



# Automatic Solar Electric Swing Gate Opener

## User Manual

[Revision 2.0 August 2018]




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READ THIS MANUAL CAREFULLY BEFORE USE – FAILURE TO DO SO MAY RESULT IN INJURY, PROPERTY DAMAGE AND MAY VOID WARRANTY. • KEEP THIS MANUAL FOR FUTURE REFERENCE. • Products covered by this manual may vary in appearance, assembly, inclusions, specifications, description and packaging.

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# Safety





















Safety messages are designed to alert you to possible dangers or hazards that could cause death, injury or equipment or property damage if not understood or followed. Safety messages have the following symbols:














 You WILL be KILLED or SERIOUSLY INJURED if you do not follow instructions.	 You CAN be KILLED or SERIOUSLY INJURED if you do not follow instructions.	 You CAN be INJURED if you do not follow instructions or equipment damage may occur.
<p>It is vital that you read and understand this user manual before using the product, including safety warnings, and any assembly and operating instructions. Keep the manual for future reference.</p> <p>Safety precautions and recommendations detailed here must be fully understood and followed to reduce the risk of injury, fire, explosion, electrical hazard, and/or property damage.</p> <p>Safety information presented here is generic in nature – some advice may not be applicable to every product. The term "equipment" refers to the product, be it electrical mains powered, battery powered or combustion engine powered.</p> <ul style="list-style-type: none"> <li>• <b>Before Use</b> - If you are not familiar with the safe operation/handling of the equipment, or are in any way unsure of any aspect of suitability or correct use for your application, you should complete training conducted by a person or organization qualified in safe use and operation of this equipment, including fuel/electrical handling and safety.</li> <li>• Do NOT operate the equipment in flammable or explosive environments, such as in the presence of flammable liquids, gases or dust. The equipment may create sparks or heat that may ignite flammable substances.</li> <li>• Keep clear of moving parts.</li> <li>• Equipment may be a potential source of electric shock or injury if misused.</li> <li>• Do NOT operate the equipment if it is damaged, malfunctioning or is in an excessively worn state.</li> <li>• Do NOT allow others to use the equipment unless they have read this manual and are adequately trained.</li> <li>• Keep packaging away from children - risk of suffocation! Operators must use the equipment correctly. When using the equipment, consider conditions and pay due care to persons and property.</li> </ul> <p><b>General Work Area Safety</b></p> <ul style="list-style-type: none"> <li>• Work areas should be clean and well lit.</li> <li>• Do not operate the equipment if bystanders, animals etc are within operating range of the equipment or the general work area.</li> <li>• If devices are provided for connecting dust extraction / collection facilities, ensure these are connected and used properly. Dust collection can reduce dust-related hazards.</li> </ul>	<p><b>General Personal Safety</b></p> <ul style="list-style-type: none"> <li>• Wear appropriate protective equipment when operating, servicing, or when in the operating area of the equipment to help protect from eye and ear injury, poisoning, burns, cutting and crush injuries. Protective equipment such as safety goggles, respirators, non-slip safety footwear, hard hat, hearing protection etc should be used for appropriate equipment / conditions. Other people nearby should also wear appropriate personal protective equipment. Do not wear loose clothing or jewellery, which can be caught in moving parts. Keep hair and clothing away from the equipment.</li> <li>• Stay alert and use common sense when operating the equipment. Do not over-reach. Always maintain secure footing and balance.</li> <li>• Do not use the equipment if tired or under the influence of drugs, alcohol or medication.</li> <li>• This equipment is not intended for use by persons with reduced physical, sensory or mental capabilities.</li> </ul> <p><b>General Fuel Safety</b></p> <ul style="list-style-type: none"> <li>• Petrol/fuel/gasoline is extremely flammable – keep clear of naked flames or other ignition sources.</li> <li>• Do not spill fuel. If you spill fuel, wipe it off the equipment immediately – if fuel gets on your clothing, change clothing.</li> <li>• Do NOT smoke near fuel or when refuelling.</li> <li>• Always shut off the engine before refuelling.</li> <li>• Do NOT refuel a hot engine.</li> <li>• Open the fuel cap carefully to allow any pressure build-up in the tank to release slowly.</li> <li>• Always refuel in well ventilated areas.</li> <li>• Always check for fuel leakage. If fuel leakage is found, do not start or run the engine until all leaks are fixed.</li> </ul> <p><b>General Carbon-Monoxide Safety</b></p> <ul style="list-style-type: none"> <li>• Using a combustion engine indoors <b>CAN KILL IN MINUTES</b>. Engine exhaust contains carbon-monoxide – a poison you cannot smell or see.</li> <li>• Use combustion engines OUTSIDE only, and far away from windows, doors and vents.</li> </ul>	<p><b>General Equipment Use and Care</b></p> <ul style="list-style-type: none"> <li>• The equipment is designed for domestic use only.</li> <li>• Handle the equipment safely and carefully.</li> <li>• Before use, inspect the equipment for misalignment or binding of moving parts, loose components, damage or any other condition that may affect its operation. If damaged, have the equipment repaired by an authorised service centre or technician before use.</li> <li>• Prevent unintentional starting of the equipment - ensure equipment and power switches are in the OFF position before connecting or moving equipment. Do not carry equipment with hands or fingers touching any controls. Remove any tools or other items that are not a part of the equipment from it before starting or switching on.</li> <li>• Do not force the equipment. Use the correct equipment for your application. Equipment will perform better and be safer when used within its design and usage parameters.</li> <li>• Use the equipment and accessories etc. in accordance with these instructions, considering working conditions and the work to be performed. Using the equipment for operations different from those intended could result in hazardous situations.</li> <li>• Always keep equipment components (engines, hoses, handles, controls, frames, housings, guards etc) and accessories (cutting tools, nozzles, bits etc) properly maintained. Keep the equipment clean and, where applicable, properly lubricated.</li> <li>• Store the equipment out of reach of children or untrained persons. To avoid burns or fire hazards, let the equipment cool completely before transporting or storing. Never place or store the equipment near flammable materials, combustible gases or liquids etc.</li> <li>• The equipment is not weather-proof, and should not be stored in direct sunlight, at high ambient temperatures or locations that are damp or humid.</li> <li>• Do not clean equipment with solvents, flammable liquids or harsh abrasives.</li> <li>• For specific equipment safety use and care, see Equipment Safety.</li> </ul>

General Electrical Safety	General Electrical Safety	General Service Information
<ul style="list-style-type: none"><li>Inspect electrical equipment, extension cords, power bars, and electrical fittings for damage or wear before each use. Repair or replace damaged equipment immediately.</li><li>Ensure all power sources conform to equipment voltage requirements and are disconnected before connecting or disconnecting equipment.</li><li>When wiring electrically powered equipment, follow all electrical and safety codes.</li><li>Wherever possible, use a residual current device (RCD).</li><li>High voltage / high current power lines may be present. Use extreme caution to avoid contact or interference with power lines. Electrical shock can be fatal.</li></ul>	<ul style="list-style-type: none"><li>Electrically grounded equipment must have an approved cord and plug and be connected to a grounded electrical outlet.</li><li>Do NOT bypass the ON/OFF switch and operate equipment by connecting and disconnecting the electrical cord.</li><li>Do NOT use equipment that has exposed wiring, damaged switches, covers or guards.</li><li>Do NOT use electrical equipment in wet conditions or in damp locations.</li><li>Do NOT use electrical cords to lift, move or carry equipment.</li><li>Do NOT coil or knot electrical cords, and ensure electrical cords are not trip hazards.</li></ul>	<ul style="list-style-type: none"><li>The equipment must be serviced or repaired at authorised service centres by qualified personnel only.</li><li>Replacement parts must be original equipment manufacturer (OEM) to ensure equipment safety is maintained.</li><li>Do NOT attempt any maintenance or repair work not described in this manual.</li><li>After use, the equipment and components may still be hot – allow the equipment to cool and disconnect spark plugs and/or electrical power sources and/or batteries from it before making adjustments, changing accessories or performing repair or maintenance.</li><li>Do NOT make adjustments while the equipment is running.</li><li>Perform service related activities in suitable conditions, such as a workshop.</li><li>Replace worn, damaged or missing warning/safety labels immediately.</li></ul>
Automatic Gate Safety		
<p>DO NOT operate the gate opener unless the gate is in full view and free from objects such as cars and children/people. Make sure that the gate has finished moving before entering or leaving the driveway. DO NOT operate the gate opener when children/people are near the gate. Children must be supervised near the gate at all times when the gate opener is in use. Serious personal injury and/or property damage can result from failure to follow this warning. DO NOT allow children to operate the gate opener. Serious personal injury and/or property damage can result from failure to follow this warning. Make sure that the Safety Obstruction Force system is working correctly, and is tested every month. Failure to follow this rule could result in serious personal injury and/or property damage. This test must be repeated at regular intervals and the necessary adjustments made as required. DO NOT disengage the gate opener to manual operation with children/people or any other objects including motor vehicles within the gateway, see section "The Gate Clutch". If using a key switch, keypad or any devices that can operate the gate opener, make sure it is out of reach of children and that the gateway is in full view at all times. If the power supply cord is damaged, it must be replaced by a suitably qualified person. Make sure that remote transmitters are kept out of reach of children. The gate opener should not be immersed in water or sprayed directly by a hose or other water carrying device. The gate(s) must be well balanced and in good working order. Faulty gates must be repaired by a qualified technician prior to opener installation.</p>	<p>Remove or disengage all gate locks and mechanisms prior to installation of the opener. Connect the gate opener to a properly earthed general purpose 240V mains power outlet installed by a suitably qualified electrician. Disconnect the power cord from mains power before making any repairs or removing covers. Only experienced service personnel should remove covers from the gate opener. Keep hands and loose clothing clear of the gate and opener at all times. All safety instructions above must be followed. In order for the gate opener to sense an object obstructing the gateway, some force must be exerted on the object. As a result the object, gate and/or person may suffer damage or injury. Make sure that the gate is fully open before driving into or out of the driveway. Make sure the gate is fully closed before leaving the driveway. The gate opener is not intended for use by young children or persons without adequate supervision. Children should be supervised to ensure that they do not play with the remote transmitters or the opener. Frequently examine the installation and mountings for signs of wear, damage or imbalance. Do not use the equipment if repair or adjustment is needed since a fault in the installation or an incorrectly balanced gate may cause injury.</p> <p><b>WARNING!</b> For additional safety protection we strongly recommend the fitting of a Photo Electric (Safety) Beam by a gate specialist.</p> <p>Only a fully licenced electrician should perform installation or maintenance where terminals/wiring/circuit boards that may at any time be live with 240V AC electricity are accessed.</p>	

## Safety Symbols

The product may have safety warning labels attached to it, explained below. Understand the symbols on your product and their meanings. If any stickers become unreadable, unattached etc, replace them.

 <p><b>Flammable Material Hazard</b> Flammable liquids, gases or substances etc may present. Avoid ignition sources and open flames. Danger of fire.</p>	 <p><b>Read User Manual</b> Read and fully understand product safety warnings, operation, procedures etc before using the product.</p>	 <p><b>Use Hand Protection</b> Wear appropriate hand protection and take due care as the product or use of the product may present hand hazards.</p>	 <p><b>Carbon-Monoxide Hazard</b> Do not use the product in confined areas or without adequate ventilation. Carbon-monoxide poisoning can be fatal.</p>
 <p><b>Electrocution / Electrical Shock Hazard</b> High voltage or high current electricity may be present or required by the product. Take due care when handling electrical products, cables, plugs and leads. Electrical shock can be fatal.</p>	 <p><b>Toxic Fumes / Dust Hazard</b> Using the product or by-products from use may produce fumes, smoke or particles that could be harmful if inhaled. Wear appropriate breathing protection and have adequate ventilation.</p>	 <p><b>Explosive Material Hazard</b> Combustible liquids, gases or substances etc may be present. Avoid ignition sources and open flames. Danger of explosion.</p>	 <p><b>Cutting / Amputation Hazard</b> The product may have blades, edges or mechanical devices that can cause severe cut injury to fingers, limbs etc. Take due care when handling and using the product.</p>
 <p><b>Crush Hazard</b> The product may have blades, edges or mechanical devices that can cause severe crush injury to fingers, limbs etc. Take due care when handling and using the product.</p>	 <p><b>Single Operator Only</b> The product must be operated by a single person only. More than one person operating the product may introduce additional hazards.</p>	 <p><b>Use Face Protection</b> Wear appropriate full-face protection and take due care as the product or use of the product may present face and eye hazards.</p>	 <p><b>Use Foot Protection</b> Wear appropriate foot protection and take due care as the product or use of the product may present foot hazards.</p>
 <p><b>Use Eye / Ear / Head Protection</b> Wear appropriate eye and / or ear and / or head protection and take due care as the product or use of the product may present eye, hearing and head hazards.</p>	 <p><b>Running Hazard</b> Do not run on or near the product as doing so may present a fall hazard.</p>	 <p><b>Diving Hazard</b> Do not dive into the product as doing so may present a neck / head injury hazard.</p>	 <p><b>Adult Supervision Required</b> Always supervise children and other users of a product to prevent drowning or injury.</p>
 <p><b>Skin Penetration / Puncture Hazard</b> The product may produce pressure, emit liquids or objects that can cause severe injury to fingers, limbs, blood etc. Take due care when handling and using the product.</p>	 <p><b>Hot Surface Hazard</b> Be aware that the product may produce high temperatures and hot surfaces that can cause burn injuries.</p>	 <p><b>Flying Debris Hazard</b> Be aware that the product or use of the product may present hazards produced by flying debris. Wear appropriate clothing and protective devices.</p>	 <p><b>Moving Parts Hazard</b> Be aware that the product contains or uses mechanical devices that move or rotate. Always wait for moving parts to stop fully before handling the product, adjusting, maintenance etc.</p>

 <p><b>Carbon-Monoxide Hazard</b> Do not use the product in confined areas or without adequate ventilation. Carbon-monoxide poisoning can be fatal.</p>	 <p><b>Pull Hazard</b> Be aware that the product contains or uses mechanical devices that can pull in objects and can cause severe injury to fingers, limbs etc. Take due care when handling and using the product.</p>	 <p><b>Slope / Fall Injury Hazard</b> Be aware that using the product on sloping surfaces or in slippery conditions may present additional dangers from falls and contact with blades, moving parts, hot surfaces etc.</p>	 <p><b>"Slam Dunk" Warning</b> Do NOT attempt "slam dunk" manoeuvres as this may result in severe injury due to falling, product breakage or collapse etc.</p>
 <p><b>Electrocution / Electrical Shock Hazard - Outdoor</b> High voltage or high current electricity may be present or required by the product. Do NOT use in rain, damp or wet conditions. Electrical shock can be fatal.</p>	 <p><b>Electrocution / Electrical Shock Hazard - Disconnect</b> High voltage or high current electricity may be present or required by the product. Always disconnect the product from the electrical supply before handling the product, adjusting, maintenance etc.</p>	 <p><b>Power Line Electrocution Hazard</b> High voltage / high current power lines may be present. Use extreme caution to avoid contact or interference with power lines. Electrical shock can be fatal.</p>	 <p><b>"Kick-Back" Hazard</b> High level of "kick-back" hazard that can cause the machine to suddenly rotate towards operator. Kick-back injury can be fatal.</p>
 <p><b>Winch Operator Position Hazard</b> Do NOT stand between winch and load. Do NOT use winch to move people.</p>	 <p><b>Winch Lift Hazard</b> Do NOT LIFT load vertically. Use machine to PULL only.</p>	 <p><b>Cable Hazard</b> Ensure that load bearing cable is not kinked or knotted.</p>	 <p><b>Winch Cable Hazard</b> Ensure that there is a minimum number of cable coils on winching mechanism.</p>
 <p><b>Winch Hook Hazard</b> Carry hook to load – do NOT throw or run.</p>	 <p><b>Flash / Blinding Hazard</b> Wear appropriate eye protection for welding. Direct exposure to weld arcs may cause permanent eye injury.</p>	 <p><b>Laser Hazard</b> Laser may be in use – do NOT look directly at laser, or allow others to.</p>	

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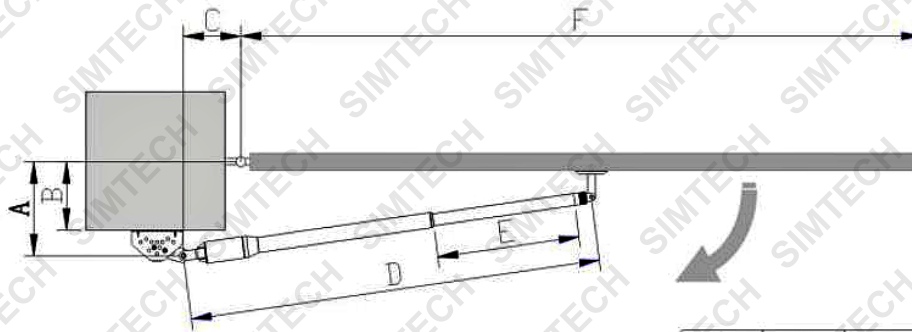
## Features

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.



# Mechanical Installation

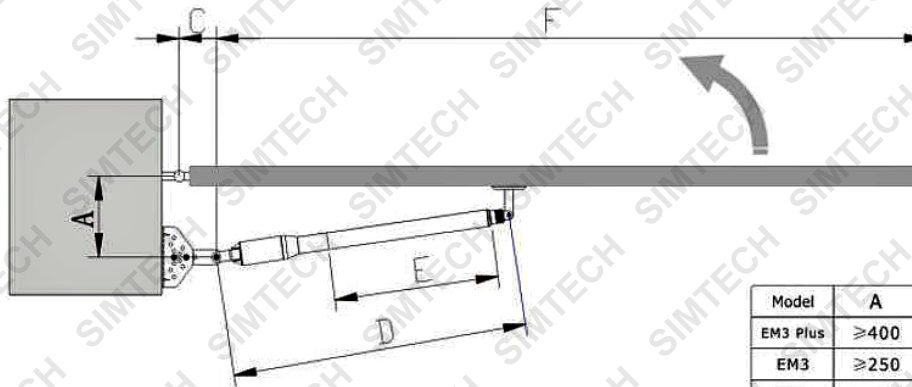
## Installation Dimensions



**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

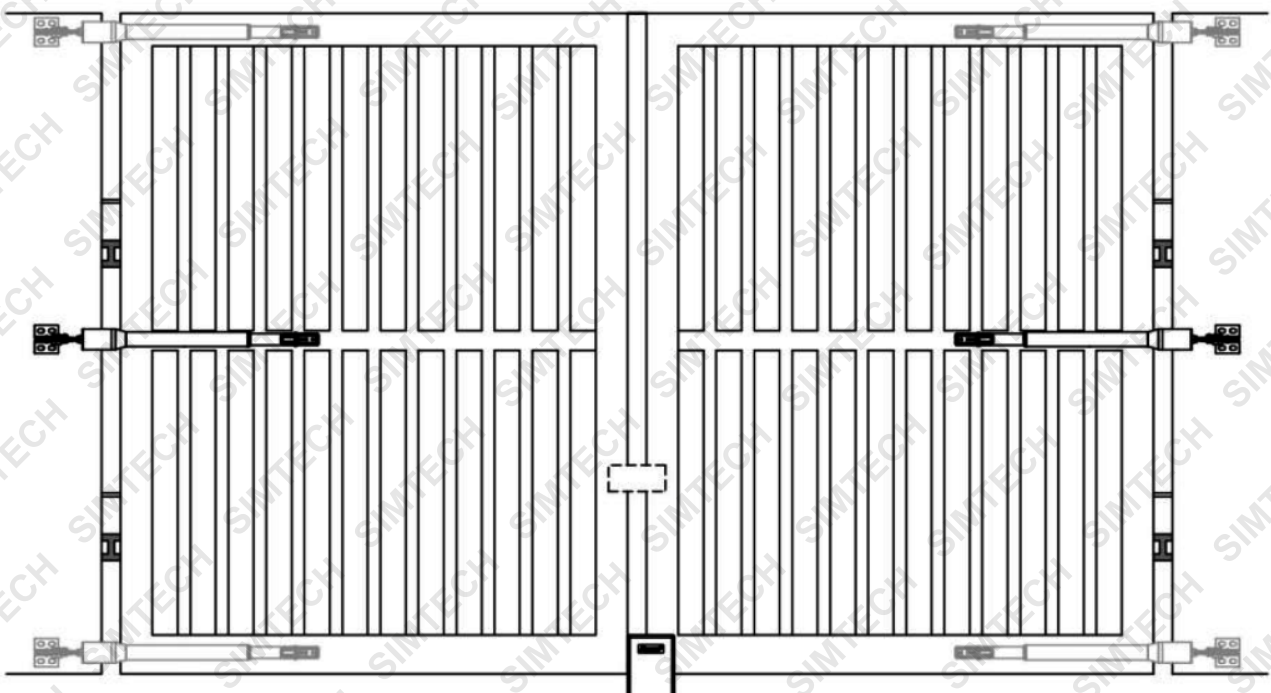


**Outward  
Swing**

Measurement: mm

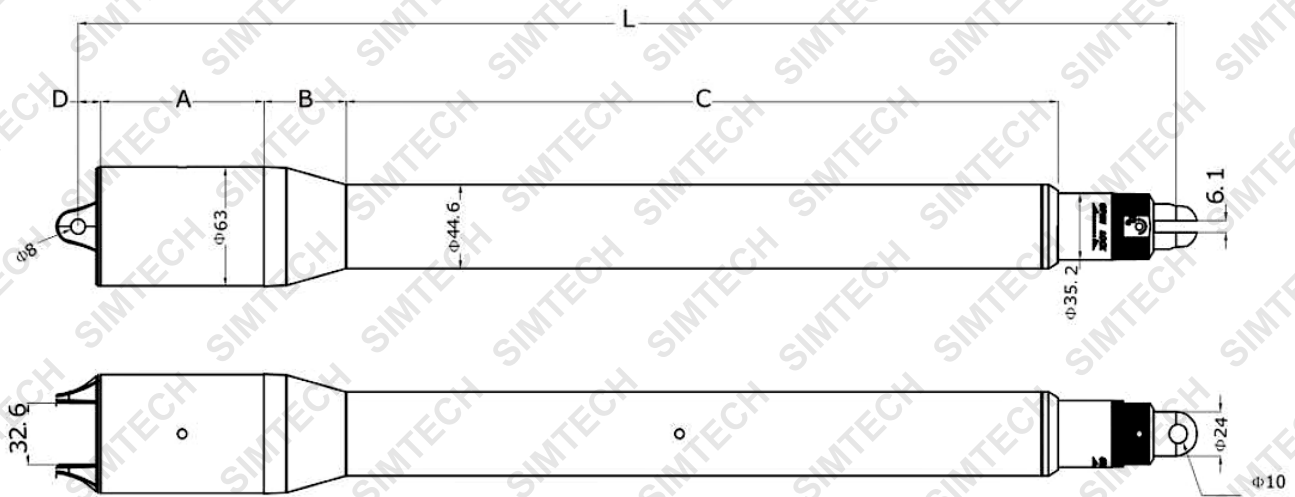
Model	A	C	D	E	F
EM3 Plus	≥400	≥180	870	450	≤4000
EM3	≥250	≥100	736	350	≤2500
EM2	≥120	≥80	586	200	≤1500

## Standard Installation





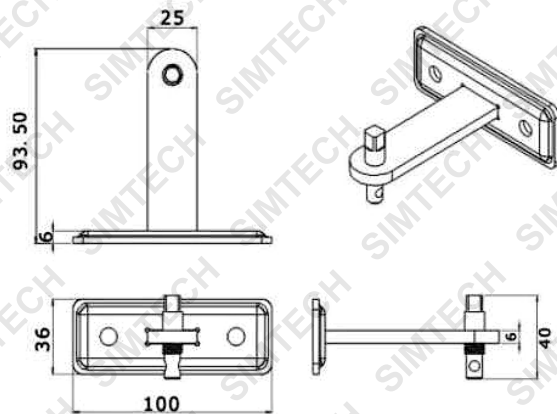
## Opener Dimension



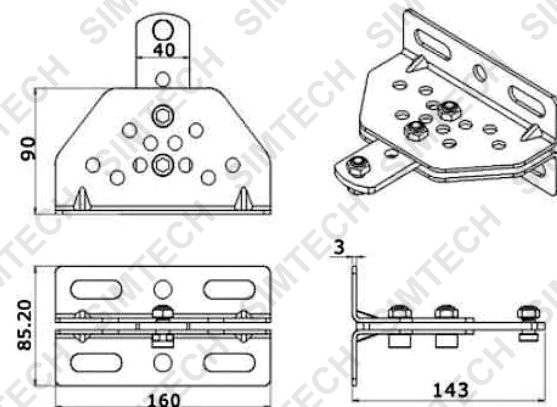
Measurement: mm

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

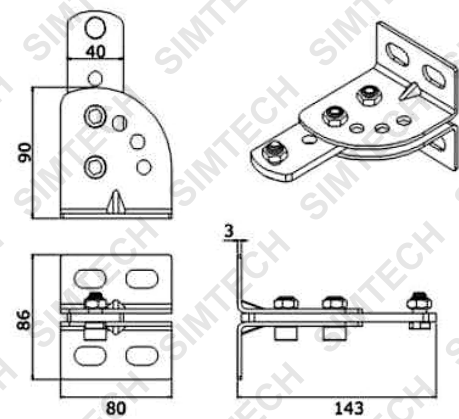
## Bracket Dimension



**Gate Bracket**

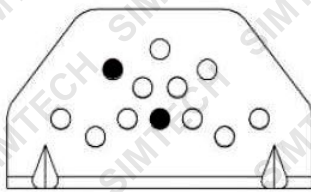
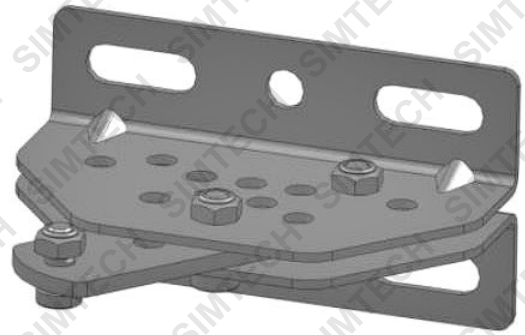
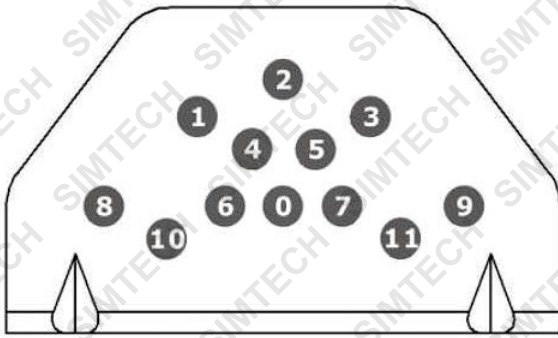


**Post Bracket**

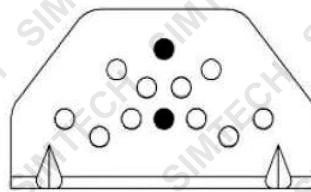


**Post Bracket**

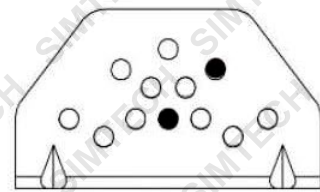
## Post Brackets Alignment



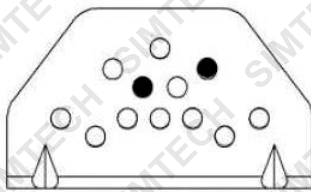
1-0



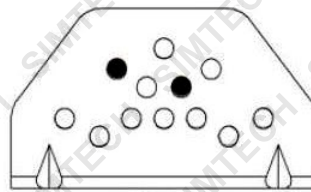
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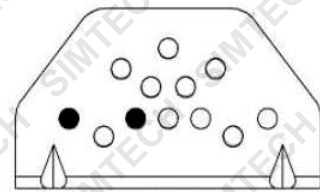
3-0



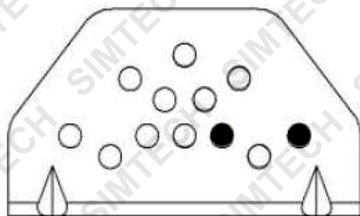
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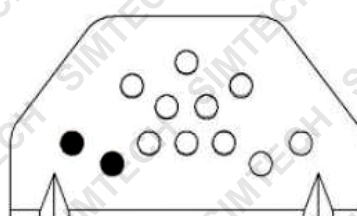
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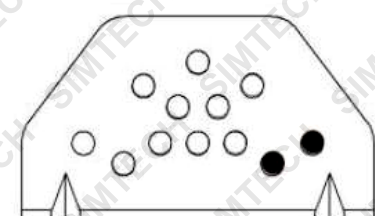
6-8



7-9



8-10



9-11

### A-A

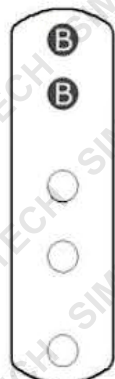
1---0  
2---0  
3---0  
3---4  
1---5  
6---8  
7---9



A-A

### B-B

8---10  
9---11

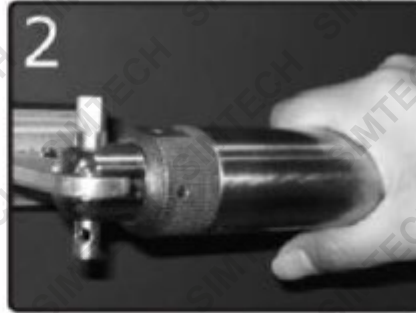
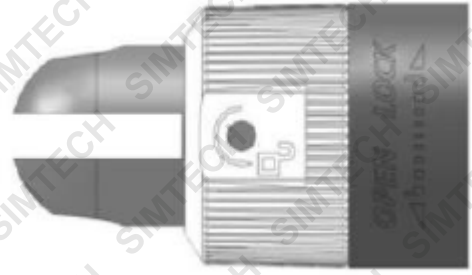


B-B

## Manual Release

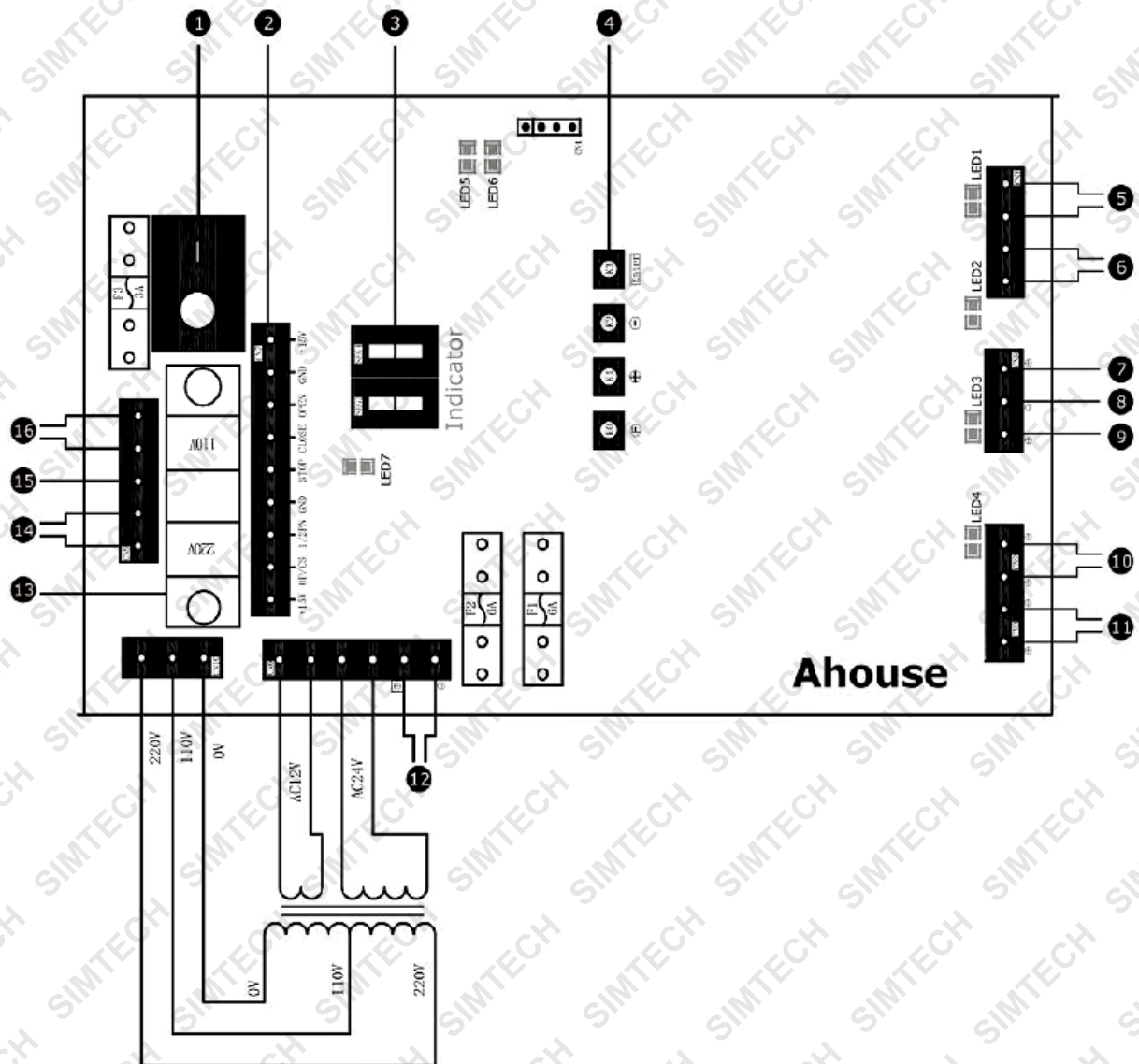
In case of a power failure, the operator can be disengaged from the gate. Follow the directions below to release and rotate the operator to enable the manual release function.

1. Use an Allen Key to unlock the manual release function.
2. Turn towards the "open" direction to rotate the moving part of operator
3. Make a 90° or 1/4 turn to unlock position.
4. Now the manual release function is enabled when maintaining or no power.



# Control Box Setting

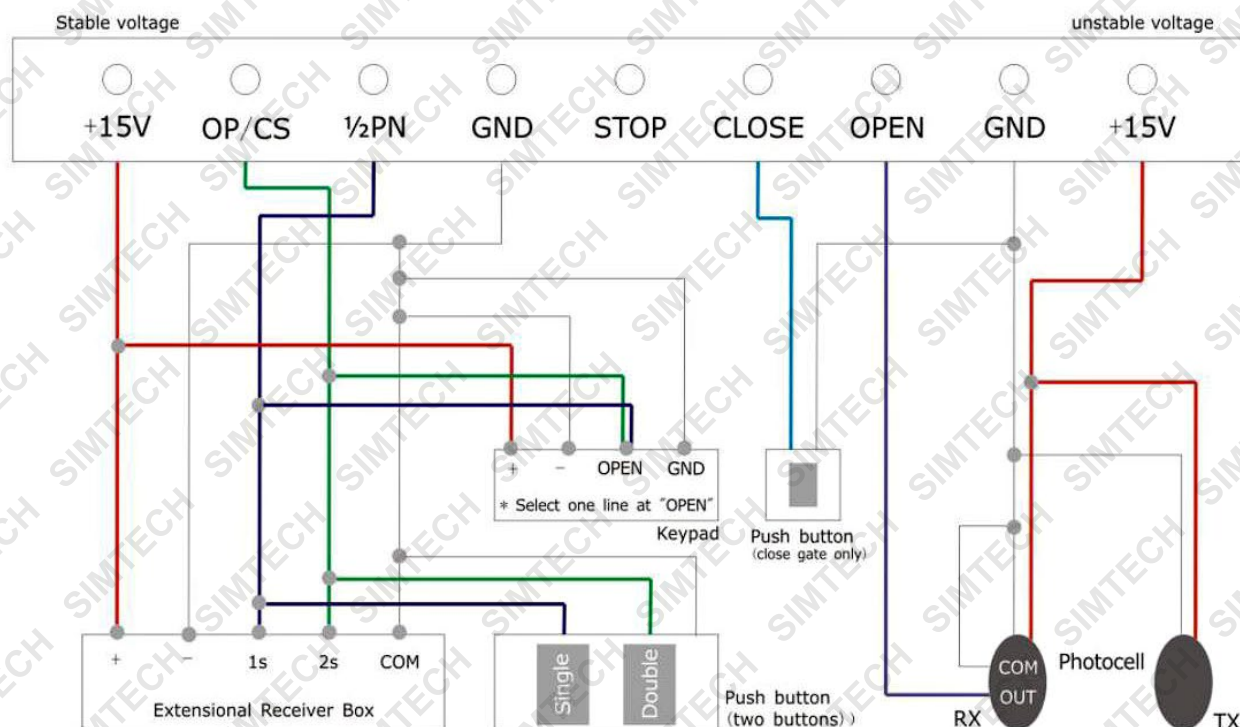
## Commercial Power System Wiring



No.	Name	No.	Name
1	Power button	9	Output DC15V stable voltage (load current can't be over 500mA)
2	Accessories and command device's terminals	10	DC24V electric lock
3	Indicator	11	DC24V flashing light
4	Function adjustment button	12	Back-up battery (12V 7An x 2 in series)
5	Motor A (with electric lock)	13	Switch (AC 220V & 110V)
6	Motor B	14	Power supply (AC 220/110V)
7	Output DC24V (unstable voltage)	15	Earthed
8	0V "-" output	16	AC flashing light



## 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:

If the photocell activates a signal when the gate is closing, the PCB will then activate an opening operation. When photocell senses the obstacle, the gate will be stopped, then opened immediately. After removing the obstacle, the gate will operate according to the new command.



Only a fully licenced electrician should perform installation or maintenance where terminals/wiring/circuit boards that may at any time be live with 240V AC electricity are accessed.

## Remote Control Setting

Press and hold "F" button at approximately one second (without Pressing the button of the remote control) until the indicator shows "FF" and keeps on blinking. Then, release the "F" button.

### Activating the Remote Control

Keep pressing any button on the remote control, if the indicator retains lighting, it means that the remote controls are valid (so remote controls can be set at most).

*\* Verify that the remote control is activated by pressing the remote control button. The LED will turn ON/OFF (see notes LED Diagram)*

### Erasing the Code

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

#### 433MHZ Remote control



\*To open single gate, push "⓪" button

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



# Motor Setting



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

## Motor Setting for Overload

### Motor A

#### Go to Learning Mode

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

#### Overload Detection Setting

The gate can be in any position, not necessarily fully closed/opened.

#### Setting on Opening

1. Simultaneously press and hold the "Stop" and "Open" buttons on the remote until the indicator starts to blink, then release both buttons.
2. While the gate is opening (within 5 seconds) block the gate's movement. After 1 – 2 seconds, the motor will stop. This indicates that the controller has recognized it has hit an object. Electronics will memorise the overload settings when opening the gate. (If the gate closes, disconnect power and reverse the motor wire and restart the setting again).

#### Setting on Closing

1. Simultaneously press and hold the "Stop" and "Close" buttons on the remote control until the indicator starts to blinks, then release both buttons.
2. While the gate is closing (within 5 seconds), block the gate's movement. After 1 - 2 seconds, the motor will stop. This indicates that the controller has recognized it has hit an object. Electronics will memorise the overload settings when opening the gate.

#### Exit Learning Mode

After the above steps, press "F" to exit Learning Mode, then press the "CLOSE" button to close the gate fully. Then repeat all over again for Motor B.

### Motor B

#### Go to Learning Mode

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

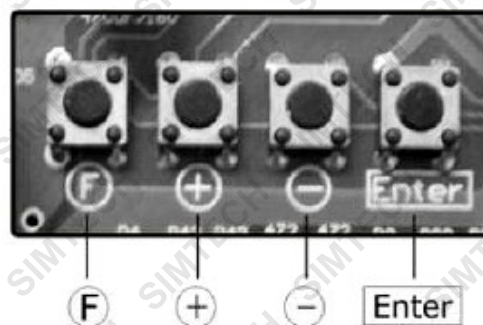
#### Overload Detection Setting

The gate can be in any position, not necessarily fully closed/opened.

#### Setting on Opening

1. Simultaneously press and hold the "Stop" and "Open" buttons on the remote until the indicator starts to blink, then release both buttons.
2. While the gate is opening (within 5 seconds) block the gate's movement. After 1 – 2 seconds, the motor will stop. This indicates that the controller has recognized it has hit an object. Electronics will memorise the overload settings when opening the gate. (If the gate closes, disconnect power and reverse the motor wire and restart the setting again).

Function adjustment button



### **Setting on Closing**

1. Simultaneously press and hold the "Stop" and "Close" buttons on the remote control until the indicator starts to blinks, then release both buttons.
2. While the gate is closing (within 5 seconds), block the gate's movement. After 1 - 2 seconds, the motor will stop. This indicates that the controller has recognized it has hit an object. Electronics will memorise the overload settings when opening the gate.

### **Exit Learning Mode**

After the above steps, press "F" to exit Learning Mode, then press the "CLOSE" button to close the gate fully.

After 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.

## **Total Timer Adjustment**

### **Motor A**



Ensure that the gate is fitted first with a mechanical end stopper. These end stoppers can be removed after programming.

### **Go to Learning Mode**

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

### **Setting on Opening**

*Ensure that the gate is in a fully-closed position first before proceeding.*

Simultaneously press and hold the "P" and "Open" buttons on the remote until the indicator starts to blink, then release both buttons. The gate will now open until the end and hit the end stop. Now gate opening limit has been pre-programmed.

### **Setting on Closing**

*Ensure that the gate is in a fully-closed position first before proceeding.*

Simultaneously press and hold the "P" and "Open" buttons on the remote until the indicator starts to blink, then release both buttons. The gate will now close to the end and stop. Now gate closing limit has been pre-programmed.

### **Exit Learning Mode**

After the above steps, press "F" to exit Learning Mode, then press the "CLOSE" button to close the gate fully. Then repeat all over again for Motor B.

### **Motor B**

### **Go to Learning Mode**

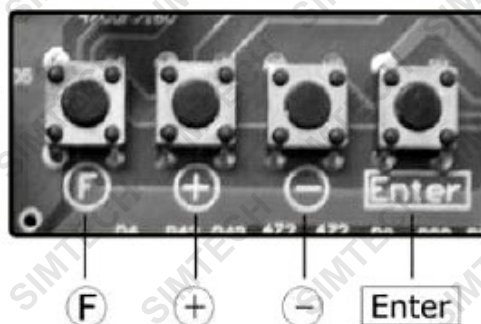
First, press the "-" button on the PCB for around 2 seconds, the indicator will show "BB" and will keep blinking.

### **Setting on Opening**

*Ensure that the gate is in a fully-closed position first before proceeding.*

Simultaneously press and hold the "P" and "Open" buttons on the remote until the indicator starts to blink, then release both buttons. The gate will now open until the end and hit the end stop. Now gate opening limit has been pre-programmed.

Function adjustment button



**Setting on Closing**

*Ensure that the gate is in a fully-closed position first before proceeding.*

Simultaneously press and hold the "P" and "Open" buttons on the remote until the indicator starts to blink, then release both buttons. The gate will now close to the end and stop. Now gate closing limit has been pre-programmed.

**Exit Learning Mode**

After the above steps, press "F" to exit Learning Mode, then press the "CLOSE" button to close the gate fully.

**Function Adjustment**

1. Press the "F" button, the indicator will show "A0".
2. Press the "+" button, it will then 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 to show in reverse order.
3. Press the "F" button, then choose a setting, the indicator will then show the numbers.
4. Press the "+" or "-" button to select levels.
5. Press the "Enter" button to confirm.
6. Press the "F" button to return to previous configuration menu.



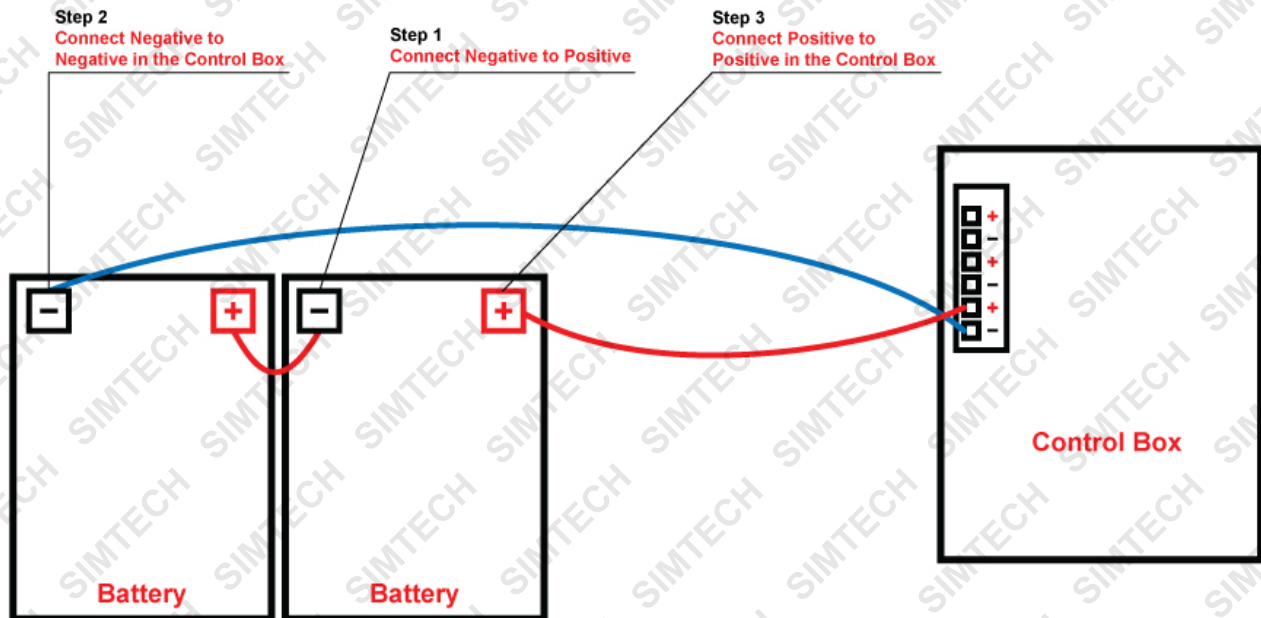
Item	Name	Setting Range	Description	Remarks
A0	B0	Intermediate Stop Function with slow speed	0~99	default setting : 15
A1	B1	Intermediate Stop Function with high speed	0~99	default setting : 43
A2	B2	Time of opening slow speed	0~9.9s	default setting : 5
A3	B3	Time of opening high speed	0~99s	default 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 and C3, all of them can adjust from 0 to 99, but only within a valid setting range.

# Battery Set-Up

Batteries need to be joined in series. By connecting batteries, you can increase the voltage, amperage, or both.

Please refer to the image below that shows how the batteries are to be synced and ensure you follow this step by step.



You will have received 3 cables for the batteries:

- 2x red and 1x blue

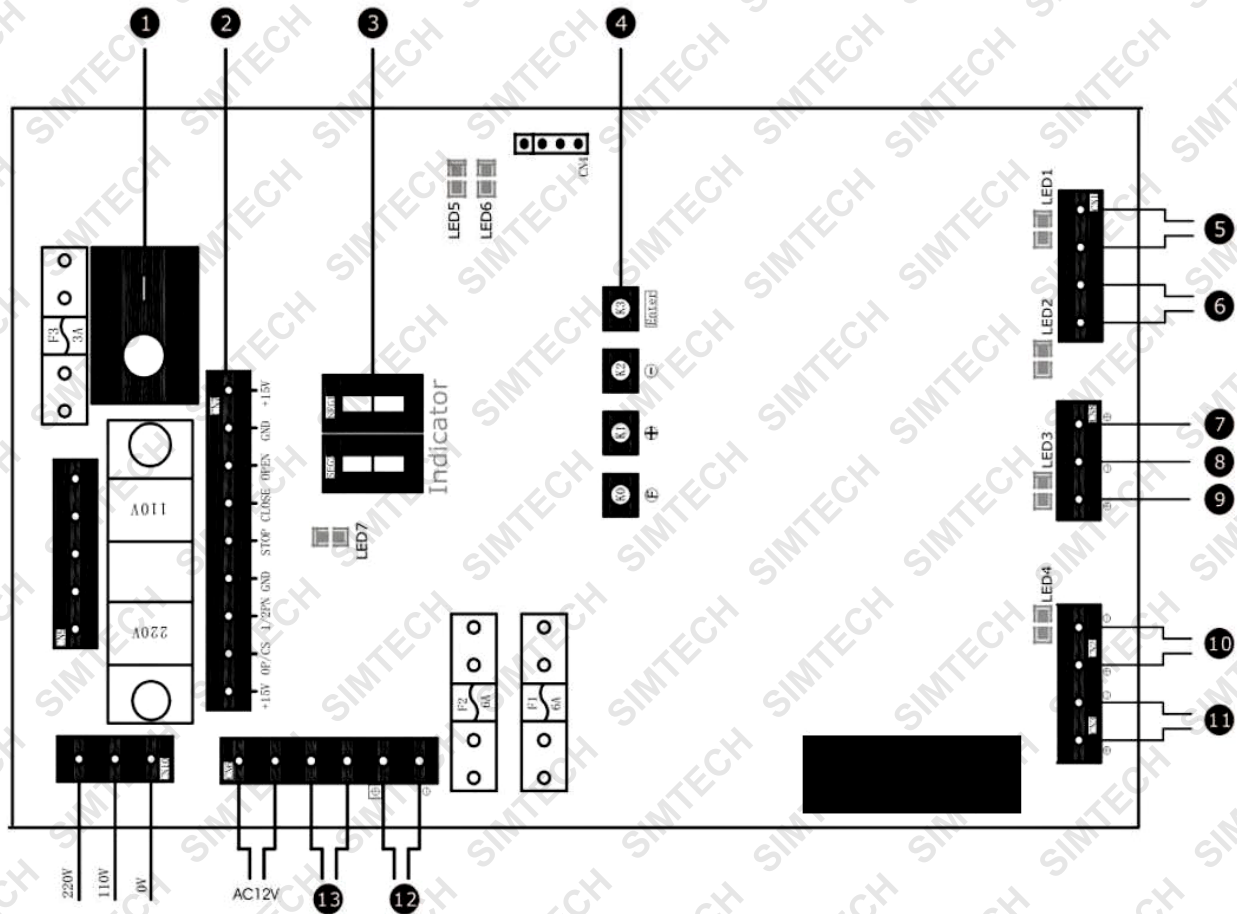


Never cross the remaining open positive and open negative terminals with each other, as this will short-circuit the batteries and cause damage or injury.

To connect batteries in a series, use the supplied wire to connect the negative terminal of the first battery to the positive terminal of the second battery. Use the other set of cables to connect the open positive and negative terminals to the control board.

- Red cable for step one - CONNECT NEGATIVE FIRST THEN POSITIVE.
- Blue cable for step two - Negative goes into the control box.
- Red cable for step three - Positive goes into the control box.

# 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.

LED 1 – Motor A open LED

LED2 – Motor A close LED

LED3 – Motor B open LED

LED4 – Motor B close LED

LED5 – Power LED

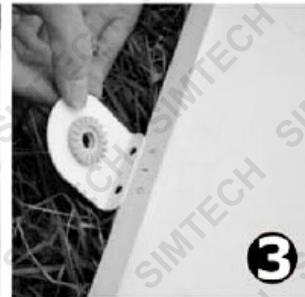
LED6 – Received signal for remote control LED

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 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.

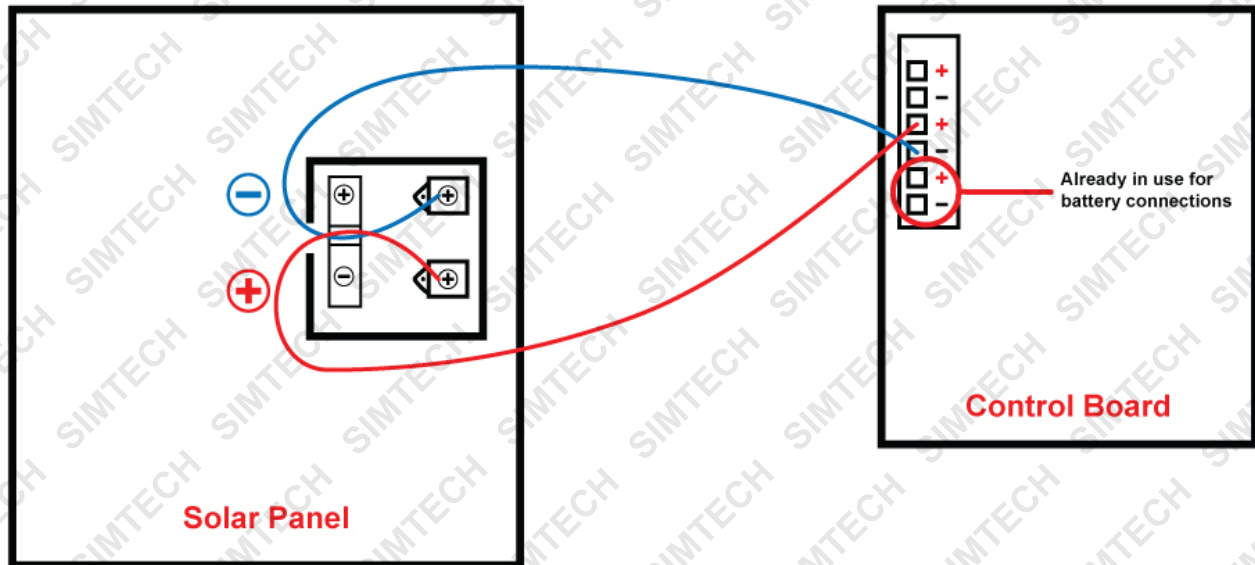


## Solar Panel Connection

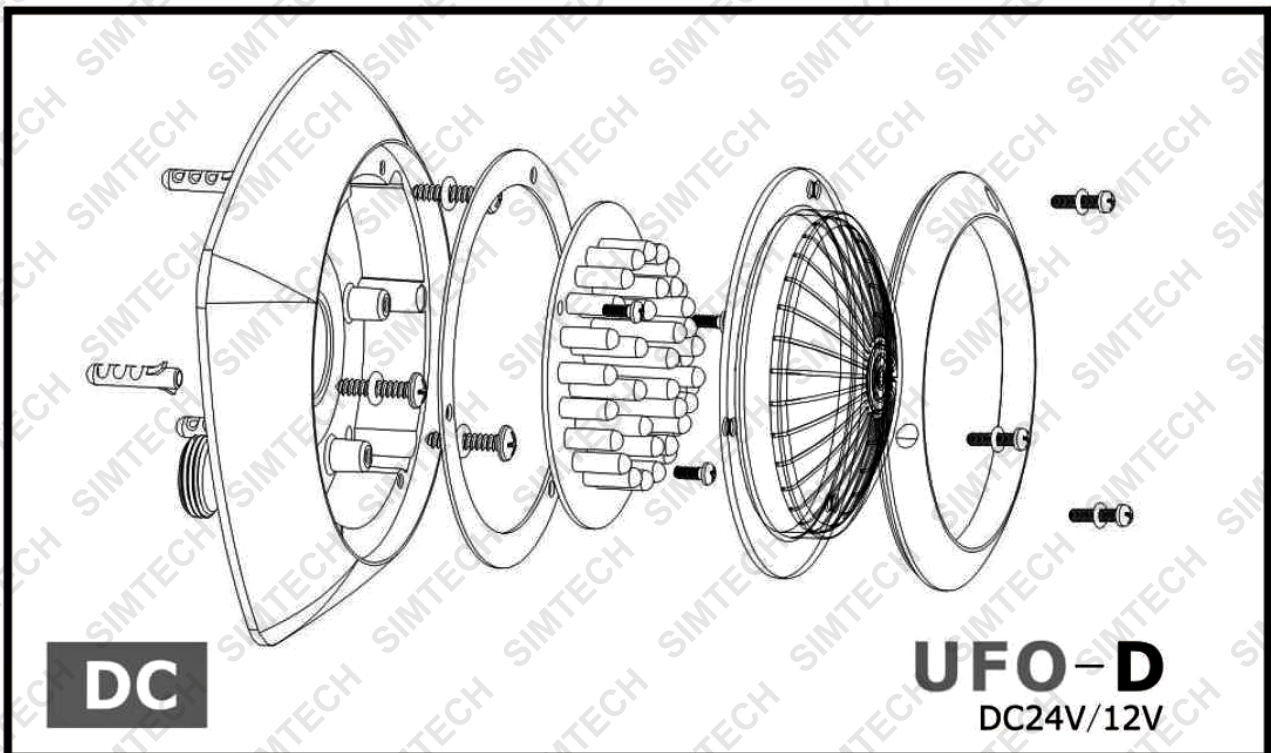
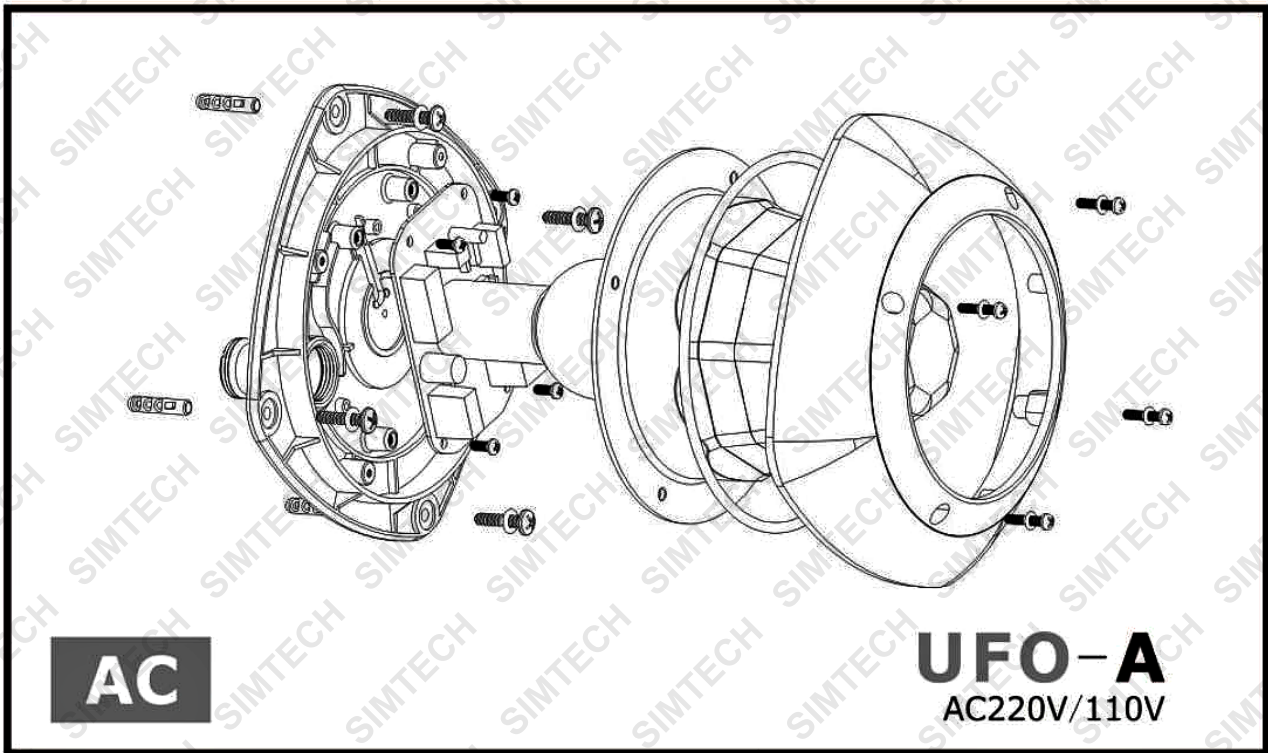
Wires should be 2.5mm in diameter to allow successful installation of the solar panels, however, it is always a good idea to consult with a specialist if possible.

You will need to obtain the wire with the necessary length for where you wish to leave the solar panel during daylight. Once obtained you will need to wire it up from Negative to the control box & then Positive to the control box. Please refer to the manual, page 19 for where in the control box. Ensure you are connecting negative to the negative and positive to positive in the input section of the control box. Red is Positive and Blue is Negative.

Please refer to the image below for further details.



## Flashing Light Installation



*If using solar system, connect with DC24V*

# Specifications

## Electrical

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

## Mechanical

Swing Type	EM3 Plus	EM 3	EM 2
<b>Max. Piston Stroke</b>	450mm	350mm	200mm
<b>Max. Length of Motor</b>	1255mm	1030mm	730mm
<b>Max. Leaf's Weight</b>	350kg/Leaf	300kg/Leaf	250kg/Leaf
<b>Suitable Leaf's Length</b>	2 – 3.5 metre/Leaf	1.5 – 2.5 metre/Leaf	1 – 1.6 metre/Leaf
<b>Frame Housing</b>	Stainless Steel / Aluminium Alloy		
<b>Driving Method</b>	Screw-Driven Piston Type		
<b>Opening Degree</b>	0 – 100°		
<b>90° Rotation Time</b>	8 – 12 seconds		
<b>Temperature</b>	-25 – 55°C		

**NOTE:** The gate must be well balanced. A person should be able to move the gate manually with very little effort (15kg force max).





**Some experts believe that the incorrect or prolonged use of almost any product may cause serious injury or death. To help reduce your risk of serious injury or death, refer to the information below. For more information, see [www.datastreamserver.com/safety](http://www.datastreamserver.com/safety)**

- Consult all documentation, packaging and product labelling before use. Note that some products feature documentation available online. It is recommended to print and retain the documentation.
- Before each use, check the product for loose/broken/damaged/missing parts, wear or leaks (if applicable). Never use a product with loose/broken/damaged/missing parts, wear or leaks.
- Products must be inspected and serviced (if applicable) by a qualified technician every 6 months. This is based on average residential use by persons of average size and strength, and on a property of average metropolitan size. Use beyond these recommendations may require more frequent inspections/servicing.
- Ensure that all users of the product have completed a suitable industry recognised training course before being allowed access to the product.
- The product has been supplied by a general merchandise retailer that may not be familiar with your specific application or description of application. Be sure to attain third-party approval from a qualified specialist for your application before use, regardless of any assurances from the retailer or its representatives.
- This product is not intended for use where fail-safe operation is required. As with any product (for example, automobile, computer, toaster), there is the possibility of technical issues that may require the repair or replacement of parts, or the product itself. If the possibility of such failure and the associated time it may take to rectify could in any way inconvenience the user, business or employee, or financially affect the user, business or employee, then the product is not suitable for your requirements. This product is not intended for use where incorrect operation or a failure of any kind, including but not limited to, a condition requiring product return, replacement, parts replacement or service by a technician may cause financial loss, loss of employee time or an inconvenience requiring compensation.
- If this product has been purchased in error when considering the information presented here, contact the retailer directly for details of their returns policy, if required.



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