Access Control Terminal product manual

Please read this carefully and keep it properly.

- FC6820

· Multi-in-one identification and authentication

· IPS high-definition touchscreen

· Rich output interfaces

· Customizable screen interaction

Suzhou Fanxi Technology Co., Ltd.

FEOCEY

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Revision History

Change date	Version	Version description	person liable
2023.6.29	V1.0	Initial version	
2023.7.18	V1.1	Update version	

Catalogue

1.Preface

Thank you for using the FC6820 Access Control Terminal device provided by Feocey. Carefully reading this document can help you understand the functions and features of this device, as well as quickly master the use and installation methods of the device.

1.1. Product Introduction

The FC6820 Access Control Terminal device is a specialized product developed for the access control field. It supports local whitelists and passage records, and features a rich set of network protocol interfaces for connecting to cloud management systems, enabling functions such as access control management, visitor management, personnel management, attendance management, etc. It can also be customized through network protocols to seamlessly integrate with private management systems.

The FC6820 features a 3.33-inch IPS HD touch screen, an ultra-thin design, and supports horizontal and vertical screen installation. It is suitable for various scenarios such as 86-box installation and gate machine installation, and supports multiple authentication methods including QR code scanning, password input, NFC card, PSAM card, and Bluetooth.

The FC6820 supports a 100M adaptive network port, relay interface, and door switch signal input, allowing direct network connection and integration with other necessary access control components to achieve the access control functions; it can also be connected to the access control security module via an RS-485 interface to enable higher-level access control.

The FC6820 incorporates various protection mechanisms such as software watchdog and hardware watchdog to prevent crashes and ensure more reliable operation of the device.

1.2. Product Features

1、Integrates multiple authentication methods, including QR code scanning, password input, NFC, PSAM card, and Bluetooth;

2、Supports horizontal and vertical screen installation, enabling dual-purpose functionality in one device;

3、320 × 480 resolution IPS HD capacitive touch display, supporting custom UI development;

4、Features fast reading speed and high accuracy, supporting code recognition for OLED screens and other display types;

5、Supports customized voice prompts to provide a more humanized and friendly interactive experience;

6、Integrates a 100M adaptive network port, RS-485, relay, door opening input, and other interfaces; with open network protocols, it can easily connect to various access control management systems.

1.3. Function Block Introduction

1.3.1. Launch the Interface

① Welcome page, displayed at startup

1.3.2. Main Interface

① Status indication

indicates that the network is connected and communication with the gateway is normal;

indicates that the network is disconnected;

Bluetooth icon: Display indicates that a Bluetooth device is connected; no display indicates that no Bluetooth device is connected;

MQTT icon: Display indicates that a connection has been established with the MQTT server; no display indicates that no connection has been established with the MQTT server;

TCP icon: Display indicates that a connection has been established with the TCP server; no display indicates that no connection has been established with the TCP server;

② Time display

③ Logo show

④ Users can click the "Unlock" button to switch to the password authentication interface

⑤ The device SN number is displayed by default and can be hidden through configuration

⑥ The network IP address can be set to be hidden through configuration

1.3.3. Password Authentication Interface

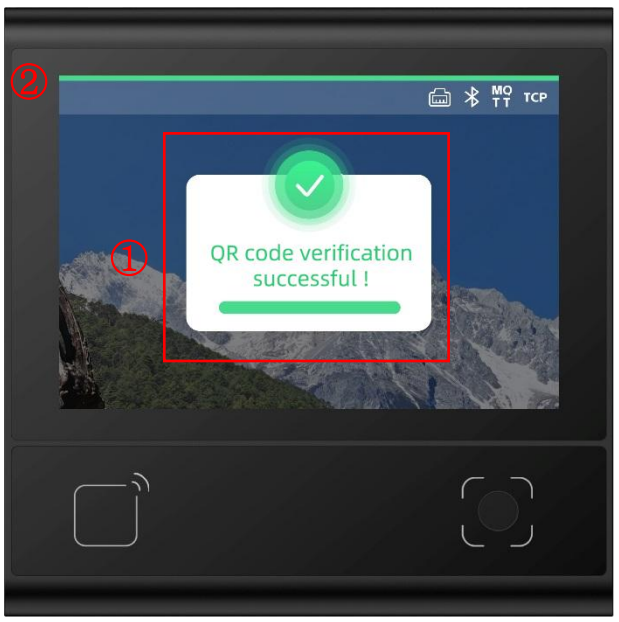
① The password keyboard includes number keys ranging from 0 to 9, as well as a cancel key and a confirm key. When the "cancel" button is pressed, the interface will return to the main interface; when the "confirm" button is pressed, the system will perform password authentication. This design allows users to easily input passwords and perform corresponding operations according to their needs, ensuring the convenience and efficiency of the password authentication process.situation display:

When a button is pressed, green bars will be displayed clockwise from the top of the number '1'. 

Since the password authentication interface supports 6 – 8 digit passwords, there can be up to 8 segments of green bars. Each segment represents one digit of the password input progress. For example, when a 6 – digit password is being entered, 6 segments of green bars will light up one by one as the digits are inputted correctly, visually indicating to the user how many digits have been successfully entered.

1.3.4. Verification Prompt

1) Verification success page



① The authentication status pop-up window displays the authentication status, which covers QR code, card swiping, Bluetooth, and password authentication scenarios.

: QR code verification successful;

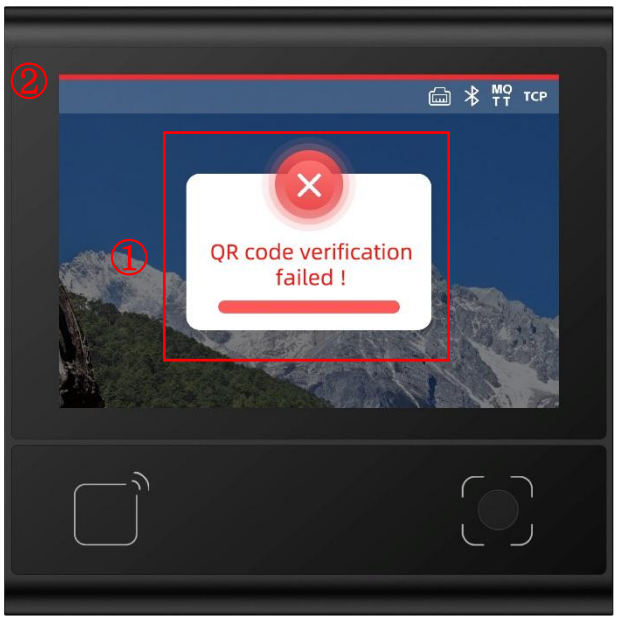
: Password verification successful;

: Card swiping verification successful;

: Bluetooth verification successful;

② The color bar display area of the authentication status shows a green bar after the QR code, card swiping, Bluetooth and password authentication are successful

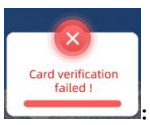
2) Verify the failed page



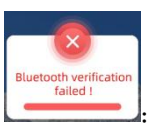
① The authentication status pop-up window shows the status for QR code, card swiping, Bluetooth, and password authentication.

: QR code verification failed;

: Password verification failed;



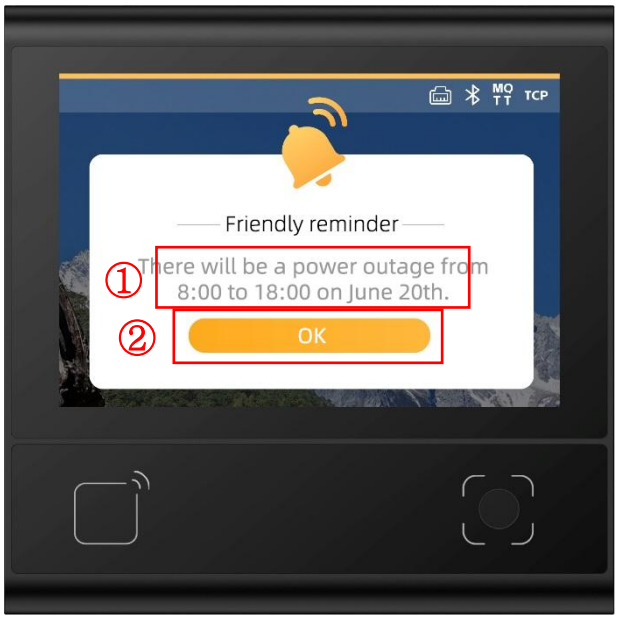
: Card verification failed;



: Bluetooth verification failed;

② The color bar display area of the authentication status shows red bars after the QR code, card swiping, Bluetooth and password authentication fail

1.3.5. Information Alert Interface



① The alert information display area can update the required text information in real time through the network.

② There is a return button. When users press it, they will return to the main screen.

2.Plant Parameter

2.1. Standard parameters

Standard parameters	
Communication Interfaces	RS-485, Ethernet.
Access Control Interfaces	Exit Switch Input、Relay Output
Indication Method	Screen Icon Indication, Beep, Voice (Optional)
imaging Sensor	480,000 Pixel CMOS Image Sensor
Maximum Resolution	800* 600
Operating System	Linux
Installation Method	86 box installation, non-86 box installation
Material of the Reading Window	Tempered Glass
Screen Size	3.33 inches
Screen Resolution	320*480 IPS HD
Touch Screen	Capacitive touch

Speaker Volume	⩽71 dB (1 meter away from the speaker)
Bluetooth	BLE 5.1 Maximum Communication Distance (Open Environment): 2.5 Meters
Wi-Fi	IEEE 802.11 a/b/g/n 2.4GHz and 5GHz
Subscriber Number	50,000
Number of Passwords	50.000,1-20 digit
Number of Cards	100,000
Number of ID Numbers	100,000
Passenger Records	200,000

2.2. Reading Parameters

QR Code Reading Parameters	
Code Identification Type	QR code: QR Code, PDF417 One-dimensional bar code: CODE128, EAN13, EAN18
Decoding Support	Screen code
Reading Distance	15mil QR code: ≤50.54mm (in dark room environment with the mobile phone brightness at 100 nits)
Reading Accuracy	QR: ≥ 9mil in Version 7; ≥ 8mil in Version 12;
Reading Speed	100 ms (average,per reading), Continuous reading supported
Reading Direction	360 °
Reading Angle	Center Inclination Angle: 68.35 °; center Deflection Angle: 54.2 °
Angle of Field	Horizontal Angle: 64.5 °; Vertical Angle: 55.0 °; Field Angle 78.6 °
Radio Frequency Card Reading Parameters	
Identified Card Types	ISO 14443A-compliant cards,ISO 14443B-compliant cards, Physical ID cards, ID card information (optional)
Card Operation	Physical UID, M1 card sector read/write, CPU card file read/write

Methods	
RF Operating Frequency	13.56MHz
Effective Reading Distance	M1 card: ≤38 mm Drop-in card: ≤21 mm ID card: ≤19 mm
PSAM Block	
Protocol Support	ISO 7816-1/-2/-3 compliant T=0 asynchronous transmission protocol supported
Algorithm	Confidential

2.3. Electrical Parameters

Warning: Power must only be applied after the device is fully connected. Hot-plugging (plugging or unplugging cables while the device is powered) may damage electronic components. Always disconnect power before connecting or disconnecting cables.

Notice: Poor power connections, short cycle times between power-off and power-on, or excessive voltage sags/swings may cause the equipment to operate unstably. Maintain stable power input. After turning off the power, wait at least 2 seconds before reapplying power.

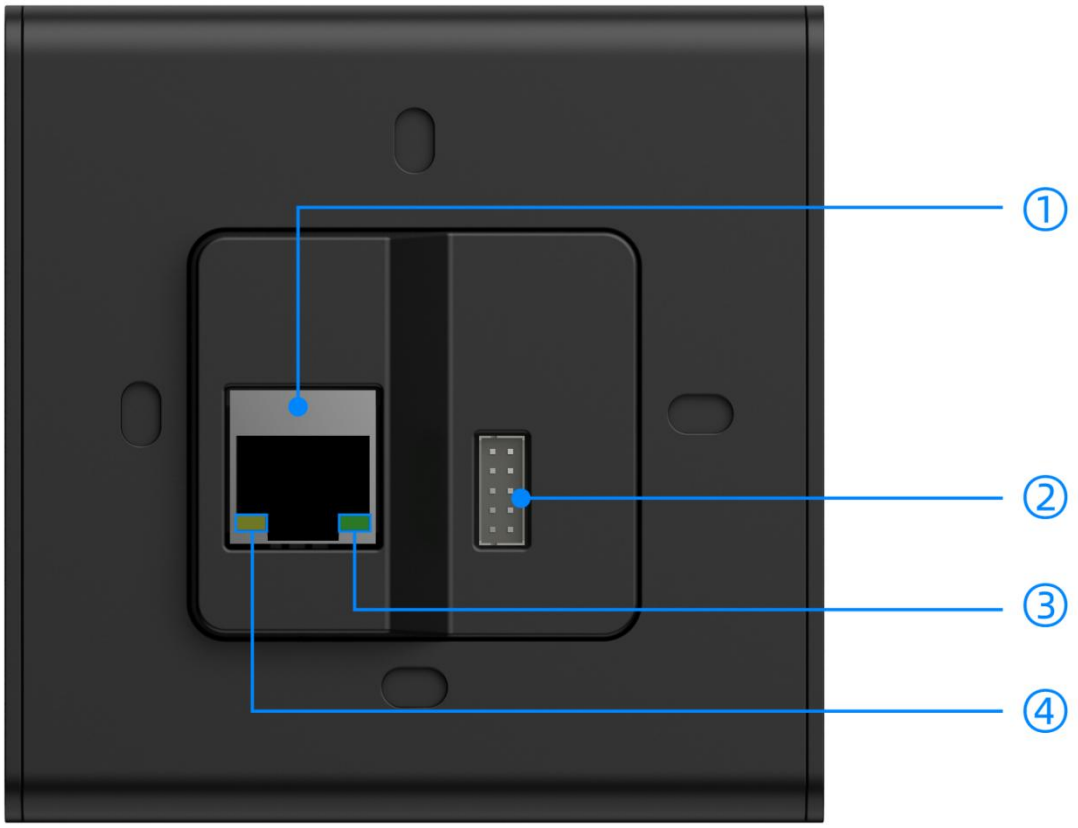
Electrical parameters	
Working Voltage	DC 9V-24V, typical value DC 12V
Working Current	900 mA (at typical 12 V supply)
Relay	DC 30V/1A

2.4. Work Environment

Work environment parameters	
Electrostatic Protection	± 15kV (air discharge), ± 4kV (contact discharge)
Working Temperature	-20 ° C to +70 ° C
Storage Temperature	-40 ° C to +80 ° C
Relative Humidity	5% to 95% RH (non-condensing, at 25 ° C)

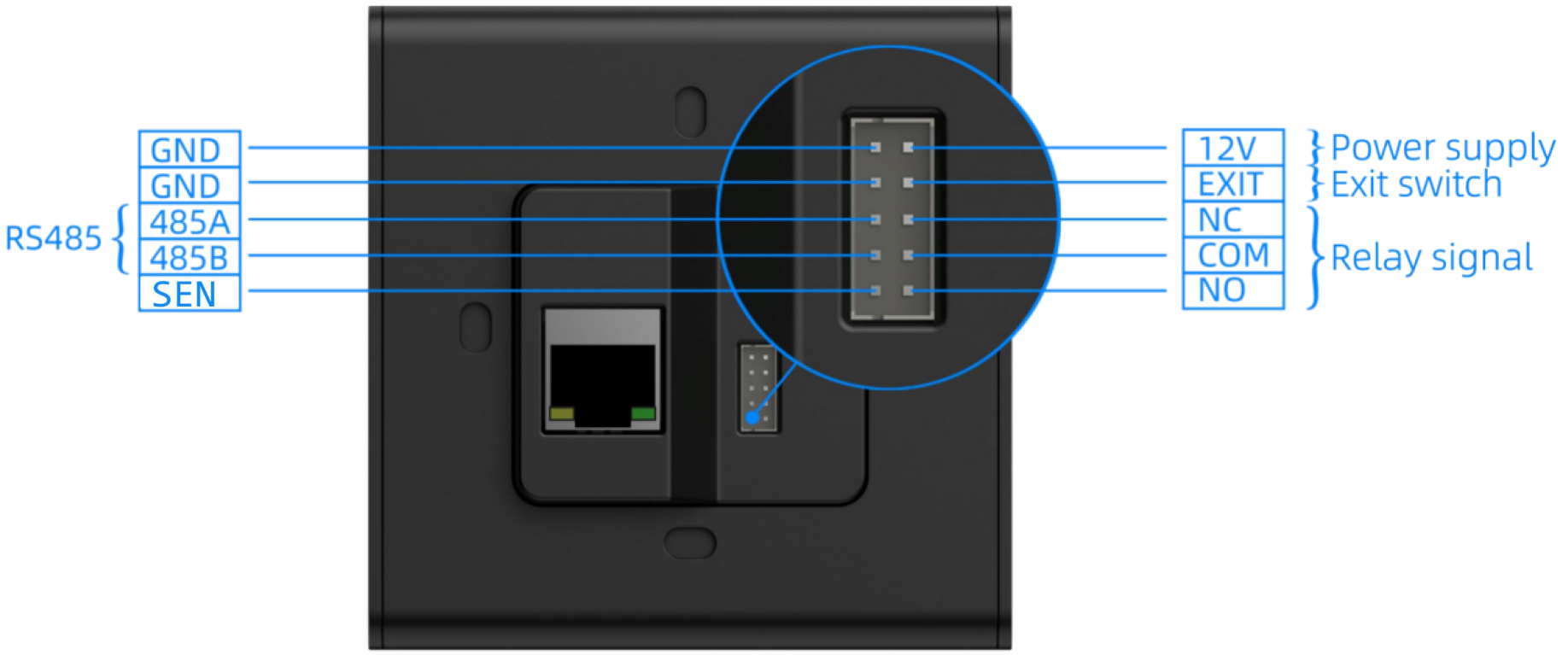
Ambient Light Illumination	0-80000Lux (non-sunlight)

3. Interface Definition



① This is a standard 100 Mbps network port.

② Connect the socket to power supply, electromagnetic lock, door switch, and other access control components to form an access control system.



③ The green LED is on when the 10 Mbps network connection is normal. Flashing indicates data transmission on the 10 Mbps network.

④ The yellow LED is always on when the 100 Mbps network connection is normal. Flashing indicates data transmission and reception on the 100 Mbps network.

4.Method of Erection

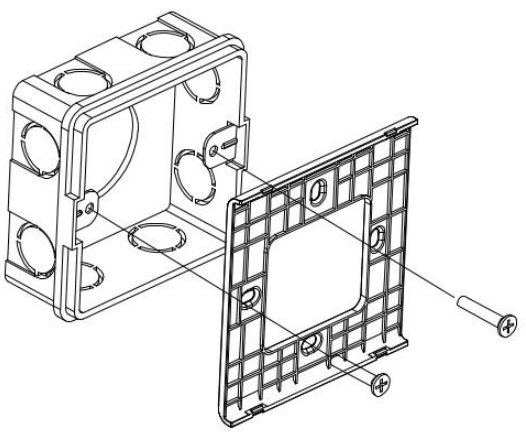
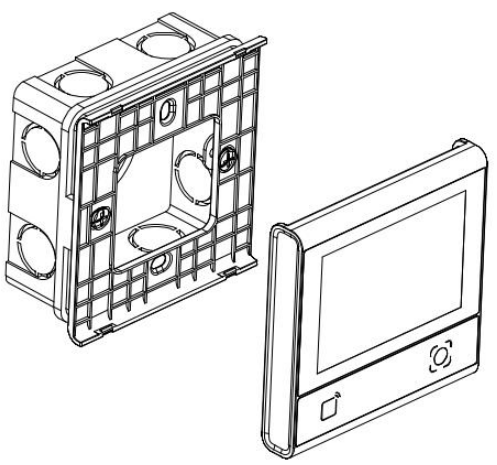
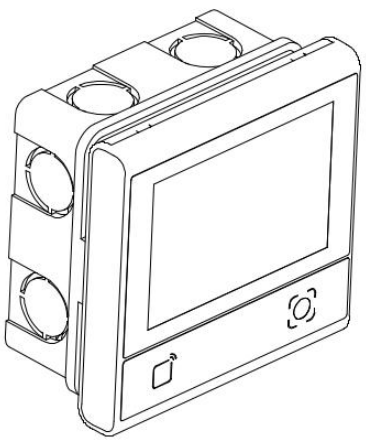
The product employs a CMOS image sensor. During installation, ensure that the reading window of the device does not face direct sunlight, high-power lamps, or other intense light sources after installation. Strong light sources can cause excessive contrast between the QR code and its background in the image, making it impossible to decode. Prolonged exposure may also damage the image sensor and lead to equipment failure.

The display surface and reading window are constructed from tempered glass, which offers excellent light transmittance, pressure resistance, and impact resistance. However, it is still necessary to prevent the tempered glass from being scratched by objects with higher hardness, as this will affect the display and touch effects and reduce QR code recognition performance.

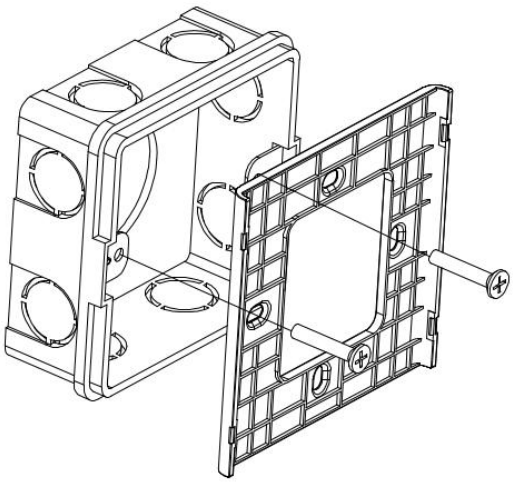
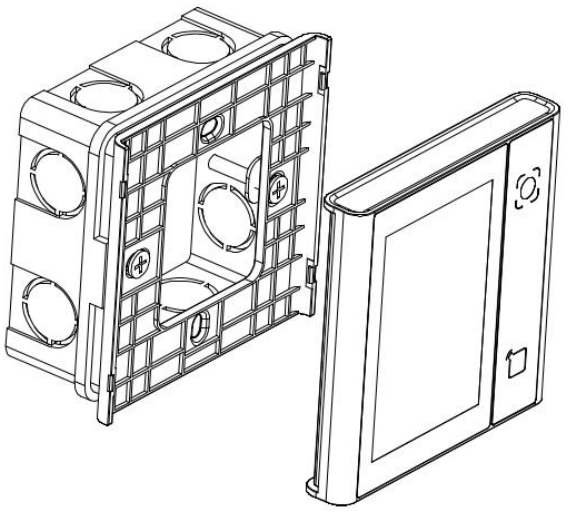
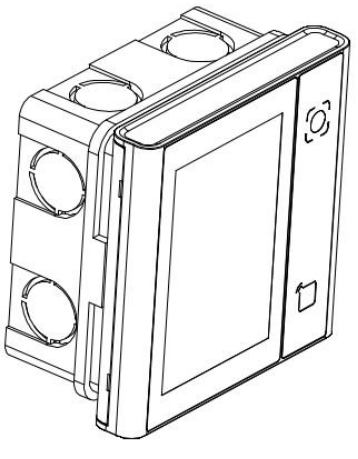
The RFID card-reading antenna is positioned beneath the reading window. When installing, avoid placing metal and magnetic substances within 10 cm, as this will seriously degrade card-swiping performance.

4.1. Installed in 86 Boxes

FC6820 Horizontal Installation Schematic Diagram

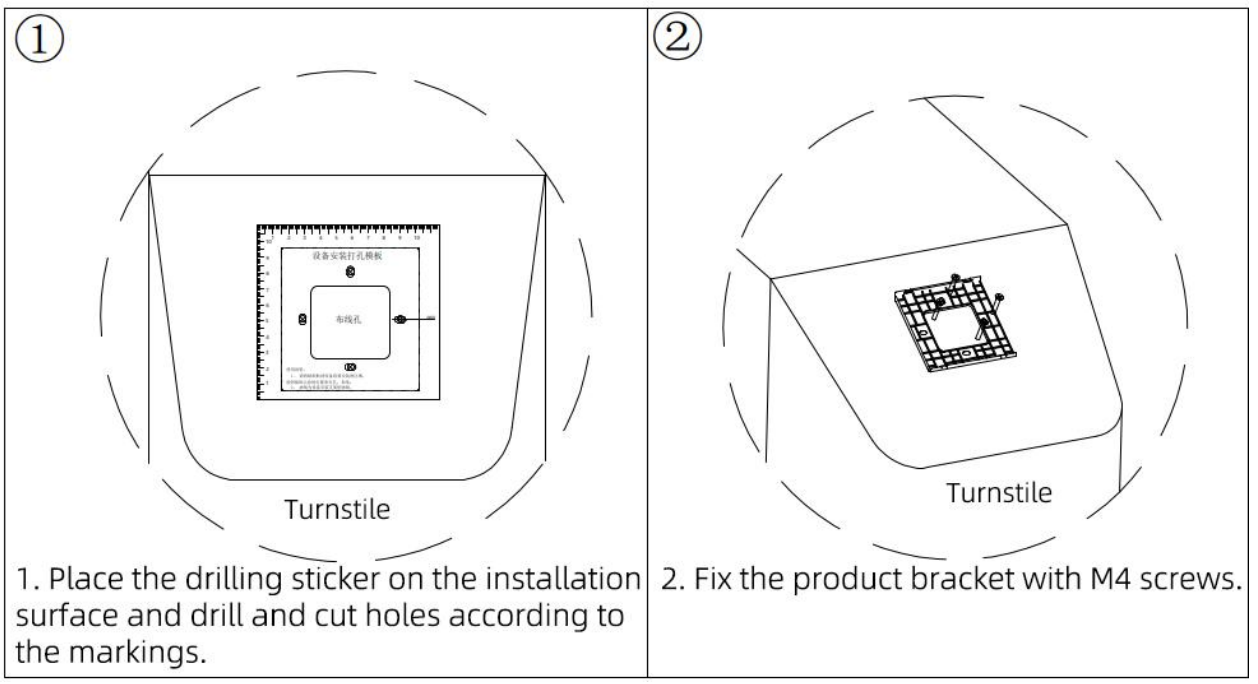
		
Step 1: Fix the plastic bracket to the 86-box with M4 screws.	Step 2: Install the product on the bracket and secure it with the buckle.	Step 3: Product installation completed.

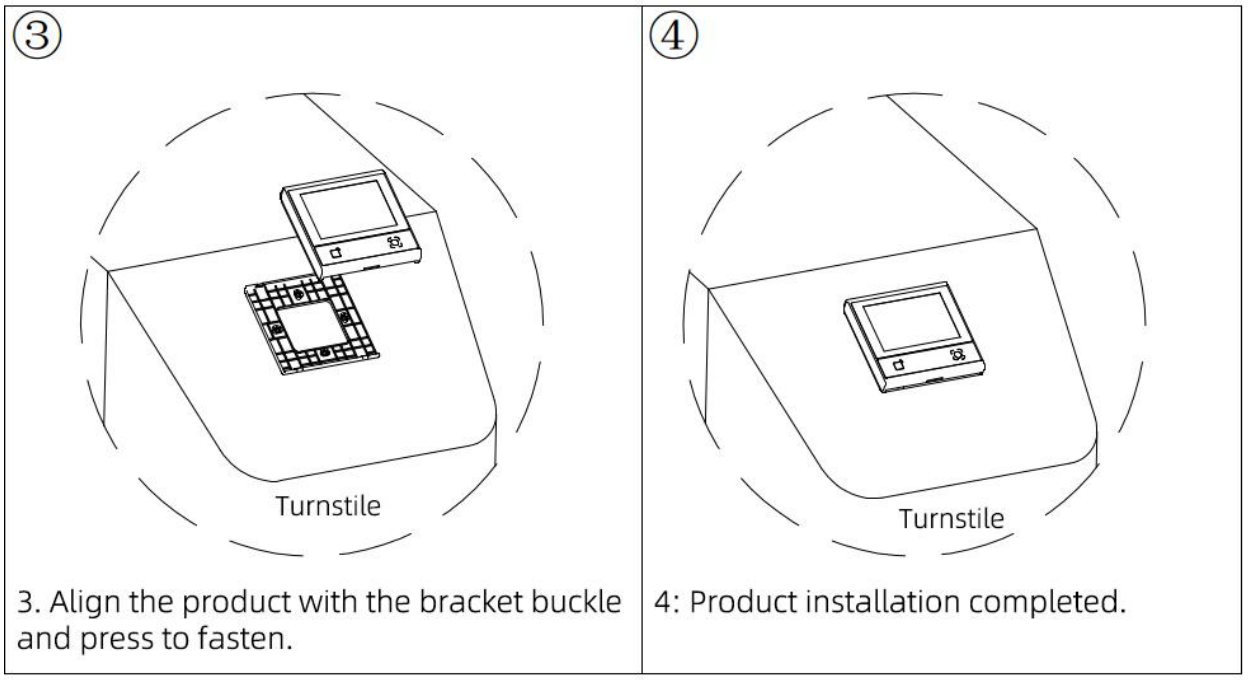
FC6820 Vertical Installation Schematic Diagram

		
Step 1: Fix the plastic bracket to the 86-box with M4 screws.	Step 2: Install the product on the bracket and secure it with the buckle.	Step 3: Product installation completed.

4.2. Installed in non-86 Boxes

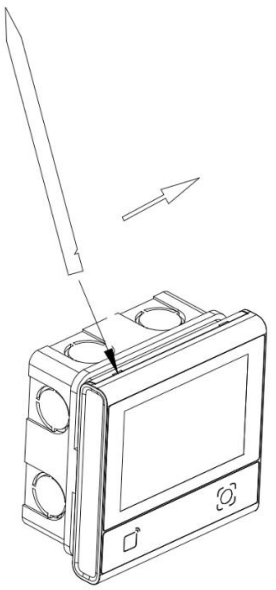
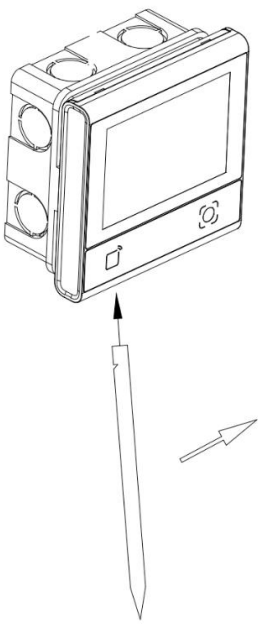
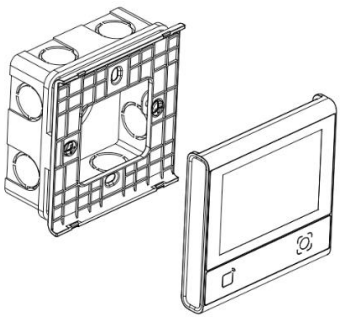
Including turnstiles, self-service machines, etc., holes need to be made in the shell of these machines before they can be installed.





4.3. Disassembly Diagram

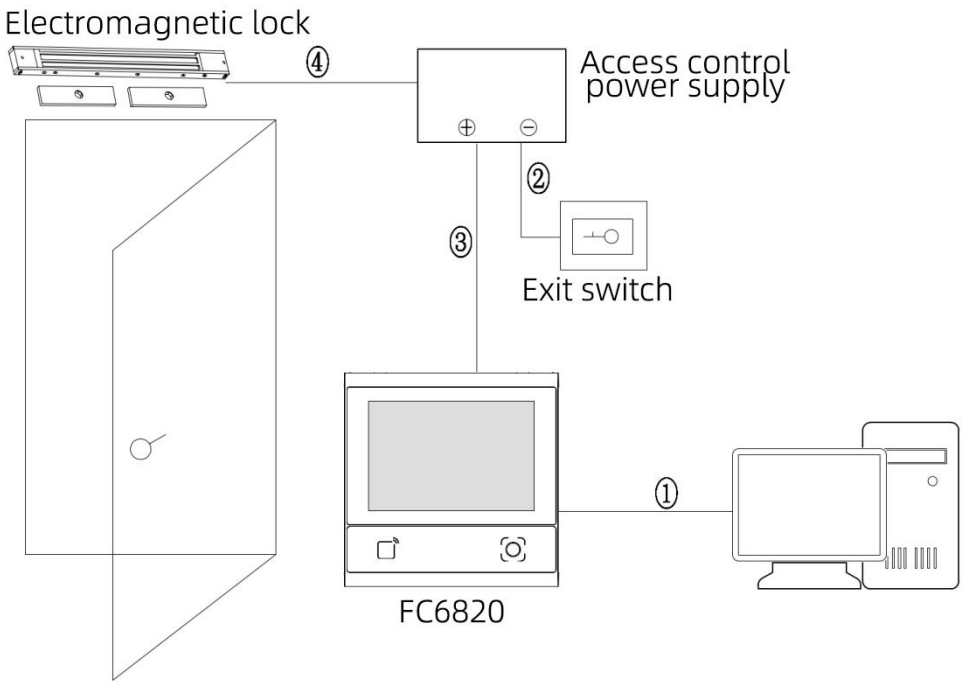
FC6820 Disassembly Schematic Diagram

		
Step 1: Insert a small flat-head pry bar into the two top-located clasps and pry in the direction shown in the diagram.	Step 2: Insert a small flat-head pry bar into the two bottom-located clasps and pry in the direction shown in the diagram.	Step 3: Disassembly completed.

5.Access Control Scene Application

5.1. Independent Utility

1) In this scenario, the FC6820 access control machine connects to the server through the network to realize online synchronous data and realize access control;



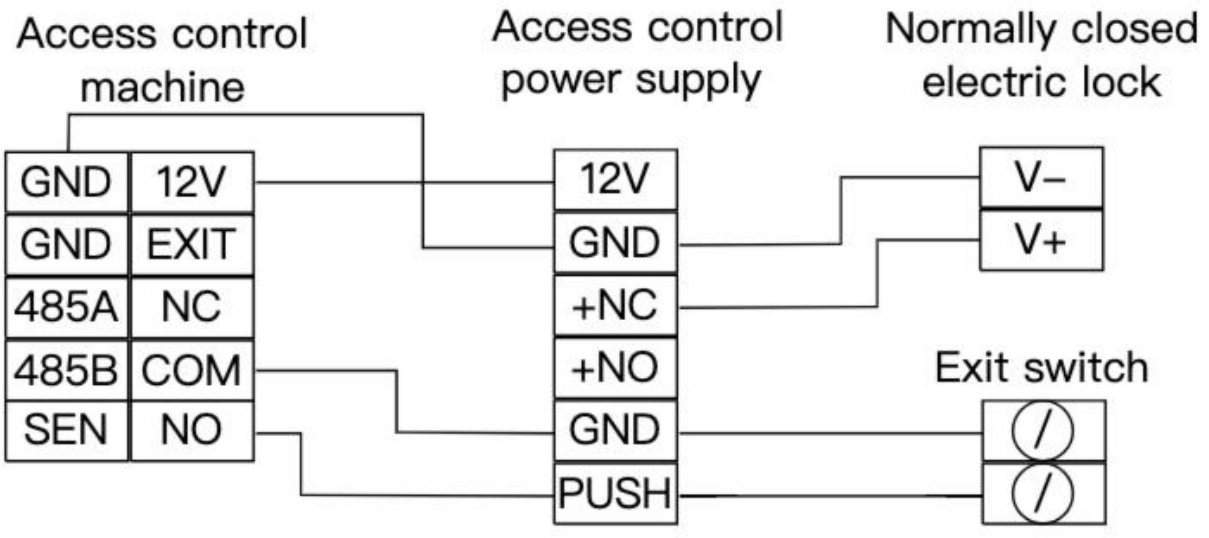
① The equipment is connected to the multi-tenant/multi-department office management system via the network port to enable online management.

②The door switch is connected to a professional access control power supply to enable indoor door opening when the switch is pressed.

③ Connect to a professional access control power supply.

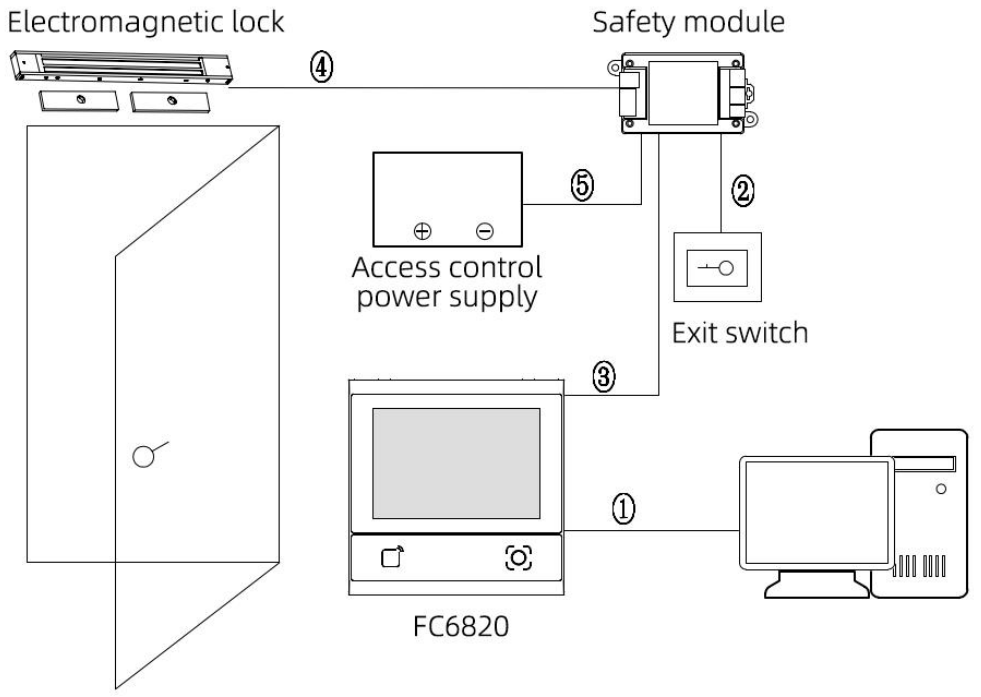
④The electric lock connects to the professional access control power supply. After the permission of the pass-through personnel is verified, the door lock opens

2) Wiring diagram



5.2. Cooperation with the SECURITY MODULE

1) In this scenario, the FC6820 and the security module form a more secure access control system. The FC6820 connects to the server via the network to enable online verification, and then communicates with the security module via the encrypted RS485 protocol to realize door lock control.



① The FC6820 connects to the server management software via the network port to enable online verification.

② The safety module operates during door opening/closing to enable indoor door opening via button press.

③ he FC6820 realizes door lock safety control via RS485 connection to the security module.

Or: Door lock safety control for the FC6820 is achieved via RS485 connection to the security module.

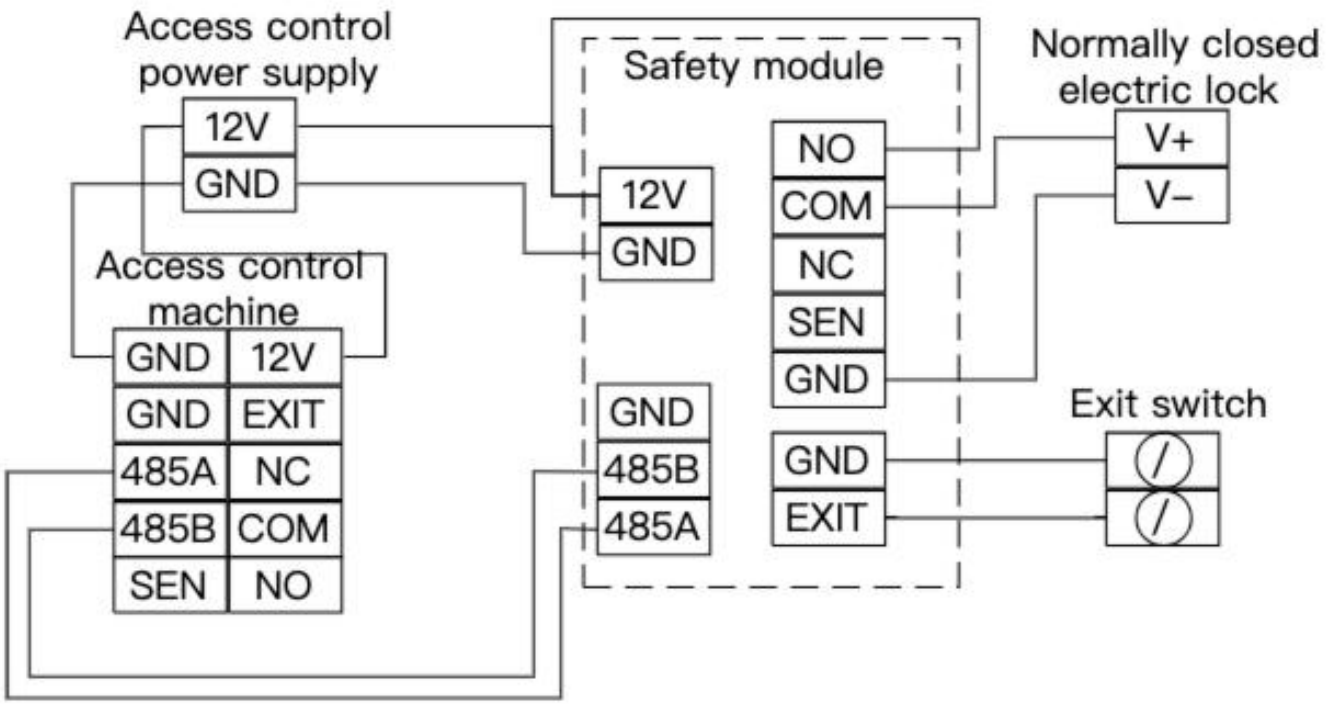
④ The security module is connected to the electric lock.

When authorized personnel swipe a credential on the FC6820, the credential data is uploaded to the server for permission verification. Upon approval, the server/FC6820 notifies the security module to unlock the door.

⑤ The professional access control power supply provides stable power to the security module, FC6820, and door lock.

2) Wiring Diagram

Typical applications are illustrated in the figure below. For more security-related applications, refer to the SA100 product specification.



6.Precautions

1、The device supports a power input of 9 – 24V DC, with a nominal voltage of 12V. It can be powered by the access control system's power supply or a separate power source. Excessive voltage may cause abnormal operation or even damage the device.

2、Unauthorized disassembly of the scanner is strictly prohibited, as it may result in device damage.

3、For devices with WiFi or Ethernet capabilities, ensure a stable network environment to prevent connectivity issues with the server.

4、The installation location of the access control scanner should avoid direct strong light to prevent degraded scanning performance.Metal objects near the scanner may disrupt the RFID magnetic field, affecting card swiping.Metal objects near the scanner may disrupt the RFID magnetic field, affecting card swiping.

5、The wiring of the access control scanner must be secure and reliable.Ensure insulation between wires to prevent short circuits and potential equipment damage from overheating.

6、The access control scanner outputs a switch signal (contact closure). In access control applications, it can be connected to the existing access control system using the original normally open (NO) or normally closed (NC) configuration.

7.FCC WARNING

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 interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: 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 provide reasonable protection against harmful interference in a residential installation. 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 equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-- Reorient or relocate the receiving antenna.

-- Increase the separation between the equipment and receiver.

-- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-- Consult the dealer or an experienced radio/TV technician for help.

To maintain compliance with FCC’s RF Exposure guidelines, This equipment should be installed and operated with minimum 20cm distance between the radiator and your body: Use only the supplied anten

8.Contact Information

Unit name:Suzhou Fanxi Technology Co., Ltd

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National toll-free service hotline: 400-810-2019