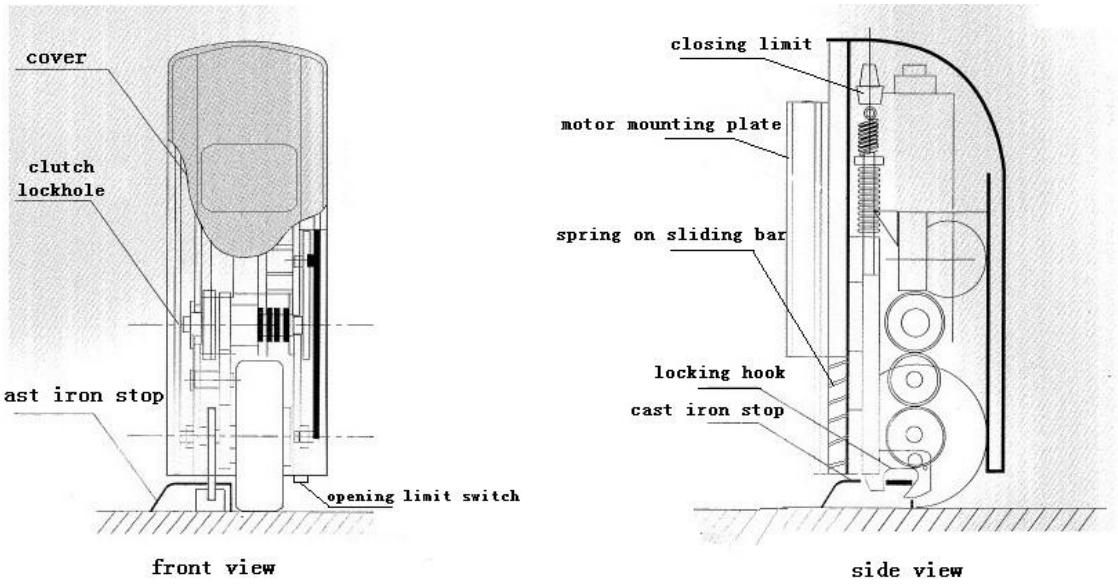
Swing Gate Operator
User's Manual

Ⅰ：Basic mechanic of SAINO SN series swing gate opener

Illustration 1: perspective internal structure of roller swing gate opener



Ⅱ: Methods to use th swing gate opener

A : Being driven by electricity

The swing gate openers can be electrically driven by pressing the buttons on the control panel.Thus the swing gate can be automatically opened ,closed or its movement be suspended.

By using the remote controller,the function of automatic opening,closing or movement suspension can also be achieved.

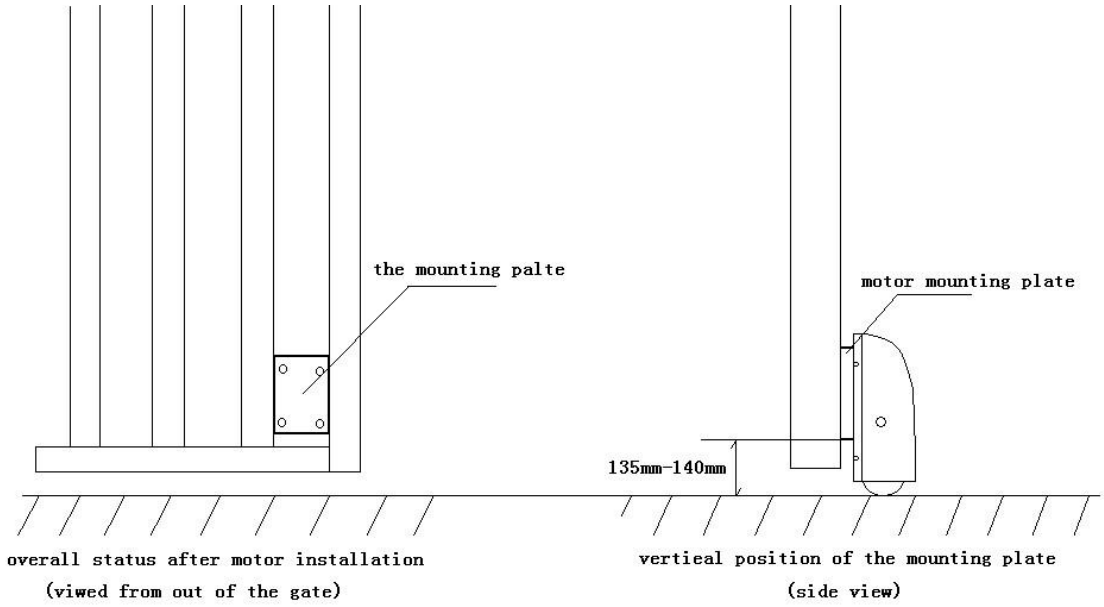
Or linked with and instructed by entry control system.

B : Manual operation

Manual opening:The user should insert the clutch key into the lock-hole and turn it clockwise,the clutch will be disengaged.Then the user can open the gate with hand.

Manual closing:The user firstly move the gate to the position nearing the cast iron stop.Then insert the clutch key into the lock-hole and turn it counterclockwise.As a result the clutch will be reengaged.Then push the gate into the fully-closed position.the clutch will be closed up automatically in the course.

Ⅲ: Installation (Illustration 2)



A : Installation of the motors

To install the motors,the mounting plates of the opener should first be mounted.
To decide the exact position for mounting the motor plate,we have to study the surface status of the ground on which the gate opener will run for operation.The overall unevenness of the ground surface should be under 8cm or the opener should be specially made.In that case,the tolerance to ground unevenness can be increased to 35cm.
Then find out and drive the gate wing to the point of the ground with the lowest position.
Put the motor plate in the position where the bottom edge of the plate is 135-140mm above the mentioned lowest point of the ground.And then fasten the plate to the gate with the bolts provided or by welding.
After the mounting plates are fixed,then the motors can be mounted on the plates.

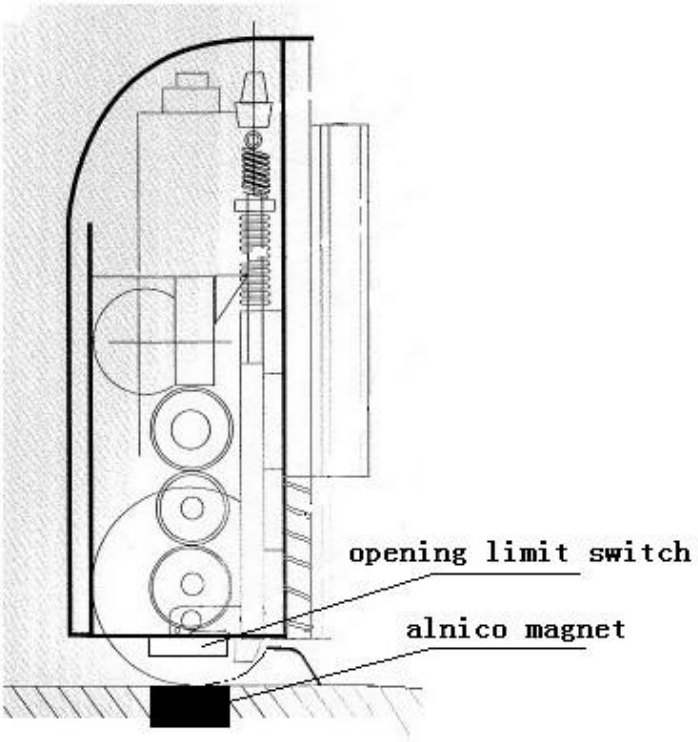
B : Installation of the cast iron stops

Move the gate to its fully-closed position,find out the position on the ground that is exactly vertically under the motor.Fasten the cast iron stop in this position.

Small tips:

1. There must be a clearance of 5-10mm between the stop and motor roller.Make sure of this by testing the gate opening and closing.
2. The two cast iron stops should not put exactly side by side.Instead one piece should be 5-10mm in front of the other.The purpose is to avoid the gate wings from bumping each other during the course of closing up.

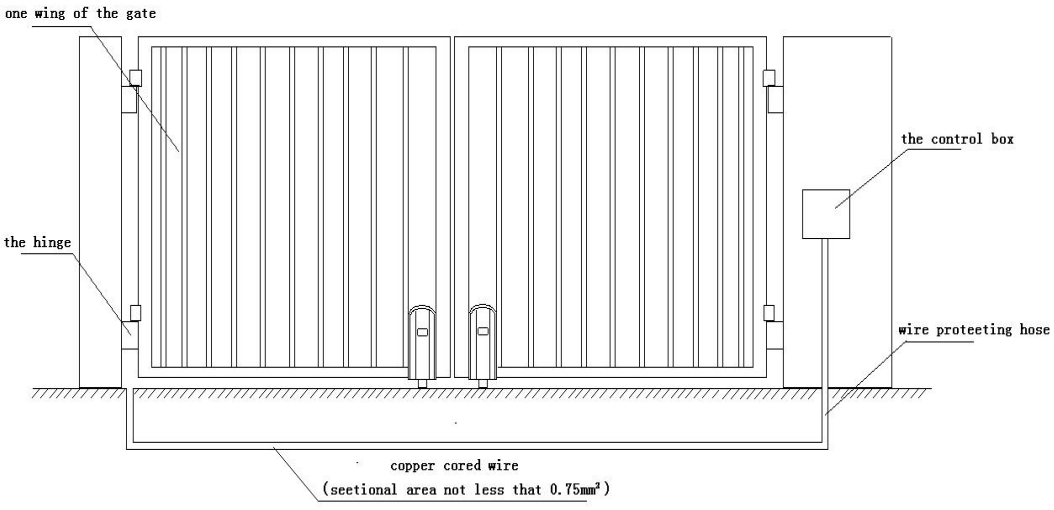
C The burial of alnico magnet



Move the gate wings to your desired opened-up position.
Then locate the opening limit switch at bottom of the motor.
Determine the point on the ground that is exactly vertically under the opening limit switch.
Then in this position of the ground bury the alnico magnet,with its upper side leveled with the ground surface.

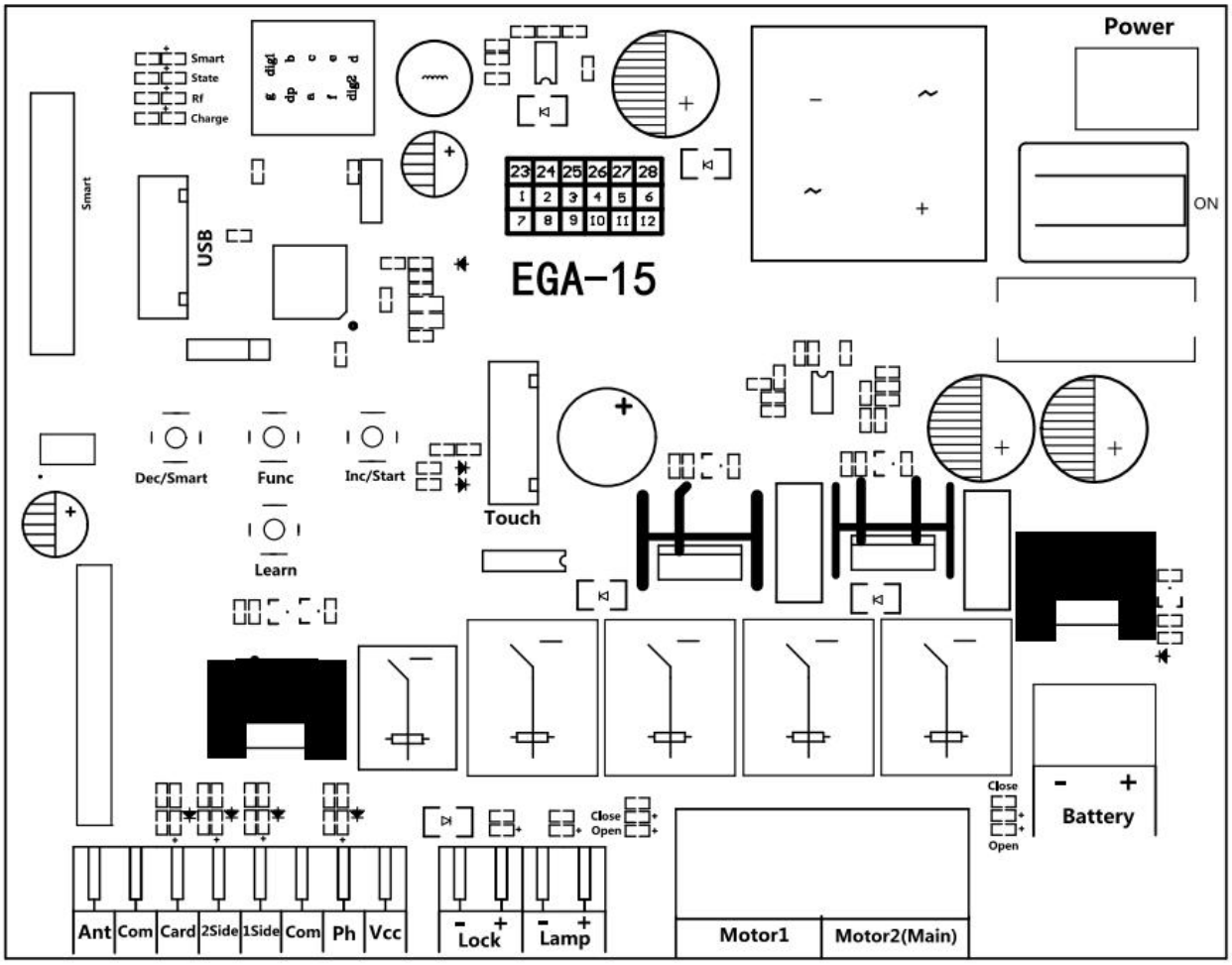
D Wiring

Please refer to the Illustration 4 for overall wiring.
For more wiring details concerning the control box,please refer to the Control Box Circuit Diagram.



Control board wiring diagram:

1.Control Panel Power: AC12V-24V
2.Back up battery: 12V or 24V
3. Application: Used for double or single DC 12V or 24V swing gate opener.
4. Encoder For transmitter: Factory owns rolling code.
5. Allowed Transmitters Quantity: Up to 120PCS.



1. MOTOR 1: Master gate, close first & open last.This terminal connects 1st red wire (counted from your left-hand side to your right-hand side)
2. MOTOR 2 (DELAY) : Slave gate, open first & close last.This terminal connects 1st blue wire (counted from your left-hand side to your right-hand side).

NOTE! If you only have a single gate, the motor only can connect to the Motor 2 Delay terminal.

3. Ant: Connect with the antenna.
4. COM: It is for connecting with the COM or GND.
5. Card: It is for connecting to any external devices that will operate to open the gate.
6. 2 SIDE: It is for connecting with any external devices that operates a double gate.
7. 1 SIDE: It is for connecting with any external devices that operates the single gate.
8. COM: It is for connecting to the COM or GND.
9. Ph: Infrared terminal is for connecting with the photocell sensor.
10. VCC: The output is for connecting with the photocell sensor, etc devices, continuous output current <=0.5A.
11. Lock +: used for connecting with the electric lock.
12. Lock -: used for connecting with the“ground” of the lock.
13. Lamp +: It is for connecting with the flash light +.
14. Lamp -: It is for connecting with the flash light -.
15. Power: It is for connecting with the AC transformer or DC 24V solar panel.
16. BAT +/-: It is for connecting with the DC 12V or 24V back up battery.

17. Menu: It is a digital display for showing you the setting data.
18. Touch: It is for connecting with the touch button, etc devices.
19. USB: It is for connecting with a USB device to upgrade the software.
20. DEC/Smart: used for figure decreasing of setting the data or operating the smart module.
21. FUN: Used for enter the menu setting and confirm the data.
22. INC/Start: used for figure increasing of setting the data or operating the single button control mode.
23. Learn: It is for programming/removing the remote control.

Remote Control

Button “1” is used to operate a single gate Motor 2; button “2” is used to operate a double gate Motor 1 and Motor 2. Button “3” is No function. Button “4” is used to cancel the auto-closing function once.

Program new remote control:

- Press the Learn button on the control board for about 1 second, and the buzzer will sound with a short beep. The digital display will show the remote's number, which means the programming is successful.
- After you press the Learn button, if the board does not receive the new remote signal within 8s, the indicator LED will turn on and exit programming.
- Note: Due to the digital display only can show two digital numbers, if the controller already learned more than 99pcs remote, from the 100th remote, the digital display will show A to replace the ten and hundred digits. Such as the 100th remote will show A0, and the 101st remote will show A1. If the controller already learned more than 109pcs remote, from the 110th remote, the digital display will show b to replace the ten and hundred digits.Such as the 110th remote will show b0.
- **Max capacity:** 120pcs remote. If the digital LED shows “-” with a buzzer short beep 5 times, then means can not learn more remotes.

Erase remote control:

- Press and hold the Learn button for about 6 seconds. If the buzzer sound with a long beep, release the button and the digital display will show 00, which means remove all remotes successfully.

Function Description of the Control Board

Function	State
Power On	The digital display will show EGA-15 and software UX information with a buzzer sound. If the indicator LED light on, means the system is working well.
Setting of 1Side terminal	The digital display menu can set the 1 SIDE terminal control mode by PE. **Mode 0:** Motor 2 "Open-Stop-Close”.....; **Mode 1:** Open only, open Motor 2 in single gate mode, open Motor 2 in single gate mode. **Mode 2:** Close only, close Motor 2 in single gate mode, close Motor 2 in single gate mode. **Mode 3:** Stop only.
Setting of 2Side terminal	The digital display menu can set the 2 SIDE terminal control mode by PD. **Mode 0:** Motor 1and Motor 2 "Open-Stop-Close”.....; **Mode 1:** Open only, open both Motor1 and Motor 2 in double gates mode, open motor 2 in single gate mode. **Mode 2:** Close only, close both Motor1 and Motor 2 in double gates mode, close Motor 2 in single gate mode. **Mode 3:** Stop only.

High and low speed time setting	The high speed running time of Motor 1 and Motor 2 can be set by the digital display menu P4 and P5. When the high speed running time is completed, the remaining time will be run at slow speed. The slow speed can be adjusted through the menu PH.
Motor overcurrent sensitivity setting	The function can realize to anti crash the car and motor stop while the gate is opened or closed fully. While the gate is moving, it meets obstruction and will stop right now.The motor's overcurrent setting of high speed and low speed can be adjusted by the digital display menu. If the menu PI set 1, while the gate is closing and detecting the obstruction, the gate will rebound to open fully.
Limit mode	The menu PI can adjust the limit mode of the swing gate system. 0 is overcurrent, while the motor runs with low speed and meet the obstacle, then detect the overcurrent, it is judged as a limit. 1 is the limit switch. After the door machine runs in place, the limiter is disconnected. The system detects that the limiter is disconnected and determines that it is a limit.
Time delay with 2 gates for opening and closing	Time delay with 2 gates for opening and closing can be adjusted separately by the menu P7 and P8. If user set 0, means close the delay function. If the delay function is active, when opening the door, motor 2 opens first then motor 1 opens later; while closing the door, motor 1 closes first then motor 2 closes. For the single gate system, this function does not work.
Safety beam mode	The safety beam mode can be be selected by menu PF, the default mode is 0, it is normal open mode. 1. While the gate is closing, if the infrared signal meets an obstruction, the gate will rebound to open. 2. If set the auto-closing timer after fully opening, the gate will be auto-closed. 2. If the safety beam signal exists, the gate closing action will not be executed and the countdown time will always be reset.
Auto-closing (Non-swipe card）	1. The auto-closing function only can be triggered when the gate is opened fully. 2. The auto closing starts countdown, the indicator flashes at 1s intervals. 3. Auto closing time can be set through the menu. 4. Cancel the auto-closing function by pressing the fourth button on the remote. Note,only cancel this time. Next time you open the door again, you can still start the auto-closing.
Swipe card to open and auto-close the gate	1.Trigger the function, it will open the double gates. When the gates are opened fully, the user can set the auto-closing function independently. The auto-closing time can be set by the menu. 2.If the gate system is setting the single gate mode, the user swipes the card and only operates to open the single gate.
Lamp mode	The lamp work mode can be selected by menu P9. Mode 0: While the gate is moving, the lamp will light on. While the gate is

	stop moving, the lamp will turn off. Mode 1: While the gate is moving, and the lamp will light on. After 30s, the lamp will turn off. In addition, regardless of mode 0 or mode 1, the lamp will also light on during the countdown to closing the gate.
Lock mode	1. The lock mode can be switched by menu PC. 0:NC mode,power on when locked, used for electromagnetic lock.1:NO mode,power on when unlocked, used for electric lock. 2. The control output time of the electric lock can be set by menu Pb. If set to 0, it means turning off the function.
Gate mode	1.The gate mode can be switched by menu PG. 0 is dual gates, which is a double gates opener system. 1 is single gate, which is a single gate opener system. 2.If the system is single gate system, all control for the double gates only operate on the main gate(Motor 2) 3.If it is the single gate system, the motor must be connected with motor2 port.
Motor working time protection	1.If the motor works continuously more than 60s, the motor will stop running for protection. 2. If the motor works continuously with low speed more than 30s, the motor will stop running for protection.
Smart charger function for back-up battery	1.The system will automatically identify whether it is a 12V or 24V system every time it is powered on. If the power supply voltage is changed, power on again. 2.When the voltage of one battery is less than 13.5V±0.5 and the voltage of two batteries is less than 27V±0.5, the charging function will automatically start and the charging indicator light will turn on. 3.When the voltage of one battery is greater than 14V±0.5 and the voltage of two batteries exceeds 28±0.5, the charging circuit is automatically disconnected to prevent overcharging. Note: When the control board connects with the main power (AC power or solar panel) and back-up battery, the battery will be charged.
Upgrade control board system by USB device	1. Before you upgrade the system, please confirm the U disk document isFAT32 or not. If not, please format the U disk as FAT32. 2. Copy the upgrade file into the root directory of the U disk and name it EGB-15.bin. 3. Insert the U disk into the upgrade module, and then connect the upgrade module to the USB port. 4. Completely shut down the system. Make sure the State LED is off before the shutdown is complete. 5. Press and hold the Fun button, then turn on the computer. The digital tube displays UP and the upgrade begins. After the upgrade is completed, it will automatically restart.

Touch port	It can connect the touch switch with the control box, has 2 channels. 1.Cycle control the motor 2 by **Open-stop-close-stop cycle...** 2.Cycle control the motor 1 and motor 2 by **Open-stop-close-stop cycle...**
Smart module port	The XH-SG-WIFIBLE smart module can be connected externally to realize functions such as control, information reading, and settings. The smart module includes WiFi, Bluetooth and 2.4G functions. 1. Add the Bluetooth control function on the phone APP: Press and hold the DEC/SMART button for 5s, the buzzer will sound twice. Release the button and the module will enter Bluetooth matching network mode. 2. Add the WiFi control function on the phone APP: Press and hold the DEC/SMART button for 10s, the buzzer will sound with a long beep. Release the button and the module will enter the AP matching network mode. 3. Program the 2.4G USB card transmitter: Press the DEC/SMART button once, the buzzer will sound a beep, and enter the programming mode. Power on the 2.4G USB card, and transmit a signal automatically. If the smart LED flash three times, which means the programming operation is successfully. Otherwise, after 8s exit the programming mode. 4.If you want to remove the 2.4G USB card, please press and hold the Learn button for 6s, until the buzzer sound with a long beep, then release the button. After that, all the remotes and USB cards can not control the gate. 5.When the programmed 2.4G USB card enters the receiving range of the module, it will trigger to open the gate once. WiFi and Bluetooth functions support to connect with the phone app, which can realize functions such as controlling the gate with a mobile phone, adding and managing the remote controls, and menu settings the parameters. Please check the APP instruction manual for detailed functions.
Factory Reset	The factory reset needs to be performed at the factory to restore parameters to the default state; see the table below

Control Board Parameters Setting

- Press and hold the [FUN] button for 3 seconds, and the digital display will indicate “P0”, then release the button, now the menu can be set to [INC/START] and [DEC/SMART] for increasing and decreasing numbers or values.
- After adjusting the value, press the [FUN] button to store the data, and the buzzer will beep one time to show the store successfully.
- After the menu setting is finished, press the [LEARN] button to exit the menu setting and close the display.

Item	Function description	Range	Default	Explanation
P0	Motor 1 overcurrent setting in slow speed	0~20 Class	10 Class	Motor overcurrent setting in slow / high speed, the bigger the value is, the harder the motor to stop. Setting value from 0-20
P1	Motor 1 overcurrent setting in high speed	0~20 Class	10 Class	
P2	Motor 2 overcurrent setting in slow speed	0~20 Class	10 Class	
P3	Motor 2 overcurrent setting in high speed	0~20 Class	10 Class	
P4	Setting Motor 1 high speed running time	3~30 s	10 s	Used for setting the high speed running time of Motor 1 and motor 2, gate will run in high speed within this setting, then change to slow speed with its rest travel.
P5	Setting Motor 2 high speed running time	3~30 s	10 s	
P6	Auto-closing timer for swipe card terminal triggering	0~99 s	10 s	0 means No auto-closing for swipe card terminal triggering.
P7	Time delay with 2 gates for opening	0~15 s	2s	0 means No time delay for opening 2 gates
P8	Time delay with 2 gates for closing	0~15s	2s	0 means No time delay for closing 2 gates
P9	Auto-closing timer	0~99 s	0	0 means No auto-closing
PA	Flash Lamp Mode	0: Mode 0 1: Mode 1	0	Mode 0: Flashing lamp will turn off 30 seconds after the motor stop. Mode 1: Flashing lamp and motor will operate and stop at the same time.
Pb	Electric lock working time setting	0~5s	0	Used for setting the working time of electric lock. Setting from 0-5 seconds. 0 means electric lock disabled.
PC	Lock mode	0: NC 1: NO	1	**NC mode:**power on when locked, used for electromagnetic lock. **NO mode**: Normal open, power on when unlocked, used for electric lock.
Pd	Setting of 2Side terminal	0~3	0	Please read the details from the table of “function description of the control board”.
PE	Setting of 1Side terminal	0~3	0	
PF	Safety beam mode	0（NC）~ 1（NO）	1（NO）	**0:** NC mode, normal close. **1:** NO mode, normal open.

PG	Gate mode	0~1	0	**0:** double gates (Motor 1 and 2). **1:** single gate(Motor 2).
PH	Setting speed of slow speed	0~10	6	
PI	Limit mode	0~1	1	0: overcurrent. 1: Limit switch.
Po	Factory Reset	0~10	0	5: Set 5 to trigger the factory reset.

Control board digital display information show:

1. When the gate is opening, the digital display will show motor 1 is “OP”, motor 2 is “OP.”, and open double gates will show “O.P.”
2. When the gate is closing, the digital display will show motor 1 is “CL”, motor 2 is “CL.”, and open double gates will show “C.L.”
3. After the gate stop moving, the digital display will show the motor 1 is “--”, motor 2 is “--.”, and double gates will show “-.-.”
4. When the motor is running at high speed and triggering the overload protection, the digital display will show motor 1 is “OH”, and motor 2 is “OH.”, and double gates will show “O.H.”
5. When the motor is running at slow speed and triggering the overload protection, the digital display will show motor 1 is “OL”, and motor 2 is “OL.”, and double gates will show “O.L.”
6. When the motor reaches max working time, the digital display will show motor 1 is “EC”, and motor 2 is “EC.”, and double gates will show “E.C.”
7. When the safety beam is activated, the digital display will show “PH”
8. When the gate is opened fully, the motor 1 will show “LO”, and the motor 2 will show “L.O”
9. When the gate is opened fully, the motor 1 will show “LC”, and the motor 2 will show “L.C”

Motor direction identification:

When the motor is running, if the motor direction LED indicator is blue, now the motor should be in “opening” operation. When the motor direction LED indicator is RED, the motor should be in the “closing” operation.

Smart Module Instruction

Search “XHouse IOT” and download it from Google play or App Store

Google play

FOR Android & IOS

- Or scan this QR code for download APP “XHouse IOT” and install it.
  Register the account for “XHouse IOT”and log in.

Add the device

Step 1. Power on the device, open the APP. Press the “⊕” on the top right corner to add the device, then select the “Swinging Gate” which has a orange cycle on the top right corner. (Fig 1 and 2)

★ If there has a gray cycle on the top right corner, that means the device already be added. The user need to press and hold the “Dec/Smart” button for about 5s on the control board, then repeat the step 1.

★ If there has a message “Please enter distribution network mode and add devices”, the user need to press and hold the “Dec/Smart” button for about 5s on the control board, then repeat the step 1.

Step 2. Select the Wi-Fi, click the “Connect” and enter the password.(Fig 3)
(If there hasn’t Wi-Fi can be connected, the user also can select the “Bluetooth Add” and use the Bluetooth function to control the gate nearly. Please follow the step 4).

Step 3. Add the device successfully. The user can modify the name of the device and button from the “ ⚙ ” on the top right corner. (Fig 5)

Step 4: Bluetooth Add: When using Bluetooth mode control the device, the mobile app must be closed to the device within Bluetooth range for about 10m to connect and control it. (Fig 3 and Fig 4).

Fig 1

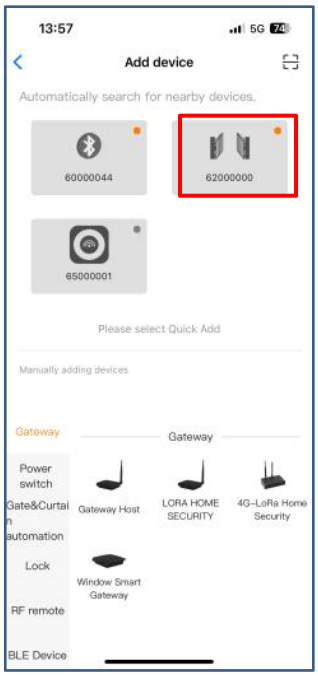


Fig 2

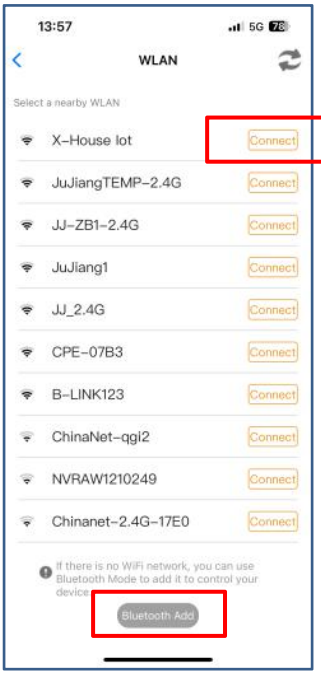


Fig 3

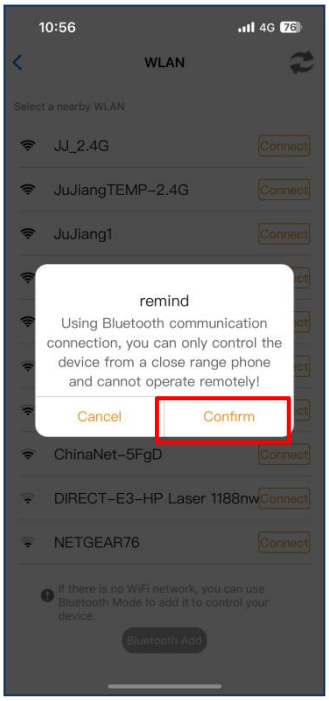


Fig 4

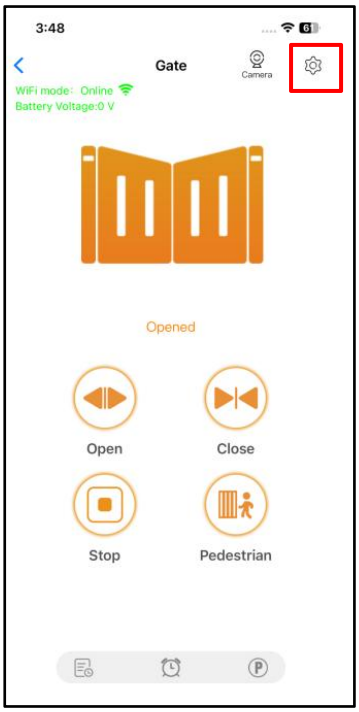


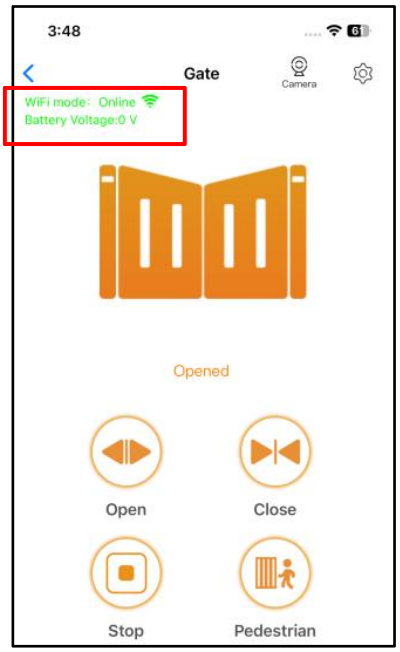
Fig 5

Device supports WiFi and Bluetooth working mode

★ When the device is connected to WiFi network successfully, it supports remote control and settings the device through the mobile phone APP. （Fig 5）

★ When the device is offline or the mobile phone has no network, if the user is nearly the device within 10 meters, and open the APP, it will automatically switch to the Bluetooth mode to control the device. (Fig 6)

★ The device will establish a Bluetooth connection with the mobile phone to achieve close-range Bluetooth control (only one user's mobile phone can establish a Bluetooth connection at the same time).



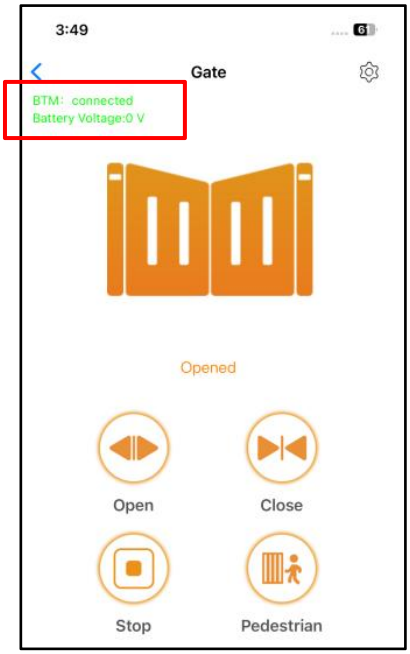


Fig 5 Fig 6

Switch a new WiFi network or switch the Bluetooth mode to WiFi mode

If the user need to switch to use a new WiFi network or want to switch control mode from the Bluetooth mode to WiFi mode, please follow the steps.

Step 1. Select the device, press the “ ⚙ ” on the top right corner. Click the “ Set/Modify WiFi”. (Fig 7)

Step 2. Select the new WiFi and connect it. And click the “Refresh”. (Fig 8)

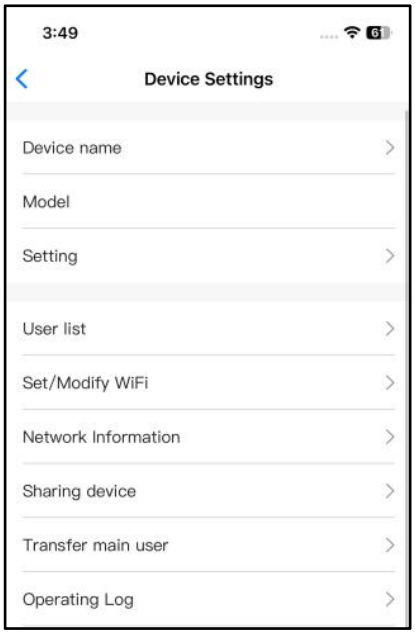


Fig 7 Fig 8

Share the device

Step 1. Open the APP, select the device. Press the "⊕" on the top right corner, then select to "Sharing device", will create a QR code. (Fig 9)

Step 2. The new user download the APP and open it, Press the "Scan" on the top right corner to scan the QR code.(Fig 10)

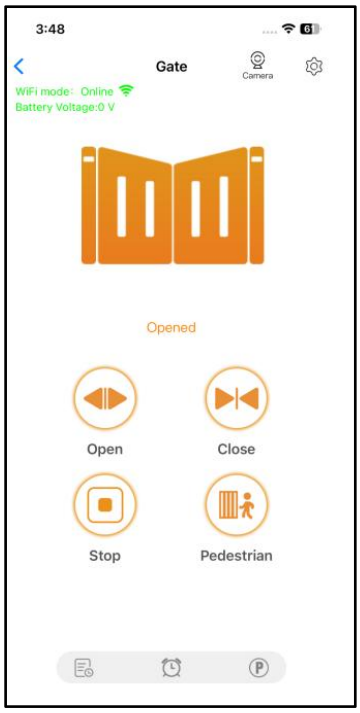


Fig 9 Fig 10

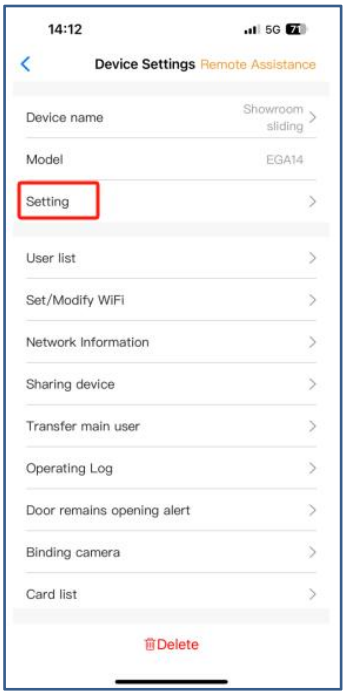
Device settings

The user can set the parameters from the APP for the control board.

Step 1. Select the device, press the " ⚙ " on the top right corner. Click the " Setting". (Fig 11)

Step 2. Set the parameters on the APP. (Fig 12)

Note: While the user want to set the parameters, the device must connect with the Wi-Fi. If not, the user need to use the Bluetooth function and put the phone app as close as the device to set the parameters. After done, please click the "Sync" button.



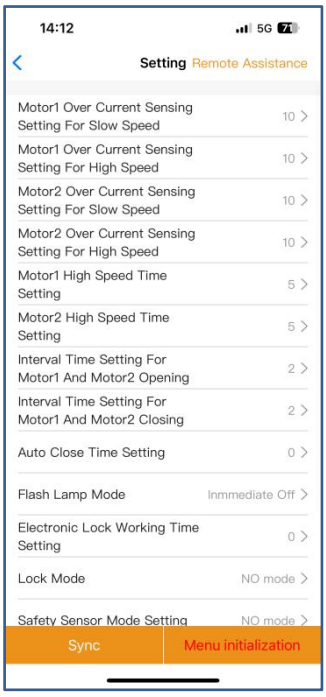


Fig 11 Fig 12

Remote assistance

When your equipment fails, the parameter settings need to be readjusted. At this time, you can directly initiate the “Remote Assistance” button and share the QR code or verification code with your installation service provider for the remote service.

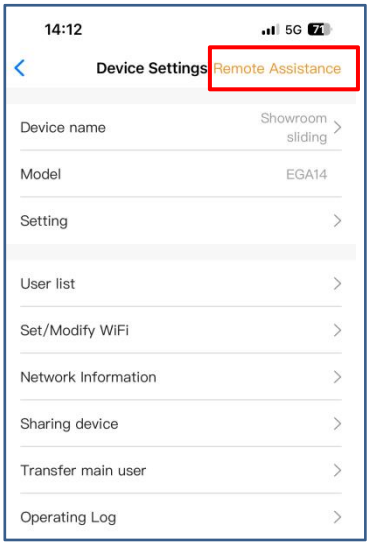


Fig 13

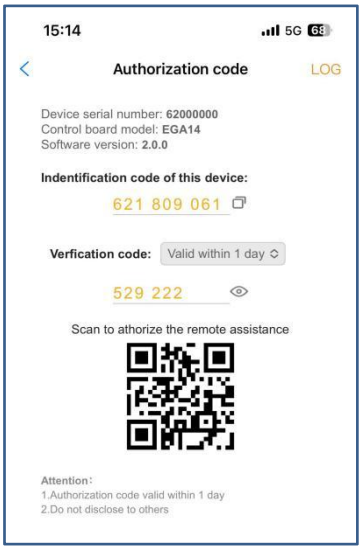


Fig 14

Add USB card / RF remote control from a distance

When the user need to add a RF remote control or a USB card to open the gate, you can use the “Add Card / Remote Control” function to do it, and scan the QR code from the remote control or enter the ID number for the USB card. Don’t need to open the control box to program them.

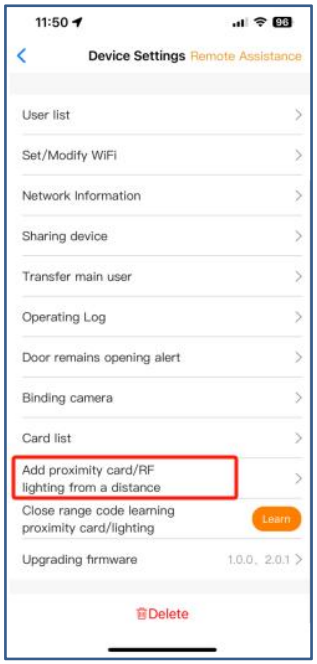


Fig 15

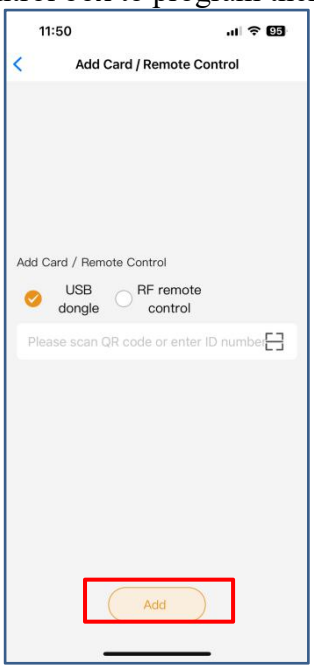


Fig 16

Add USB card/RF remote from the close range

When the user needs to add an RF remote control or USB proximity card to open the door, you can directly use the "Add proximity card/RF remote control" function, click the "Learn" button, and click "Start Learning". Don't need to open the control box, and the control board will enter the code learning state, and then press the remote control button or power on the USB card to transmit a signal.

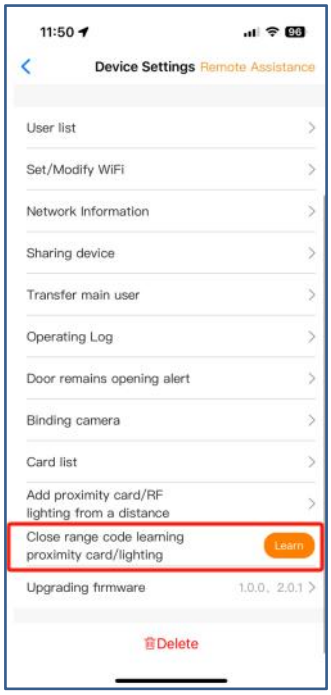


Fig 17

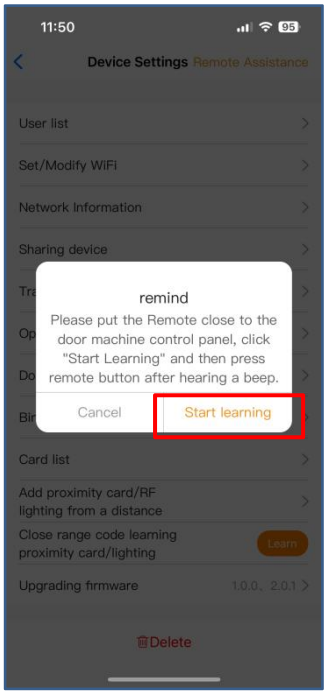


Fig 18

Management of the USB card and RF remote control

The card list can management your USB card and RF remote control. The user can sync all the cards and remotes to the card list for management, and delete it when they are no longer needed or lost.

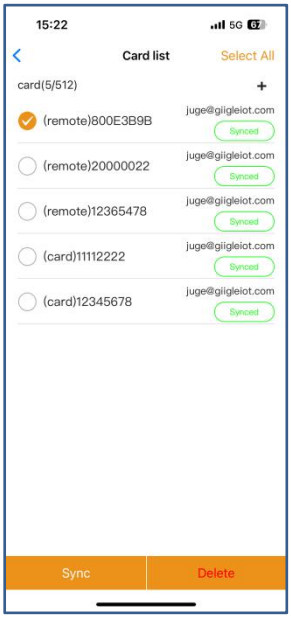


Fig 19

Binding with camera

Step 1. Open the APP, select the device. Press the“ ”on the top right corner, then select to “ Binding camera ”.

Step 2. Select the “ IP camera ”, and press the “ OK ” to confirm it.

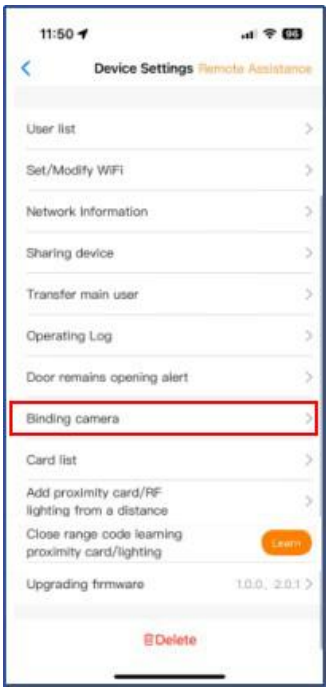


Fig 20

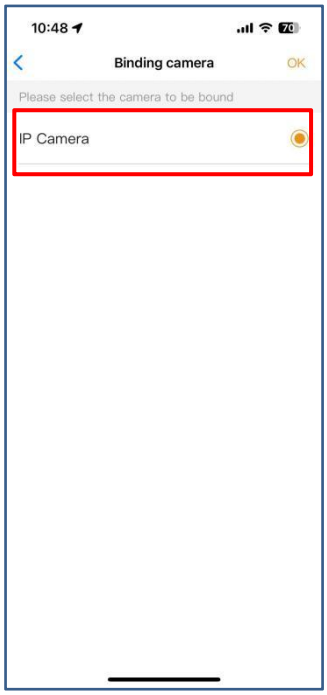


Fig 21