PA240110

Multi-Function Access Control

User Manual

1. Packing List

Name	Quantity	Remarks
Digital keypad PA240110	1	
User manual	1	
Screw driver	1	
Rubber bungs	4	6*27mm, used for fixing
Self tapping screws	4	4*28mm, used for fixing
Diode	1	1N4004
Manager cards	2	Manager add card & Manager delete card

Please ensure that all the above contents are correct. If anything is missing, please report the discrepancy to your supplier.

2. Description

The PA240110 is a dual-relay access control with EM & HID 125 KHz card reader. It is suitable for mounting either indoor or outdoor in harsh environments. It is housed in a strong, sturdy and vandal proof zinc alloy electroplated structure. The electronics are fully potted so the PA240110 is waterproof and conforms to IP68.

The PA240110 supports up to 2,100 users in a card, 4-8 digits PIN, card + PIN option and additional 10 groups Duress PIN/card. The built-in card reader supports both EM & HID 125 KHz frequency cards/tags. The PA240110 has many extra features including Duress PIN/card, block enrollment, Wiegand 26-37 bits interface, and backlight keypad…etc.

These features make PA240110 an ideal choice for door access not only for small shops and domestic households but also for commercial and industrial applications such as factories, warehouses, laboratories, banks and prisons.

3. Features

> Waterproof, conforms to IP68
> Strong zinc alloy electroplated anti-vandal structure
> Dual-relay operation
> 2,100 users & 10 groups duress PIN/card
   Zone 1: up to 2,000 PIN & card holders
   Zone 2: up to 100 PIN & card holders
> Relay of both zones can be programmed for 3 modes: card, PIN, card + PIN
> Read both 125KHz EM & HID card
> PIN length: 4-8 digits
> Pulse mode, Toggle mode
> Can be worked as reader or controller
> Wiegand 26-37 input & output
> Dual-relay output for door opening, door status detecting, open door by button
> Card block enrollment

> With manager cards for adding or deleting card user easily
> Very low power consumption (25mA)
> Backlight keypad
> Light and sound of keypad can be set
> Support door bell connection (Zone 2)
> Built in light dependent resistor (LDR) for anti tamper
> Built in buzzer
> Red, yellow, green and blue LED display the working status
> 12-24V DC /12-18V AC
> Two-year warranty

4. Specifications

Operating Voltage	12-24V DC / 12-18V AC
User Capacity	2,100(Additional10 groups Duress PIN/card)
Keypad	12 keys, 3 x 4 digits
Card Type	EM & HID 125 KHz card
Card Reading Distance	3-6 cm
Active Current	≥60mA
Idle Current	≥25mA
Lock Output Load	Max 2A
Alarm Output Load	Max 20A
Operating Temperature	-20-60℃
Operating Humidity	10%-90% RH
Environment	Conforms to IP68
Adjustable Door Relay time	1-99 seconds
Adjustable Alarm Time	0-3 minutes
Wiegand Interface	Wiegand 26-37 input & output
Wiring Connections	Electric Lock, Exit Button, DOTL, External Alarm
Dimensions	L128 x W82 x H28 mm
Net Weight	600 g
Gross Weight	700 g

5. Installation

> Remove the back cover from the keypad using the supplied security screwdriver
> Drill 4 holes on the wall for the screws and 1 hole for the cable
> Fix the back cover firmly on the wall with 4 flat head screws
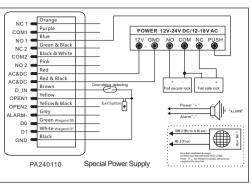> Thread the cable through the cable hole
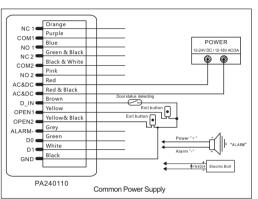> Attach the keypad to the back cover

6. Wiring

Color	Function	Description
Orange	NC 1	Relay1 NC
Purple	COM1	Relay1 COM
Blue	NO 1	Relay1 NO
Green & Black	NC 2	Relay2 NC
White & Black	COM2	Relay2 COM
Pink	NO 2	Relay2 NO
Red	AC&DC	12-24V DC / 12-18V AC Regulated Power Input
Red & Black	AC&DC	12-24V DC / 12-18V AC Regulated Power Input
Brown	D_IN	Door Status Detecting
Yellow	OPEN1	Request to Exit Button of Zone 1
Yellow& Black	OPEN2	Request to Exit Button of Zone 2
Grey	Alarm -	Alarm Negative
White	D1	Wiegand Input/Output D1
Green	D0	Wiegand Input/Output D0
Black	GND	Negative Pole

Connection Diagram

PCB connect diagram

PA240110   Special Power Supply

PA240110   Common Power Supply

Remarks:

The Zone 2, it can be used to operate the door bell when no need to operate a second door. The wiring is connecting the door bell to NO2 and COM2. Press #, the reader will send out a switching signal to the door bell, as long as you press the "#", the door bell will continuous operate, it will stop until you release the "#"

Connect the negative pole of the lock to NC is for Fail-safe lock.
Connect the negative pole of the lock to NO is for Fail-secure lock.

7. Relay Operation (Pulse Mode and Toggle Mode)

Both of the two relays on board operate in Pulse Mode (suitable for access control) or Toggle Mode (suitable for arming/disarming alarms, switching lights, machines…etc)

Every time a valid tag/card read or PIN input in Pulse Mode, the relay will operate, for the pre-set relay pulse time.

Every time a valid tag/card read or PIN input in Toggle Mode, the relay changes state, which will not turn back until read card or input PIN again.

8. To Reset to Factory Default

To reset to factory default, power off, press # , hold it and power on, release it until hear two beeps and the LED shines in orange, then read any two EM or HID cards, the LED will turn in red, means reset to factory default setting successfully. Of the two cards read, the first one is Manager Add Card, the second one is Manager Delete Card.

Remarks: Reset to factory default, the user's information is still retained.

9. Anti Tamper Alarm

The PA240110 uses a LDR (light dependent resistor) as an anti tamper alarm. If the keypad is removed from the cover then the tamper alarm will operate.

10. Sound and Light Indication

Operation status	Red Light	Green Light	Blue Light	Buzzer
Zone 1, unlock	—	Bright	—	Short Ring
Zone 2, unlock	—	—	Bright	Short Ring
Power on	Bright	—	—	Long Ring
Stand by	Shines Slowly	OFF	—	—
Press keypad	—	—	—	Short Ring
Operation successful	—	Bright	—	Long Ring
Operation failed	Bright	—	—	3 Short Rings
Enter into programming mode	Bright	OFF	—	Long Ring
In the programming mode	Bright	Bright	—	—
Exit from the programming mode	Shines Slowly	—	—	Long Ring
Alarm	Shines Quickly	—	—	Alarm

11. Detailed Programming Guide

11.1 User Settings

To enter the programming mode	* Master code # 888888 is the factory default master code
To exit from the programming mode	*
Note but to undertake the following programming the master user must be logged in	
To change the master code	0 New code # New code # The master code is any 6 digits
Setting the working mode:	
Set valid **card or PIN** users	3 1 2 # , Zone 1 / 3 2 2 # , Zone 2 Entry by card or PIN (Factory default)
Set valid **card and PIN** users	3 1 1 # , Zone 1 / 3 2 1 # , Zone 2 Entry by card and PIN
Set valid **card** users ONLY	3 1 0 # , Zone 1 / 3 2 0 # , Zone 2 Entry by card only

Note: When adding users, if the Card or PIN user has been enrolled already, you can not add it again to the same zone, or the device will give a bleep as error. But it is ok to enroll the same card or PIN for the zone 1 and zone 2

Card or PIN Mode - Factory default setting   3 1 2 # for **Zone 1** or 3 2 2 # for **Zone 2**

To add a **PIN** user	1 1 User ID number # PIN #
The PIN is any 4-8 digits between 0000-99999999 with the exception of 1234 which is reserved.	1 2 User ID # PIN # Zone 2(User ID: 2001-2100) Users can be added continuously without exiting programming mode as follows: 1 1 User ID number 1 # PIN # 1 1 User ID number 2 # PIN # Zone 1 1 2 User ID number 1 # PIN # User ID number 2 # PIN # Zone 2
To delete a **PIN** user	2 0 User ID number # Users can be deleted continuously without exiting programming mode
To change the **PIN** of a PIN user **(This step must be done out of programming mode)**	* User ID number # Old PIN # New PIN # New PIN #
To add a **card** user (Method 1) This is the fastest way to enter cards using ID number auto generation.	1 1 Read card # Zone 1 1 2 Read card # Zone 2 Cards can be added continuously without exiting programming mode
To add a **card** user (Method 2) This is the alternative way to enter cards using User ID Allocation. In this method a User ID is allocated to a card. Only one user ID can be allocated to a single card.	1 1 User ID number # Read Card # Zone 1 (User ID: 1-2000) 1 2 User ID number # Read Card # Zone 2 (User ID: 2001-2100)
To add card user (Method 3) Add a **series cards** users - **Block Enrollment** (This operation is only for Zone 1)	1 1 User ID number # Card number # Card quantity # The card number must be consecutive, card quantity is between 1-2000 (Card number must be 8 digits or 10 digits)
To delete a **card** user by card **Note:** Users can be deleted continuously without exiting from programming mode	2 0 Read Card # The devices can automatically identify the card of **Zone 1** or **Zone 2**

To delete a **card** user by user ID This option can be used when a user has lost their card	2 0 User ID number #
To delete a **card** user by Card number	2 0 User ID number # Users can be deleted continuously without exiting from programming mode
Card and PIN mode 3 1 1 # for **Zone 1** or 3 2 1 # for **Zone 2**	
To add a **card and PIN** user (The PIN is any 4-8 digits between 0000 & 99999999 with the exception of 1234 which is reserved.)	Add the card as for a card user Press * to **exit from the programming mode** Then allocate the card a PIN as follows: * Read card 1234 # PIN # PIN #
To change a **PIN** in card and PIN mode (Method 1) Note that this is done outside programming mode so the user can undertake this them selves	* Read card Old PIN # New PIN # New PIN #
To change a PIN in card and PIN mode (Method 2) Note that this is done outside programming mode so the user can undertake this themselves	* User ID number # Old PIN # New PIN # New PIN #
To delete a **Card and PIN** User just delete the card	2 0 Read Card # or 2 0 User ID number #
Card ONLY mode (3 1 0 # for **Zone 1** or 3 2 0 # for **Zone 2**)	
To add and delete a **card** user	Same as the method **Card or PIN** mode
To delete **All users**	
To delete **All users** Note that this is a **dangerous** option so use with care	2 0 0 0000 # Delete ALL users 2 1 1 0000 # Delete ALL users of **Zone 1** 2 1 2 0000 # Delete ALL users of **Zone 2**
To set card users by Manager Card (This operation is only for Zone 1)	
To add Card User by Manager Add Card	Manager add card Read user card Manager add card Cards can be added continuously.

To delete Card User by Manager Delete Card	Manager delete card Read user card Manager delete card Cards can be deleted continuously
To unlock the door	
For a **PIN** user	Enter the PIN then press #
For a **card** User	Read card
For a **card and PIN** user	Read card then enter PIN #

11. 2 Relay Setting (Pulse Mode, Toggle Mode)

Pulse mode (Factory default)	
Pulse mode (Door relay time setting)	4 1 1-99 # Zone 1 4 2 1-99 # Zone 2 The door relay time is between 1-99 seconds, the factory default setting is 5 seconds.
Toggle mode	
Toggle mode	4 1 0 # Zone 1 4 2 0 # Zone 2

12. Door Detecting, Alarm, Sound and Light Settings

Door Open Detection

Door Open Too Long (DOTL) warning. When used with an optional magnetic contact or built-in magnetic contact of the lock, if the door is opened normally, but not closed after 1 minute, the inside buzzer will beep automatically to remind people to close the door and continue for 1 minute before switching off automatically.

Door Forced Open warning. When used with an optional magnetic contact or built-in magnetic contact of the lock, if the door is opened by force, or if the door is opened after 120 seconds of the electro-mechanical lock not closed properly, the inside buzzer and alarm output will both operate. The Alarm Output time is adjustable between 0-3 minutes with the default being 1 minute.

Door open detection setting	
To disable door open detection (Factory default)	6 0 #
To enable door open detection	6 1 #
Keypad Lockout & Alarm Output Options. If read 10 invalid cards or input 10 incorrect PIN in a 10 minute period either the keypad will lockout for 10 minutes or the alarm will operate for 0-3 minutes, depending on the option selected below.	
Normal status: no keypad lockout or alarm	7 0 # (Factory default)
Keypad Lockout	7 1 #
Alarm Output	7 2 #
Light and sound setting	
To set keypad backlight	8 1 0 # To disable keypad backlight 8 1 1 # To enable keypad backlight
To set LED	8 2 0 # To disable the RED Led 8 2 1 # To enable the RED Led (Factory default)
Keypad Tone The can be set on or off. When on, the device will give the voice when press the keys; when off, the device will be in silent.	
To set	8 3 0 # To disable the keypad tone 8 3 1 # To enable the keypad tone (Factory default)
Change Zone 2 to Door Bell (When no need to operate a second door, Zone2 can be set to operate the Door Bell. The wiring is connecting the door bell to COM2 and NO2. Press #, the keypad will send the signal to the door bell	
Zone 2	8 0 0 # (Factory default)
Door bell	8 4 1 #
Alarm output time	

To set the alarm output time (0-3 minutes)	5 0-3 # (Factory default : 1 minute)
Remove the alarm	
To reset the Door Forced Open warning	Read valid card or Master Code #
To reset the Door Open Too Long warning	Close the door or Read valid card or Master Code #

13. Duress User Settings

There are 10 groups Duress PIN/card available. When input Duress PIN/card, the door will open, at the same time, the output alarm operates.

To set Duress PIN User	
To add a PIN user	1 3 user ID number # PIN # As the same method of deleting common PIN user (The ID number is any number between 2101-2110)
To delete a PIN user	
To set Duress card user	
To add a card user by read card	1 3 user ID number # Read card # (The ID number is any number between 2101-2110)
To delete a card user	As the same method of deleting common card user
To delete All Duress users Note that this is a **dangerous** option so use with care	2 3 0000 #

Note:
① User ID number must be any 4digits between 2101 - 2110
② Duress PIN/card must be unique, should be distinguished from common PIN/card (When the Duress PIN/card is the same with common PIN/card, they will become invalid in Duress, and worked as common user function)
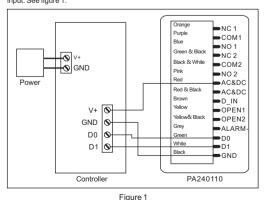
14. Wiegand Mode Setting

PA240110 supports Wiegand 26-37, both input and output. It can be used as a reader or controller

To Set Wiegand format	9 26-37 # (Factory default : Wiegand 26)

15. Interconnecting Two Devices

15.1 PA240110 operating as a Wiegand Output Reader

In this mode the PA240110 supports a Wiegand 26-37 bit output so the Wiegand data lines can be connected to any controller which supports a Wiegand 26-37 bit input. See Figure 1.

Figure 1

Transmission Format:

◆1: Keypad Transmission
The Reader will transmit the PIN data when it receives the last key (#) press after PIN code.

Format: PIN Code (any 4-8 digits between 0000 - 99999999)
Example: PIN code: 111111
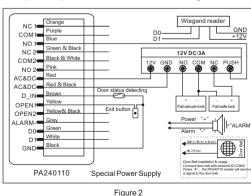Press 111111 #, then the output format will be: 0000111111
(Note: if press an invalid PIN (any 4-8 digits), the data will be also transmitted.)

◆2: Proximity Card Transmission
The Reader will transmit the card data when it reads the Card.

Format: Card Number
(Note: no matter the card is valid or invalid, the data will be transmitted)

PA240110 Quick Reference Programming Guide

To enter the programming mode	* Master code # 888888 is the default factory master code
To exit from the programming mode	*
Note but to undertake the following programming the master user must be logged in	
To change the master code	0 New code # New code # The master code can be 6 digits long

15.2 PA240110 operating as a Controller

In this mode the PA240110 supports a Wiegand 26-37 bit input so an external Wiegand device with a 26-37 bit output can be connected to the Wiegand input terminals on the PA240110. Either an ID card reader (125 KHz) or an IC card reader (13.56MHz) can be connected to the PA240110. See figure 2.

To add a **PIN** user	1 1 User ID number # PIN # Zone 1 (User ID: 1-2000) 1 2 User ID number # PIN # Zone 2 (User ID: 2001-2100) The PIN is any 4-8 digits between 0000 - 99999999 with the exception of 1234 which is reserved. Users can be added continuously without exiting programming mode
To add a **Card** user	1 1 Read card # Zone 1 1 2 Read card # Zone 2 Cards can be added continuously without exiting from programming mode
To delete a **PIN** or a **Card** user	2 0 User ID number # PIN user or 2 0 Read Card # for a card user
To unlock the door	
To unlock the door for a PIN user	Enter the PIN then press #
To unlock the door for a card user	Present the card

PA240110   Special Power Supply

Figure 2