configuration → Motion Wait Time



The screenshot shows a mobile application interface for inputting motion wait time. At the top, a dark header bar contains the number "2" and a back arrow icon. Below the header, the text "Please input motion wait time" is displayed. Underneath, the minimum and maximum values are shown: "MIN : 2" and "MAX : 10". The main area contains a numeric keypad with buttons for digits 1 through 0. At the bottom, there are four buttons: "Clear All", a decimal point ".", a backspace icon (arrow pointing left with an 'x'), and "Done".

1.2 Bio

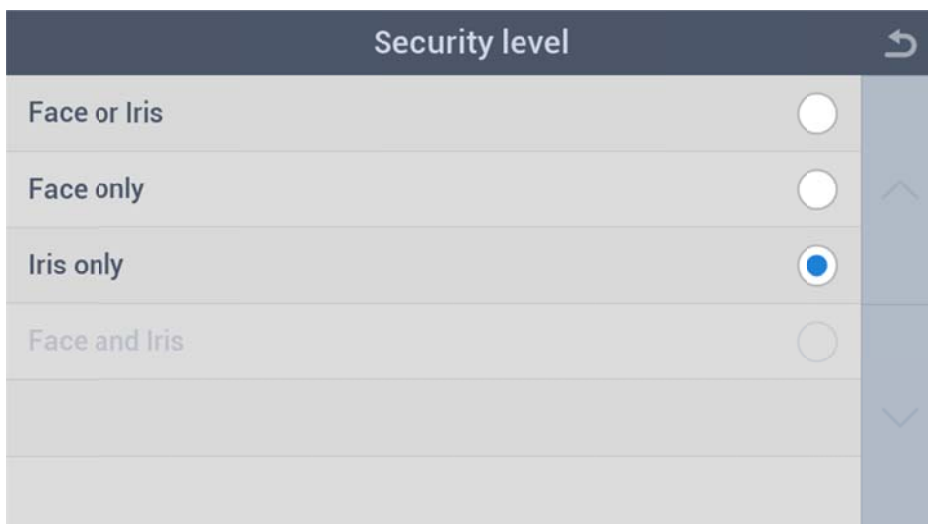


Security Level Select a combination mode of Face and Iris

Iris Additional configuration for Iris enrollment and recognition

Face Additional configuration for Face enrollment and recognition (note: in construction)

1.2.1 Bio → Security Level (Must have face recognition option)



Face or Iris	Select 2 stage Face or Iris recognition mode (Face recognition first, and then automatic switch-over to Iris upon Face recognition non-match)
Face only	Select Face only recognition mode
Iris only	Select Iris only recognition mode
Face and Iris	Select 2 stage Face and Iris recognition mode (Face recognition first, and then automatic switch-over to Iris upon multiple matches) (note: in construction)

1.2.2 Bio → Iris



Setting	Value	Control
Recognition sensitivity	50	Slider
Enroll sensitivity	50	Slider
Min distance	35	Slider
Max distance	45	Slider
Recognition either eye	On	Toggle
Enroll either eye	On	Toggle

Max distance	Set max distance for Iris recognition
Recognition either eye	Select enable/disable for either eye recognition mode
Enroll either eye	Select enable/disable for either eye enrollment mode

1.2.2.1 Bio → Iris → Max Distance

45

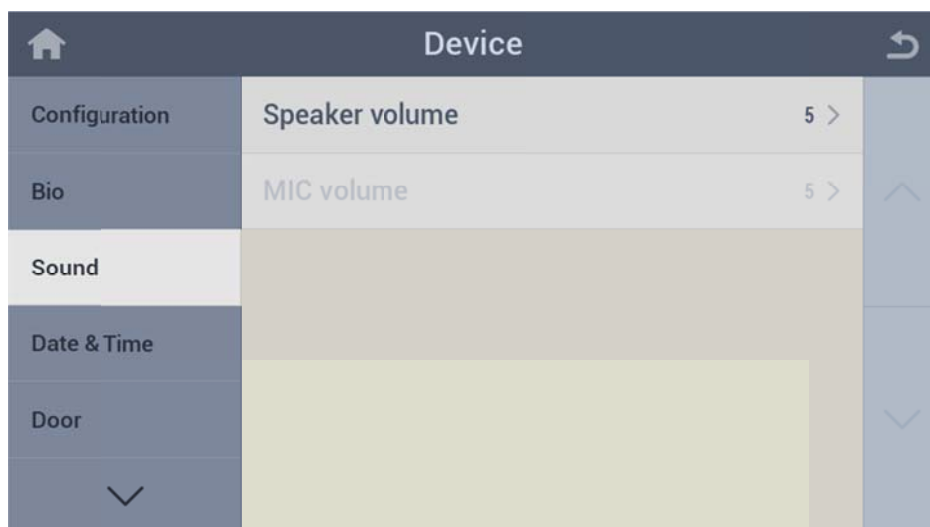
↶

Please input maximum distance

MIN : 40
MAX : 49

1	2	3	4	5
6	7	8	9	0
Clear All	.	⬅ ×	Done	

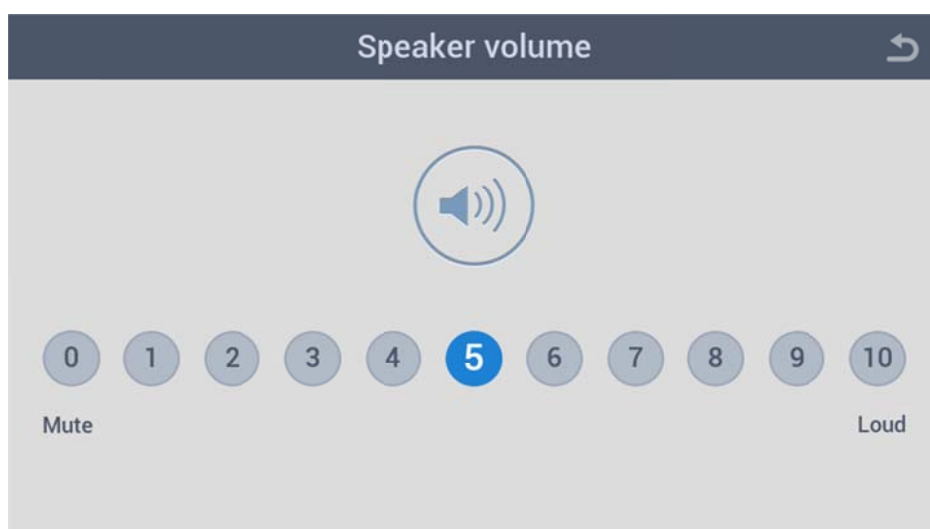
1.3 Sound



Speaker volume Set speaker volume for instruction sound and interphone voice

MIC volume Set microphone volume for interphone voice (note: in construction)

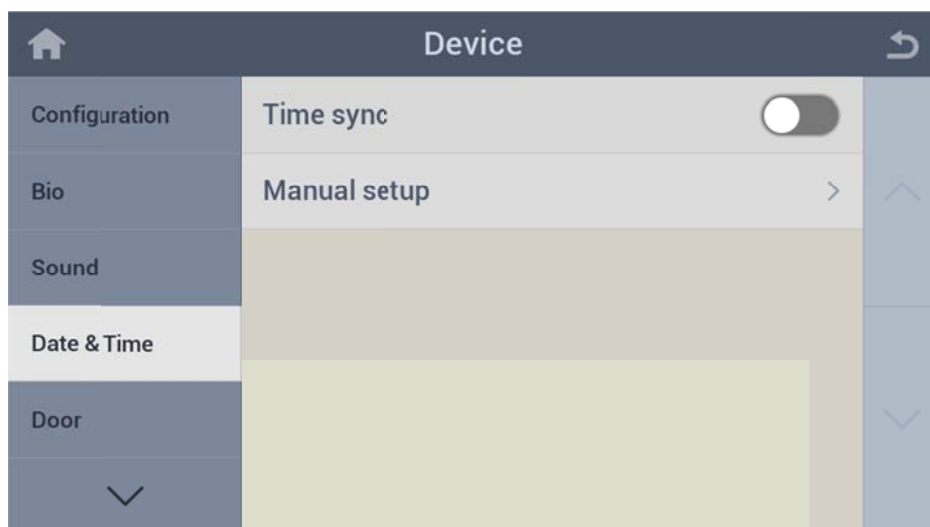
1.3.1 Sound → Speaker Volume



1.3.2 Sound → MIC Volume

Identical to settings for speaker volume

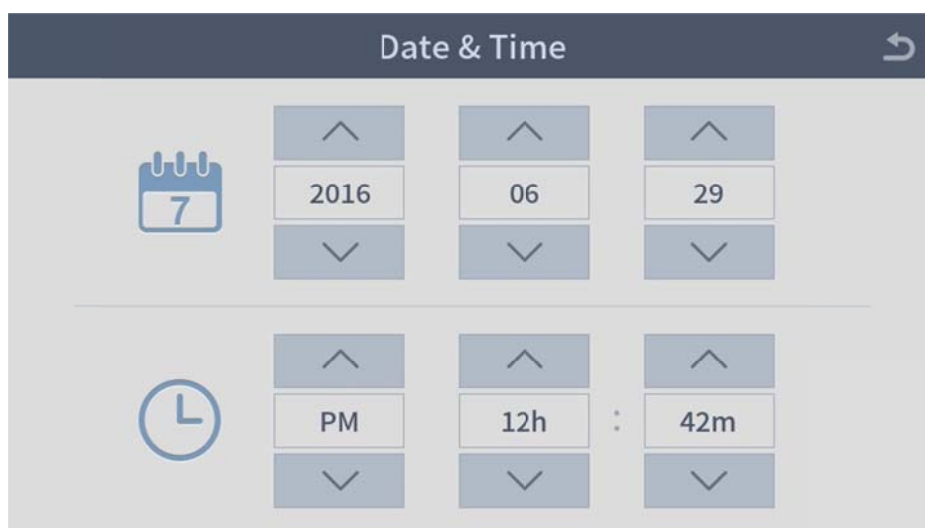
1.4 Date & Time



Time sync Select enable/disable for time sync with CMID manager

Manual setup Set date and time manually

1.4.1 Date & Time → Manual Setup



1.5 Door

Device			
Configuration	Relay	Not use >	^
Bio	Driven by	All Events >	
Sound	Duration(sec)	5 >	
Date & Time	RTE(Request To Exit)	Not use >	v
Door	RTE Type	N/O >	
	Door sensor	Not use >	

Relay Select a door open relay

Driven by Select an event mode for door open relay

Duration (sec) Set time duration for door open relay operation

RTE (Request to Exit) Select a door exit button (Note: in construction)

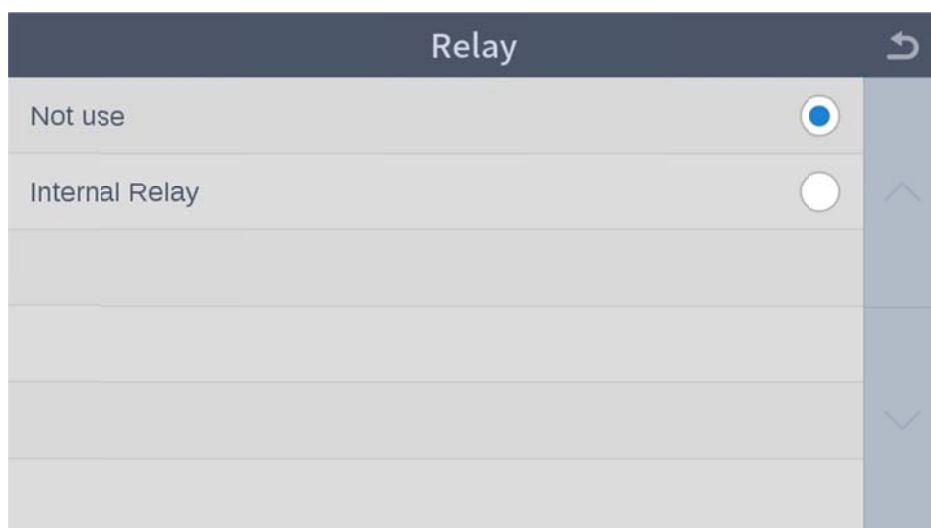
RTE Type Select a door exit button operating type (Note: in construction)

Door sensor Select a door sensor (Note: in construction)

Device			
Configuration	Door sensor type	N/O >	^
Bio	Held open period(sec)	30 >	
Sound	Lock time	Never >	
Date & Time	Unlock time	Never >	v
Door	Tamper	<input type="checkbox"/>	

Door sensor type	Select door sensor operating type (note: in construction)
Held open period (sec)	Set time duration for door open operation (note: in construction)
Lock time	Set door lock time (note: in construction)
Unlock time	Set door unlock time (note: in construction)
Tamper	Select enable/disable for tamper (off the wall detection) operation

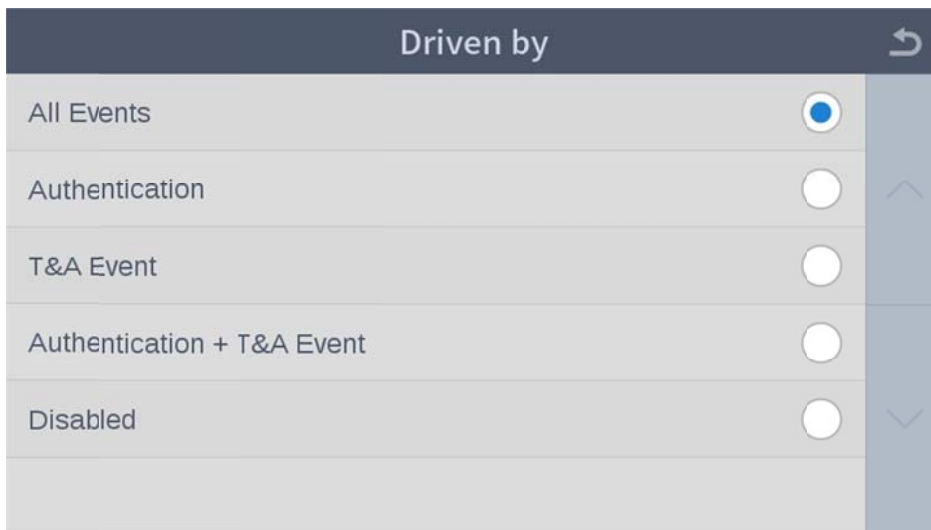
1.5.1 Door → Relay



Relay	
Not use	<input checked="" type="radio"/>
Internal Relay	<input type="radio"/>

Not use	Select not use
Internal Relay	Select internal relay

1.5.2 Door → Driven by



All Events Select door open for all events

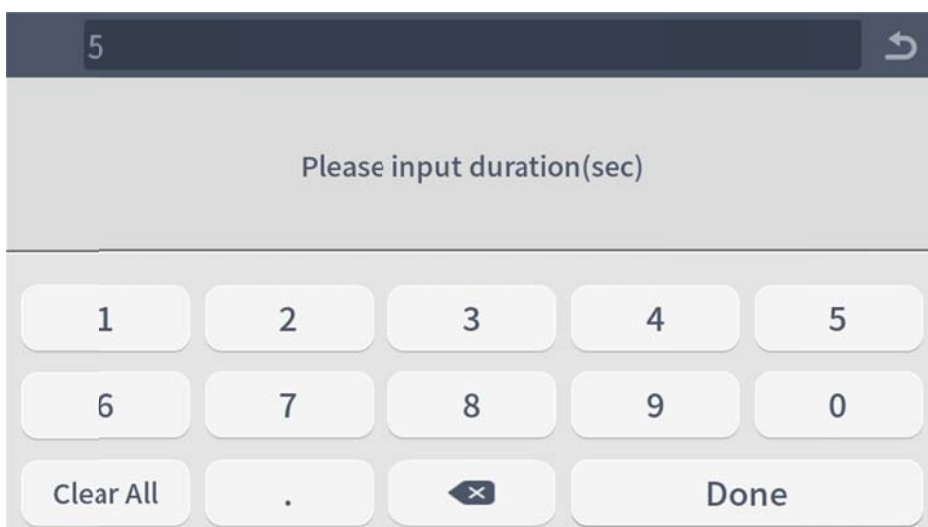
Authentication Select door open for authentication event

T&A Event Select door open for T&A event

Authentication + T&A Event Select door open for authentication plus T&A event

Disabled Select door open disable

1.5.3 Door → Duration (sec)



1.5.4 Door → Door Sensor

Door sensor		↶
Not use	<input checked="" type="radio"/>	<div>↑</div> <div>↓</div>
	<input type="radio"/>	
	<input type="radio"/>	
	<input type="radio"/>	
	<input type="radio"/>	
	<input type="radio"/>	

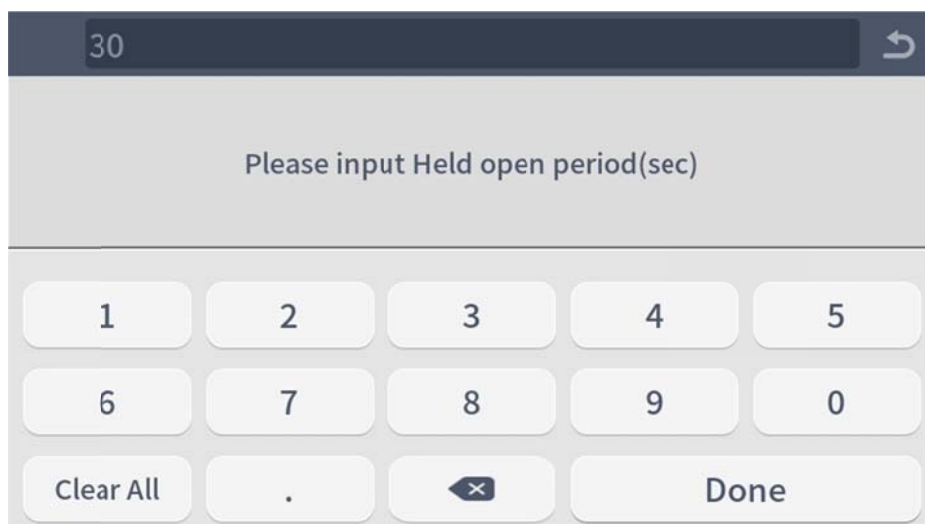
1.5.5 Door → Door Sensor Type

Door sensor type		↶
N/O	<input checked="" type="radio"/>	<div>↑</div> <div>↓</div>
N/C	<input type="radio"/>	
	<input type="radio"/>	
	<input type="radio"/>	
	<input type="radio"/>	
	<input type="radio"/>	

N/O Select door exit button sensor as Normal Open type

N/C Select door exit button sensor as Normal Close type

1.5.6 Door → Held Open Period (sec)



30

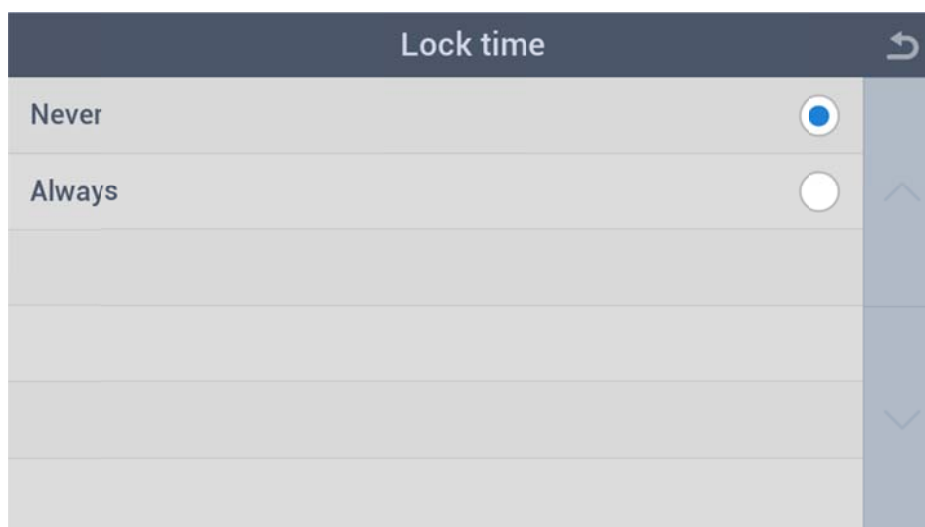
Please input Held open period(sec)

1 2 3 4 5

6 7 8 9 0

Clear All . ⬅️ × Done

1.5.7 Door → Lock Time



Lock time

Never ☒

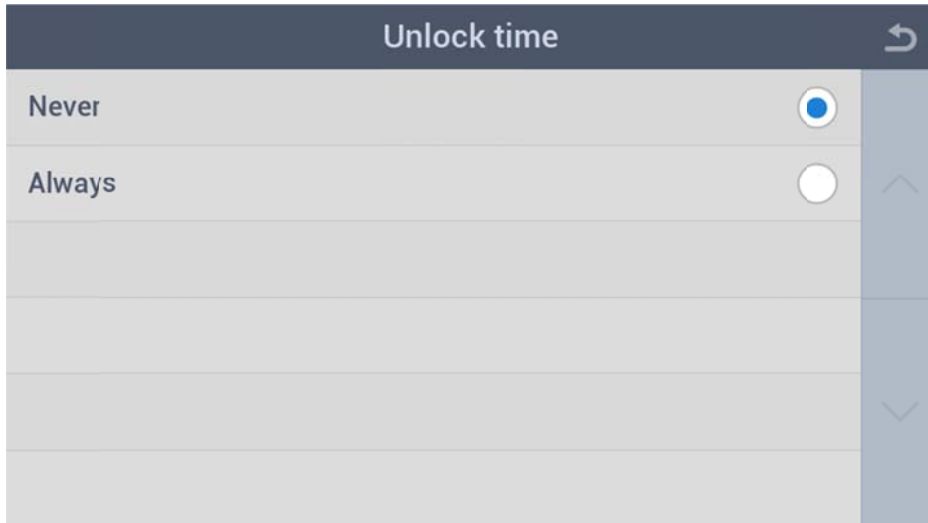
Always ☐

⬆️ ⬇️

Never Select door lock time -- never

Always Select door lock time -- always

1.5.8 Door → Unlock Time



Never Select door unlock time -- never

Always Select door unlock time -- always

1.6 Device Info

Device		
Model	UMX-10	
Device Info.	FW Version	umx-ota-upgrade-es_d20160707.bin
Interphone	Device ID	HC0706A000019
Memory Info.	Kernel version	1.1.7
Touchscreen Cal.	HW version	0x0201
MAC	00:25:ff:fe:47:9a	

Model Model name of this device

FW Version Version name of released firmware (F/W) file

Device ID Identification number of this device

Kernel version Revision number of kernel

HW version Revision number of hardware board

MAC MAC address of this device

Device		
Boot version	1.0.0	
Device Info.	Root version	1.1.9
Interphone	Recovery version	1.1.4
Memory Info.	Application version	1.1.11
Touchscreen Cal.	FPGA version	2.6.0

Boot version	Revision number of boot loader
Root version	Revision number of root file system
Recovery version	Revision number of recovery firmware
Application version	Revision number of Launcher application
FPGA version	Revision number of Camera FPGA firmware

1.7 Interphone



Interphone Select enable/disable for interphone use (note: in construction)

IP Address IP address of PC which interphone program is installed (note: in construction)

1.7.1 Interphone → IP Address



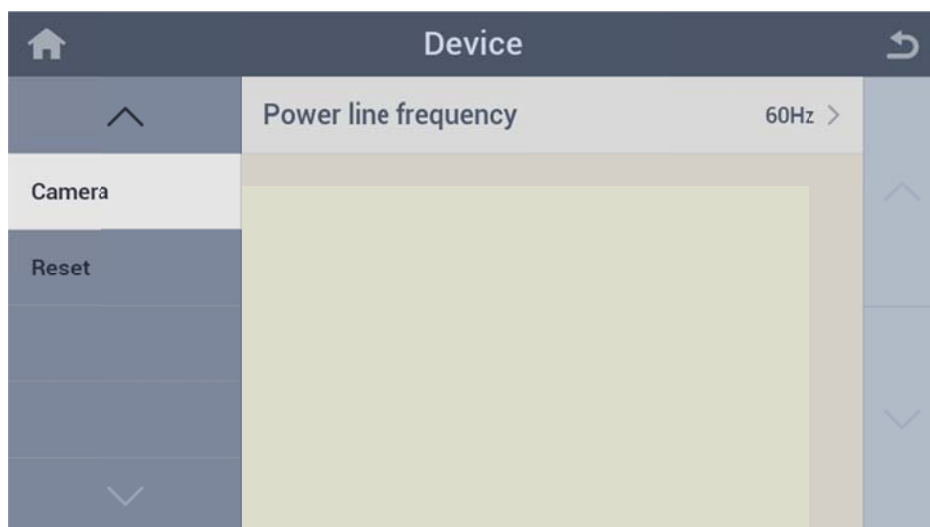
1.8 Memory Info



System Memory capacity of system area (note: in construction)

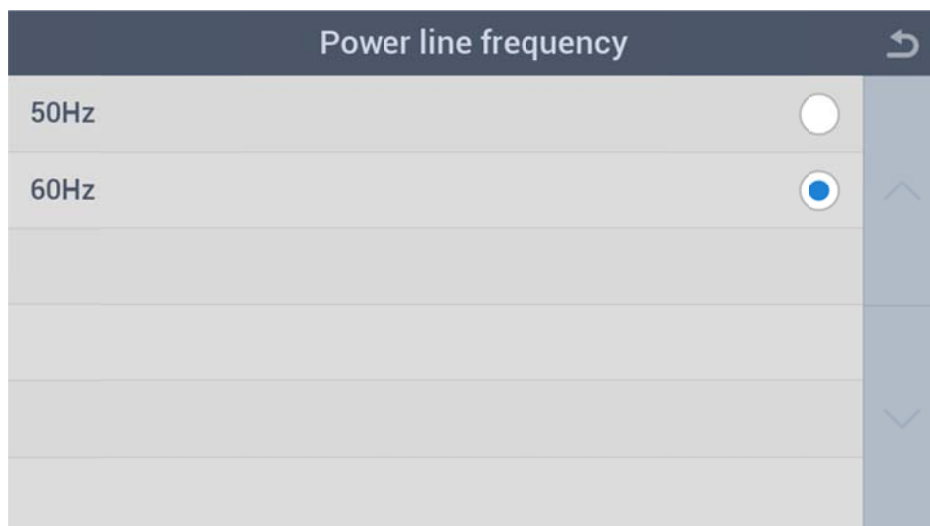
User data Memory capacity of user area (note: in construction)

1.9 Camera



Power line frequency Select power line frequency that supplying to device

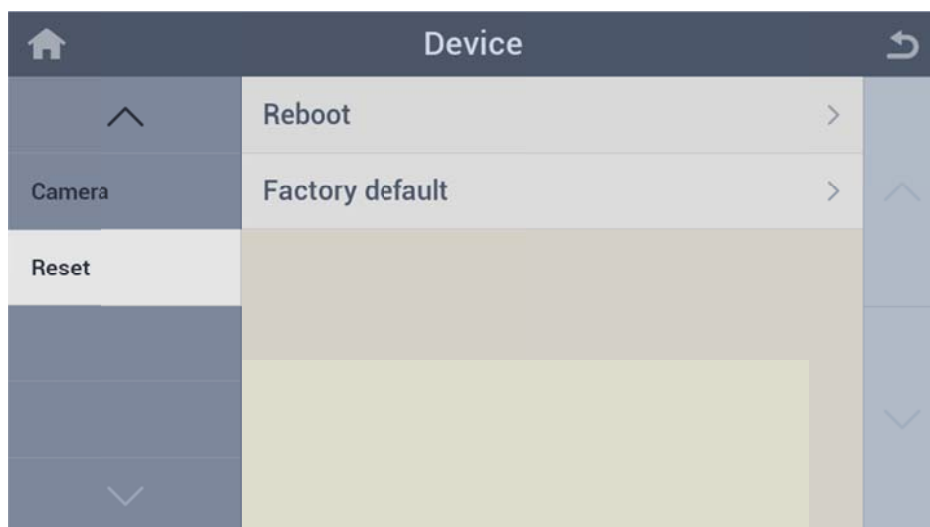
1.9.1 Camera → Power Line Frequency



50Hz Select power line frequency to 50Hz

60Hz Select power line frequency to 60Hz

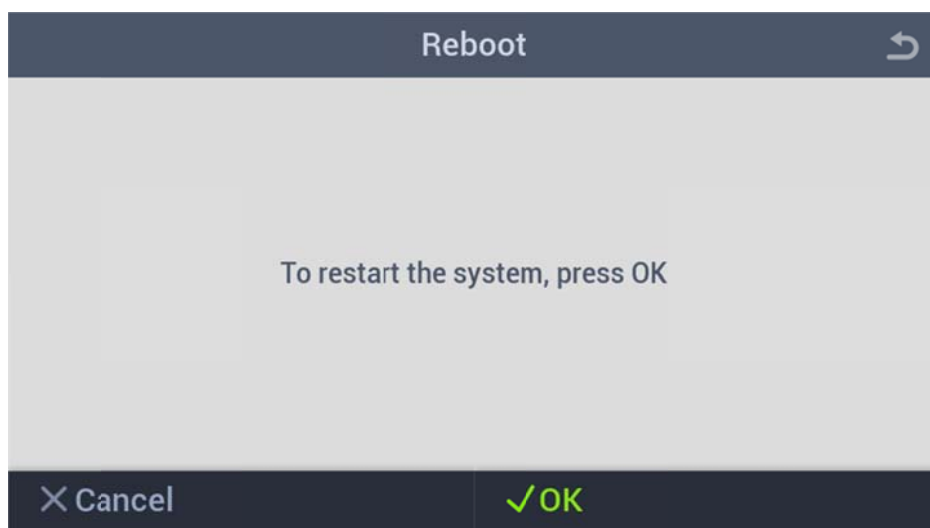
1.10 Reset



Reboot Reboot device

Factory Default Reset all configuration settings and/or delete all user data

1.10.1 Reset → Reboot



1.10.2 Reset → Factory Default

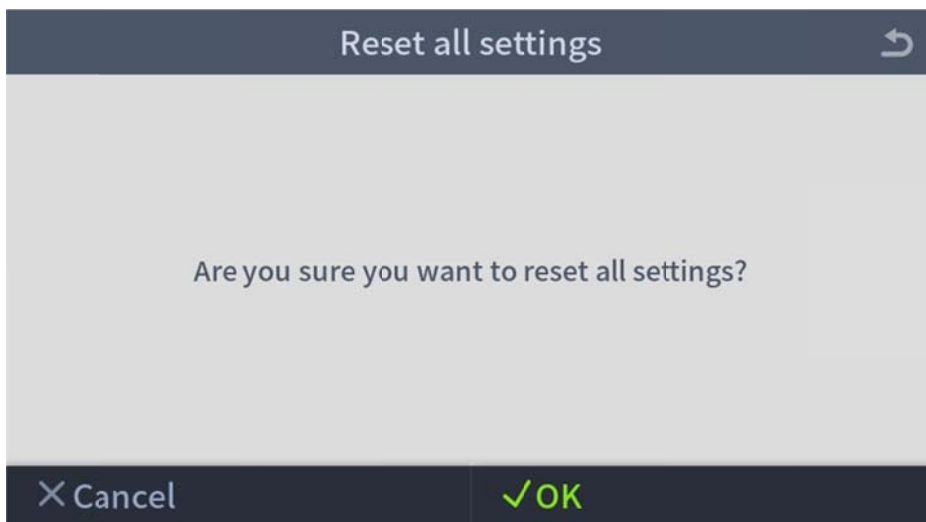


Reset all settings Reset all configuration settings

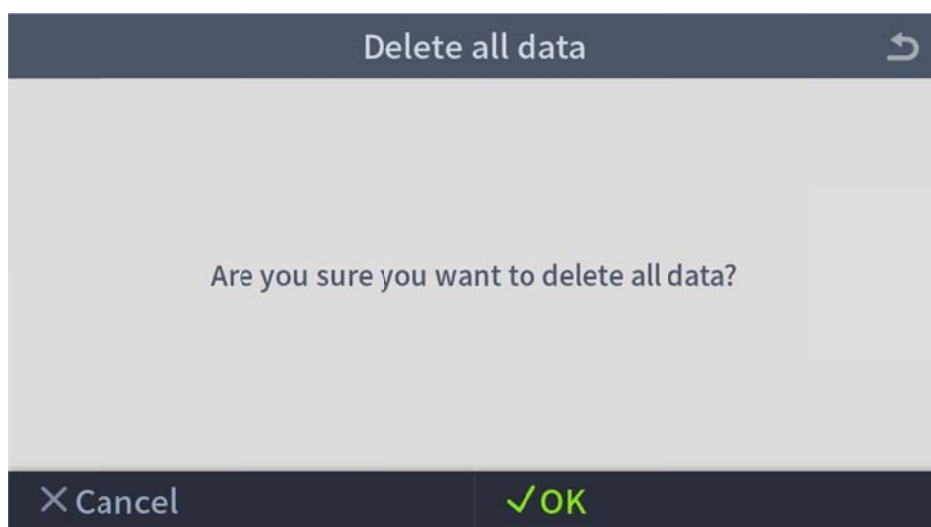
Delete all data Delete all user data

Delete all data and reset all configuration settings Reset all configuration settings and delete all user data

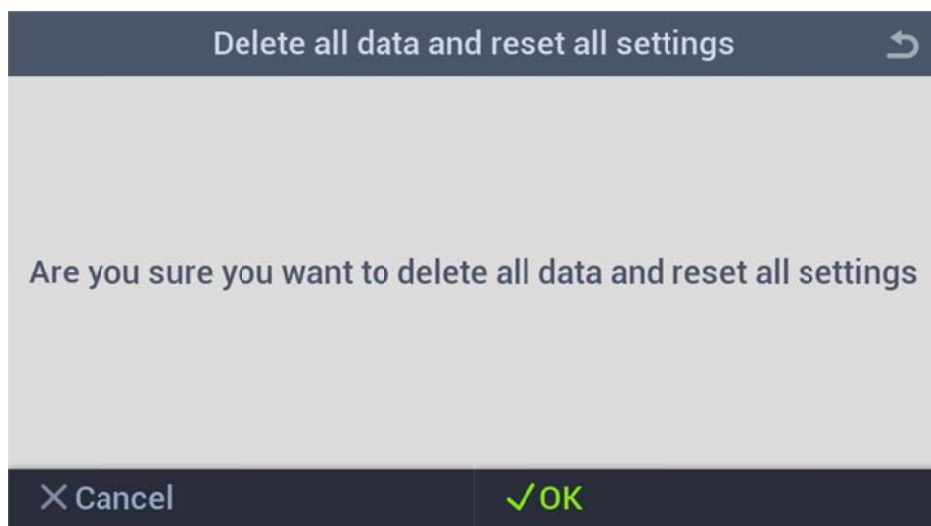
1.10.2.1 Reset → Factory Default → Reset All Settings



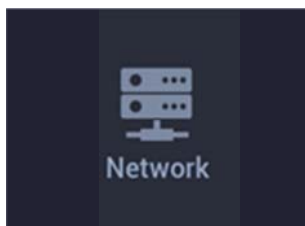
1.10.2.2 Reset → Factory Default → Delete All Data



1.10.2.3 Reset → Factory Default → Delete All Data and Reset All Settings



2 Network



Configure settings for IP and serial communication.

2.1 TCP/IP

Network	
TCP/IP	Lan type Ethernet >
Server	DHCP <input type="checkbox"/>
Serial	IP Address 192.168.0.7 >
USB Memory	Gateway 192.168.0.1 >
	Subnet 255.255.255.0 >

- LAN type** Select a type of LAN
- DHCP** Select enable/disable DHCP mode
- IP Address** Set static IP address
- Gateway** Set static gateway IP address
- Subnet** Set static subnet mask

2.1.1 TCP/IP → LAN Type

Lan type	
Disable	<input type="radio"/>
Ethernet	<input checked="" type="radio"/>

Disable Disable LAN use

Ethernet Select Ethernet for LAN use

2.1.2 TCP/IP → IP Address

192.168.0.6

Please input IP address

1

2

3

4

5

6

7

8

9

0

Clear All

.

⬅

Done

2.1.3 TCP/IP → Gateway

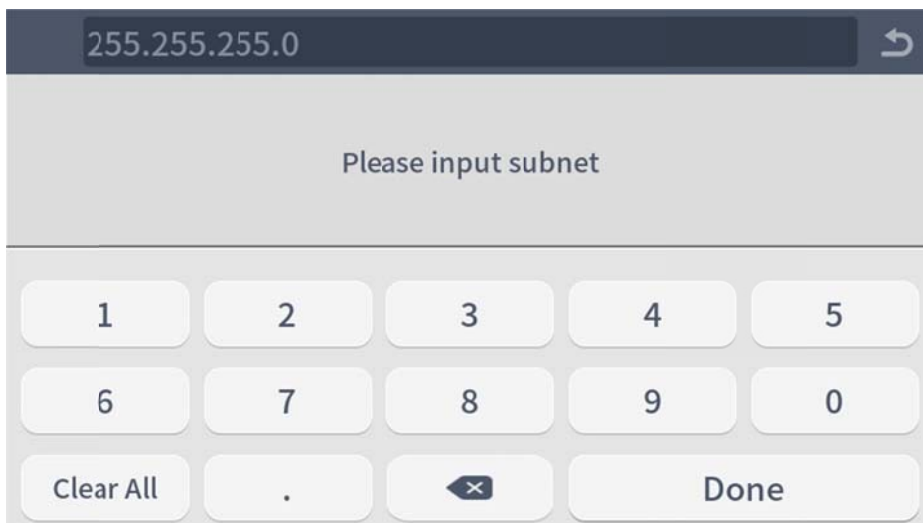


192.168.0.1 ↩

Please input gateway

1	2	3	4	5
6	7	8	9	0
Clear All	.	⬅✕	Done	

2.1.4 TCP/IP → Subnet

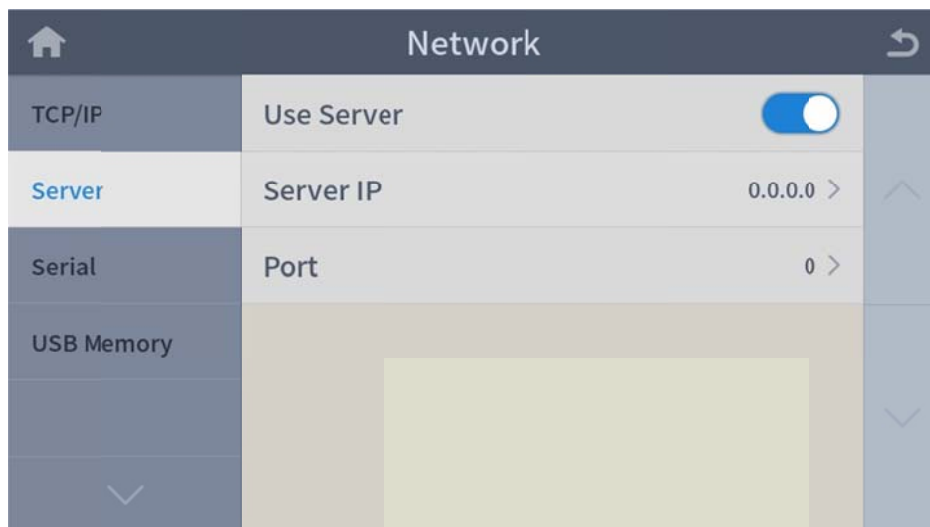


255.255.255.0 ↩

Please input subnet

1	2	3	4	5
6	7	8	9	0
Clear All	.	⬅✕	Done	

2.2 Server



(Currently settled server is CMID PC for time sync)

Use Server Select enable/disable for server use (Note: In construction)

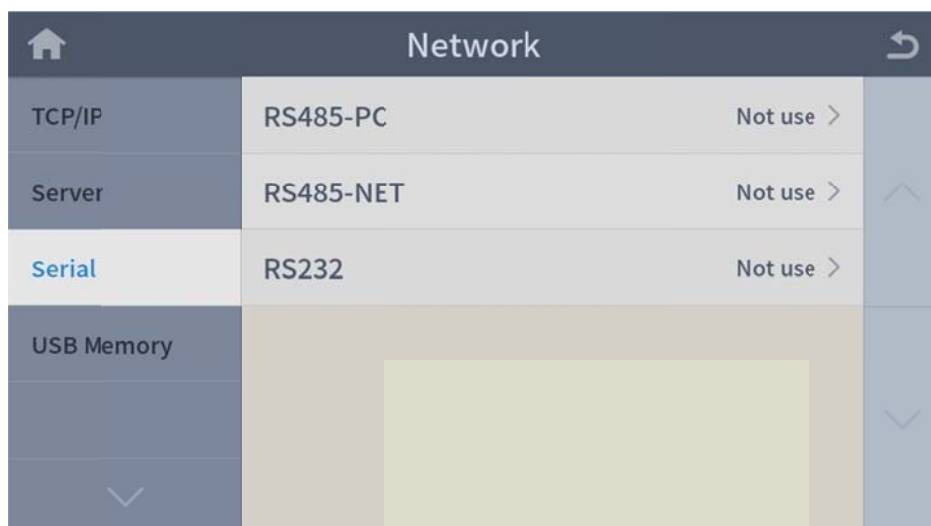
Server IP Set IP address of server (Note: In construction)

Port (Note: To be eliminated)

2.2.1 Server → Server IP



2.3 Serial



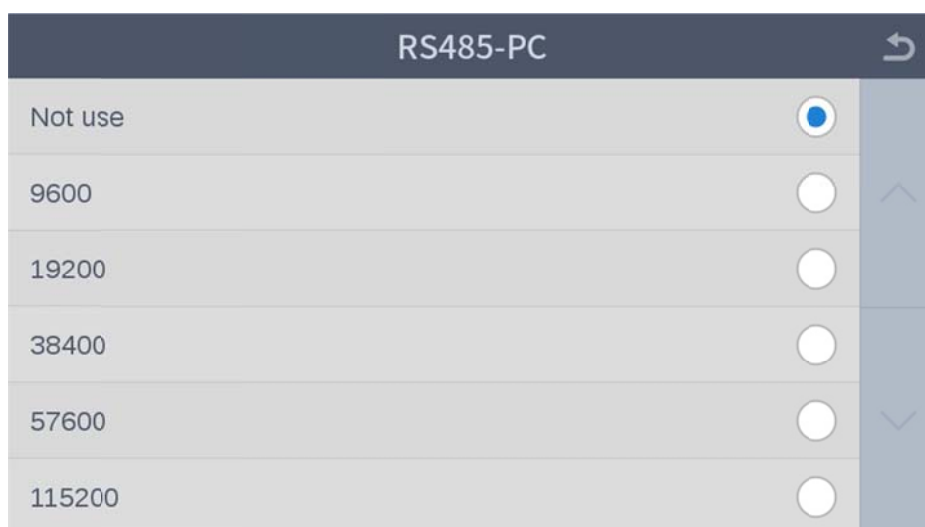
Network		
TCP/IP	RS485-PC	Not use >
Server	RS485-NET	Not use >
Serial	RS232	Not use >
USB Memory		

RS485-PC Select a baud rate for RS485 (note: in construction)

RS485-NET Select an operating mode for RS485 (note: in construction)

RS232 Select a baud rate for RS232 (note: in construction)

2.3.1 Serial → RS485-PC



RS485-PC	
Not use	<input checked="" type="radio"/>
9600	<input type="radio"/>
19200	<input type="radio"/>
38400	<input type="radio"/>
57600	<input type="radio"/>
115200	<input type="radio"/>

2.3.2 Serial → RS485-NET

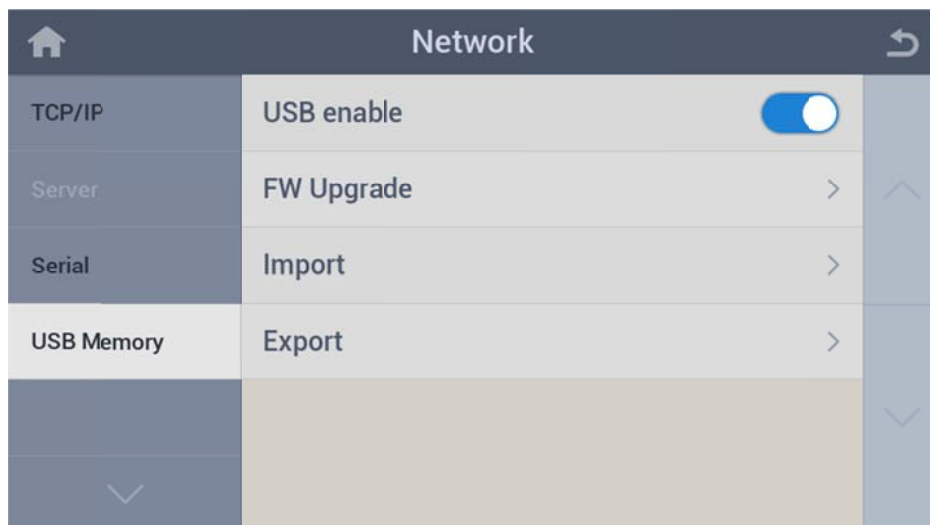
RS485-NET		↶
Not use	<input checked="" type="radio"/>	↑
NET-HOST	<input type="radio"/>	
NET-SLAVE	<input type="radio"/>	
		↓

- Not use** Disable RS485
- NET-HOST** Set RS485 operating mode as host
- NET-SLAVE** Set RS485 operating mode as slave

2.3.3 Serial → RS232

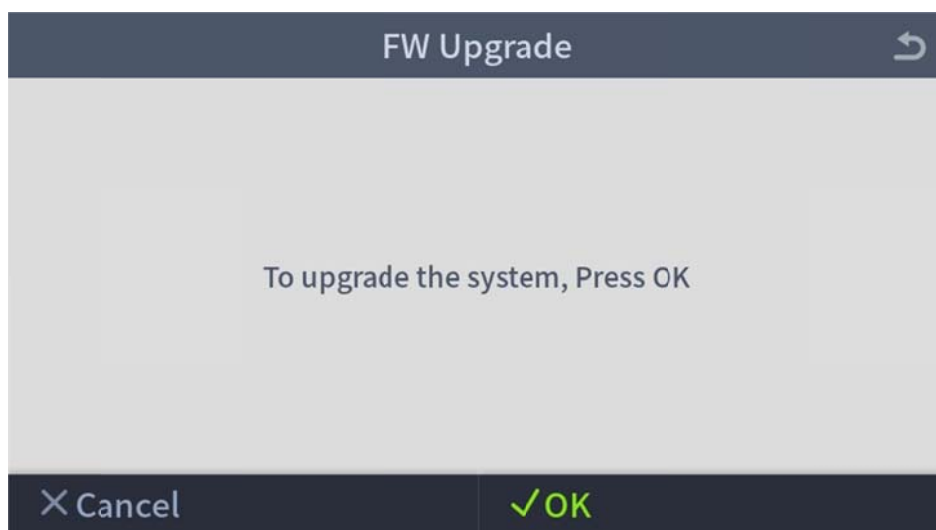
RS232		↶
Not use	<input checked="" type="radio"/>	↑
		↓

2.4 USB Memory



USB enable	Select enable/disable for USB memory use
FW Upgrade	Go into firmware (F/W) upgrade from USB memory
Import	Go into backup data (user & log data) restore from USB memory
Export	Go into backup data (user & log data) save to USB memory

2.4.1 USB Memory → FW Upgrade

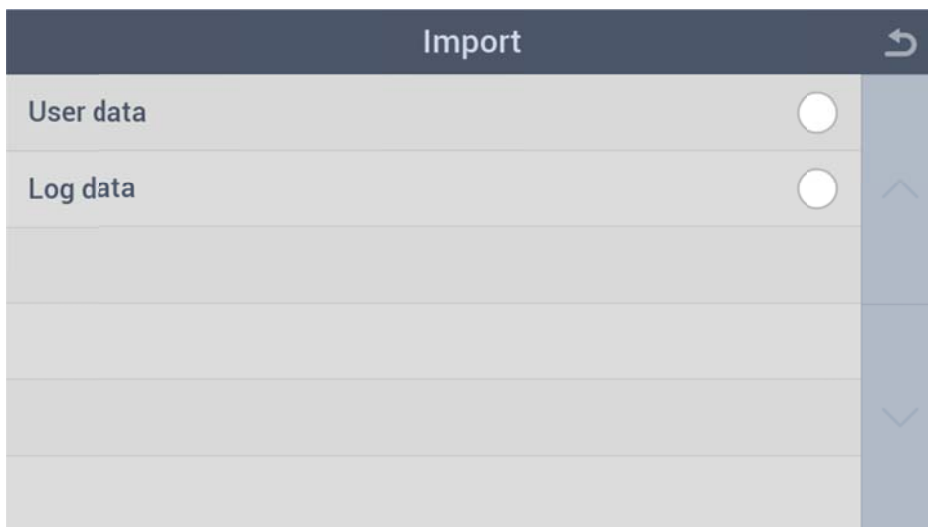


Upgrade F/W by tapping on **✓ OK** button on the bottom right.



If the FW file (new firmware and operating library) does not exist in USB, message appears as shown above.

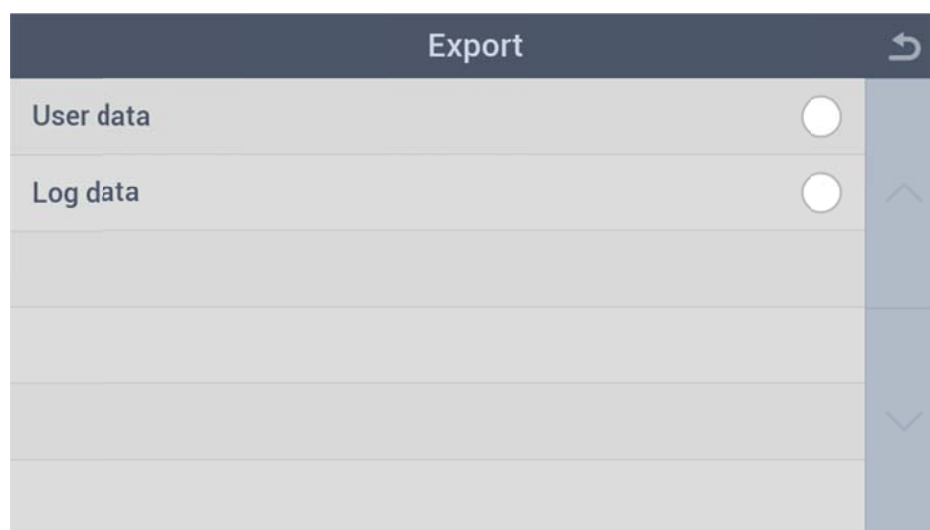
2.4.2 USB Memory → Import



User data Restore user enroll data from USB memory

Log data Restore log data from USB memory

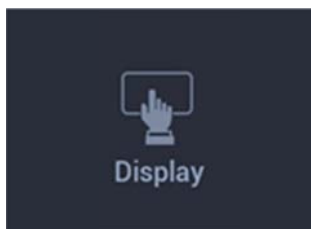
2.4.3 USB Memory → Export



User data Backup user enroll data to USB memory

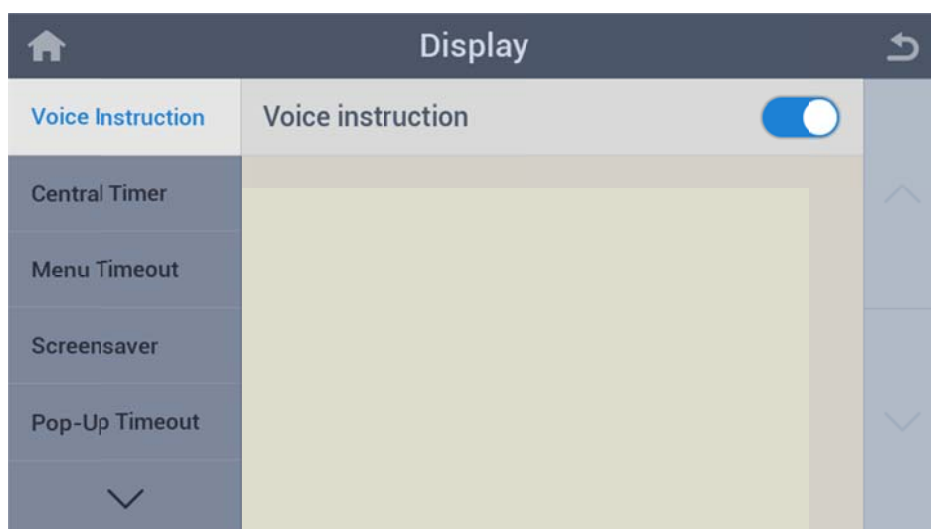
Log data Backup log data to USB memory

3 Display



Configure settings for screen display.

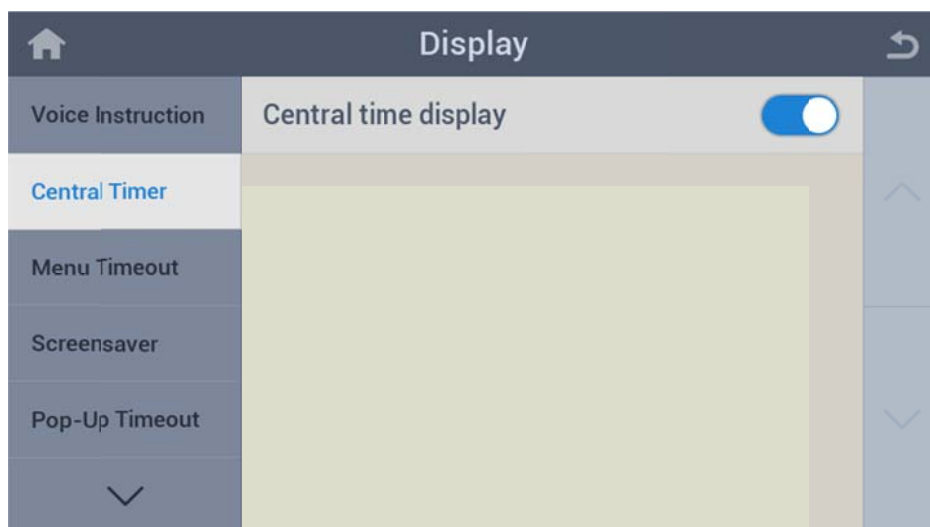
3.1 Voice Instructions



Voice Instruction

Select enable/disable for voice guide positioning / instructions

3.2 Central Timer



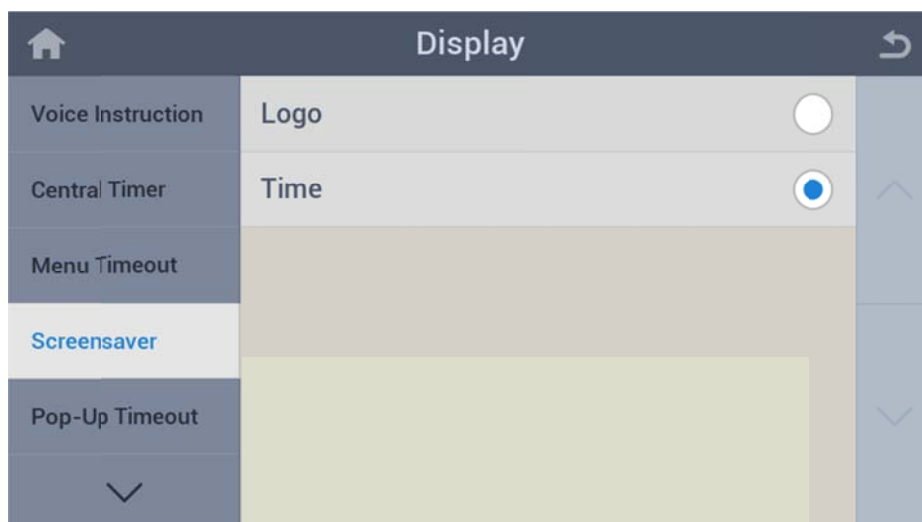
Central Timer Select enable/disable for clock display on the center of Launcher application

3.3 Menu Timeout



Menu Timeout Set timeout for auto exit from menu display after leaving untouched

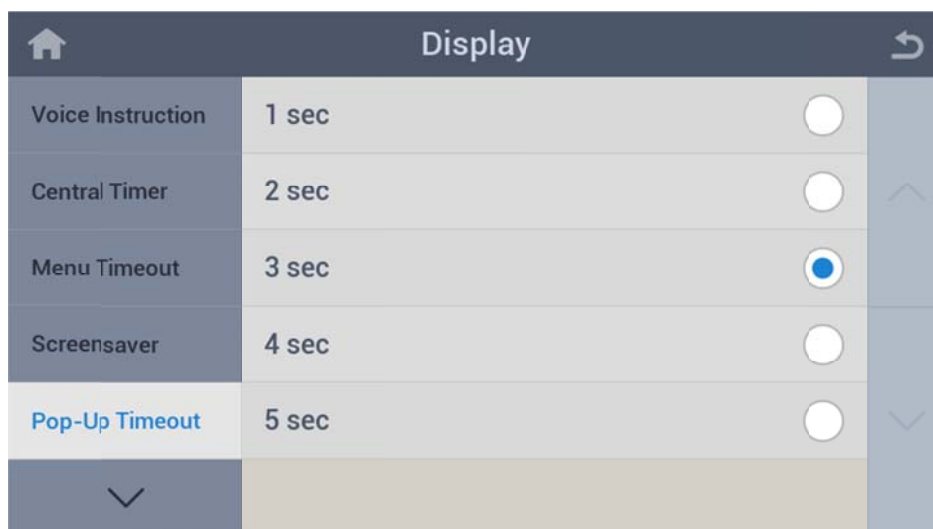
3.4 Screensaver



Logo Select logo display as screensaver

Time Select clock display as screensaver

3.5 Pop-Up Timeout



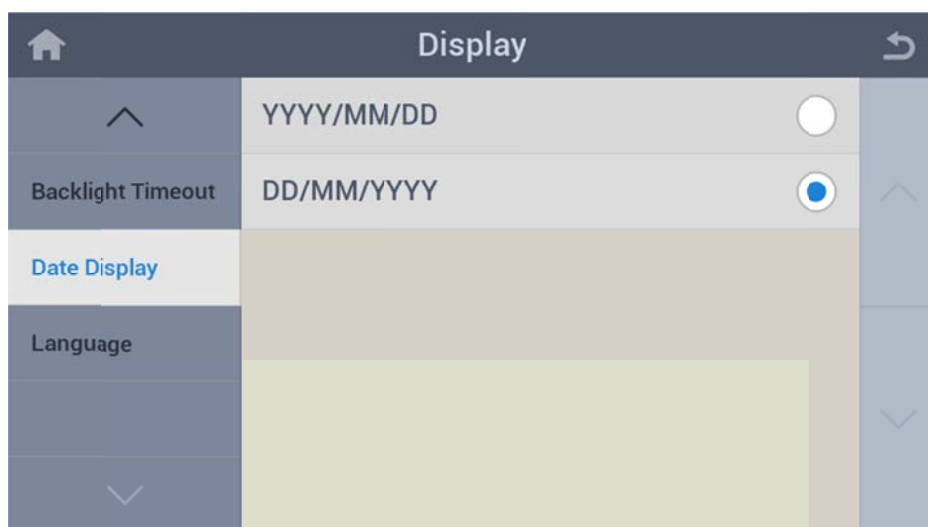
Pop-Up Timeout Set pop-up message window (recognition complete etc.) display duration

3.6 Backlight Timeout



Pop-Up Timeout Set timeout for auto off of LCD backlight after leaving unused

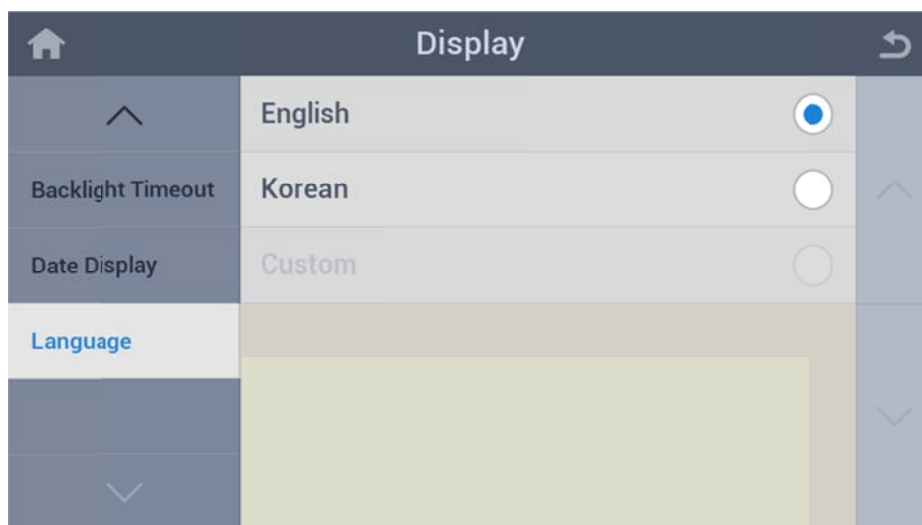
3.7 Date Display



YYYY/MM/DD Select year/month/day display mode

DD/MM/YYYY Select day/month/year display mode

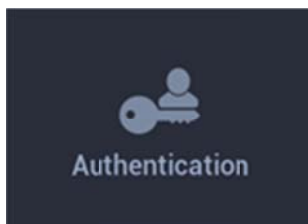
3.8 Language



Language

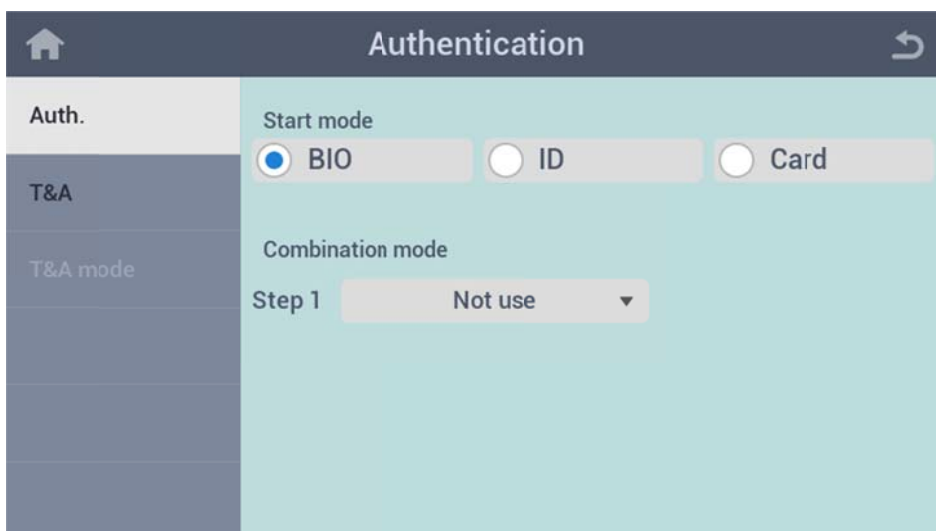
Select a language to use (Note: In construction)

4 Authentication



Configure settings for authentication method and T&A.

4.1 Auth.

 A screenshot of the "Authentication" settings page. The page has a dark blue header with a home icon, the title "Authentication", and a refresh icon. On the left is a sidebar with four items: "Auth." (selected), "T&A", "T&A mode", and an empty item. The main content area is light blue and contains two sections. The "Start mode" section has three radio buttons: "BIO" (selected), "ID", and "Card". The "Combination mode" section has a label "Step 1" followed by a dropdown menu currently showing "Not use".

Start mode Select a basic (first) recognition method

Combination mode Select a combination (additional) recognition method if necessary

4.1.1 Auth. → Combination Mode (Step 1)

Step 1		↩
Not use	<input checked="" type="radio"/>	^ v
Bio	<input type="radio"/>	
ID	<input type="radio"/>	
Card	<input type="radio"/>	
PIN	<input type="radio"/>	

Select a combination (additional) recognition method.

4.2 T&A

Authentication		↩
Auth.	Use T&A	<input checked="" type="checkbox"/>
T&A	T&A > Recognition	<input type="radio"/>
T&A mode	Recognition > T&A	<input type="radio"/>

Use T&A Select enable/disable for T&A usage mode (note: in construction)

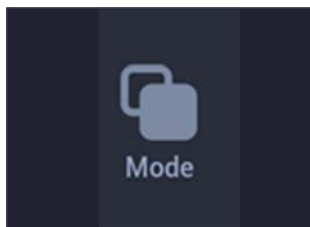
T&A > Recognition Select T&A mode (Attendance etc.) first, then recognition

Recognition > T&A After recognition, then input T&A mode (Attendance etc.)

4.3 T&A Mode

(Note: In construction)

5 Mode



Configure settings for recognition operation.

5.1 Operation

Mode		
Operation	Face detection	<input type="checkbox"/>
Camera Event	Individual auth.	<input type="checkbox"/>
	Dual authentication	Never >
	Match timeout	5 sec >
	Card mode	Use CSN >

Face detection	Select enable/disable for face image saving at recognition (note: to be eliminated)
Individual auth.	Select enable/disable for permission of individual authentication
Dual authentication	Select a dual authentication (simultaneous 2 persons) method (note: in construction)
Match timeout	Set a recognition trying timeout
Card mode	Select use or not for CSN in RFID card (note: in construction)

5.1.1 Operation → Dual Authentication

Dual authentication		↶
Never	<input checked="" type="radio"/>	^
Always	<input type="radio"/>	
		v

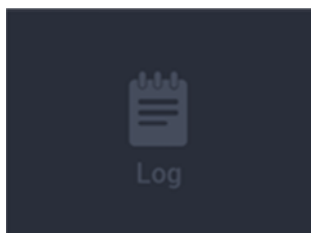
5.1.2 Operation → Match Timeout

Match timeout		↶
3 sec	<input type="radio"/>	^
5 sec	<input checked="" type="radio"/>	
10 sec	<input type="radio"/>	
20 sec	<input type="radio"/>	v
30 sec	<input type="radio"/>	
60 sec	<input type="radio"/>	

5.1.3 Operation → Card Mode

Card mode		↶
Not use	<input type="radio"/>	↑
Use CSN	<input checked="" type="radio"/>	
		↓

6 Log



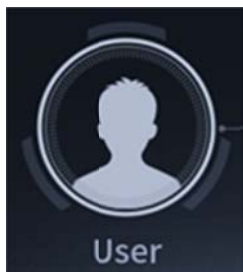
View information of saved log and log search viewer.

6.1 Log Info

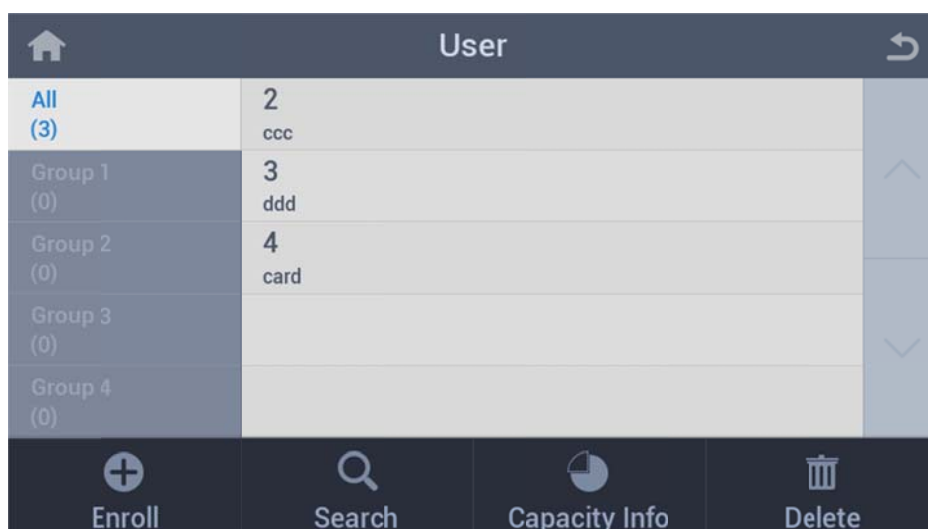


(Note: In construction)

User



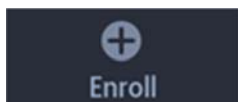
Tap the **User** icon in Home screen.



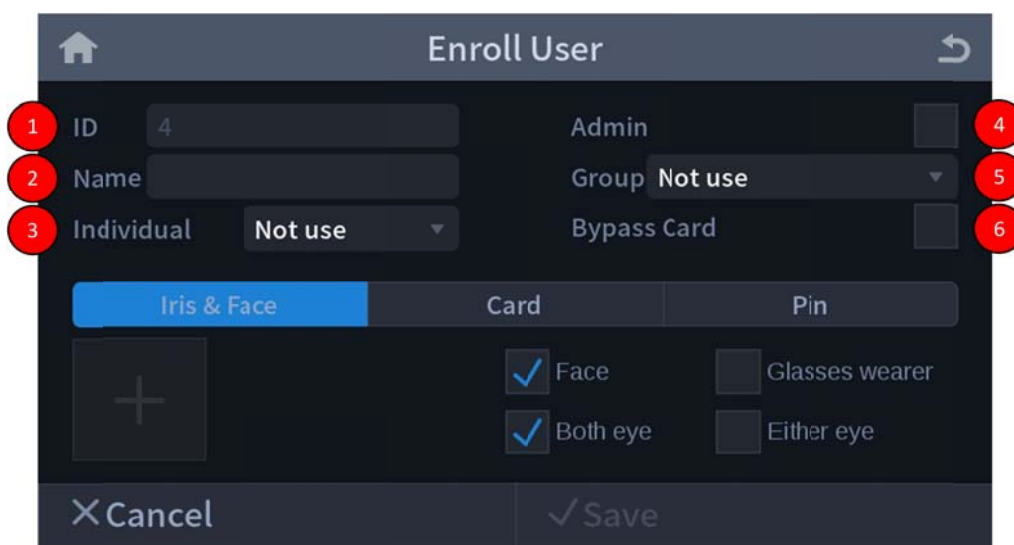
Displays the registered user lists in All and Group 1, 2, 3, 4

Enroll button	Switch to enroll process
Search button	Switch to search process
Capacity Info button	Show the used memory percentage
Delete button	Switch to delete process

1 Enroll User



Tap the **Enroll** button to enroll a new user.



The screenshot shows the 'Enroll User' page with the following fields and options:

- 1 ID:** A text field containing the number '4'.
- 2 Name:** A text field for the user's name.
- 3 Individual:** A dropdown menu currently set to 'Not use'.
- 4 Admin:** A checkbox to make the user an administrator.
- 5 Group:** A dropdown menu currently set to 'Not use'.
- 6 Bypass Card:** A checkbox to allow bypassing the card.

Below these fields are three tabs: 'Iris & Face' (selected), 'Card', and 'Pin'. Under the 'Iris & Face' tab, there is a large plus icon for scanning and two checked options: 'Face' and 'Both eye'. There are also two unchecked options: 'Glasses wearer' and 'Either eye'. At the bottom are 'Cancel' and 'Save' buttons.

Enroll User Page

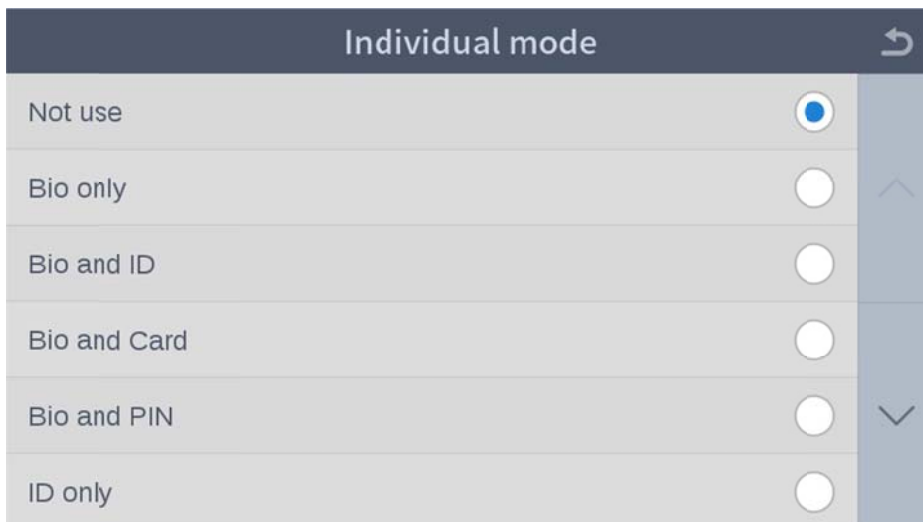
- ① ID: Created a user ID number automatically or input manually
- ② Name: Input user name manually
- ③ Individual: Set user individual authentication mode if necessary
- ④ Admin: Can make a user administrator or not
- ⑤ Group: Can make a user belong to a group
- ⑥ Bypass Card: Can register a user who holding bypass card (highest priority card)

1.1 Name



A screenshot of a user name input screen. At the top, there is a dark blue header bar with a back arrow icon on the right. Below the header, a light gray bar contains the text "Please input user name". The main area features a virtual QWERTY keyboard with white keys and gray borders. The keyboard includes letters, a spacebar, a period key, and a "Done" button. A dark blue bar at the bottom of the keyboard area contains the text "ABC", a comma key, and a "Space" label.

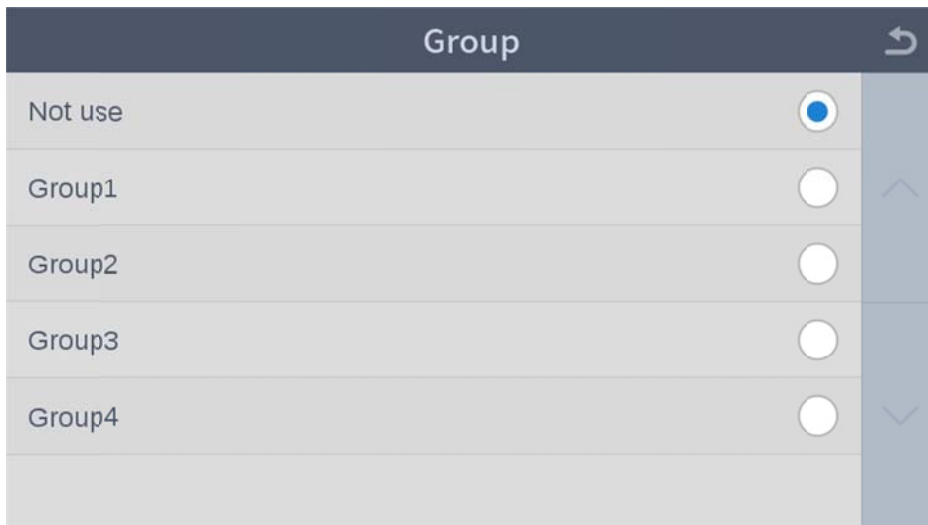
1.2 Individual



A screenshot of an "Individual mode" selection screen. The screen has a dark blue header bar with the text "Individual mode" and a back arrow icon on the right. Below the header, there is a list of six options, each with a radio button to its right. The options are: "Not use", "Bio only", "Bio and ID", "Bio and Card", "Bio and PIN", and "ID only". The "Not use" option is selected, indicated by a blue dot in its radio button. To the right of the list, there is a vertical gray bar with a back arrow icon at the top and a downward arrow icon at the bottom.

Select an individual authentication mode.

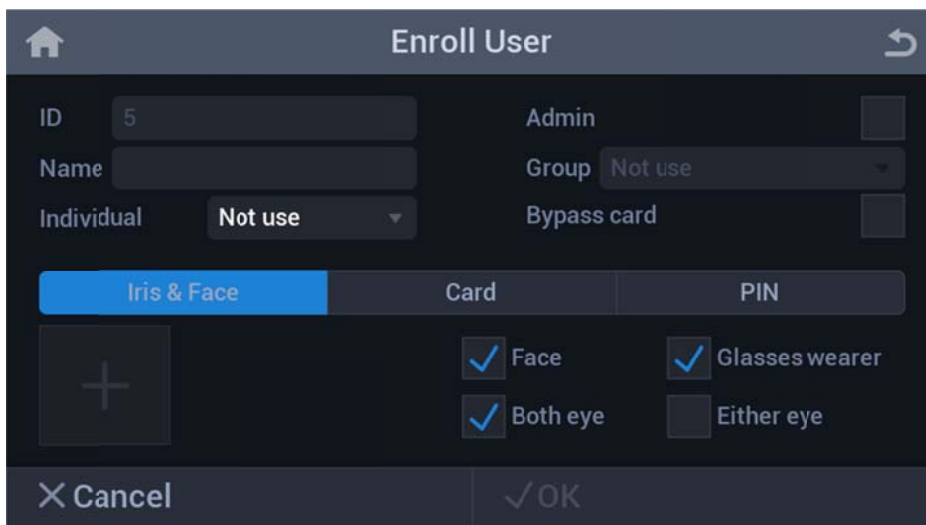
1.3 Group



The 'Group' selection screen shows a list of groups with radio buttons for selection. The 'Not use' option is currently selected.

Group	Selected
Not use	<input checked="" type="radio"/>
Group1	<input type="radio"/>
Group2	<input type="radio"/>
Group3	<input type="radio"/>
Group4	<input type="radio"/>

1.4 Iris & Face Process



The 'Enroll User' screen displays fields for user information and options for enrollment method and biometric settings.

Fields:

- ID: 5
- Name: [Empty]
- Individual: Not use
- Admin: ☐
- Group: Not use
- Bypass card: ☐

Enrollment Method Tabs:

- Iris & Face** (Selected)
- Card
- PIN

Biometric Settings:

- Face: ☒
- Glasses wearer: ☒
- Both eye: ☒
- Either eye: ☐

Buttons:

- Cancel
- OK

Iris & Face tab

Selection changes tab to blue color

Bio select check boxes are shown

Face

Select box for face image capture

Glasses wearer

Select box for face taking off glasses additionally if necessary

Both eye	Select box for "both eye" Iris mode
Either eye	Select box for "either eye" Iris mode
Start(+) button	Switch to enroll process

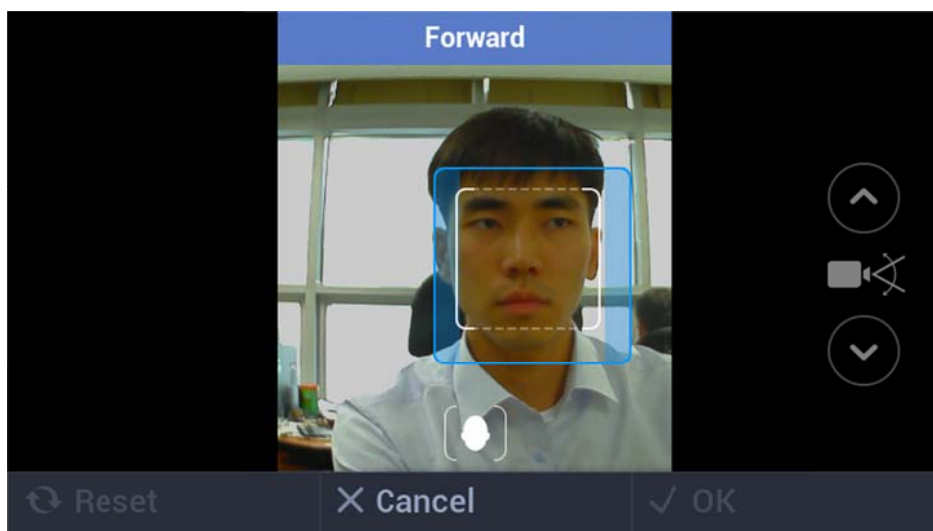
1.4.1 Iris & Face Process → Face Capture



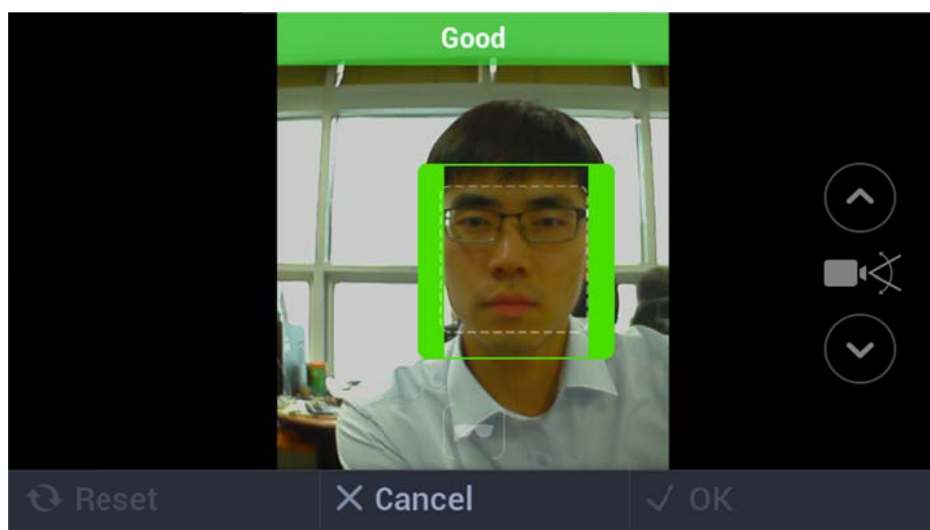
※ **Note: Only operational if "Combined Face and Iris" mode is active**

Color Overlay	BLUE means too far GREEN means OK RED means too close.
Up/Down Arrow	Can tilt camera manually if necessary (note: to be eliminated)
Switch to Iris Capture stage after good face image acquisition	

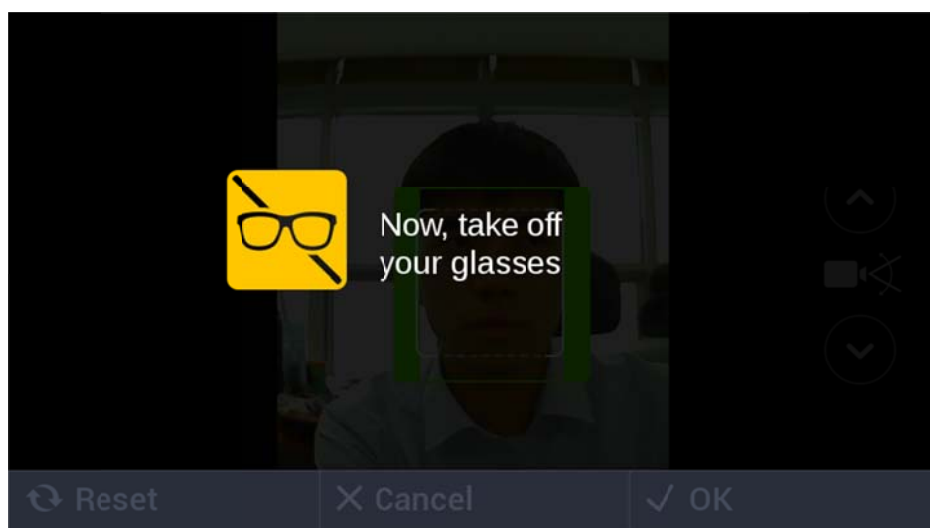
1.4.1.1 Iris & Face Process → Face Capture → Tracking Guide Box UI



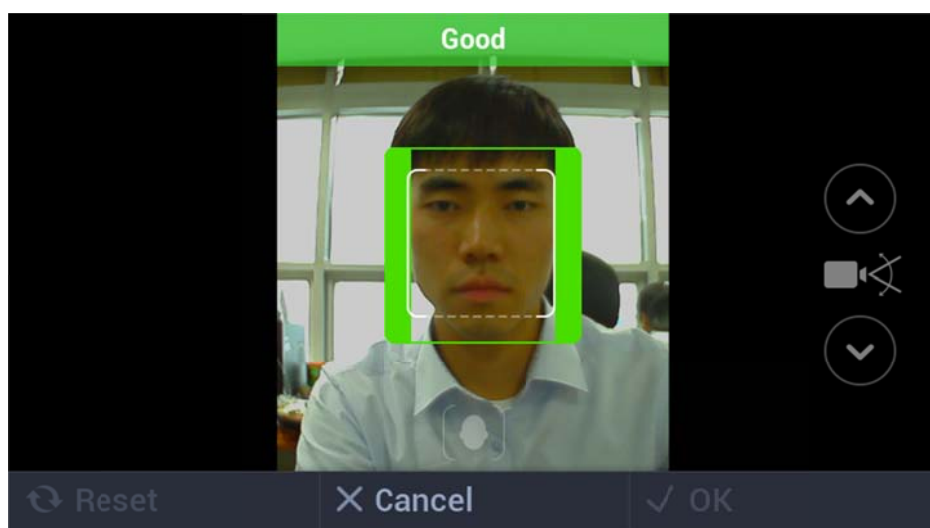
Positioning box appears in order to guide subject.



Capture normal face images.

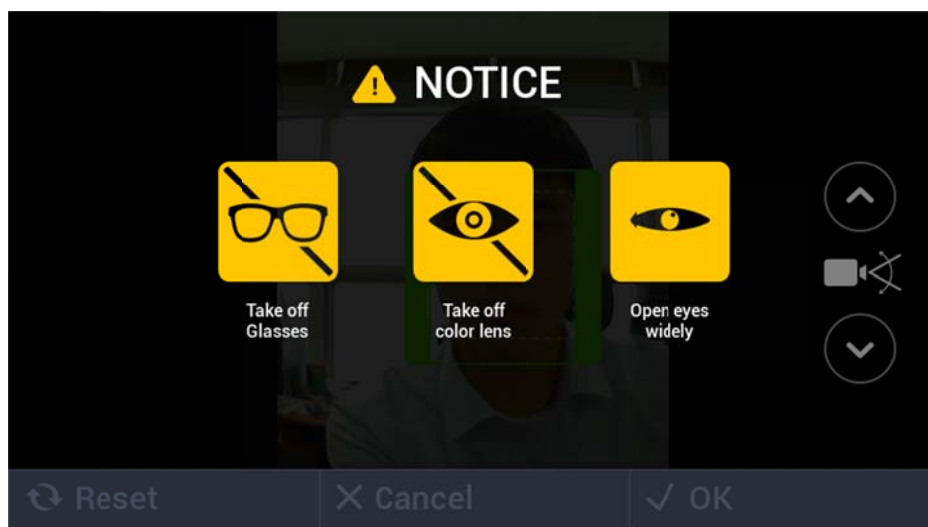


In case of selection of Glasses wearer check box, will be active for about 3 to 5 seconds.



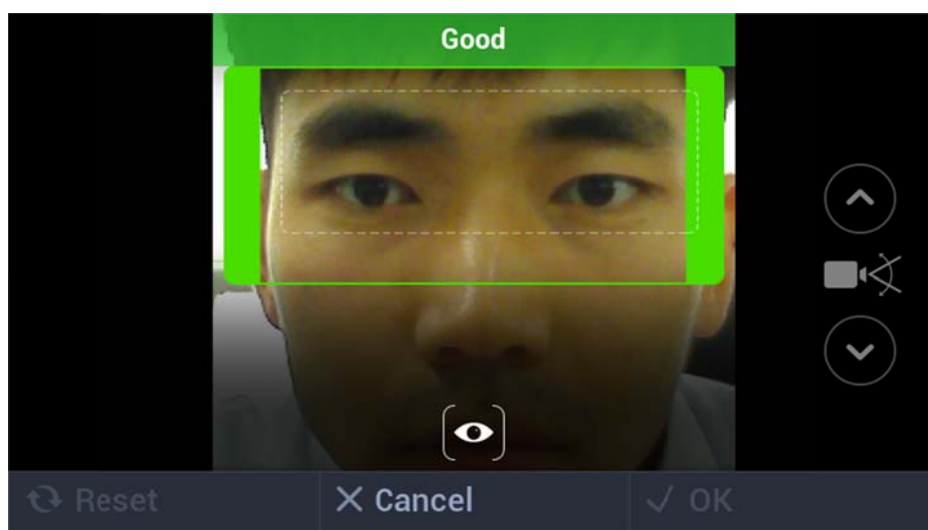
Capture additional face images taken off glasses.

1.4.2 Iris & Face Process → Iris Capture



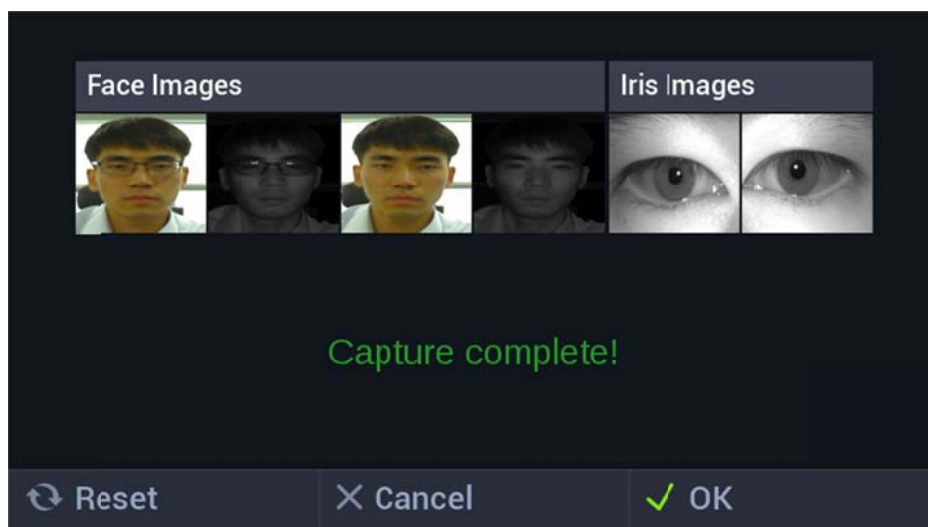
In case of Tracking Guide Box UI mode, display will be active for about 3 to 5 seconds.

1.4.2.1 Iris & Face Process → Iris Capture → Tracking Guide Box UI



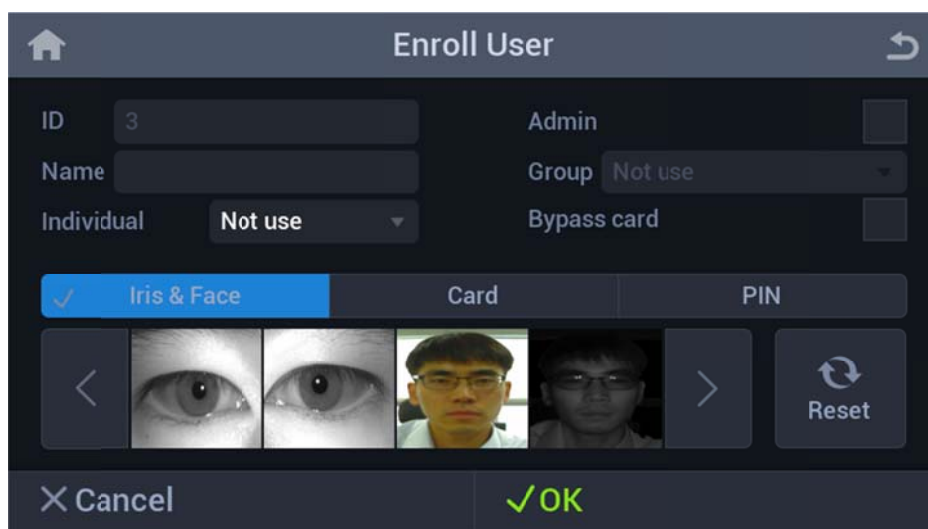
Capture iris images.

1.4.3 Iris & Face Process → Save Data / Complete Enrollment



Reset	Return to face capture stage
Cancel	Return to Enroll User screen
OK	Move to next screen to complete enrollment

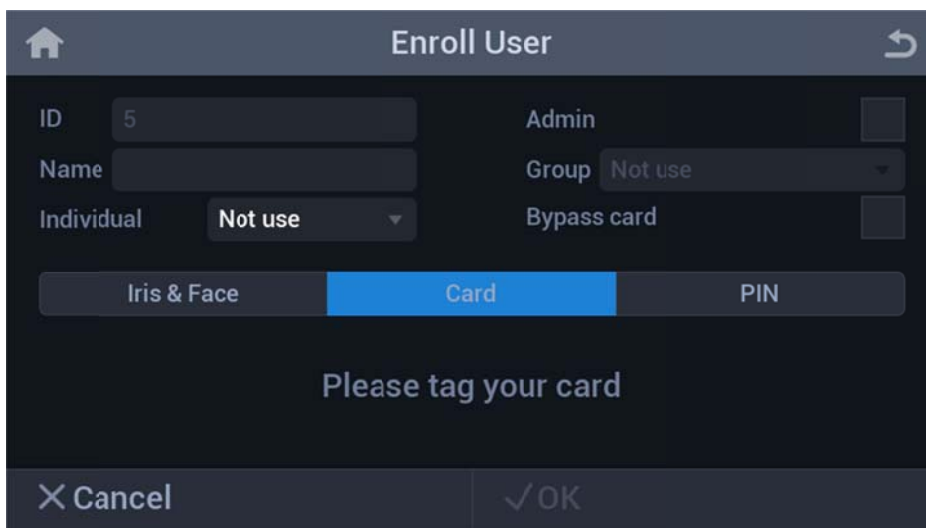
1.4.4 Iris & Face Process → Complete Enrollment



Cancel	Return to User Main screen
---------------	----------------------------

OK Save user data to complete biometrics Enrollment, then return to User Main screen

1.5 Card

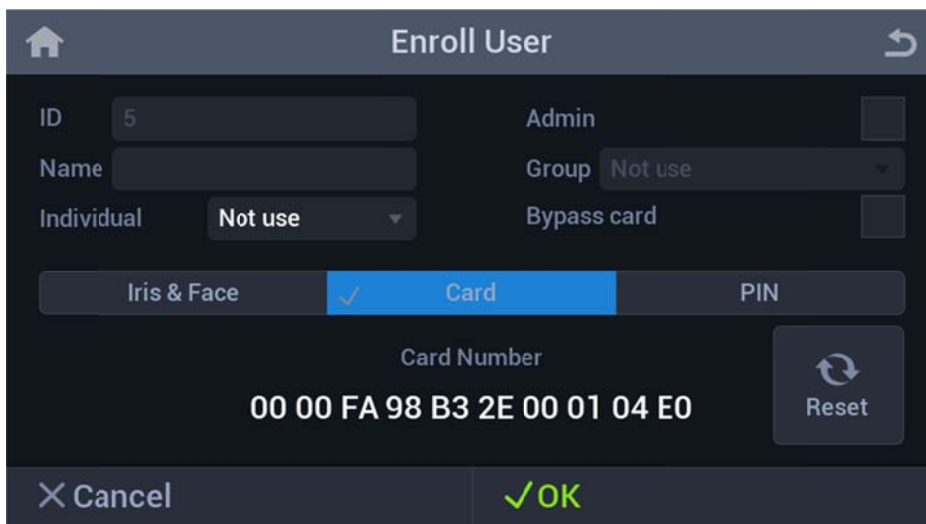


The screenshot shows the 'Enroll User' screen. At the top, there is a home icon and a back arrow. Below the title 'Enroll User', there are input fields for ID (5), Name, Individual (Not use), Admin, Group (Not use), and Bypass card. A tab bar at the bottom has three options: 'Iris & Face', 'Card' (highlighted in blue), and 'PIN'. Below the tabs, the text 'Please tag your card' is displayed. At the very bottom, there are 'Cancel' and 'OK' buttons.

Card tab Selection changes tab to blue color

If "Please tag your card" message appears, touch front-bottom part of device with user card.

1.5.1 Card → Save Data

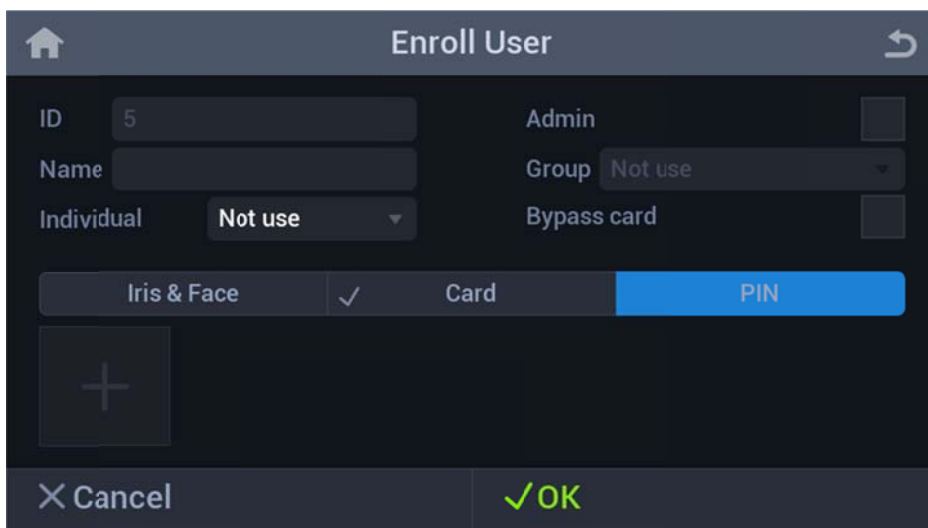


The screenshot shows the 'Enroll User' screen with the 'Card' tab selected. Below the tabs, the text 'Card Number' is displayed above a series of hexadecimal characters: '00 00 FA 98 B3 2E 00 01 04 E0'. To the right of the characters is a 'Reset' button with a circular arrow icon. At the bottom, there are 'Cancel' and 'OK' buttons.

Card number is shown on tagging a card

- Reset** Clear card number and "Please tag your card" message is shown
- Cancel** Return to User Main screen
- OK** Save user data and return to User Main screen

1.6 Pin

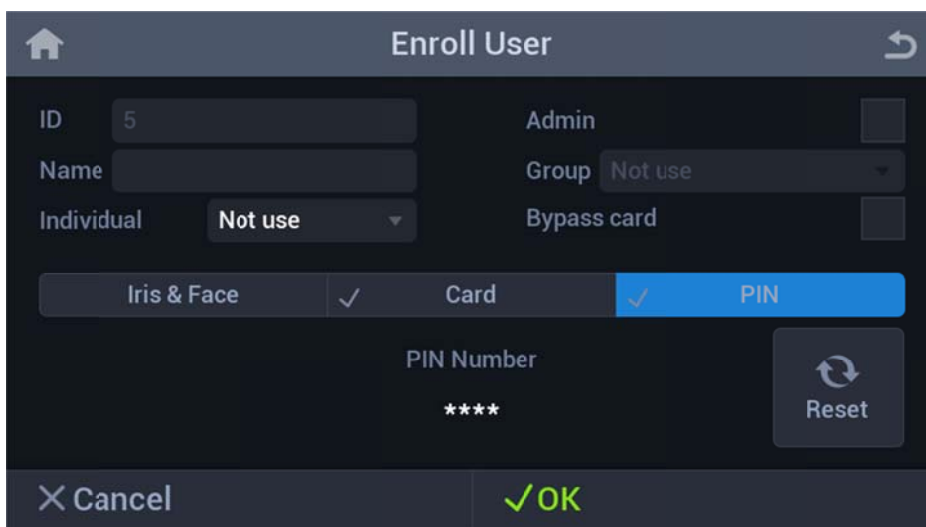


- PIN tab** Selection changes tab to blue color
- Start (+) button** Switch to input screen

1.6.1 Pin → Input



1.6.2 Pin → Save Data



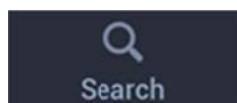
Pin number is shown as "*" character.

Reset Clear pin number and (+) button is shown

Cancel Return to User Main screen

OK Save user data to complete PIN enrollment / return to User Main screen

2 Search



Tap the **Search** icon to browse list of enrolled users.

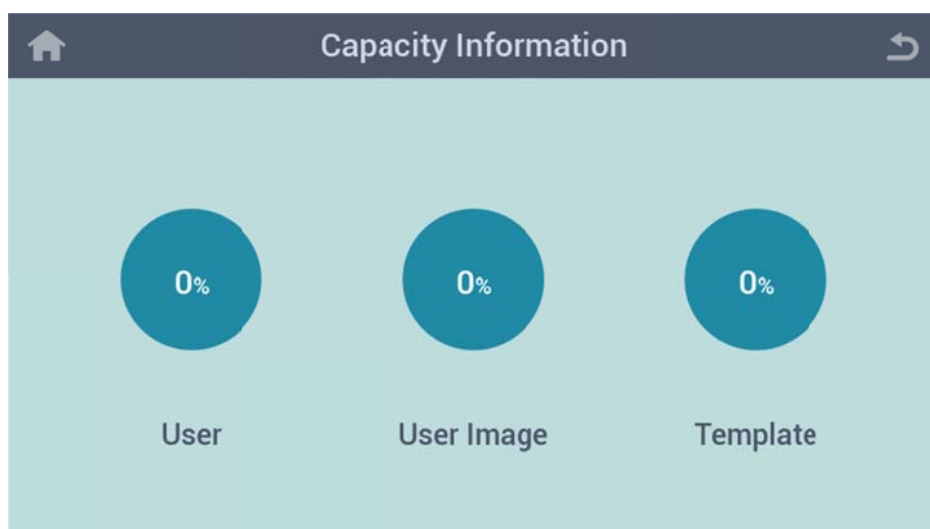


(Note: In construction)

3 Capacity Info

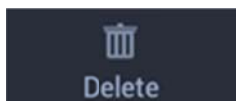


Tap the **Capacity Info** icon to check storage space.

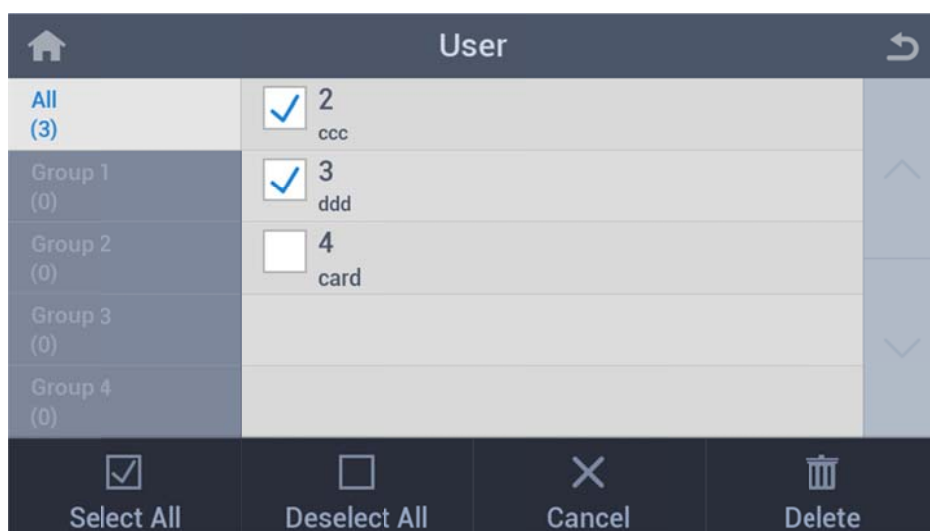


(Note: In construction)

4 Delete



Delete information of enrolled user.



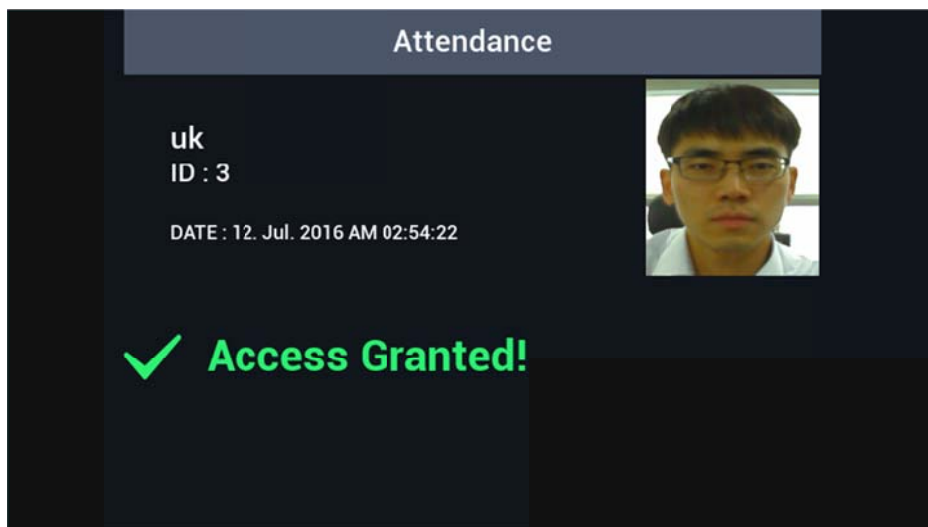
- Select All** Select all users
- Deselect All** Deselect all users
- Cancel** Return to User Main screen
- Delete** Delete selected user(s)

Recognition Process

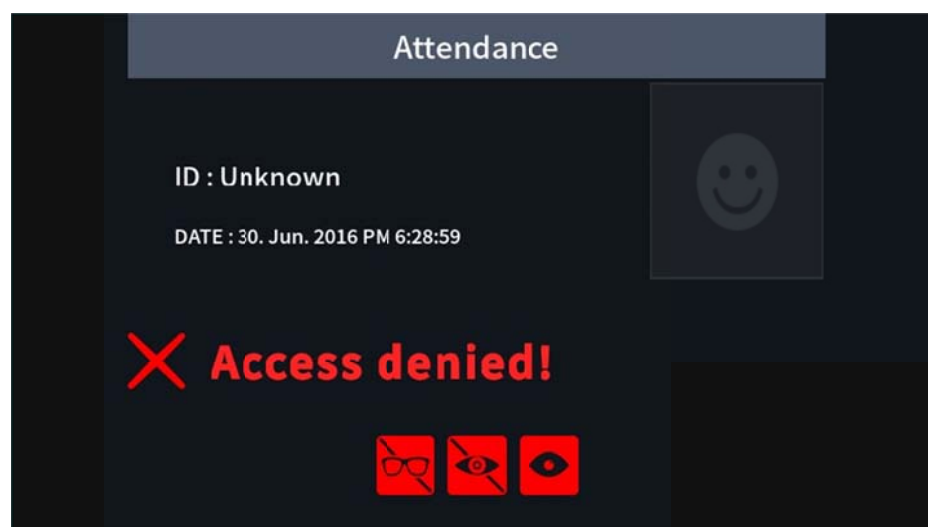
1.1 Recognition Process

Recognition process is identical to the enrollment process.

1.2 Recognition / Authentication Success



1.3 Recognition / Authentication Failure



When access is denied, warning icons can appear on the screen.

- . Glasses: Device detects occlusion by glasses.
- . Color Lens: Device detects colored lenses.
- . Small Eye: Device cannot fully detect iris due to eyelid.

FCC REQUIREMENTS PART 15

Caution: Any changes or modifications in construction of this device which are not expressly approved by the responsible for compliance could void the user's authority to operate the equipment.

NOTE: This device complies with Part 15 of the FCC Rules.

Operation is subject to the following two conditions;

1. This device may not cause harmful interface, and
2. This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B Digital Device, pursuant to Part 15 of the FCC Rules. These limits are designed to this equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be

determined by turning the radio or television off and on, the user is encouraged to try to

correct interference by one or more of the following measures.

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on another circuit.
4. Consult the dealer or an experienced radio/TV technician for help.