

***LCR-2000C MANUAL***

Do not make any changes or modifications to the equipment unless otherwise specified in the manual. If such changes or modifications should be made, the manufacturer's equipment warranty will be invalidated. This equipment has been tested and found to comply with the limits for a Class “  ” device, pursuant to Part “  ” of the FCC rules.

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## 1. General Descriptions

The Leema identification system consist of two basic elements: reader and the contactless card(or Tag). The reader emits a low frequency electromagnetic field via it's antenna. When a transponder passes within it's range, it is energized, causing it to transmit it's ID code back to the reader.

Since Leema transponders are completely powered by the reader, they are maintenance-free and require no batteries. Each transponder has unique ID-numbers, and this approach results in a tamper proof system suited to a broad variety of identification applications.

LCR-2000C reader is designed to proximity type, and it provides an advanced benefit than M/S type or IC type reader. Combined with internal controller, it can be purchased more cheaply and can be applied such as office room, apt, garage and etc. as an access control device. In addition it is easy to install, and serves below benefit to users.

- Reduction in the number of clerical errors in recording data.
- Adopt proximity style, provides faster data collection.

LCR-2000C makes use of the patented Leema technology, which optimises read distances and provides unprecedented system performance near metals and in areas with high levels of electromagnetic inter-fERENCE(EMI) .

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The reader is activated simply by connecting power cable. When an attempt is made to read a transponder, the reader will continuously emit power pulses until the transponder is successfully read.

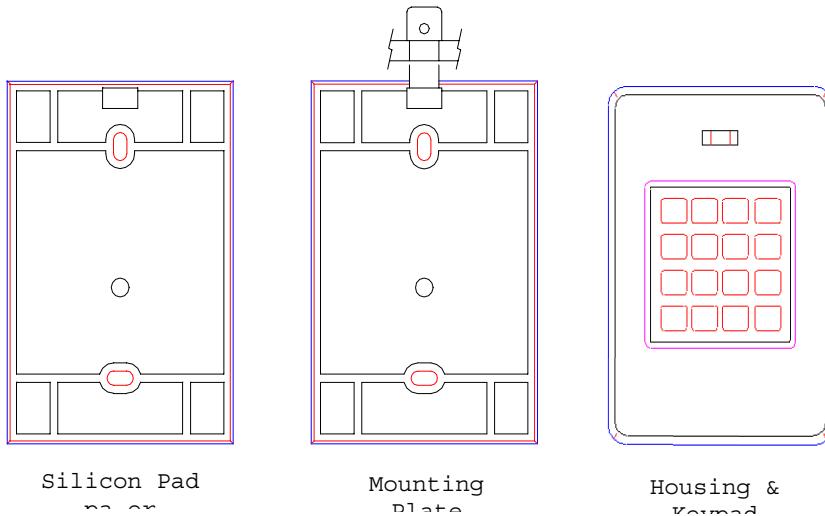
The ID number of contactless card is compared with the data which is stored in the memory of the reader, and decide whether access grant or deny. If access is granted, the door is opened and one can enter the room(or site) and if not, reader generates alarm.

○ Applications

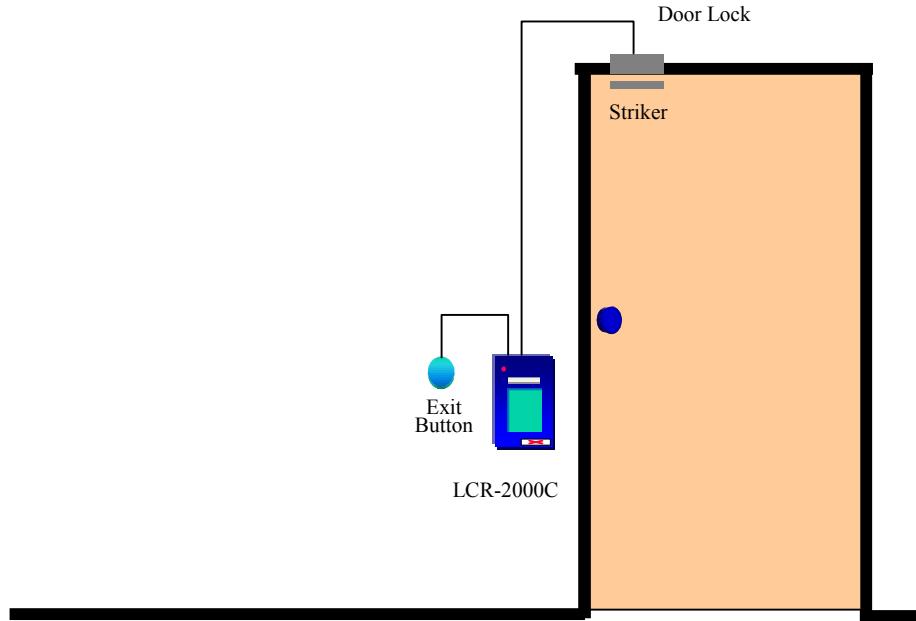
- Entry control
- Personnel Administration
- Parking system
- Restaurant System
- Logistics
- Etc...

## 2. Installation & Operation

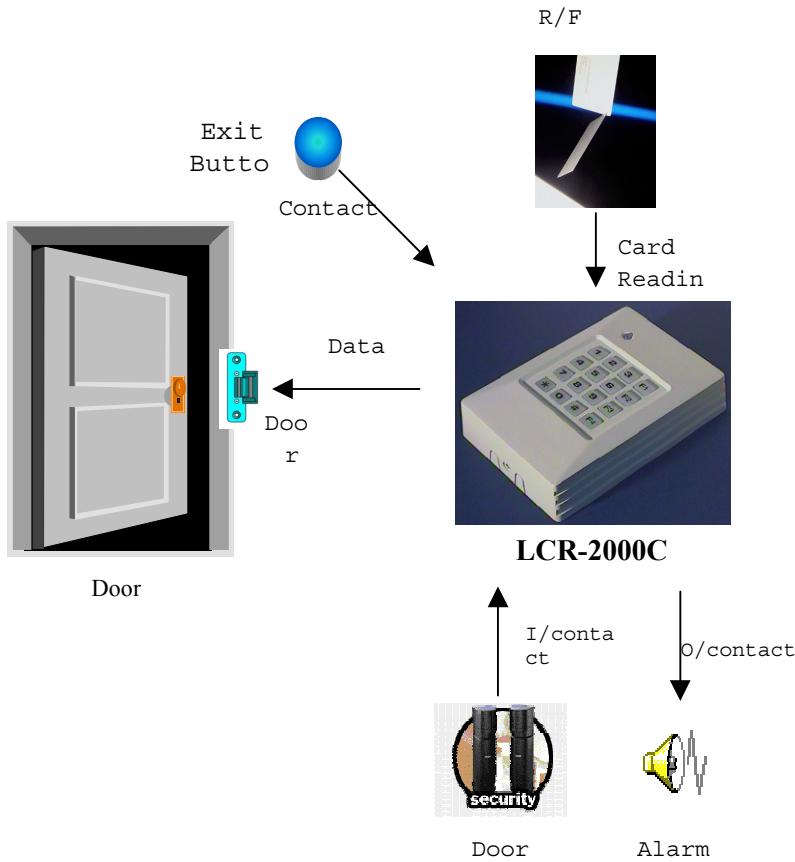
### 2.1 Part List and Block Diagram



[Figure 1] Component of LCR-2000C



[Figure 2] General Card Key System



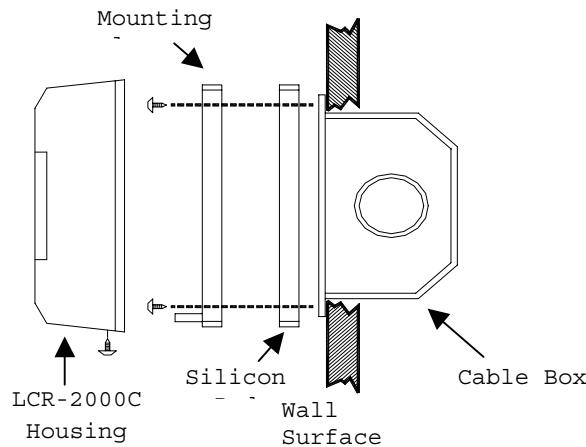
[Figure 3] Data I/O Process of LCR-2000C

## 2.2 Installing LCR-2000C

### 2.2.1 Installation Procedure

Each LCR-2000C device consist of four parts; a mounting plate, housing, and a reader, and a Silicon Pad. Reader is already attached to housing before it is packed.

1. Orient the mounting plate with the threaded insert at the bottom; attach it directly to the wall surface using anchor screw or toggle bolts. (Figure 4)



[Figure 4] Basic Installation Procedure

2. Pull cable ends through the access hole in the mounting plate(See the Table 1 and Table 2);
  - a. Connect the +(R) cable to power cable.
  - b. Connect the G(B) cable to ground.
  - c. Connect the •(R) cable to 12VC of Door Lock, and set to Normal Close.
  - d. Connect the •(Br) cable to another cable of Door Lock.
  - e. Connect the •(Bl) Cable to Door Contact.
  - f. Connect the •(P) cable to Exit Button.
  - g. Connect the •(S) cable to COM cable of ALARM device.
  - h. Be care the color, and short.
3. Attach the housing to mounting plate;
  - a. Hold the bottom end of the housing away from the mounting plate.
  - b. Insert the tab(inside top of housing) into the slots at the top of the mounting plate.
  - c. Swing the bottom of the housing toward the mounting plate.
  - d. Secure by installing the screw or bolt.
4. Apply power. The LED will flash once.

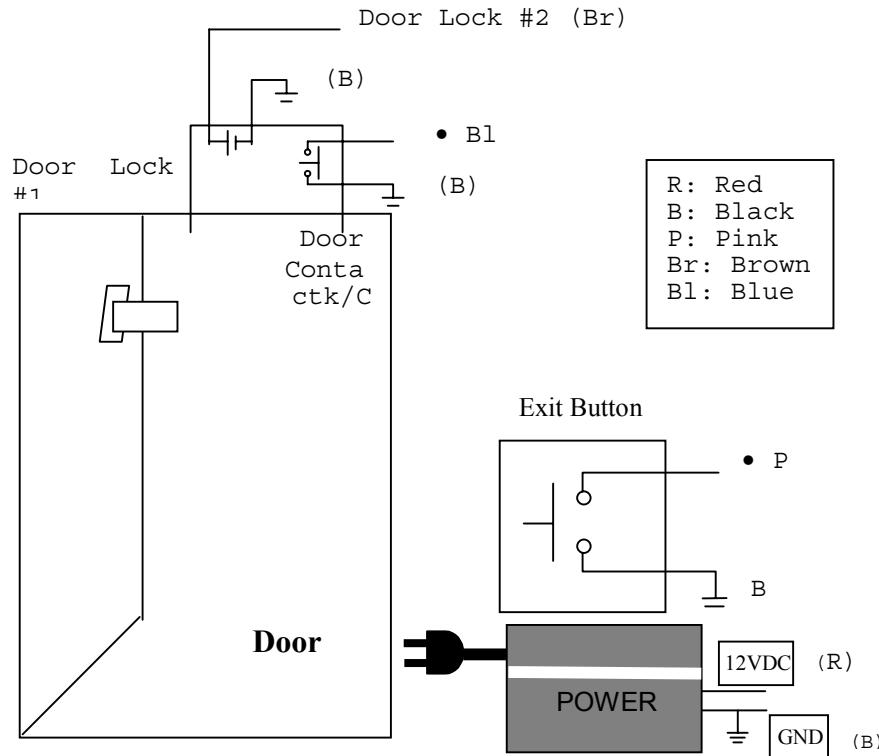
## 2.2.2 Wiring Diagram

As the [Figure 6] connect the cables. Be care the colors not to be mismatched.

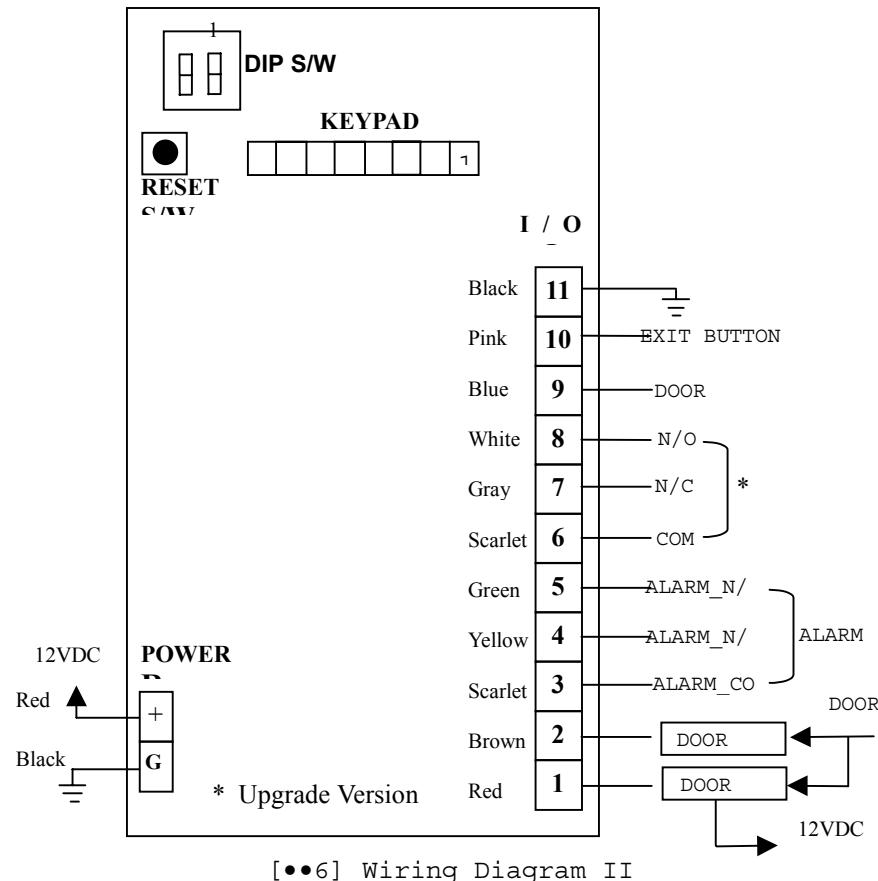
<b>Table 1 – I/O Port Cables</b>			
<b>Device</b>	<b>Cable</b>	<b>Color</b>	<b>Description</b>
Door Lock	1	Red	Door Lock +12VDC
	2	Brown	Door Lock
Alarm	3	Scarlet	Alarm, Common
	4	Yellow	Alarm, Normally Closed
	5	Green	Alarm, Normally Open
Temp	6	Scarlet	Common
	7	Gray	Normally Closed
	8	White	Normally Open
Door Contact	9	Blue	Door Contact
Exit Button	10	Pink	Exit Button Control
	11	Black	Exit Button Ground

**Table 2 – Power & Communication Cables**

Device	Cable	Color	Description
Power	+	Red	+12VDC
	G	Black	DC Power Ground



[Figure 5] Wiring Diagram I



[••6] Wiring Diagram II

## 2.2.3 Caring for your LCR-2000C reader

Your new reader is designed to give you useful service over its operating life. You should observe certain basic guidelines to assure that the reader will operate at its optimal level of performance.

- 1 The reader should not be subjected to direct contact with liquids(i.e. rain, snow, flooding etc.) and should also make sure. That the reader is not exposed to extreme heat or extreme cold(see product specification).
- 2 Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.
- 3 Carefully connect the cables as the color shown by drawing not to short or tamper.
- 4 To achieve optimal reading capability, the reader should be installed using standard cables.
- 5 Keep Clean status to avoid malfunction of reader caused by dust or etc.

Do not attempt to service this product yourself, as opening or removing covers may expose you to dangerous voltage points or other risks. Refer all servicing to service personnel.

### 3. Features & Functions

- Reading Card without Contact

LCR-2000C adopt proximity technology, therefore user just approach the card within 15cm range to reader. Then reader compare the ID of the card with the data which is stored memory of the reader and decide whether access is granted or denied.

- Entry Control

LCR-2000C has internal controller and can be used standalone mode. It can be stored up to 1,360 ID numbers.

- ID Registration & Deleting

With keypad and card operator can register or delete up to 1,360 ID numbers.

- Operation Environment Setting

With keypad operator can set or modify password, operation mode(Card Mode or Open Mode), and door open delay time etc.

- Door Lock Control

If someone trying to enter using contactless card, if the ID number is registered, reader release the door lock and door is opened. If the ID number is not registered, door lock is not released and reader generates alarm through beep sound and red LED emitting.

- **Door Open Without Card**  
The door is opened without card reading by KEYIN the secret number.
- **EXIT BUTTON**  
When a man want to go out, one can easily open the door just push exit button. And if there is any visitor, operator can open the door using exit button.
- **DOOR CONTACT**  
Door contact always checking door status if the door is opened or not. And if the door is opened without granted card reading, be opened over time setting, or door contact is fail to meet the fit, the reader generates alarm.
- **TAMPER**  
Unauthorized reader housing open or to be damaged, the reader generates alarm.
- **ALARM**  
The reader generates alarm when the abnormal situation is occurred, such as someone is trying to open the door by force and arms, or holding door, or the reader is damaged.
- **DISPLAY THE OPERATION MODE**  
The reader display the current status through LED & beep sound.
- **COMMUNICATION**  
The LCR-2000C reader is capable of communicating with an

external controller or host computer through an RS-232C or RS-485 data port. This port allows the external controller and computer to transfer ID numbers to and from the reader, as well as remotely control many facets of reader operation.

## 4. Operating LCR-2000C

### 4.1 Basic Operation

#### 4.1.1 Access with Contactless Card

- Normally just red LED of the reader is emitted.
- When the card is approached within 15cm range to reader. Then the reader compare the ID of the card with the data which is stored memory of the reader and if access is granted, beep sound(50msec) is generated and LED is changed green from red (500msec) once and again changed to red and the door is opened. If the access is denied, beep sound is generated and yellow LED is flashed 3 times for 50msec period.

#### 4.1.2 Access Using Exit Button

- When a man want to go out, one can easily open the door just push exit button. And if there is any visitor, operator can open the door using exit button.

## 4.1.3 Access Using Keypad

- After change the mode to open mode, one can enter the room. (See Chapter 4.2 Programming Procedure )

## 4.2 Programming Procedure

### 4.2.1 Configuration of Keypad



### 4.2.2 Functions at Program Mode

- Door Mode Change (Card Mode, Open Mode)
- Door Open Time Setting (0 ~ 9sec)
- Door Held Time Setting (0 ~ 9sec)
- Password Change
- ID Register & delete

### 4.2.3 Change to Program Mode

- 
- (enter the password)
- In this mode, LED color is yellow

- When change to program mode beep sound(1sec) is generated.

#### 4.2.4 Operation at Program Mode

- When operation is correctly finished beep sound(50msec) is generated and yellow LED is changed to green(500msec) and to returned to yellow(Program Mode).
- When operation is incorrectly finished, beep sound(50msec) is generated 3 times and program mode is changed to initial mode.
- When incorrect key is entered, enter the cancel button "☒" to cancel the mode, and restart the program.

#### 4.2.5 Add a Transponder by entering Transponder ID

- It can be registered up to 1,360 ID. Numeric 0 ~ 9.
- ID can be configured from 6 digit to 8 digit



0 ~ 255

0 ~ 65535

← → ← →

First 3 digit can use only the range from 0 to 255.  
Last 5 digit can use only the range from 0000 to

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The Best there is

If enter incorrect ID, the ID can not be registered, and program mode is changed to initial mode.

Ex) Correctly entered ID number



Ex) Incorrectly entered ID number



\* Must be used 6 digit to 8 digit.



\* First 3 digit is over 255.

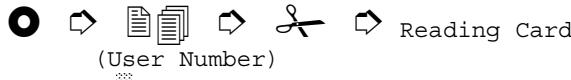


\* Last 5 digit is over 65535.

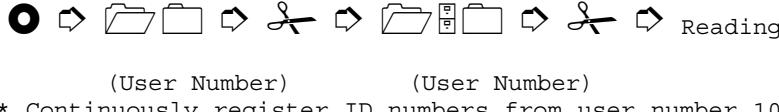
- Each ID number is stored in the user defined address(1-1360) it is called user number
- When ID number is normally entered, beep sound is generated and, green LED is flashed.
- ID entering method 1 : Register only one transponder



(Card ID)



- ID entering method 2 : Register a range of transponder



Card

\* Continuously register ID numbers from user number 10 to 150.

#### 4.2.6 Delete a Transponder

- Choice one of which ID number or user number
- When ID number is normally entered, beep sound is generated and, green LED is flashed.
- ID deleting method 1 : Delete only one transponder



- ID deleting method 2 : Delete a range of transponder



\* Continuously delete ID numbers from user number 10 to 150..

## 4.2.7 Change Door Mode (Close Mode/Open Mode)

- Card Mode & Open Mode
- Card Mode Setting
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- Open Mode Setting
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- If the mode is successfully changed beep sound is generated and, green LED is flashed.

## 4.2.8 Door Open Time Setting

- Initial Open Time is set to 5sec
- Change the Time (ex: 8sec)
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## 4.2.9 Door Held Time Setting

- Initial Held Time is set to 5sec
- Change the Time (ex: 4sec)
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## 4.2.10 Change your Password

- Password is 4 digit
- Initial Password
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  - 
- Change the Password (ex: 1234 → 4321)



- If the password is successfully changed beep sound is generated and, green LED is flashed.

#### 4.2.11 Manual door open Password setting

- Password is 4 digit
- Add the Password (ex: 2580)  
A series of icons representing different functions. From left to right: a circle with a dot, a left arrow, a document, a right arrow, a pair of scissors, a left arrow, a document, a right arrow, a folder, a left arrow, a circle with a dot, and a right arrow. Below this row is another row: a document, a folder, a right arrow, a document, a right arrow, a folder, a left arrow, a circle with a dot, and a right arrow. To the right of the second row, the text '(New Password)' is written in parentheses.  
(Confirm Password)
- If the password is successfully changed beep sound is generated and, green LED is flashed.

#### 4.2.12 End the Program Mode

- If there is any key entering during 15 seconds, program mode is finished and turned to operation mode automatically.
- Finish via Key Entering  
A small icon of a key.
- Beep sound is generated and, green LED is flashed.

## 5. Trouble Shooting

### 5.1 Power Failure

When reading the cards, there is no response from the reader , the LED's at the top of the reader do not right.

⇒ Make sure the power supply.

NOTE : You must sure that the power cable is firmly mated with the reader.

### 5.2 Card Reading Error

When there is no response from the reader or show the malfunction status.

⇒ Reset the reader power(Turn off the power and turn on again) .

### 5.3 When forget the password, reset as below procedure.

1. Analysis the reader.
2. On the "Dip Switch" number 2 at the circuit which is on the back of the housing.
3. Push the "Reset Switch".
4. Off the "Dip Switch" number 2.
5. Frame the reader.
6. The password is set 1234 as the initial status.

## 6. Quality Assurance

Leema Pharmed. Inc., products are warranted to be free from defects in materials or workmanship for a period of one(1) year from the date of shipment to the customer. All warranty replacement or repair of products must be authorized by Leema Pharmed. Inc., through "Return Authorization" (RA) number. Leema shall repair or replace, at its own exclusive option, such defective products at its own expense, except for shipping and insurance charges which shall be borne by the customer.

This warranty is void in case of abuse, misuse, abnormal usage, faulty installation or repair by unauthorized persons, or if for any other reason Leema determines that the products are not operating properly as a result of causes other than poor workmanship or defective materials. This warranty does not apply to products returned to Leema without an attached RA number. All repairs are warranted to be free from defects in material or workmanship for a period of ninety(90) days from date of return shipment to the customer.

## 7. Technical Specification

Size 130 (L) X 90 (W) X 34 (H)  
Weight 150g  
Power Supply Input Power : DC12V/3A  
Operating : DC12V/5V/145Ma  
Memory Internal Memory : 4Kbyte  
External Memory : 4Kbyte  
Speed 100msec  
Reading 10cm (Max)  
I/O Input Port: 3Port (Exit Button, Door Contact, Tamper)  
Output Port: 2Port (Lock, Alarm)  
LED 2Color (Red/Green/Amber)  
Beep BUZZER  
Keypad Type 4 x 4 Matrix, Numeric 0~9, Function Key  
Frequency 125KHz/FSK  
Humidity 0 ~ 95%  
Operating -25°C ~ 70°C  
Temperature 10°C ~ 50°C  
Certified