

iFace Series Installation Guide

Version: 1.2

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About This Manual

This document introduces the installation steps and precautions of the iFace series. For the description of the product interfaces and menu operations, see *iFace Series User Manual*.

Important Statement

Thank you for purchasing our iFace terminal. Please read the Product Instructions carefully before using this product to avoid unnecessary damage to it. We recommend you to use this product properly so as to achieve the optimal recognition effect and verification speed.

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Our products are subject to update from time to time, so our company will neither make a commitment to guarantee the consistency between the actual products and this document, nor assume any responsibility for any dispute arising out of the discrepancy between the actual technical parameters and this manual. This document is subject to change without prior notice.

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1. Before Installation

1.1 Installation Precautions

Although our products are manufactured in accordance with the stringent manufacturing and inspection standards specified by China, USA and EU, we still recommend you to read the Installation Precautions carefully before installation. We recommend you to use this product properly so as to greatly improve the recognition performance and speed. **Failure to read the Installation Precautions carefully before installation may result in serious accidental damage to the product due to improper installation.** Therefore, to avoid unnecessary equipment damage, please do read the Installation precautions carefully before installation.

1. Ensure the **power system is switched off** prior to installation because live-line operation is quite hazardous and may result in the damage of the equipment and even core components due to power cable contact.
2. The stripped (naked) ends of all wiring terminals shall **not be in excess of 5 mm** to avoid equipment damage due to accidental contact with the naked ends. Furthermore, connection cables in different colors must be adopted.
3. **Connect the grounding cable first** in places with large static electricity or in winter before connecting other cables to avoid equipment damage due to instant excessive static electricity.
4. **Connect power cables only after connecting all the other cables.** If the product cannot operate properly, please perform necessary inspection after cutting off the main power supply. Do keep in mind that all live-line operations may result in accidental equipment damage and our warranty does not cover any equipment damage arising out of such operations.
5. **Only test the exit switch only when you have assigned other personnel**

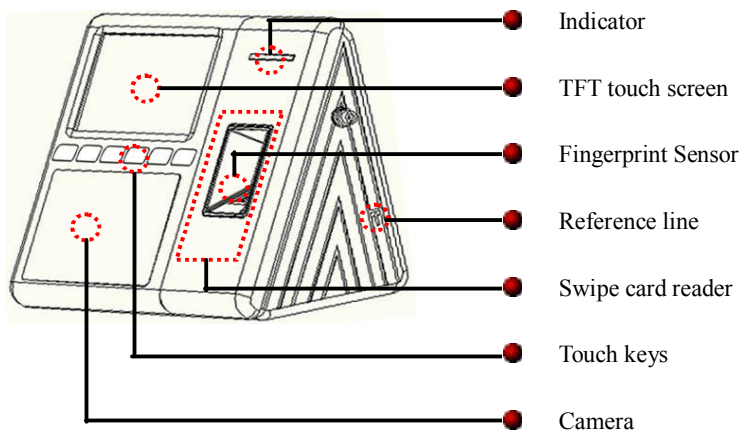
outside of the door after the installation because you may be unable to exit the door due to accidental problems.

6. Our equipment provides a self-test function for you to perform self-test after installation to confirm whether the installation is complete.
7. It is recommended to adopt the 12V DC power supply with current larger than 3A. It is recommended to use 12V DC electronic locks with current less than 1.5A. Consult related technical personnel if the power parameters of the locks exceed the specified range. The current of the power supply shall be at least 1A larger than that of the electronic locks. Failure to meet the above power supply requirement may possibly lead to electronic lock drive failure or even equipment damage.
8. Before connecting cables for equipment, please read and follow the instructions in the Installation Guide. The burnout of core boards due to improper cable connection and equipment start failure due to fingerprint sensor burnout both fall beyond our warranty scope.
9. If the distance between the power supply and equipment is large, do not replace power cables with network cables or other types of cables. When selecting power cables, take into account the voltage attenuation caused by long transmission distance.
10. When adopting the **RS485 networking** mode, use dedicated RS485 cables and active RS232/485 converter, and distribute cables by adopting the bus structure. If the RS485 communication distance is over 100m, the RS485 bus must be terminated using termination resistors with impedance of about 120Ω at both ends of the network.

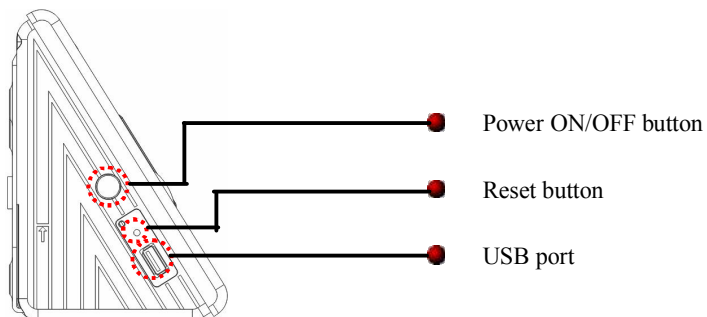
For matters not mentioned herein, see *User Manual*, *Software Instructions* and *Appendix*.

1.2 Overview of Operation Panel

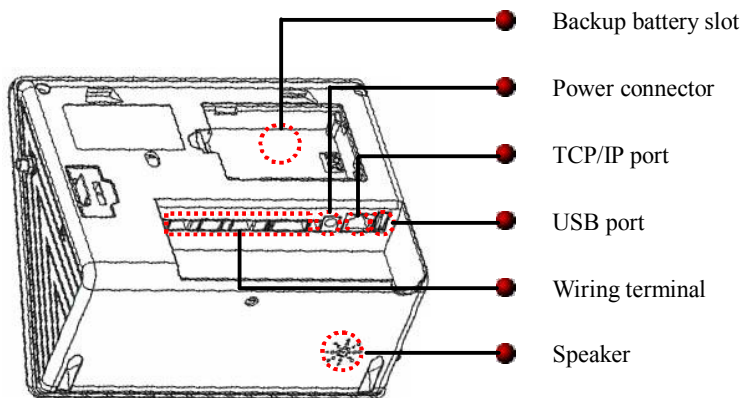
Front



Side

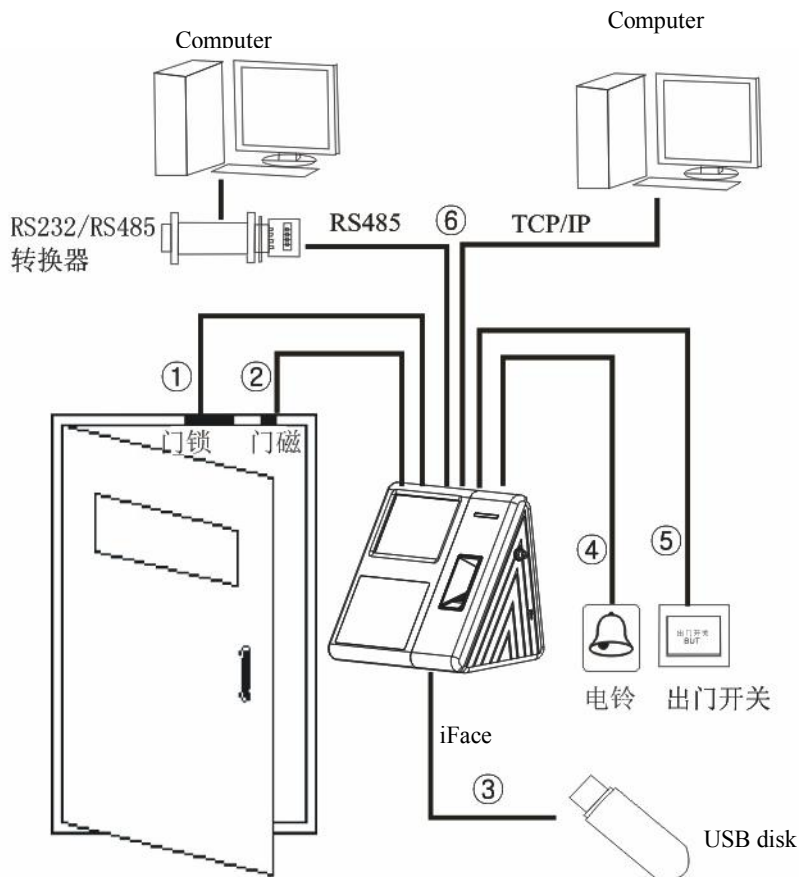


Rear



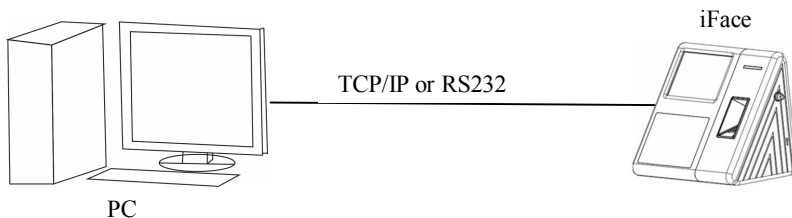
2 System Structure

2.1 Schematic Diagram for System Installation

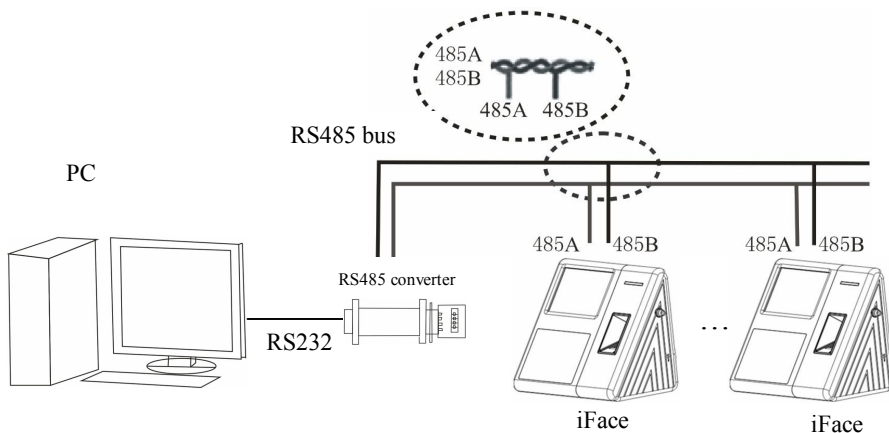


2.2 Schematic Diagram for Communication Connections

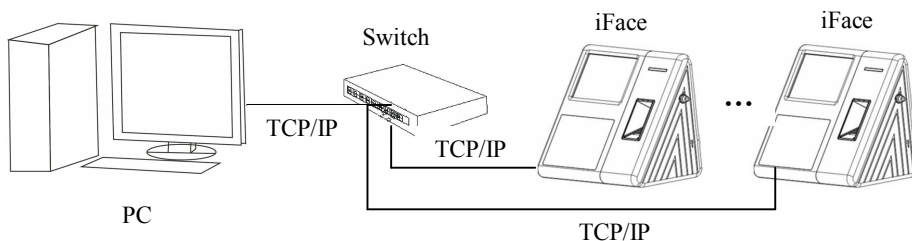
1. The iFace directly connects with the computer.



2. The iFace connects to the computer over an RS485 network.



3. The iFace connects to the computer over an Ethernet.

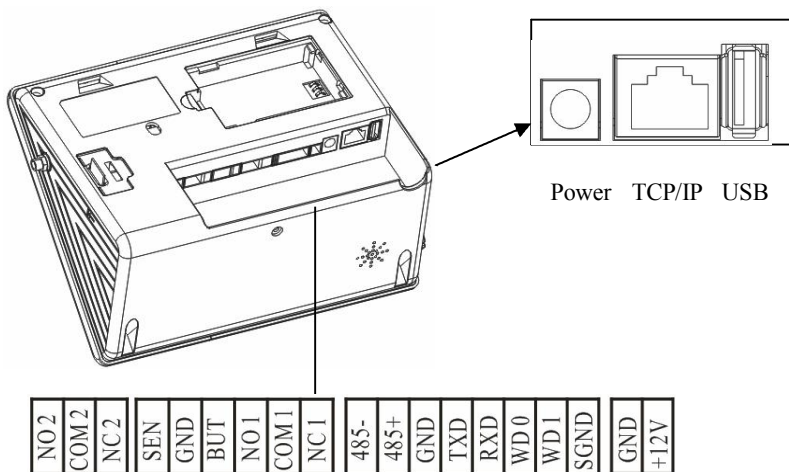


3 Installation

3.2 Connecting Peripherals

Ensure the power supply is cut off before cable connection. Live-line cable connection may result in serious damage to the equipment. Connect the following peripherals in the sequence presented below:

- 1) Door sensor cables (Sensor, GND)
- 2) Exit switch cables (Button, GND)
- 3) Timed alarm cables (NC2, COM2, NO2)
- 4) Electronic lock cables (NC1, COM1, NO1)
- 5) Ethernet cables (RJ45-1, RJ45-2, RJ45-3, RJ45-6)
- 6) RS232 cables (232T, 232R, GND)
- 7) RS485 cables (485+, 485-)
- 8) Wiegand output cables (WD0, WD1, GND)
- 9) Power cables (+12V, GND)



The definitions of various wiring terminals are listed as follows

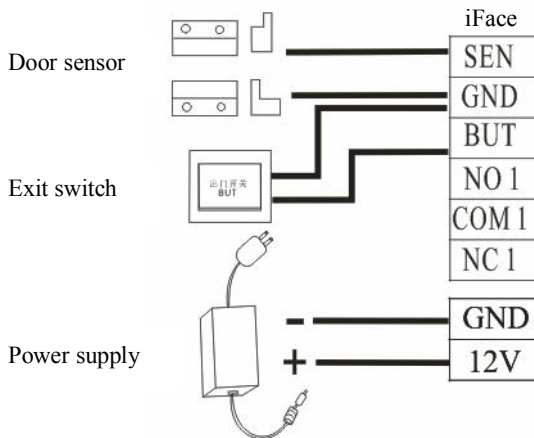
Rear: Left to Right			
1	NO2	Timed alarm	Bundled together
2	COM2		
3	NC2		
4	Sensor	Door sensor	Bundled together
5	GND	Exit switch and door sensor ground	
6	Button	Exit switch	
7	NO1	Connection with the electronic lock	Bundled together
8	COM1		
9	NC1		
10	485-	RS485 communication	Bundled together
11	485+		
12	GND	The GND of the RS232 communication and the output GND of Wiegand	Bundled together
13	TXD	RS232 communication	
14	RXD		
15	WD0	Wiegand output	Bundled together
16	WD1		
17	SGND	Shielded wires	
18	GND	Power supply negative pole	Bundled together
19	+12V	Power supply positive pole	

3.2.1 Door Sensor Cables

The door sensor is used to sense the door open/close status. The iFace generates an alarm when sensing that there is an unauthorized entry or the door is not closed within the specified time through the door sensor.

3.2.2 Exit Switch Cables

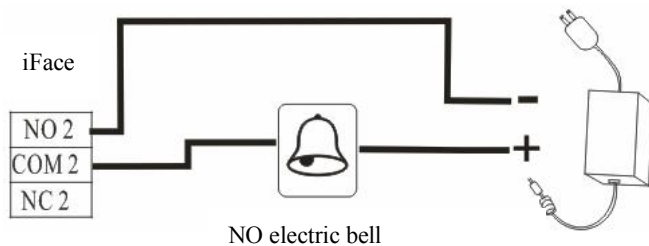
The exit switch is a door access device installed inside the room. To open the door, press the pushbutton exit switch. The exit switch is installed about 1400 mm above the floor. Ensure the exit switch is well aligned without skew and cables are properly connected and fastened. (Cut the naked ends of unused cables and wrap them with insulating tape) Take measures against the electromagnetic interference (EMI). (For example, lighting switches and computers)



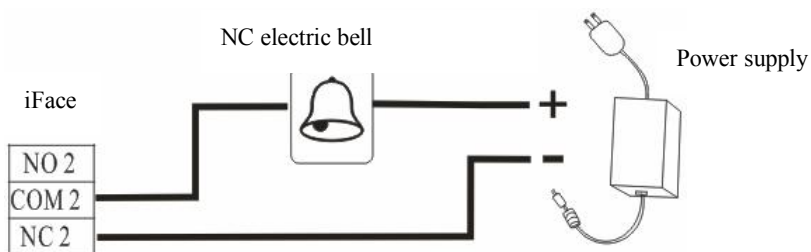
3.2.3 Timed Alarm Cables

The iFace can connect with an external timed alarm. The iFace sends a signal to the relay to trigger the alarm when the set time expires. The timed alarm can connect with two types of electric bells: Normally Closed (NC) and Normally Open (NO) bells.

1. Connect with an NO electric bell



2. Connect with an NC electric bell



3.2.4 Electronic Lock Cables

The installations of the door locks are subject to the types of locks used. When selecting the power cables of an electronic lock, you need to take into account the internal resistance on the transmission lines. Ensure the electronic lock is securely fastened and cables are properly connected. For electric bolt locks and electromagnetic locks, do not reverse the positive (+) and negative (-) terminals. Cut the naked ends of unused cables on locks and wrap them separately with insulating tape. The operation latency of an electric bolt lock can be adjusted as required.

The iFace supports the NO and NC electronic locks concurrently as long as they are connected to different terminals.

NC: The circuit-breaker is closed in normal conditions. When the device is opened by force, the circuit is opened, thus resulting in the status change.

NO: The circuit-breaker is opened in normal conditions. When the device is closed by force, the circuit is closed, thus resulting in the status change.

Power Ground (GND): Power loop grounding wire connector.

In practice, various types of electronic locks are in use, and therefore the proper cable connection methods must be subject to the lock specifications.

Note: The door lock is controlled by a lock relay. When installing a lock, you need to take into account two factors: safety and security, that is, what do you expect from a door during a power outage? To keep “Safety During Power Outage” or “Security During Power Outage”?

“**Safety During Power Outage**”: In the event of a power outage (possibly because of the cutting-off of the power supply or the controller failure), the door is automatically opened for free entry and exit and only locked after the power returns. Such a type of door ensures access to the protected areas in the event of emergencies. A typical application of this mechanism is the use of electromagnetic locks. The locks can only be opened when the power supply is normal. “**Security During Power Outage**”: Doors adopting this mechanism ensure the protected areas are still under protection at

all events. A typical application of this mechanism is the use of electronic locks which can only be opened from within in the event of a power outage.

You can decide the power supply mode when installing locks based on the following calculation:

The operating voltage of the iFace is 12V. In the following expressions, I is defined as the current input by the power supply; U_{Lock} is defined as the operating voltage of the lock; I_{Lock} is defined as the operating current of the lock.

1. The iFace shares power supply with the electronic lock, as shown in Figure 1 and Figure 2:
 - 1) $U_{Lock}=12V$, $I-I_{Lock}>1A$;
 - 2) The distance between the electronic lock and the iFace is short.
2. The iFace and the electronic lock adopt separate power supply, as shown in Figure 3 and Figure 4:
 - 1) $U_{Lock}=12V$, $I-I_{Lock}\leq 1A$;
 - 2) $U_{Lock}\neq 12V$;
 - 3) The distance between the electronic lock and the iFace is long.

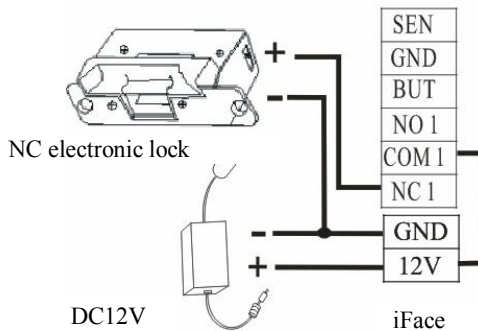


Figure 1 NC electronic lock (sharing power supply with the iFace)

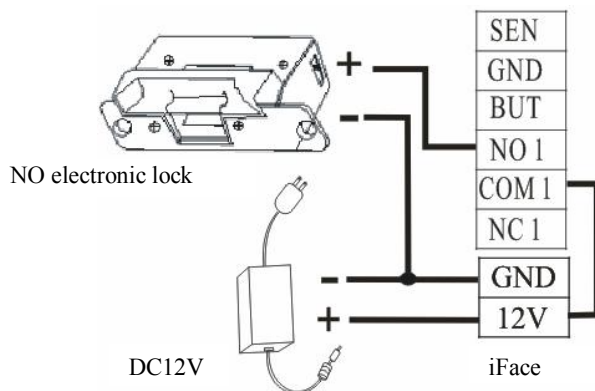


Figure 2 NO electronic lock (sharing power supply with the iFace)

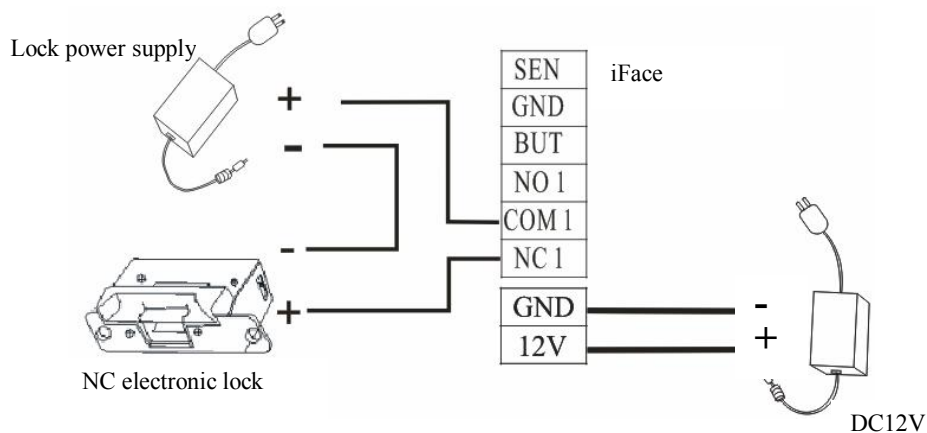


Figure 3 NC electronic lock (adopting an independent power supply)

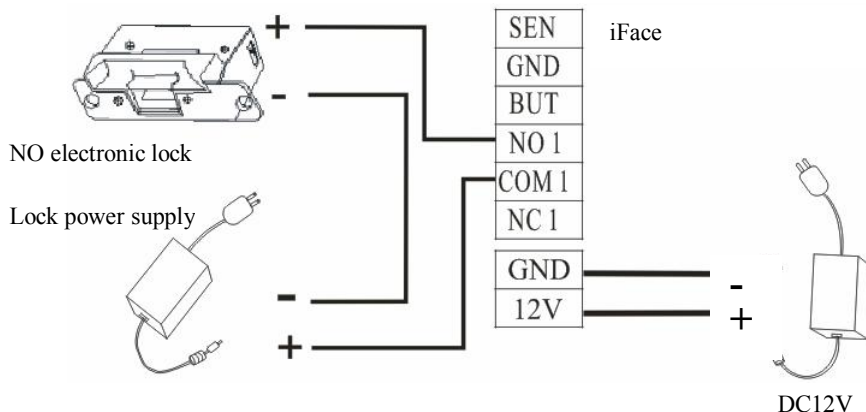


Figure 4 NO electronic lock (adopting an independent power supply)

Note: To prevent the self-induced Electromotive Force (EMF) generated when an electronic lock is opened/closed from impacting the access control system, connect in parallel a diode FR107 (do not reverse the positive (+) and negative (-) terminals) on the electronic lock to discharge the self-induced EMF when connecting cables for the access control system on site.

3.2.5 Ethernet Cables

The background PC software can communicate with the iFace, upload and download data and perform remote management of the terminal over TCP/IP. The iFace can connect with Ethernet in the following two ways:

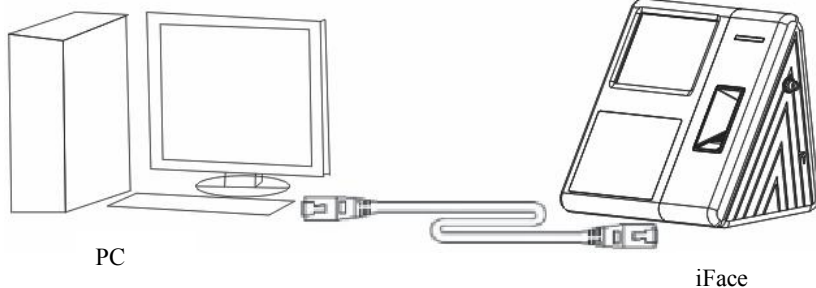
- 1) The iFace connects with a computer through a crossover cable.

IP: 192.168.1.100

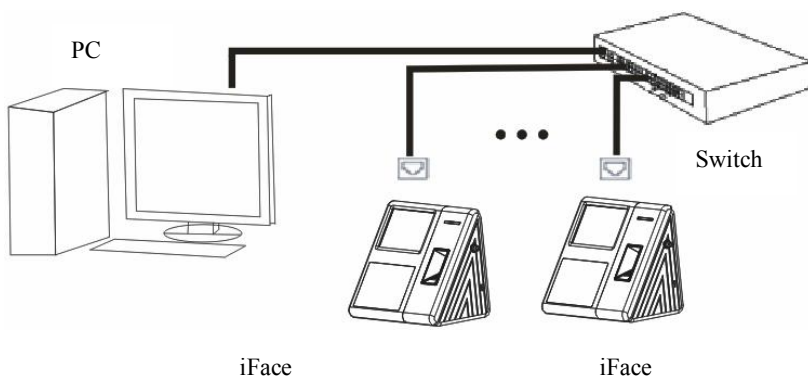
Subnet mask: 255.255.255.0

IP: 192.168.1.101

Subnet mask: 255.255.255.0



- 2) The iFace and computers form a Local Area Network (LAN) through network cables and a hub.



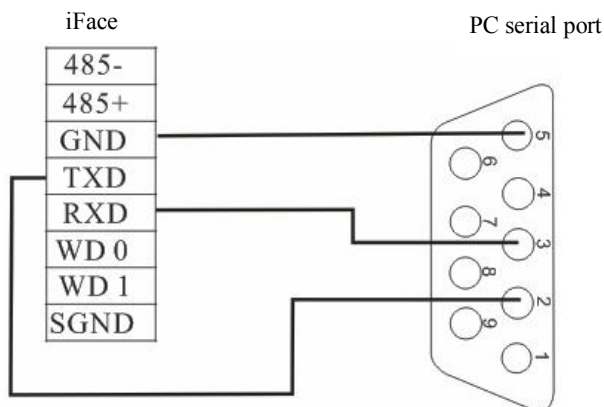
3.2.6 RS232 Cables

The background software can communicate with the iFace through RS232 to upload and download data.

Definition for connections between PC and iFace

PC Serial Port	iFace Serial Port
RXD	TXD
TXD	RXD
GND	GND

Schematic diagram of cable connection



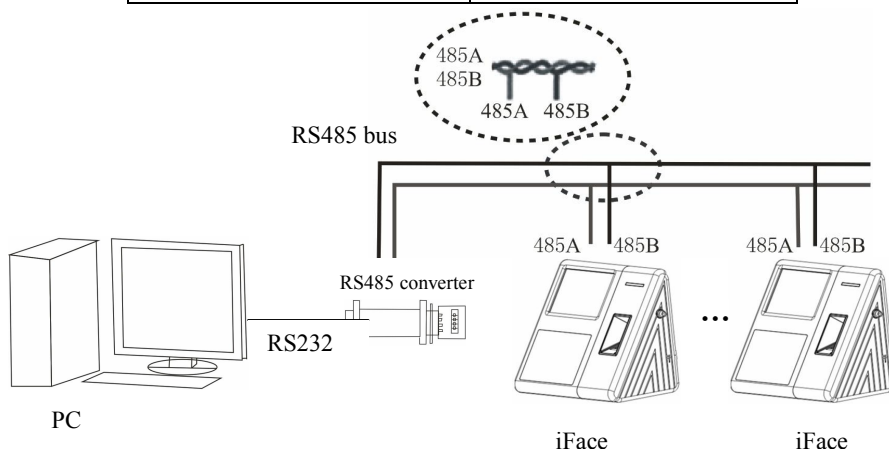
Note: Considering the large size of facial templates, it is not recommended to upload or download facial templates in RS232 communication mode because the time spent in transfer would be quite long.

3.2.7 RS485 Cables

Cables must be distributed by adopting the bus structure in RS485 networking mode. The RS485 communication cable consists of a shielded twisted pair. The RS485 transfers signals through the voltage difference between two communication cables. The differential-mode interference will be generated between two signal cables during signal transfer. A bias resistor (termination resistor) can be added in the circuit to eliminate the differential-mode interference. Generally the termination resistor is not required. The RS485 bus must be terminated using termination resistors with impedance of about 120Ω at both ends of the network only when the RS485 communication distance is over 100m.

Definition of terminal connection

Number of Terminals	Function
485+	RS-485 communication +
485-	RS-485 communication -



Note: Considering the large size of facial templates, it is not recommended to upload or download facial templates in RS485 communication mode because the time spent in transfer would be quite long.

3.2.8 Wiegand Output Cables

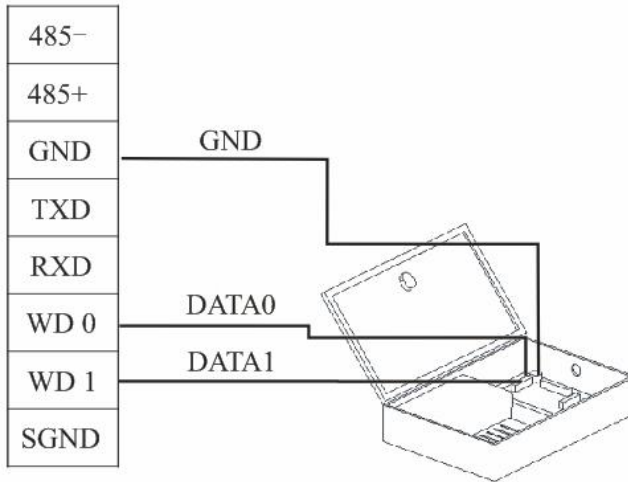
The iFace provides standard Wiegand26 output. It can connect to a majority of access controllers, just like connecting an IC card reader or an encryption keyboard. It is recommended that the cable between the iFace and controller is not over 90m in length. (The wiegand signal extender can be adopted in cases where long transmission distance is required or the interference nearby is quite strong)

Note:

- 1) The iFace and the access controller or card reader must share a

common ground regardless of whether they share the power supply or not, so as to ensure Wiegand signal stability.

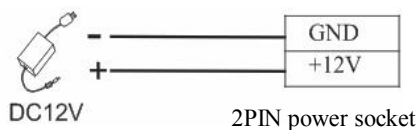
- 2) If Wiegand output or RS485 communication distance is over 90m, it is recommended to adopt shielded cables and connect them to the SGND terminal to avoid interference caused by long-distance transmission.



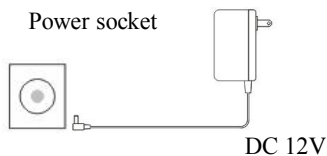
3.2.9 Power Cables

The operating voltage of the iFace is 12V DC, the operating current is about 500mA, and the standby current is about 50mA. Connect the iFace to the power supply through the power wiring terminals. You can also adopt the standard delivery-attached power adapter, with connection methods shown in the following two figures.

1. Connect the positive (+) and negative (-) terminals of power supply directly to +12V and GND. (Do not reverse the positive (+) and negative (-) terminals)
2. Insert the plug of the 12V power adapter into the power socket.



Method 1



Method 2

3.3 Fastening the iFace

- 1) Ensure all cables are properly connected.
- 2) Attach the iFace to the rear wall-mount plate (From the top down) to place it flat against the wall-mount plate, as shown in Figure ①.
- 3) Fasten the iFace to the rear wall-mount plate by using a screw, as shown in Figure ②.
- 4) Ensure the iFace is securely fastened after installation.

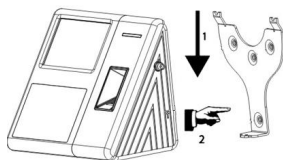


Figure ①



Figure②

4 Inspection After Installation

After the whole system installation is complete, check whether the system is properly installed prior to power-on. Check whether the lock drive and other devices operate properly. For more information, see *User Manual* and *Software User Manual*.

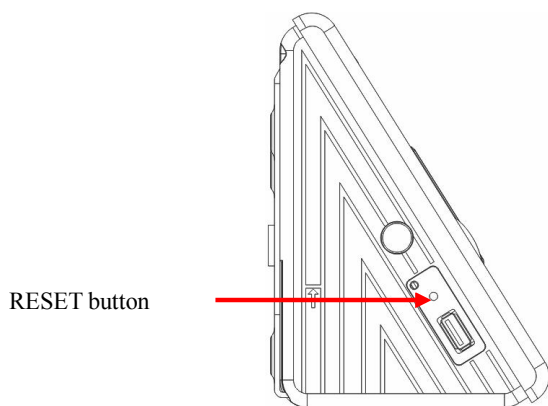
- 1) The green indicator will start blinking upon power-on.
- 2) Select Menu > Automatic Detection.
- 3) Select Menu > User Management > Add a User > Register a Facial Template to register a facial template. Test the access control and electronic lock through the facial recognition function.
- 4) If the iFace operates properly, delete the registered facial template.

5 Others

5.1 Reset Button

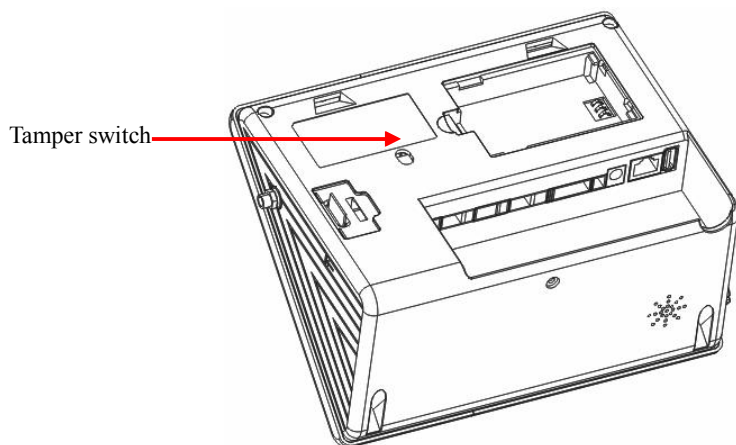
If the iFace cannot operate properly due to misoperation or other faults, you can reset it by pressing the Reset button.

- ① Find a tool with a sharp end and with diameter less than 2 mm.
- ② Locate the Reset sign beside a small hole at one side of the iFace.
- ③ Insert the tool into the small hole and press it in the direction as shown in the following figure to reset the iFace.



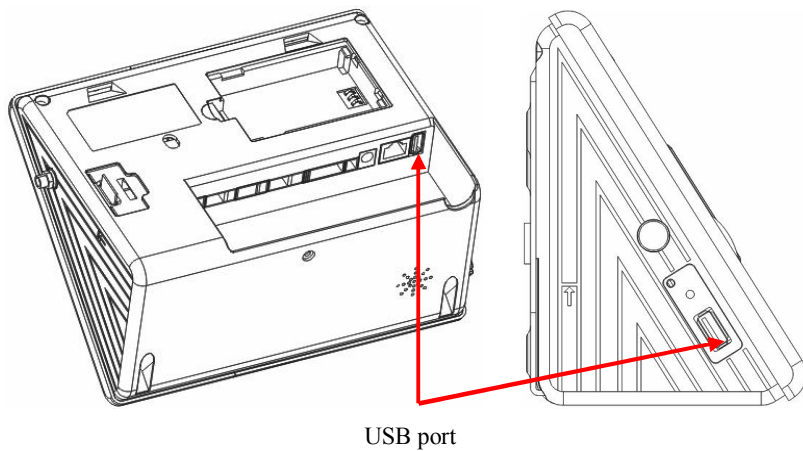
5.2 Tamper Switch

A tamper switch is located in the middle of the rear of the iFace and covered with the rear cover plate to prevent tampering. When dismantled, the iFace will generate an alarm through the terminal.



5.3 USB Port

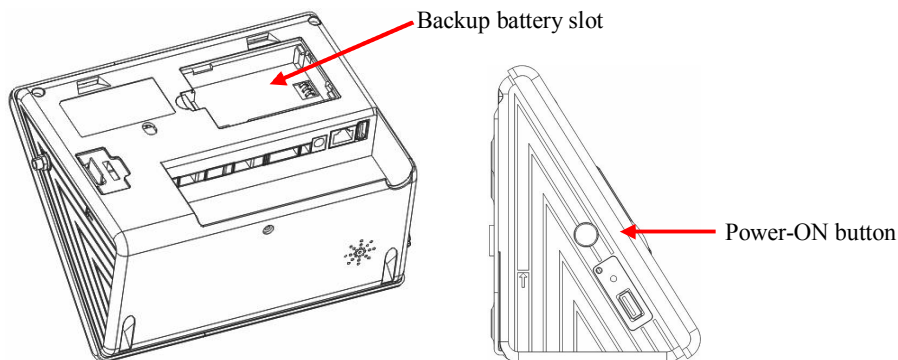
- ① There is a USB port at each of the rear and side of the iFace.
- ② You can connect a USB disk to the USB port for data exchange.



5.4 Backup Batteries

Operating Principle

Check whether the backup batteries are properly installed before initial use of the iFace. Despite whether the iFace adopts the external power supply or backup batteries, always power on the iFace by using the Power-ON button. Normally the iFace can automatically switch to battery mode in the event of a power outage, but if the power outage occurs when the iFace is powered off, you need to press the Power-ON button to manually switch the terminal to battery mode.



Technical Specifications

Recharge Time	Less than four hours	Discharge Time	Over five and a half hours
Operating Temperature	0°C–50°C	Relative Humidity	10%–90%
Storage Temperature	Batteries are stored only after they are fully recharged. Recommended storage temperature: 20°C±5°C		
Cycle Life	Recharge/Discharge cycle times: Over 300 times.		

Precautions:

Failure to read the following precautions carefully may lead to battery leakage, overheat, sparking, explosion or rupture.

- ⚠ Reverse charging is prohibited.
- ⚠ It is prohibited to short-circuit the positive (+) and negative (-) poles of the batteries with a conducting wire or other metal objects.
- ⚠ Do not use batteries in places with ambient temperature over 50°C.
- ⚠ Do not drop batteries in a fluid, for example, water, sea water or drinks.
- ⚠ Do not use or store batteries near a heat source (for example, fire or heater).
- ⚠ Do not dispose of batteries in fire or heat them.