



**Realand Bio Co., LTD.**

# **Face & Fingerprint Recognition Product**

**Hardware User Manual PRO6.**

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Date: June 2016

## Product Specification

	PC Software Version	Cloud Based Version
LCD Display	2.8 inch TFT Color Screen (320*240)	
Fingerprint Sensor	Optical fingerprint sensor (capture area18*15)	
CPU	A33 processor 4core, running frequency 1.2GHz	
Face (FRR/FAR)	0.001/ 1(%)	
Fingerprint (FRR/FAR)	0.00001/ 0.1(%)	
Identification Speed	≤1.0 second (in full capacity of Face & Fingerprint)	
Working Mode	PC Software Version	Cloud Based Version
Communication	USB Disk, TCP/IP, WIFI(optional)	
Face / Fingerprint Authentication Mode	1:N (Customize 1:1)	
Authentication Method	Face, Fingerprint, Card, Password	
Max User Capacity	5,000	
Face Capacity	1,000	
Fingerprint Capacity	5,000	
Card Capacity	5,000	
Password Capacity	5,000	
Photo Capacity	10,000 (sum of Enroll Photo and attendance photo)	
Attendance Record / Management Record	300,000/10,000	
USB disk Upload/Download	Support	
Display Language	Chinese, English	
User name display	Support	
Voice Prompt	Support	
Schedule belling	support	

Power button	Support (Could disable in menu)
Self-Test	Support
Power management	Sleep, Timing power off, countdown power off, screensaver picture
Warning bell	Full record warning bell
Network Time Sync (NTP server)	Support
Real-time photo display	Support
Working voltage/current	DC 12V/600mA
Working environment	Temp.: 0°C ~ 45°C, RH: 20% ~ 80%

## CONTENT

Product Specification .....	2
Chapter One: Notice for Using.....	5
Chapter Two: Installation Guide .....	6
<b>2.1 Installation Precaution</b> .....	6
<b>2.2 Installation Steps</b> .....	6
Chapter Three: Quick Guide.....	7
<b>3.1 Appearance of the Face Recognition Terminal</b> .....	7
<b>3.2 User management</b> .....	7
3.2.1 Enrolling User .....	7
3.2.2 User verification.....	8
3.2.3 Delete User .....	9
<b>3.3 Setting</b> .....	9
3.3.1 Basic .....	9
3.3.2 Advanced.....	11
3.3.3 Power .....	12
3.3.4 Communication (some models support TCP/IP or WIFI ) .....	13
3.3.5 Log.....	18
3.3.6 Test.....	18
<b>3.4 Data Management</b> .....	19
3.4.1 Data Query .....	20
3.4.2 Delete Data .....	21
3.4.3 Download/Upload data.....	21
Chapter Four: FAQ .....	25

## Chapter One: Notice for Using

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Thanks for purchasing our Face Recognition time attendance system. Before use this product, please refer to the user manual, it would help you improve the efficiency of using this product. ☺

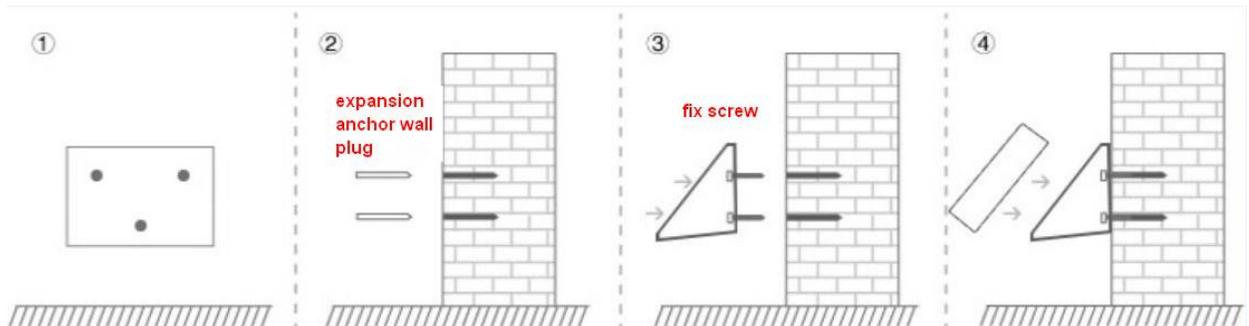
- Avoid from direct or indirect sunlight. Because the system capture Face and Fingerprint via the infrared camera. The strong light would affect the Face capturing, and it might due to the Face verification failed during attendance.
- The Face Recognition System working temperature is 0°C - 45 °C . Please avoid using the system outdoor. If use the system outdoor for long time, it would affect normal performance of the system. if we need to use outdoor, please use the parasol for shading and cooling equipment in summer, and use thermal equipment to protect the Face Recognition System in winter.
- Please read this user manual and get know about the steps before install the machine.

## Chapter Two: Installation Guide

### 2.1 Installation Precaution

- Please strictly follow the user manual to install and use the Face Recognition System.
- Before install the system, please make sure no power on during the installation and wiring, otherwise, it would do harm to the device.

### 2.2 Installation Steps



Picture 1. Installation diagram

- ① please fix the positioning paper to the wall (suggested 1.0m – 1.2m from the ground level), and drill holes as above in picture 1.
- ② please plug the expansion anchor wall plug to the 3 holes.
- ③ fix the plastic wall plate to the 3 holes.
- ④ on back side of the device, please align groove on back side of the device to the plastic wall plate, and mount the device from up to down(Picture 2). The bottom of the plastic wall plate aligns to the hole on bottom of the device. And use the screw to fix it (Picture 3).



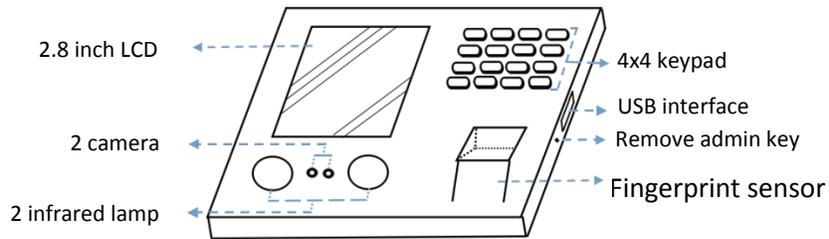
Picture 2



Picture 3

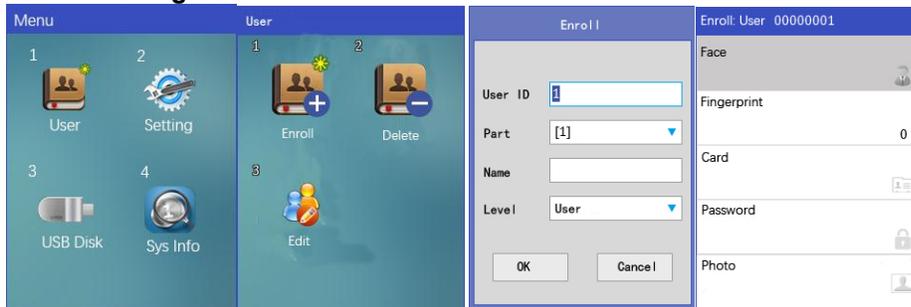
## Chapter Three: Quick Guide

### 3.1 Appearance of the Face Recognition Terminal



### 3.2 User management

#### 3.2.1 Enrolling User



1. User → 1.Enroll → edit the user ID and information, then press OK to enroll the Face, Fingerprint etc.

Face enrollment: during face enrollment, display the face in the center of the screen as possible. According to the device's prompt, do some small-scope head actions such as move forward, move backward.

Fingerprint enrollment: select the finger number, and press the finger for 3 times to finish the enrollment.

#### NOTE:

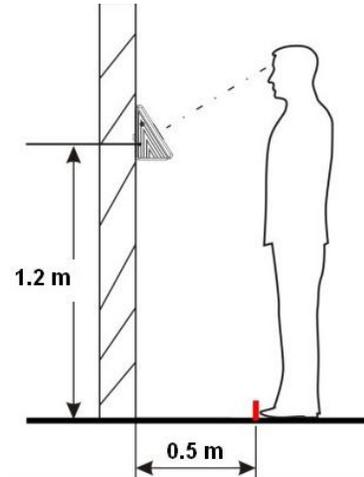
- The user name could be uploaded from Attendance management software to the Time Attendance Terminal. Please refer to the software manual for details.
- Department settings: press MENU → Setting → Basic → Part, we could set maximum 20 departments, please refer to 3.3.1 for more details.
- Some models do not support the fingerprint or Card function: User ID length support 8-digit. Password support maximum 6-digit number, input the password for the first time, press  to input the same password for the second time. And press OK.
- The power button "O" for IME, "MENU" for delete, "0" for capital letter.
- When the device has "Administrator", the "Manager" has the privilege to : Enroll, query log, data download etc. maximum can set 5 manager to the device. In 【Level】, select "Manager".

(Recommend to enroll 2 or more persons as Administrator, and enroll password too, so as to avoid one administrator resign or any setting error happens, we still could enter the **【MENU】** for settings.)

### 3.2.2 User verification

➤ Face Verification

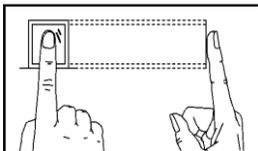
The recommended distance between person and device is 0.5m (applied to height range 1.5 – 1.85m). According to the obtained face image from device to adjust, when the face image is comparatively bright, please move backwards appropriately, when the face image is comparatively dark, please move forwards appropriately. after enroll successfully, there’s a voice prompt “enrollment succeed”.



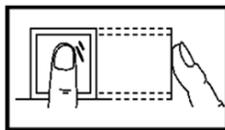
➤ Fingerprint Verification **(some models do not support)**

Recommended fingers: the index finger, middle finger or the ring finger, the thumb and little finger are not recommended (because they are usually clumsy on the fingerprint collection screen).

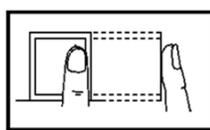
1) Proper finger placement:



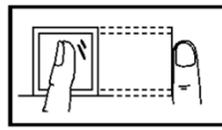
2) Improper finger placement:



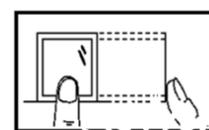
Not flat to the surface



off-center



slanting



off-center

➤ Card Verification **(some models do not support)**

Put the Card (125Khz) on the device where has the “RFID” detection icon, after enroll successfully, device says “enrollment succeed”.

➤ Password verification **(some models do not support)**

In verify interface, press “0”, voice prompt “please input number”, then input your User ID number, press OK → voice prompt “please input password”, press OK to verify.

### 3.2.3 Delete User

【MENU】 → User → Delete → input the User ID that you need to delete → select to delete the data need (Face / Fingerprint / Card / Password / Photo) → deleted successfully.

💡 NOTE:

- If need to delete all the information of the selected User ID, we could press “Delete All” of this User ID. And this User ID would not exit in this device. If we need to delete all the users on the device, please refer to “Clear All User Database”.

## 3.3 Setting

### 3.3.1 Basic



Setting → Basic → select the items we need to set.

- Language, Sound setting:

If the device supports more than 1 language, we could change the language here.

- Volume

Control the voice volume of the device, default as 5.

- Key Tone

When enable this function, there's a “Di Di” sound while we pressing the keypad. Default as 3, maximum=10.

- Auto Change of Time Mode

Set the status auto change: Duty on, Duty Off, Go out, Return, Overtime on, Overtime off. Maximum for 10 sets.

Auto Change of Time Mode			
No	Start Time	End Time	Status
1	08:00	12:00	DutyOn
2	12:00	13:00	DutyOff
3	13:00	17:00	DutyOn
4	17:00	00:00	DutyOff
5	00:00	00:00	DutyOn
6	00:00	00:00	DutyOn
7	00:00	00:00	DutyOn
8	00:00	00:00	DutyOn
9	00:00	00:00	DutyOn
10	00:00	00:00	DutyOn

Example: if we set it to 08:00-12:00 as Duty on, means: the device status is Duty during 08:00-12:00. As the following:



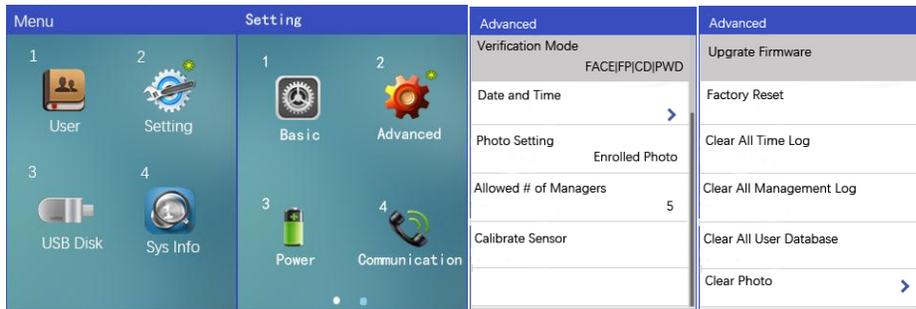
➤ Bell Setting

Set the schedule time, “Use”, and select the bell type. Maximum set 24 sets, and there’re 5 different bell types to choose, default as 1.

➤ Part (Department)

Edit the department name, during user enrollment, we could select the department number.

### 3.3.2 Advanced



MENU → Setting → Advanced → select the items we need to set.

➤ Verification Mode

There're 10 different verification mode: Face/Fingerprint/Card/Password and the combination.

- ❖ Face/Fingerprint/Card/Password: any method of Face, Fingerprint, Card, Password could be verified.
  - ❖ Face+FP+CD+PSW combination: only verify the combination, then could verify success.
  - ❖ Some models do not support fingerprint, Card, so the method that includes fingerprint/ card is not exist for those models.
- Date and Time

When the device time is incorrect, we could set it manually in this setting. We could also use the NTP function to sync the time with the NTP server that we set.

➤ Photo Setting

It is to set that whether to display the photo after verification success. We could set: None, Enroll Photo, realtime camera.

- ❖ None: there's no any photo shows after verification success.
- ❖ Enroll Photo: after verification success, it shows the Enroll photo of the user, if the user never enroll the photo or Face on the device, it would shows nothing, same as "None".
- ❖ Realtime camera: after verification success, it shows the real-time photo. If during re-verify time, the device would not take the photo.

➤ Allowed # of Managers

Maximum managers to be set to the device, default as 5.

➤ Calibrate Sensor

When the fingerprint respond is too slow, we could try to calibrate sensor.

➤ Upgrade Firmware

When there's problem for the device firmware, or the manufacturer provide the new firmware, we could put the firmware to the USB disk, and name as : "m60.bin"for upgrade.

➤ Factory Reset

【Factory Reset】 only reset the device settings only, it WILL NOT delete any enroll data or the attendance logs.

➤ Clear All Time Log

It will delete all the enroll user data in the device, the attendance report will not have any statistics.

➤ Clear All Management Log

It will delete all the management log in the device, including the administrator operation or system operation.

➤ Clear All User database

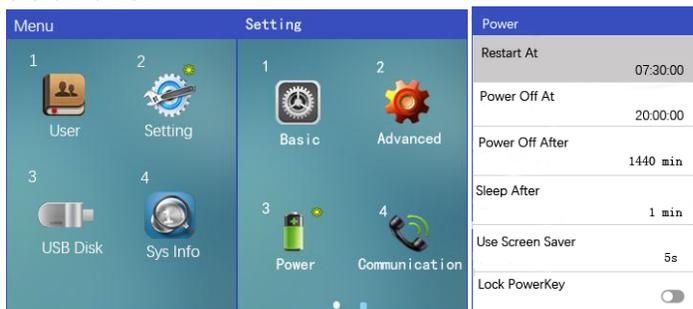
It will delete all the user enroll information including the Face, Fingerprint, Password. Card data in the device. Please backup the enroll data before clear it.

➤ Clear Photo

It could clear the time log photo, user enroll photo separately. Please backup the enroll data before clear it.

NOTE: time log photo is the photo from attendance log

### 3.3.3 Power



MENU → Setting → Power

➤ Restart At

Device restart at the setting time, such as set it 08:00, then the device would restart once at 08:00 every day.

➤ Power Off At

Device power off at the setting time, such as set it to 18:00, then the device would power off at 18:00 every day.

➤ Power Off After

When the device is free for setting time, such as, set it to 1440mins(1 day), then if there's no any operation of the device, the device is free for 1440mins, then it would power off.

➤ Sleep After

When there's no person in front of the device, the device would change to sleep mode in the setting time. Such as, set it to 1min, then when there's no person in front of the device for 1 mins, the device will change to sleep mode.

➤ Use Screen Saver

When in sleep mode, set the screen saver time to 5 second, the screen saver picture would change every 5 seconds. When we set it to "Off", there's no screen saver, only the Time with black background shows on display.

➤ Lock PowerKey

Disable people to power off the device by pressing the Power key  $\odot$  on the device.

### **3.3.4 Communication (some models support TCP/IP or WIFI )**

This series product, some models are PC Software version, some models are could based version. there would be some different in the MENU – Communication settings. Please note that.

#### **1. PC Software Version (NOTE: customer need to install the PC Software on their computer for the Attendance Management Software.)**



MENU → Setting → Communication → TCP/IP settings → TCP/IPv4



➔ DHCP (enable it) ➔ then the device will get a IP address in 5 seconds, please use this IP address, and the Device ID, TCP Port, communication password(if you set any.), then, click “Search” to connect the Attendance Management software to the device.

➤ TCP/IP

- ① connect the network cable to the Face Recognition Device and the router.
- ② MENU → Setting → Communication → TCP/IP settings → TCP/IPv4
- ③ DHCP (enable the DHCP to ) , and the device will get a IP address in 5 seconds. If we disable the DHCP to , we need to set a IP address to the device manually. In order to ensure there’s no conflict for the IP address we set manually, we’d better PING the IP address on the computer.
- ④ run the Attendance Management Software, and go to Device Management ➔ Add to connect the software to the Face Recognition device via the TCP/IP connection. The IP address, Device ID, TCP Port, Communication Password is the one we get from above.

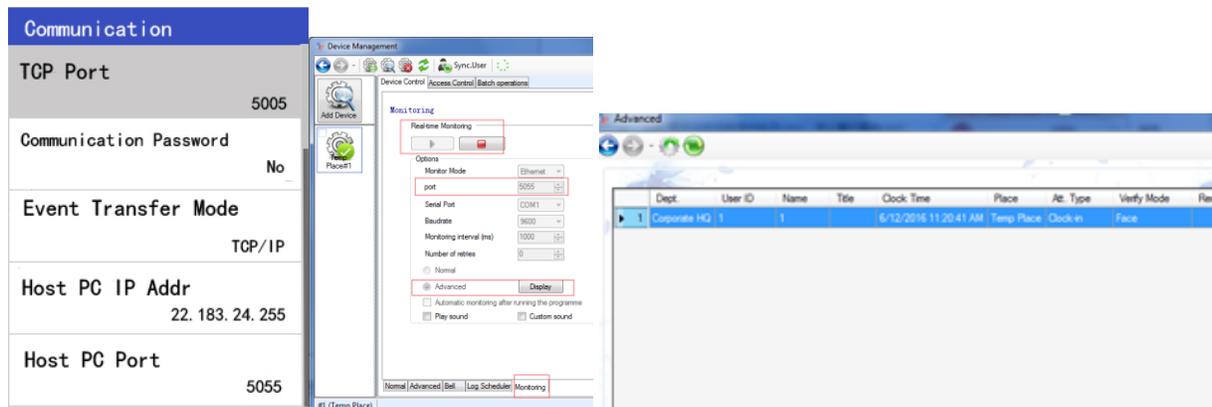
➤ WIFI

- ① WIFI : enable WIFI to , 【Select WIFI Hub】 → select and input password, then connect to your WIFI network.
- ② please check the 【link information】 to check if the WIFI connection successful.
- ③ 【DHCP】 : enable to , and the device will get a IP address in 5 seconds. If we disable the DHCP to , we need to set a IP address to the device manually. In order to ensure there's no conflict for the IP address we set manually, we'd better PING the IP address on the computer.
- ④ run the Attendance Management Software, and go to Device Management → Add to connect the software to the Face Recognition device via the TCP/IP connection. The IP address, Device ID, TCP Port, Communication Password is the one we get from above.

**NOTE: the WIFI signal need to be stronger than -75dbm, otherwise the connection would be failed.**

- 【Push Real time data】 **NOTE: Could Based version does not support this function**

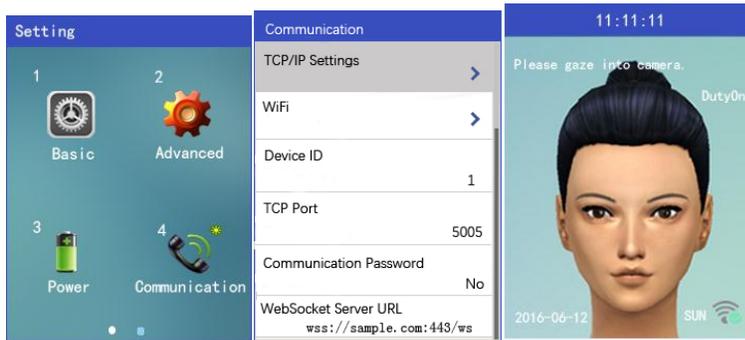
This function could push the real time data to the Computer (personnel Computer / Server Computer) via the TCP protocol.



- ① please connect the Face Recognition Device to the Attendance Management Software via the TCP/IP connection or WIFI connection above.
- ② please set the Computer IP address which has installed the Attendance Management Software to the Device 【Host PC IP Addr】 .
- ③ please set the monitoring port on the Attendance Management Software same as the 【Host PC Port】 .

④ 【Event Transfer Mode】 set it to “TCP/IP”., and click “” on software, to start the monitoring.

2. Cloud Based Version (if your model does not support this function, you could ignore this description)



MENU → Setting → Communication → WebSocket Server URL (set the server URL here) → in the main window, there's the ✓ icon, means connecting to the server successfully.

In the Verify interface, the meaning of different icons: (NOTE: the PC Software Version does not support this function)

✗ : not connect to the network

IP: it's getting the IP

W: it's connecting to the server

+: already connected to the server successfully, can login to add the Device.

✓ : already login to the server successfully, can manage the user information and the attendance log transfer.

### Network connection:

#### ➤ TCP/IP

① connect the network cable to the Face Recognition Device and the router.

② MENU → Setting → Communication → TCP/IP settings → TCP/IPv4

③ DHCP (enable the DHCP to ) , and the device will get a IP address in 5 seconds. If we disable the DHCP to  , we need to set a IP address to the device manually. In order to ensure there's no conflict for the IP address we set manually, we'd better PING the IP address on the computer.

④ run the Attendance Management Software, and go to Device Management → Add to connect the software to the Face Recognition device via the TCP/IP connection. The IP address, Device ID, TCP Port, Communication Password is the one we get from above.

#### ➤ WIFI

① WIFI : enable WIFI to  , 【Select WIFI Hub】 → select and input password, then connect to your WIFI network.

② please check the 【link information】 to check if the WIFI connection successful.

③ 【DHCP】 : enable to  , and the device will get a IP address in 5 seconds. If we disable the DHCP to  , we need to set a IP address to the device manually. In order to ensure there's no conflict for the IP address we set manually, we'd better PING the IP address on the computer.

④ run the Attendance Management Software, and go to Device Management → Add to connect the software to the Face Recognition device via the TCP/IP connection. The IP address, Device ID, TCP Port, Communication Password is the one we get from above.

**NOTE: the WIFI signal need to be stronger than -75dbm, otherwise the connection would be failed.**

① enter 【communication】 , set the TCP/IP or WIFI , and connect to the network.

② set the 【→ WebSocket Server URL】 correctly, and in the Verify interface, it will show : + or ✓

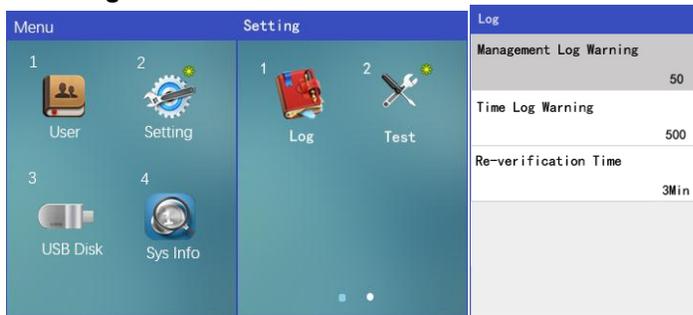
③ in the server webpage, add the device serial number (SN), we could check the device serial number on MENU → Sys Info → Device Info.

④ then, we could check the user information and attendance logs information on the webpage.

#### 💡 NOTE:

- For the Cloud Based Version, MENU → Setting → Communication → TCP Port, this Port is the Device port, not the server port.
- If you need to develop your own Cloud server, and need to use other port. Please add behind the server address, format: wss://IP:port/path

### 3.3.5 Log



MENU → Setting → Log

➤ Log warning

Management log Warning: when the management log remains the setting value, the device will give the warning. Management log max: 10,000.

(For the management log warning: we set to 50, so when the management log reach 9,950, the device will give a warning bell.)

Time Log Warning: when the attendance log remains the setting value, the device will give the warning. Attendance log max: 300,000.

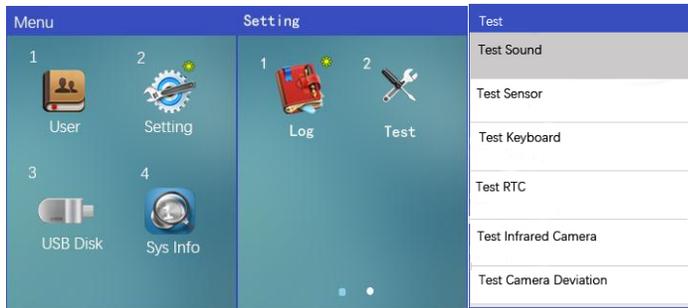
(For the Time log warning: we set to 500, so when the Time log reach 299,500, the device will give a warning bell.)

➤ Re-verification Time

Within the setting value, more than one verification, the Face Recognition Device would keep the record for the first successful verification only. Default value as 3 minutes (max 255 minutes)

For example, we set the re-verification time as 5 minutes, and employee ID=1001, get verification on 8:00, and 8:01, and 8:02, the device would keep the record for 8:00 only.

### 3.3.6 Test



MENU → Setting → Test

➤ Test Sound

Please make sure the “Sound” is enable and volume not 0. (MENU→Setting→Basic).

Select different type of the sound, and press OK to play it.

➤ Test Sensor

Test if the fingerprint sensor could detect and show the fingerprint properly.

➤ Test Keyboard

Test if the keyboard could input the correct content.

➤ Test RTC

Test if the Device Clock could move properly.

➤ Test Camera

Test if the normal camera and the infrared camera could work properly.

### 3.4 Data Management

This series have 2 different version: PC Software version and Cloud Based version. both of these 2 different versions support the USB disk to upload and download. The users could use the USB disk to download the attendance log, management log and user enroll data from the device and share to other devices.

**【PC Software Version】** : Customers could install the Attendance Management Software from the CD along with the package. And use the Attendance Management Software to manage the user information and attendance records.

**【Cloud Based Version】** : Customers could login the cloud server via the server URL. And manage the user enroll info and attendance log from the cloud server.

### 3.4.1 Data Query

➤ Device Storage

Storage Usage		Storage Usage	
User	0/5000	Card	0/5000
Face	0/1000	Password	0/5000
Fingerprint	19/5000	Time Log	19/300000
Card	62/5000	Management Log	62/10000
Password	0/5000	Photo (User+Log)	(1+17)/10000

MENU → Sys Info

- ❖ Could check the exit user count and max user count. Max capacity for user/fingerprint/Card/Password: 5,000. Max capacity for Face: 1,000.
- ❖ Time Log: attendance log, max for 300,000.
- ❖ Management Log: log for the MENU operation. Max for 10,000.
- ❖ Photo(User+Log): photo user, is the photo for enrolled info. Photo log, is photo during attendance. Total 10,000.

➤ Advanced Query

Advanced	
View Time Log	
View Management Log	
View User List	

#### View Time Log

- ❖ We could query the attendance log of any time, or query all the log.

- ❖ Input the User Id, and we could query the attendance log information of this person.
- ❖ When input User ID as 0, we could query attendance of log of all users.

### View Management Log

- ❖ Management log is the MENU log of administrator's operation on MENU.
- ❖ Input the administrator's User ID, we could query his/her MENU operation log, such as time of register face, enroll user, enter menu, setting Change.
- ❖ When input User ID as 0, we could query management log of all the administrators.

### View User List

- ❖ We could query the employee's photo, User ID, verification method info.
- Device Info
- ❖ We could check the firmware version, serial number, manufacturer date.

### 3.4.2 Delete Data

- Delete Enroll info
- ❖ **Delete User data of one person:** MENU → User → Delete, input the User ID and go to delete the info. Please refer to the 3.2.3 for details.
- ❖ **Delete all User data:** 【MENU】 → 【Setting】 → 【Advanced】 → 【Clear All User Database】 → operation success.
- Delete Log data
- ❖ Delete all attendance log: 【MENU】 → 【Setting】 → 【Advanced】 → Clear All Time Log → operation success.
- ❖ Delete all management log: 【MENU】 → 【Setting】 → 【Advanced】 → Clear All Management Log → operation success.
- ❖ Delete all photo log: 【MENU】 → 【Setting】 → 【Advanced】 → Clear photo → clear time log photo → operation success.

### 3.4.3 Download/Upload data

- USB Disk download/Upload

### Download attendance log

- ❖ **Download new time log:** download the new attendance log that never been downloaded before. if already download 【Download All Time Log】 , then there's no data in 【Download New Time Log】 .
- ❖ **Download All Time Log:** download all the attendance log that in the device.

### Download Management log

- ❖ **Download new Management log:** download the new management log that never been downloaded before. if already download 【Download All Management Log】 , then there's no data in 【Download New Management Log】 .
- ❖ **Download All Management Log:** download all the Management log that in the device.

### Download User Database

**Download User database:** download all the User enroll information on this device to the USB disk, we could upload this user information to other devices.

**Enroll Photo:** if the device has the enroll photo, when finish download the user database, it will ask if you need to download the enroll photo too? Please click "YES", so, all the enroll photo would be downloaded to the USB disk too.

### Upload User Database

**Upload User database:** upload the User file "ENROLLDB.DAT" from the USB disk to the device.

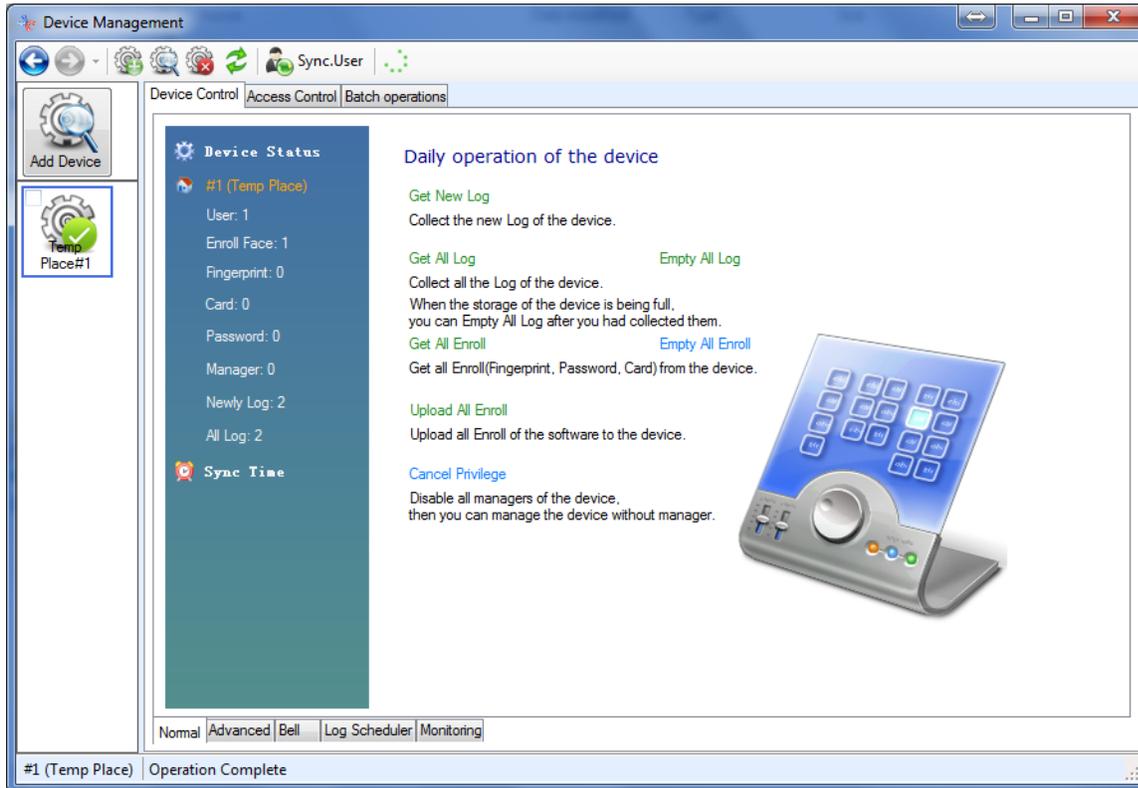
**Upload Enroll photo:** if there's the enroll photo in the USB disk, when finish upload the user database, it will ask if you need to upload enroll photo too? Please click "YES", so, all the enroll photo would be uploaded to the device too.

#### NOTE:

- The user information is saved in the file "ENROLLDB.DAT".
- The attendance log is saved in the file "ALOG\_xxx.txt".
- The management log is saved in the file "SLOG\_xxx.txt".
- The enroll photo is saved in the file "user\_photo\_xxx". Formate as "yyy.JPG".
- The "yyy" above, means the User ID. The "xxx" above, means the Device ID (when customer has more than 1 device, before download the information, please set different Device ID on the devices to differentiate them).

- When the Device ID XXX or the User ID YYY is same, and download the information to the same USB disk, the previous data file will be replaced by the new download.

## ➤ PC Software



### Get New log

- ❖ Download the attendance log from the Face Recognition Device that never downloaded before.

### Get All Log

- ❖ Download all the attendance log from the Face Recognition Device.

### Get All Enroll

- ❖ Download all the enroll data from device.

### Upload all enroll

- ❖ Upload all the enroll data including the user name from software to the device.
- 💡 **Please refer to the Attendance Management Software manual for more details.**

➤ Cloud Based version:

💡 **Please refer to the Cloud based manual for more details.**

## Chapter Four: FAQ

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### **1. Q: the face recognition is difficult, the recognition rate is low.**

A: please do not put the Face Recognition Device in strong light.

During enroll the Face, please show the face within the white box.

During Face verification, please keep the surrounding same or similar with the surrounding when we enroll.

During Face verification, please keep distance with the Device for 30 – 80cm.

Face within the white box, with normal facial expression, no hat on, no glasses on, and the fringe cannot be too long.

### **2. Q: the device time is incorrect.**

A: the Face Recognition Device is not power on for a long time? So the CMOS battery is no electricity. We need to change the CMOS battery. (Model: CR2032 3V)

### **3. Q: fingerprint sensor difficult to read the finger**

A: employee's finger cannot be too dry. If the finger is not dry, but still cannot read properly, it would be problem of the fingerprint sensor. If only some employee cannot read the finger, we suggest them to use the Card or Face or Password for verification.

### **4. Q: employee leave the job, how to delete the user info**

A: MENU → User → Delete → input the employee's User ID → delete all.

For the PC Software Version: we could also delete this employee's info through the software.

For the Cloud Based Version: we could also delete this employee's info through the webpage.

### **5. Q: administrator leave the job, cannot enter the device MENU**

A: press the power button  $\odot$  to power off the device, there's a reset button beside the USB port, we could use a thin tool to press this button, and press the power button  $\odot$  at the same time, after device power on, it asks "Are you sure you want to remove all the privileges?", please click "YES".

For the PC Software Version: we could also remove the administrator via the software.

For the Cloud based version: we could also remove the administrator via the webpage.

**6. Q: how to use the Sleep mode**

A: MENU → setting → Power → Sleep After (set the value we need). After the setting time, if there's no person in front of the camera, the device would go to sleep mode. If we set to Not Use Screen Saver, there's no screensaver picture. If we set to Use Screen Saver 5s, then every 5 seconds, it would change one screen saver picture. (defaulted for 5 pictures).