

Installation Guide

Version 03-11

SD Sliding Gate Opener

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1. Features:

1. Fully built-in compact design with fashionable streamline
2. Pedestrian opening or full open function
3. Auto closing delay time adjustable
4. Facility for optional Backup Battery
5. Adjustable slow down distance at start and at end of the travel
6. Digital gate limits positioning system (DLPS)
7. Electronic soft start and soft stop
8. Magnetic limit switch control (optional)
9. Facility for optional Photocell Sensor to stop the gate if see an obstacle
10. Automatic stop when meet an obstacle during opening cycle
11. Auto stop and reverse when meet an obstacle during closing cycle
12. Facility for optional solar power system
13. Backup Battery or Solar System Battery status display

2. Technical Specifications

■ Electrical

Power supply	AC110V to 240V ± 10%, 50 HZ
Operating Voltage	DC 24V
Electronic Controller	Microcontroller Based
Safety Detection	Over Current Detection
Safety Barrier	Infrared Beam Sensor (optional)
IP Rating	IP57



■ Mechanical

Model	SD
Max. Gate Weight	800 kg
Motor speed	1800 rpm
Gate moving speed	13m/min
Gate Limit type	Intelligent Position Detection/ Magnetic Limit Switch (optional)
Operating distance	≥50m Frequency:433.92 MHz
Remote control mode	Close/ Open/ Stop/ Pedestrian Opening
Auto close time	0~99 sec (Adjustable)
Noise	≤65dB
Product actual size	29*22*23cm
Packing size	36*29*36cm
Environmental temperature	-15℃ to +55℃

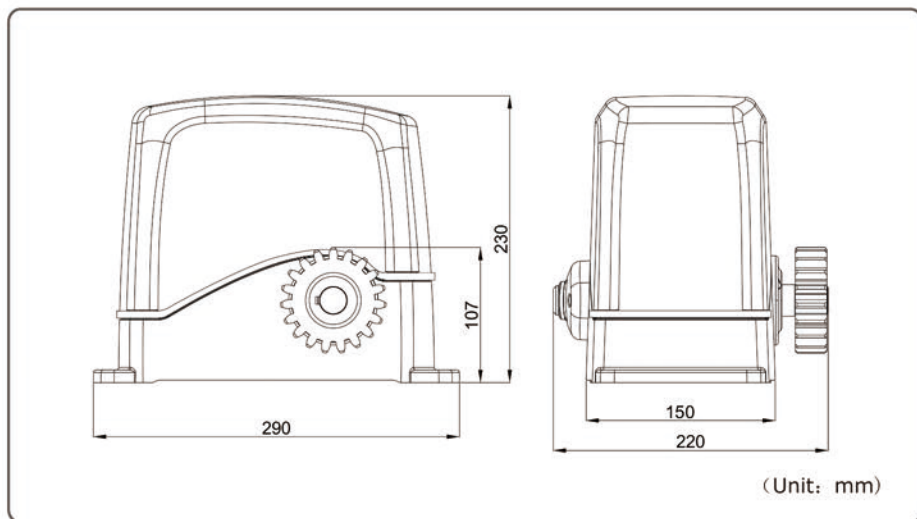


SD

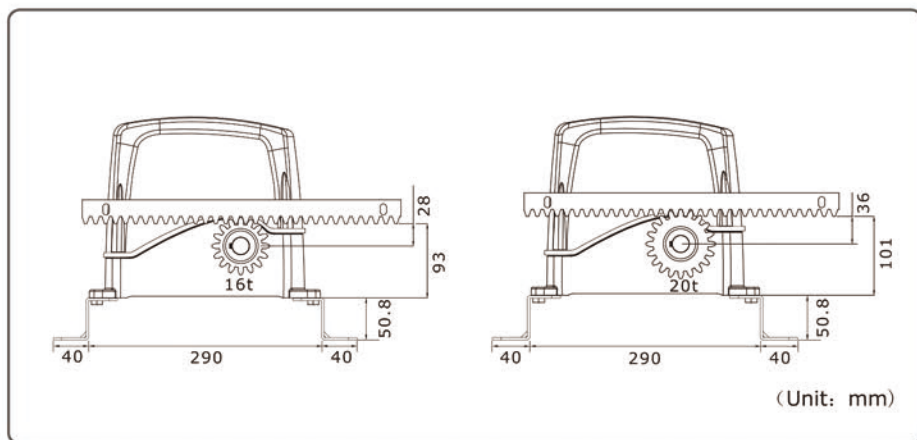
Sliding Gate Opener

3. Installation

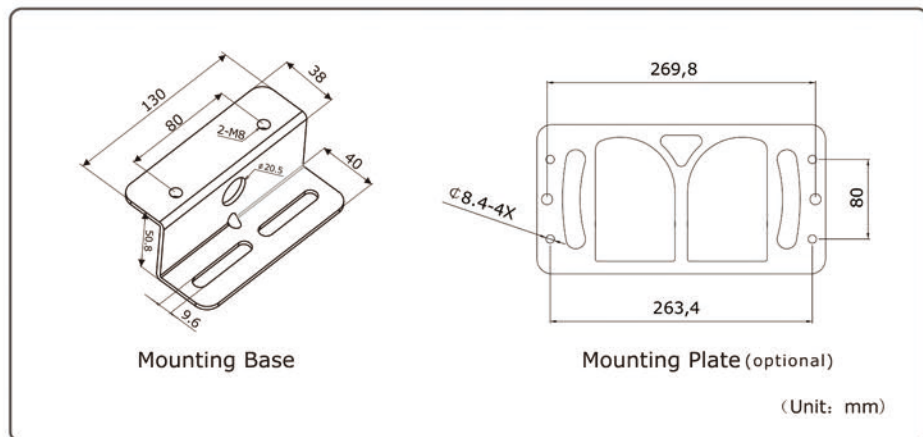
Motor Dimension



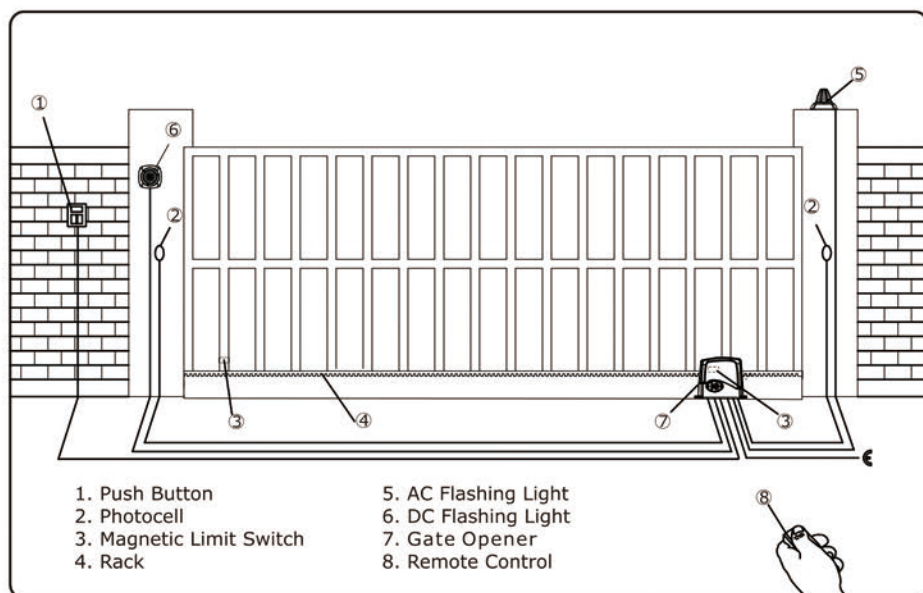
Gear & Rack Installation



Mounting Base Dimension



Installation Diagram



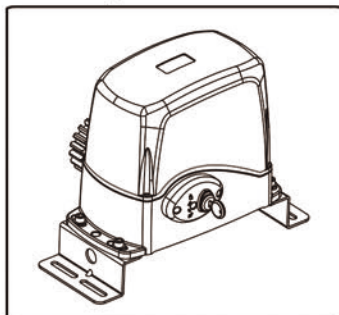
Motor & Rack Installation

1. Fix the mounting base with Concrete Bolts on the ground.
2. Fix the motor on the mounting base.
3. Manual release the gate opener (Following steps on page 5).
4. Fix the rack onto the gate, keep 1-2mm clearance between the rack and gear.
5. Move the gate several times with hand, make sure the rack work well with the gear, and the gate can move smoothly.
6. Undo manual release to work on electric.

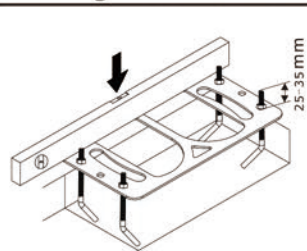
If use mounting plate, please refer to the following steps

1. Reserve a place for the mounting plate
2. Arrange all necessary electric wire in advance
3. Fix the bolt onto the mounting plate, make the threaded portion 25-35mm higher than the plate, lock up the plate with nuts
4. Pour cements on the ground, put the mounting plate in place before the cements solidified. Make sure the mounting plate is in a level and horizontal position with the gate.
5. Take off the nut from the bolt, put the slider motor onto the plate, make sure there is 20mm space between the gear wheel of the motor and the side of the gate, fix the nuts.
6. Manual release the slider motor (Follow steps stated in the Manual Release page 5)
7. Fix the rack onto the gate, keep 1-2mm space between the rack and the gear wheel.
8. Move the gate for several times by hand, make sure the rack work well with the gear, and the gate can move smoothly.
9. Turn the slider motor to the electric mode.

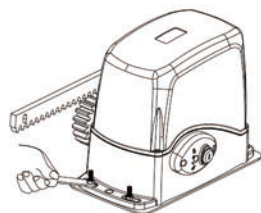
Mounting Base Installation



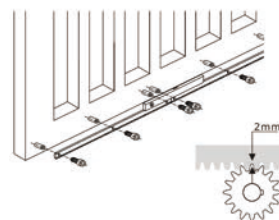
Mounting Plate Installation



1. Installation of the mounting plate



2. Installation of the slider motor

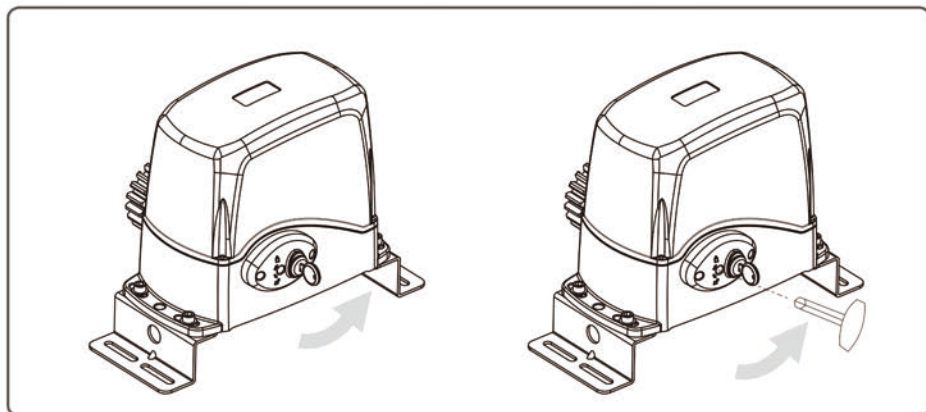


3. Installation of the rack

*Optional



4. Manual Release



Place the key in key slot and turn it to 12 o'clock, this will allow the allen key supplied to fit into the hole, rotate allen key 90 degree counterclockwise, The gear can now be rotated manually. Reverse steps to lock the drive gear.

* Read all instructions fully before proceeding with initial set up.

5. Before Installation Confirm Direction of Travel

Lift up the gate to disengage gear rack from the drive gear wheel, press the open button on the remote and check if the gear drive is turning in the direction your gate is required to open.

To change motor direction:

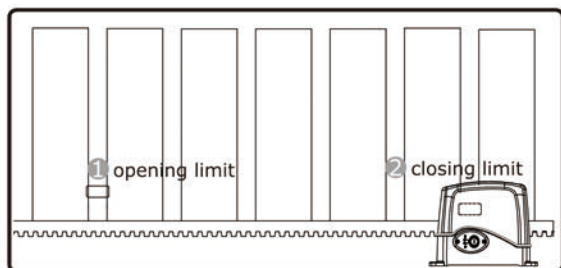
Older models (before 2013) reverse the "red +" and "black -" terminals on the motors Pc board.

Newer models (after 2013) ref to adjustment setting B3 (page 12).

Make sure power is switched off before doing this step.



6. Mounting the Sensor Magnets (Magnetic Limit Switch)



Gate opens and closes when the magnets pass the motor sensor

With the gate motor in manual release: (Ref to manual release section.) Place the gate at open position. Install magnet to the gear rack with given TALL mounting brackets. It is very important that you find the correct position of the magnet in order to stop the gate at open position.

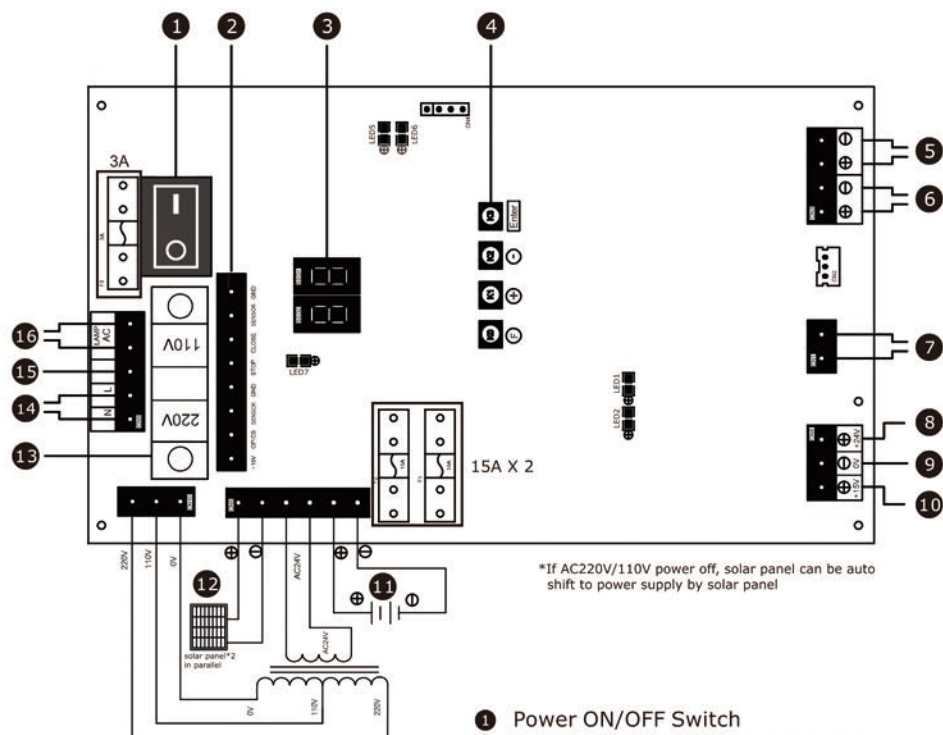
With the gate motor in manual release: (Ref to manual release section.) Place the gate at close position. Install magnet to the gear rack with given SHORT mounting brackets. It is very important that you find the correct position of the magnet in order to stop the gate at close position.

You need to move the magnets up and down to find the correct position. Once you find the sweet spots for magnets, make sure to firmly tighten the screws etc of brackets and magnets.

During normal operation, with any slight movement of the magnets, gate will not operate. This sometimes happens when an external object hits the magnets (dogs etc).



Wiring



LED Diagram

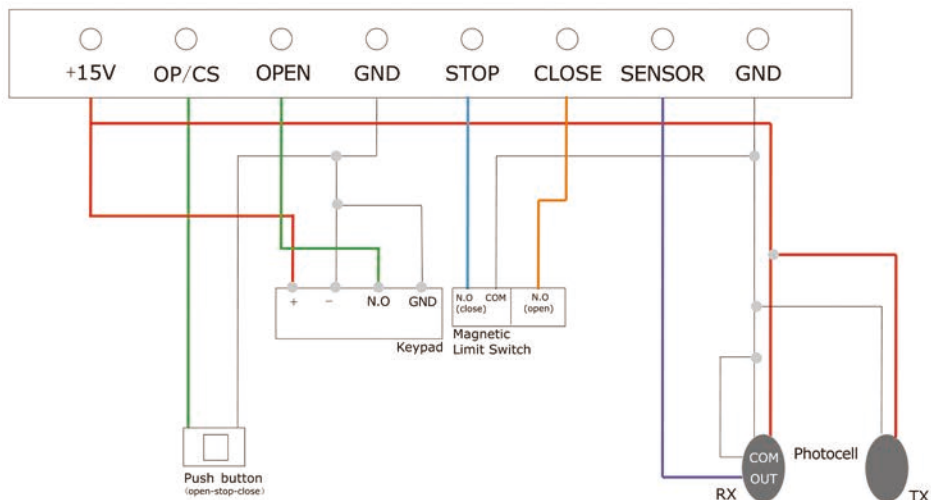
Power On, LED5 will blink.

- LED1 Open LED
- LED2 Close LED
- LED5 Power LED
- LED6 Received signal for remote control LED
- LED7 Push Button LED

- ① Power ON/OFF Switch
- ② Access Control & Command Block
- ③ Display Panel
- ④ Programming Keys
- ⑤ DC Flashing Light
- ⑥ Buzzer
- ⑦ DC24V Motor
- ⑧ Output DC24V (unstable voltage)
- ⑨ 0V " - " output
- ⑩ Output DC15V stable voltage (maximum current 500mA)
- ⑪ Battery connection for Solar System/ Backup Battery (2 X 12V batteries in series. Check polarity)
- ⑫ Solar Panel Input (check correct polarity)
- ⑬ Selector Switch for AC230V or 110V (not used in 24V supply system)
- ⑭ Power Supply (not used in 24V supply system)
- ⑮ Earth wire connection (not used in 24V supply system)
- ⑯ AC Flashing Light (not used in 24V system)



Wiring for Optional Accessories



Item	+15V	OP/CS	OPEN	GND	STOP	CLOSE	SENSOR R	GND	Remarks
Description	Stable voltage output	Open/Stop/Close	Open	"-" & "Concentration line"	close limit	open limit	Normally opening signal	"-" & "Concentration line"	
Keypad	●		●	● ●					
Push button		●		●					
Photocell (sender)	●							●	
Photocell (receiver)	●						●	● ●	
Magnetic Limit Switch					●	●		●	

* ● Means the connection port

* Instructions for photocell:

During gate is in closing cycle, if Photocell sees an obstruction, gate will stop immediately and travel to open position. In order to close the gate.

1. Obstruction has to clear
2. Activate the gate to close again



7. Remote Control Setting

Remote Control: Learning Procedure

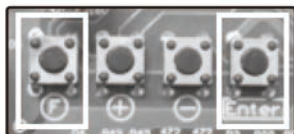
Press and hold down the "F" button for approximately 1 second until "FF" appears blinking on Display Panel then release the button: Pointing the remoter at the PC board press any button on the remote. Remote should now be leant.

* 60 remote controls can be set at most

* Verify the remote control is activated by pressing the remote control button. The LED will be on/Off (see notes LED Diagram)

Remote Control: Memory Erasing Procedure

Press and hold down the "F" button for approximately 1 second until "FF" is blinking on Display Panel, release the button then press down the "Enter" button on the PC board.

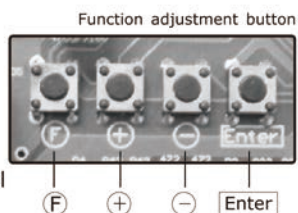


433MHZ Remote control



8. Gate Opener Setup (Software Setup)

1. Gate should have hard stop at both open and close ends.
2. If you are using optional magnetic limits, make sure to set up magnets in such a way that gate stops few millimetres before it hits the hard stop. (both open and close ends)
3. Open the gate fully and make sure mechanical manual release is off. (gate cannot be moved manually)
4. Remove the top cover of the gate opener to access Control Board. Press and hold "+" button for couple of seconds to go into Programming Mode. You will see "AA" blinking on the display panel. Now you are in Programming Mode.
5. While you are in programming mode, press and hold both "P" and "CLOSE" on remote control for couple of seconds until the gate starts to move. Then release both "P" and "CLOSE" buttons.
6. Gate will travel slow speed to closed position and hit the stopper and stop the gate. (If you have fitted optional magnets, gate will stop when the gate opener sees the CLOSE magnet). Then gate will automatically travel to open position at slow speed.
7. Gate will hit the stopper at open position and stop the gate. (If you have fitted optional magnets, gate will stop when the gate opener sees the OPEN magnet)
8. Gate Opener will automatically exit Programming Mode. Now the gate is ready for normal operation. However, DO NOT disturb the gate when you are doing the above procedure.



Remote Control

Reset Gate Limits memory after power failure.

Simply press and release "CLOSE" button on the remote control. Gate will travel to close position and stop. System will initialize the normal operation. Now you are ready for normal operation of the gate.

Reset the Gate Opener to Factory Settings.

If you have already installed the gate opener and you need to do a set up again, it is a good idea to reset all the parameters to factory settings before the set up. Simply, manually set parameter D2 to "9" (refer to "How to Adjust the Parameters" below). This will set all the parameters to factory setting in one go.



Program Parameters and Manual Adjustment

This gate opener has many parameters. Value of each parameter is unique for each and every installation. When you carry out Gate Opener Setup, parameters will be automatically set to optimum values. However, due to variations of atmospheric conditions (wind etc) and gate's mechanical properties (dry bearings in travelling wheels etc) sometimes parameters may need manual adjustments.

Following chart shows the parameters, what those parameters stands for and factory setting values of each and every parameter.

How to Adjust/ View Parameters and Values

1. Remove the Gate Opener top cover.
2. On the control board there are 4 Function Adjustment Buttons (Programming Keys).
3. If there is nothing showing on the Display Panel, briefly press and release "F" button.
4. Keep pressing "+" and "-" buttons until Display Panel to shows "A0".
5. When you at "A0" press "F" button once. Display will now show the value of "A0" parameter.
6. At this point you can use "+" and "-" buttons again to change the value (of "A0" parameter).
7. Once you have changed it to the preferred value, press "ENTER" button to confirm the value.
8. Display Panel will show "A0". Now you have successfully changed the value of "A0" parameter.
9. Press "+" button once and Display Panel will now show "A1".
10. Press "F" button once. Display will show the value of "A1" parameter.
11. Keep doing above steps 6 to 8 to change value of "A1" parameter.
12. Likewise, you can check or change the values of all the parameters.

Parameters

Code	Descriptions	Setting Range	Default Setting	Remarks
A0	Sensitivity to stop the gate due to resistance when travelling at SLOW SPEED. Gate travel towards end of open and close cycles are slower for smooth stop	0-99	20	Lower setting means gate will be more sensitive to stop. If the gate tends to stop before the end of the travel, increase A0 and A6 settings
A1	Sensitivity to stop the gate due to resistance when travelling at FAST SPEED	0-99	35	Higher setting means gate will not be sensitive to stop hitting an obstacle during FAST SPEED travel
A2	Distance of travel when OPENING the gate (FINE counts by the Encoder)	0-99	67	Motor shaft rotates 67 turns (due to A2 setting alone) at factory setting
A3	Distance of travel when OPENING the gate (Large counts by the Encoder)		07	Motor shaft rotates 700 turns (due to A3 setting alone) at factory setting (motor shaft rotates 767 turns in total when OPENING at factory setting)
A4	Distance of travel when CLOSING the gate (FINE counts by the Encoder)	0-99	67	Motor shaft rotates 67 turns (due to A4 setting alone) at factory setting
A5	Distance of travel when CLOSING the gate (Large counts by the Encoder)		07	Motor shaft rotates 700 turns (due to A5 setting alone) at factory setting (motor shaft rotates 767 turns in total when CLOSING at factory setting)
A6	Motor Torque setting (FORCE ON THE GATE) for both OPENING & CLOSING when travelling at SLOW SPEED	0-99	56	If the gate tends to stop before the end of the travel, increase A0 and A6 settings



Code	Descriptions	Setting Range	Default Setting	Remarks
A7	Motor torque setting (FORCE ON THE GATE) for both OPENING & CLOSING when travelling at FAST SPEED	0-99	99	
A8	Distance of gate travel at SLOW SPEED towards the end of the travel during OPENING CYCLE	0-99	40	
A9	Distance of gate travel at SLOW SPEED towards the end of the travel during CLOSING CYCLE	0-99	40	
B0	Motor Torque setting (FORCE ON THE GATE) for PEDESTRIAN OPENING	0-99	75	
B1	Delay activating time for remote control button (for avoiding misoperation)	0-2	0	0 - Press and release OPEN / CLOSE button to activate the operation 1 - Press and hold OPEN / CLOSE button for 2 seconds to activate the operation 2 - First press and hold STOP button for 2 seconds then press and release OPEN / CLOSE button to activate the operation
B2	Selection of gate travel speed to Reset Travel Limits (after power failure etc.)	0-1	0	0 - Slow speed learning (Press and release CLOSE button) 1 - Fast speed learning (press and hold CLOSE button till the end of the travel)
B3	Motor rotation direction setting	0-1	0	If choose " 0 ", forward direction If choose " 1 ", reverse direction
C0	Actual Display of A2 and A4 setting			Digit display when motor start
C1	Actual Display of A3 and A5 setting			
C2	Alarm Setting (with limit switch & buzzer)	0-1	0	" 0 " = cancel " 1 " = The alarm will sounded if the gate opened accidentally
C3	Delay time before closing automatically	0-99	0	If choose " 0 ", the gate system will not have auto closing function If choose " 10 ", it means the gates will automatically close 10 seconds after completing its opening
C4	Delay time before closing automatically (Pedestrian Mode)	0-99	0	If choose " 0 ", the gate system will not have auto closing function If choose " 10 ", it means the gates will automatically close 10 seconds after completing its opening
C5	Pedestrian Opening Distance Setting	0-99%	30	Percentage of full travel (Factory setting is 30% of total travel)
C6	Selection of Full Force / Speed at Start of the travel	0-1	1	0 - Soft / Slow Speed start (use with light gates. If struggling to start, changeover to "1") 1 - Full Force / Fast Speed start (use for medium to heavy gate, uphill travel gates or gates struggling to start)
C7	Optional Warning Light On / Off setting	0-99	0	0 - Light operates during gate travel only 1 - Light will not operate at all
C8	Battery capacity display	0-99		Below " 30 " = Battery soon will be run out " 99 " = Fully charged
C9	Reserved terminal for maintainance and testing			
D0	PCB Model Number			PCB Version Display
D1	PCB Software version			
D2	Restore FACTORY DEFAULT setting (this will change all the above PARAMETERS to factory setting)		0	" 9 " = restore factory settings

*Remark:C0 & C1 means the number of rotation of motor shaft
For example, if C0 display "52", C1 display "12", that means the motor rotates 1252 circles



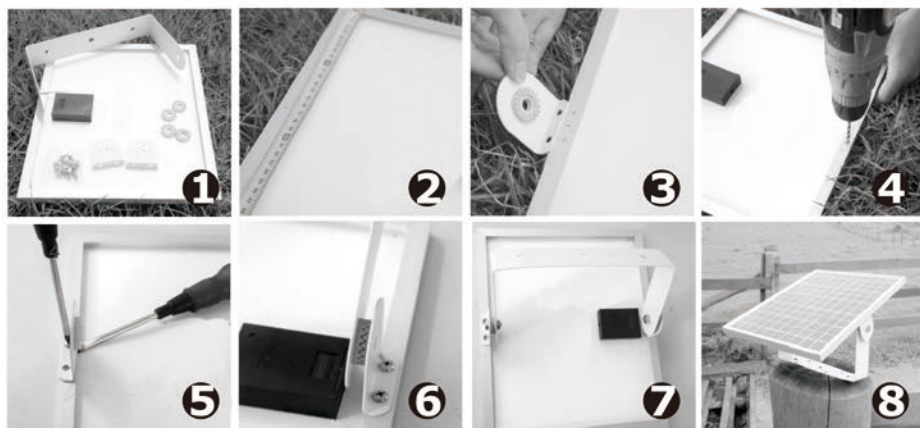


Solar System Installation



Solar Panel Installation

1. Measure and mark halfway along the long sides of both solar panel sides.
2. Place the holding brackets over this halfway point and mark the holes. Attach the plastic washers to the holding brackets and holding arms
3. Carefully drill the 4 holes with a 13/64 drill bit and be sure you don't drill into the glass. Use a piece of thin metal between the frame you are drilling and the white to protect it.
4. Place the holding brackets and use the 10mm screws and bolts to hold in place (You can also use the 4*13mm hex screws included).
5. Install the holding arm to the holding brackets with the 25mm screws and bolts. This can be done after you attach the holding arm to your fence post with the wiring. For maximum sun exposure, align the solar panel so the bottom is facing sunrise and the top is facing sunset.



* If you choose solar power system, suggest to use Ahouse solar panel (2pcs 20W solar panel) to make sure the motor work properly.

Solar Panel Wiring Instruction

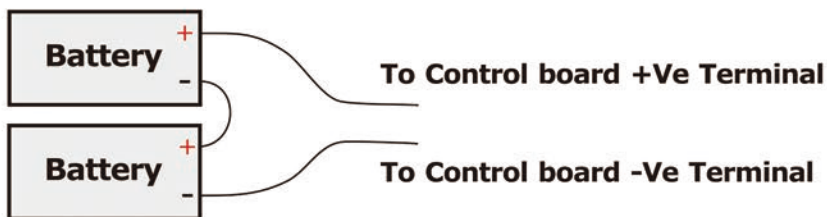
1. Using the cables, connect one cable to the positive (+) terminal of the solar panel. Connect the other end of the same cable to the positive (+) terminal of the solar panel terminal in the control board (terminal 12 - see page 7).
2. Using the other cables, connect one cable to the negative (-) terminal of the solar panel. Connect the other end of the same cable to the negative (-) terminal of the solar panel terminal in the control board (terminal 12 - see page 7).



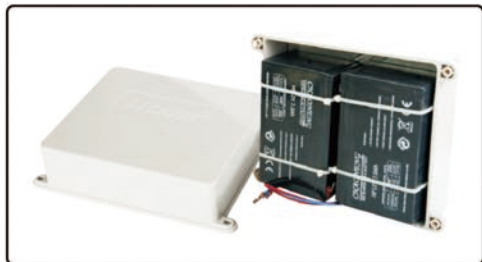
Battery Wiring Instruction

1. Using the supplied wire, connect the connector to the positive (+) terminal of one of the batteries. Connect the other end of the wire to the negative (-) terminal of the OTHER BATTERY.
2. Using the other wire, connect the connector to the positive (+) terminal of the battery. After the batteries are installed, the other end will be connected to the control board.
3. Using another wire, connect it to the negative (-) terminal of the battery. After the batteries are installed, the other end will be connected to the control board.

Note: make sure the bare ends of the wires do not touch together or do not touch the same metal surface at the same time.



4. Install the batteries in the control box using cable ties as shown.



5. Connect the other end of the wire that is already connected to the positive terminal (+) of the battery to the positive (+) terminal in the control board for the battery (terminal 11 – see page 7).
6. Connect the other end of the wire that is already connected to the negative (-) terminal of the battery to the negative (-) terminal in the control board for the battery (terminal 11 – see page 7).

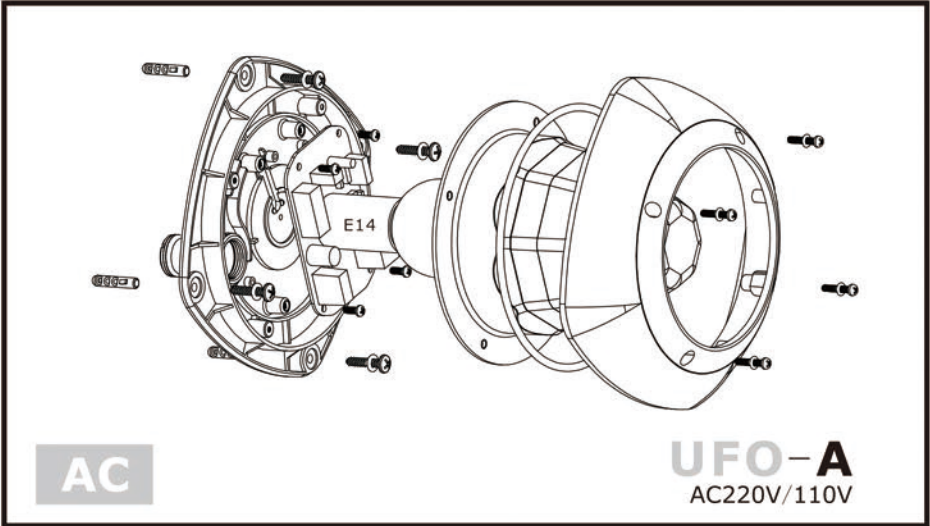
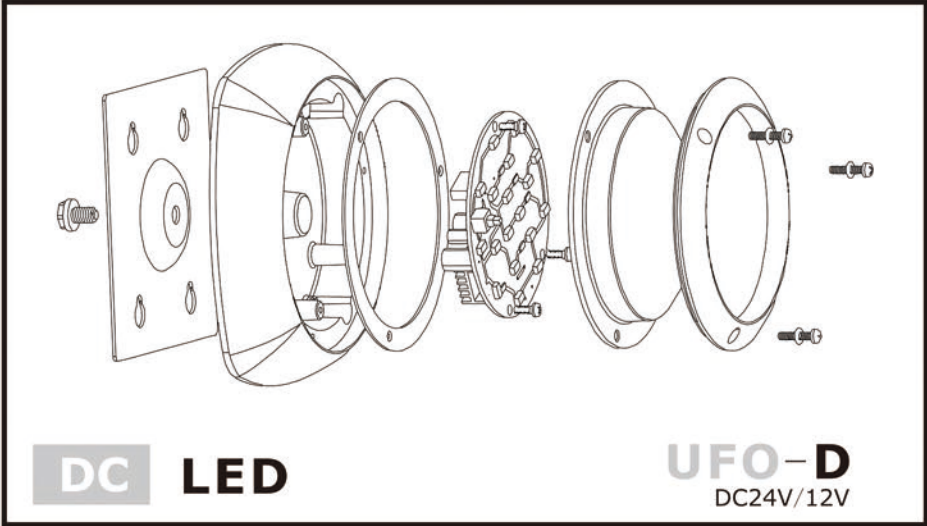
Battery Maintenance

Before use the batteries, please make sure that they are fully charged, it will lead to wrong operation if it is not fully charged, and need to check or replace the batteries by qualified person on a regular time basis.

- * Using 2 x 12V 7Ah or 9Ah batteries in series wiring for the solar panel backup power.
- * Battery is consumable, suggest to change battery every 1-2 years depending on usage and other factors.



Flashing light installation



If using solar systems, connect with DC24V flashing light only
*wiring for flashing light, (see Page 7)



PCB Self Debug and Error Code List

Code	Descriptions
E0	Low speed hampered stop
E1	Fast speed hampered stop
E2	Using limit switch stop
E3	Normal operating without limit switch
E4	Motor running over 2 minutes stop
E5	Hall sensor failure
E6	Pedestrian opening and closing stop
E7	Input Voltage (transformer, battery) less than DC15V
E8	Press "stop" button on remote control
E9	Motor stop working relate to any optional accessories connecting to terminal "OP/CS"



SD

Solar Sliding Gate Opener with self Debug Function



Suitable for
residential yard gate

DC 24V Opener, the design of fashionable outline.

Easy Self learning feature.

Commercial & solar energy power source can be connected at the same time.

Digital gate limit positioning system.

Pedestrian open and full open adjustable, opening range can be adjusted.

Auto close function with adjustable closing time delay.

Backup battery is available, can work during power failure, battery status display.

Self Debug function built-in.

