Installation Guide

Version 2. 01

EM
Swing Gate Opener

LOHAS
A
HOUSE

1. Features:

1. Exclusive patent for manual release in case of power failure or maintenance
2. Commercial power & solar energy power source can be switched optionally
3. Immediate stop function
4. Adjustable time of high speed & slow speed
5. Adjustable force of high speed & slow speed
6. Auto Close function
7. Adjustable closing time delay for motor with electric lock
8. Single & dual swing is optional
9. Max can up to 50 sets of remote controllers,
10. DC 24V backup battery (Optional)
11. Flashing light AC 220V/110V & DC 24V (Optional)
12. Optional Device: DC 24V gate lock, photocell, keypad, push button, extensional receiver box

2. Technical Specifications

Electrical

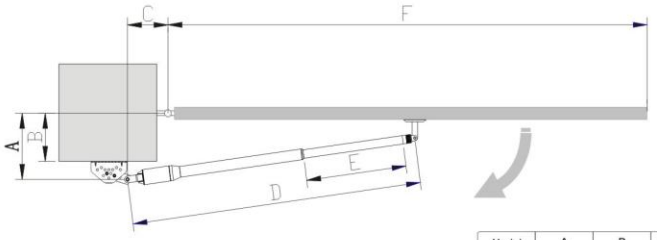
Operating Voltage	DC 24V
Electronic Controller	Microcontroller Based
Safety Detection	Over Current Detection
Safety Barrier	Infrared Beam Sensor (Optional)
IP Rating	IP66

Mechanical

Swing Type	EM3 Plus	EM 3	EM 2
Max. Piston Stroke	450 mm	350 mm	200 mm
Max. Length of motor	1255 mm	1030 mm	730 mm
Max. Leaf's Weight	350 kg/ Leaf	300 kg/ Leaf	250 kg/ Leaf
Suitable Leaf's Length	2 to 3.5 meter/ Leaf	1.5 to 2.5 meter/ Leaf	1 to 1.6 meter/ Leaf
Frame Housing	Stainless Steel / Aluminum Alloy		
Driving Method	Screw Driven Piston Type		
Opening Degree	0 to 110 degree		
90 Degree Rotation Time	8 to 12 seconds		
Temperature	-25℃ to +55℃		

3. Mechanical Installation

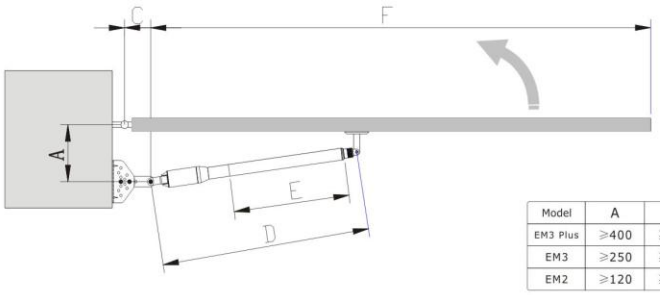
Installation Dimensions



Inward Swing

Measurement: mm

Model	A	B	C	D	E	F
EM3 Plus	≤275	≤200	≤180	1320	450	≤4000
EM3	≤225	≤150	≤130	1086	350	≤2500
EM2	≤80	≤40	≤80	786	200	≤1500

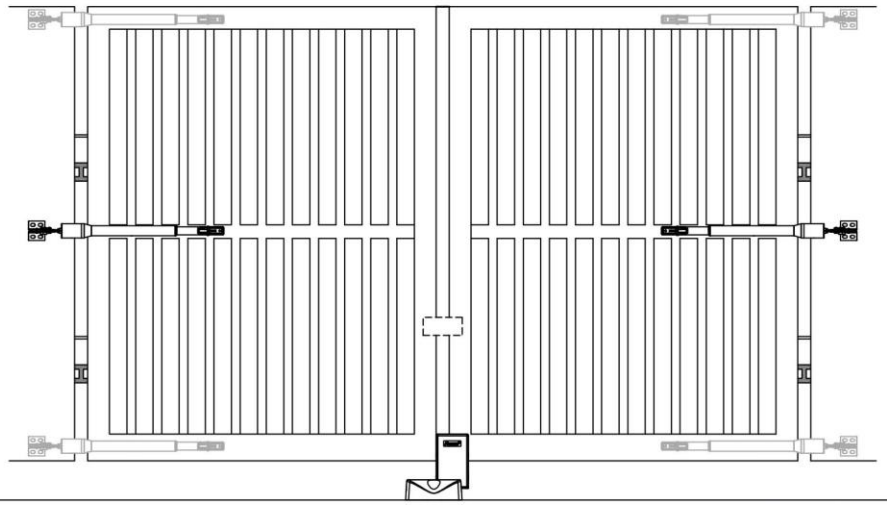


Outward Swing

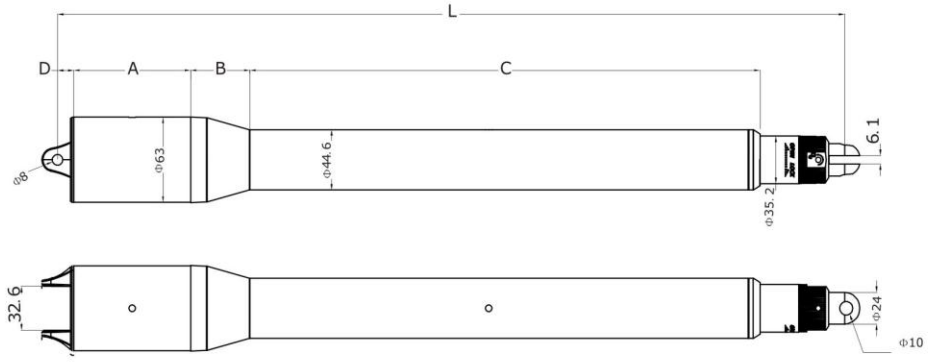
Measurement: mm

Model	A	C	D	E	F
EM3 Plus	≥400	≥180	870	450	≤4000
EM3	≥250	≥100	736	350	≤2500
EM2	≥120	≥80	586	200	≤1500

Standard Installation



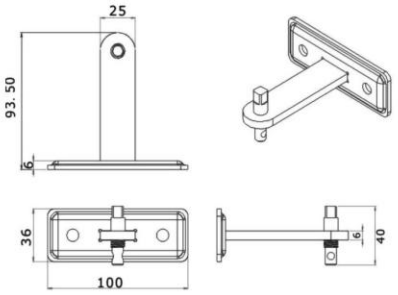
Opener Dimension

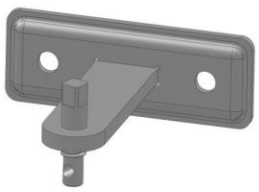


Measurement: mm

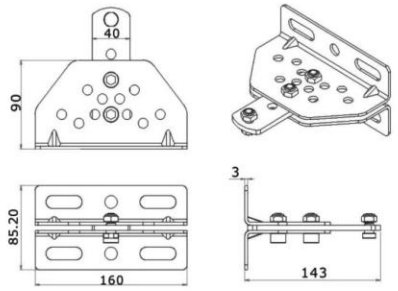
Piston Stroke	A	B	C	D	L
200	135	45	275	12.5	530/730
350	135	45	425	12.5	680/1030
450	135	45	550	12.5	805/1255

Bracket Dimension

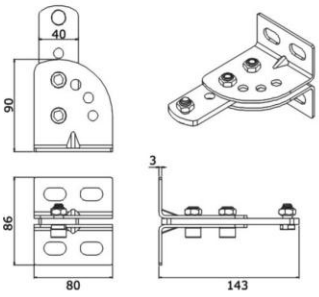




Gate Bracket

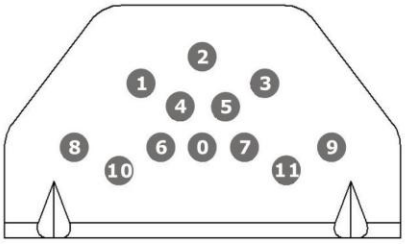


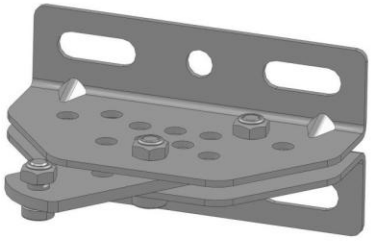
Post Bracket

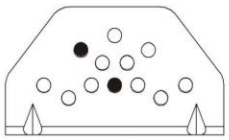


Post Bracket

Post Brackets Alignment



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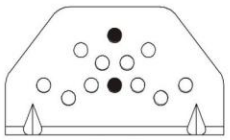
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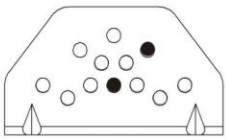
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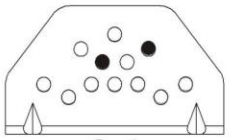
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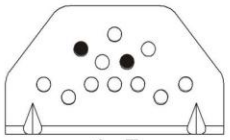
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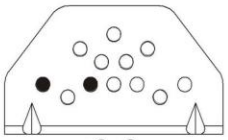
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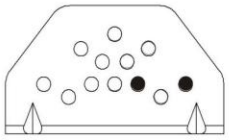
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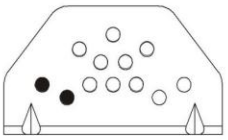
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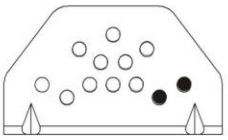

9–11

A-A

1---0
2---0
3---0
3---4
1---5
6---8
7---9

A–A

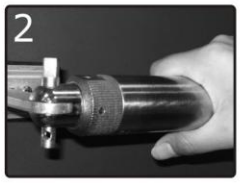
B-B

8---10
9---11

B–B

4. Manual Release

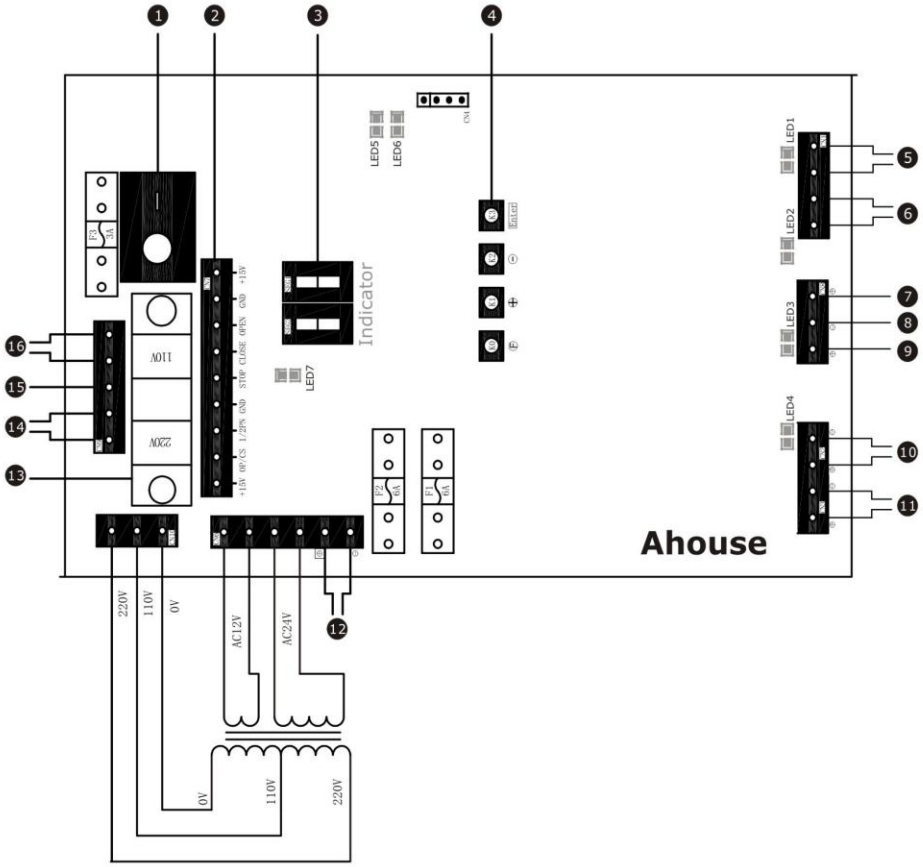
In case of a power failure, the operator can be disengage from the gate. Follow the directions below to release and rotate the operator to enable the manual release function.



1. Using Allen Key to unlock the manual release function.
2. Toward the "open" direction to rotate the moving part of operator
3. 90 degree or 1/4 turn to unlock position.
4. Now the manual release function is enabled, when maintaining or no power.

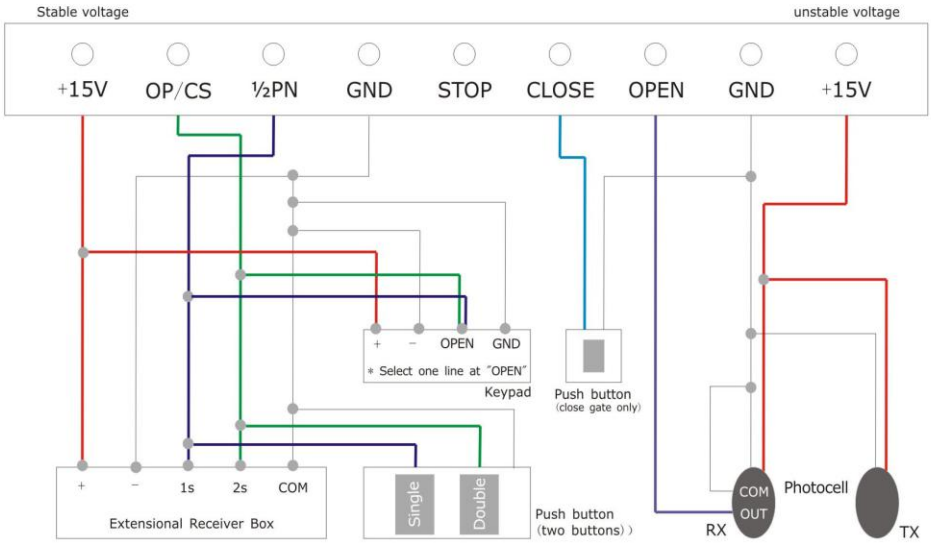
Control Box Setting

1. Commercial power system wiring



1. Power Button
2. Accessories and command device's terminals
3. Indicator
4. Function Adjustment Button
5. Motor A (With Electric Lock)
6. Motor B
7. Output DC24V (unstable voltage)
8. 0V "- " output
9. Output DC15V stable voltage (load current can't be over 500mA)
10. DC24V Electric Lock
11. DC24V Flashing Light
12. Backup Battery(12V 7Ah X 2 in series)
13. Switch (AC 220V & 110V)
14. Power Supply (AC 220/110V)
15. Earthed
16. AC Flashing Light

2. Wiring for optional accessories



Item	+15V	OP/CS	1/2PN	GND	STOP	CLOSE	OPEN	GND	+15V	Remarks
Description	Stable voltage output	Dual Open	Single Open	"-" & "Concentration line"	Stop	Close	Normally opening signal	"-" & "Concentration line"	Unstable voltage output	
Extensional Receiver Box (single gate)	●		●	● ●						
Extensional Receiver Box (dual gate)	●	●	●	● ●						
Keypad (single open)	●		●	● ●						
Keypad (dual open)	●	●		● ●						
Push button (two buttons)		●	●	●						
Push button (one button)						●		●		close gate only
			●					●		single open
		●						●		dual open
Photocell (sender)								●	●	
Photocell (receiver)							●	● ●	●	

"●"Means the connection port

*For solar gate opener, "+15V" unstable voltage is invalid, the optional accessories need to be connected to "+15V" stable voltage

Instructions for photocell:
During closing, if active the signal of photocell, the PCB will activate opening operation
When photocell sensed the obstacle, the door will be stopped then opened immediately.
After remove the obstacles, the door will operate according to the new command

3. Remote Control Setting

Press and hold "F" button of approximately one second (without Pressing the button of remote control) until the indicator show "FF" and keep blinking, release the "F" button, then start to the setting (Do step of 3.1 to 3.2).

3. 1 Activating the Remote Control

Keep pressing any button on the remote control, if the indicator retain lighting, it means the remote controls are valid (50 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)

3. 2 Erasing the code

Press and Hold on "Enter" button on the PCB for over one second until the indicator retain lighting. Then all the remote controls are invalid.

433MHZ Remote control

*To open single gate, push "Ⓟ" button

The Remote control cyclic form is "open – stop – close"

4.Motor Setting

Make sure the batteries are fully charged / connected to power supply before carrying out the below procedures

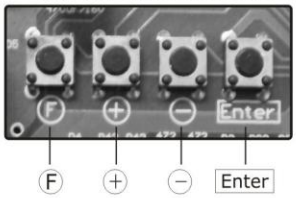
4.1 Motor Setting for Overload

Motor A

Go to learning mode

First press the "+"button on the PCB for around 2 seconds, the indicator will appear show "AA" and keep blinking. This means the system is ready to set motor A.
Then proceed to Overload Detection Setting

Function adjustment button

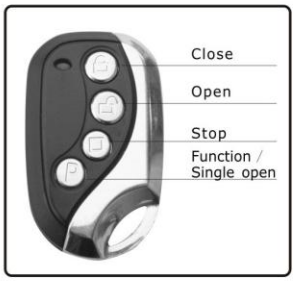


Overload Detection Setting

(the gate can be in any position, not necessary to be fully closed/opened)

a) Setting on opening

Press and hold the "□stop" and "🔓open" buttons on the remote simultaneously until the indicator starts blinks, then release both buttons.



While the gate is opening (within 5 seconds) block the gates movement (force it to stop). After 1 -2 seconds the motor will stop. This indicates the controller has recognized it has hit an object. Electronics memorises the overload settings when opening the gate.

(If the gate closes, disconnect powerand reverse the motor wire and restart the setting again)

b) Setting on closing

Press and hold the "□stop" and "🔒close" buttons on the remote control simultaneously until the indicator blinks, then release both buttons.

While the gate is closing (within 5 seconds) block the gates movement. After 1 -2 seconds the motor will stop. This indicates the controller has recognized it has hit an object. Electronics memorises the overload settings when opening the gate.

Exit the learning Mode

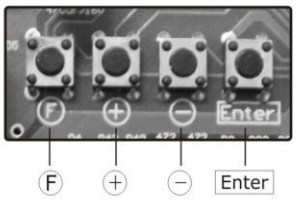
After the above steps, please press "F" to exist the learning mode, and press "close" button to close the gate fully. Then start to do the Motor B

Motor B

Go to learning mode

First press the " - "button on the PCB for around 2 seconds, the indicator will appear show "BB" and keep blinking. This means the system is ready to set motor B.
Then proceed to Overload Detection Setting

Function adjustment button



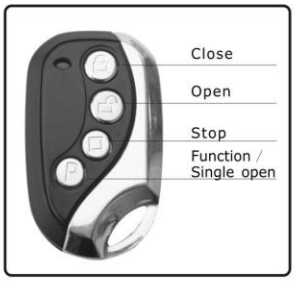
Overload Detection Setting

a) Setting on opening

Press and hold the "□stop" and "🔓open" buttons on the remote simultaneously until the indicator starts blinks, then release both buttons.

While the gate is opening (within 5 seconds) block the gates movement (force it to stop). After 1 -2 seconds the motor will stop. This indicates the controller has recognized it has hit an object. Electronics memorise the overload settings when opening the gate.

(If the gate closes, disconnect power and reverse the motor wire and restart the setting again)



b) Setting on closing

Press and hold the "□stop" and "🔒close" buttons on the remote control simultaneously until the indicator blinks then release both buttons.

While the gate is closing (within 5 seconds) block the gates movement. After 1 -2 seconds the motor will stop. This indicates the controller has recognized it has hit an object. Electronics memorise the overload settings when opening the gate.

Exit the learning Mode

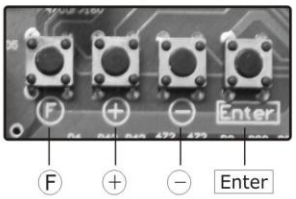
After the above steps, please press "F" to exist the learning mode, and press "close" button to close the gate fully.

*After completed completing the above procedures, the motor will have the safety stop feature upon hitting obstacles during opening/closing. It will also perform soft start and soft stop in each movement.

4.2 Total Timer Adjustment

(Make sure the gate is fitted with mechanical end stop!
These end stops can be removed after programming)

Function adjustment button



Motor A

Go to learning mode

First press the "+"button on the PCB for around 2 seconds the indicator will appear show "AA" and keep blinking.

a) Setting on opening

(make sure the gate is in fully closed position before proceeding)

Press and hold the "Ⓟ" and "🔓open" buttons on the remote simultaneously until the indicator starts blinking then release both buttons. The gate will now open until the end and hit the end stop.
Now gate opening limit is learned.

b) Setting on closing

(make sure the gate is in fully opened position before proceeding)

Press and hold the "Ⓟ" and "🔒Close" buttons on the remote control simultaneously until the indicator starts blinking, then release both buttons. The gate will now close to the end and stop. Now gate closing limit is learned.

Exit the learning Mode

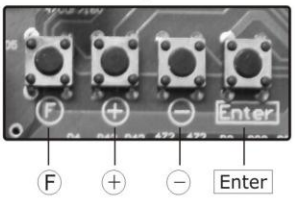
After the above steps, please press "F" to exist the learning mode, and press "close" button to close the gate fully. Then start to do the Motor B

Motor B

Go to learning mode

First press the "-" button on the PCB for around 2 seconds the indicator will appear show "BB" and keep blinking.

Function adjustment button



a) Setting on opening

(make sure the gate is in fully closed position before proceeding)

Press and hold the "Ⓟ" and "🔓open" buttons on the remote simultaneously until the indicator starts blinking then release both buttons. The gate will now open until the end and hit the end stop.
Now gate opening limit is learned.

b) Setting on closing

(make sure the gate is in fully opened position before proceeding)

Press and hold the "Ⓟ" and "🔒Close" buttons on the remote control simultaneously until the indicator starts blinking, then release both buttons. The gate will now close to the end and stop. Now gate closing limit is learned.

Exit the learning Mode

After the above steps, please press "F" to exist the learning mode, and press "close" button to close the gate fully.

*After completed completing the above procedures, the system will automatically initialize the total time of opening/closing and allocate the time of high speed and low speed operations.

Function Adjustment

(Follow the steps below)

Step 1: Press ″F″ button, the indicator will show ″A0″

Step 2: Press ″+″ button, it' ll show in turn ″A1, A2, A3, A4, A5, A6, A7, B0, B1, B2, B3, B4, B5, B6, B7, C0, C1, C2, C3, C4, C5″, Press ″−″ button, it' ll show reversely

Step 3: Press ″F″ button, after choose the item, the indicator will show numbers

Step 4: Press ″+″ or ″−″ button to select levels

Step 5: Press ″Enter″ button to confirm

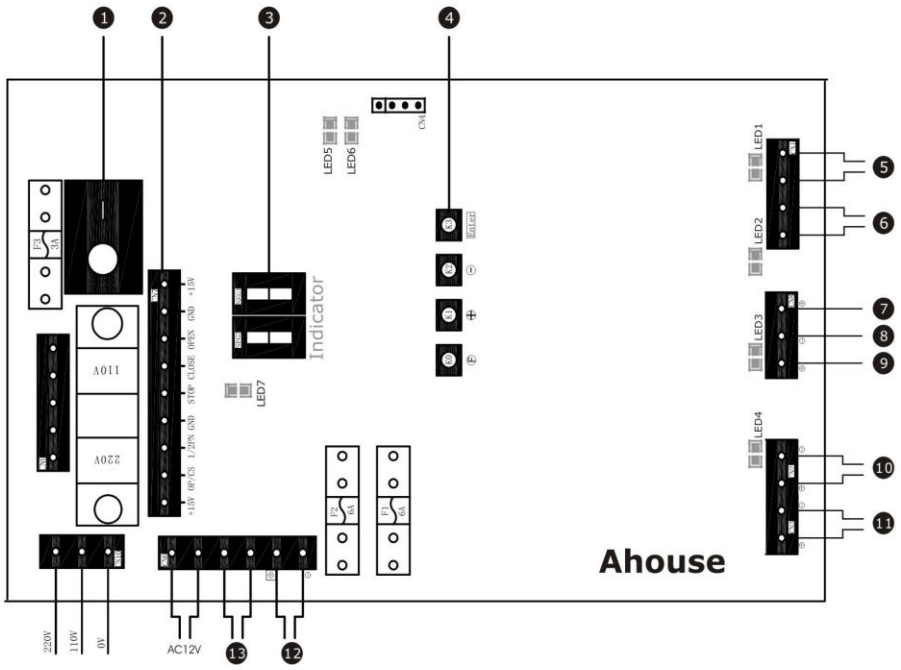
Step 6: Press ″F″ button for return to previous configuration menu

Function debug form

Item		Name	Setting Range	Description	Remarks
A0	B0	Intermediate Stop Function with slow speed	0~99	default setting : 15	A0 to A7 : motor A B0 to B7 : motor B
A1	B1	Intermediate Stop Function with high speed	0~99	default setting : 43	
A2	B2	Time of opening slow speed	0~9.9s	default setting : 5	
A3	B3	Time of opening high speed	0~99s	default setting : 3	
A4	B4	Time of closing slow speed	0~9.9s	default setting : 5	
A5	B5	Time of closing high speed	0~99s	default setting : 3	
A6	B6	Force of opening and closing slow speed	0~99	default setting : 46	
A7	B7	Force of opening and closing high speed	0~99	default setting : 99	
C0		Reverse swing of motor A	0~2	" 0 " means neither gate lock or opposite open operation	default setting: 2
				" 1 " means having gate lock operation, but no opposite open operation	
				" 2 " means both having gate lock operation and opposite open operation	
C1		Electrical Lock	0~1	" 0 " means no gate lock operation when close	default setting: 1
				" 1 " means having gate lock operation when close	
C2		Motor Delay Setting	0~3	" 0 " means motor A work, motor B didn't work	default setting: 2
				" 1 " means motor B delay start when open	
				" 2 " means motor B delay start when open, motor A delay start when close	
				" 3 " means motor A and motor B start running at same time	
C3		Time of auto close	0~99s	" 0 " means cancel auto close	default setting: 0
				" 1-99 " means auto close	
C4		Time of delay open, and delay of close	0.1~9.9s	Motor B delay open, motor A delay close	default setting: 2
C5					Reserved function

* For C1,C2,C3, all of them can adjust from 0 to 99, but only within the setting range is valid.

Solar Control System Wiring



1. Power Button
2. Accessories and command device's terminals
3. Indicator
4. Function Adjustment Button
5. Motor A (With Electric Lock)
6. Motor B
7. Output DC24V (unstable voltage)
8. 0V "－" output
9. Output DC15V stable voltage (load current can't be over 500mA)
10. DC24V Electric Lock
11. DC24V Flashing Light
12. Backup Battery(12V 7Ah X 2 in series)
13. Connector for solar panel / adaptor

LED Diagram

Power On, LED5 will blink.

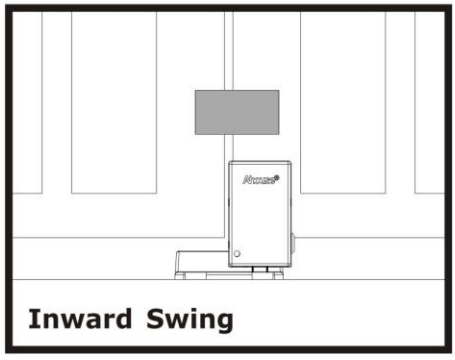
LED1 Motor A open LED
LED2 Motor A close LED
LED3 Motor B open LED
LED4 Motor B close LED
LED5 Power LED
LED6 Received signal for remote control LED
LED7 Push button LED

Solar Panel Installation

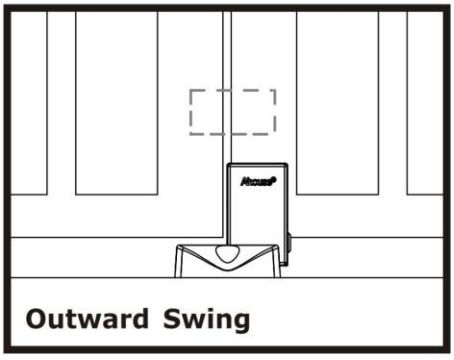
1. Measure and mark halfway along the long sides of both solar panel sides (170mm half way)
2. Place the holding brackets over this halfway point and mark the holes. Attach the plastic washers to the holding brackets and holding arms
3. Carefully drill the 4 holes with a 13/64 drill bit and be suer you 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.

Gate lock installation

Model: Ds218

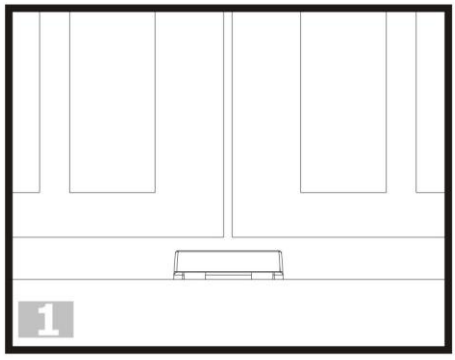


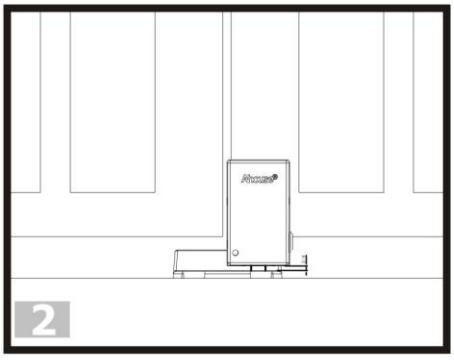
Inward Swing

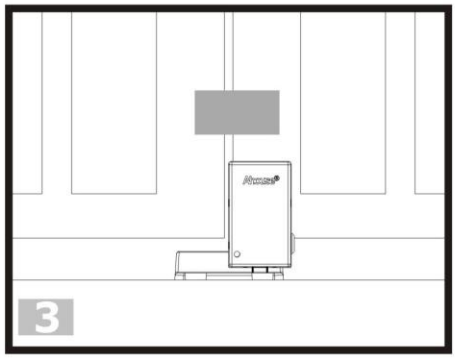


Outward Swing

Installation



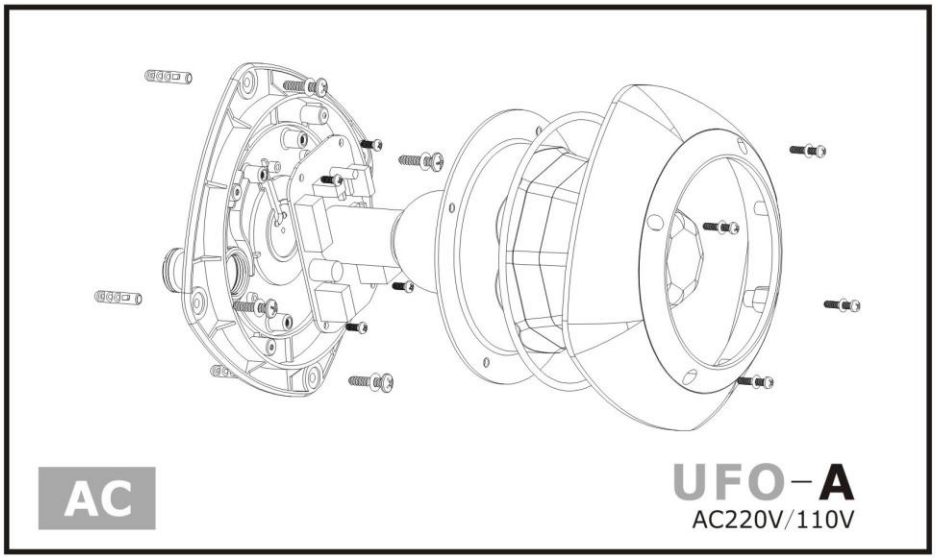


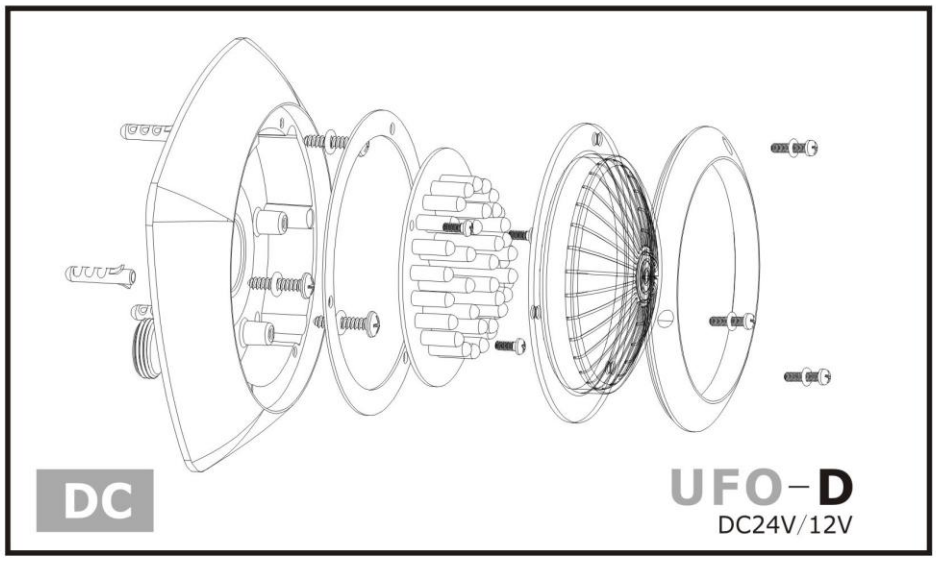


1. Install the stopper
2. Fix the lock body onto the first moving side of the gate leaf, make sure there is at least 5 to 8 mm space between the stopper location hole surface & the bottom of lock body.
3. Install the stopper plate in corresponding position onto the same leaf which installed with lock DS218, this is to make sure when 2 leaves are closed, the stopper plate can limit the leaf which cannot opened either.

* The lock bolt pin must be in vertical position with the bolt pin of the stopper .

Flashing light installation





If using solar systems, connect with DC24V
*wiring for flashing light,(see page 6,14)


Swing Gate
Opener
Attention on installations:
1. The doors must be in horizontal lines, make sure the door and the door post are in vertical postions.
2. Make sure the gates can be moved by hand push force, and can be easily stopped anytime.
3. The gates can be operated quietly and stably.
4. Make sure the gates can operated smoothly within the installation area.
5. The opening degree and the push force of the gate operator is related to the installation position of the gate brackets and the post brackets. So please read the page 2-4 of the manual carefully to make sure the installation is fit into the need of the consumers.
6. Before you fix the gate brackets and the post brackets, please first make sure the gate operator can be in fully horizontal position during both opening and closing gates, and it is no problem to open/close the gates manually.


Ahouse®
The most reliable swing gate opener