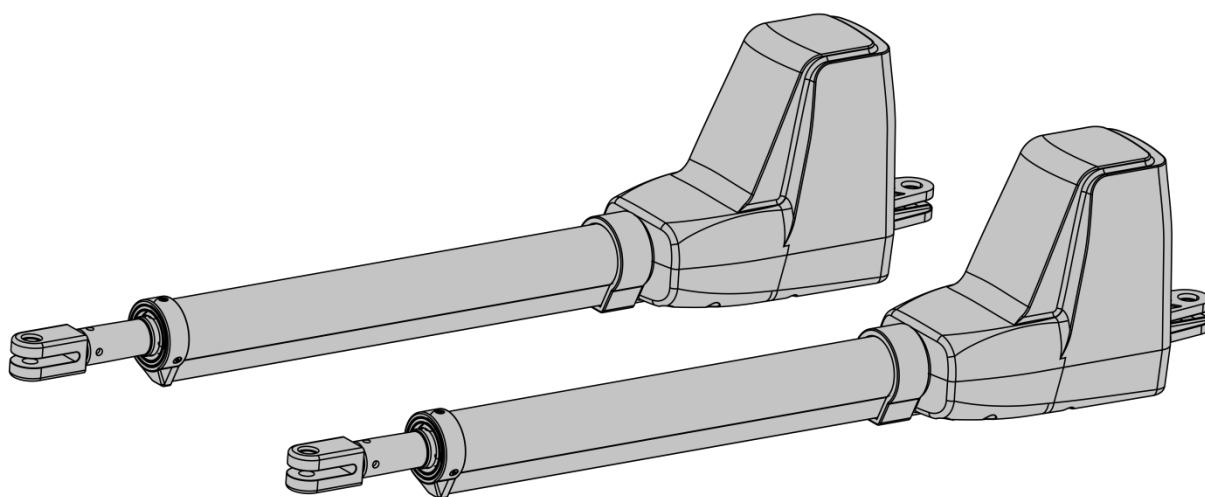# TOPENS®

AT6132S
AT12132S

Installation Manual

For dual swing gate installation

Installation Video

Coming with 20W solar panels, the gate opener is ideal for places without access to power at the gate. Add the 24V 12Ah automotive / marine type battery (not included) as the main or back-up power source.

The gate opener can also be powered by 100-240VAC electricity directly.

CE

CONTACT US

Visit our website at www.topens.com and fill out the online form

Alternatively, you can send an email to our service team at support@topens.com

To ensure prompt and effective assistance, kindly include the following information in your email:

- **Where Did You Purchase?** _____

- **Order Information** _____

- **Your Contact Information** _____

- **Gate Information (Weight and Length Per Leaf)** _____

- **Did You Purchase Any Accessories? (If Yes, Please List Them)** _____

- **Issue Description (Include Any Relevant Photo or Video)** _____

For Warranty Registration

To register your warranty, please visit www.topens.com

If you have any questions regarding what is covered by the TOPENS warranty, refer to the detailed policy at www.topens.com/pages/topens-limited-warranty.

Email Us: support@topens.com

Table of Contents

Important Safety Information

Product Usage

TOPENS gate opener meets all safety requirements for a Class I Residential Vehicular Gate Operator, and is only for use on vehicular access gates, not pedestrian gate applications.

Before Installation

◆ **GAIN UNDERSTANDING OF THE INSTALLATION PROCESS:** Please read this installation manual or view our online installation video before installing the gate opener.

◆ **LOCAL INSTALLATION COMPLIANCE:** Prior to installation, please verify that your planned installation complies with all relevant local building codes and ordinances. Dispose of packaging materials in accordance with local regulations.

◆ **SEPARATE PEDESTRIAN ACCESS:** The gate opener is intended for installation only on gates used for vehicles. Pedestrians should use a separate entrance to avoid contact with the moving vehicular gate.
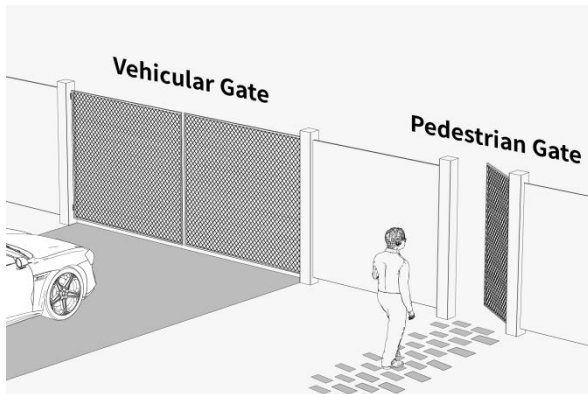

◆ **SWING GATE PREPARATION:** Do not attach wheels to the gate. Ensure that the gate is plumb, level, and swings freely on its hinges without binding or dragging on the ground. The gate should be mounted to a very stable post or column that is secured in the ground with concrete. If the post's width or diameter is under 15cm (6"), it should be either metal or set in cement. This ensures stability and minimizes the twisting effect caused by gate movement.

Repair or replace all worn or damaged gate hardware prior to installation.

◆ **ENTRAPMENT ZONES ASSESSMENT:** Identify all entrapment zones specific to your installation type. These zones are areas around the automatic gate system where a person or object could be caught that increase the risk of injury. Verify that entrapment areas are clear of potential obstructions before installing the gate opener.

Entrapment Zones for Pull to Open Installation
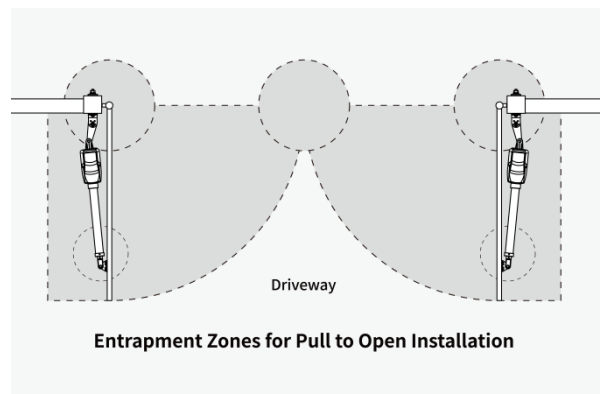
◆ **AVOID SOLID PANEL GATES:** The gate opener works with various gate types. Solid panel gates have a higher resistance to wind and may result in damage to the gate opener. Therefore, it is not recommended to use the opener with solid surface gates.

1

Important Safety Information

During Installation

◆ **INSTALLER AND END USER RESPONSIBILITY:** An experienced installer should perform the installation. Improper installation may result in property damage, severe injury or death. The gate opener is only part of the entire gate operating system, and it is the responsibility of the installer and end user to ensure that the total system is safe for its intended use.

◆ **DISCONNECT THE POWER SUPPLY:** Ensure that the gate opener is powered off before electrical wire connections or making any adjustments.

◆ **AVOID ENTRAPMENT ZONES:** Keep children, pets or livestock away from the entrapment zones to avoid the risk of injury or death.

◆ **INSTALL INSIDE PROPERTY BOUNDARIES:** Install the gate opener on the inside of the property. Do not install outside of the gate where the public has access to it.

◆ **INSTALL SAFETY SENSOR:** The gate opener is designed to stop and reverse the gate when the gate comes in contact with an obstruction. It is highly recommended to install a photocell sensor in the following situations for safety: if you have children or pets at your property, the gate opener auto close function is set to ON, the gate opener stall force is set to the maximum, a vehicle exit sensor is installed, or other gate control devices are used.

◆ **GATE CONTROL ACCESSORIES PLACEMENT:** Gate control accessories intended for user activation must be located at least 1.5 meters (5') away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use.
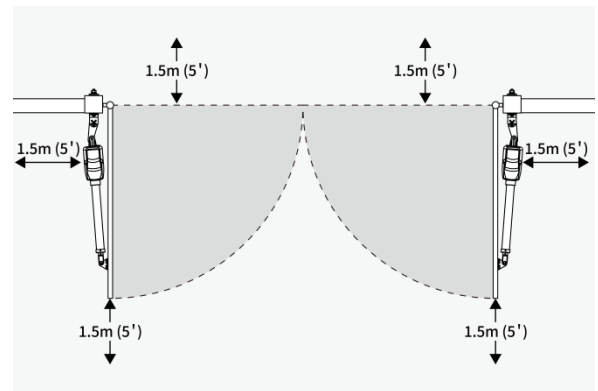
After Installation

◆ **WARNING SIGNS:** Attach the provided warning signs to both sides of the gate to alert the public about the automatic gate opener system. If your signs are damaged, please reach out to TOPENS Customer Support for replacements.
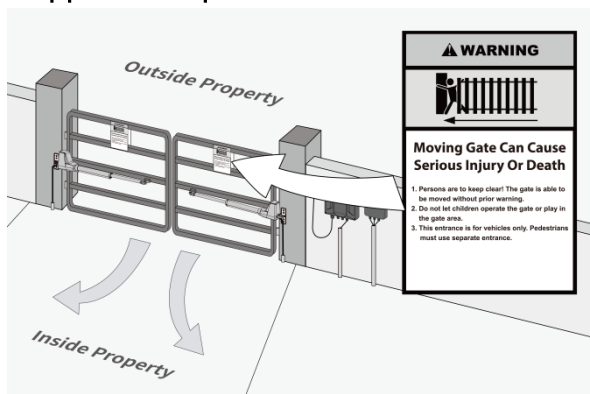
◆ **AWAY FROM MOVING GATES:** Keep children, pets and livestock away from the gate opener system as moving gates can be dangerous.

◆ **SECURE GATE CONTROL ACCESSORIES:** Prevent children from operating gate controls by keeping remote transmitters, keypads, and push buttons out of their reach. Store in a secure area when not in use.

◆ **MAINTENANCE OF GATE OPENER SYSTEM:** Regularly maintain the gate and gate opener system to ensure that the gate swings freely and remains level throughout

Important Safety Information

its entire swing path. Periodically check your posts, adjusting brackets or tightening hardware as needed. Turn off the power to the gate opener before performing any maintenance.

◆ **OBSTRUCTION PROTECTION TESTING:** Test the gate opener monthly. The gate must reverse or stop on contact with a rigid object or when an object activates the non-contact sensors. After adjusting the force or limit travel, retest the gate opener. Failure to adjust and retest the gate opener properly can increase the risk of injury or death.

◆ **POWER DISCONNECTION AND MANUAL OPENING:** Understand how to disconnect the power and manually open the gate. Disconnect the gate opener from the gate only when the gate is not in motion and the gate opener system is turned off.

◆ **RECOGNIZE POTENTIAL RISKS IN AUTOMATED GATE SYSTEMS:** Save the installation manual. Make sure everyone who is using or will be around the gate and gate opener are aware of the dangers of automated gate systems. If a replacement manual is needed, you can download a copy from the TOPENS website (www.topens.com)

Note For Warranty

◆ **WARRANTY LIMITED TO TARGET MARKET:** The warranty is limited to the target market (Contiguous United States, Canada, UK, and Germany). Customers using the product outside these regions will be responsible for any additional expenses during the warranty replacement process.

◆ **GATE OPENER ABUSE:** TOPENS does not cover damage resulting from abuse, such as attempting to operate the gate opener beyond its specified capacity or using it for unintended purposes.

◆ **GATE OPENER MISUSE:** TOPENS does not cover damage resulting from misuse, including but not limited to operating the gate opener with incompatible power sources or using it in environments not recommended by TOPENS.

◆ **ALTERATIONS OR MODIFICATIONS:** Alterations or modifications made to the gate opener without prior consultation with TOPENS will also invalidate warranty coverage.

◆ **NON-COMPLIANCE WITH INSTRUCTIONS:** Failure to follow the installation instructions, including but not limited to

improper installation, maintenance will void the warranty.

◆ **THIRD PARTY ACCESSORIES:** TOPENS does not cover damage caused by third party accessories, except those specifically recommended by TOPENS Customer Support. It is important to use only compatible accessories to ensure compatibility and prevent damage to the gate opener.

◆ **CONTACT TOPENS SUPPORT:** Please ensure that the gate opener is installed, operated, and maintained in accordance with the guidelines outlined in the installation manual to avoid voiding the warranty. If you have any questions regarding proper usage or need assistance with compatible accessories, please contact TOPENS Customer Support for guidance.

◆ **DETAILED WARRANTY POLICY:** If you have any questions regarding what is covered by the TOPENS warranty, refer to the policy at www.topens.com/pages/topens-limited-warranty.
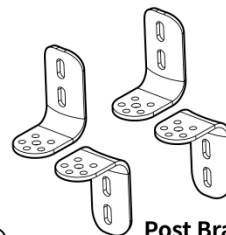
Packing List
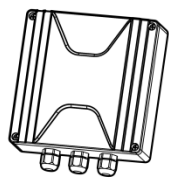
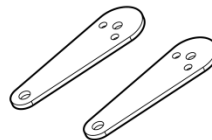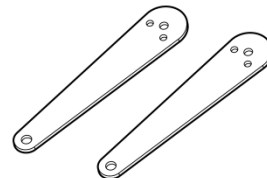**Control Box**
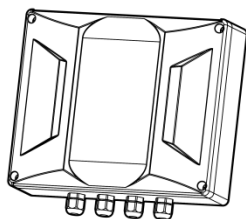
UPS01 Uninterrupted Power Supply

Warning Sign

Gate Bracket

Post Bracket

Pull-to-Open Bracket

Push-to-Open Bracket
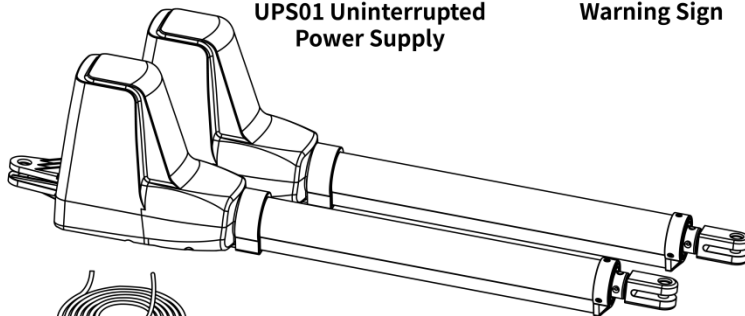
Gate Opener Arm

25FT Extension 5 Conductor Cable

Remote Control
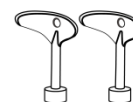
Release Key
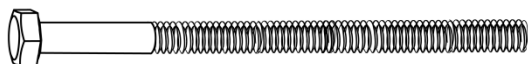
M10x200 Bolt (8)

12x40 Clevis Pin (2)

12x30 Clevis Pin (2)

M10x75 Bolt (4)

M10x35 Bolt (2)

Hairpin Clip (4)

Φ10 Lock Washer (14)

M8x30 Bolt (2)

Φ10 Washer (14)

Φ8 Washer (2)

M10 Nut (14)

M8 Nut (2)

Solar Panels for AT6132S / AT12132S
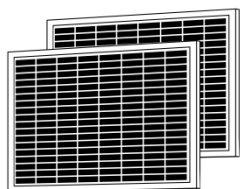
2 x 10W 24V Solar Panel

Safety Accessories

(Included in Specific Models, Check the Actual Package)

JD24VY Warning Light
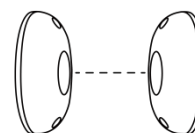
TC102 Infrared Photocell Sensor

Installation Overview
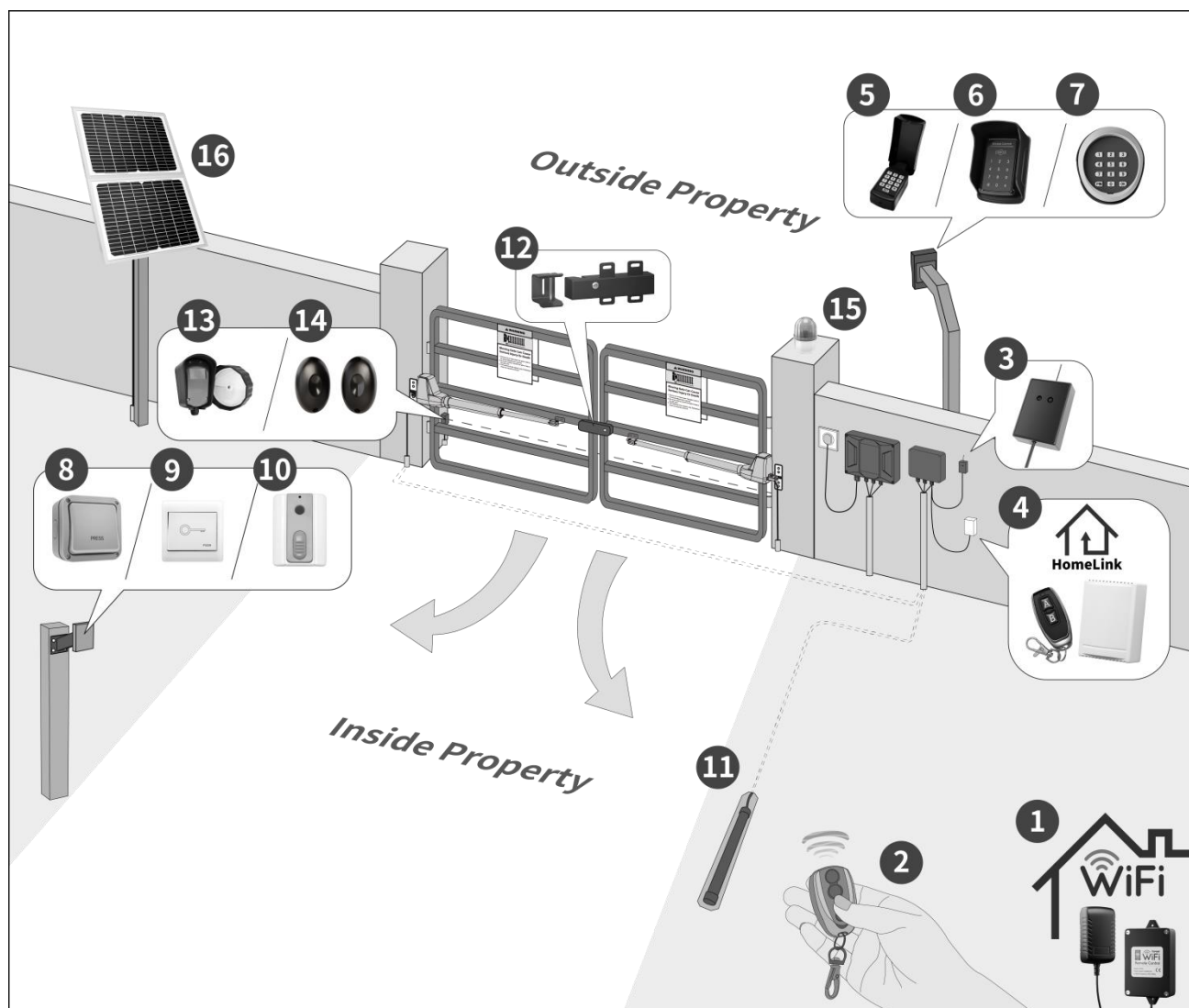
Example of Pull-to-Open Installation

Various TOPENS Accessories for Your Gate Opener System	
❶ TC196 WiFi Remote Control	❾ TC147 Wall Push Button
❷ M12 Remote Control	❿ TC173 Wireless Push Button
❸ ERM12 External Receiver	⑪ TEW3 Vehicle Sensor Exit Wand
❹ HLR01 Homelink Remote Control Kit	⑫ ET24 Electric Gate Lock
❺ TC188 Universal Keypad	⑬ TRF3 Reflection Photocell Sensor
❻ TC175P Wired Keypad	⑭ TC102 Infrared Photocell Sensor
❼ TKP3 Wireless Keypad	⑮ JD24VY Warning Light
❽ TC148 Waterproof Wall Push Button	⑯ TSQ20W 20W Solar Panel Kit

Available on the TOPENS website (www.topens.com) and Amazon.

Specifications

Product Model	AT6132S	AT12132S
Power Input	100-240V ~ 50/60Hz	
Motor Voltage	24VDC	
Rated Current of the Motor	2A	3A
Motor Power	50W	80W
Gate Opening / Closing Time	15 seconds (ideal condition)	
Gate Opening / Closing Speed	16mm/s (0.6 in/s)	
Max Travel Range	385mm (15.2 in)	
Working Temperature	-20°C ~ +50°C (0°F to 120°F)	
Protection Class	IP44 Waterproof	

Max Gate Weight and Gate Length Per Arm

NOTE: Ball bearing hinges should be used on all gates weighing over 140kg (300lbs) per leaf.
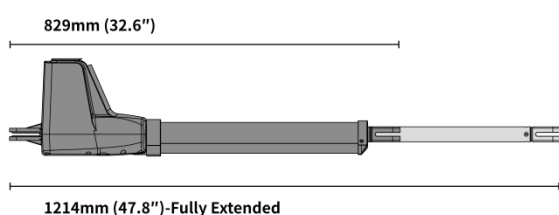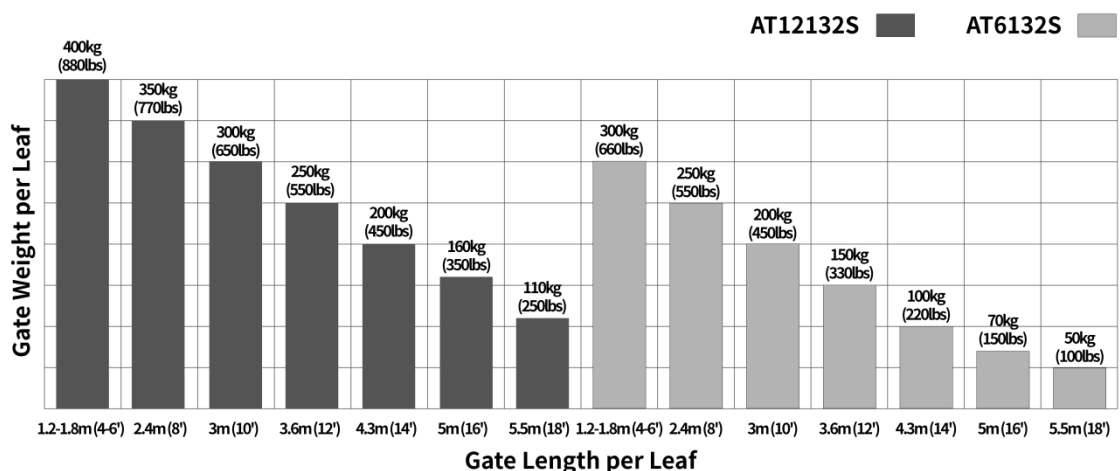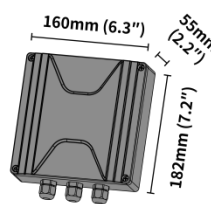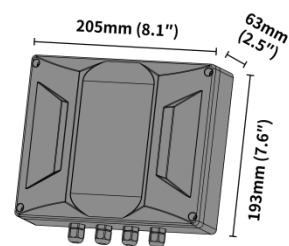
829mm (32.6")
1214mm (47.8")-Fully Extended
Gate Opener Arm

160mm (6.3")
55mm (2.2")
182mm (7.2")
Control Box

205mm (8.1")
63mm (2.5")
193mm (7.6")
UPS01 Power Supply

60mm (2.4")
70mm (2.8")
40mm (1.6")
Gate Bracket

60mm (2.4")
110mm (4.3")
85mm (3.3")
Post Bracket

167.5mm (6.6")
Pull-to-Open Bracket

267.5mm (10.5")
Push-to-Open Bracket

6
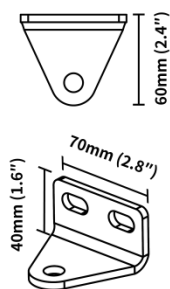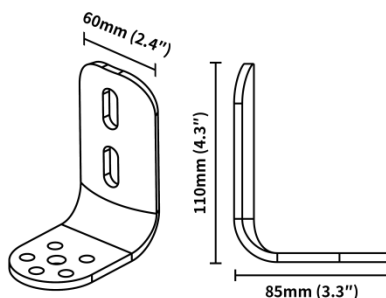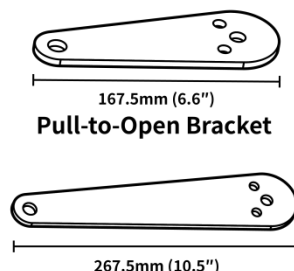
Before You Begin

Check the Gate
◆ Ensure that the gate is plumb, level, and swings freely on its hinges without binding or dragging on the ground.
◆ The gate should be mounted to a very stable post or column that is secured in the ground with concrete.
◆ Repair or replace all worn or damaged gate hardware prior to installation.

Tools Needed
◆ Power Drill
◆ Wire Strippers
◆ Level
◆ Phillips Screwdriver

◆ Tape Measure
◆ C-Clamps - small, medium, and large
◆ Hacksaw or Heavy Duty Bolt Cutters
◆ Open End Wrenches - 14# &17# or Adjustable Wrenches

Battery Required
◆ If you choose to use batteries and solar panels as main power source, you'll require 24V 12Ah battery (NOT included).
◆ Marine / automotive type battery or lead acid / GEL / AGM / flooded (deep cycle battery) batteries are supported, EXCEPT for lithium-ion battery.
◆ The batteries should be waterproof, or they should be placed in waterproof housing.
◆ Two 10W solar panels are included. If additional solar panel is needed, TOPENS solar panel kit is available for separate purchase.

Items Not Included but May Needed
◆ **PVC Conduit:** Required to protect the extension cable connecting the slave arm to the control board and the cable connecting TC102 infrared photocell sensor to the control board.
◆ **Connection Cable:** Connection cable may be required for installing wired accessories. Refer to the Connection of Accessories section in this manual to purchase the correct cable.
◆ **Weatherproof Cover:** Use a weatherproof cover to protect the electrical outlet if it is located outdoors.
◆ **Surge Protector:** A surge protector with a rated current of 5A is recommended to use with the UPS01 power supply.

Install Electric Gate Lock
◆ In windy areas, it is crucial to use an electric gate lock to ensure the gate remains securely closed and to prevent damage or malfunction caused by strong winds.

Install Photocell Sensor
◆ It is highly recommended to install a photocell sensor in the following situations for safety: if you have children or pets at your property, the gate opener auto close function is set to ON, the gate opener stall force is set to the maximum, a vehicle exit sensor is installed, or other gate control devices are used.

Before You Begin

Additional Hardware to Enhance Post Bracket Stability

◆ Ensure that the bolts used to attach post bracket to wooden post are long enough to pass through the entire post.

◆ Add metal plate or larger washer between the bolt and the wooden post to improve bracket stability.

◆ For concrete post, use expansion bolts to securely mount the bracket.

◆ If the post's width or diameter is under 15cm (6"), it should be either metal or set in cement.
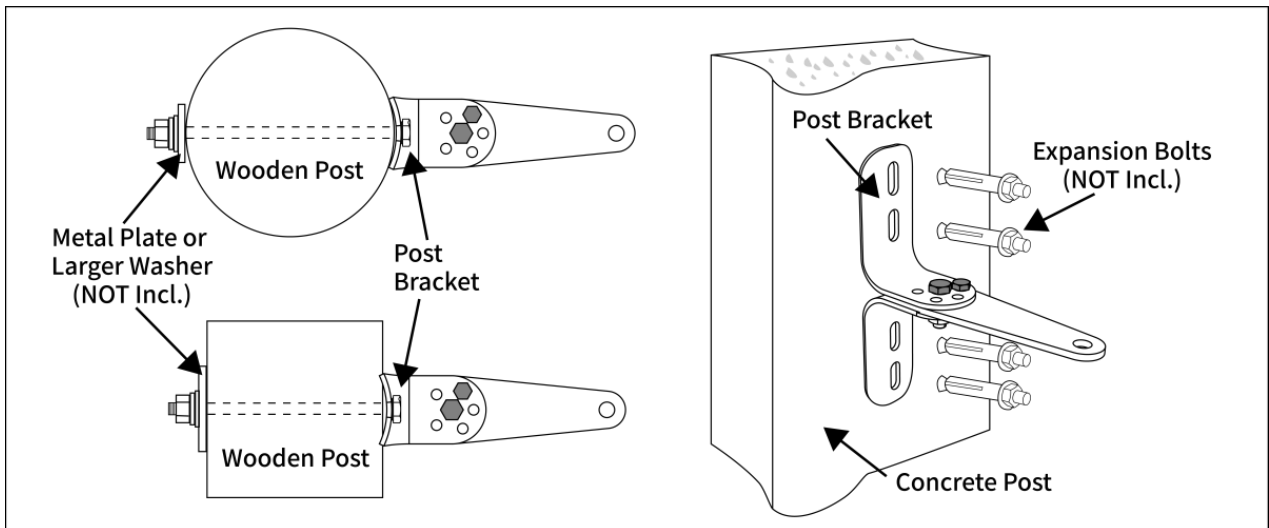
Check Gate Swing Direction

◆ Each gate is unique and the following steps outline common installation process.

◆ Please ensure that the PULL/PUSH TO OPEN setting on the control board matches the installation type.
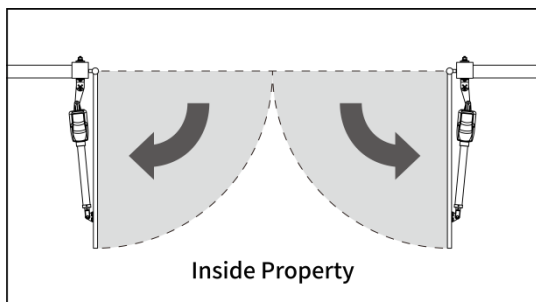
Pull-to-Open Installation Starts from Page 9   **Push-to-Open** Installation Starts from Page 13

NOTE: *Improper installation may result in property damage, severe injury, and / or death.*

STEP 1

Assemble the Post Bracket and the Pull-to-Open Bracket

◆ Insert the bolts through the holes of post bracket and pull-to-open bracket, and fasten with washer and nut as shown.

◆ DO NOT over tighten the nut because the post bracket may need to be adjusted later.

Post Bracket Assembly

- M10×35 Bolt
- Post Bracket
- M8×30 Bolt
- Pull-to-Open Bracket
- Post Bracket
- Φ10 Washer
- Φ8 Washer
- Φ10 Lock Washer
- M8 Nut
- M10 Nut

STEP 2

Determine the Position of the Post Bracket Assembly

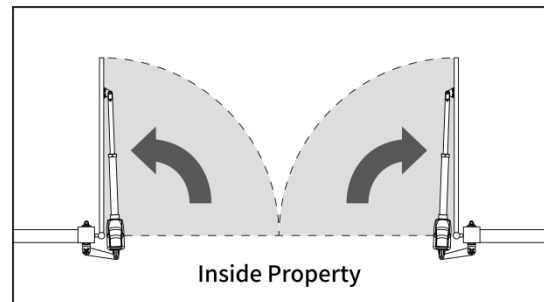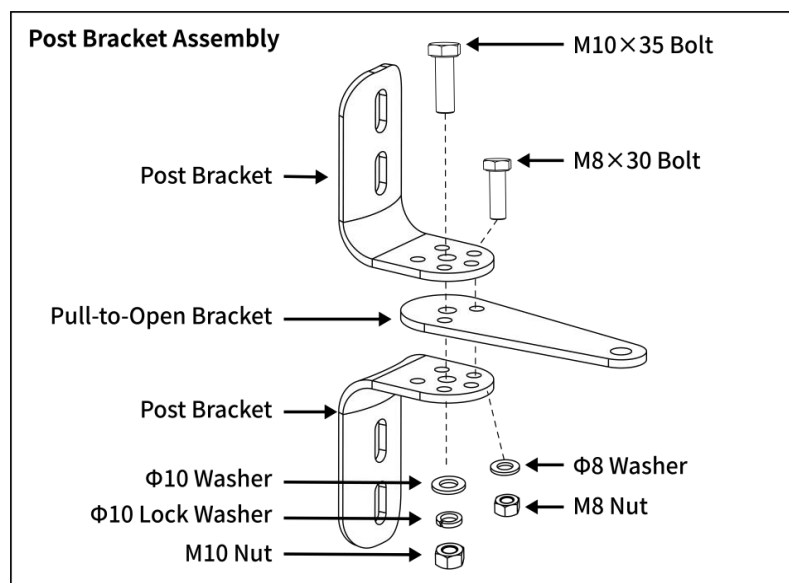◆ The table shows the maximum opening angle of the gate based on the dimensions of A and B. For example, if A is 19cm (7.5") and B is 15cm (5.9"), the maximum opening angle of the gate is 106°.

◆ Measure the dimension of A and B to determine the desired gate opening angle, and then mark the center of the mounting locations for the post bracket accordingly.

◆ *Pull-to-Open Installation — Gate in open position with the moving rod fully retracted.*

Close Direction

Gate in Open Position

Pull-to-Open Bracket

Post Bracket

B \ A	13cm (5.1")	15cm (5.9")	17cm (6.7")	19cm (7.5")	21cm (8.3")	23cm (9")	25cm (9.8")	27cm (10.6")
13cm (5.1")	91°	99°	106°	112°	105°	99°	95°	92°
15cm (5.9")	91°	98°	105°	106°	99°	94°	91°	92°
17cm (6.7")	91°	97°	103°	98°	93°	89°	86°	84°
19cm (7.5")	91°	97°	98°	92°	92°	85°	82°	80°
21cm (8.3")	91°	96°	91°	86°	83°	81°	79°	77°
23cm (9")	91°	89°	85°	81°	79°	77°	75°	74°
25cm (9.8")	88°	83°	79°	77°	75°	73°	72°	71°
27cm (10.6")	80°	77°	75°	73°	71°	70°	69°	68°

STEP 3

Attach the Brackets to the Gate Opener Arm

◆ Attach the post bracket assembly and the gate bracket to the gate opener arm by inserting a clevis pin.
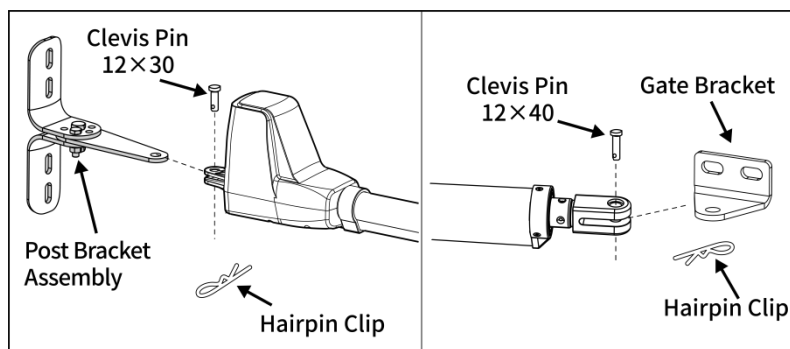
◆ Secure the clevis pin using the hairpin clip.

STEP 4

Release the Clutch

◆ Insert the manual release key, and turn it 90° clockwise.

◆ The gate opener is now in manual mode, allowing for manual extension and retraction of the moving rod.
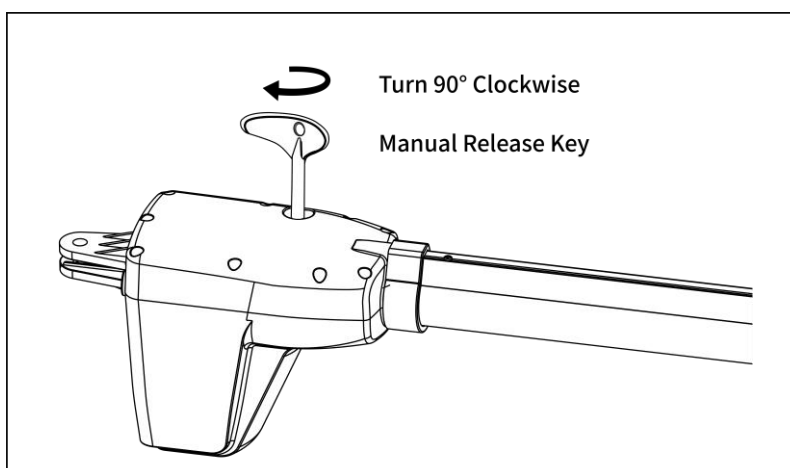
STEP 5

Position the Gate Opener on the Gate

◆ Clamp the gate opener arm along with the post bracket assembly to the marked position on the gate post.

◆ Make sure that the gate opener arm is fully retracted and the gate is fully opened to the desired position.

◆ Put a level on the arm, then use a C-clamp to secure the gate bracket onto the gate when the arm is level.

Pull-to-Open Installation: Gate is open
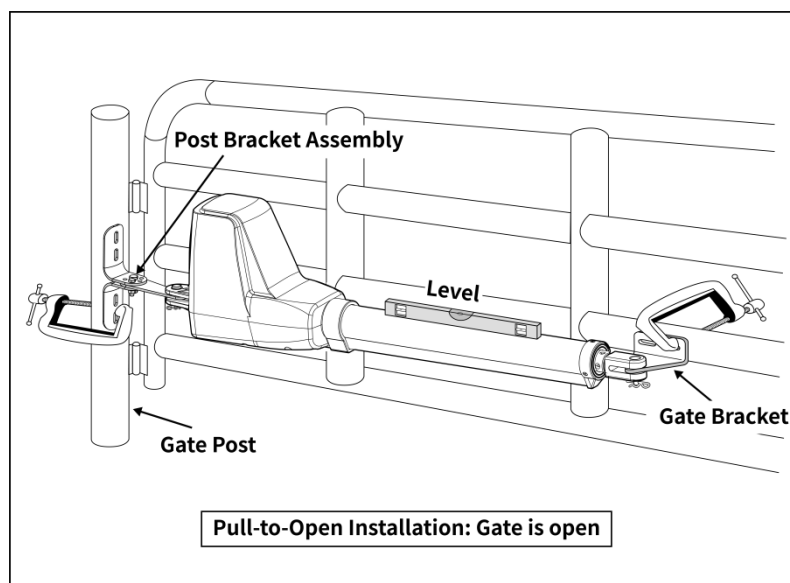
STEP 6

Test Gate Travel and Mark the Brackets Mounting Locations

◆ Manually open and close the gate to ensure that the gate bracket position is correct.

◆ Ensure that there is a minimum clearance of 2.5cm (1") between the gate and the opener.

◆ Make sure that the gate opener does not bind against the pull-to-open bracket.

◆ If the clearance is less than 2.5cm (1"), or if the gate opener and the pull-to-open bracket are binding, rotate the pull-to-open bracket and/or move the post bracket assembly.

◆ Mark the center of the mounting locations for the brackets.

NOTE: *This step is very important for determining the position of the gate opener arm and the gate opening angle. It is highly recommended to watch our step-by-step installation video on YouTube for guidance.*

STEP 7

Drill Bracket Mounting Holes

◆ Remove the C-clamps and the gate opener arm.

◆ Drill 10.5mm (0.4") diameter holes through the post and the gate at the marked locations.

STEP 8

Secure the Post Bracket

◆ Secure the post bracket assembly to the gate post by inserting M10 x 200 bolts through the post bracket assembly and the drilled holes in the gate post.

◆ Tighten each bolt using one ¢ 10 washer, one ¢ 10 lock washer, and one ¢10 nut. Cut off the bolts that extend beyond the tightened nuts.
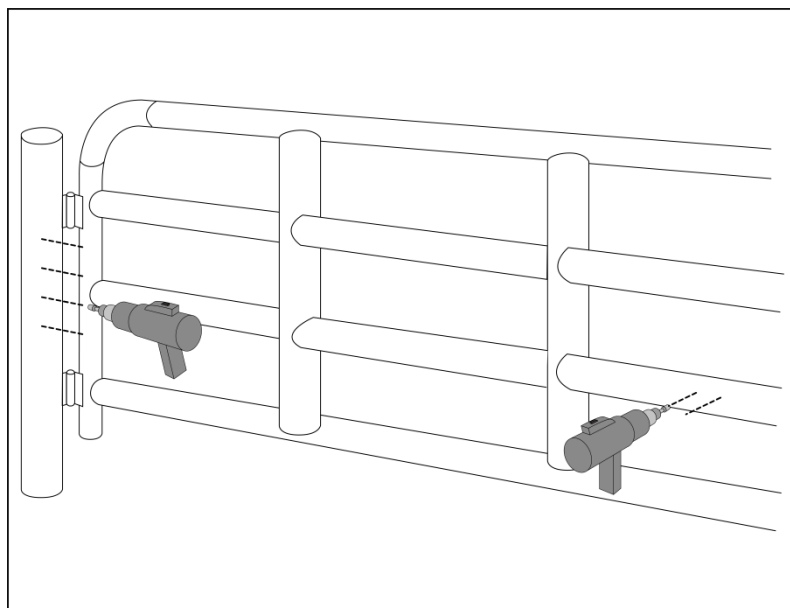
Φ10 Washer
Φ10 Lock Washer
M10 Nut

STEP 9

Secure the Gate Bracket

◆ Secure the gate bracket to the gate by inserting two M10 x 75 bolts through the gate bracket and the drilled holes in the gate.

◆ Tighten each bolt using one ¢ 10 washer, one ¢ 10 lock washer, and one ¢10 nut. Cut off the bolts that extend beyond the tightened nuts.

Φ10 Washer
Φ10 Lock Washer
M10 Nut

STEP 10

Turn Back the Clutch

◆ Manually move the gate to verify that if the installation is appropriate.

◆ Turn over the arm. Insert the manual release key, and turn the release key 90 ° counterclockwise.

◆ Remember to turn the arm back to its correct position once the entire installation is complete.

Turn 90° Counterclockwise

Manual Release Key

NOTE: *Please ensure that the PULL/PUSH TO OPEN setting on the control board matches the installation type.*

STEP 1

Assemble the Post Bracket and the Push-to-Open Bracket

◆ Insert the bolts through the holes of post bracket and push-to-open bracket, and fasten with washer and nut as shown.

◆ DO NOT over tighten the nut because the post bracket may need to be adjusted later.

Post Bracket Assembly

M10×35 Bolt →
M8×30 Bolt ←
Post Bracket →
Push-to-Open Bracket →
Post Bracket →
Φ10 Washer →
Φ8 Washer ←
Φ10 Lock Washer →
M8 Nut ←
M10 Nut →
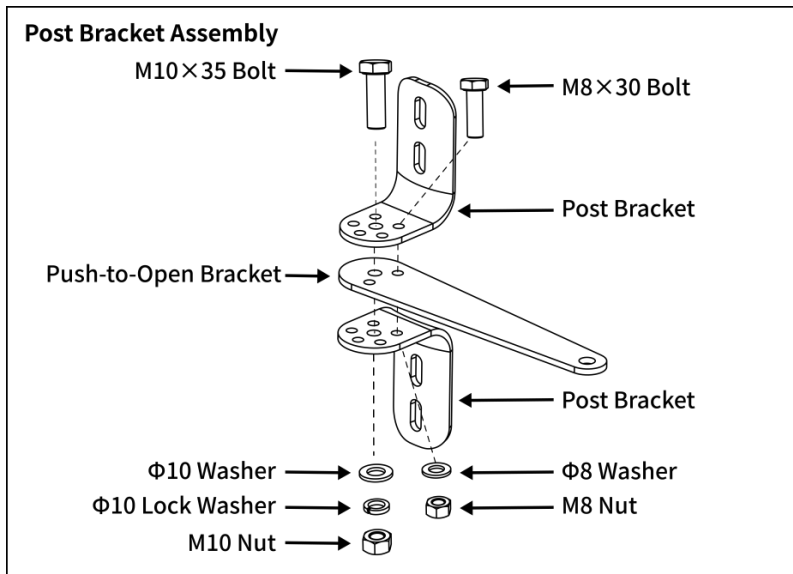
STEP 2

Determine the Position of the Post Bracket Assembly

◆ The table shows the maximum opening angle of the gate based on the dimensions of A and B. For example, if A is 17cm (6.7") and B is 15cm (5.9"), the maximum opening angle of the gate is 105°.

◆ Measure the dimension of A and B to determine the desired gate opening angle, and then mark the center of the mounting locations for the post bracket accordingly.

◆ *Push-to-Open Installation — Gate in closed position with the moving rod fully retracted.*

Open Direction

Post Bracket
Push-to-Open Bracket

Gate in Closed Position

B \ A	17cm (6.7")	15cm (5.9")	13cm (5.1")
13cm (5.1")	107°	101°	94°
15cm (5.9")	105°	100°	93°
17cm (6.7")	104°	99°	93°
19cm (7.5")	103°	98°	92°
21cm (8.3")	95°	97°	92°
23cm (9")	89°	97°	92°
25cm (9.8")	83°	89°	93°
27cm (10.6")	79°	85°	93°

STEP 3

Attach the Brackets to the Gate Opener Arm

◆ Attach the post bracket assembly and the gate bracket to the arm by inserting a clevis pin.
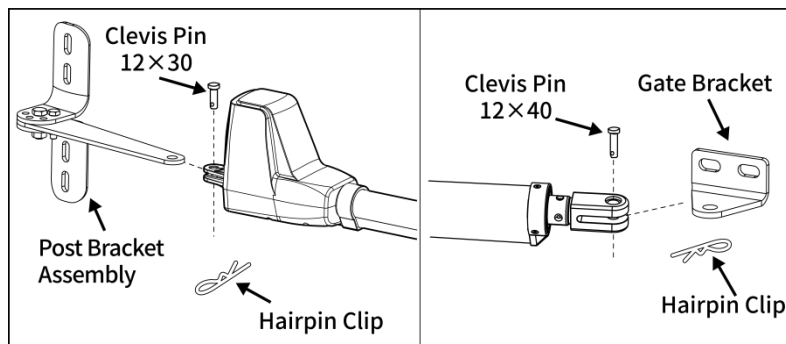
◆ Secure the clevis pin using the hairpin clip.

Clevis Pin 12×30
Post Bracket Assembly
Hairpin Clip
Clevis Pin 12×40
Gate Bracket
Hairpin Clip

STEP 4

Release the Clutch

◆ Insert the manual release key, and turn it 90° clockwise.

◆ The gate opener is now in manual mode, allowing for manual extension and retraction of the moving rod.

Turn 90° Clockwise
Manual Release Key
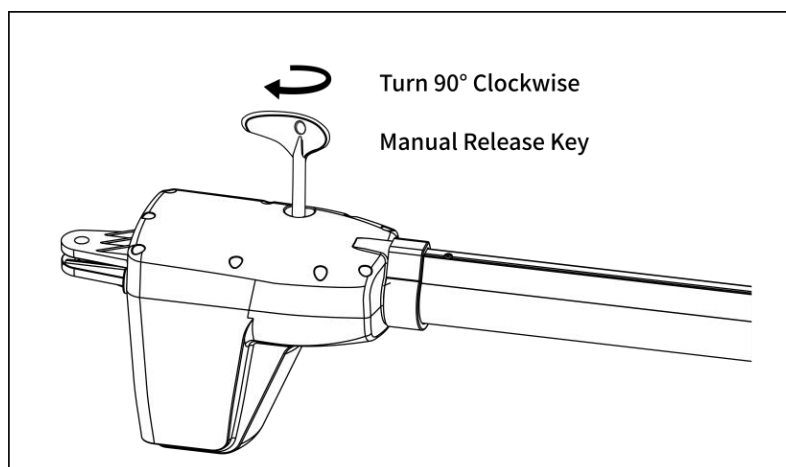
STEP 5

Position the Gate Opener on the Gate

◆ Clamp the gate opener arm along with the post bracket assembly to the marked position on the gate post.

◆ Make sure that the gate opener is fully retracted and the gate is fully closed to the desired position.

◆ Put a level on the arm, then use a C-clamp to secure the gate bracket onto the gate when the arm is level.

Post Bracket Assembly
Level
Gate Bracket
Gate Post
Push-to-Open Installation: Gate is closed
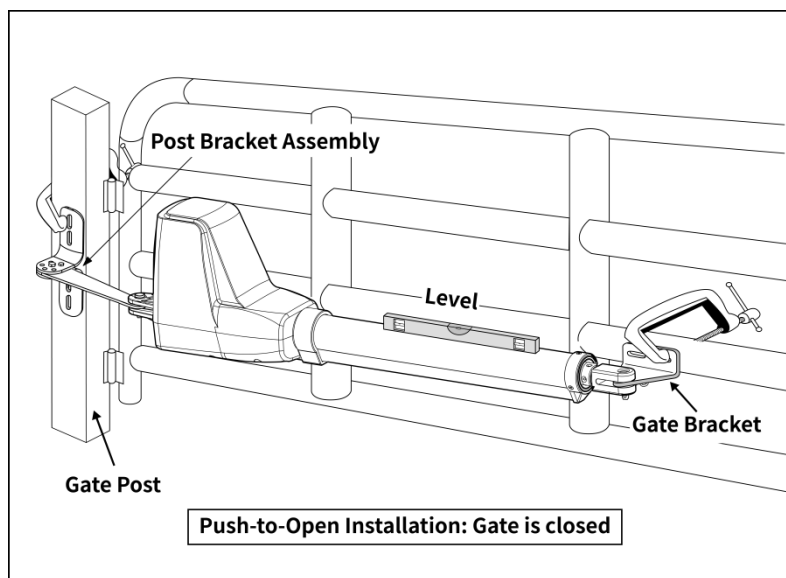
STEP 6

Test Gate Travel and Mark the Brackets Mounting Locations

◆ Manually open and close the gate to ensure that the gate bracket position is correct.

◆ Ensure that there is a minimum clearance of 2.5cm (1") between the gate and the opener.

◆ Make sure that the gate opener does not bind against the push-to-open bracket.

◆ If the clearance is less than 2.5cm (1"), or if the gate opener and the push-to-open bracket are binding, rotate the push-to-open bracket and/or move the post bracket assembly.

◆ Mark the center of the mounting locations for the brackets.

NOTE: *This step is very important for determining the position of the gate opener arm and the gate opening angle. It is highly recommended to watch our step-by-step installation video on YouTube for guidance.*

STEP 7

Drill Bracket Mounting Holes

◆ Remove the C-clamps and the gate opener arm.

◆ Drill 10.5mm (0.4") diameter holes through the post and the gate at the marked locations.

STEP 8

Secure the Post Bracket

◆ Secure the post bracket assembly to the gate post by inserting M10 x 200 bolts through the post bracket assembly and the drilled holes in the gate post.
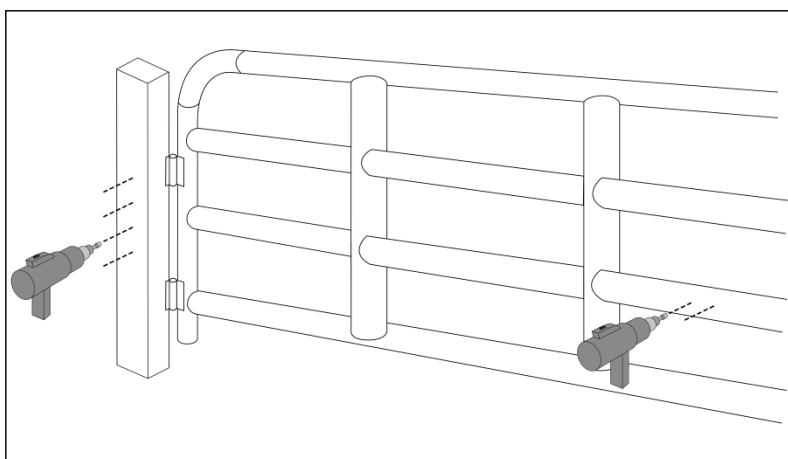
◆ Tighten each bolt using one ￠10 washer, one ￠10 lock washer, and one ￠10 nut. Cut off the bolts that extend beyond the tightened nuts.

Φ10 Washer ◁1
Φ10 Lock Washer ◁2
M10 Nut ◁3

STEP 9

Secure the Gate Bracket

◆ Secure the gate bracket to the gate by inserting two M10 x 75 bolts through the gate bracket and the drilled holes in the gate.

◆ Tighten each bolt using one ￠10 washer, one ￠10 lock washer, and one ￠10 nut. Cut off the bolts that extend beyond the tightened nuts.

Φ10 Washer ◁1
Φ10 Lock Washer ◁2
M10 Nut ◁3

STEP 10

Turn Back the Clutch

◆ Manually move the gate to verify that if the installation is appropriate.

◆ Turn over the arm. Insert the manual release key, and turn the release key 90 ° counterclockwise.

◆ Remember to turn the arm back to its correct position once the entire installation is complete.

Turn 90° Counterclockwise

Manual Release Key

NOTE: *Please ensure that the PULL/PUSH TO OPEN setting on the control board matches the installation type.*

Mount Control Box & UPS01 Power Supply

STEP 1
◆ Identify a suitable mounting location for the control box at least 1m (3.3ft.) above the ground and no more than 10m (33ft.) from the gate opener arm to prevent it from being flooded or buried under snow.
◆ Mount the UPS01 power supply next to the control box.
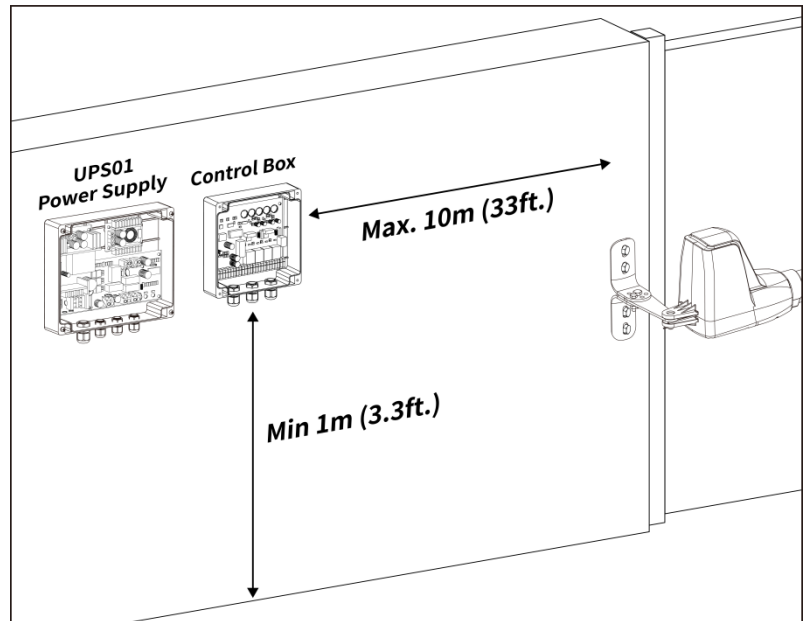
STEP 2
◆ Secure the control box and UPS01 power supply using deck screws (NOT included).
◆ Use expansion tubes (NOT included) if mounting to a wall.

CAUTION: *Make sure that the cable outlet hole is facing downward for proper drainage.*
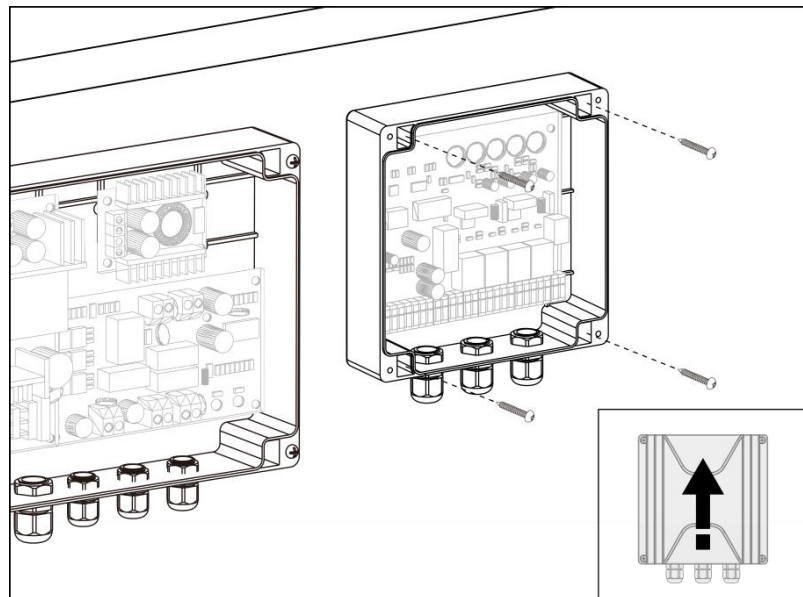
Terminal Function of the Control Board

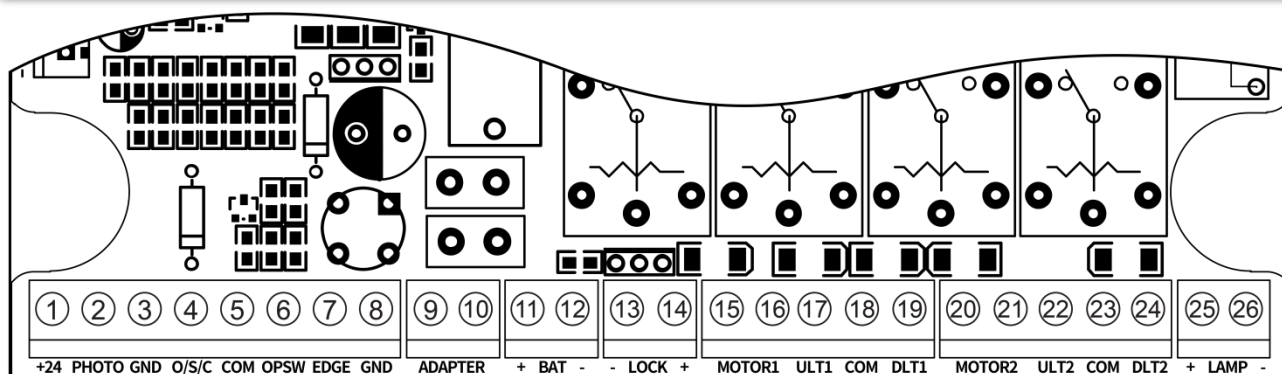| Terminal		Function
① "+24" ③ "GND"		Provide 24VDC voltage output to power photocell sensors
② "PHOTO" ③ "GND"		Receive signal input from a photocell sensor, operating on a normally closed (NC) input basis
④ "O/S/C" ⑤ "COM"		Control gate operation through a normally open dry contact signal input, commonly connected to push button, wired keypad, and external receiver for cyclic gate operation (open/stop/close/stop)
⑥ "OPSW" ⑤ "COM"		Accept the signal input of the gate opening, usually connected to the normally open output of a vehicle sensor
⑦ "EDGE" ⑧ "GND"		Receive signal input from an edge sensor, operating on a normally closed input basis
⑨⑩ "ADAPTER"		Input terminals for a power adapter to charge the battery, can also be connected to a 36VDC or 24VAC power supply for battery charging
⑪⑫ "+BAT-"		Input terminals for 24VDC power, typically connected to the positive and negative terminals of a 24VDC battery or 24VDC power supply, providing power to the entire system or other 24VDC accessories
⑬⑭ "-LOCK+"		Output terminals for swing gate electric lock, directly connected to the positive and negative wires of the lock. Ensure the lock is a fail secure type with a rated voltage of 24VDC and a rated current of less than 3A
⑮⑯ "MOTOR1"		Connect to the red and black wires of the master arm
⑳㉑ "MOTOR2"		Connect to the red and black wires of the slave arm
⑰ "ULT1" ⑱ "COM" ⑲ "DLT1"		Input terminals for master arm limit switches, the near end limit switch connected to "ULT1" and "COM", the far end limit switch connected to "DLT1" and "COM"
㉒ "ULT2" ㉓ "COM" ㉔ "DLT2"		Input terminals for slave arm limit switches, the near end limit switch connected to "ULT2" and "COM", the far end limit switch connected to "DLT2" and "COM"
㉕㉖ "+LAMP-"		Output terminals for a warning light, connected to the positive and negative wires of the warning light. Ensure that the warning light has a rated voltage of 24VDC and a rated current of less than 1A

NOTE: *For terminal wiring, remove the terminal from the control board and unscrew the terminal screws using a screwdriver. Insert the wire into the terminal, tighten the screws to secure the wire, and then reattach the terminal to the control board.*

Connect the Arm to the Control Board

STEP 1

Connect the Master Arm to the Control Board

◆ Insert the wire harness through the cable gland into the control box.

◆ Connect the red wire into terminal ⑮ "+MOTOR1", the black wire into terminal ⑯ "MOTOR1-", the blue wire into terminal ⑰ "ULT1", the green wire into terminal ⑱ "COM", and the yellow wire into terminal ⑲ "DLT1".

◆ Tighten each of the screws so that the wires do not come loose and fall out.

⑮	⑯	⑰	⑱	⑲
MOTOR1		ULT1	COM	DLT1
Red	Black	Blue	Green	Yellow

STEP 2

Bury Extension Cable with PVC Conduit

◆ Trench across driveway to bury the extension cable. Use PVC conduit to prevent damage to cables.

◆ Pull the extension cable through the conduit.

Slave Arm   Master Arm

PVC Conduit (NOT Included)

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STEP 3

Connect the Extension Cable to the Slave Arm

◆ Match the color-coded conductors from each cable and twist together the ends of conductors with the same color.

◆ Wrap each connection individually with electrical tape to ensure proper insulation.
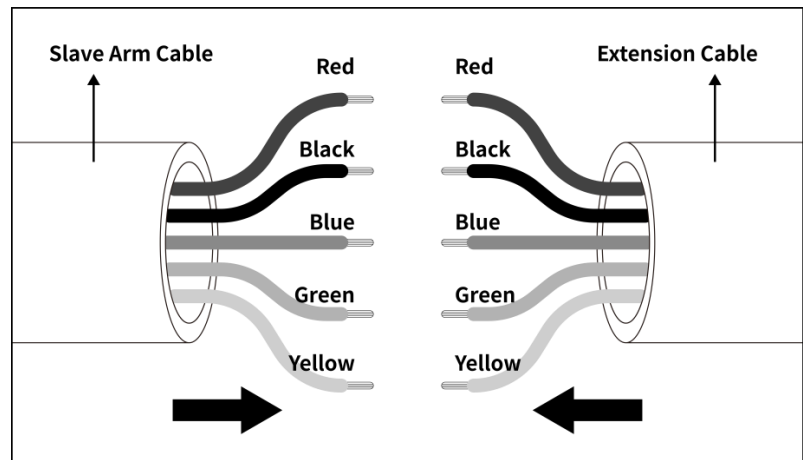
STEP 4

Connect the Slave Arm to the Control Board

◆ Insert the wire harness through the cable gland into the control box.

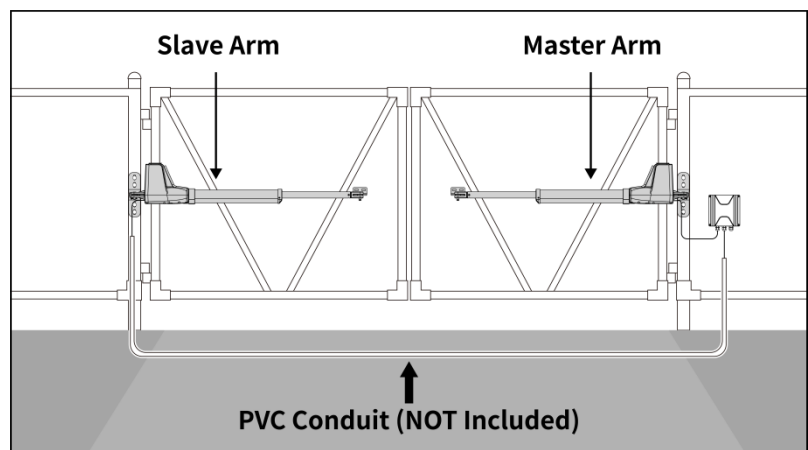◆ Connect the red wire into terminal ⑳ "+MOTOR2" , the black wire into terminal ㉑ "MOTOR2-" , the blue wire into terminal ㉒ "ULT2" , the green wire into terminal ㉓ "COM" , and the yellow wire into terminal ㉔ "DLT2" .

◆ Tighten each of the screws so that the wires do not come loose and fall out.
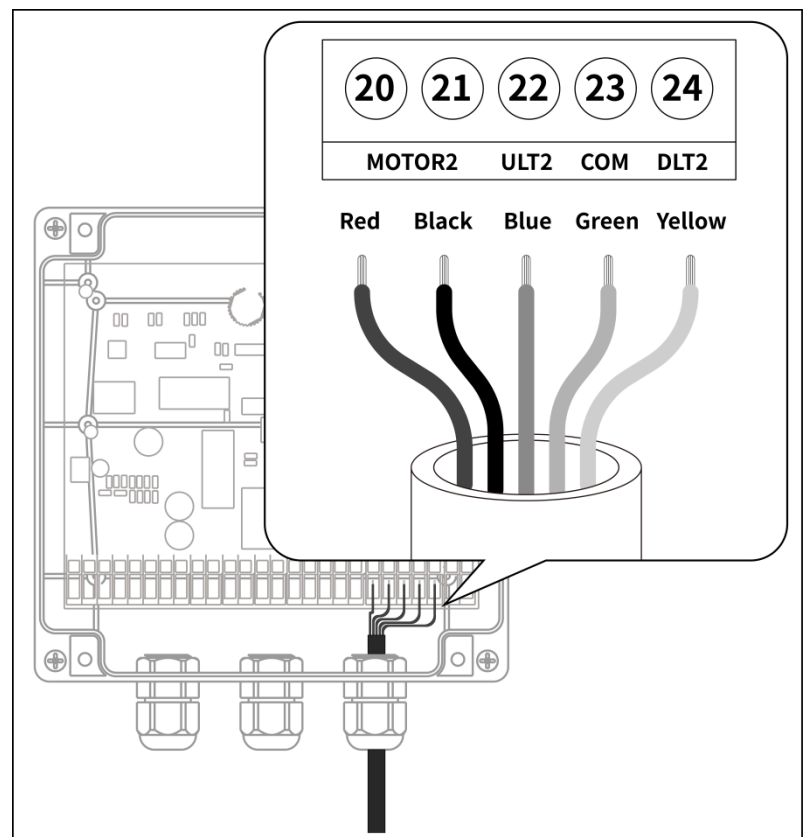
Connection of Power Supply

Power Mode 1

Use AC Electricity Only

◆ Connect the male terminals from the LOAD output wires of the UPS01 power supply to the female terminals of the power input wires connected to the +BAT- terminals of the control board.

◆ Plug the UPS01 power cord into an electrical outlet.
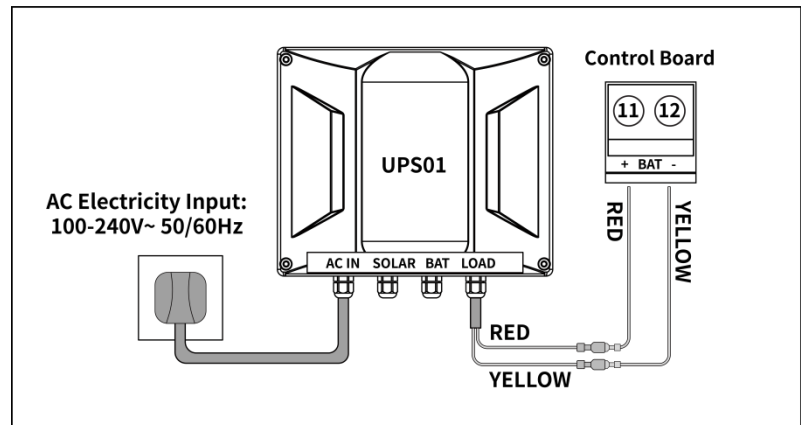
Power Mode 2

By AC Electricity and Back-up Batteries

◆ If AC power failures occur for less than 8 hours per day, you can use a minimum of 24VDC 5Ah automotive / marine type battery as a backup power source while using AC electricity to charge the battery.

◆ Connect the male terminals from the LOAD output wires of the UPS01 power supply to the female terminals of the power input wires connected to the +BAT- terminals of the control board.

◆ Connect two 12VDC batteries in series to achieve 24VDC (batteries not included).

◆ Connect the BAT wires of the UPS01 power supply to the batteries.

◆ Plug the UPS01 power cord into an electrical outlet.

Power Mode 3
By Solar Panels and Batteries

◆ Connect the male terminals from the LOAD output wires of the UPS01 power supply to the female terminals of the power input wires connected to the +BAT- terminals of the control board.

◆ Connect two 12VDC batteries in series to achieve 24VDC (batteries not included).

◆ Connect the BAT wires of the UPS01 power supply to the batteries.

◆ Assemble the solar panels and connect the solar panels in parallel and mount in an area clear of all obstructions and shading from buildings and trees. The solar panel should face south if it is located north of the equator. If it is located south of the equator, it should face north.

◆ Connect the SOLAR wires of the UPS01 power supply to the solar panels.

NOTE ABOUT THE BATTERY AND SOLAR PANEL

◆ *The batteries should be waterproof, or they should be placed in waterproof housing.*

◆ *The UPS01 power supply supports a maximum solar panel power of 240W, exceeding this limit can cause damage to the UPS01 power supply.*

◆ *If the gate opener is solely powered by battery and utilizes the solar panel for charging, a minimum of a 24VDC 12Ah automotive/marine type battery and a 24V 20W solar panel are required.*

◆ *If there are more than 6 hours of sunlight per day and no accessories are connected (except for the photocell sensor, electric lock, push button, and warning light), the gate opener can operate 10 cycles per day.*

◆ *Add more solar panels and increase battery capacity if there is less than 6 hours of sunlight per day or if using any accessories (such as an external receiver, exit wand, or wired keypad).*

◆ *For precise recommendations on solar panel power and battery capacity, please contact our customer support at www.topens.com.*

Power Mode 4
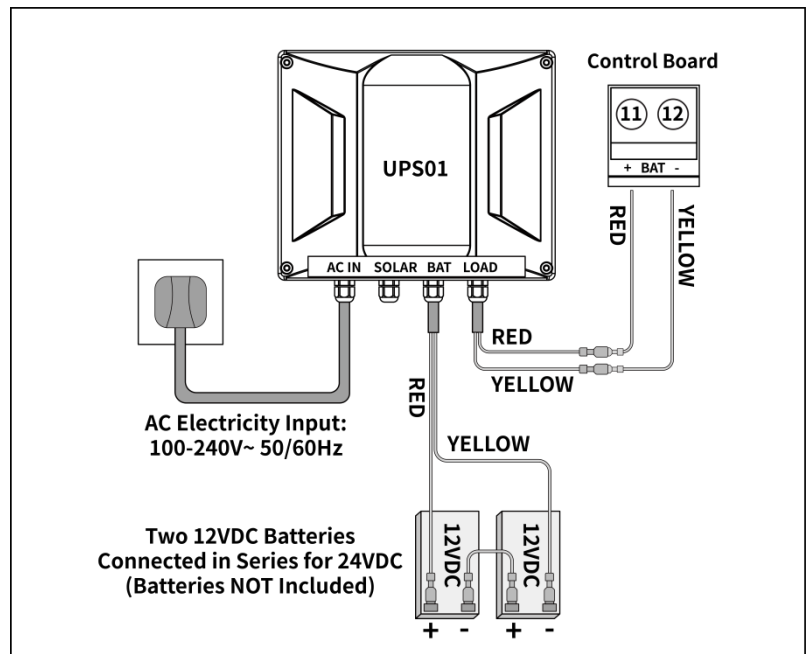
By AC Electricity, Solar Panels and Back-up Batteries

◆ Connect the male terminals from the LOAD output wires of the UPS01 power supply to the female terminals of the power input wires connected to the +BAT- terminals of the control board.

◆ Connect two 12VDC batteries in series to achieve 24VDC (batteries not included).

◆ Connect the BAT wires of the UPS01 power supply to the batteries.

◆ Assemble the solar panels and connect the solar panels in parallel and mount in an area clear of all obstructions and shading from buildings and trees. The solar panel should face south if it is located north of the equator. If it is located south of the equator, it should face north.

◆ Connect the SOLAR wires of the UPS01 power supply to the solar panels.
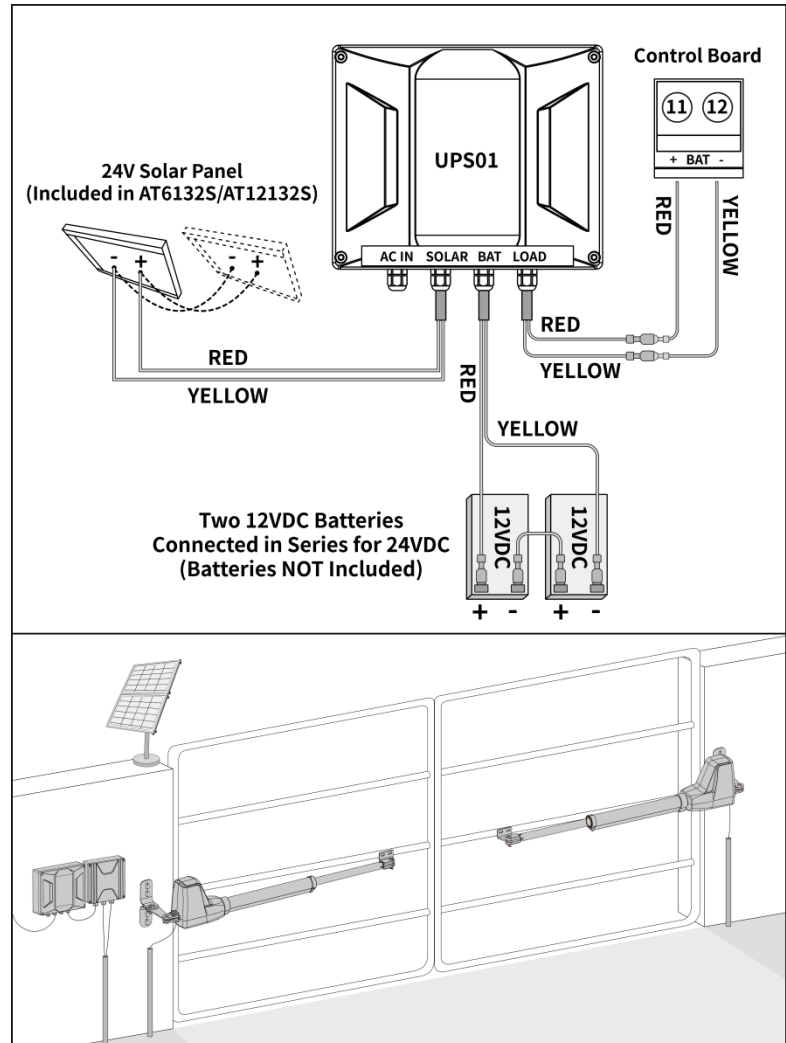
◆ Plug the UPS01 power cord into an electrical outlet.
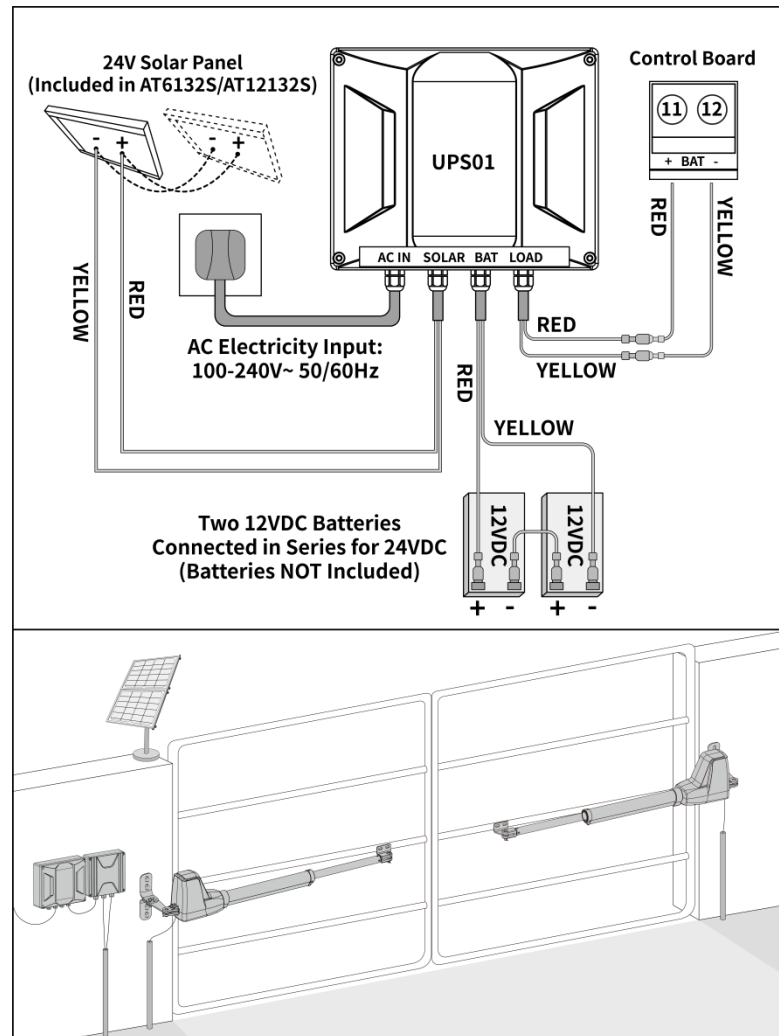

NOTE ABOUT THE BATTERY AND SOLAR PANEL

◆ *The batteries should be waterproof, or they should be placed in waterproof housing.*

◆ *The UPS01 power supply supports a maximum solar panel power of 240W, exceeding this limit can cause damage to the UPS01 power supply.*

◆ *If AC power failures occur for less than 8 hours per day, you can use a minimum of 24VDC 5Ah automotive/marine type battery and a 24V 10W solar panel as a backup power source.*

Program the Remote Control

NOTE
◆ *Keep the gate movement area free of obstructions, and ensure children, pets and livestock stay away from the gate opener system while the gate is in motion.* ◆ *If you lose any remote control, please erase and reprogram all remaining remote controls for safety.*
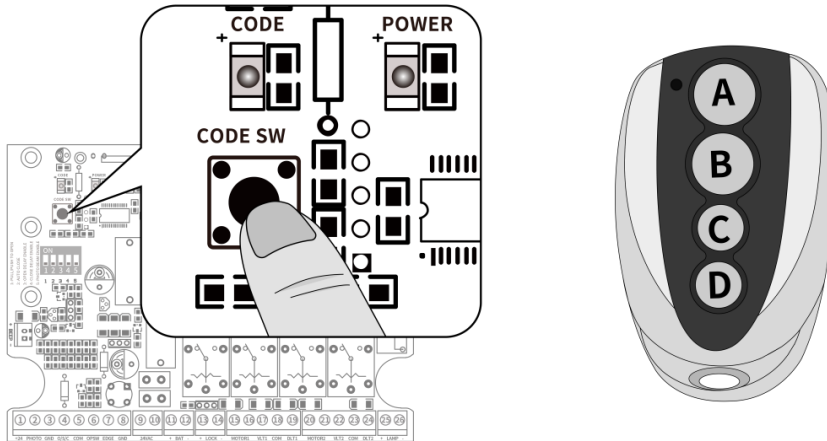
Function of the Remote Control Button
◆ Each remote has four buttons, from top to bottom are separately A, B, C and D.
◆ For the swing gate opener, all four buttons share the same function. You can use any of these buttons to program with the gate opener.
◆ Each press of the programmed button will cycle the gate through open, stop, close, stop, and open.

How to Program the Remote Control
The remote control MUST be programmed to the gate opener before use. The remote controls that come with the gate opener are preprogrammed.
If you purchase additional remote controls, or if the programmed remotes are not working, repeat the programming steps below for each remote control.

Enter Programming Mode
◆ Press and release the CODE SW button on the control board. The CODE LED will turn on, indicating that the gate opener is now in programming mode.

Program the Remote Control
◆ Press the remote control button you want to program once, then press it again after the LED on the remote turns off.
◆ The CODE LED will flash for 3 seconds and then turn off, indicating successful programming.

Additional Remote Controls
The gate opener can pair Max. 8 M12 remote controls on its own, and up to 250 with the ERM12 External Receiver (sold separately on the TOPENS website www.topens.com).

How to Erase All Programmed Remote Controls
◆ Press and hold the CODE SW button until the CODE LED turns from ON to OFF. Now all programmed remote controls have been erased.

Adjust the Limit Switch

NOTE
◆ The position of Limit Switch A has been fixed at the factory, do not adjust it. ◆ The limit switches are located underneath the arm. Turn the arm over to access the limit switch screws. Once the adjustment is completed, remember to turn the arm back to its correct position.

Screw for Fixing Limit Switch B
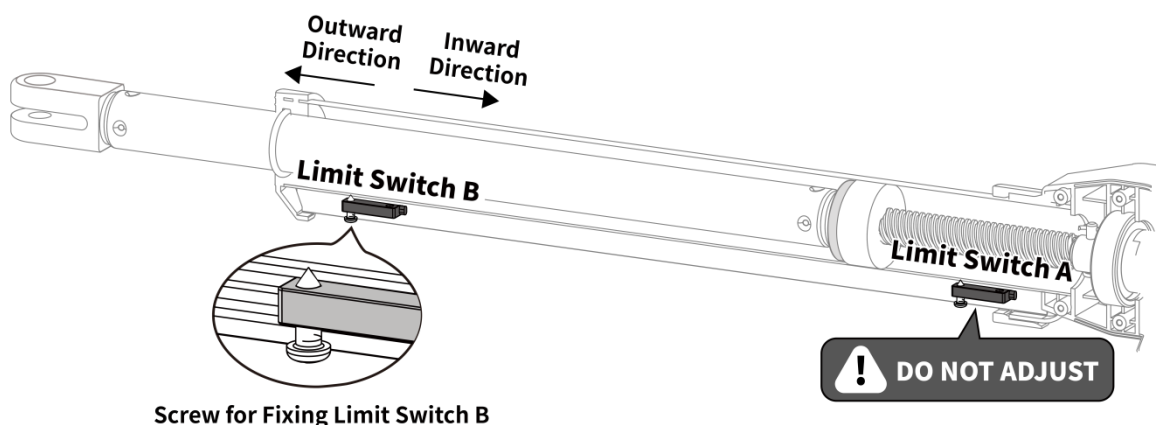
For Pull-to-Open Installation

Adjust the Limit Switch B to Determine the Closed Position
◆ Make sure that the moving rod is fully retracted when the gate is in the fully open position before adjusting the limit switch.
◆ Turn on power to operate the gate opener, the arm will extend to close the gate.
◆ If the gate closes over the desired closed position, press the remote control to stop the gate opener. Use a screwdriver to loosen the screw of the limit B, slightly slide the limit switch B inwards.
◆ If the gate closes halfway and fails to get to the desired closed position, slightly slide the limit switch B outwards.
◆ Please repeat the above steps until the gate reaches and automatically stops at the desired closed position. Then tighten the screw firmly.

For Push-to-Open Installation

Adjust the Limit Switch B to Determine the Open Position
◆ Make sure that the moving rod is fully retracted when the gate is in the fully closed position before adjusting the limit switch.
◆ Turn on power to operate the gate opener, the arm will extend to open the gate.
◆ If the gate opens over the desired open position, press the remote control to stop the gate opener. Use a screwdriver to loosen the screw of the limit B, slightly slide the limit switch B inwards.
◆ If the gate opens halfway and fails to get to the desired open position, slightly slide the limit switch B outwards.
◆ Please repeat the above steps until the gate reaches and automatically stops at the desired open position. Then tighten the screw firmly.

Setting of the Control Board

WARNING

◆ Ensure that the gate opener is powered off when making any adjustments.
◆ Keep away from the gate while setting up the gate opener system to avoid unexpected gate movement.
◆ Carefully adjust the DIP switches to prevent the risk of damaging the gate opener and causing injury or death.
◆ Always seek assistance from a professional technician or electrician if you have any questions.

DIP Switches
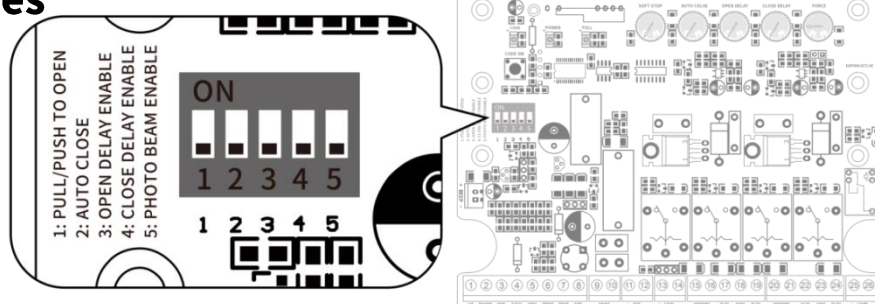
DIP Switch #1: Set Pull/Push-to-Open

ON – Push-to-Open
OFF – Pull-to-Open
The factory default setting is **OFF**.
If the gate opens into the property (Pull-to-Open), set the DIP Switch to **OFF**.
If the gate opens out from the property (Push-to-Open), set the DIP Switch to **ON**.

DIP Switch #2: Enable/Disable Auto Close Function

ON – Auto close function enabled
OFF – Auto close function disabled
The factory default setting is **OFF**. The auto close function allows the gate to automatically close after a set period.

IMPORTANT NOTES:
◆ *The auto close function should be enabled if a vehicle sensor exit wand is installed.*
◆ *When the auto close function is enabled, the photocell sensor is highly recommended to be installed with the gate opener for safety.*
◆ *The auto close time can be adjusted by turning the AUTO CLOSE Potentiometer.*

DIP Switch #3: Enable/Disable Open Interval Between the Master and Slave Gate Opener

ON – Open interval enabled
OFF – Open interval disabled
The factory default setting is **ON**, ensuring that both gates operate smoothly and in coordination.

IMPORTANT NOTE: The open interval time can be adjusted by the OPEN DELAY Potentiometer.

DIP Switch #4: Enable/Disable Close Interval Between the Master and Slave Gate Opener

ON – Close interval enabled
OFF –Close interval disabled
The factory default setting is **ON**, ensuring that both gates operate smoothly and in coordination.

IMPORTANT NOTE: The close interval time can be adjusted by the CLOSE DELAY Potentiometer.

Setting of the Control Board

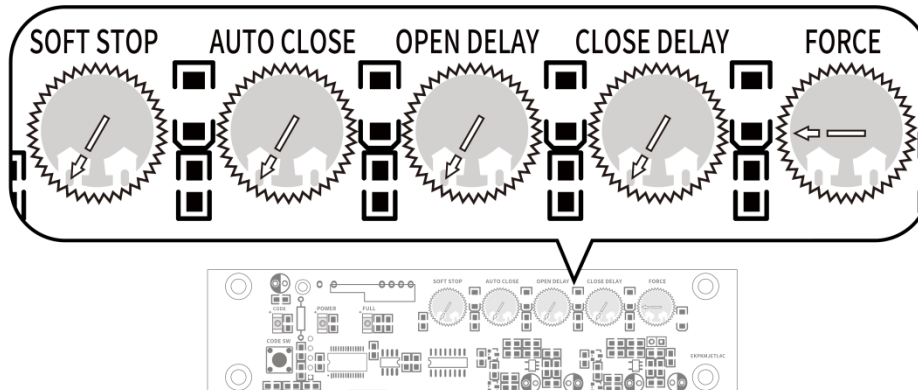**DIP Switch #5: Enable/Disable Photocell Sensor Function**
ON – Photocell sensor function enabled
OFF – Photocell sensor disabled
The factory default setting is **OFF**.
Set the switch #5 to **ON** to enable the photocell sensor function if you want to use the photocell sensor with the gate opener.

Potentiometers

SOFT STOP Potentiometer: Adjust the Soft Stop Period of the Gate Opener
◆ Turn the potentiometer clockwise to increase the soft stop period, and counterclockwise to decrease it. The soft stop period can be adjusted from 1 to 5 seconds.
◆ The soft stop is designed to slow down the gate during the final phase before it fully stops, protecting the motor.
◆ Turn off the power to the gate opener before making adjustment. After adjusting, turn on the power and use the remote control to run a complete open and close cycle to calibrate the full open and close times. This will ensure the adjustment is effective in subsequent cycles.

AUTO CLOSE Potentiometer: Adjust the Auto Close Time of the Gate Opener
◆ Turn the potentiometer clockwise to increase the auto close time, and counterclockwise to decrease it. The auto close time can be adjusted from 3 to 120 seconds.

OPEN DELAY Potentiometer: Adjust Open Interval Time Between the Master and Slave Gate Opener
◆ Turn the potentiometer clockwise to increase the interval time, and counterclockwise to decrease it. The interval time can be adjusted from 1 to 9 seconds.
◆ The interval time MUST be set to more than 4 seconds if an electric gate lock is used.

CLOSE DELAY Potentiometer: Adjust Close Interval Time Between the Master and Slave Gate Opener
◆ Turn the potentiometer clockwise to increase the interval time, and counterclockwise to decrease it. The interval time can be adjusted from 1 to 9 seconds.
◆ The interval time MUST be set to more than 4 seconds if an electric gate lock is used.

FORCE Potentiometer: Adjust the Stall Force of the Gate Opener
◆ Turn the potentiometer clockwise to increase the force, and counterclockwise to decrease it.
◆ Stall force regulates the gate's sensitivity to obstacles during operation. A higher stall force decreases sensitivity, making the gate less likely to detect objects. A lower stall force increases sensitivity, causing the gate to stop or reverse when encountering even minor obstructions.

# Stall Force Adjustment & Obstruction Test

Fine Tune the Stall Force

This force should be high enough to ensure the gate reaches both the open and close limits without reversing unnecessarily or causing frequent interruptions, but low enough to prevent injury if an obstruction is encountered. The appropriate stall force setting will depend on the gate's length and weight, so fine-tuning may be required. Follow these steps to adjust the stall force:

◆ **Initial Assessment:** Use the remote control to open and close the gate and observe its movement.
◆ **Adjust the Stall Force:** If the gate reverses or stops before reaching the fully open or close position, increase the stall force by turning the FORCE Potentiometer slightly clockwise.
◆ **Perform the Obstruction Test:** Run the test after every force setting adjustment (see below).

Obstruction Test

This test ensures that the gate opener's automatic obstruction sensing feature is functioning correctly. The gate should have enough force to reach both the open and close limits, but MUST reverse after contacting with a solid object.

◆ **Operate the Gate:** Open and close the gate with the remote control, ensuring that the gate stops at the proper open and close limit positions.
◆ **Setup for the Test:** Place a solid, immovable object in the gate's path to simulate an obstruction.
◆ **Test Gate Closure and Opening:** Run the gate in the closing direction towards the obstruction and conduct the same test with the gate moving in the opening direction.
◆ **Adjust Force if Necessary:** The gate should reverse when it encounters the obstruction. If the gate does not reverse, reduce the force by turning the FORCE Potentiometer slightly counterclockwise.
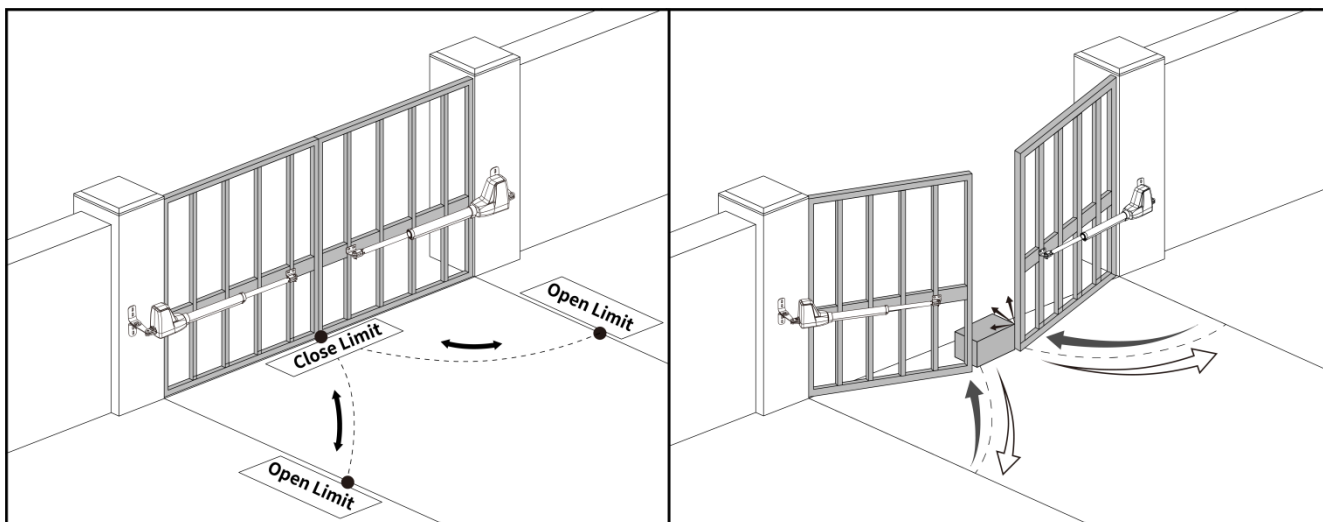
NOTES:
◆ *If the stall force is set too low (i.e., the sensitivity is too high), the gate may stop or reverse too easily, even with minimal obstruction or resistance, such as strong wind or heavy snow.*
◆ *Always perform an obstruction test for the gate each time you set up the control board or restart it after a power outage.*
◆ *The gate opener is designed to reverse the gate when the gate comes in contact with an obstruction. It is highly recommended to install a photocell sensor for additional safety.*

Connection of Accessories

NOTE
◆ *This section covers only the programming and wire connections with the control board. For additional operations, please refer to the corresponding accessory user manual.*   ◆ *It is highly recommended to install a photocell sensor in the following situations for safety: if you have children or pets at your property, the gate opener auto close function is set to ON, the gate opener stall force is set to the maximum, a vehicle exit sensor is installed, or other gate control devices are used.*

TC188 Universal Keypad

Operate the gate using a user-defined password. You can use this keypad wirelessly or wire it to the gate opener according to your needs.

Wireless Mode Programming and Operation
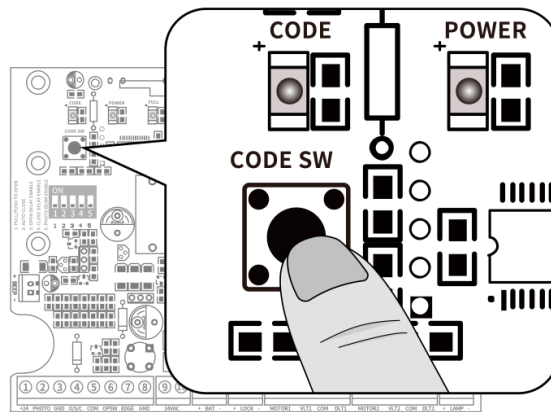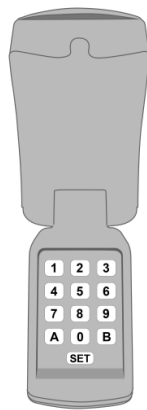
Step 1 Program New Master Code

Factory default master code is 9999, all codes should be 4 digits in length.

SET	4 digits Old Master Code	SET	01	SET	4 digits New Master Code	SET	4 digits New Master Code	SET

Step 2 Add New Permanent Entry Code

SET	Master Code	SET	02	SET	Entry Code	SET	Entry Code	SET

Step 3 Program with the Gate Opener

◆ Input the entry code of the keypad.
◆ Press and release the CODE SW button on the control board. The CODE LED will turn on, indicating that the gate opener is now in programming mode.
◆ Press button A (or B) once, and the keypad LED backlight will flash quickly. Press it again after the backlight changes from a rapid flash to a slow flash.
◆ The CODE LED will flash for 3 seconds and then turn off, indicating successful programming.

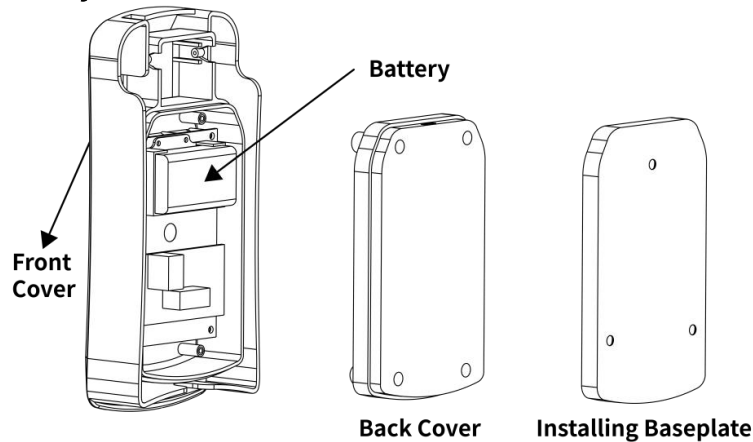**Step 4 Operate the Gate Opener**

Input the entry code and then press the programmed button A (or B) to operate the gate. Within 3 seconds of pressing button A (or B), you can press the button again without re-entering the code to operate the gate.

Connection of Accessories

Step 1 Remove the Battery

Step 2 Wire Connection

Connect the "COM" and "NO" terminals to the control board terminal ④ "O/S/C" and terminal ⑤ "COM". Then connect the "9-24V AC/DC" terminals to the control board terminal ⑤ "COM" and terminal ⑪ "+BAT". Polarity does not matter for these connections.

NOTE: A 4C x 0.3 mm^2 (22AWG) cable is required for the wire connection, but it is NOT included.
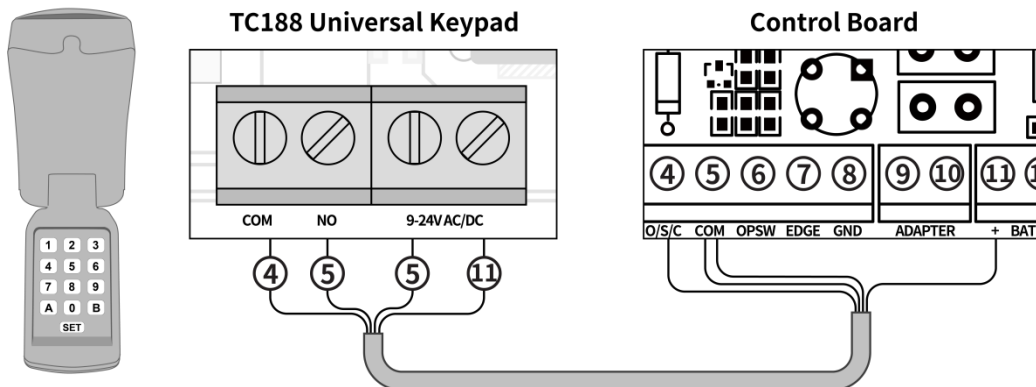
Step 3 Program New Master Code

Factory default master code is 9999, all codes should be 4 digits in length.

| SET | 4 Digits Old Master Code | SET | 01 | SET | 4 Digits New Master Code | SET | 4 Digits New Master Code | SET |

Step 4 Add New Permanent Entry Code

| SET | Master Code | SET | 02 | SET | Entry Code | SET | Entry Code | SET |

Step 5 Operate the Gate Opener

Input the entry code and then press button A (or B) to operate the gate. Within 3 seconds of pressing button A (or B), you can press the button again without re-entering the code to operate the gate.

NOTE: If the gate opener is ONLY solar powered, please add more solar panels and upgrade the battery capacity to support the additional power consumption by the wired keypad.

Connection of Accessories

TKP3 Wireless Keypad

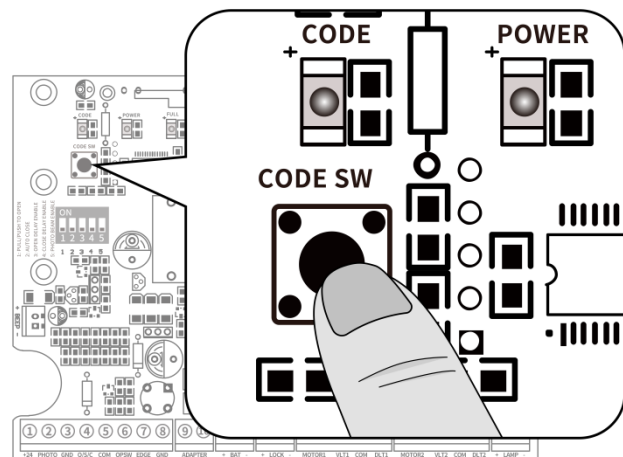Operate the gate with a user defined password

Programming and Operation

◆ Press and release the CODE SW button on the control board. The CODE LED will turn on, indicating that the gate opener is now in programming mode.

◆ Press the button "OK" on the keypad and the CODE LED will flash for 3 seconds and then turn off, indicating successful programming.

◆ Use the default password "888888" to operate the gate opener. Press "PIN" "8 8 8 8 8 8" and then press the button "OK" to operate the opener. Just one press of the button "OK", the moving gate will stop for quick passing through.

Change the Password

◆ Press "PIN" and then input the old six digits password and then press "PIN" again, the CODE LED will be ON.

◆ Input the new six digits password and then press the "PIN" to confirm the new setting, CODE LED will flash for 3 seconds and then turn off which indicates the password has been changed successfully.

◆ Press "PIN" "new six digits password" and then press the button "OK" to operate the gate opener.

Program the Keypad

Use the Default Password

| PIN | 888888 | OK |

Change the Password

| PIN | Old Six Digits Password | PIN |

| New Six Digits Password | PIN |

Use the New Password

| PIN | New Six Digits Password | OK |

NOTES:
◆ *Each button press during programming must be completed within 1 second to ensure successful programming.*
◆ *If you forget the password, you can reset the keypad to restore the default code "888888" by reprogramming it.*

TC173 Wireless Push Button

Open/close gate by pressing the wireless button

Programming and Operation

◆ Press and release the CODE SW button on the control board. The CODE LED will turn on, indicating that the gate opener is now in programming mode.

◆ Press the push button once, then press it again after the LED on the push button turns off. The CODE LED will flash for 3 seconds and then turn off, indicating successful programming.

◆ Each press of the button will cycle the gate through open, stop, close, stop, and open.
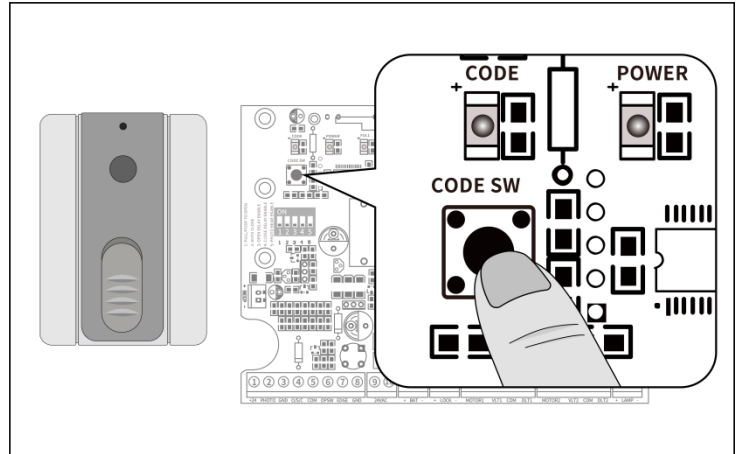
TC196 Tuya WiFi Remote Control

◆ Control the gate opener with your cellphone anytime and anywhere when the remote controller is connected with WiFi.

◆ Please see detailed connection steps in TC196 user manual.
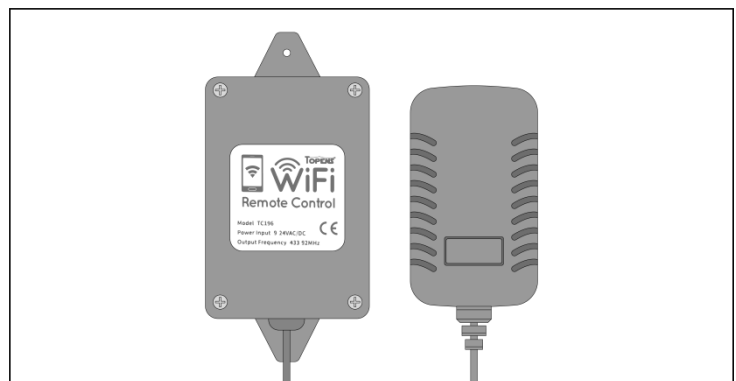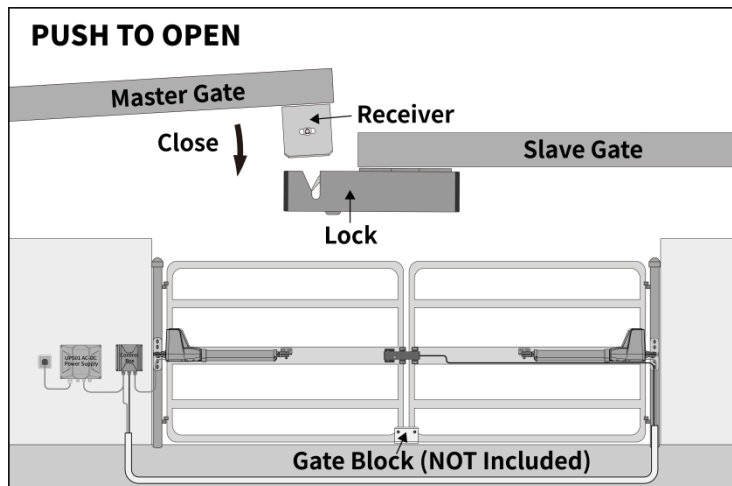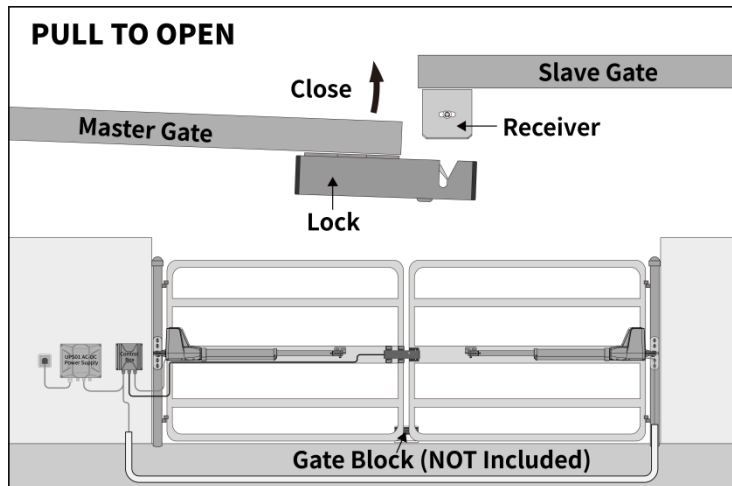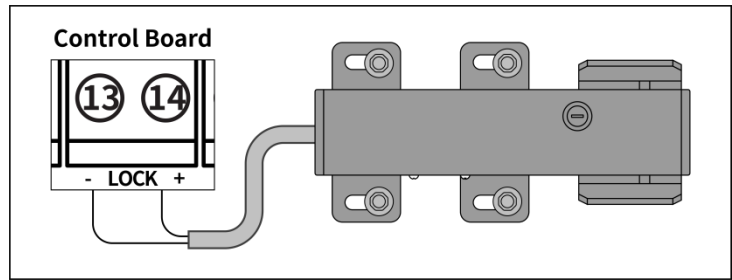
ET24 Electric Gate Lock

Locks and unlocks the gate automatically

Wire Connection

◆ Connect the electric lock to the control board terminal ⑬ and ⑭ "-LOCK+" , regardless of the polarity of the wires.

Key Installation Notes

◆ For pull to open gate, install the lock on the master gate, and the lock receiver on the slave gate.

◆ For push to open gate, install the lock on the slave gate, and the lock receiver on the master gate.

◆ The lock and receiver must fit close. Check it when the gates close firmly.

◆ Ensure that the lock and receiver are level, aligned with the gate opener arm, and mounted on a tube fence or other solid part of the gate surface.

◆ A gate block is required but not included.

PULL TO OPEN

PUSH TO OPEN

NOTE: The open & close delay time between the master and slave arm MUST be set to more than 4 seconds.

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Connection of Accessories
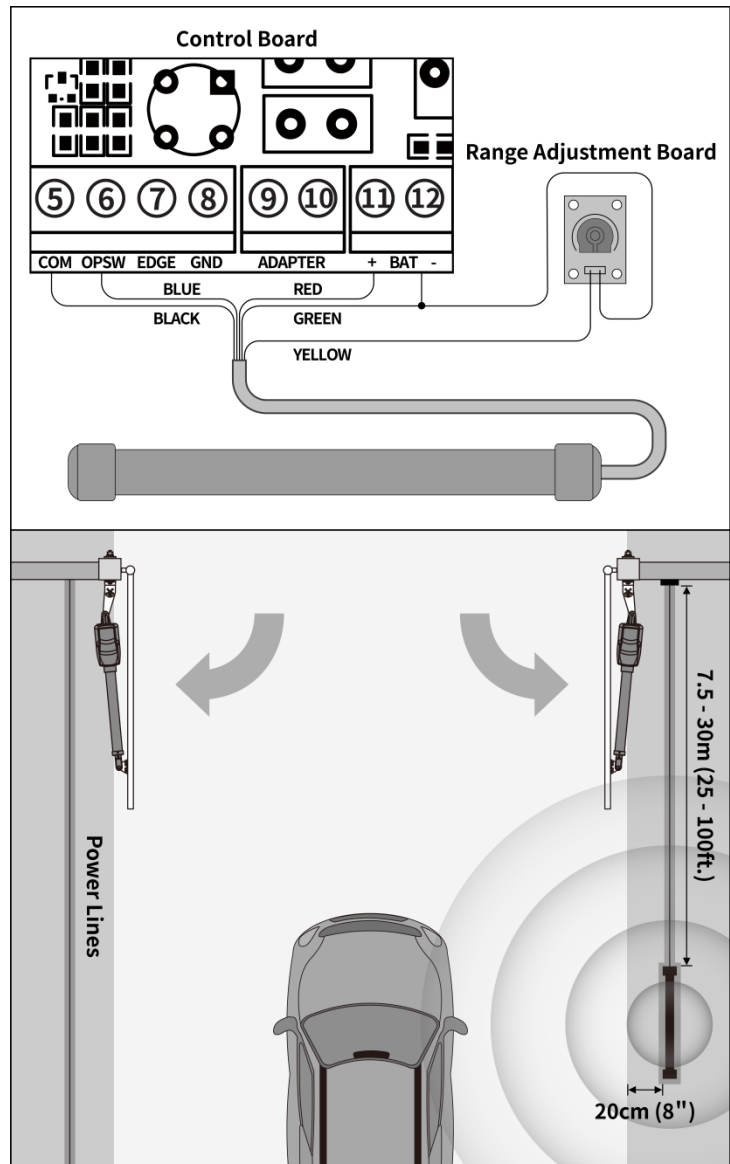
TEW3 Vehicle Sensor Exit Wand

Opens the gate automatically when senses an approaching car

Wire Connection

◆ Connect the BLACK wire to the control board terminal ⑤ "COM" .

◆ Connect the BLUE wire to the control board terminal ⑥ "OPSW" .

◆ Connect the RED wire to the control board terminal ⑪ "BAT+" .

◆ Connect the GREEN wire to the control board terminal ⑫ "BAT-" .

◆ The sensitivity range adjustment board should be wired to the GREEN wire and the YELLOW wire of the wand, regardless of the polarity of the wires.

Key Installation Notes

◆ Install the wand 7.5m to 30m (25ft. to 100ft.) away from the gate, and bury it 5cm (2") deep from ground and 20cm (8") from the driveway edge.

◆ Install the wand away from any power lines to avoid interrupting the detection signal.

◆ It is strongly recommended to enable the auto close function by referring to the Setting of the Control Board section in this manual to ensure home security.

Control Board

Range Adjustment Board

⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫

COM OPSW EDGE GND   ADAPTER   + BAT -

BLUE   RED

BLACK   GREEN

YELLOW

Power Lines

7.5 - 30m (25 - 100ft.)

20cm (8")

NOTE: *If the gate opener is ONLY solar powered, please add more solar panels and upgrade the battery capacity to support the additional power consumption by the exit wand.*

TC175P Wired Keypad

Operate the gate with a user defined password / ID card

Wire Connection

◆ Connect the wires from the JP2 terminals of the wired keypad to the control board.

◆ Connect the BLUE wire to the control board terminal ④ "O/S/C".

◆ Connect the BLACK wire to the control board terminal ⑤ "COM".

◆ Connect the PURPLE wire to the control board terminal ⑤ "COM".

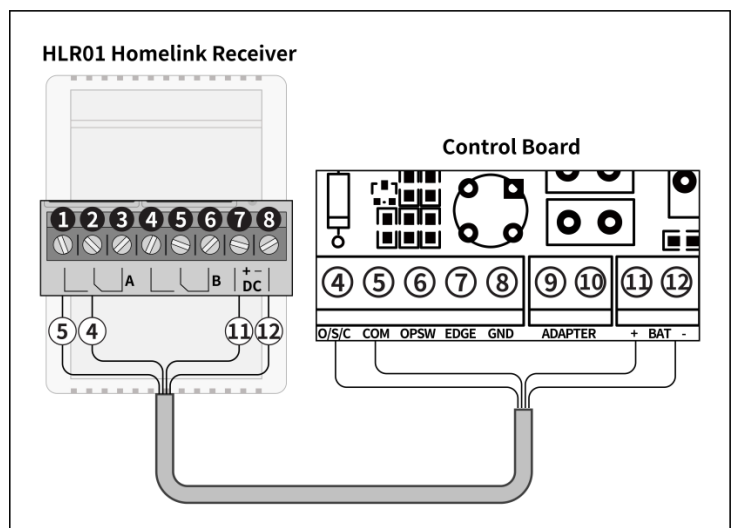◆ Connect the RED wire to the control board terminal ⑪ "BAT+".
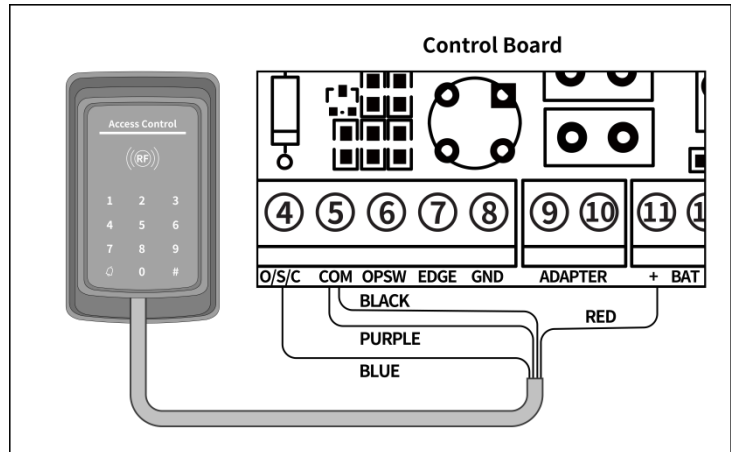
> **NOTES:**
> ◆ A 4C x 0.3 mm² (22AWG) cable is required for the wire connection, but it is NOT included.
> ◆ Please see detailed password setting steps in TC175P user manual.
> ◆ If the gate opener is ONLY solar powered, please add more solar panels and upgrade the battery capacity to support the additional power consumption by the wired keypad.

HLR01 Homelink Remote Control Kit

Links the gate opener with your car's HomeLink system, allows for easy control of the gate opener through the HomeLink system.

Wire Connection

◆ Connect terminal ❶ to the control board terminal ⑤ "COM".

◆ Connect terminal ❷ to the control board terminal ④ "O/S/C".

◆ Connect terminal ❼ "+DC" to the control board terminal ⑪ "BAT+".

◆ Connect terminal ❽ "DC-" to the control board terminal ⑫ "BAT-".

> **NOTES:**
> ◆ A 4C x 0.3 mm² (22AWG) cable is required for the wire connection, but it is NOT included.
> ◆ Please see detailed programming steps with Homelink system in HLR01 user manual.
> ◆ If the gate opener is ONLY solar powered, please add more solar panels and upgrade the battery capacity to support the additional power consumption by the Homelink receiver.
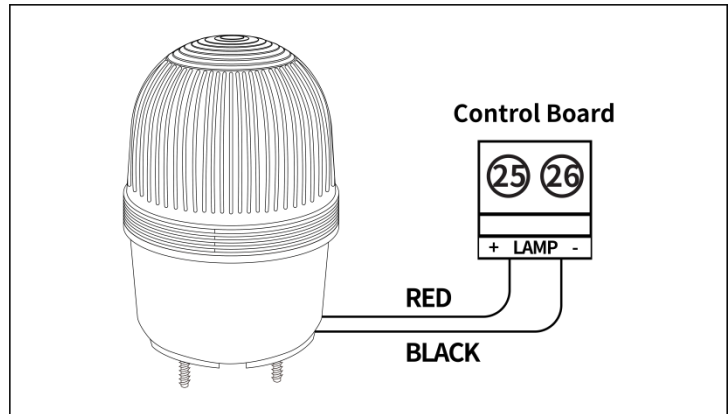
Connection of Accessories

JD24VY Warning Light

Flashing when the gate is moving, improving your gate safety

Wire Connection

◆ Connect the RED wire to the control board terminal ㉕ "LAMP+" .

◆ Connect the BLACK wire to the control board terminal ㉖ "LAMP-".

NOTE: A 2C x 0.3 mm² (22AWG) cable is required for the wire connection, but it is NOT included.

TRF3 Reflection Photocell Sensor

Prevents the gate from closing when obstructed, adds security with simple wire connection

Wire Connection

◆ Connect " 10-25VAC/12-30VDC " terminals to the control board terminal ① "+24" and terminal ③ "GND" , regardless of the polarity of the wires. Connect "NC" terminal to the control board terminal ② "PHOTO" . Connect "COM" terminal to the control board terminal ③ "GND" .

◆ Set the DIP switch #5 to **ON** to enable the photocell sensor function.
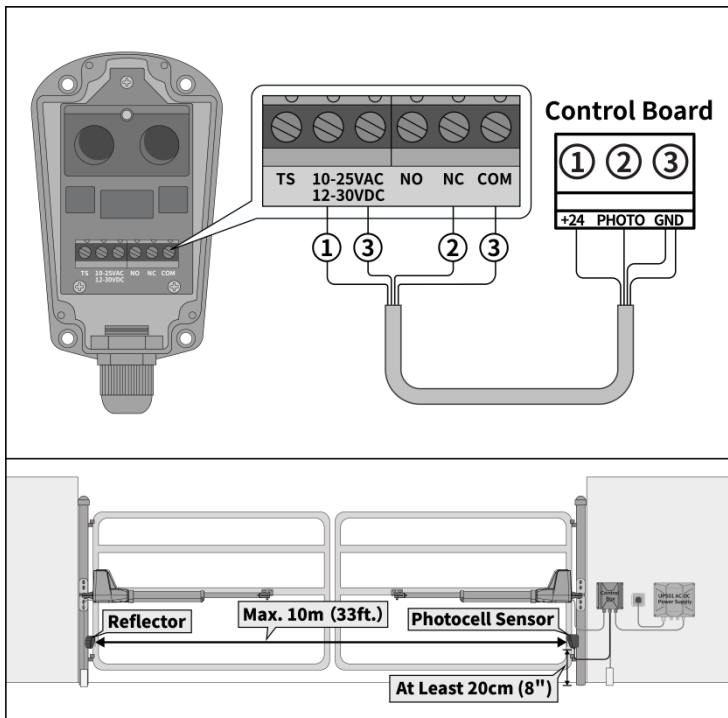
Key Installation Notes

◆ Mount the photocell sensor at least 20cm (8") above the ground.

◆ Power on the gate opener. Position the reflector directly opposite the mounted photocell sensor. With a press of the remote control, the photocell sensor working light turns to green, confirming that the reflector is in the correct position.

◆ The maximum sensing range of the photocell sensor is 10m (33ft.).

NOTE: A 4C x 0.3 mm² (22AWG) cable is required for the wire connection, but it is NOT included.

TC102 Infrared Photocell Sensor

Prevents the gate from closing when obstructed, adds security

Wire Connection

◆ For the emitter, connect "~ +" terminal to the control board terminal ① "+24" , connect "~ -" terminal to the control board terminal ③ "GND" .

◆ For the receiver, connect "~ +" terminal to the control board terminal ① "+24" , connect "~ -" terminal to the control board terminal ③ "GND" . Connect the "NC" terminal to the control board terminal ② "PHOTO" , connect "COM" terminal to the control board terminal ③ "GND" .

◆ Set the DIP switch #5 to **ON** to enable the photocell sensor function.

Key Installation Notes

◆ Mount the photocell sensor at least 20cm (8") above the ground.

◆ Place the receiver on the control box side of the gate opener, directly facing the emitter.

◆ Ensure that both the emitter and receiver are aligned with each other. If manual precise alignment is difficult, use a visible laser beam for assistance.

◆ The maximum sensing range is 20m (65ft.), and the recommended distance between the emitter and receiver is 3m to 14m (10ft. to 46ft.).

◆ Put the cables into PVC conduit and bury the conduit underground to prevent damage.
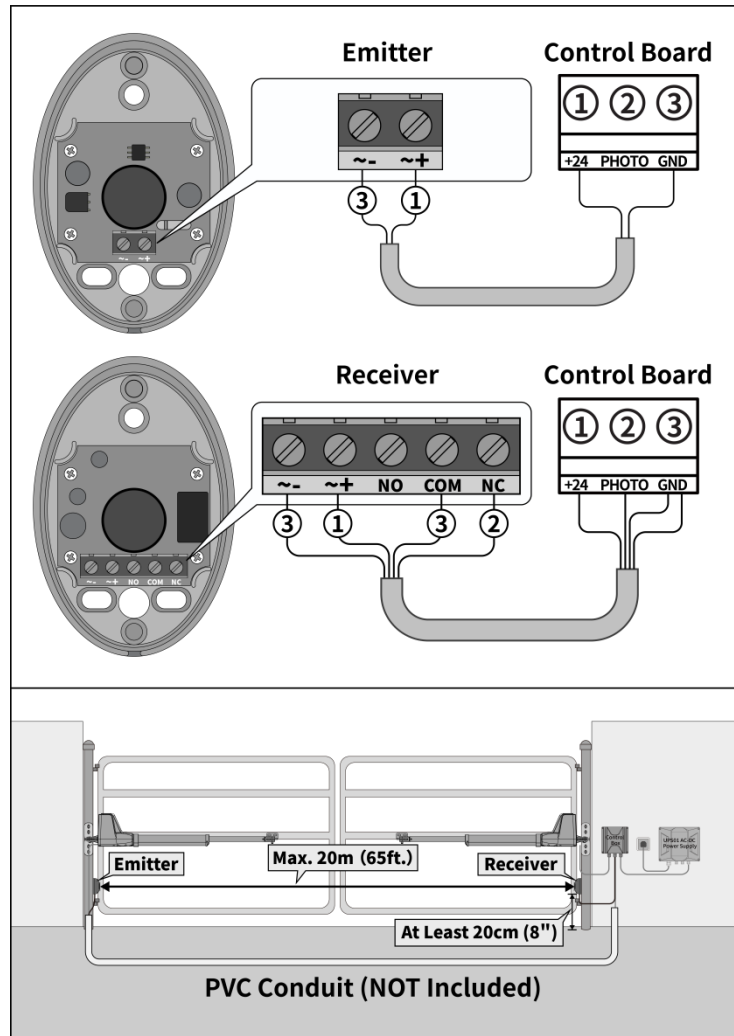
NOTE: Connect the emitter to the gate opener with a 2C x 0.3 mm^2 (22AWG) cable. Connect the receiver to the gate opener with a 4C x 0.3 mm^2 (22AWG) cable. Cables are required but NOT included.

Connection of Accessories

ERM12 External Receiver

Allows up to 250 remotes to be programmed with the gate opener

Wire Connection

◆ Connect the BROWN wire to the control board terminal ④ "O/S/C" .

◆ Connect the BLACK wire to the control board terminal ⑤ "COM" .

◆ Connect the RED wire to the control board terminal ⑪ "BAT+" .

Program the Remote Control with the Receiver

◆ Before programming, ensure the M12 remote control is removed from the control board to avoid conflicts.

◆ Press and release the Learn Button on the receiver, the LED light will turn ON. Press the remote control button you want to program once, then press it again after the LED on the remote turns off.

◆ The LED Light on the receiver will flash for 3 seconds and then turn OFF indicating successfully programming.
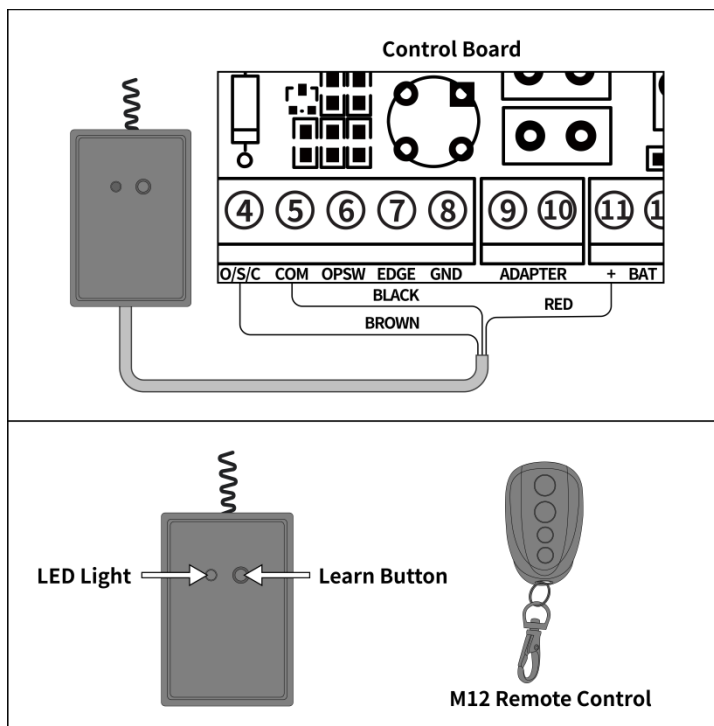
NOTE: *If the gate opener is ONLY solar powered, please add more solar panels and upgrade the battery capacity to support the additional power consumption by the receiver.*

TC148 Waterproof Wall Push Button & TC147 Wall Push Button

Open/close gate by pressing wired button

Wire Connection

◆ Connect the push button to the control board terminal ④ "O/S/C" and terminal ⑤ "COM" , regardless of the polarity of the wires.

◆ Each press of the button will cycle the gate through open, stop, close, stop, and open.
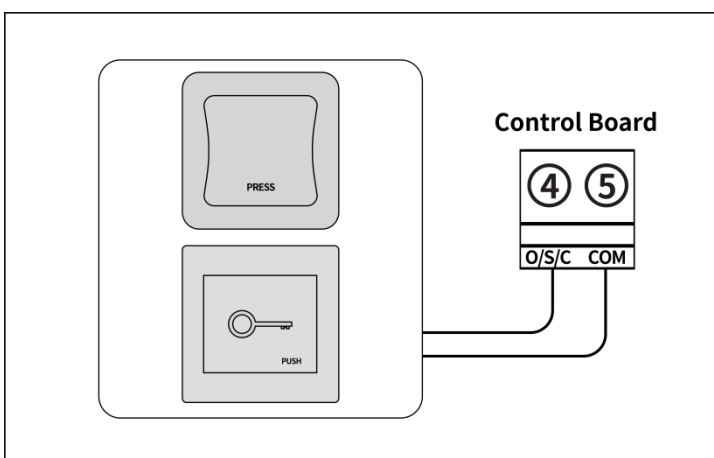
NOTE: *A 2C x 0.3 mm² (22AWG) cable is required for the wire connection, but it is NOT included.*

Maintenance and Replacement Parts

Maintenance

WARNING
Disconnect all power (AC and battery) to the gate opener before routine inspections and lubrication.

Routine Inspections

◆ **Inspect the Gate:** Check for any signs of damage, rust, or wear on the gate and hinges.

◆ **Check Gate Opener Arm:** Check that the arm is securely attached to both the gate and post brackets. Tighten any loose bolts and screws.

◆ **Examine Cables and Wires:** Ensure that all cables and wires are intact, without any cuts or frays.

◆ **Battery Maintenance:** Regularly check for battery leakage and ensure that its casing is intact. Monitor the battery voltage through the UPS01 power supply or control board. Replace the battery every 2-3 years and recycle old batteries properly.
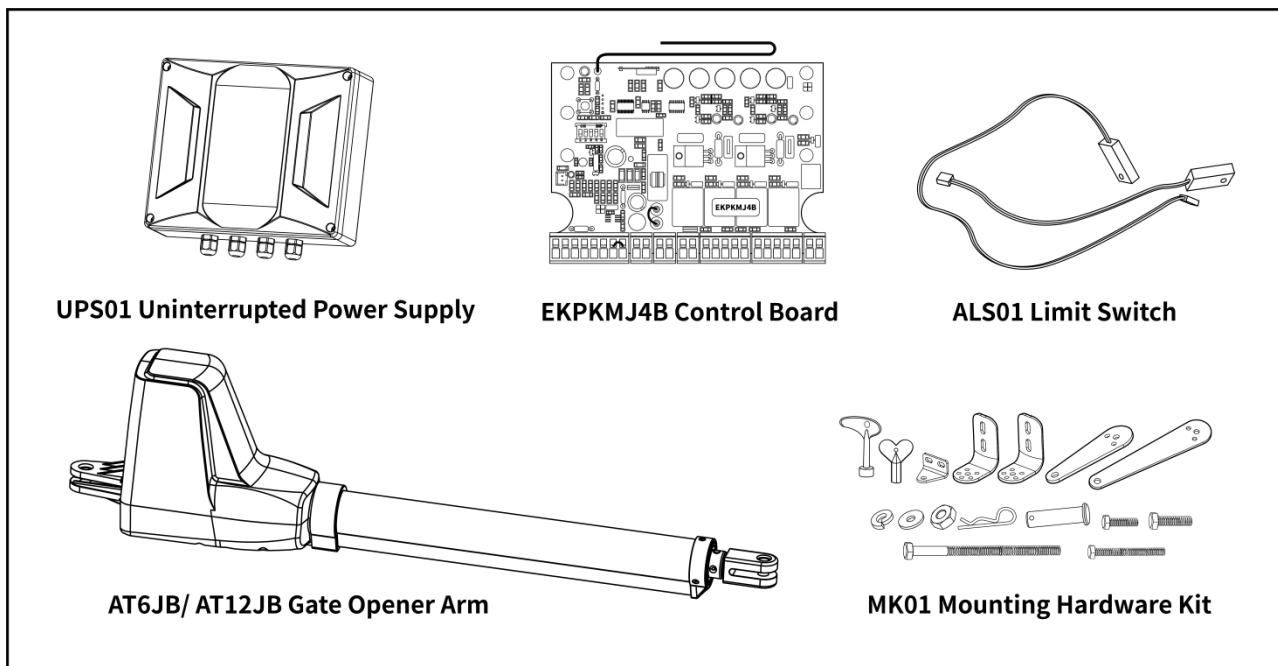
Cleaning and Lubrication

◆ Using a clean, dry cloth to wipe the gate opener shaft, and then apply a silicone spray to reduce its friction.

◆ In cold climates where temperatures drop to 1° C (30° F) or below, apply silicone spray to the gate opener arm every 4-6 weeks to prevent freezing. Ensure the silicone freezing point is lower than the lowest local temperature.

Monthly Obstruction Test

The gate must reverse upon contact with a rigid object. If the stall force is adjusted, retest the gate opener by referring to the Stall Force Adjustment & Obstruction Test section in this manual. Failure to properly adjust and retest the gate opener can increase the risk of injury or death.

Replacement Parts

UPS01 Uninterrupted Power Supply

EKPKMJ4B Control Board

ALS01 Limit Switch

AT6JB/ AT12JB Gate Opener Arm

MK01 Mounting Hardware Kit

* Available on the TOPENS website (www.topens.com) and Amazon.

Gate Opener Status Trouble Shooting

If your gate opener does not function properly after installation, please follow the steps below before contacting us for assistance. This guide provides common trouble shooting steps to help resolve issues efficiently. For further assistance, please feel free to contact us through our website at www.topens.com.

Gate Opener and LED in Normal Situations

1. GATE OPENER STATUS: STANDBY
◆ CODE LED: OFF
◆ POWER LED: Flash (1 Blink every second)
◆ FULL LED: OFF

2. GATE OPENER STATUS: RUNNING
◆ CODE LED: Flash (1 Blink every second)
◆ POWER LED: Flash (1 Blink every second)
◆ FULL LED: Flash (1 Blink every second)

Standby

STATUS OF THE LEDS
◆ CODE LED: OFF
◆ POWER LED: OFF
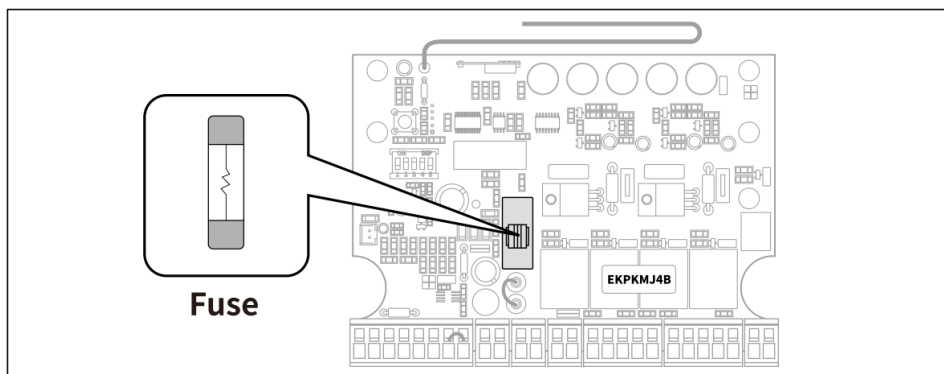◆ FULL LED: OFF

POSSIBLE SOLUTION

Step 1 Check Connection: Ensure that the connection between the UPS01 and the control box is correct and secure.

Step 2 Verify Power Supply: Confirm that the UPS01 power supply is plugged into an AC main socket or that the batteries (two 12V batteries connected in series) are properly connected to the UPS01.

Step 3 Check Battery Voltage: If only battery is used with the UPS01 to power the gate opener, ensure it is not over-discharged. The voltage should be above 22V for normal operation. Allow the battery to charge until it reaches above 22VDC.

Step 4 Inspect UPS01 Output: Measure the output voltage of the UPS01. If it is below 21VDC while the battery voltage is above 22VDC, or if the power cord is securely plugged in, the UPS01 may be defective.

Step 5 Examine Control Board Fuse: Check the fuse in the control board and replace it with the backup fuse that comes with the gate opener if it burns out. The fuse type is ⌀5*20mm 10A 250VAC fast blow glass fuse.

Fuse

Step 6 Check Control Board: Inspect the control board and replace it if needed.

Gate Opener Status Trouble Shooting

Both of the Gates Do Not Move When Operating

1. STATUS OF THE LEDS
◆ CODE LED: OFF
◆ POWER LED: Flash (1 Blink every second)
◆ FULL LED: OFF

POSSIBLE SOLUTION
Step 1 Check Remote Control Programming: Ensure that the remote control is correctly programmed to the control board. If not, refer to the Program the Remote Control section in this manual to reprogram the remote.
Step 2 Replace Remote Control Battery: The remote control battery may be exhausted. Replace the battery with a new one and attempt to operate the gate again.
Step 3 Inspect the Control Board: The control board might be faulty. Inspect the control board for any visible damage or malfunction. If needed, replace the control board with a new one.

2. STATUS OF THE LEDS
◆ CODE LED: Flash quickly for 3 seconds and then turns OFF
◆ POWER LED: Flash quickly for 3 seconds and then back to flash slowly (1 Blink every second)
◆ FULL LED: OFF

POSSIBLE SOLUTION
Step 1 Check Photocell Sensor Blockage: Ensure that the photocell sensor beam is not obstructed. Clear any objects blocking the photocell sensor.
Step 2 Verify Photocell Sensor Functionality: Check if the photocell sensor is defective and properly installed.

3. STATUS OF THE LEDS
◆ CODE LED: OFF
◆ POWER LED: Flash quickly for 3 seconds and then back to flash slowly (1 Blink every second)
◆ FULL LED: Flash quickly for 3 seconds and then turns OFF

POSSIBLE SOLUTION
Inspect Jumper Wire: Check if the jumper wire between the EDGE and GND terminal is loose. Ensure it is securely connected.

4. STATUS OF THE LEDS
◆ CODE LED: Flash quickly
◆ POWER LED: Flash quickly
◆ FULL LED: Flash quickly

POSSIBLE SOLUTION
Step 1 Re-power the Gate Opener: Turn off the power to the gate opener, wait for a few seconds, and then turn it back on. This may reset the system and resolve the issue.
Step 2 Replace Control Board: If re-powering does not resolve the issue, the control board may be defective. Replace the control board with a new one.

Gate Opener Status Trouble Shooting

The Gate Stops When on the Way of Opening or Closing

1. STATUS OF THE LEDS
- ◆ CODE LED: Flash quickly for 10 seconds and then turns OFF
- ◆ POWER LED: Flash quickly for 10 seconds and then back to flash slowly (1 Blink every second)
- ◆ FULL LED: OFF

POSSIBLE SOLUTION
Sequential Photocell Sensor Beam Blockage: Two sequential photocell sensor beam blockage has been detected. Please ensure the photocell sensor beam is not blocked.

2. STATUS OF THE LEDS
- ◆ CODE LED: OFF
- ◆ POWER LED: Flash (1 Blink every second)
- ◆ FULL LED: OFF

POSSIBLE SOLUTION
Adjust Soft Stop Period: Turn off the power to the gate opener, then locate SOFT STOP Potentiometer on the control board and turn it slightly counterclockwise to decrease the soft stop time. After adjusting, turn on the power to the gate opener and use the remote control to open and close the gate through a full cycle.

3. STATUS OF THE LEDS
- ◆ CODE LED: OFF
- ◆ POWER LED: Flash quickly for 10 seconds and then back to flash slowly (1 Blink every second)
- ◆ FULL LED: Flash quickly for 10 seconds and then turns OFF

POSSIBLE SOLUTION
Step 1 Sequential Contact Entrapment Detection: Two sequential contact entrapment have been detected. Please ensure there is no obstacle on the path of opening or closing.
Step 2 Adjust Stall Force: Turn off the power to the gate opener, then locate FORCE Potentiometer on the control board and turn it slightly clockwise to increase the stall force. After adjusting, use the remote to open and close the gate to check if the issue is resolved.

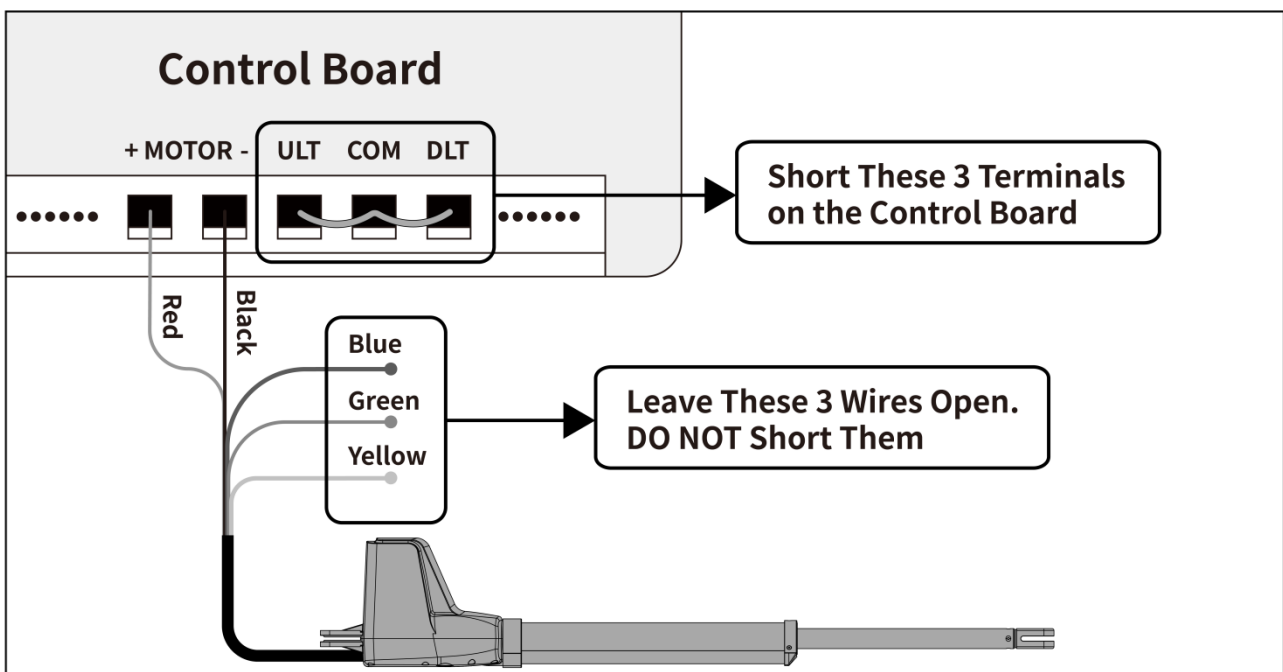## Gate Automatically Opens, But Does Not Automatically Close

STATUS OF THE LEDS
- ◆ CODE LED: Flash (1 Blink every second)
- ◆ POWER LED: Flash (1 Blink every second)
- ◆ FULL LED: Flash (1 Blink every second)

POSSIBLE SOLUTION
Check DIP Setting: The setting of DIP switch #1 might be incorrect. Ensure that the DIP switch is configured properly according to the installation type (push or pull to open) of the gate opener.

Gate Opener Status Trouble Shooting

One Gate Runs Normally but the Other One Does Not Move

STATUS OF THE LEDS
- CODE LED: Flash (1 Blink every second)
- POWER LED: Flash (1 Blink every second)
- FULL LED: Flash (1 Blink every second)

POSSIBLE SOLUTION

Step 1 Exchange Arm Connections: Swap the wire connections of the two gate opener arms on the control board. If the same arm remains faulty, the issue is with the arm itself. If the issue moves to the other arm, the problem is likely with the control board.

Step 2 Test the Faulty Arm Motor: Connect the RED and BLACK wires of the faulty arm directly to the output of the UPS01 power supply to check if the arm operates normally. Switching the polarity (by swapping RED and BLACK wires) will reverse the arm's direction. If the arm does not run, the motor inside the arm is faulty. If the arm runs in both directions, proceed to Step 3.

Step 3 Check the Limit Switch: Ensure that the "+BAT-" terminals on the control board are connected to the LOAD output wires of the UPS01 power supply. Reconnect the RED and BLACK wires of the faulty arm back to the control board. Disconnect the BLUE, GREEN, and YELLOW wires of the faulty arm from the control board. Use two jumper wires to short the ULT, COM & DLT terminals to which the wires were connected, and then press the remote to see if the arm can extend and retract. During this test, monitor the arm to ensure it doesn't extend too far. Use the remote to reverse the direction if necessary. If the arm can move in both directions, the limit switch is faulty.

Gate Opener Status Trouble Shooting

The Gate Reverses When on the Way of Opening or Closing

STATUS OF THE LEDS
- CODE LED: Flash (1 Blink every second)
- POWER LED: Flash quickly until the gate stop running
- FULL LED: Flash (1 Blink every second)

POSSIBLE SOLUTION
Step 1 Check for Free Swinging: Make sure the gates swing freely without any binding.
Step 2 Adjust Stall Force: The stall force setting might be too low. Turn off the power to the gate opener, then locate FORCE Potentiometer on the control board and turn it slightly clockwise to increase the stall force. After adjusting, use the remote to open and close the gate to check if the issue is resolved.
Step 3 Check Photocell Sensor: If a photocell sensor is used, make sure it is properly installed and not obstructed. Any blockage in the path of the photocell sensor can cause the gate to reverse.

Remote Control Range Less than 20m (65ft.)

POSSIBLE SOLUTION
Step 1 Adjust the Position and Direction of the Antenna: Open the control box and locate the black antenna on the top of the control board. Adjust the position and direction (vertical, horizontal or tilted) of the antenna to optimize signal reception. Test the gate operation with the remote control to check if the control range has improved. If the range remains insufficient, proceed to Step 2.
Step 2 Pull the Antenna Out from the Control Box: Pull the antenna through the cable gland at the bottom of the control box and extend it fully straight for optimal signal reception. Test the gate operation with the remote control to check if the control range has increased. If the range is still insufficient, proceed to Step 3.
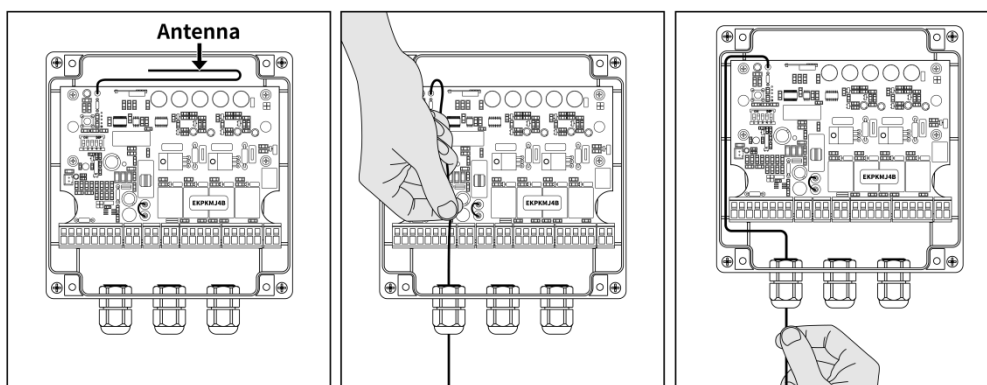
Step 3 Add an ERM12 External Receiver: Connect the ERM12 external receiver to the control board of the gate opener. Program the M12 remote control with the ERM12 external receiver. Before programming, ensure the M12 remote control is removed from the control board to avoid conflicts. After programming, test the remote control to see if the range has improved.

Gate Opener Status Trouble Shooting

Gate Randomly Opens

STATUS OF THE LEDS
- CODE LED: Flash (1 Blink every second)
- POWER LED: Flash (1 Blink every second)
- FULL LED: Flash (1 Blink every second)

POSSIBLE SOLUTION

Step 1 Check DIP Switch Setting: DIP Switch #1 on the control board is used to select the gate's operation mode (push/pull to open). If the gate opens into the property (pull to open), set the DIP Switch to OFF (factory default setting). If the gate opens out from the property (push to open), set the DIP Switch to ON.

Step 2 Isolate the Issue with Wired Accessories: Disconnect all wired accessories from the control board. Turn off DIP Switch #5 to disable the photocell sensor function. Try operating the gate again. If the problem disappears, the issue might be with one of the accessories. Connect each accessory one by one to identify which one causes the problem. If the issue is still present after disconnecting all accessories, proceed to Step 3.

Step 3 Reprogram Remote Controls: First remove all existing remote codes from the control board and then reprogram the remote controls. Operate the gate to see if the random opening issue has been resolved.

Step 4 Replace the Control Board: If none of the above steps resolve the issue, the control board may be faulty. Replace the control board with a new one.

Soft Stop Function is Abnormal

POSSIBLE SOLUTION

Step 1 Turn Off the Power to the Gate Opener and Restart It: If you have used the release key to manually open the gate or reset the soft stop time, turn off the power to the gate opener and restart it. Then, use the remote control to run a complete open and close cycle to calibrate the full open and close times.

Step 2 Check the Limit Switch: Check if the limit switch is functioning and can stop the gate.

Step 3 Check If the Soft Stop Functions Correctly: Test the soft stop function when it is not mounted on the gate. If it functions properly, ensure the gate is level, swings freely on its hinges, and that the gate opener is not affected by the inertia of gate opening and closing or by any gate spring force.

Step 4 Replace the Control Board: If none of the above steps resolve the issue, the control board may be faulty. Replace the control board with a new one.

Attestation of Conformity

Applicant	Hangzhou Sanford Technology Co., Ltd
	Room 106, Building 4, 8 Shengdi Road, Yuhang Town, Hangzhou City, Zhejiang Province, China
Product Designation	SWING GATE OPENER
Brand Name	/
Model / Series Models	AT6132(S), AT12132(S)
Manufacturer	Hangzhou Sanford Technology Co., Ltd
	Room 106, Building 4, 8 Shengdi Road, Yuhang Town, Hangzhou City, Zhejiang Province, China

Requirement	Applied Standards	Document Evidence	Result
EMC Directive	EN 55014-1:2017+A11:2020 EN 55014-2:2015 EN IEC 61000-3-2:2019 EN 61000-3-3:2013+A1:2019	Test Report: AGC-WH00066210827EE01	Conform

CE

Signed by General Manager(Bram Wu)
Issue Date: September 2, 2021

AGC®

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Windpower Industrial Park, No.9 Zhulin Road, Fozuling
Street, Wuhan East Lake High-tech Development Zone,
China

Attestation of Conformity

Applicant   Hangzhou Sanford Technology Co., Ltd.

Room 106, Building 4, 8 Shengdi Road, Yuhang Town, Hangzhou City, Zhejiang Province, China

Product Designation   SWING GATE OPENER

Brand Name   /

Model / Series Models   AT6132(S), AT12132(S)

Manufacturer   Hangzhou Sanford Technology Co., Ltd.

Room 106, Building 4, 8 Shengdi Road, Yuhang Town, Hangzhou City, Zhejiang Province, China

Requirement	Applied Standards	Document Evidence	Result
LVD Directive	EN 60335-2-103:2015, EN 60335-1:2012 +A11:2014+A13:2017+A1:2019+A2:2019+A14:2019, EN 62233:2008	Test Report: AGC-WH00066210827ES01	Conform

CE

Signed by General Manager (Bram Wu)
Issue Date: September 2, 2021

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Attestation of Conformity

Applicant	Hangzhou Sanford Technology Co., Ltd
	Room 106, Building 4, 8 Shengdi Road, Yuhang Town, Hangzhou City, Zhejiang Province, China
Product Designation	SWING GATE OPENER
Brand Name	/
Model / Series Models	AT6132(S), AT12132(S)
Manufacturer	Hangzhou Sanford Technology Co., Ltd
	Room 106, Building 4, 8 Shengdi Road, Yuhang Town, Hangzhou City, Zhejiang Province, China

Requirement	Applied Standards	Document Evidence	Result
Electromagnetic Compatibility Regulations 2016	BS EN 55014-1:2017+A11:2020 BS EN 55014-2:2015 BS EN IEC 61000-3-2:2019 BS EN 61000-3-3:2013+A1:2019	Test Report: AGC-WH00066210827BE02	Conform

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Electrical Equipment (Safety) Regulations 2016	BS EN 60335-2-103:2015, BS EN 60335-1:2012+ A11:2014+A13:2017+A1:2019+A2:2019+A14:2019, BS EN 62233:2008	Test Report: AGC-WH00066210827BS02	Conform

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Feedback & Review

Your comments and suggestions are important to us
as they help us provide the best possible service.
Should you have any need to contact us, the info below will help you get in touch:

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