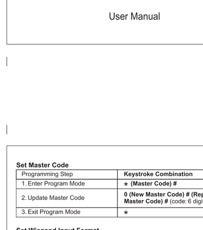
Dual-relay Control Board
Sboard-II




User Manual

## INTRODUCTION

The Sboard-II is a dual-relay door control panel, can work with any Wiegand 26~37 bits output reader. It uses Atmel microcontroller to assure stable performance, and equips with an infrared remote control and master cards for easy operation. The Sboard-II supports 2,100 users, all user data can be transferred. And it has optional function-supports Wifi communication, can remote unlock the door by phone/pad, very convenient.

### Features

> 2-relay, 2,100 users
> Multi access modes: Card, Card or PIN, Card with PIN, multi Cards/PINs, by Phone/Pad (Optional)
> Can connect with any reader with Wiegand 26~37 bits output
> Can connect with any keypad reader with 4bits, 8bits (ASCII), or 10 digits virtual number output
> Pulse mode, toggle mode
> Support Master Cards function
> Support setting Authorizing Cards
> Support setting Panic users
> Integrated door contact detection and alarm output

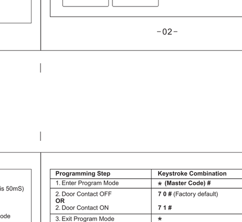
### Specifications

| | |
|---|---|
| **User Capacity**<br>Zone 1<br>Zone 2 | **2,100**<br>2,000<br>100 |
| **Operating Voltage**<br>Idle Current<br>Idle Current (With Wifi) | **12V DC**<br><30mA<br>≤100Ma |
| **Relay**<br>Adjustable Relay Output Time<br>Lock Output Load | **2**<br>1~99 Seconds (5 seconds default)<br>10 Amp Maximum |
| **Wiegand Interface**<br>Input<br>Output | <br>Wiegand 26~37 bits<br>Wiegand 26~37 bits (for user transfer) |
| **Environment**<br>Operating Temperature<br>Operating Humidity | **Indoor**<br>-40°C~60°C (-40°F~140°F)<br>0~90%RH |



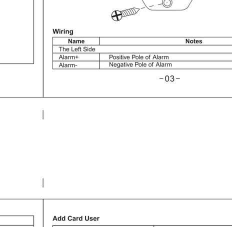
| | |
|---|---|
| **Physical**<br>Colour<br>Dimensions<br>Unit Weight<br>Shipping Weight | **ABS Shell**<br>Black<br>L100mm W86mm D26mm<br>110g<br>180g |

### Carton Inventory






## INSTALLATION




### Wiring

| Name | Notes |
|---|---|
| The Left Side | |
| Alarm+ | Positive Pole of Alarm |
| Alarm- | Negative Pole of Alarm |
| +12V | Positive Pole of Power Input |
| GND | Negative Pole of Power Input |
| D0 | Wiegand Input Data 0 |
| D1 | Wiegand Input Data 1 |
| LED 1 | Green LED Light Control of Reader 1 |
| BEEP 1 | Sound Control of Reader 1 |
| LED 2 | Green LED Light Control of Reader 2 |
| BEEP 2 | Sound Control of Reader 2 |
| The Right Side | |
| NC 1 | Normally Closed Relay Output (Install diode provided) |
| COM 1 (GND) | Negative Pole of Lock 1 (Common Connection for Relay Output) |
| NO 1 | Normally Open Relay Output (Install diode provided) |
| NC 2 | Normally Closed Relay Output (Install diode provided) |
| COM 2 (GND) | Negative Pole of Lock 2 (Common Connection for Relay Output) |
| NO 2 | Normally Open Relay Output (Install diode provided) |
| OPEN 1 | Connect to One Wire of Exit Button 1 |
| GND | Connect to One Wire of Exit Button 1 & 2 |
| OPEN 2 | Connect to One Wire of Exit Button 2 |
| GND | Negative Pole of Door Contact |
| D_IN | Door Status Detecting |

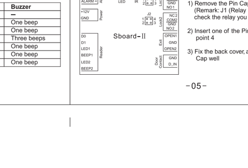


### Sound and Light Indication

| Operation Status | LED | Buzzer |
|---|---|---|
| Stand by | Red light bright | — |
| Enter into programming mode | Red light shines | One beep |
| In the programming mode | Orange light bright | One beep |
| Operation error | — | Three beeps |
| Exit from the programming mode | Red light bright | One beep |
| Open lock 1 | Green light bright | One beep |
| Open lock 2 | Blue light bright | One beep |

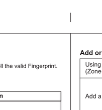


### Connection Diagram




Attention:
Install a 1N4004 or equivalent diode is needed when use a common power supply, or the controller might be damaged. (1N4004 is included in the packing)

### When Use NO/NC/COM Dry Contact Output




1) Remove the Pin Caps on points 1, 2, 3, and 4 (Remark: J1 (Relay 1) & J2 (Relay 2) , please check the relay you are using)

2) Insert one of the Pin Caps on point 1 and point 4

3) Fix the back cover, and keep the other Pin Cap well



**Remark:**
The power supply's voltage must be the same with lock's supply voltage, or else, the lock will not work properly or be damaged.

Reset to Factory Default and Master Cards Programming
To reset to factory default, power off, press the Exit Button 1 (or connect "OPEN 1" and "GND" to be short circuit), hold it and power on, there will be two beeps, and the LED light turns into orange, release the Exit Button 1 (or disconnect "OPEN 1" and "GND"), then read master cards or any 2 cards on the external reader, the LED will turn into red, means reset to factory default successfully. Of the two cards read, the 1st one is Master Card for Zone 1, the 2nd one is the Master Card for Zone 2.

**Remarks:**
① The type of the Master Cards is according to the external reader, For example: the external reader is 125KHz HID Reader, then the Master Cards must be 125KHz HID cards. The Master Cards included in the standard packing are EM cards ,if your reader is HID reader/Mifare reader, you can set another two HID/Mifare cards as Master Cards instead. The programming is same as above.
② If no Master Cards added, must press the Exit Button for at least 10 seconds before release.
③ Reset to factory default, the user's information is still retained.

## PROGRAMMING

Programming will be vary depending on access configuration. Follow the instructions according to your access configuration.

**Programming 1 ------------------------------------------------Configure the Sboard-II**

Please use the Infrared Remote Control to program the Sboard-II. The "IR" on the Sboard-II is the infrared receiving window, please direct the Remote Control to it.

### Enter and Exit Program Mode

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) #<br>(Factory default is 123456) |
| 2. Exit Program Mode | * |



### Set Master Code

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Update Master Code | 0 (New Master Code) # (Repeat New Master Code) # (code: 6 digits) |
| 3. Exit Program Mode | * |

### Set Wiegand Input Format

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Wiegand Input Bits | 8 (26~37) # (Factory default is 26 bits) |
| 3. Exit Program Mode | * |

Remark: Sboard-II can work with any Wiegand readers of 26-37 bits, please set the Sboard-II to the right Wiegand format according to your reader.

### Set PIN Input Format (For Keypad Reader)

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. PIN Input bits | 8 (4 or 8 or 10) # (Factory default is 4 bits) |
| 3. Exit Program Mode | * |

Remark: This step is only for the keypad reader. 4 means 4 bits, 8 means 8 bits (ASCII), 10 means 10 digits virtual number.

### Set Relay Configuration

The relay configuration sets the behavior of the output relay on activation.

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |



| | |
|---|---|
| 2. Pulse Mode<br>OR<br>2. Toggle Mode | 5 1 (1~99) # - Zone 1<br>5 2 (1~99) # - Zone 2<br>The relay time is 1~99 seconds. (1 is 50mS)<br>(Factory default is 5 seconds)<br>5 1 0 # - Zone 1<br>5 2 0 # - Zone 2<br>Sets the relay to ON/OFF Toggle mode |
| 3. Exit Program Mode | * |

### Set Access Mode

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Card access | 6 1 0 # - Zone 1<br>6 2 0 # - Zone 2 |
| 2. Card + PIN access | 6 1 1 # - Zone 1<br>6 2 1 # - Zone 2 |
| 2. Card or PIN access ( Factory default ) | 6 1 2 # - Zone 1<br>6 2 2 # - Zone 2 |
| 2. Multi cards/PINs access | 6 3 (2~9) # - Zone 1<br>6 4 (2~9) # - Zone 2 |
| 3. Exit Program Mode | * |

### Set Door Detecting

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 60 seconds of the electro-mechanical lock not closed properly, the inside buzzer and alarm output will both operate. The Alarm Output time is 1 minute.



| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Door Contact OFF<br>OR<br>2. Door Contact ON | 7 0 # (Factory default)<br><br>7 1 # |
| 3. Exit Program Mode | * |

### Set Strike-Out Alarm

After 10 failed access attempts in 10 minutes either the Sboard-II will deny access for 10 minutes or the alarm will operate for 1 minute, depending on the option selected below.

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Strike-Out OFF<br>OR<br>2. Strike-Out ON<br>OR<br>2. Strike-Out ON (Alarm) | 7 4 # (Factory default)<br><br>7 5 # (Access will be denied for 10 minutes)<br><br>7 6 # (Alarm time factory default is 1 minute) Enter Master code # or valid user card/PIN/ Fingerprint to silence |
| 3. Exit Program Mode | * |

**Programming 2 ------------------------------------------------------------Program Users**

**GENERAL PROGRAMMING INFORMATION**
**User ID number:** Assign a user ID to the access code in order to keep track of the users. The commonuser ID number can be any number from 1~2000 (Zone 1)and 2001~2100 (Zone 2).
**IMPORTANT:** User IDs do not have to be proceeded with any leading zeros. Recording of User ID is crical. Modifications to the user require the User ID be available.
PIN: Can be any 4~6 digits except 8888 which is reserved.



### Add Card User

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Add Card: Using Auto ID (Allows Sboard-II to assign Card to next available User ID number) | 1 (Read Card on External Reader) # - Zone 1<br>2 (Read Card on External Reader) # - Zone 2<br>Cards can be added continuously |
| 2. Add Card: Select Specific ID (Allows Master to define a specific User ID to associate the Card to) | 1 (User ID) # (Read Card on External Reader) # - Zone 1<br>2 (User ID) # (Read Card on External Reader) # - Zone 2<br>The user ID for Zone 1 is any number from 1~2000, user ID for Zone 2 is 2001~2100 |
| 2. Add Card: by Card Number | 1 (Input 8/10 digits Card number) # - Zone 1<br>2 (Input 8/10 digits Card number) # - Zone 2 |
| 2. Add Card: Block Enrollment (Allows Master to add up to 2,000 cards (Zone 1) to the Reader in a single step.) Takes 1 minutes to program | 9 ( User ID number) # (Card quantity) #<br>(The first 8/10 digits card number) #<br>Cards' number must be consecutive;<br>Card quantity = number of card to be enrolled |
| 3. Exit Program Mode | * |

### Add PIN User

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Add PIN User: | 1 ( User ID ) # ( Input PIN ) # - Zone 1<br>2 ( User ID ) # ( Input PIN ) # - Zone 2<br>The user ID is any number from 1~2000 for Zone 1, 2001~2100 for Zone 2<br>( PIN: 4~6 digits ) |
| 3. Exit Program Mode | * |



### Add Fingerprint User

For example:
Connect F2 as the Fingerprint reader to Sboard-II, two steps to enroll the valid Fingerprint:
(1) Add the Fingerprint (A) on F2
(2) Add the same Fingerprint (A) on Sboard-II as below:

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Add Fingerprint | 1 (User ID) # (Press Fingerprint A on F2) - Zone 1<br><br>2 (User ID) # (Press Fingerprint A on F2) - Zone 2 |
| 3. Exit Program Mode | * |

### Delete User Card(s) or PIN(s) or Fingerprint(s)

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Delete User - By User ID<br>OR<br>2. Delete User - By Card<br>OR<br>2. Delete User - By Card number<br>OR<br>2. Delete All User | 3 (User ID) # - Zone 1<br>4 (User ID) # - Zone 2<br><br>3 (Read Card on External Reader) # - Zone 1<br>4 (Read Card on External Reader) # - Zone 2<br><br>3 (Input 8/10 digits Card number) # - Zone 1<br>4 (Input 8/10 digits Card number) # - Zone 2<br><br>3 (Master Code) # - Zone 1<br>4 (Master Code) # - Zone 2 |
| 3. Exit Program Mode | * |



### Add or Delete User Card by Master Card

| | |
|---|---|
| Using Master Card (Zone 1) to add and delete card users of Zone 1, Master Card (Zone 2) for Zone 2, the method of programming is same. | |
| Add a User Card | 1. (Read Master Card)<br>2. (Read User Card)<br>Repeat Step 2 for additional user cards<br>3. (Read Master Card Again) |
| Delete a User Card | 1. (Read Master Card Twice in 3 seconds)<br>2. (Read User Card)<br>Repeat Step 2 for additional user cards<br>3. (Read Master Card Again) |

### Change PIN

| Programming Step | Keystroke Combination |
|---|---|
| Note: Below is done outside programming mode, users can undertake this themselves | |
| 1. Change the card associated PIN (There will auto associate PIN (8888) to cards when adding card users) | * (Read Card) (Old PIN) # (New PIN) # (Repeat New PIN) #<br>(PIN: 4~6 digits) |
| 2. Change the users' PIN | * (ID Number) # (Old PIN) # (New PIN) # (Repeat New PIN) #<br>(PIN: 4~6 digits) |
| 3. Exit Program Mode | * |

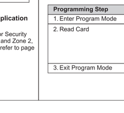
**Programming 3 -----------------------------------------------Advanced Application**

**Set Panic User**
Relay 1 connects to electric lock, Relay 2(NO2 & COM2) connects to Alarm or Security office as below figure. Then enroll same Card/PIN/Fingerprint to both Zone 1 and Zone 2, the enrolled users will be Panic Users. (The method of enrolling user, please refer to page 10 & 11.)



When people are under duress, they can use the Panic Card/PIN/Fingerprint, in this situation, the door will open, at the same time, the output alarm operates.

To delete the Panic User, should delete the user of both zones.




**SetAuthorizingCards**
Authorizing Cards are cards can set the permissions of ALL users, total 2pcs, one for Zone 1, and another for Zone 2.

Read Authorizing Card of Zone 1, the LED of Sboard-II and external reader blinks 4 times in green, all users of Zone 1 are unable to open door 1, read it again, the green LED blinks 1 time, the enrolled users can entry door as normal.
Read Authorizing Card of Zone 2, the LED of Sboard-II blinks 6 times in blue, and LED of external reader blinks 6 times in green, all users of Zone 2 are unable to open door 2, read it again, the blue LED blinks 1 time, the enrolled users can entry door as normal.

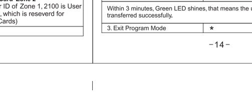
Remark: Authorizing Cards cannotbeusedtoopendoor.

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Read Card | 1 2000 # Read Card-Zone 1<br>2 2100 # Read Card- Zone 2<br>(2000 is User ID of Zone 1, 2100 is User ID of Zone 2, which is reseverd for Authorizing Cards) |
| 3. Exit Program Mode | * |



### User Information Transfer

The Sboard-II supports the User Information Transfer function, and the enrolled user (cards, PINs) can be transferred from one (let's name it Master Unit) to another (let's name it Accept Unit). Maximum 10pcs Accepts Units can be transferred once.




**Connection Diagram:**
**Remarks:**
① The Master Unit and Accept Units must be Sboard-II,or Sboard,or S1234-X.
② The Master Code of the Master Unit and the Accept Unit(s) must be set to the same.
③ Program the transfer operation on Master Unit only.
④ If the Accept Unit(s) are already with the users enrolled, it will be covered after transfer.
⑤ For full 2,100 users enrolled, the transfer takes 3 minutes.

| Programming Step | Keystroke Combination |
|---|---|
| 1. Enter Program Mode | * (Master Code) # |
| 2. Set transferring | 7 9 # |
| Within 3 minutes, Green LED shines, that means the users' information has been transferred successfully. | |
| 3. Exit Program Mode | * |