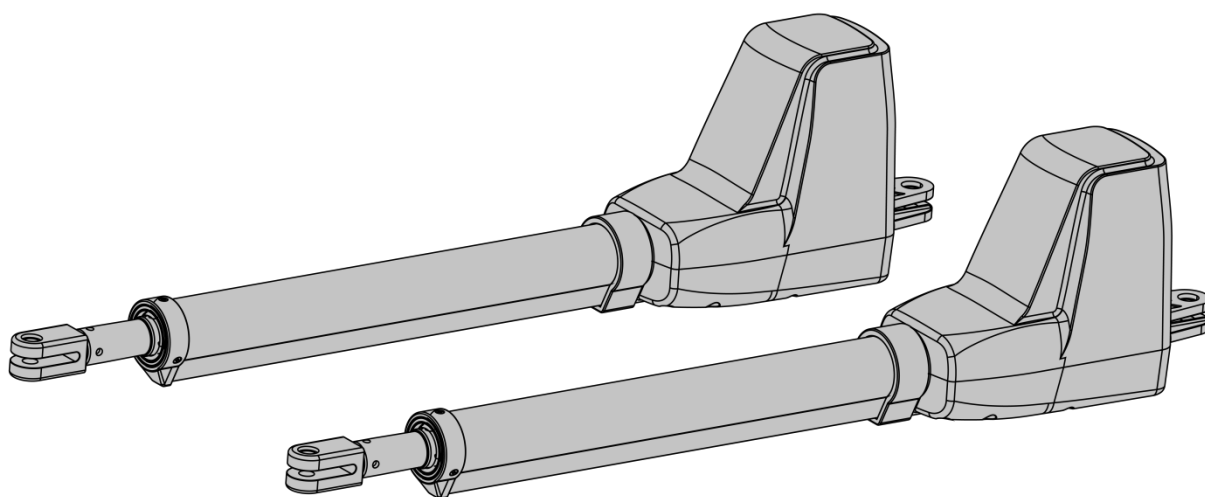


TOPENS[®]

AT602/AT1202

Installation Manual

For dual swing gate installation



Installation Video



With built-in transformer, this series gate opener can be powered by AC electricity directly. You can use AC power alone, or together with solar panels & solar charge controller (NOT incl.) to charge the batteries (NOT incl.) for backup power source.

CONTACT US

For Technical Support and Installation Assistance

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

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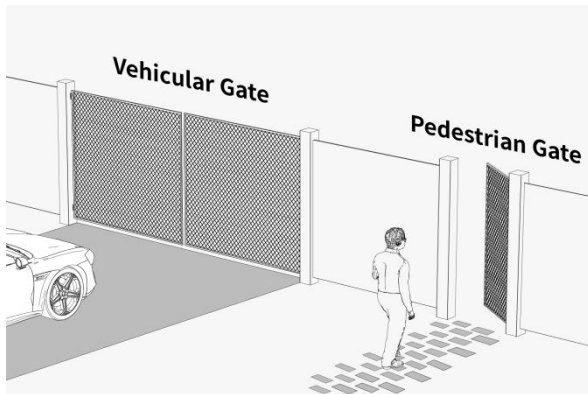
Important Safety Information

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.

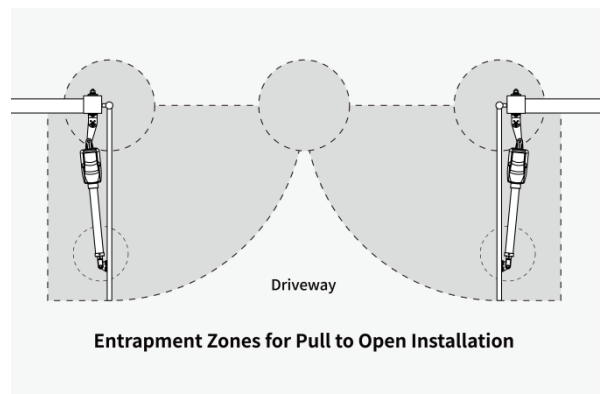


- ◆ **SWING GATE PREPARATION:** Do not attach wheels to the gate. Ensure that the gate is plumb, level, and swings freely on its hinges without binding or dragging on the ground. The gate should be mounted to a very stable post or column that is secured in the ground with concrete. If the post's width 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.



- ◆ **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.

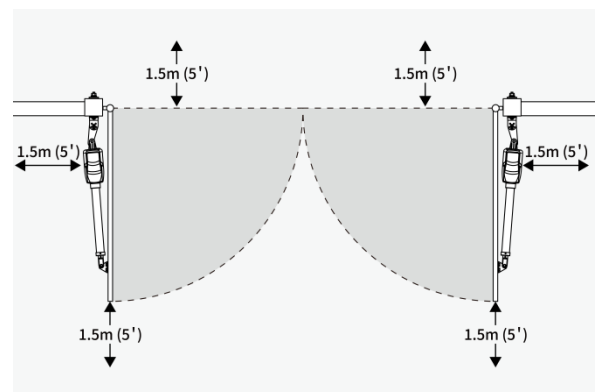
Important Safety Information

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

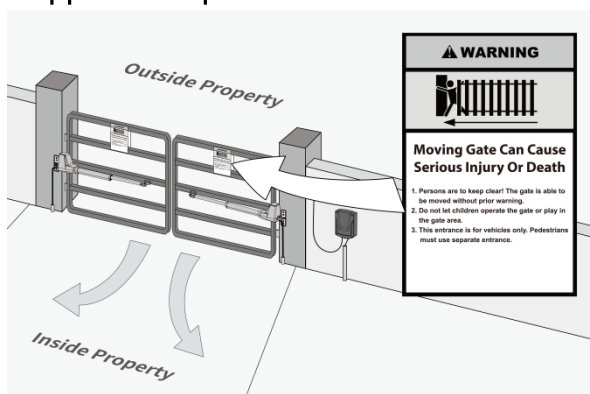
situations for safety: if you have children or pets at your property, the gate opener auto close function is set to ON, the gate opener stall force is set to the maximum, a vehicle exit sensor is installed, or other gate control devices are used.

- ◆ **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**

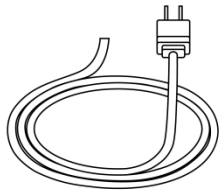
OPENING: Understand how to disconnect the power and manually open the gate. Disconnect the gate opener from the gate only when the gate is not in motion and the gate opener system is turned off.

- ◆ **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)

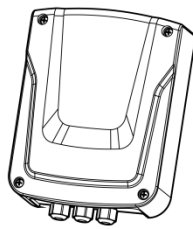
Note For Warranty

- ◆ **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



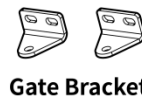
Power Cord



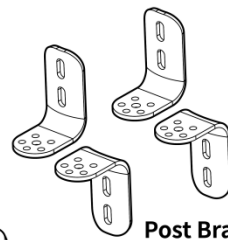
Control Box



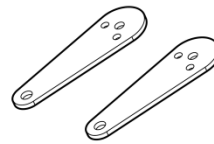
Warning Sign



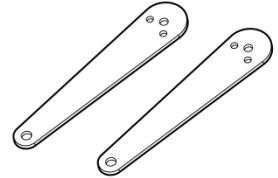
Gate Bracket



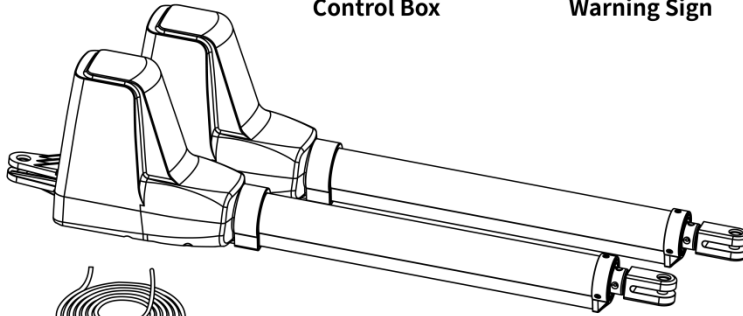
Post Bracket



Pull-to-Open Bracket



Push-to-Open Bracket



Gate Opener Arm



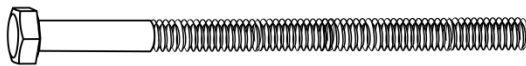
25FT Extension
5 Conductor Cable



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)



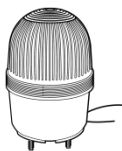
M10 Nut (14)



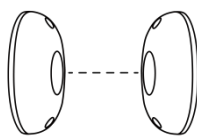
M8 Nut (2)

Safety Accessories

(Included in Specific Models, Check the Actual Package)



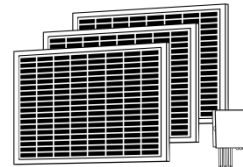
JD24VY
Warning Light



TC102 Infrared
Photocell Sensor

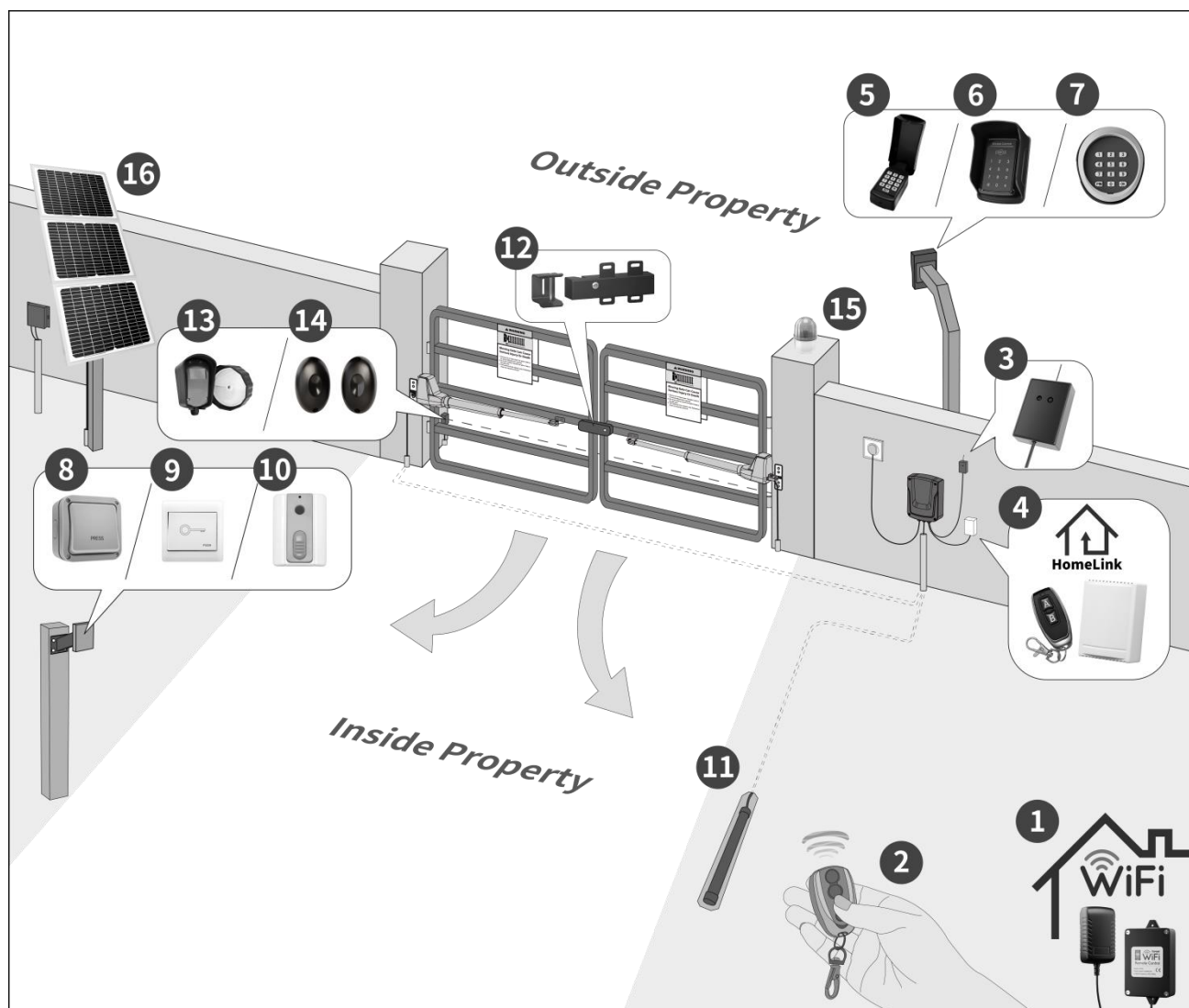
Compatible Solar Panels

(Sold Separately)



TSP30W 30W Solar
Panel Charging Kit

Installation Overview



Example of Pull-to-Open Installation

Various TOPENS Accessories for Your Gate Opener System

① TC196 WiFi Remote Control	⑨ TC147 Wall Push Button
② M12 Remote Control	⑩ TC173 Wireless Push Button
③ ERM12 External Receiver	⑪ TEW3 Vehicle Sensor Exit Wand
④ HLR01 Homelink Remote Control Kit	⑫ ET24 Electric Gate Lock
⑤ TC188 Universal Keypad	⑬ TRF3 Reflection Photocell Sensor
⑥ TC175P Wired Keypad	⑭ TC102 Infrared Photocell Sensor
⑦ TKP3 Wireless Keypad	⑮ JD24VY Warning Light
⑧ TC148 Waterproof Wall Push Button	⑯ TSP30W 30W Solar Panel Charging Kit

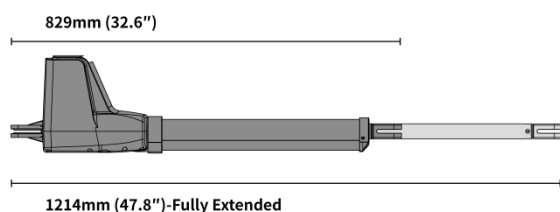
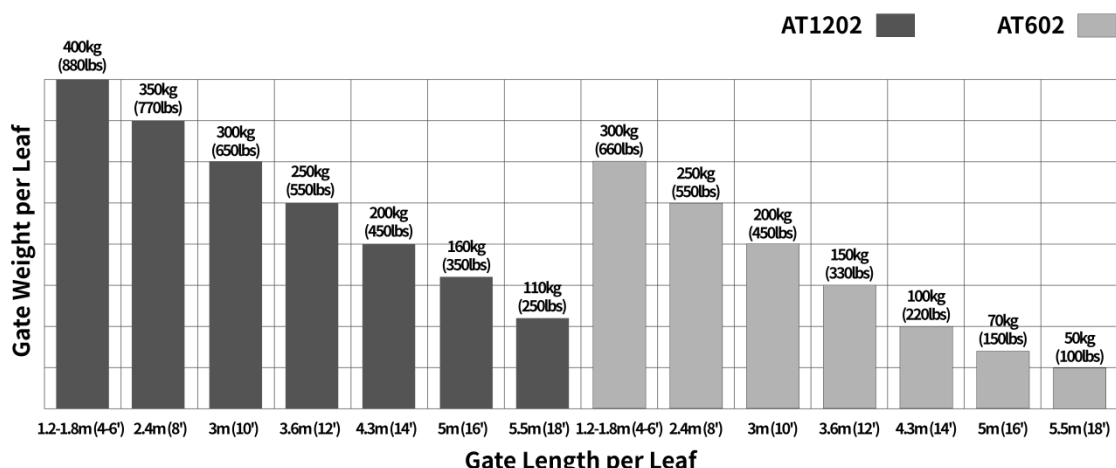
* Available on the TOPENS website (www.topens.com) and Amazon.

Specifications

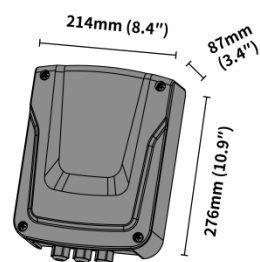
Product Model	AT602	AT1202
Power Input	110-120VAC/60Hz or 220-240VAC/50Hz	
Motor Voltage	24VDC	
Rated Current	2A	3A
Motor Power	50W	80W
Gate Opening / Closing Time	15 seconds (ideal condition)	
Gate Opening / Closing Speed	16mm/s (0.6 in/s)	
Max Travel Range	385mm (15.2 in)	
Working Temperature	-20°C ~ +50°C (0°F to 120°F)	
Protection Class	IP44 Waterproof	

Max Gate Weight and Gate Length Per Arm

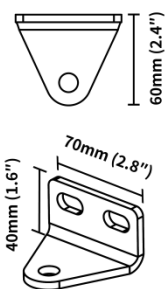
NOTE: Ball bearing hinges should be used on all gates weighing over 140kg (300lbs) per leaf.



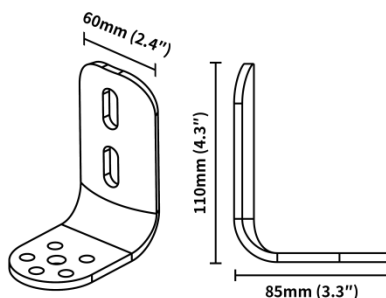
Gate Opener Arm



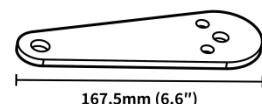
Control Box



Gate Bracket



Post Bracket



Pull-to-Open Bracket



Push-to-Open Bracket

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

Items Not Included but May Needed

- ◆ **Battery and Solar Panel:** If you choose to use batteries and solar panels & solar charge controller as back-up 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. TOPENS TSP30W 30W Solar Panel Charging Kit is available for separate purchase.
- ◆ **PVC Conduit:** Required to protect the extension cable connecting the 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 power supply connection and wired accessories installation. Refer to the Connection of Power Supply and Connection of Accessories sections 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 power cord.

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.

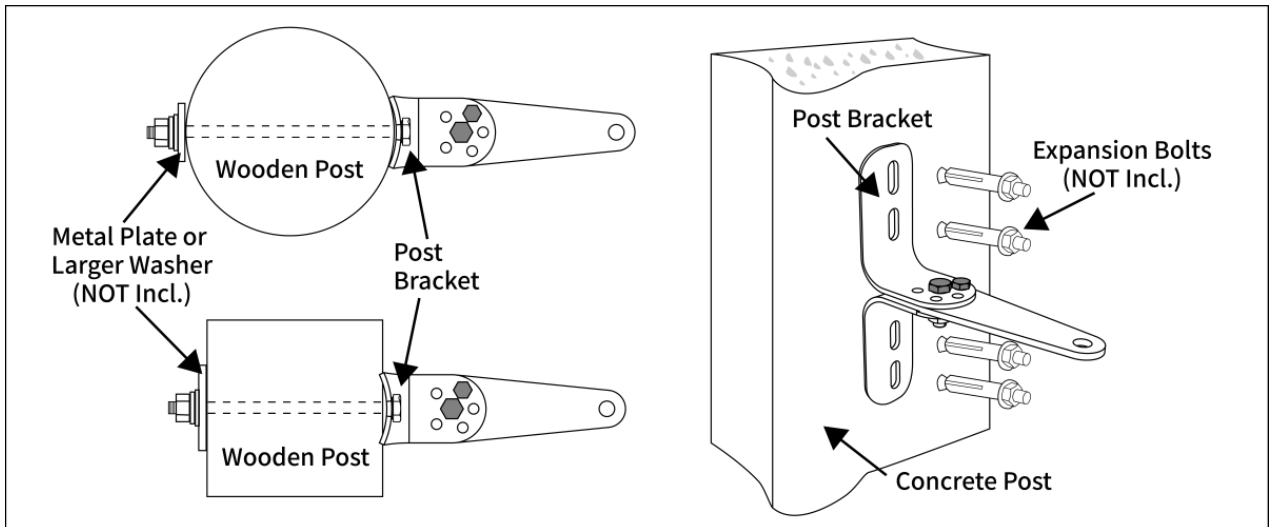
Install Photocell Sensor

- ◆ 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

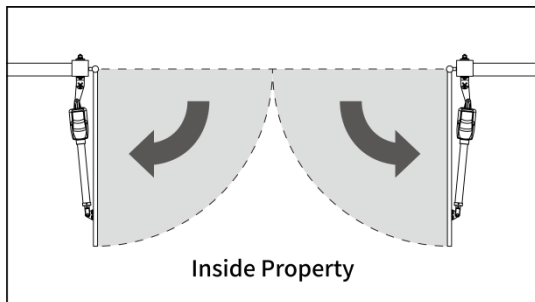
Additional Hardware to Enhance Post Bracket Stability

- ◆ 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.

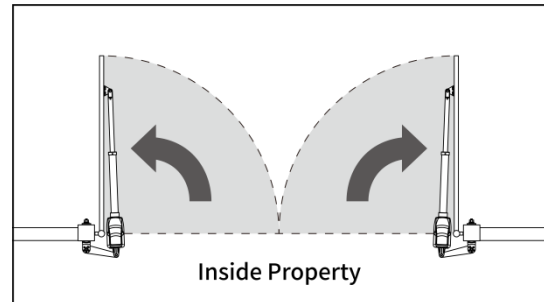


Check Gate Swing Direction

- ◆ Each gate is unique and the following steps outline common installation process.
- ◆ Please ensure that the gate opener arm wire connection matches the installation type.



Pull-to-Open Installation Starts from Page 9



Push-to-Open Installation Starts from Page 13

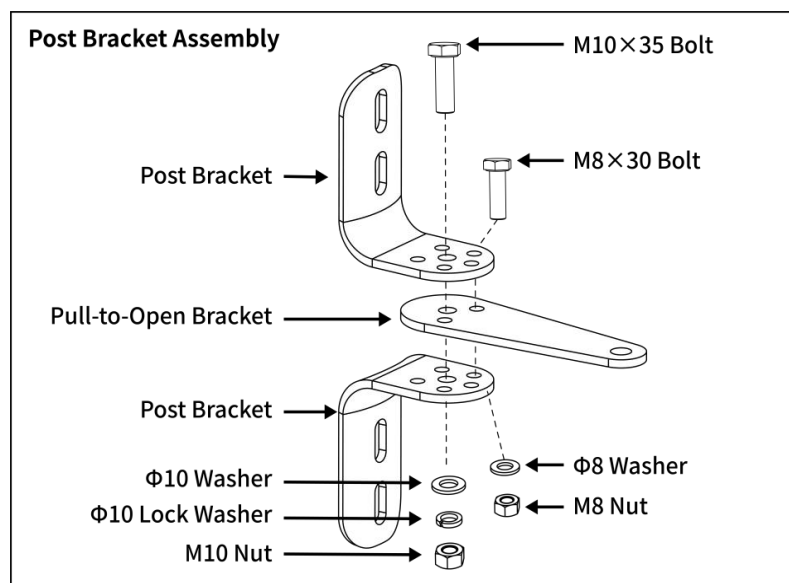
NOTE: Improper installation may result in property damage, severe injury, and / or death.

Pull-to-Open Gate Opener Mounting

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.



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.

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°

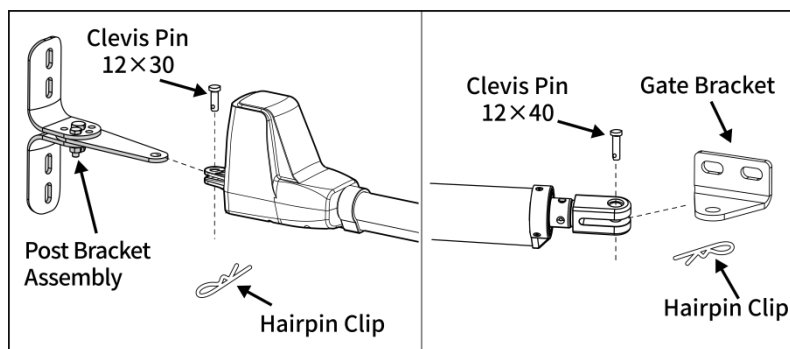


Pull-to-Open Gate Opener Mounting

STEP 3

Attach the Brackets to the Gate Opener Arm

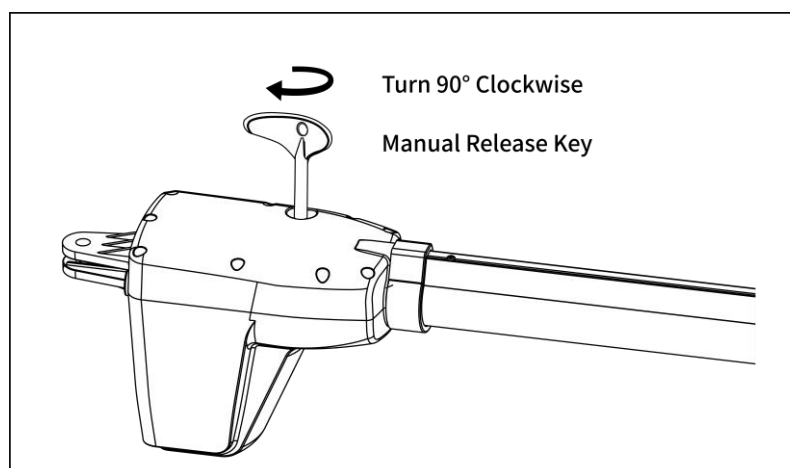
- ◆ Attach the post bracket assembly and the gate bracket to the gate opener arm by inserting a clevis pin.
- ◆ Secure the clevis pin using the hairpin clip.



STEP 4

Release the Clutch

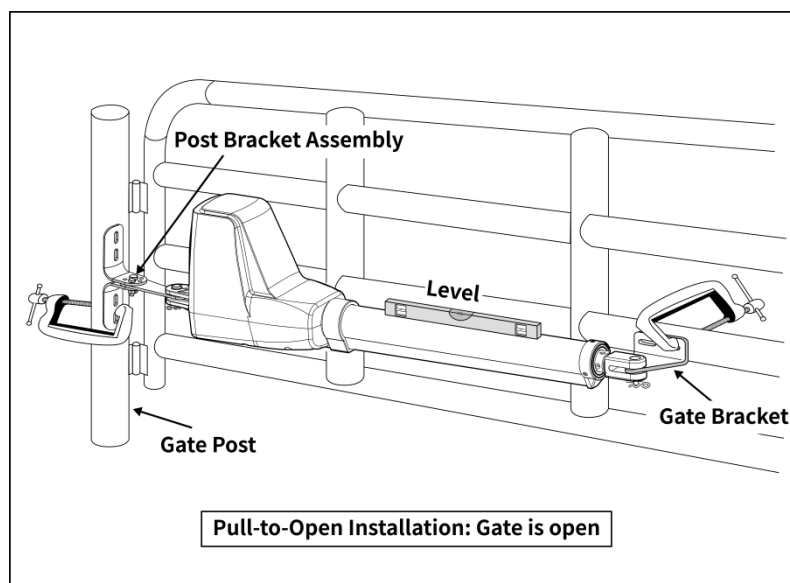
- ◆ Insert the manual release key, and turn it 90° clockwise.
- ◆ The gate opener is now in manual mode, allowing for manual extension and retraction of the moving rod.



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.



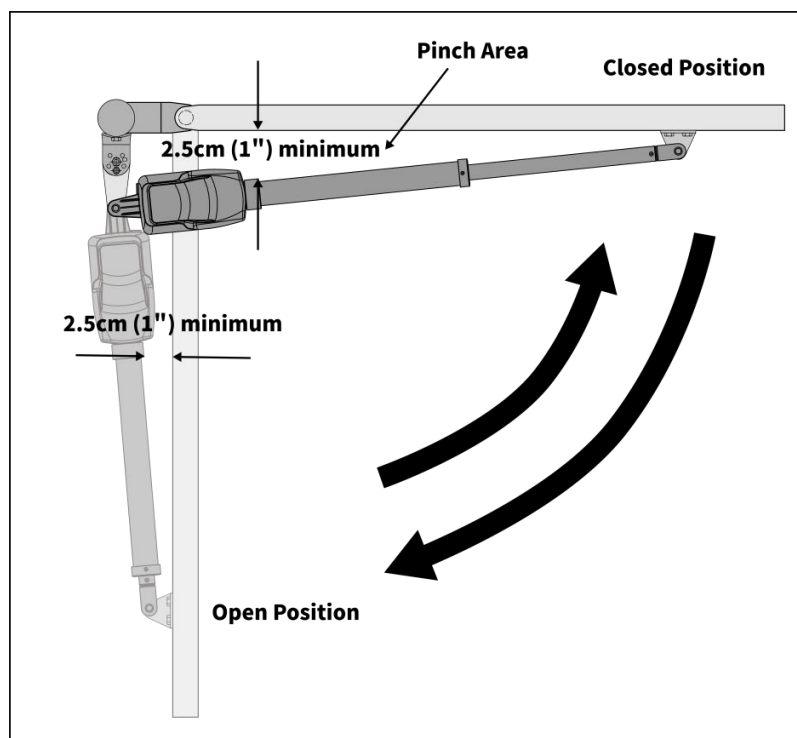


Pull-to-Open Gate Opener Mounting

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.

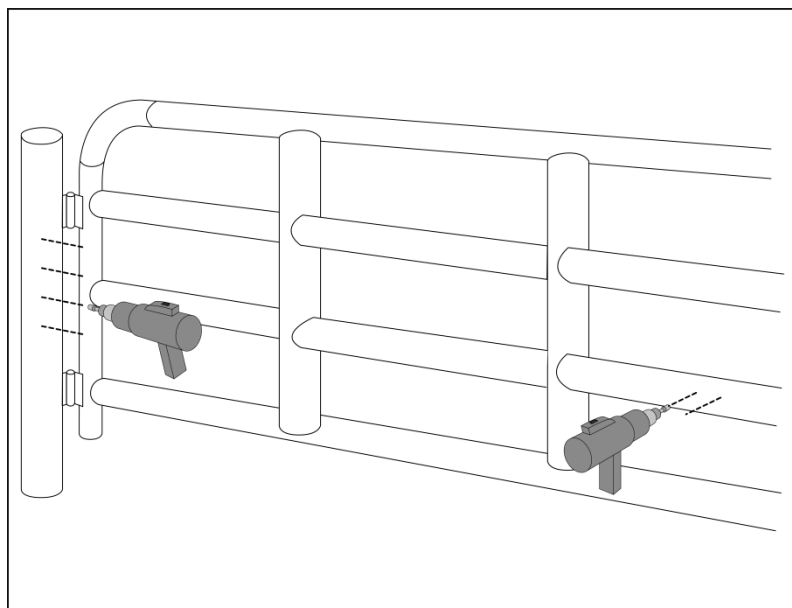


NOTE: This step is very important for determining the position of the gate opener arm and the gate opening angle. It is highly recommended to watch our step-by-step installation video on YouTube for guidance.

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.



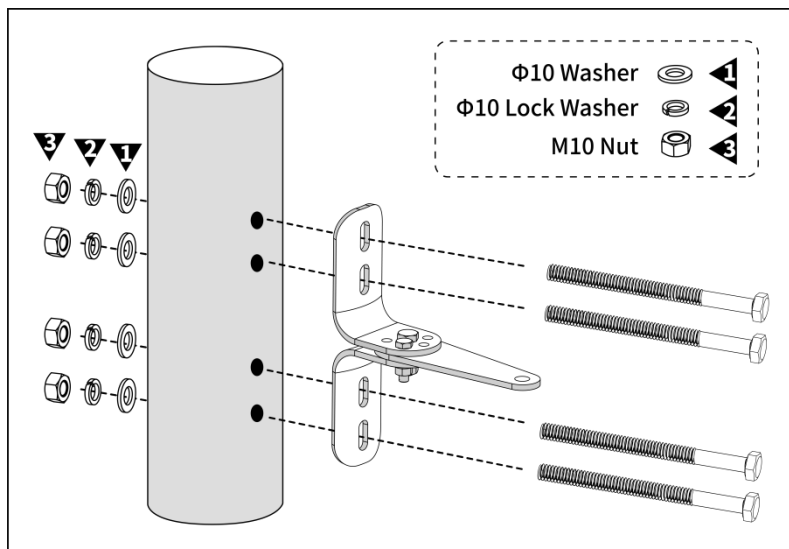


Pull-to-Open Gate Opener Mounting

STEP 8

Secure the Post Bracket

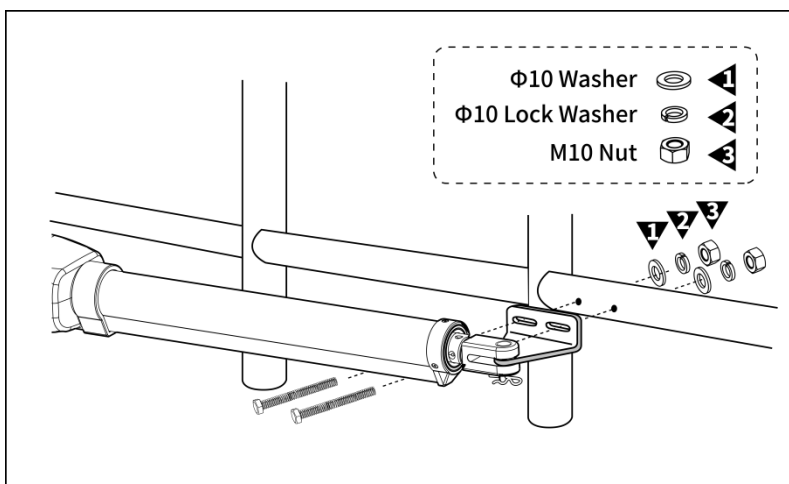
- ◆ Secure the post bracket assembly to the gate post by inserting M10 x 200 bolts through the post bracket assembly and the drilled holes in the gate post.
- ◆ Tighten each bolt using one ϕ 10 washer, one ϕ 10 lock washer, and one ϕ 10 nut. Cut off the bolts that extend beyond the tightened nuts.



STEP 9

Secure the Gate Bracket

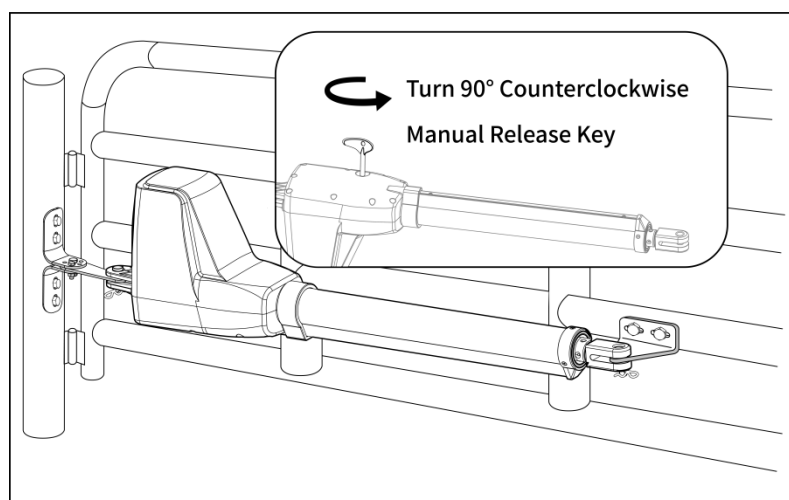
- ◆ Secure the gate bracket to the gate by inserting two M10 x 75 bolts through the gate bracket and the drilled holes in the gate.
- ◆ Tighten each bolt using one ϕ 10 washer, one ϕ 10 lock washer, and one ϕ 10 nut. Cut off the bolts that extend beyond the tightened nuts.



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.



NOTE: Please ensure that the gate opener arm wire connection matches the installation type.

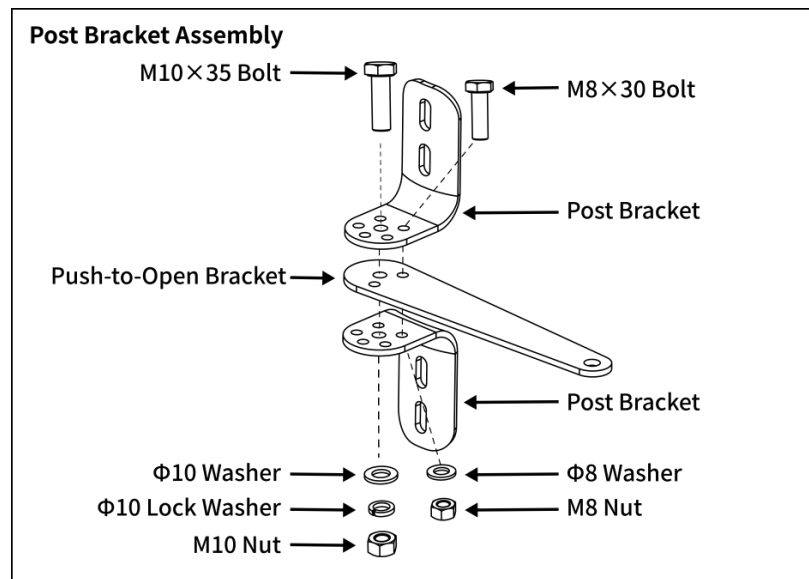


Push-to-Open Gate Opener Mounting

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.



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.

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°

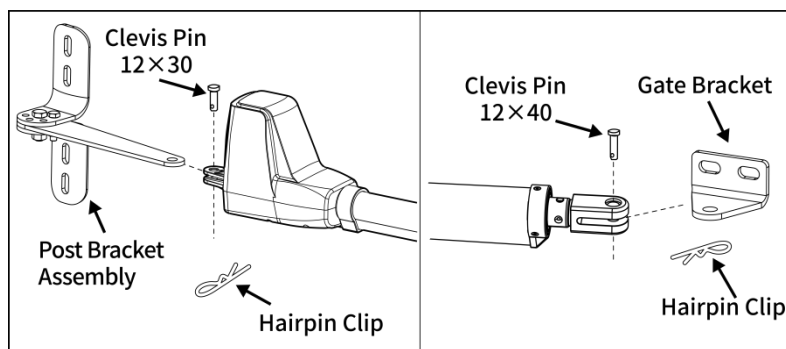


Push-to-Open Gate Opener Mounting

STEP 3

Attach the Brackets to the Gate Opener Arm

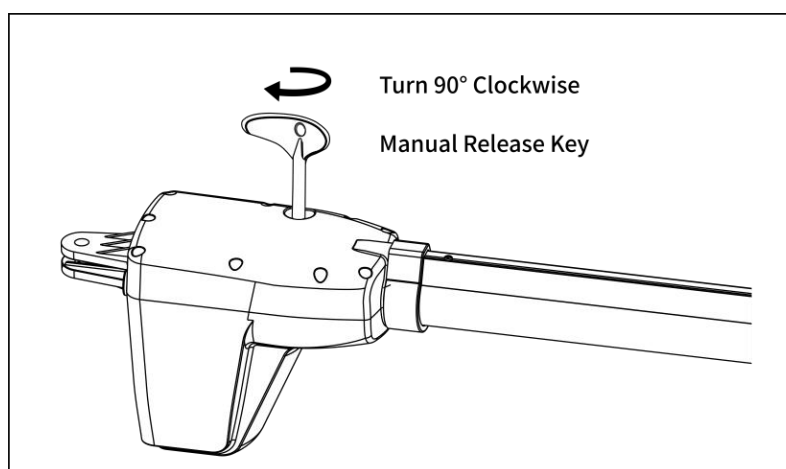
- ◆ Attach the post bracket assembly and the gate bracket to the arm by inserting a clevis pin.
- ◆ Secure the clevis pin using the hairpin clip.



STEP 4

Release the Clutch

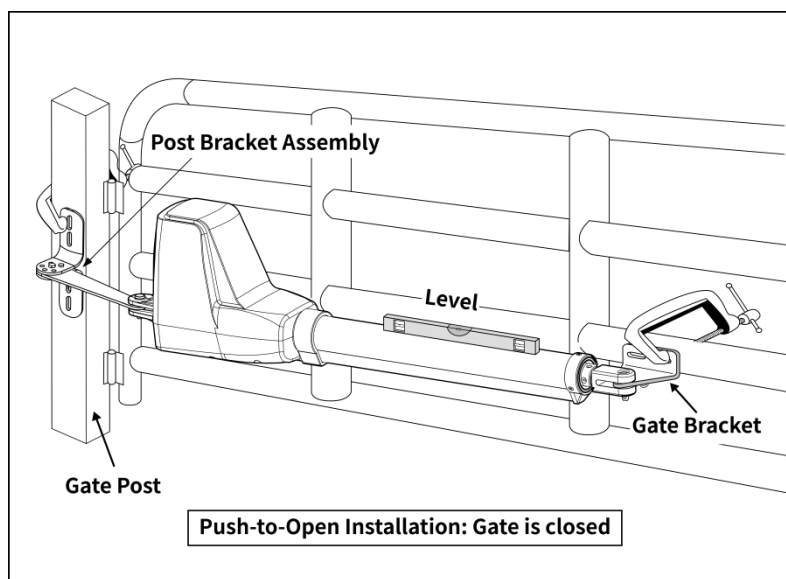
- ◆ Insert the manual release key, and turn it 90° clockwise.
- ◆ The gate opener is now in manual mode, allowing for manual extension and retraction of the moving rod.



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 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.



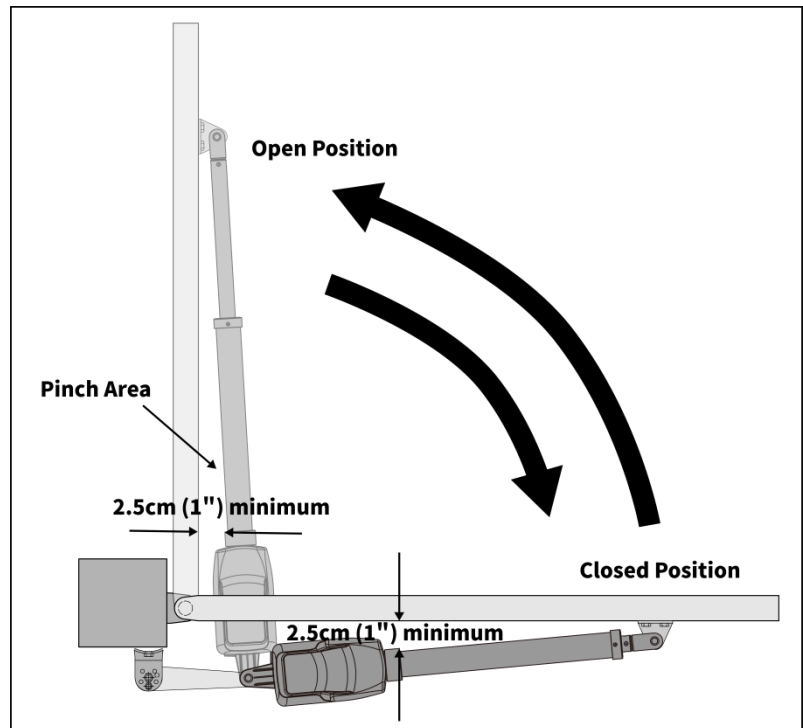


Push-to-Open Gate Opener Mounting

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.

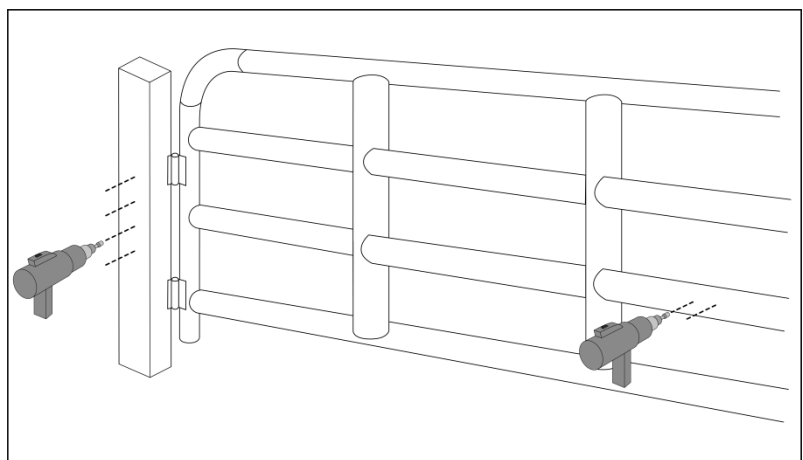


NOTE: This step is very important for determining the position of the gate opener arm and the gate opening angle. It is highly recommended to watch our step-by-step installation video on YouTube for guidance.

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.



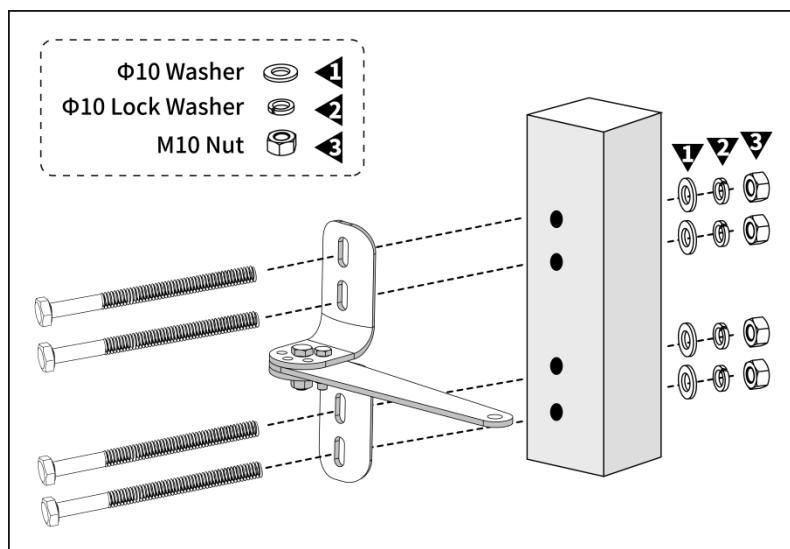


Push-to-Open Gate Opener Mounting

STEP 8

Secure the Post Bracket

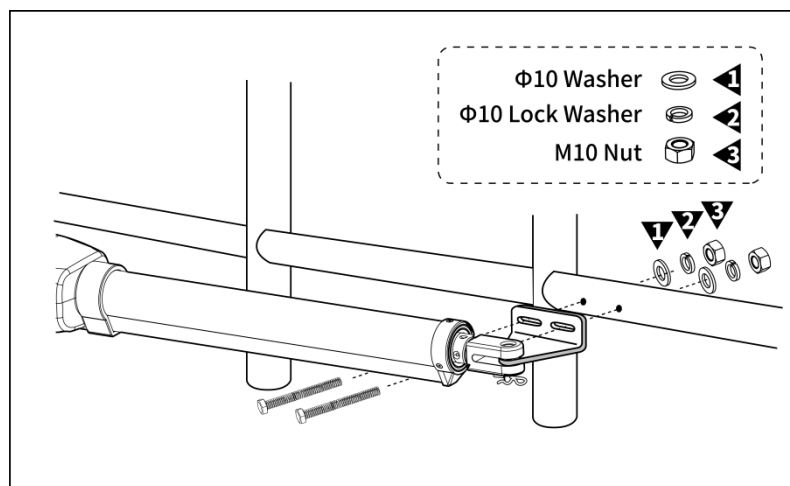
- ◆ Secure the post bracket assembly to the gate post by inserting M10 x 200 bolts through the post bracket assembly and the drilled holes in the gate post.
- ◆ Tighten each bolt using one ϕ 10 washer, one ϕ 10 lock washer, and one ϕ 10 nut. Cut off the bolts that extend beyond the tightened nuts.



STEP 9

Secure the Gate Bracket

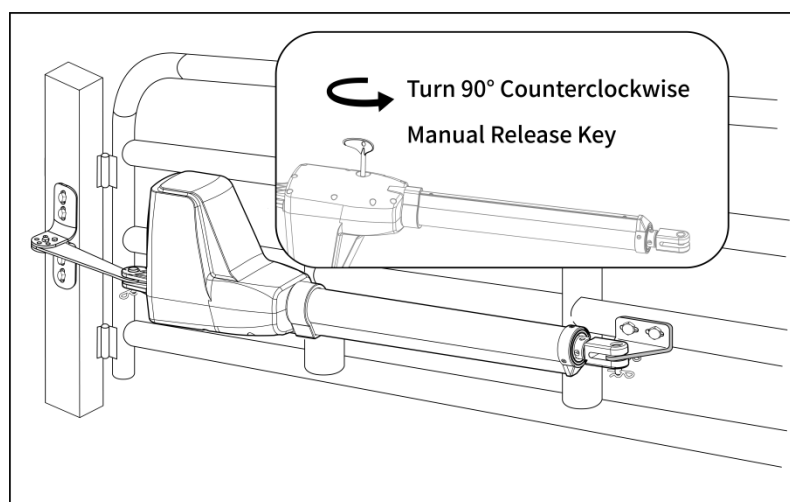
- ◆ Secure the gate bracket to the gate by inserting two M10 x 75 bolts through the gate bracket and the drilled holes in the gate.
- ◆ Tighten each bolt using one ϕ 10 washer, one ϕ 10 lock washer, and one ϕ 10 nut. Cut off the bolts that extend beyond the tightened nuts.



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.

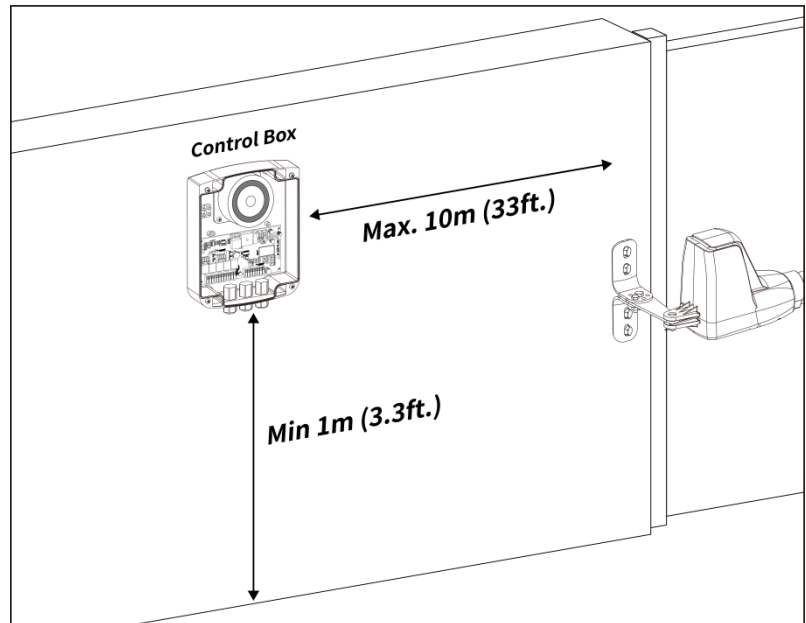


NOTE: Please ensure that the gate opener arm wire connection matches the installation type.

Mount Control Box

STEP 1

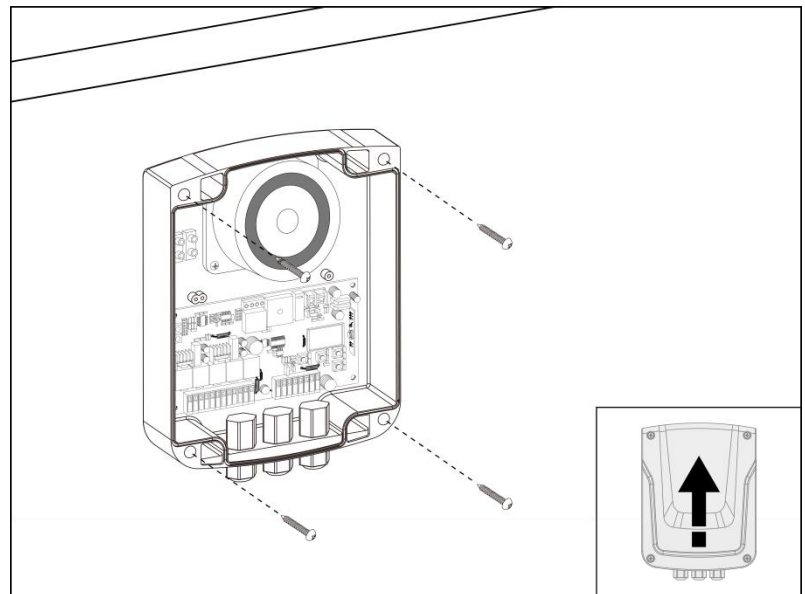
- ◆ Identify a suitable mounting location for the control box at least 1m (3.3ft.) above the ground and no more than 10m (33ft.) from the gate opener arm to prevent it from being flooded or buried under snow.



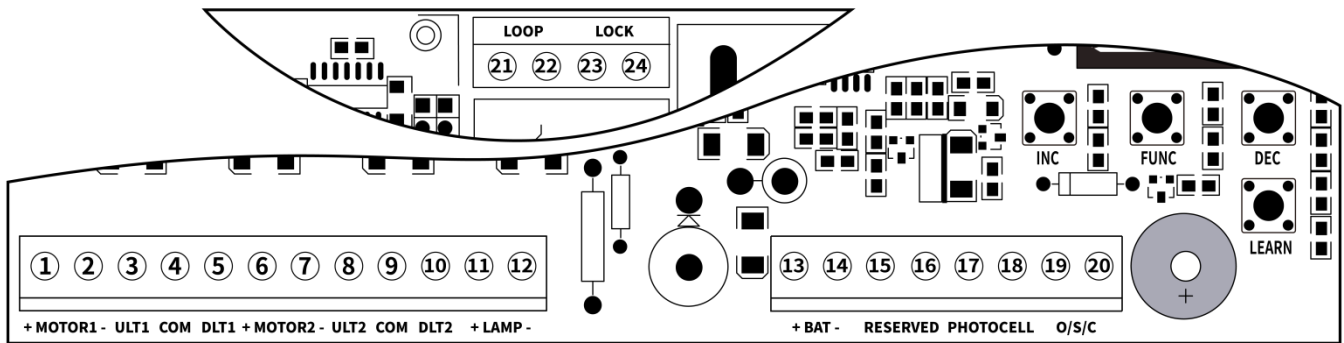
STEP 2

- ◆ Secure the control box 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

Terminal	Function
①② “+MOTOR1-”	Connect to the red and black wires of the gate opener arm 1
③ “ULT1” ④ “COM” ⑤ “DLT1”	Input terminals for gate opener arm 1 limit switches. For pull to open installation, connect the near end limit switch to “ULT1” and “COM” , and the far end limit switch to “DLT1” and “COM” . For push to open installation, connect the near end limit switch to “DLT1” and “COM” , and the far end limit switch to “ULT1” and “COM”
⑥⑦ “+MOTOR2-”	Connect to the red and black wires of the gate opener arm 2
⑧ “ULT2” ⑨ “COM” ⑩ “DLT2”	Input terminals for gate opener arm 2 limit switches. For pull to open installation, connect the near end limit switch to “ULT2” and “COM” , and the far end limit switch to “DLT2” and “COM” . For push to open installation, connect the near end limit switch to “DLT2” and “COM” , and the far end limit switch to “ULT2” and “COM”
⑪⑫ “+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
⑬⑭ “+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
⑰⑱ “PHOTOCELL”	Receive signal input from a photocell sensor, operating on a normally closed (NC) input basis
⑲⑳ “O/S/C”	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)
㉑㉒ “LOOP”	Accept the signal input of the gate opening, can only be connected to the normally open output of the TOPENS TEW3 vehicle sensor exit wand. The signal input will only be accepted when the adapter board of the TOPENS TEW3 vehicle sensor exit wand is properly connected to the control board
㉓㉔ “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

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

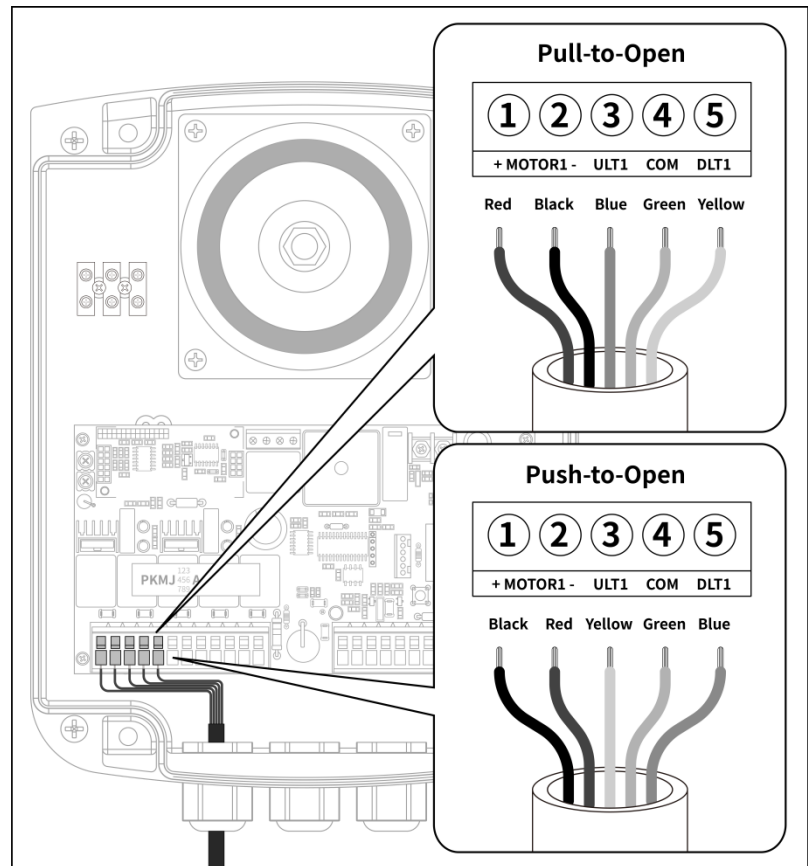
NOTE

- ◆ It is highly recommended to watch our step-by-step installation video on YouTube for wire connection.
- ◆ It is recommended to install gate opener arm 1 on the master gate and gate opener arm 2 on the slave gate.

STEP 1

Connect Gate Opener Arm 1 to the Control Board

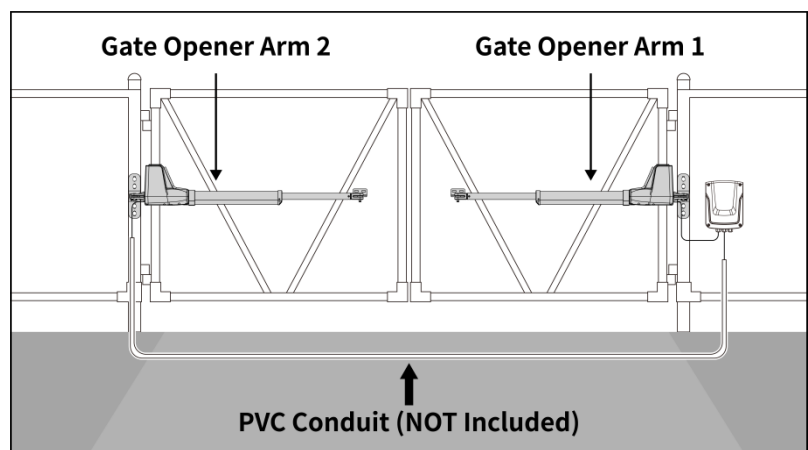
- ◆ Insert the wire harness through the cable gland into the control box.
- ◆ For **Pull-to-Open** installation, connect the red wire into terminal ① “+MOTOR1”, the black wire into terminal ② “MOTOR1-”, the blue wire into terminal ③ “ULT1”, the green wire into terminal ④ “COM”, and the yellow wire into terminal ⑤ “DLT1”.
- ◆ For **Push-to-Open** installation, connect the black wire into terminal ① “+MOTOR1”, the red wire into terminal ② “MOTOR1-”, the yellow wire into terminal ③ “ULT1”, the green wire into terminal ④ “COM”, and the blue wire into terminal ⑤ “DLT1”.
- ◆ Tighten each of the screws so that the wires do not come loose and fall out.



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.

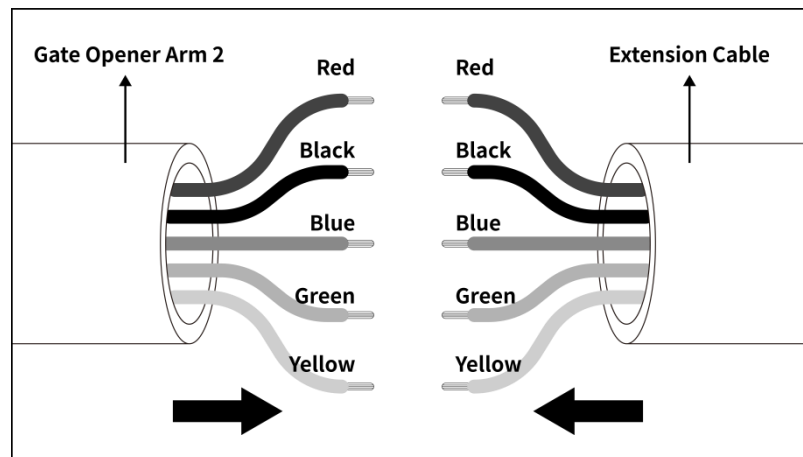


Connect the Arm to the Control Board

STEP 3

Connect the Extension Cable to Gate Opener Arm 2

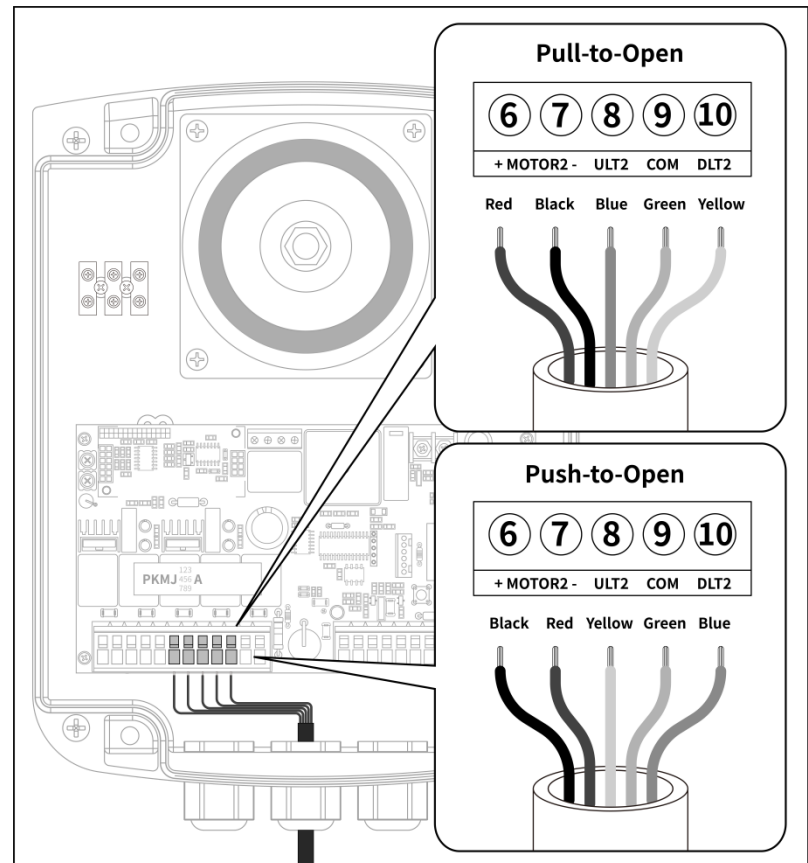
- ◆ Match the color-coded conductors from each cable and twist together the ends of conductors with the same color.
- ◆ Wrap each connection individually with electrical tape to ensure proper insulation.



STEP 4

Connect Gate Opener Arm 2 to the Control Board

- ◆ Insert the wire harness through the cable gland into the control box.
- ◆ For **Pull-to-Open** installation, connect the red wire into terminal ⑥ “+MOTOR2”, the black wire into terminal ⑦ “MOTOR2-”, the blue wire into terminal ⑧ “ULT2”, the green wire into terminal ⑨ “COM”, and the yellow wire into terminal ⑩ “DLT2”.
- ◆ For **Push-to-Open** installation, connect the black wire into terminal ⑥ “+MOTOR2”, the red wire into terminal ⑦ “MOTOR2-”, the yellow wire into terminal ⑧ “ULT2”, the green wire into terminal ⑨ “COM”, and the blue wire into terminal ⑩ “DLT2”.
- ◆ Tighten each of the screws so that the wires do not come loose and fall out.



Connection of Power Supply

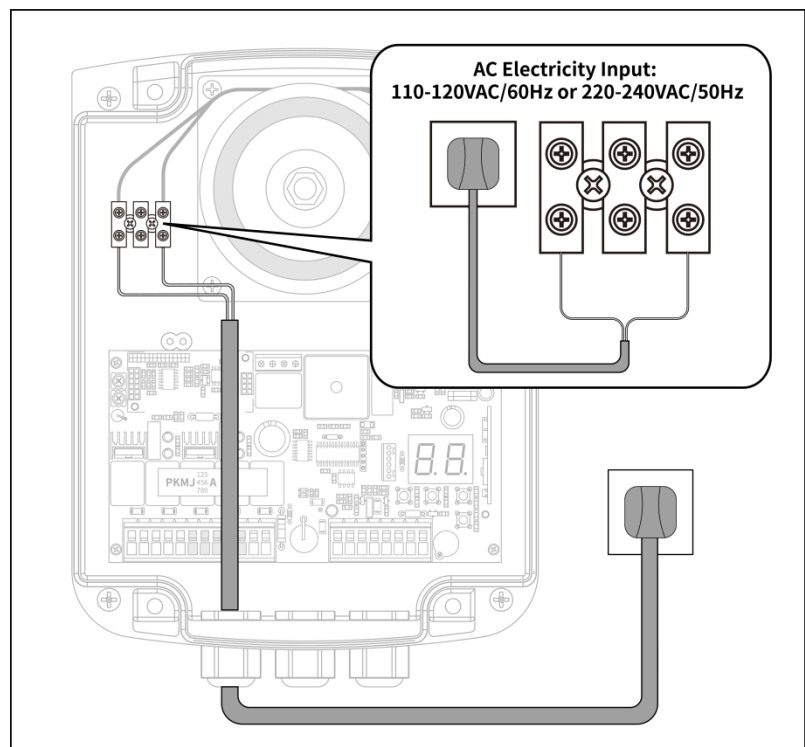
WARNING

- ◆ A professional electrician is required for wire connection to avoid the risk of injury, electric shock, or death. NEVER connect the gate opener to the electrical outlet before all the installations have been done.
- ◆ It is recommended to use a surge protector with a rated current of 5A with the power cord. Protect the electrical outlet with a weatherproof cover if it is located outdoors.

Power Mode 1

Use AC Electricity Only

- ◆ The specification of the power supply cord is $2C \times 0.75\text{mm}^2$ (18AWG).
- ◆ Connect the live wire and neutral wire of the power supply cord to the control board power input terminals (as showed in the diagram on the right), regardless of the polarity of the wires.
- ◆ Plug the power cord into an electrical outlet.

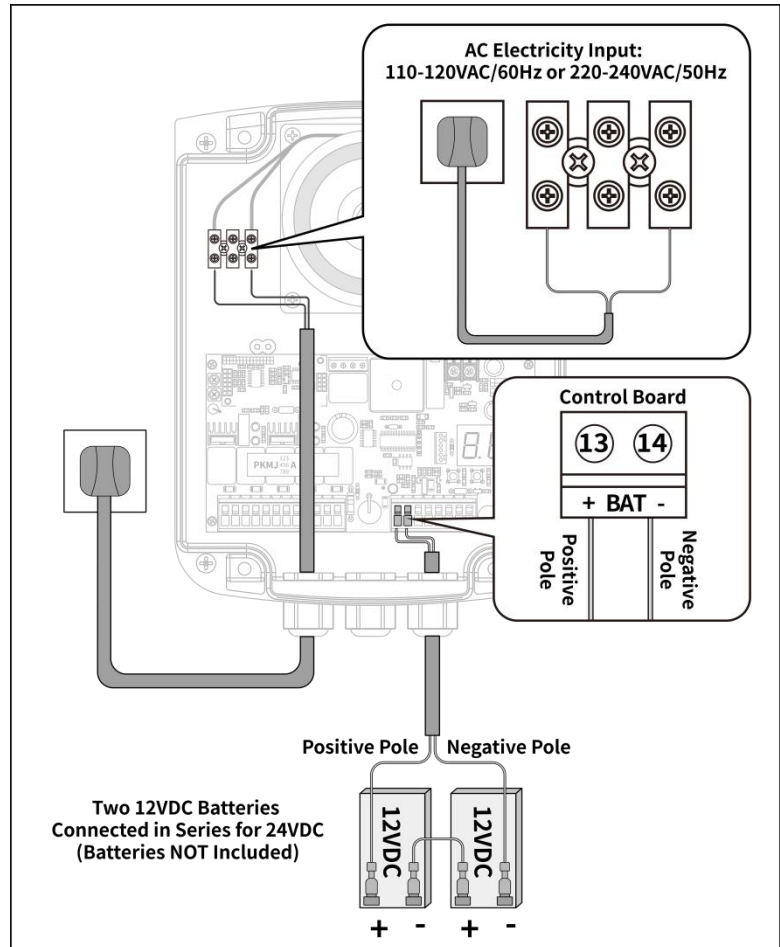


Connection of Power Supply

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 two 12VDC batteries in series to achieve 24VDC (Batteries not included).
- ◆ Connect the battery positive pole to the “+BAT” terminal of the control board. Connect the battery negative pole to the “BAT-” terminal of the control board. A 2C×0.75mm² (18AWG) cable is required for the wire connection, but it is NOT included.
- ◆ Connect the live wire and neutral wire of the power supply cord to the control board power input terminals (as showed in the diagram on the right), regardless of the polarity of the wires.
- ◆ Plug the power cord into an electrical outlet.



NOTE ABOUT THE BATTERY

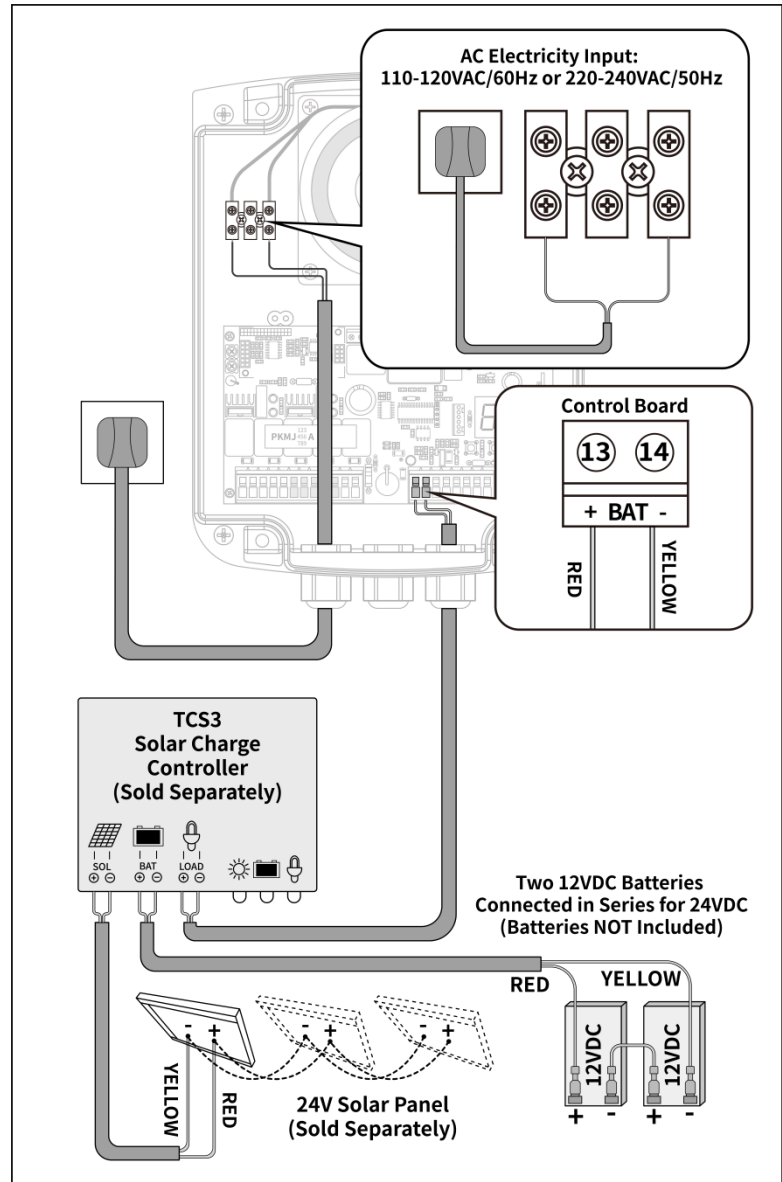
- ◆ *The batteries should be waterproof, or they should be placed in waterproof housing.*

Connection of Power Supply

Power Mode 3

By AC Electricity, Solar Panels and Back-up Batteries

- ◆ Connect the LOAD wires of the TCS3 Solar Charge Controller 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 TCS3 solar controller 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 TCS3 solar controller to the solar panels.
- ◆ Connect the live wire and neutral wires of the power supply cord to the control board power input terminals (as showed in the diagram on the right), regardless of the polarity of the wires.
- ◆ Plug the power cord into an electrical outlet.



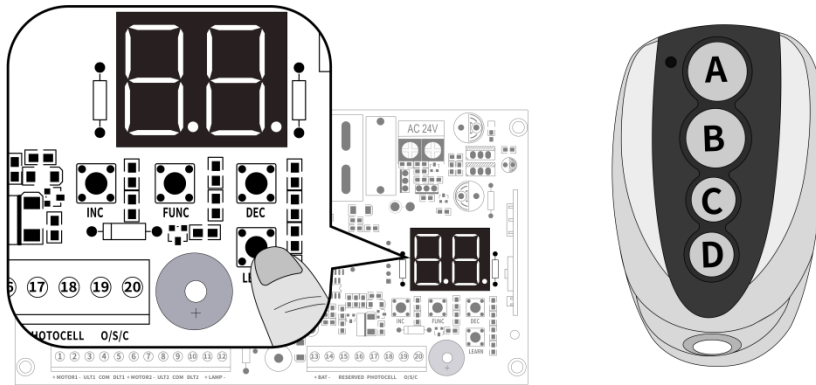
NOTE ABOUT THE BATTERY AND SOLAR PANEL

- ◆ The batteries should be waterproof, or they should be placed in waterproof housing.
- ◆ TOPENS TSP30W 30W Solar Panel Charging Kit is sold separately. The kit includes 3 x 10W solar panels and a solar charge controller. The TCS3 Solar Charge Controller supports a maximum solar panel power of 240W, exceeding this limit can cause damage to it.
- ◆ A 2C×0.75mm² (18AWG) extension cable is required to connect the solar charge controller to the control board, batteries and solar panels, but it is NOT included.
- ◆ If the gate opener is powered by backup batteries and utilizes both AC electricity and solar panel for charging, a minimum of a 24VDC 7Ah automotive / marine type battery and a 24V 20W solar panel are required.

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 the LEARN button on the control board until the digital display shows “Ln” , 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 digital display will flash “Ln” and then back to “- -” , 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).

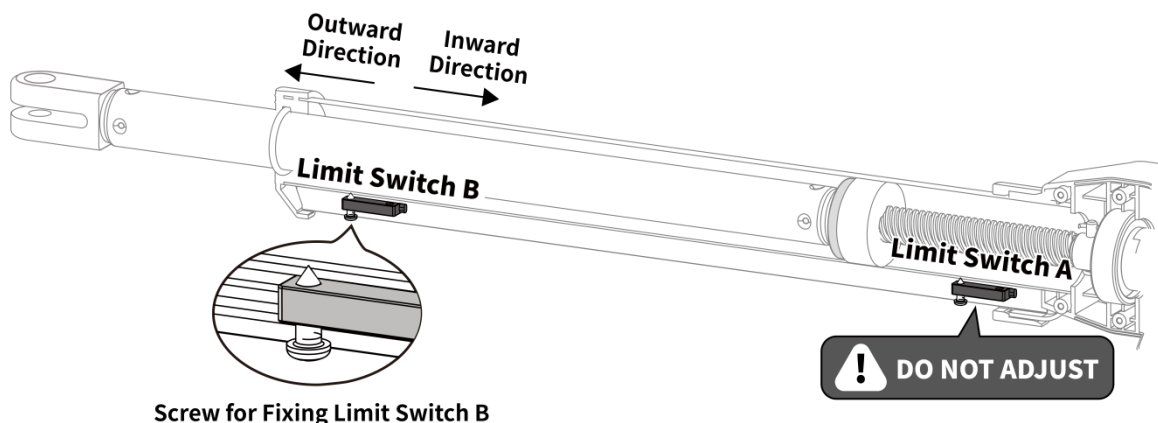
How to Erase All Programmed Remote Controls

- ◆ Press and hold the LEARN button until the digital display shows “dL” . Release the button and the digital display will back to “- -” . 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.



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

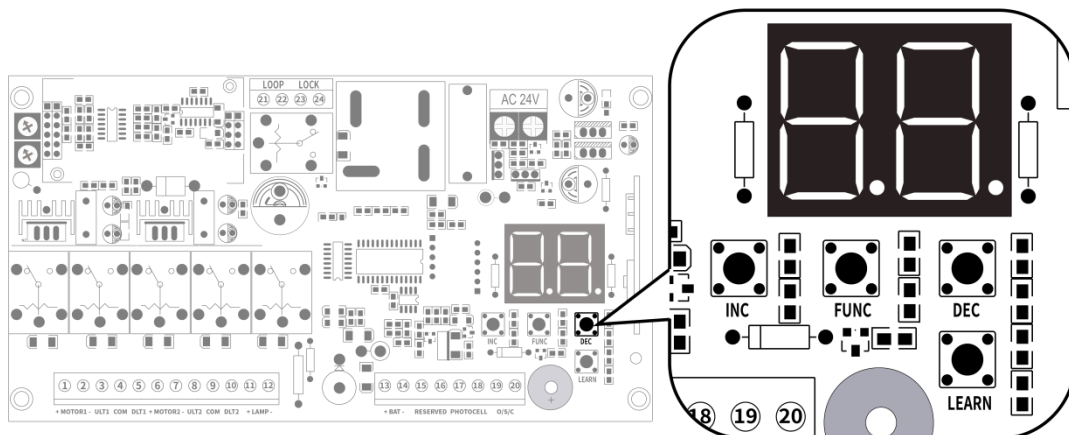
Adjust the Limit Switch B to Determine the Open Position

- ◆ 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

- ◆ Keep away from the gate while setting up the gate opener system to avoid unexpected gate movement.
- ◆ Carefully adjust the settings 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.



Before Setting the Control Board

Ensure that the gate opener is correctly mounted on the gate. Plug the power cord into an electricity outlet. The digital display on the control board will flash “- -”, indicating that the gate opener is in standby mode.

Adjust a Single Setting

If you need to adjust a single setting, press and hold the “FUNC” button until the digital display shows “P1”. Press the “FUNC” button repeatedly to navigate to the your setting program “P?”. Use the “INC” and “DEC” buttons to make the corresponding adjustments. After completing the setting, press the “FUNC” button repeatedly to store the data until the digital display flashes with “- -”, indicating that the gate opener has returned to standby mode.

Set Single/Dual Gate

- ◆ Press and hold the “FUNC” button until the digital display shows “P1”, indicating that the gate opener enters the setting of single/dual gate.
- ◆ Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease numerical value by 1.
- ◆ After selecting either the single or dual gate option, press the “FUNC” button to store the data. The digital display will show “P2”, indicating that the single/dual gate setting is complete.

Digital Display	Meaning of the Numerical Value
01	Single Gate Mode (Gate Opener 1)
10	Single Gate Mode (Gate Opener 2)
11	Dual Gate Mode (Factory Default Setting)

Setting of the Control Board

Set Master/Slave Gate

- ◆ When the digital display shows “P2” , the gate opener enters the setting of master/slave gate.
- ◆ Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1.
- ◆ After selecting the master or slave gate, press the “FUNC” button to store the data. The digital display will show “P3” , indicating that the master/slave gate setting is complete.

Digital Display	Meaning of the Numerical Value
01	Gate Opener 1 as Master Arm (Factory Default Setting)
10	Gate Opener 2 as Master Arm

Set Open Interval between Master and Slave Gate

- ◆ When the digital display shows “P3” , the gate opener enters the setting of open interval between the master/slave gate.
- ◆ The interval time can be adjusted from 0 to 9 seconds. Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1.
- ◆ Once the desired open interval is set, press the “FUNC” button to store the data. The digital display will show “P4” , indicating that the open interval setting is complete.

IMPORTANT NOTE: The interval time **MUST** be set to more than 4 seconds if an electric gate lock is used.

Digital Display	Meaning of the Numerical Value
0	Master and Slave Gates Open Simultaneously
3	Master Gate Starts to Open 3 seconds Before Slave gate Starts to Open (Factory Default Setting)

Set Close Interval between Master and Slave Gate

- ◆ When the digital display shows “P4” , the gate opener enters the setting of close interval between the master/slave gate.
- ◆ The interval time can be adjusted from 0 to 9 seconds. Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1.
- ◆ Once the desired close interval is set, press the “FUNC” button to store the data. The digital display will show “P5” , indicating that the close interval setting is complete.

IMPORTANT NOTE: The interval time **MUST** be set to more than 4 seconds if an electric gate lock is used.

Digital Display	Meaning of the Numerical Value
0	Master and Slave Gates Close Simultaneously
3	Slave Gate Starts to Close 3 seconds Before Master gate Starts to Close (Factory Default Setting)

Setting of the Control Board

Adjust the Stall Force

- ◆ 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.
- ◆ When the digital display shows “P5”, the gate opener enters the setting of stall force adjustment for gate opener 1.
- ◆ The stall force can be adjusted from 1-9 levels. Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1.
- ◆ Press “FUNC” to store the data. The digital display will show “P6”, indicating that the stall force setting of gate opener 1 is complete.
- ◆ When the digital display shows “P6”, the gate opener enters the setting of stall force adjustment for gate opener 2. Please perform the same procedure as gate opener 1.
- ◆ Press the “FUNC” button to store the data. The digital display will show “P7”, indicating that the stall force setting of gate opener 2 is complete.

IMPORTANT NOTE: The appropriate stall force setting will depend on the gate's length and weight, so fine-tuning may be required. Please see detail steps in the Stall Force Adjustment and Obstruction Test section in this manual.

Digital Display	Meaning of the Numerical Value
1	Minimum Force
3	Level 3 force (Factory Default Setting)
9	Maximum Force

Adjust the Max Motor Running Time (MRT) for Gate Opener Motor

- ◆ The maximum running time of the motor can be set to make the motor stop running after a specified period even if the limit switch is invalid or the clutch is detached.
- ◆ When the digital display shows “P7”, the gate opener enters the setting of MRT for gate opener 1.
- ◆ The MRT can be adjusted from 1 to 50 seconds. Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1. Holding the “INC” or “DEC” button for more than one second will speed up the setting adjustment.
- ◆ Press the “FUNC” button to store the data. The digital display will show “P8”, indicating that the MRT setting of gate opener 1 is complete.
- ◆ When the Digital Display shows “P8”, the gate opener enters the setting of MRT for gate opener 2. Please perform the same procedure as gate opener 1.
- ◆ Press the “FUNC” button to store the data. The digital display will show “P9”, indicating that the MRT setting of gate opener 2 is complete.

Digital Display	Meaning of the Numerical Value
40	Max Motor Running Time is 40 Seconds (Factory Default Setting)

Setting of the Control Board

Set the Safety Photocell Beam System (PBS)

- ◆ When the digital display indicates “P9” , the gate opener enters the setting of Safety Photocell Beam System.
- ◆ Press and release the “INC” or “DEC” button to enable or disable the PBS function. The digital display shows “11” , the PBS is enabled. The digital display shows “00” , the PBS is disabled.
- ◆ Press the “FUNC” button to store the data when the PBS is set. The Digital Display will show “PA” , indicating that the setting of safety photocell beam system is complete.

IMPORTANT NOTE: Set the PBS to 11 to enable the photocell sensor function if you want to use the photocell sensor with the gate opener.

Digital Display	Meaning of the Numerical Value
00	Safety Photocell Beam System Disabled (Factory Default Setting)
11	Safety Photocell Beam System Enabled (Works Only When Gate Opener Is Closing and the Gate Opener Will Reverse to the Open Position When Sensing an Obstruction)

Set the Auto Close Time

- ◆ The auto close function allows the gate to automatically close after a set period.
- ◆ When the Digital Display indicates “PA” , the gate opener enters the setting of auto close time.
- ◆ The auto close time can be adjusted from 1 to 99 seconds. Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1.
- ◆ Press the “FUNC” button to store the data when the auto close time is set. The digital display will show “Pb” , indicating that the setting of auto close time is complete.

IMPORTANT NOTE: 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.

Digital Display	Meaning of the Numerical Value
00	The Auto Close Function is Turn Off
60	The Auto Close time is 60 Seconds (Factory Default Setting)

Set the Soft Start Period (STP)

- ◆ The soft start period is designed for smooth start of the gate opener.
- ◆ When the Digital Display indicates “Pb” , the gate opener enters the setting of soft start period .
- ◆ The soft start period can be adjusted from 1 to 9 seconds. Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1.
- ◆ Press the “FUNC” button to store the data when the soft start period is set. The Digital Display will show “PC” , indicating that the setting of soft start period is complete.

Digital Display	Meaning of the Numerical Value
3	Soft Start Period is 3 seconds (Factory Default Setting)

Setting of the Control Board

Set the Fast Running Period (FRP) to Achieve Soft Stop Function (SPP)

- ◆ When the digital display shows “PC” , the gate opener enters the setting of fast running period. The fast running period can be adjusted from 1 to 28 seconds. Each press of the “INC” button will increase the numerical value by 1, and each press of the “DEC” button will decrease the numerical value by 1.
- ◆ **Soft Stop Period Formula:** Soft Stop Period = Total Gate Opening or Closing Time - Soft Start Period - Fast Running Period
- ◆ The soft stop period is calculated by subtracting the soft start period and the fast running period from the total running time it takes for the gate to move from the open limit position to the closed limit position. Once the distance between the open and closed limit positions (the total travel length of the moving rod) is confirmed, the increase of fast running period will shorten the soft stop period.
- ◆ The system is designed with two running speeds: fast running speed and soft running speed. The fast running speed is nearly twice as fast as the soft running speed. Since the total length the moving rod can extend or retract is fixed, increasing the fast running period by pressing “INC” will extend the time the gate opener arm moves at fast speed, thereby shortening the soft stop period. Conversely, decreasing the fast running period will increase the soft stop period.
- ◆ Press the “FUNC” button to store the data when the fast running period is set. The Digital Display will show “Pd” , indicating that the setting of fast running period is complete.

Digital Display	Meaning of the Numerical Value
15	Fast Running Period is 15 seconds (Factory Default Setting)

Return to Factory Default Setting

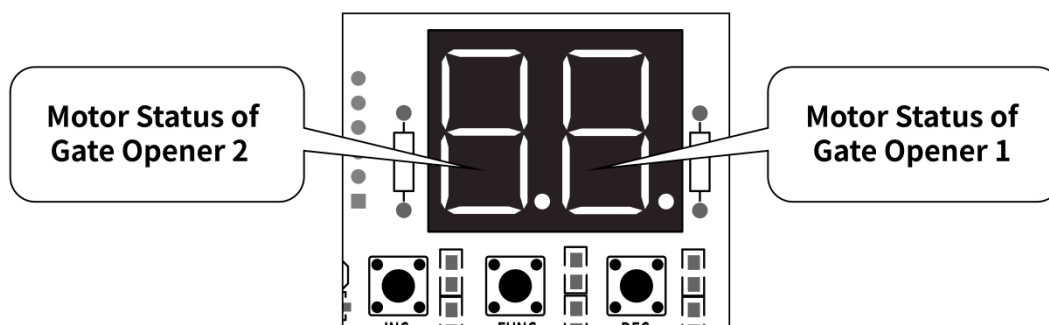
- ◆ When the digital display indicates “Pd” , press and release the “INC” or “DEC” button. The digital display will show “dF” , indicating that all settings have been reset to factory default settings.

Store Setting Data

If all the data is set and no further changes are needed, press the “FUNC” button. The digital display will show “- -” , indicating that the gate opener has entered standby mode.

Meaning of the Digital Display When the Gate Opener is Running

- ◆ The left side of the digital display shows the motor status of gate opener 2 when in operation, while the right side displays the motor status of gate opener 1.
- ◆ When the motor is in the gate opening phase, the digital display shows “n” . When the motor is in the gate closing phase, the digital display shows “u” . If the motor is in standby mode, the digital display will show “- -” .



Stall Force Adjustment & Obstruction Test

Fine Tune the Stall Force

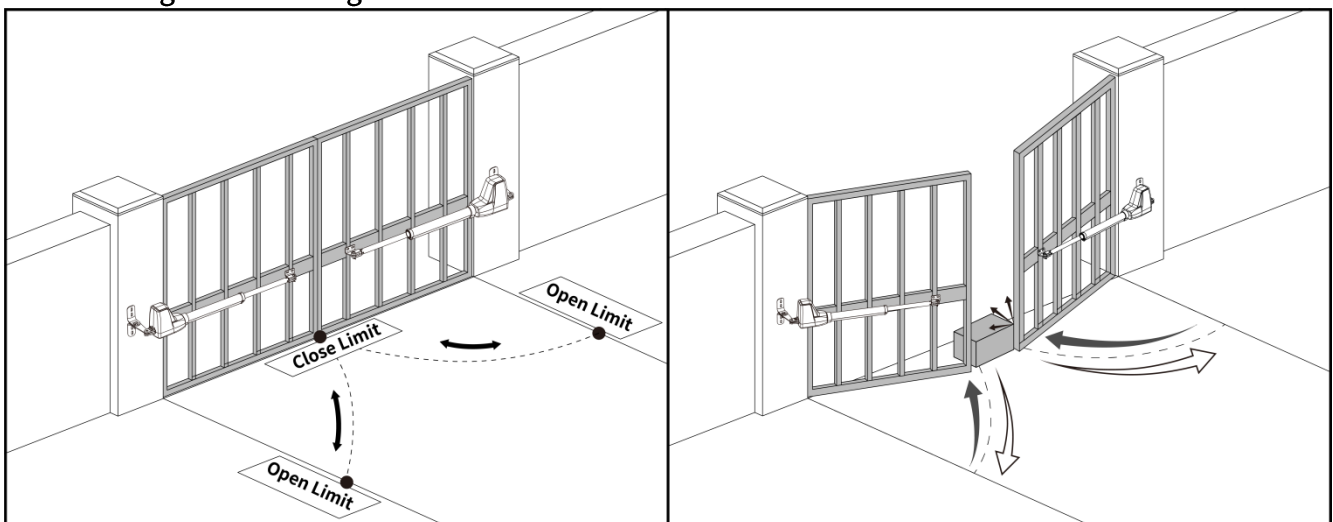
This force should be high enough to ensure the gate reaches both the open and close limits without reversing unnecessarily or causing frequent interruptions, but low enough to prevent injury if an obstruction is encountered. The appropriate stall force setting will depend on the gate's length and weight, 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 before reaching the fully close position or stops before reaching the fully open position, increase the stall force by referring to the Setting of the Control Board section in this manual.
- ◆ **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 it **MUST** reverse when encountering a solid object during closing and stop during opening.

- ◆ **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 during closing and stop during opening. If the gate does not reverse or stop, reduce the force by referring to the Setting of the Control Board section in this manual.



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 during closing and to stop the gate during opening. It is highly recommended to install a photocell sensor for additional safety.

Connection of Accessories

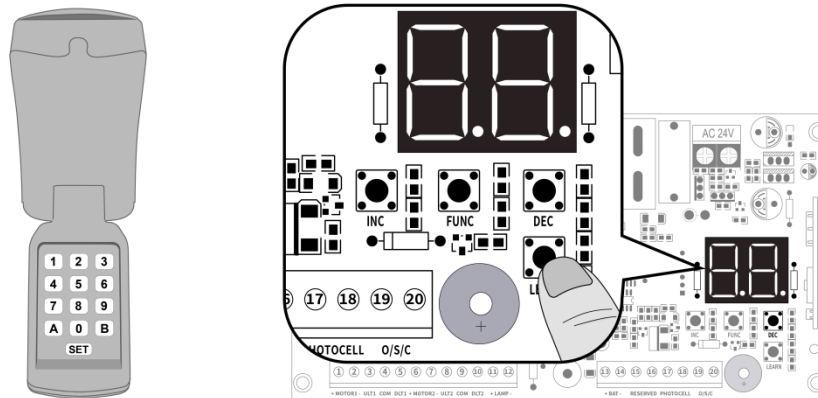
NOTE

- ◆ 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 the LEARN button on the control board until the digital display shows “Ln” , 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 digital display will flash “Ln” and then back to “- -” , indicating successful programming.

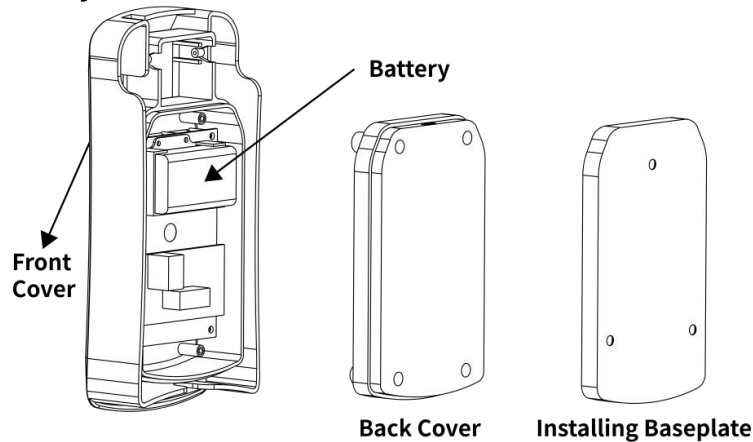
Step 4 Operate the Gate Opener

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

Wired Mode Connection and Operation

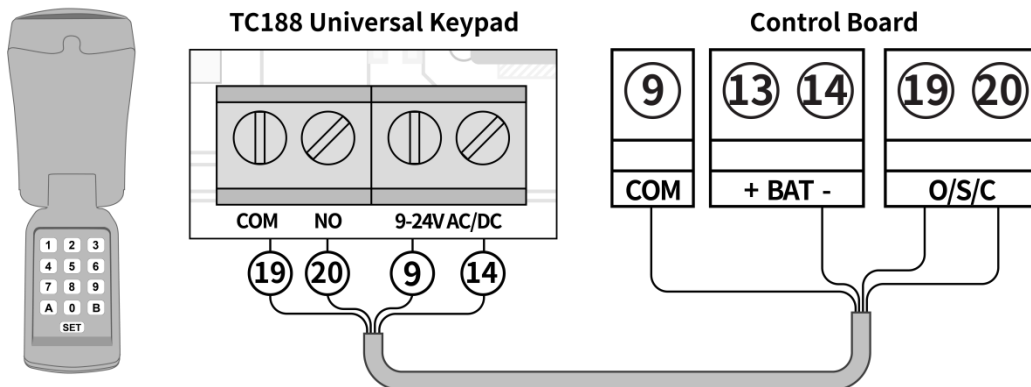
Step 1 Remove the Battery



Step 2 Wire Connection

Connect the “COM” and “NO” terminals to the control board terminals ①⑨ and ①⑩ “O/S/C” . Then connect the “9-24V AC/DC” terminals to the control board terminal ①⑨ “COM” and terminal ①④ “BAT-” . Polarity does not matter for these connections.

NOTE: A 4C x 0.3 mm² (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.

Connection of Accessories

TKP3 Wireless Keypad

Operate the gate with a user defined password

Programming and Operation

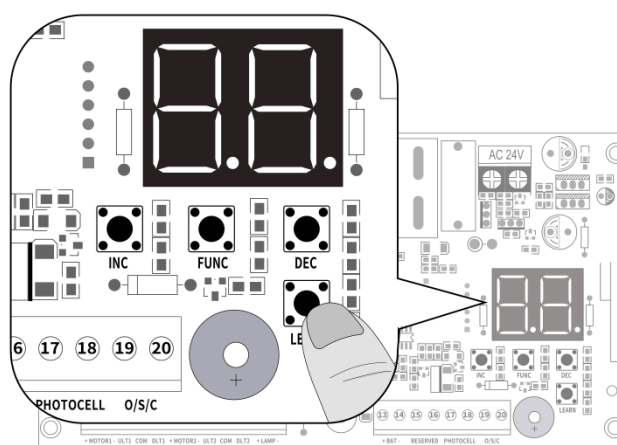
- ◆ Press the LEARN button on the control board until the digital display shows “Ln”, indicating that the gate opener is now in programming mode.
- ◆ Press the button “OK” on the keypad and the digital display will flash “Ln” and then back to “- -”, indicating successful programming.
- ◆ Use the default 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 digital display will show “CH”.
- ◆ Input the new six digits password and then press the “PIN” to confirm the new setting, the digital display will flash “CH” and then back to “- -”, 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.

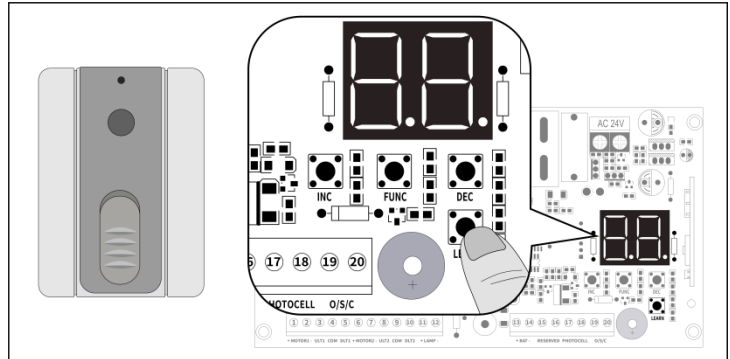
Connection of Accessories

TC173 Wireless Push Button

Open/close gate by pressing the wireless button

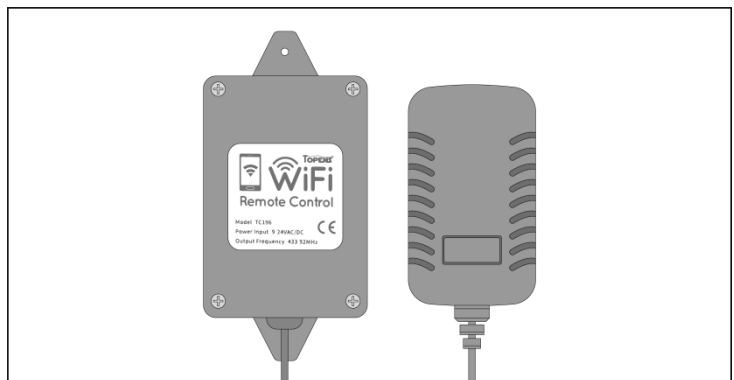
Programming and Operation

- ◆ Press the LEARN button on the control board until the digital display shows “Ln”, 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 digital display will flash “Ln” and then back to “- -”, 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.



Connection of Accessories

ET24 Electric Gate Lock

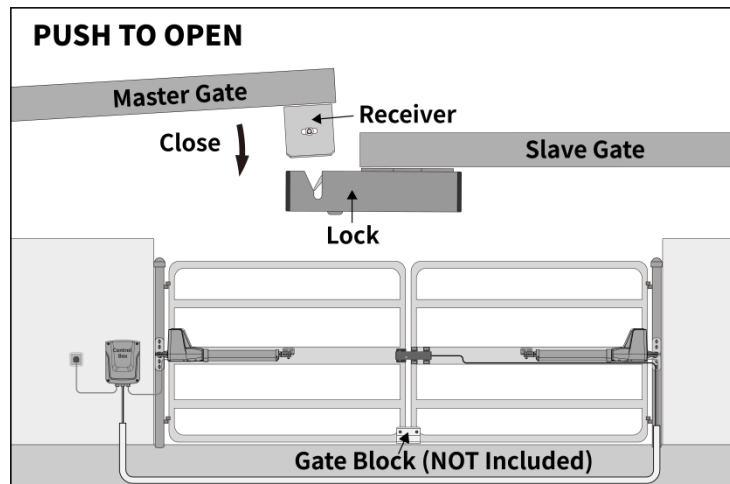
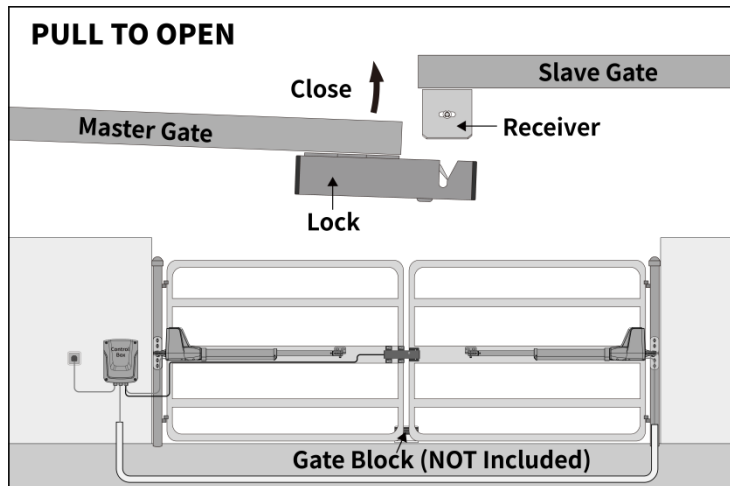
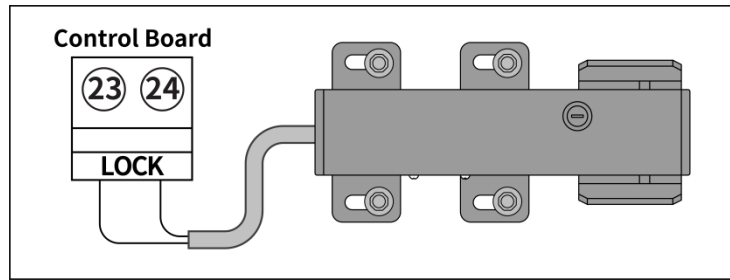
Locks and unlocks the gate automatically

Wire Connection

- ◆ Connect the electric lock to the control board terminals ②③ and ②④ “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.
- ◆ Please refer to the Setting of the Control Board section in this manual to set the master and slave 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.



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

Connection of Accessories

TEW3 Vehicle Sensor Exit Wand

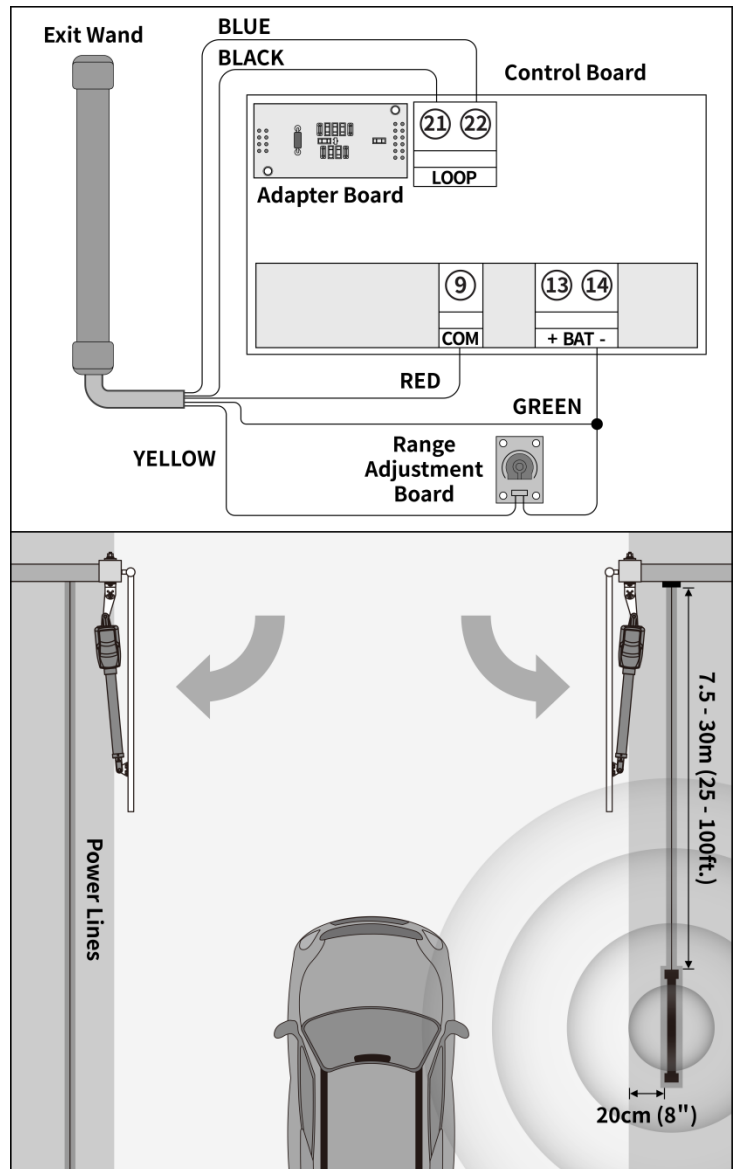
Opens the gate automatically when senses an approaching car

Wire Connection

- ◆ Connect the BLACK and BLUE wires to the control board terminals ②① and ②② “LOOP”, regardless of the polarity of the wires.
- ◆ Connect the RED wire to the control board terminal ⑨ “COM”.
- ◆ Connect the GREEN wire to the control board terminal ①④ “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.
- ◆ The exit wand adapter board must be inserted into the gate opener control board before using.

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.



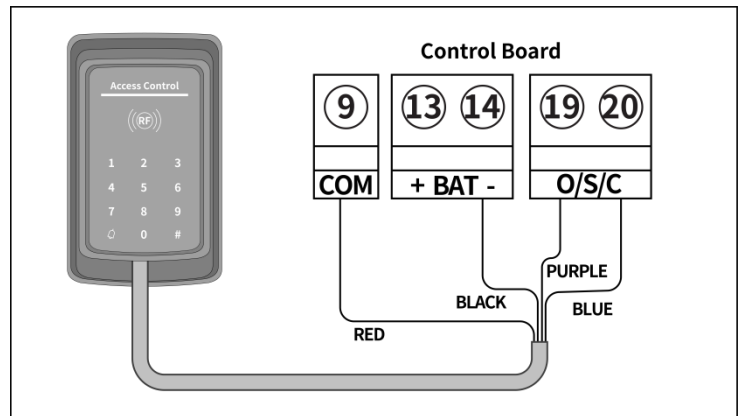
Connection of Accessories

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 RED wire to the control board terminal ⑨ “COM” .
- ◆ Connect the BLACK wire to the control board terminal ⑭ “BAT-” .
- ◆ Connect the PURPLE and BLUE wires to the control board terminals ⑲ and ⑳ “O/S/C” respectively.



NOTES:

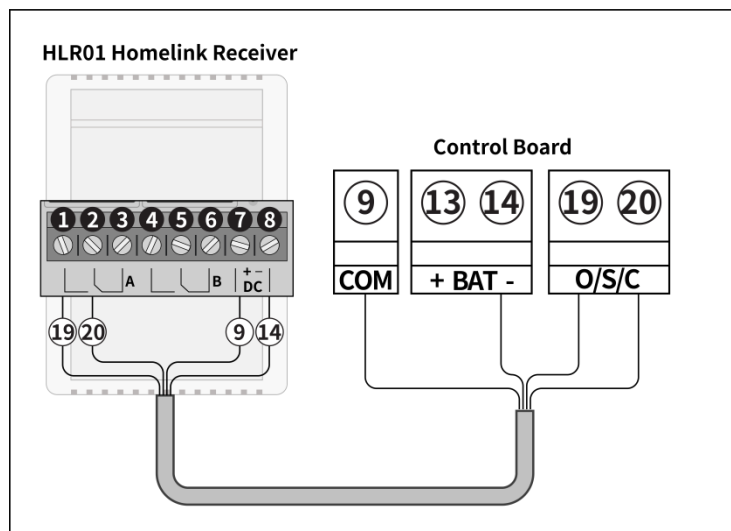
- ◆ A 4C x 0.3 mm² (22AWG) cable is required for the wire connection, but it is NOT included.
- ◆ Please see detailed password setting steps in TC175P user manual.

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 ① and ② terminals to the control board terminals ⑲ and ⑳ “O/S/C” respectively.
- ◆ Connect terminal ⑦ “+DC” to the control board terminal ⑨ “COM” .
- ◆ Connect terminal ⑧ “DC-” to the control board terminal ⑭ “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.

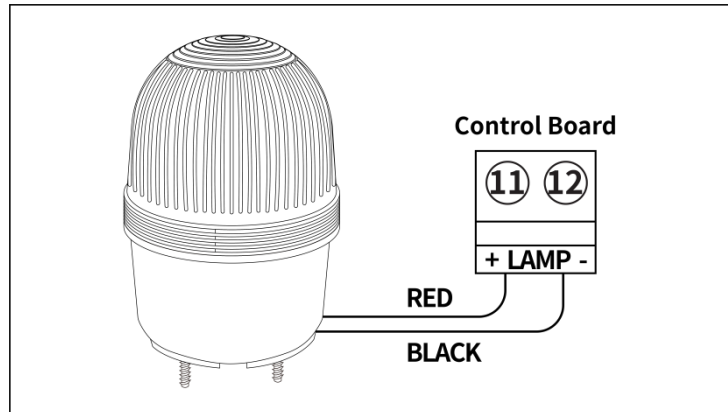
Connection of Accessories

JD24VY Warning Light

Flashing when the gate is moving, improving your gate safety

Wire Connection

- ◆ Connect the RED wire to the control board terminal ⑪ “LAMP+” .
- ◆ Connect the BLACK wire to the control board terminal ⑫ “LAMP-” .



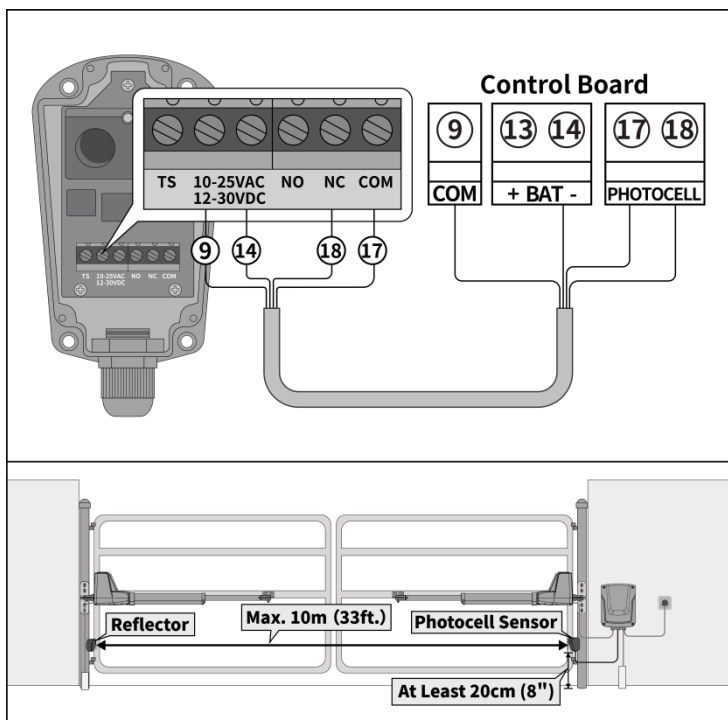
NOTE: A 2C x 0.3 mm² (22AWG) cable is required for the wire connection, but it is NOT included.

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 ⑨ “COM” and terminal ⑭ “BAT-”, regardless of the polarity of the wires. Connect “ NC ” terminal and “COM” terminal to the control board terminals ⑱ and ⑰ “PHOTOCELL” respectively .
- ◆ Set the safety photocell beam system by referring to the Setting of the Control Board section in this manual 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. The working light on the photocell sensor turning green indicates 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.

Connection of Accessories

TC102 Infrared Photocell Sensor

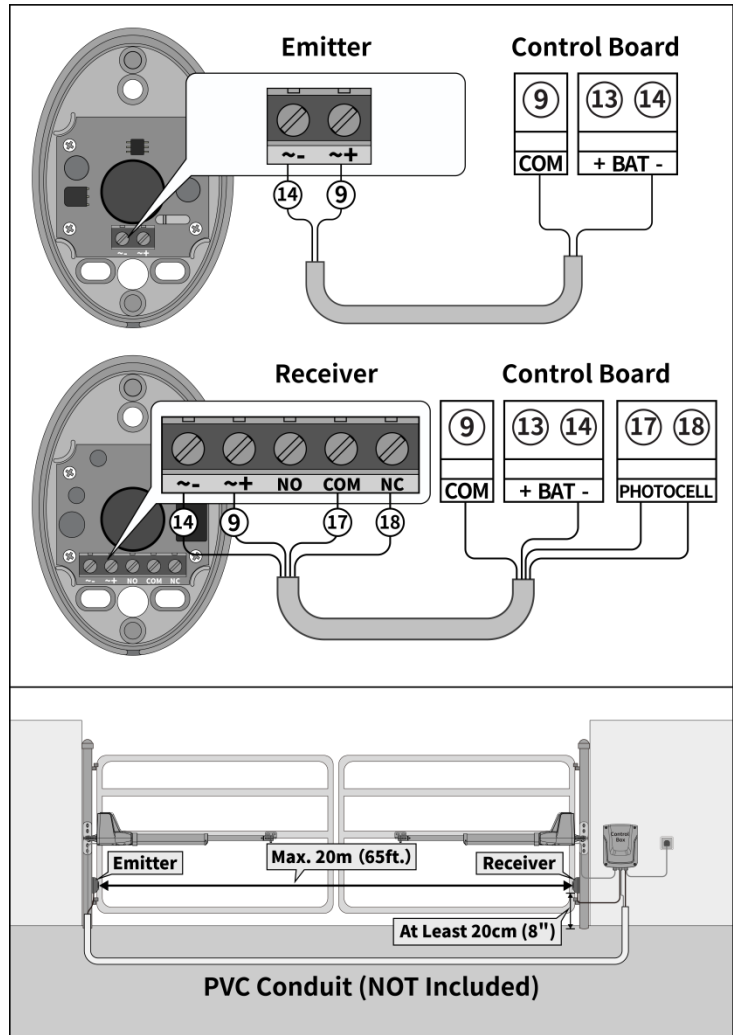
Prevents the gate from closing when obstructed, adds security

Wire Connection

- ◆ For the emitter, connect “~ +” terminal to the control board terminal ⑨ “COM”, connect “~ -” terminal to the control board terminal ⑭ “BAT-”.
- ◆ For the receiver, connect “~ +” terminal to the control board terminal ⑨ “COM”, connect “~ -” terminal to the control board terminal ⑭ “BAT-”. Connect “COM” terminal and “NC” terminal to the control board terminals ⑰ and ⑱ “PHOTOCELL” respectively.
- ◆ Set the safety photocell beam system by referring to the Setting of the Control Board section in this manual 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 mm² (22AWG) cable. Connect the receiver to the gate opener with a 4C x 0.3 mm² (22AWG) cable. Cables are required but NOT included.

Connection of Accessories

ERM12 External Receiver

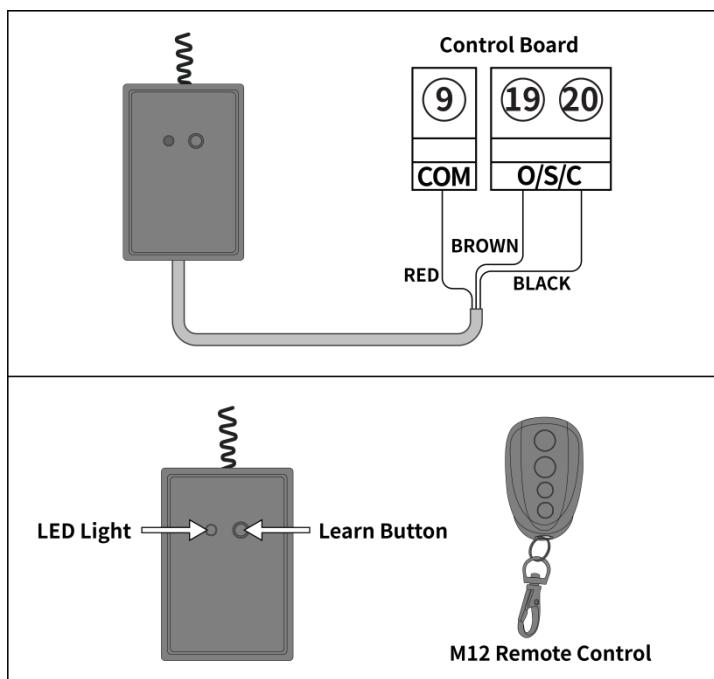
Allows up to 250 remotes to be programmed with the gate opener

Wire Connection

- ◆ Connect the RED wire to the control board terminal ⑨ “COM” .
- ◆ Connect the BROWN and BLACK wires to the control board terminals ⑱ and ⑳ “O/S/C” respectively.

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.

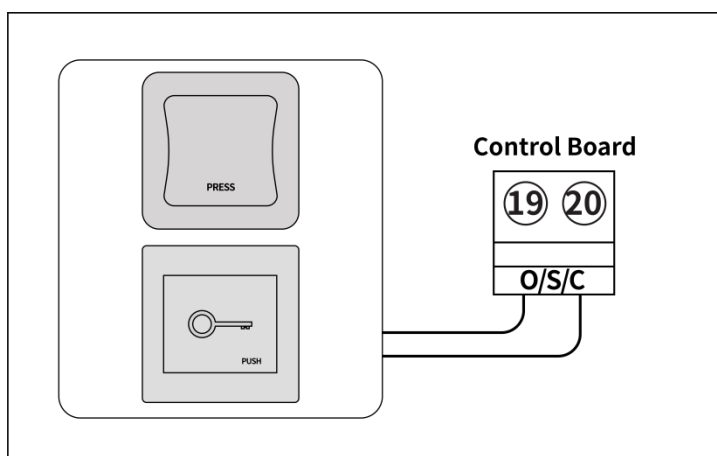


TC148 Waterproof Wall Push Button & TC147 Wall Push Button

Open/close gate by pressing wired button

Wire Connection

- ◆ Connect the push button to the control board terminals ⑱ and ⑳ “O/S/C” , 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 solar controller or control board. Replace the battery every 2-3 years and recycle old batteries properly.

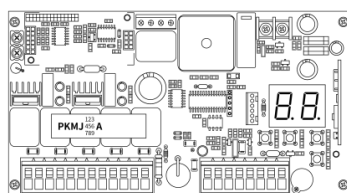
Cleaning and Lubrication

- ◆ 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.

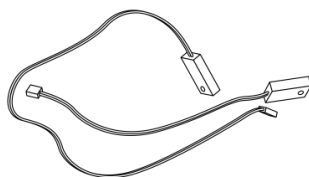
Monthly Obstruction Test

The gate must reverse when encountering a solid object during closing and stop during opening. 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



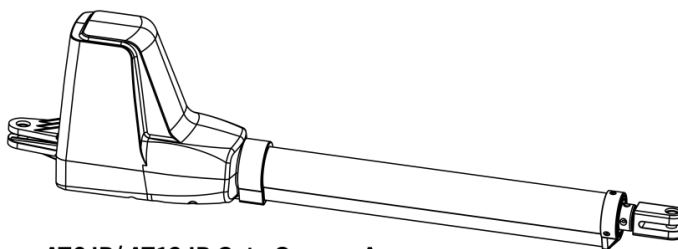
PKMJ1A Control Board



ALS01 Limit Switch



MK01 Mounting Hardware Kit

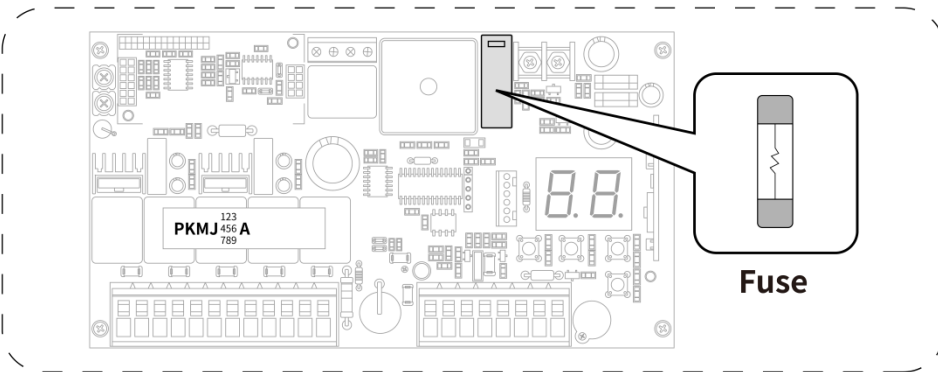


AT6JB/ AT12JB Gate Opener Arm

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

Gate Opener Status Trouble Shooting

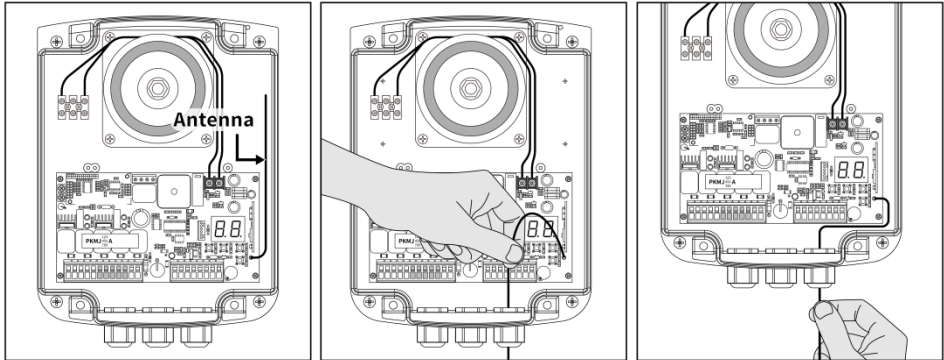
If your gate opener does not function properly after installation, please follow the steps below before contacting us for assistance. This guide provides common trouble shooting steps to help resolve issues efficiently. For further assistance, please feel free to contact us through our website at www.topens.com.

Symptom	Possible Solution(s)
Gate opener does not run Digital Display indicator is not on	Step 1 Check Power Connection: Check if the power is on. Use a voltmeter to measure the input voltage at the terminal, it should match local AC power specifications. If the voltage reads 0V, the power cable may be damaged and should be inspected or replaced. Step 2 Check Transformer Output Voltage: Measure the transformer's output voltage, which should be 24Volts AC. If the voltage reads 0V, the transformer might be overheated or damaged. Turn off the power and allow the transformer to cool for several minutes, then reset the system. If the issue persists, replace the transformer. Step 3 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 $\varnothing 5 \times 20\text{mm}$ 10A 250VAC fast blow glass fuse. 
Gate stops immediately after it starts moving	Step 1 Check for Obstruction: An obstruction has been detected. Inspect all safety devices and the gate itself for any objects or blockages. Step 2 Adjust Stall Force: If the stall force is set too low, adjust it as instructed in the Setting of the Control Board section in this manual. After making adjustments, test the gate to ensure it completes a full open and close cycle without stopping. The stall force may need additional adjustment in cold weather, as the gate might encounter increased resistance. Step 3 Check the Max Motor Running Time: Verify if the max motor running time is set too short. If so, adjust it as instructed in the Setting of the Control Board section in this manual.

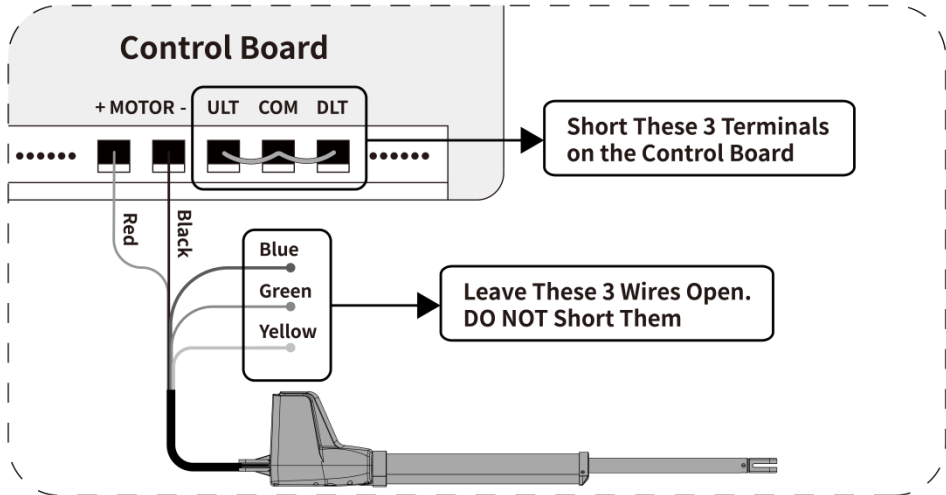
Gate Opener Status Trouble Shooting

Symptom	Possible Solution(s)
Gate opens, closes or stops on its own	Step 1 Check Gate Opener Arm Wire Connection: Ensure the wire connections of the gate opener arms follow the installation instructions for either “PULL TO OPEN” or “PUSH TO OPEN” as detailed in the Connect the Arm to the Control Board section in this manual. Step 2 Isolate the Issue with Wired Accessories: Disconnect all wired accessories from the control board. Disable the photocell sensor function as instructed in the Setting of the Control Board section in this manual. 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 controls 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.
Gate opens randomly	Step 1 Check Gate Opener Arm Wire Connection: Ensure the wire connections of the gate opener arms follow the installation instructions for either “PULL TO OPEN” or “PUSH TO OPEN” as detailed in the Connect the Arm to the Control Board section in this manual. Step 2 Isolate the Issue with Wired Accessories: Disconnect all wired accessories from the control board. Disable the photocell sensor function as instructed in the Setting of the Control Board section in this manual. 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 controls 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.

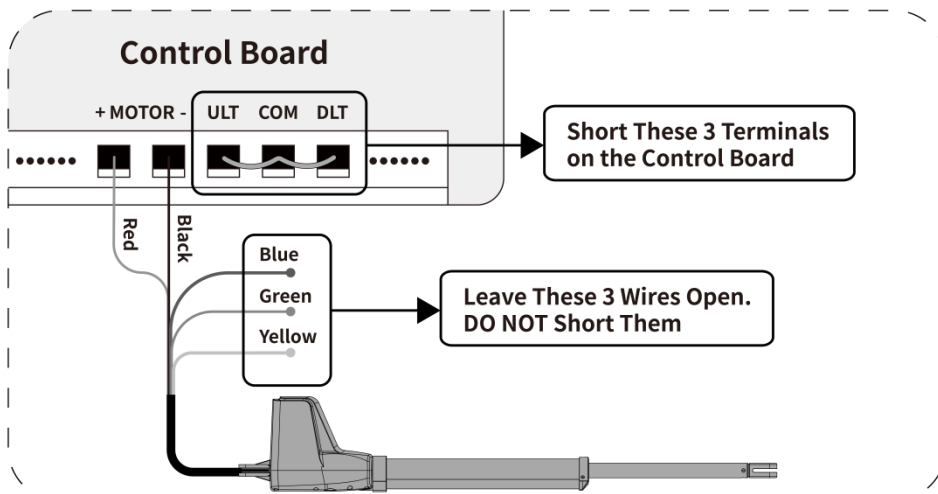
Gate Opener Status Trouble Shooting

Symptom	Possible Solution(s)
Remote control range less than 20m (65ft.)	Step 1 Adjust the Position and Direction of the Antenna: Open the control box and locate the black antenna at the bottom right 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 ignores the limit switches	Step 1 Check the Limit Switch Wire Connection: Ensure that the wires of the limit switch (BLUE, GREEN, and YELLOW wires of the arm) are not shorted. Confirm that each wire is properly inserted into its corresponding terminal and is not twisted with any other wire. Step 2 Rotate the Front Mount of the Arm: Manually rotate the front mount of the arm by 180°, then operate the gate to see if the issue is resolved. Step 3 Replace the Limit Switch: If none of the above steps resolve the issue, the limit switch in the arm may be faulty. Replace it with a new limit switch.

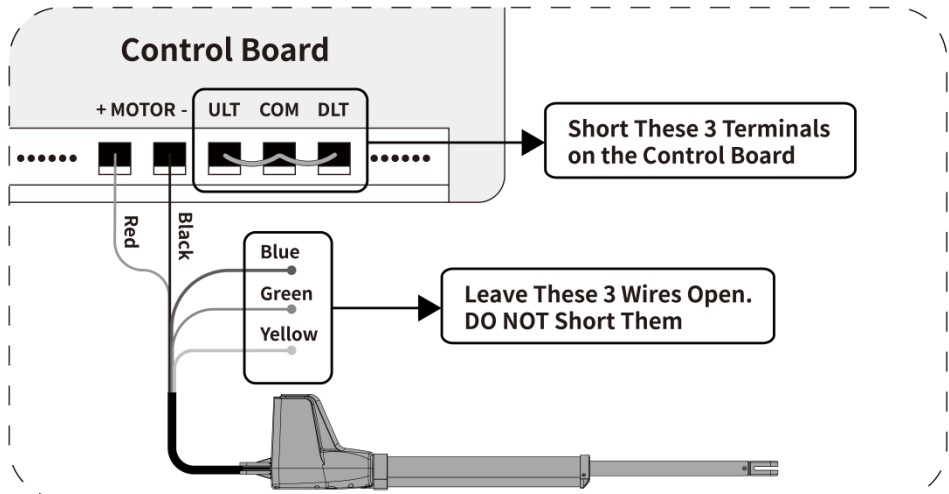
Gate Opener Status Trouble Shooting

Symptom	Possible Solution(s)
Both gates open but do not close	Step 1 Check the Safety Photocell Beam System (PBS) Function: If the PBS function is enabled in the control board setting but no photocell sensor is installed, please disable the PBS function as instructed in the Setting of the Control Board section in this manual. Step 2 Check Close Photocell Sensor: Inspect the area around the close photocell sensor for any obstructions that may be blocking it. Check the sensor's alignment and verify that all connections and safety devices are properly installed and functioning. Step 3 Check the Limit Switch: Remove the BLUE, GREEN, and YELLOW wires of the arm from the control board and use a jumper wire to short the ULT, COM, and DLT terminals on the control board where the three wires were connected. Then, try operating the gate again. If the arm runs normally, the limit switch is faulty. 

Gate Opener Status Trouble Shooting

Symptom	Possible Solution(s)
One gate runs normally but the other one does not move	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 two 12VDC batteries in series to achieve 24VDC. Connect the BLACK wire of the faulty arm to the battery positive pole and the RED wire of the arm to the negative pole 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: 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

Symptom	Possible Solution(s)
Gate opener powers up but does not run	Step 1 Check Gate Opener Arm Wire Connection: Inspect the gate opener arm connection cable to ensure it is not loose. Verify that all wires from the arm are securely connected to the control board terminals. Step 2 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 3 Isolate the Issue with Wired Accessories: Disconnect all wired accessories from the control board and try to operate the gate opener. Disable the PBS function as instructed in the Setting of the Control Board section in this manual. 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 4. Step 4 Check the Limit Switch: Disconnect the BLUE, GREEN, and YELLOW wires of the gate open 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.  Step 5 Short the "O/S/C" Terminals: Use pliers or an electric wire to short the "O/S/C" terminals on the control board. If the gate can open and close but cannot be operated with the remote, try using other remotes. If none of the remotes can operate the gate opener, the control board may be faulty. Replace the control board with a new one.



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ATTESTATION OF CONFORMITY

Applicant Hangzhou Sanford Technology Co., Ltd.
2853 Yuhangtang Rd., Building 1 Room 1203, Hangzhou, 311121, China

Product Designation Swing Gate Opener

Brand Name /

Model / Series Models LM1202,LM601,LM602,LM1201,AT602,AT1202,AT601,AT1201

Manufacturer Zhejiang Sanford Intelligent Gate Control System Co., Ltd.
889 Huanchengbei Rd., Building 40, Deqing County, Huzhou, 313205, China

Requirement	Applied Standards	Document Evidence	Result
EMC Directive	EN IEC 55014-1:2021 EN IEC 55014-2:2021 EN IEC 61000-3-2:2019+A1:2021 EN 61000-3-3:2013+A2:2021+AC:2022-01	Test Report: MRT24050804EE01	Conform



Signed by Manager(Vincent Yao)

Issue Date: June 26, 2024



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Note: This attestation is part of the full test report(s) and should be used in conjunction with it.

Version: 1.0

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889 Huanchengbei Rd., Building 40, Deqing County, Huzhou, 313205, China

Requirement	Applied Standards	Document Evidence	Result
LVD Directive	EN 60335-2-103:2015 & EN60335-1:2012+A11:2014+A13:2017+ A1:2019+A2:2019+A14:2019+A15:2021	Test Report: MRT24050804ES01	Conform



Signed by Manager(Vincent Yao)

Issue Date: June 26, 2024



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Signed by Manager (Vincent Yao)
Issue Date: June 26, 2024



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Manufacturer Zhejiang Sanford Intelligent Gate Control System Co., Ltd.
889 Huanchengbei Rd., Building 40, Deqing County, Huzhou, 313205, China

Requirement	Applied Standards	Document Evidence	Result
/	BS EN 60335-2-103:2015 & BS EN 60335-1:2012+A11:2014+A13:2017 +A1:2019+A2:2019+A14:2019+A15:2021	Test Report: MRT24050804BS02	Conform



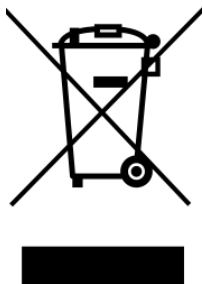
Signed by Manager (Vincent Yao)
Issue Date: 2024-6-18



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According to Waste of Electrical and Electronic Equipment (WEEE) directive, WEEE should be separately collected and treated. If at any time in future you need to dispose of this product, please do NOT dispose of this product with household waste. Please send this product to WEEE collecting points where available.

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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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E-mail: support@topens.com

***Kindly include your purchase channel, order #, gate information, issue description
and your contact information. All your concerns will be replied within 24 hours.***

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