

# ***Fingerprint and EM Proximity Card***

## *Access Control Terminal Installation Guide*



*Please refer to this manual prior to installation*

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## Introduction

This manual will guide you the installation of the Access Control Terminal. The specification of this product is also listed. Also, the simple operation of the machine will be shown step by step. The access control terminal is compact in size and can be connected to the controller as a reader.

## Product Overview and Features

The Fingerprint and EM Proximity Card Access Control system is one of the newest innovations in cutting edge access control technology. With its built-in 32bit DSP processor and high capacity memory storage, this terminal can create and store 500 unique user tags, fingerprints and PIN combinations simultaneously.

This Access Control Terminal supports Fingerprint, EM Proximity Card and PIN verification. Its features of Door Status Indicator, Tamper Alarm, Door Release, Wiegand Output Format and other security measures will make your premises (property, assets?) safe and secured.

Compatible with fail-safe and fail-secure locks which make it flexible to use in any situation. It can store up to 80,000 records. We can use computer to connect to it through RS485 or USB connection. The inside menu allows you to manage the machine such as enrolment of new user, setting of maximum of 8 access time zones and so on.

Figure 1. Backside Jumper

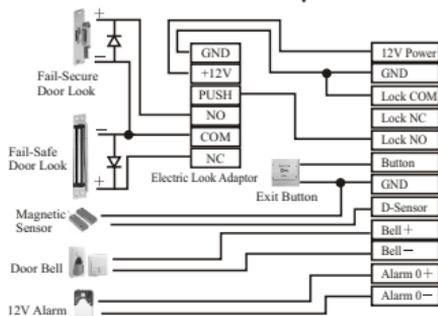
+12V Power	Power Input	+12V Power	Power Input
GND	Ground	GND	Ground
Lock COM	Door Lock Common	WG-OUT 0	Wiegand Output -
Lock NC	Door Lock (Normal Close)	WG-OUT 1	Wiegand Output +
Lock NO	Door Lock (Normal Open)	RS485A	RS485 Interface +
Button	Exit Button	RS485B	RS485 Interface -
GND	Ground		
D-Sensor	Door Sensor Input		
Bell+	Bell Interface +		
Bell-	Bell Interface -		
Alarm0 +	Alarm Output +		
Alarm0 -	Alarm Output -		

## Installation

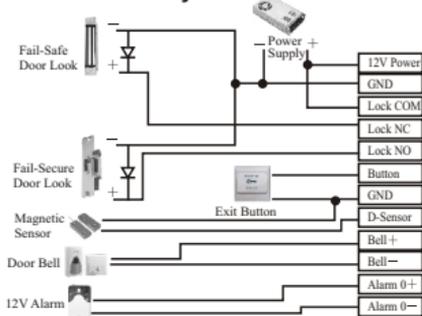
1. In the wall, drill holes according to the holes of the back metal plate.
2. Mount the back plate and the waterproof pad onto wall by 4 screws.
3. Connect communication cables to the Access Control Terminal with care, insulate the unused cable against short circuit.
4. Assembling the front panel and bind it with the rear panel by 2 screws.

## Circuit Diagram

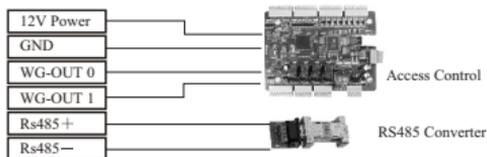
### Access Control terminal connected to different access control components



### Access Control Terminal connected to electric lock directly



### Access control Terminal connected to controller and Rs485 converter.



## Administrator Operation

### 1. Access the terminal with administrator mode.

Press **\*** and then input ID no. (default is 0) with a key of **#**. Input 8 digit PIN (default is 88888888) OR administrator fingerprint OR Administrator EM card.

Red light bulb would be on which indicates that terminal is running on administrator mode. The following is an example of accessing the terminal by using password.

\*0#88888888

**Note: Once an administrator ID has been set up, this #0 administrator ID will be voided.**

In case of losing existing administrator, open back panel of the access control terminal to let the tamper alarm fire. This action would reset and restore the administrator ID to #0.

To exit administrator mode, return to standby mode by pressing **\*** or leaving terminal idle for 30 seconds. In administrator mode, we can do the management of users and the machine itself.

### 2. Registering new user

The registration can be done by either using auto assigned user id or by specifying an user id.

#### Method of Auto Assigned User ID:

Press **1** then swipe finger 1 twice on fingerprint sensor OR register with EM card OR input 8 digit PIN with a final key of **#**

After the key **#**, you can continue to enrol the next user by pressing fingerprint. This time, you do not need to input the key **1**.

One user can have maximum of 3 fingerprints. If you want to register backup fingerprints (2nd and 3rd), you can continue to punch other fingerprints twice before the key **#**.

**Note: Each user can register with maximum of 3 different fingerprints, 1 EM card, an 8 digit PIN. Press **#** to exit each new ID registry and proceed to next new ID registry, finally, press **#** to exit all registration process.**

#### **Method of Manual key in User ID:**

Press **1** Input desired ID number swipe finger **1** twice on fingerprint sensor OR register with EM card OR enter 8 digit PIN. Then press **#** to finish this user. Register next user with desired ID number by repeating the above process. Be reminded that you do not need to input the key **1** again.

If you want to register backup fingerprints (2nd and 3rd), you can continue to punch other fingerprints twice before the key **#**.

Finally, press again **#** to leave the enrolment.

**Note: Range of ID number is 1-99999 (maximum of 5 digits), when ID number duplicates, access control terminal will alert the error and you just re-enter a different user ID.**

**Note: If we register by method of manual and then do the registration by auto mode, the auto-assigned ID number will follow the previous registered ID number by increment of one each time.**

#### **3. Registering Administrators:**

Press **1** and then **\***. Either input ID no. or skip manual input to auto-assign. After that, swipe finger twice on fingerprint sensor OR register with EM card OR input 8 digit PIN. Press **#** to finish the current administrator.

If you want to register backup fingerprints (2nd and 3rd), you can continue to punch other fingerprints twice before the key **#**.

Repeat the above process to add additional administrator ID but no need the first key **1**. Finally, press **#** to EXIT.

**Note: Before assigning new administrator ID, pressing **\*** will cause the green and red light on simultaneously. It indicates the registration of an administrator ID.**

#### **4. Deleting Users:**

##### **Auto-search User ID for deletion:**

Press **2** then verify with fingerprint OR EM card. The corresponding user id will be searched and deleted. Press **#** to leave the delete mode.

##### **Manual Input User ID for deletion:**

Press **2** then input User ID with **#**. Either input another user id with **#** for deletion or **#** to leave the delete mode.

##### **Delete all:**

Press **2** and then press **0000#**. Finally, press **#** to leave the delete mode.

**Note: Prudence is required before performing this action. It is because this action will delete all registered user ID and their respective credentials.**

#### **5. Assigning Terminal no. (factory default is 1):**

Press **3** then **1-255** then **#**.

**Note:** Terminal number is the identification number when the Access Control Terminal is linked to a computer via 485 or USB. In Wiegand output, it is also used as a part of card number sending to the controller. It is merged with the fingerprint ID to form a virtual card number.

E.g. Terminal no. 1 merges with fingerprint ID 1234 to form the Virtual Card no of 1,1234.

#### 6. Unlocking Time setting (Factory default 5 seconds):

Press **4** then **0-255** then **#**.

**Note:** When the unlock time is set to 1 second, the actual time needed is 50 milliseconds, which is the time needed for gate control. (1 second = 1000 milliseconds)

**Note:** When set to 0 seconds, locks control will remain connected between NC and COM. Once an approved identification has been verified, locks control of NC and COM will disconnect and conversely the NO and COM will connect. Locks control will remain in the same state until the next approved verification. In the next verification, the opposite happens. NO and COM will be disconnected while NC and COM will be connected.

#### 7. Door Open Delay Setting (Factory Default 0 second):

Press **5** then **0-255** then **#**.

**Note:** If the door is opened and the opening status last for the predefined seconds without closing, the internal buzzer will fire. If it is set to 0, the terminal will ignore the magnetic door sensor.

#### 8. Forced Entry Alarm Settings (Factory Default 0 second):

Press **6** then **0-255** then **#**.

**Note:** When forced entry is detected and last for the predefined seconds, both internal buzzer and external alarm will fire. If the period is set to zero, the terminal will ignore the door sensor.

#### 9. Wiegand 26 Format (Factory Default):

Press **7** then **26** then **#**.

#### 10. Wiegand 34 Format:

Press **7** then **34** then **#**.

**Note:** If a user has EM card registration, the Wiegand out will use the EM card. If not, the Wiegand output will use terminal number and user id as the card number.

#### 11. Purging administrator rights OR system reset:

Press **8 1 #** to convert all administrator ID to basic user ID.

Press **8 2 #** for system reset to factory default. It will delete all enrolments and in out records.

## User Operation

#### Fingerprint Access:

Swipe registered finger onto fingerprint sensor, door will be opened if verification succeeds.

#### EM card Access:

Present EM card to terminal's card sensor in close proximity (approx. 2 inches), door will be opened if verification succeeds.

#### PIN Access:

Input **ID no.** , followed by the key “#” . Then, input **8 digit PIN** , door will be opened if PIN verification succeeds.

### Alarm deactivation

When External alarm and Internal Buzzer fire simultaneously, disarm it by verification of **registered finger print** OR **EM card** OR **input registered ID no.** and key “#” and **input PIN** .

When alarm of closing door is fired, disarm it by verification of **registered finger print** OR **EM card** OR **input registered ID no.** and key “#” and **input PIN** .

## LED Indication

Operation status	Colour of Indicator	Fingerprint Sensor	Buzzer
Standby Mode	Red light slow flashes	Grey	
Successful key pressing	Green light flash once		dik
Admin Mode	Red light on	Grey	dik,dik,dik
Registration Mode	Red light on	Lighted	
Registration for administrator	Both red and green light on	Lighted	
Operation error	Red light flash		dik dik
Open door	Green light flash		dik,dik,dik
Alarm	Red light quick flash		Alarm sound
System reset	Green light on	Grey	Long ring

## Connection with Computer

The Access Control Terminal can be connected to a PC via RS485 or USB cable. After connection, you can manage the user, in out transactions, access time zone and attendance.

**Note: The time of the terminal can be synchronized by the computer. It is suggested to do so at the first time and at certain time interval (e.g. 7 days).**

## Appendix

### 1. Specifications for RS-485 cable:

Always use shielded twisted pair cable with a diameter which is no less than 0.3mm. The maximum length of a segment must not exceed 800 metres.

The used cable should be away from high-voltage electric wires. It is better to avoid laying wires parallel to power cable and never bind them together.

Do not connect wires to star network or branch network. Connect them in loop mode.

A RS-485 repeater must be installed if the no. of controllers exceeds 30, or the cable length is over 500 metres.

AC-powered equipment and chassis must be properly connected to the earth. (the ground)  
The shielded layer of cable should connect to each terminal's ground in order to minimize the electrostatic interference.

Connect a 120-ohm terminator resistor between the last machine's 485A and 485B if communication is unstable.

## 2. Product Specification

Item	Value
Operating Voltage	Direct Current: 12V ± 10%
Idle current	<100mA
Relay Loading	3A
Operating Temperature	-10℃ to 50℃
Relative Humidity	20%RH - 60%RH
Fingerprint Templates	500
EM Card Templates	500
PIN Templates	500
No. of Administrator	10
In out transactions	80,000
Access Time Zone	8
Fingerprint sensor resolution	450 DPI
Fingerprint enrolment time	<1S
Fingerprint verification time	<1S
False Acceptance Rate	<0.0001%
False Recognition Rate	<0.01%
Dimension	145mm x 80mm x 30mm
Machine Weight	200g

## 3. Package Content

Item	Dimension	Quantity	Notes
Fingerprint Access Control Terminal		1	
Water-Proof Padding		1	
Software Disk		1	
Warranty Card		1	
Instructions Manual		1	
Safety Screw	φ 3 x 7.5mm	2	Front cover and Back cover assembly
Screwdriver		1	For safety screws
Self tapping screws	φ 4 x 25mm	4	For anchoring to wall
Plastic piston	φ 6 x 25mm	4	For anchoring to wall

