

# User Manual

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Thank you for purchasing Keyking products. Please read this manual thoroughly before using.



FPC1001 Biometric Reader (Standalone, Narrow)

**KEYKING** **KEYKING GROUP**

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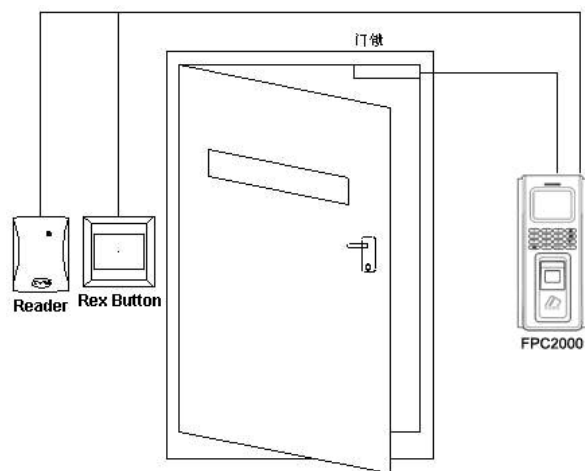
# Chapter 1 Introduction

## 1.1 Summary

FPC2000 is a new outstanding biometric standalone controller with TFT color display developed by KEYKING. When FPC2000 works as T&A controller, employees need to press their finger on the reader(which has to be authorized) to complete attendance. The TFT screen will display time and staff ID info. This system greatly improved the T&A simplicity and offered cost saving on traditional tags. When FPC2000 works as an access controller, the traditional key is no longer needed, employees can enter their special space by flashing authorized cards. FPC2000 can by itself control a door, both in and out, at least one reader is needed for one side, and the other side can be controlled either by a reader or a Rex Button. This system provides a more convenient and secured access environment, it also makes it possible for managers to verify the attendance in time. FPC2000 is compatible with a big range of applications including, building management, enterprise management, government, military and prison.



FPC1001 Appearance



FPC1001 Diagram

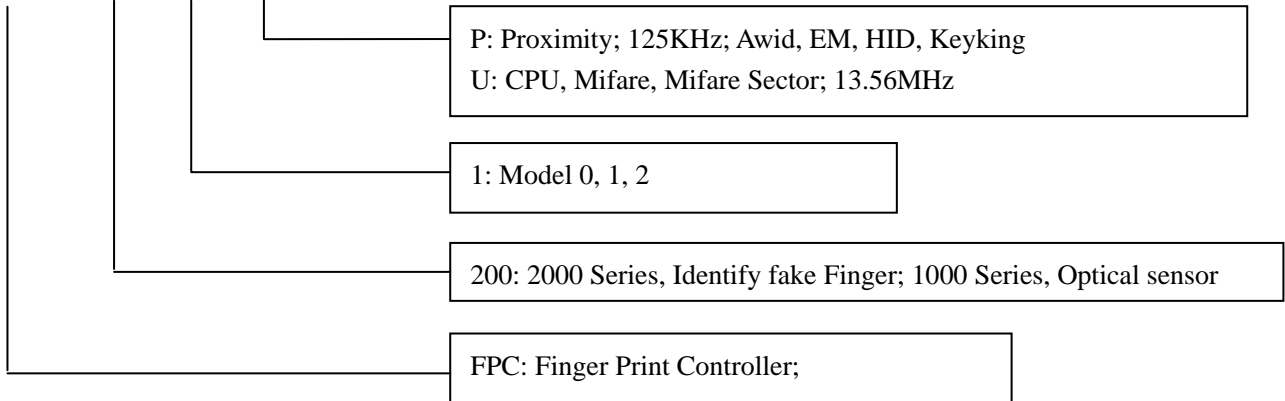


FPC1001 installed on the wall

## 1.2 Model Definition

### Model Definition:

FPC 200 1 - P



**FPC2000-P**-----PROX: Awid, EM, HID, Keying;

**FPC2000-U**-----CPU: CPU, Mifare SN & Mifare Sector;

**Compatible with these types card:**

P: Proximity; Such as EM4100, TK4100, HID1326, 1386, AWID, KK234\250T;





U: KK1208 M1, Philips S50, Mifare-1 Compatible

**Supports Multi Wiegand Output:**









- ✓ AWID: Follow card, up to 58bits
- ✓ EM, 2308: Option-W26/34
- ✓ HID, 1326, 1386: Follow card, W26/27/34/35/37 and so on
- ✓ KK, KK243\250T: Follow card, W34/50 bits

## 1.3 Model List

### 1.3.1 FPC1000 Series List:

Model	Description	Picture
FPC1000-P	CPU: 400MHz DSP (4MB Flash memory +8 MB RAM), Fingerprint capacity: 1,000 PCS, unlimited user identified by PC (Software feature),Fully integrated with SECUSYS software. Support Card types: Awid, EM, HID, Keying, 125KHz Fingerprint Sensor: 500 dpi optical sensor Authentication modes: fingerprint, proximity card, proximity card + fingerprint, ID + fingerprint etc., Communication Interface: Wiegand output, TCP /IP, Dimension: 197mm L x88mm W x 35mm / 470g	
FPC1000-U	CPU: 400MHz DSP (4MB Flash memory +8 MB RAM) Fingerprint capacity: 1,000 PCS, unlimited user identified by PC (Software feature),Fully integrated with SECUSYS software. Support Card types: S50,Mifare Card, 13.56MHz, KK1208M1 Fingerprint Sensor: 500 dpi optical sensor Authentication modes: fingerprint, proximity card, proximity card + fingerprint, ID + fingerprint etc., Communication Interface: Wiegand output, TCP /IP, Dimension: 197mm L x88mm W x 35mm / 470g	
FPC1001-P	CPU: ARM, 32 Bits, Cortex-M4, 400MHz DSP (16MB Flash memory +4 MB RAM),Fully integrated with SECUSYS software. Fingerprint capacity: 1,000 PCS, unlimited user identified by PC (Software feature). Support Card types: Awid, EM, HID, Keying, 125KHz Fingerprint Sensor: 500 dpi optical sensor Authentication modes: FingerPrint Only, FingerPrint or Card, FingerPrint + Card Communication Interface: Wiegand output, TCP /IP, Dimension: 135mm L x58mm W x 45mm / 490g	
FPC1001-U	CPU: ARM, 32 Bits, Cortex-M4, 400MHz DSP (16MB Flash memory +4 MB RAM),Fully integrated with SECUSYS software. Fingerprint capacity: 1,000 PCS, unlimited user identified by PC (Software feature). Support Card types: S50,Mifare Card, 13.56MHz, KK1208M1 Fingerprint Sensor: 500 dpi optical sensor Authentication modes: FingerPrint Only, FingerPrint or Card, FingerPrint + Card Communication Interface: Wiegand output, TCP /IP, Dimension: 135mm L x58mm W x 45mm / 490g	

### 1.3.2 FPC2000 Series List:

<p><b>FPC2000-P</b></p>	<p>CPU: 400MHz DSP (4MB Flash memory +8 MB RAM),                  Fingerprint capacity: 3000 PCS (Can be expandable to 8000),                  Support Card types: Auid, EM, HID, Keyking, 125KHz                  Fingerprint Sensor: 500 dpi optical sensor                  Authentication modes: fingerprint, proximity card, proximity card + fingerprint, ID + fingerprint etc.,                  Communication Interface: Wiegand output, TCP /IP, Fully integrated with SECUSYS software.                  Dimension: 197mm L x88mm W x 35mm / 490g</p>	
<p><b>FPC2000-U</b></p>	<p>CPU: 400MHz DSP (4MB Flash memory +8 MB RAM),                  Fingerprint capacity: 3000 PCS (Can be expandable to 8000),                  Support Card types: S50, Mifare Card, 13.56MHz, KK1208M1                  Fingerprint Sensor: 500 dpi optical sensor                  Authentication modes: fingerprint, proximity card, proximity card + fingerprint, ID + fingerprint etc.,                  Communication Interface: Wiegand output, TCP /IP, Fully integrated with SECUSYS software.                  Dimension: 197mm L x88mm W x 35mm / 490g</p>	
<p><b>FPC2001-P</b></p>	<p>CPU: ARM, 32 Bits, Cortex-M4, 400MHz DSP (16MB Flash memory +4 MB RAM), Wiegand output, TCP /IP, Fully integrated with SECUSYS software.                  Fingerprint capacity: 480 PCS                  Support Card types: Auid, EM, HID, Keyking, 125KHz                  Fingerprint Sensor: 500 dpi optical sensor                  Authentication modes:                  FingerPrint Only • FingerPrint or Card • FingerPrint + Card                  Dimension: 135mm L x58mm W x 45mm / 490g</p>	
<p><b>FPC2001-U</b></p>	<p>CPU: ARM, 32 Bits, Cortex-M4, 400MHz DSP (16MB Flash memory +4 MB RAM), Wiegand output, TCP /IP, Fully integrated with SECUSYS software.                  Fingerprint capacity: 480 PCS                  Support Card types: S50, Mifare Card, 13.56MHz, KK1208M1                  Fingerprint Sensor: 500 dpi optical sensor                  Authentication modes:                  FingerPrint Only • FingerPrint or Card • FingerPrint + Card                  Dimension: 135mm L x58mm W x 45mm / 490g</p>	
<p><b>FPC2002-P</b></p>	<p>CPU: 400MHz DSP (4MB Flash memory +8 MB RAM), Wiegand output, TCP /IP, Fully integrated with SECUSYS software.                  Fingerprint capacity: 480 PCS                  Support Card types: Auid, EM, HID, Keyking, 125KHz                  Fingerprint Sensor: 500 dpi optical sensor                  Authentication modes: fingerprint, proximity card, proximity card + fingerprint, ID + fingerprint etc.,                  Dimension: 197mm L x88mm W x 35mm / 470g</p>	
<p><b>FPC2002-U</b></p>	<p>CPU: 400MHz DSP (4MB Flash memory +8 MB RAM), Wiegand output, TCP /IP, Fully integrated with SECUSYS software.                  Fingerprint capacity: 480 PCS                  Support Card types: S50, Mifare Card, 13.56MHz, KK1208M1                  Fingerprint Sensor: 500 dpi optical sensor                  Authentication modes: fingerprint, proximity card, proximity card + fingerprint, ID + fingerprint etc.,                  Dimension: 197mm L x88mm W x 35mm / 470g</p>	
<p><b>BioUSB10P</b></p>	<p>Biometric USB enrollement Finger Print Reader for direct connection to PC. Fully integrated with SECUSYS software, Built in Multi-Proximity reader</p>	
<p><b>BioUSB10U</b></p>	<p>Biometric USB enrollement Finger Print Reader for direct connection to PC. Fully integrated with SECUSYS software, Built in CPU reader</p>	

## 1.4 Features

- Standard Wiegand 26/34 output, compatible with Wiegand format access controller
- Dust and water resistant, suitable for wide kinds of installations.
- Quick responding, anti-interference, low power consumption and stable.
- WDT circuit, self-checking function.
- High speed of fingerprint matching, in 1 second.
- Multithreaded code has taken full advantage of multi-core CPU
- 500dpi optical biometric sensor, scratch resistant.
- World leading fingerprint algorithm, resistant fake fingerprint.

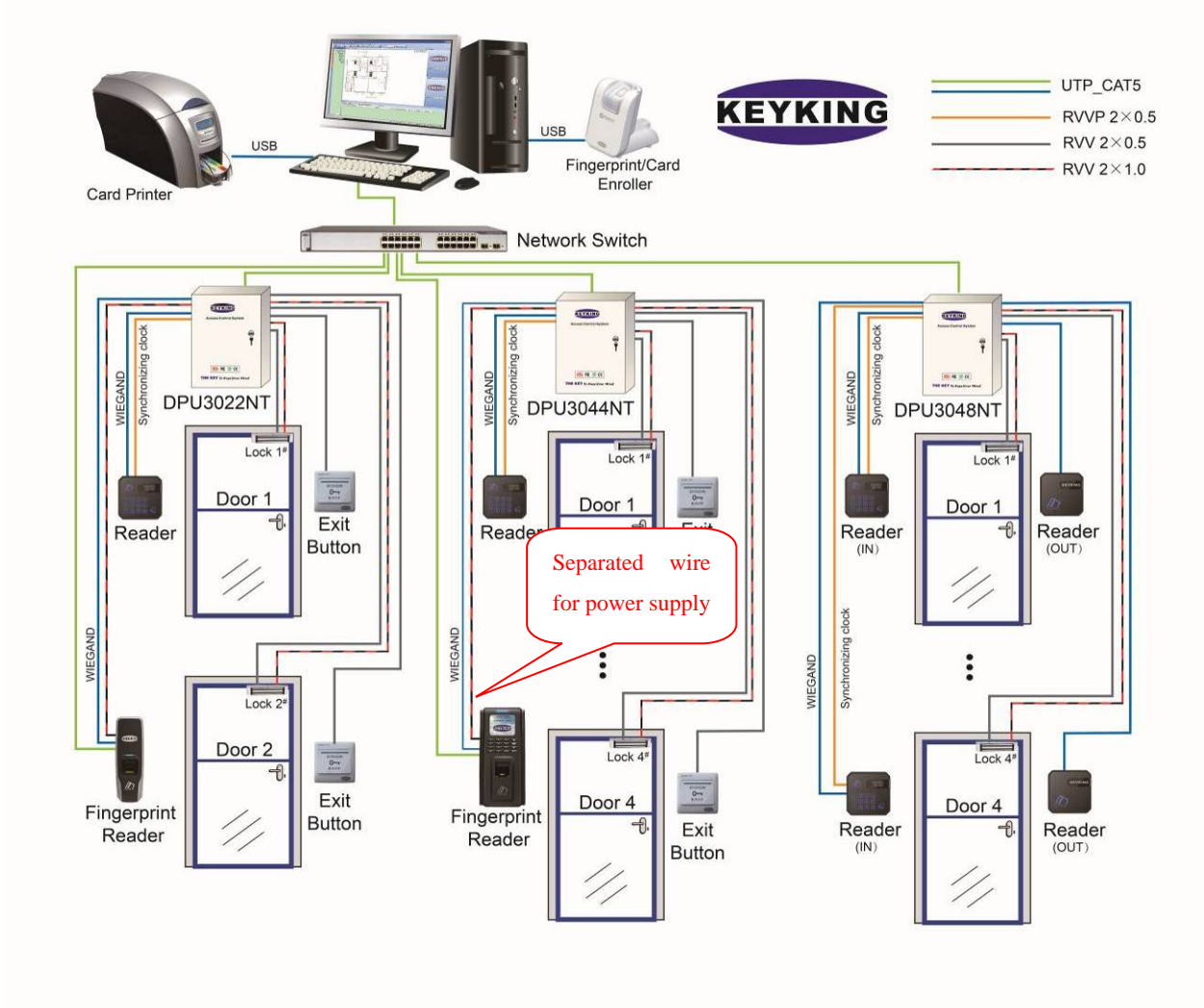
- Support Chinese/English interface.
- Background picture and company name can be changed base on customer's requirement.

**Specification:**

- CPU: ARM, 32Bits, Cortex-M4, 400MHz DSP
- Memory: 4MB Flash memory+8MB RAM
- Fingerprint Template: 1,000 pcs
- Biometric sensor: 500 dpi optical biometric sensor
- Verify mode: FP, FP / Card, Card + FP
- Communication interfaces: Wiegand output, TCP/IP communicate
- Operating voltage: 12VDC
- Operating current:  $\leq 300\text{mA}$
- Standby current:  $\leq 150\text{mA}$
- Temperature:  $-20^{\circ}\text{C}$  to  $65^{\circ}\text{C}$
- Humidity: 0--95%
- Dimension: 135mm L x 58mm W x 45mm
- Weight: 400g

# 1.5 Application Mode

## 1.5.1 Works as a reader



Note:

- Separated wire for FPC2000. Please do not use the wires of CAT-5 as power supply wire for FPC2000, because FPC2000 asks big current.

## 1.5.2 Works as a standalone

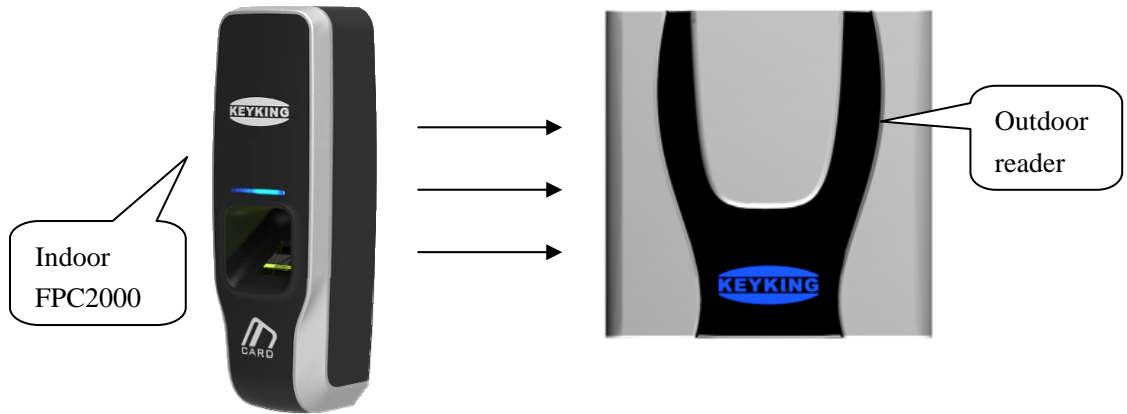
3 Application Modes:

- Standalone, no external reader

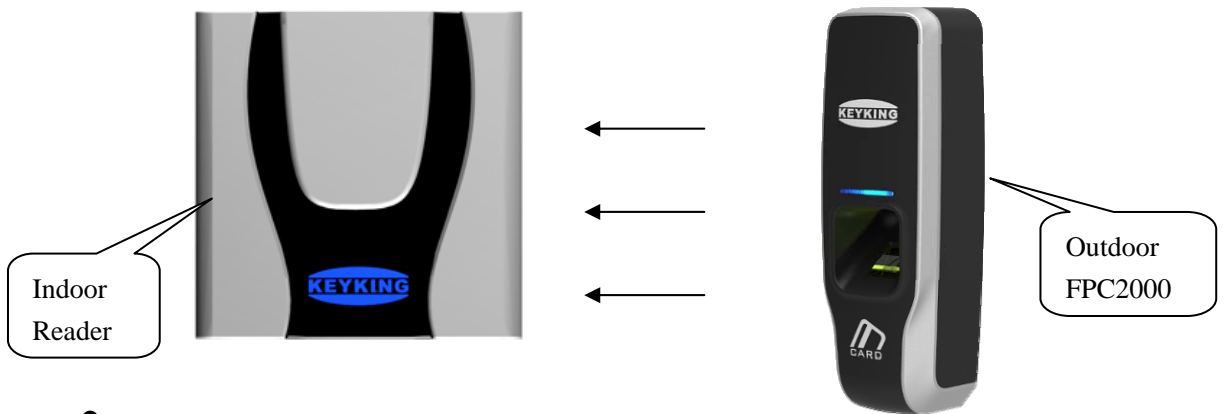




- Outdoor external reader, indoor FPC2000



- Indoor external reader, outdoor FPC2000



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# Chapter 2 Wiring Diagram

## 2.1 FPC1001 Appearance

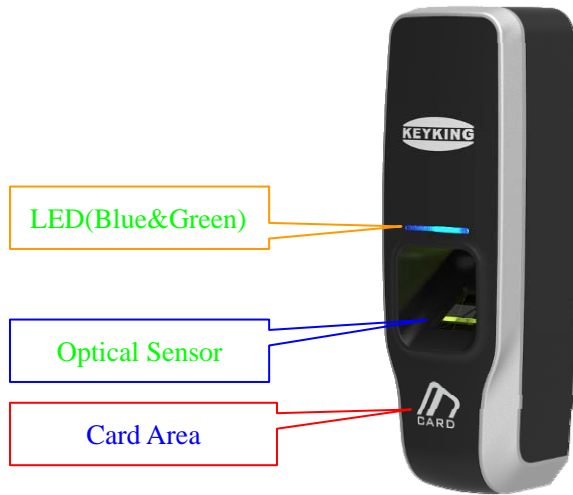
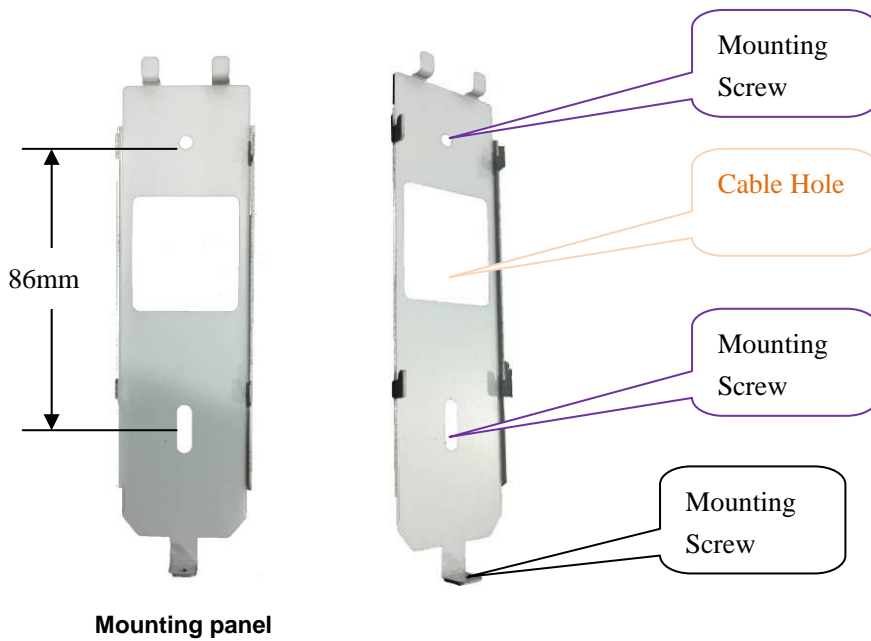


Figure 2-1

**LED:**

- Blue LED: Power indicator
- Green LED: Sensor indicator (Relay on indicator)



## 2.2 Connector

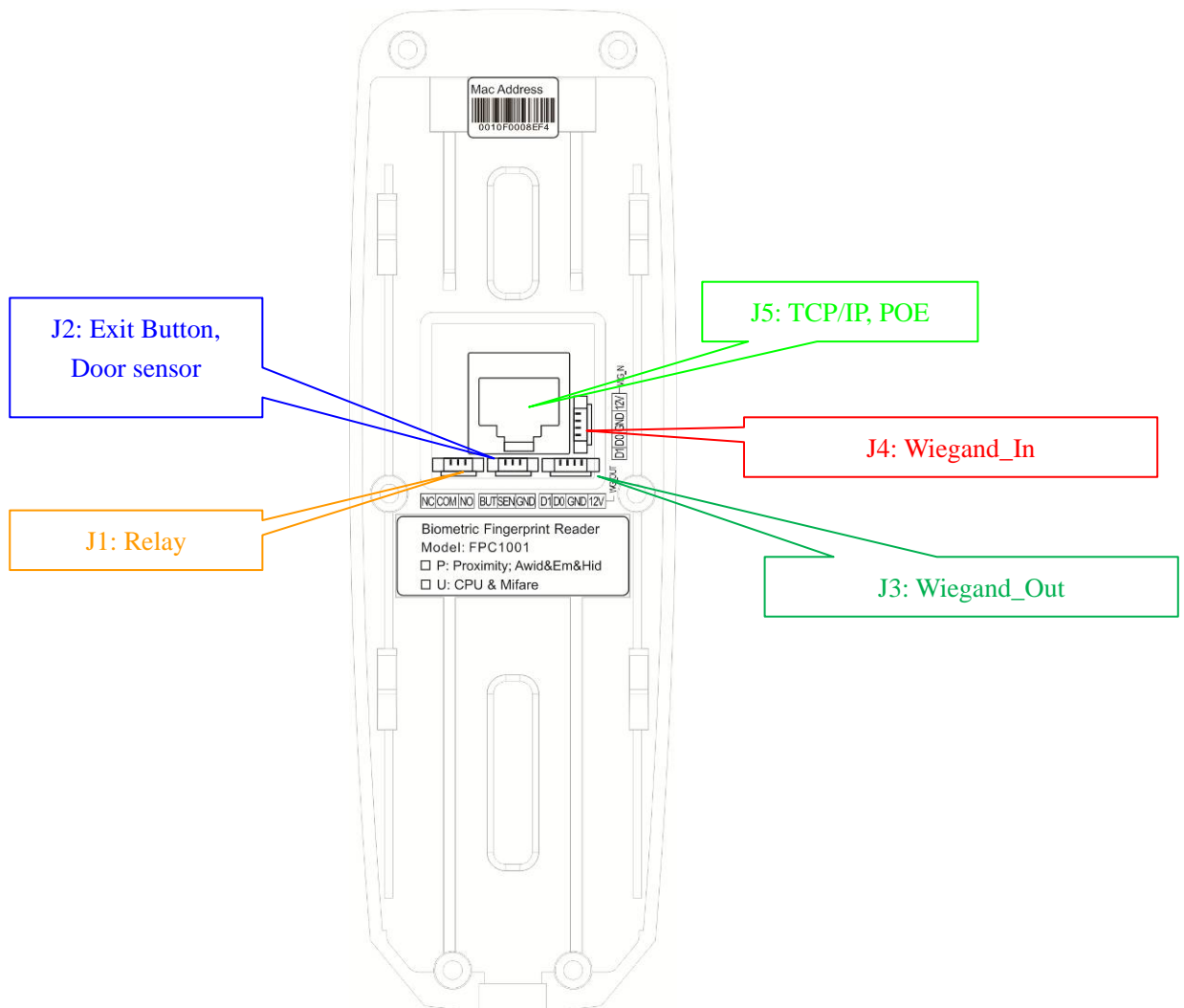
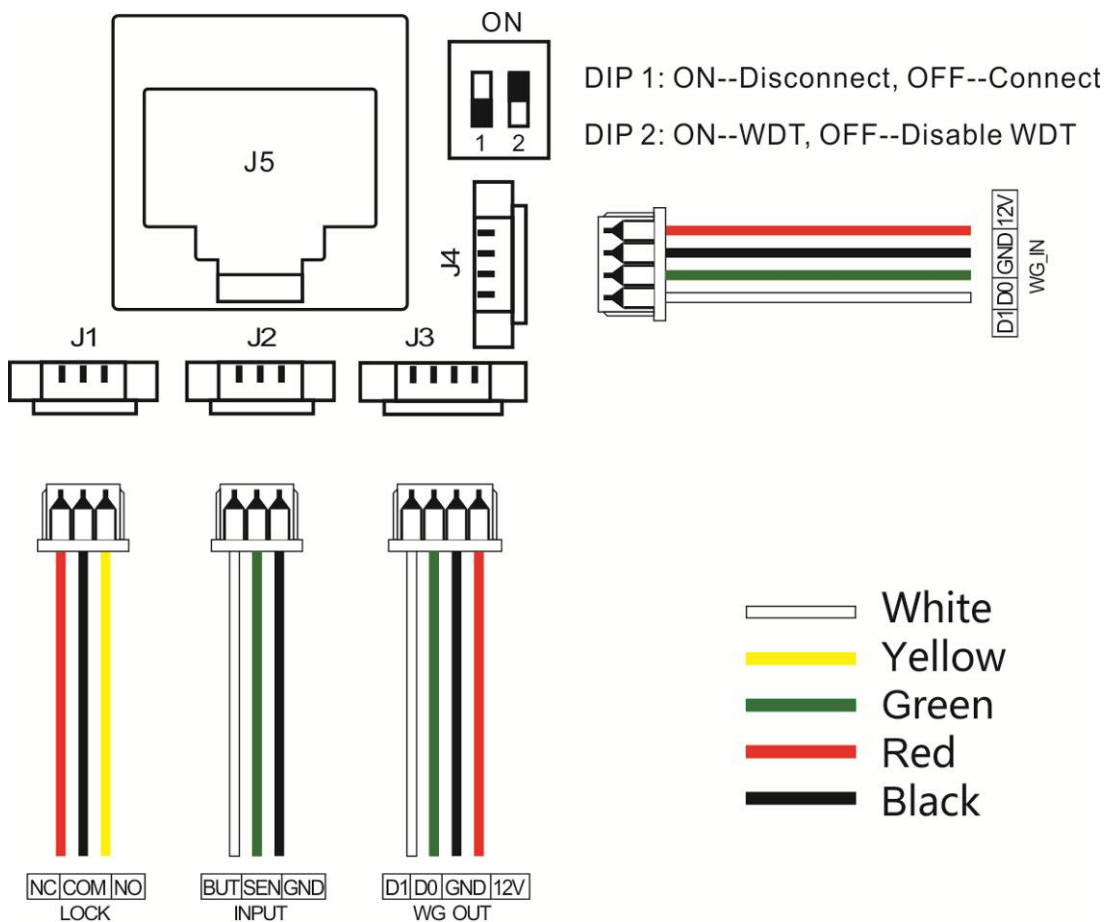


Figure 2-2 FPC1001 Back

Connector	No.	Symbol	Description	Connector	No.	Symbol	Description
J1	1	NC	Relay, Lock	J2	4	BUT	Exit Button
	2	COM			5	SEN	Door Sensor
	3	NO			6	GND	Ground
J3	7	D1_Out	Wiegand_Out	J4	11	D1_In	Wiegand_In
	8	D0_Out			12	D0_In	
	9	GND			13	GND	
	10	+12V			14	+12V	
J5			TCP/IP, POE	J6			RS232, Reserved

Sheet 2-1



**J1: Relay output**

- ✓ NC: Normal Closed
- ✓ COM: Common

NC: Normal Closed

Choose matched terminal for different electronic lock.

**J2: Rex Button, Door Sensor input**

- ✓ BUT: Rex Button,
- ✓ SEN: Door contact
- ✓ GND: Ground

**J2: Relay output**

- ✓ Based on customized lock model and power requirement.

**J3: Wiegand Output**

- ✓ D1\_Out : Data 1 of Wiegand Output
- ✓ D0\_Out : Data 1 of Wiegand Output
- ✓ GND: Ground
- ✓ +12V: 12Vdc

**J4: Wiegand Input**

- ✓ D1\_In : Data 1 of Wiegand Input
- ✓ D0\_In : Data 1 of Wiegand Input
- ✓ GND: Ground
- ✓ +12V: 12Vdc

**J5: TCP/IP interface**

- ✓ Customer can set all configurations when it's connected to host PC. Moreover user authorization and exporting card events can also be done via manage software.

- ✓ To use a switch HUB or directly connect to host PC via Ethernet port.
- ✓ POE available, Power Over Ethernet

**DIP Switch:**

- ✓ DIP 1: ON---Disconnect(will not be connected to the software), OFF---Connect
- ✓ DIP 2: ON---Enable WDT(Watch Dog), OFF--- Disable WDT(Watch Dog)

Default Setting (Right picture):

- ✓ DIP 1: OFF---Connect, will be connected to the software
- ✓ DIP 2: ON---Enable WDT(Watch Dog), More stable



**2.3 Wiring Diagram**

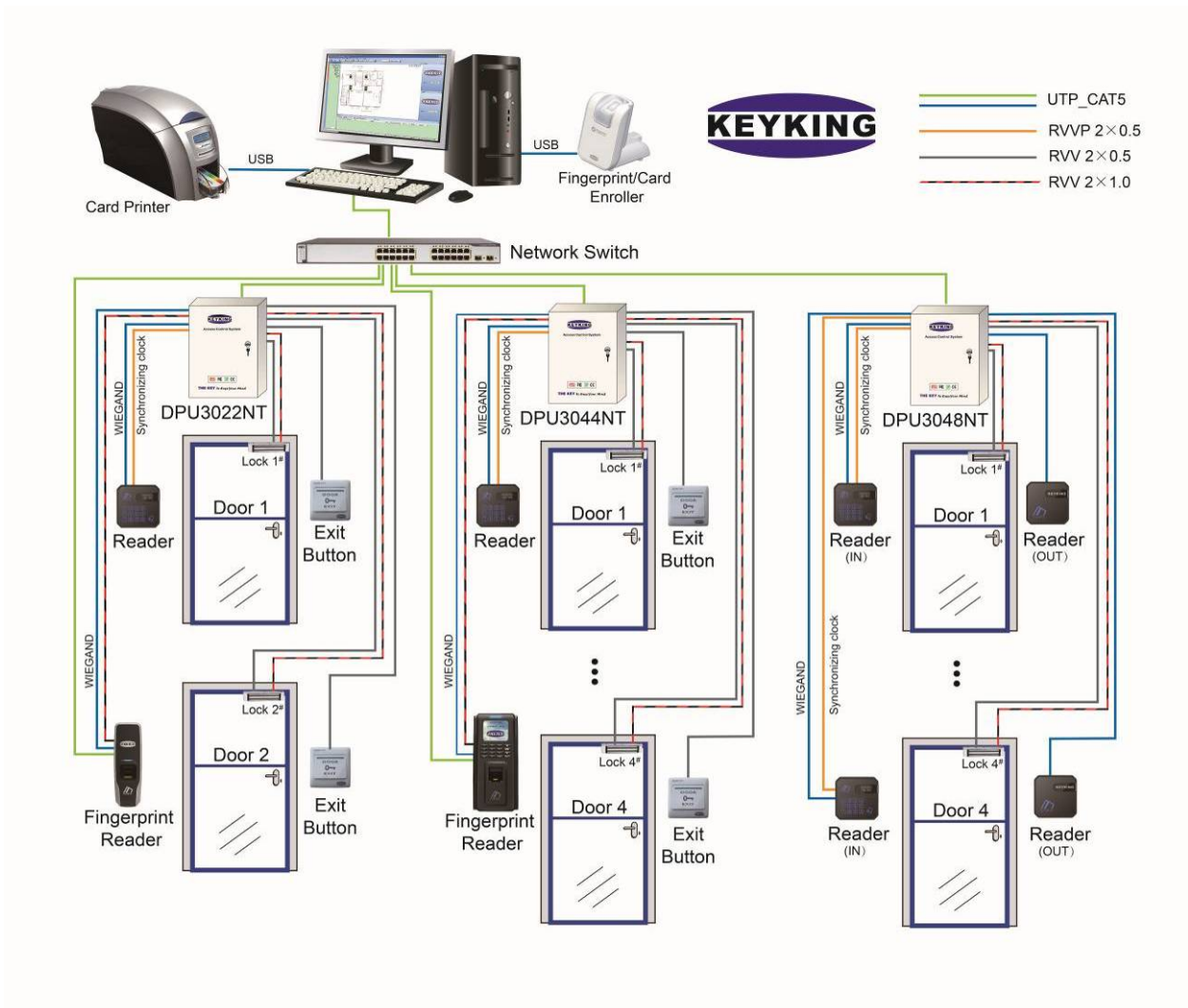


Figure 2-2 FPC1001 work as a fingerprint reader only.

Note:

1. **Separated Power for FPC1001:** Use a separated RVV2\*1.0 wire as the power cable from controller or a separated power supply. And connect the GND together once you use a separated power for panel and

FPC1001. Do not use the UTP\_CAT5 as the power cable for FPC1001, do not get the power from reader socket of panel directly.

- Reader Fuse - 135mA only:** If you get the power from panel, please connect to the power input connector directly, do not connect to the reader socket directly. Otherwise the current will exceed the fuse limitation, and the FPC1001 will not work.

## 2.4 Lock Wiring Diagram

### J1: Relay Output (Lock Control)

As shown below.

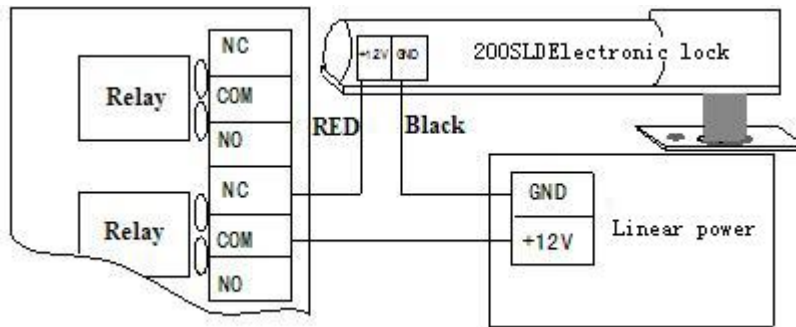


Figure 2-5 Electronic Strike Lock

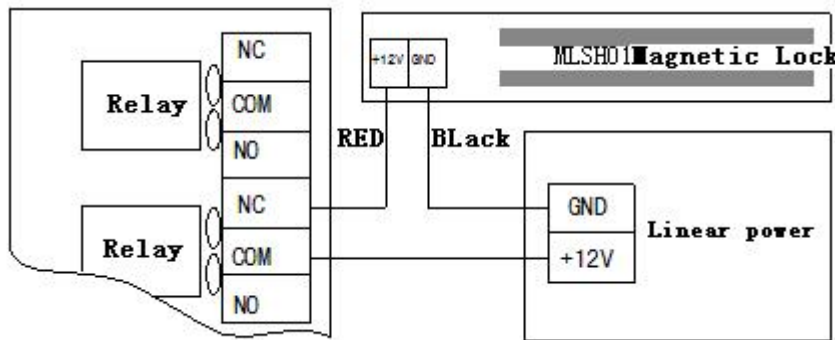


Figure 2-6 Magnetic Lock (Fail safe)

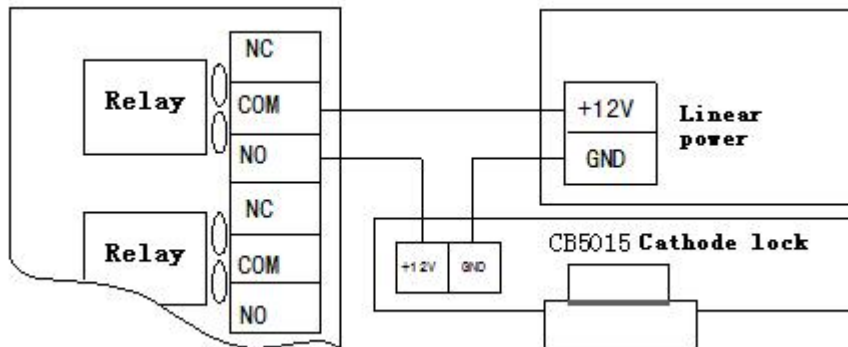


Figure 2-7 Cathode lock (Fail secure)

## 2.5 TCP/IP Network

FPC2000 TCP/IP network

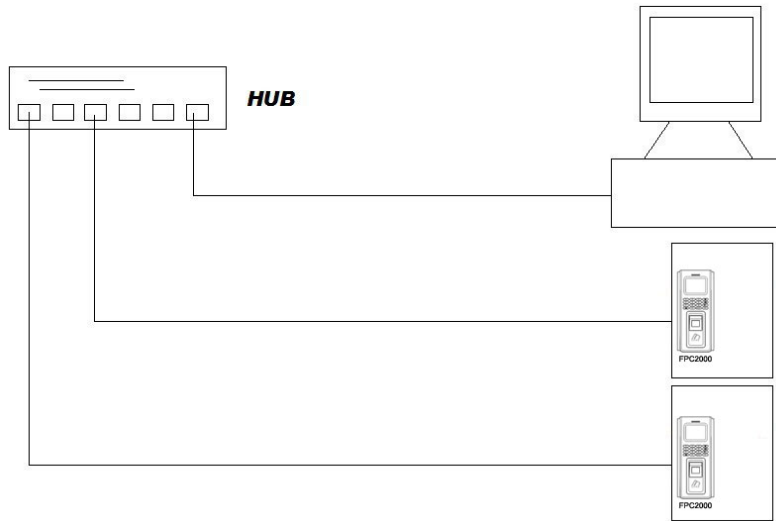


Figure 2-8

TCP/IP crystal head

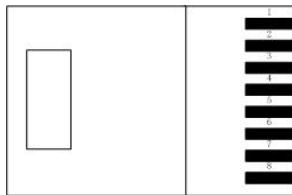


Figure 2-9

RJ45 NO.	Definition
1	TX+
2	TX-
3	RX+
6	RX-

Figure 2-2

Normal net cable (to switch)

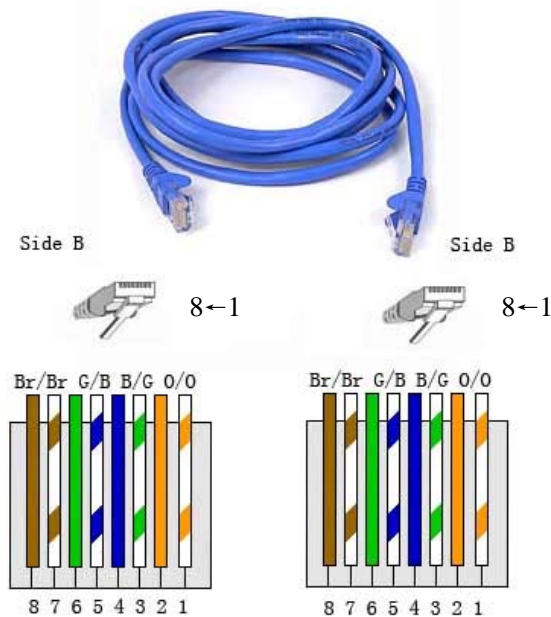


Figure 2-10

Crossed cable (to PC)

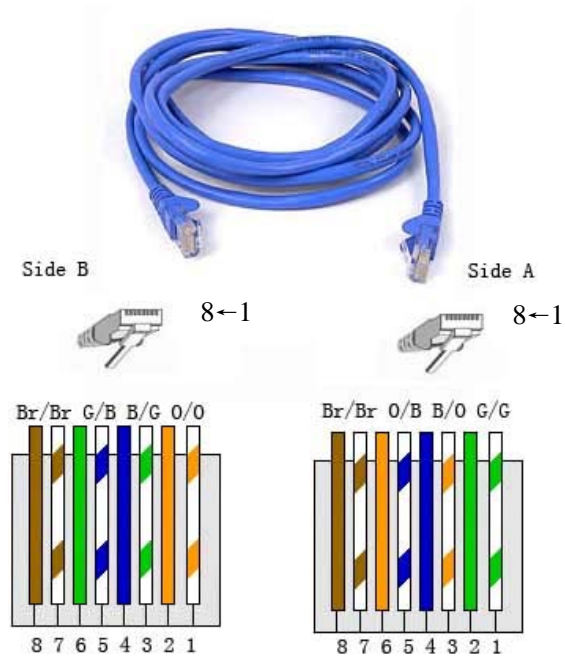


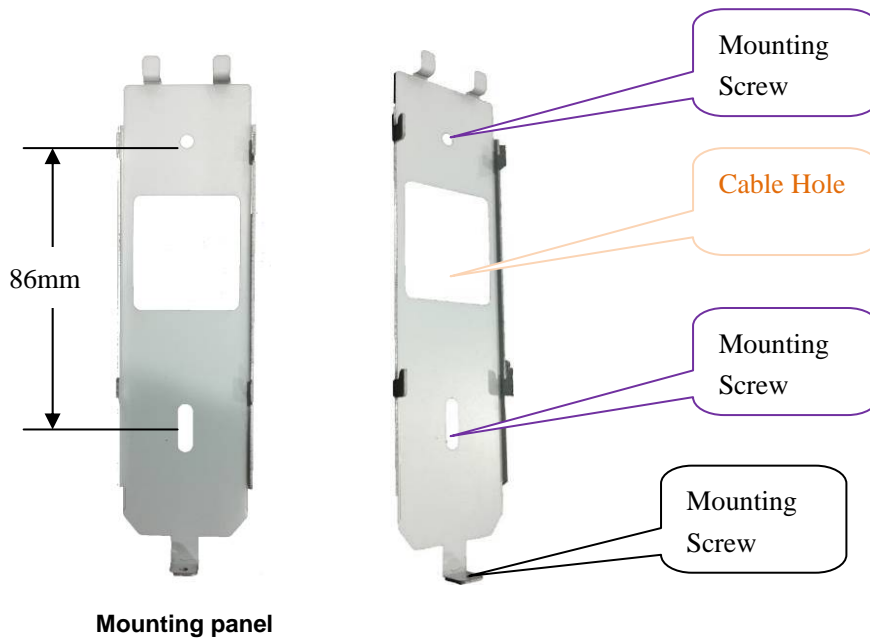
Figure 2-11



## Chapter 3 Mounting

### 3.1 Install FPC1001 on the Door Frame

1. Hole for cable: Drill a hole on the door frame for cable out (size:28x26mm) where you want to install your reader.
2. Mounting "Mounting Panel" on frame with 2 screws.
3. Wiring: Design the wiring between reader and controller, then process wiring.
4. Connection: Please refer to chapter 2 of the connections.
5. Mounting FPC1001.



## Chapter 4 Operation in Sphinx

### 4.1 Select FPC1000 Series

1. Select "KEYKING FPC1000 Series" in "Setup / Communication / Fingerprint" of Sphinx.

### 4.2 Search & Config FPC1000

1. Click "NT" to search FPC1000.
2. Save it when you see it in the controller list.

### 4.3 Enrolling finger for user

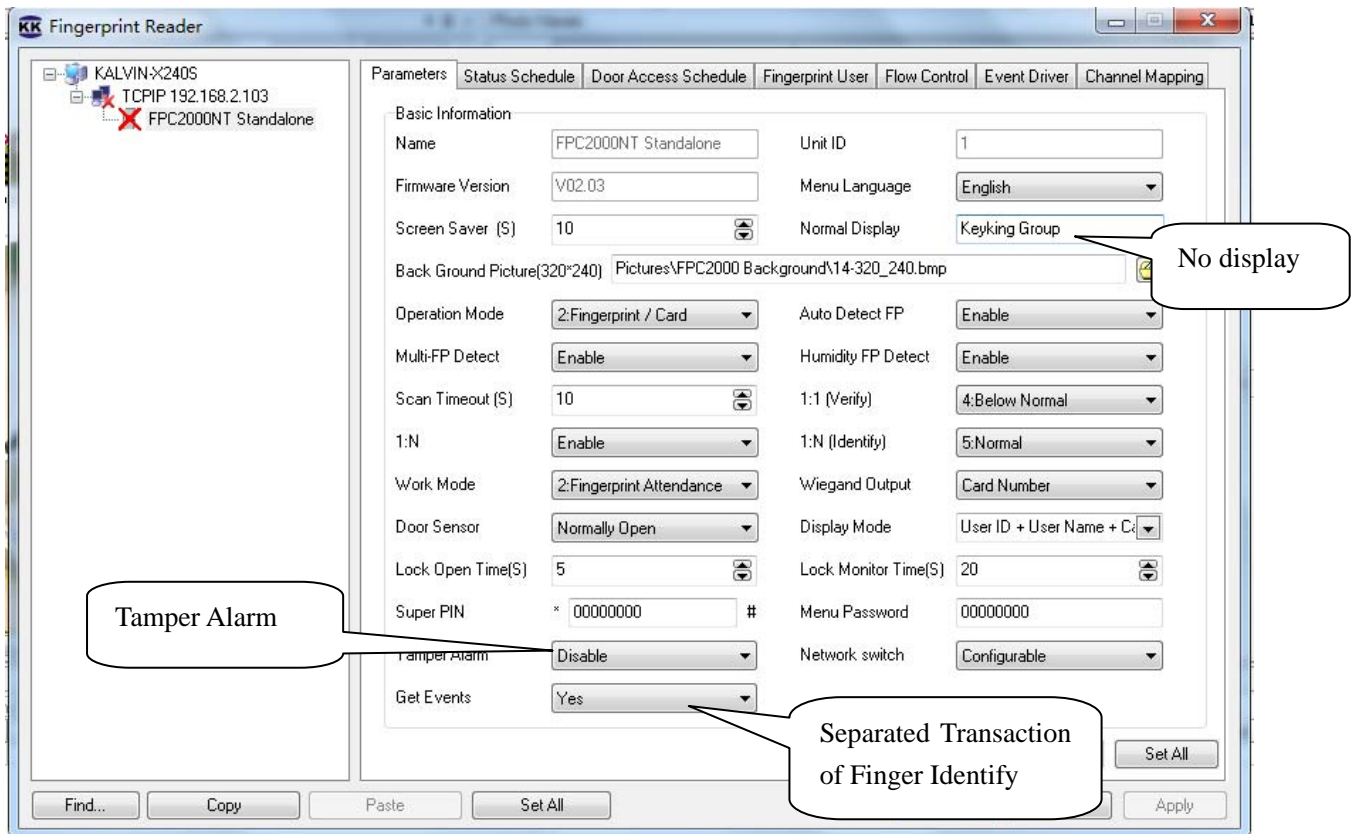
1. Enrolling fingerprint through the FPC1001 in "personnel information / Fingerprint".
2. **Admin User:** Setup at least one user as a "Admin", then somebody else can not access the menu to manage it. If you did not setup any "Admin User", everybody can manage FPC2000 to add user or something else.

### 4.4 Transfer to FPC1001 terminal

1. Select these FPC1001 you would like to download.

### 4.5 FPC1001 setting

Select these FPC1001 you would like to setup. While you setup FPC1001, please make sure it is online.



Here you can change the Company name and everything.  
When you click Apply, then done.

## Chapter 5 FAQ

NO	Descriptions	Solution
1	No response for flashing (indicator off, buzzer no beeping)	<ul style="list-style-type: none"> <li>● Power problem (check power supply)</li> <li>● Invalid card type (use supported card)</li> </ul>
2	Door stays opened	<ul style="list-style-type: none"> <li>● Set short relay responding time in manage menu</li> </ul>
3	FP or card information missing	<ul style="list-style-type: none"> <li>● Register FP/Card in PC.(Connect to PC first)</li> </ul>
4	Can not open door by flashing card or FP.	<ul style="list-style-type: none"> <li>● Device not power up (FPC1001, Lock)</li> <li>● Invalid card/FP (register your card/FP)</li> <li>● Door open mode (Set to Card or Card / FP)</li> </ul>
5	Can not open the door when it's Card+FP mode	<ul style="list-style-type: none"> <li>● Invalid card (register your card)</li> <li>● Invalid FP (register your FP)</li> <li>● Over interval time between flash card and verify FP.</li> </ul>
6	Door bell not working	<ul style="list-style-type: none"> <li>● No connected door bells</li> <li>● Cable problem</li> <li>● Faulty door bells</li> </ul>
7	Wrong Time/Date	<ul style="list-style-type: none"> <li>● Set Time/Date in manage menu.</li> </ul>