

USER DRIVEN MANUAL*

Any feedback, changes, or advice we are glad to hear it. Please contact us at support@estateswing.com

—WARNING—

Read all instructions before beginning installation or use of this gate opener. This operator exerts a high level of force. Exercise caution at all times and stay clear of the system during operation.

Estate SWING

EstateSwing.com



Solar Option
Large Steel Control Box Included

E-S 1000H Series

INSTRUCTION MANUAL

**Estate Swing's unique user driven manuals are constantly updated by installers and homeowners like yourself. We improve by hearing and applying your feedback.*

Estate Swing Summary of Functions

The Estate Swing is only to be used for vehicular swing gates in a Class I setting.

Class I: A vehicular gate opener (or system) intended for use in a home of one-to-four single family dwelling, or a garage or parking area associated therewith.

The Estate Swing automated system was designed and built for controlling vehicle access. Do not use for any other purpose.

The external automation with an electromechanical non-reversing linear arm automates residential dual swing-leaf gates with leaves of up to 12' in length per leaf. It consists of an irreversible electromechanical operator with built in opening and closing limits and utilizes a worm screw system. The irreversible system ensures the gate is mechanical locked when the motor is not operating. A lock still needs to be installed if security or high winds are a concern. Removal of the gate slide pin will manually allow the gate to be opened.

For Your Assistance

Keep this manual safely stored after installation

Serial Number _____

Date of Purchase _____

Place of Purchase _____

Have this information on hand while handling all service and warranty issues.

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Section 1:

Review of Specifications, Warnings,
and Tools

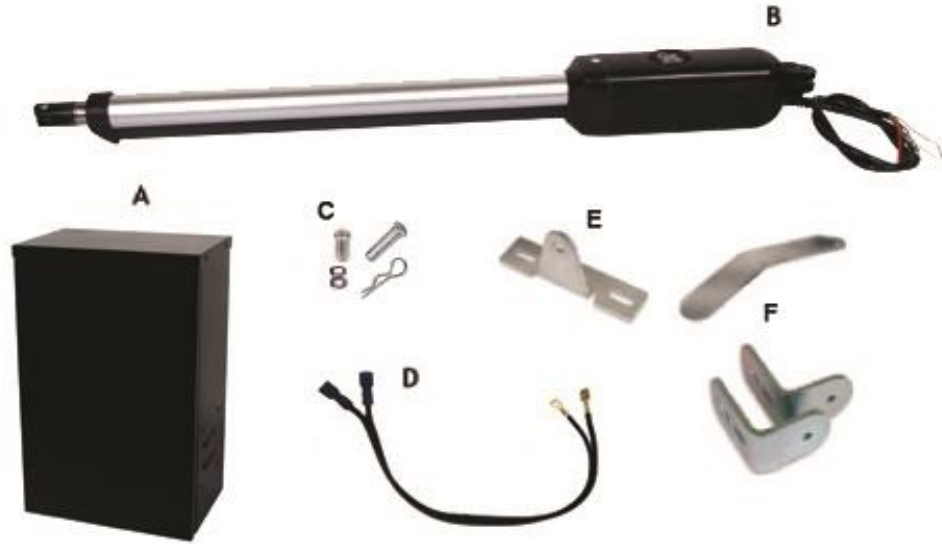
Specifications

Model	Estate Swing E-S 1000H
Power Supply	12V DC, 35Ah Battery (or higher)
Current (A)	3
Travel (in.)	20
Cycles per hour	50% Duty Cycle / Aprox. 35
Operating Ambient Temp	0 to 110 F
Protection Class	IP44
Gate leaf max length (ft.)	Up to 16
Gate leaf max weight (lbs.)	Up to 1000
Operator Type	Screw Drive
Operator Weight	18 lbs.

Gate Weight / Length Ratio	6'	8'	10'	12'	14'	16'
100 lbs	X	X	X	X	X	X
250 lbs	X	X	X	X	X	X
400 lbs	X	X	X	X		
650 lbs	X	X	X			
800 lbs	X	X				
1000 lbs	X					

The above chart represents the maximum weight and length combinations that this gate opener can handle. The lengths and weights are either for a single gate or for a single leaf of a dual gate.

Estate Swing Parts List



Master or Single Operator

- A. Control Box with Control Board and Receiver
- B. Operator Arm with 42" of Wire
- C. Connector Pins and Clips
- D. Wire Harness
- E. Gate Mounting Bracket
- F. Post Mounting Brackets

Not Shown:

- Transmitter/Receiver Pack
- Mounting Hardware
- 1 - 3/8"x1 3/8" Hex bolts, washer, nut
- 1 - 5/16"x 1 3/8" Hex bolt, washer, nut
- 2 - 3/8"x 2" Carriage bolt, washers, nut
- 1 - 1/4" x 2" Hex bolt, washers, nut

Slave Operator (if applicable)

- A. N/A
- B. Operator Arm with 42" of Wire
- C. Connector Pins and Clips
- D. N/A
- E. Gate Mounting Bracket
- F. Post Mounting Brackets

Not Shown:

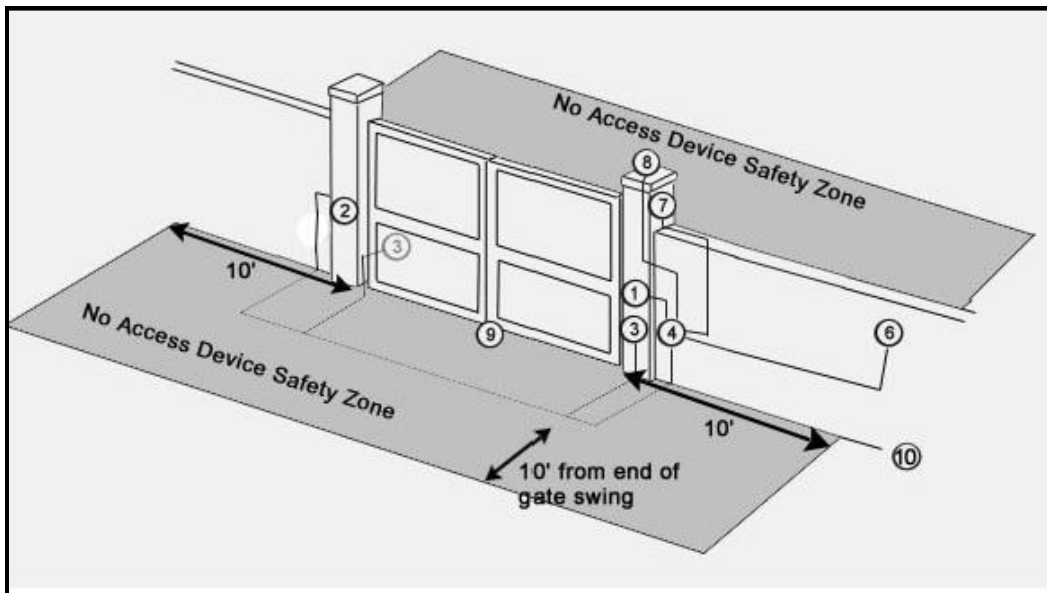
- Additional Wire
- Mounting Hardware
- 1 - 3/8"x1 3/8" Hex bolts, washer, nut
- 1 - 5/16"x 1 3/8" Hex bolt, washer, nut
- 2 - 3/8"x 2" Carriage bolt, washers, nut
- 1 - 1/4" x 2" Hex bolt, washers, nut

Battery Not Included

Standard System Overview and Safety Zones

The system displayed below is a recommended standard system. Other approved accessories can be installed. Photo sensors and a flashing light indicating gate movement is recommended for safety purposes.

1,2 Estate Swing Operator • 3 Photocells (not included) • 4 Control board • 5 N/A • 6 Push button opening device (not included) • 7 Receiver extension (not included) • 8 12Vdc flashing lamp (not included) • 9 Positive stop (not included) • 10 Charging Control



Notes:

- 1) When laying electrical cables, use appropriate rigid and/or flexible tube
- 2) Do not run any wires in the same conduit as 110 AC power that may be in the area. This will cause danger of electrocution.

Important: Preliminary Checks

To ensure safety and an efficiently operating automated system, make sure the following conditions are observed.

- The gate and post must be suitable for being automated. Check that the structure is sufficiently strong and rigid, and its dimensions and weights conform to those indicated on page 1.
- Make sure the gates move smoothly without any irregular friction during entire travel.
- Make sure the hinges are in good condition. Ball bearing hinges are necessary for gates weighing over 200 lbs. or over 10' in length.
- Make sure the gate is plumb and level.
- The gate post must be secured in the ground with concrete. This will prevent alteration of alignments and leveling during installation and during cycles.

Tools Needed for Installation



- Power Drill
- Crescent Wrench
- Flat Head Screwdriver
- Hacksaw/Sawzall
- Phillips Head Screwdriver
- Small Flathead Screwdriver
- C-Ring Pliers
- Tape Measure
- Level
- Wire Strippers
- C-clamps
- 3/8", 1/4", 5/16" Drill Bits

***For Dual Gate Openers you will also need: Junction Box & Bus Connector**

Other items may be needed prior to commencing installation. Bolded items are necessary to all applications.

- **12V, 35Ah or higher deep cycle marine battery.**
- Positive post, bracket or door stop. Although the Estate Swing 1000 features built in limit switches it is highly recommended to have positive stops.
- **16 gauge, 2 conductor stranded direct burial low voltage wire** will be required to run power to your battery. Length is determined by distance between transformer or solar power supply and the control box.
- **4 - 3/8" Carriage Bolts** will be needed to connect the **2 "L" shaped brackets** to the post. Length will be determined by the size of your posts.
- A metal support bracket may be needed to achieve the appropriate desired setback. The metal support bracket will be bolted or welded to your post to give a larger amount of space to mount the provided mounting bracket.
- A voltage meter and digital camera may be necessary to run diagnostic checks.
- If your transformer is going to be plugged into an outdoor outlet you will need to weatherproof that outlet and transformer. **Electrical boxes or plug covers** can be obtained from a local hardware store to accommodate both the plug and transformer.
- Hardware to attach the control box to a post or fence.
- Wire strain reliefs for running wires into control box.



Protect all ongoing and outgoing wires with a surge suppressor.
Consult your local dealer for more information.

Section 2:

Installation of Mounting Brackets

Manual Operation

To Manually Open & Close Gate:

- 1) Remove the pin as seen to the right.
- 2) Swing motor off of the gate bracket.
- 3) Swing gate and opener out of the way of vehicle and then reclose gate and re-attach arm.



To Manually Change Position of Piston:

- 1) Remove pin as seen below.



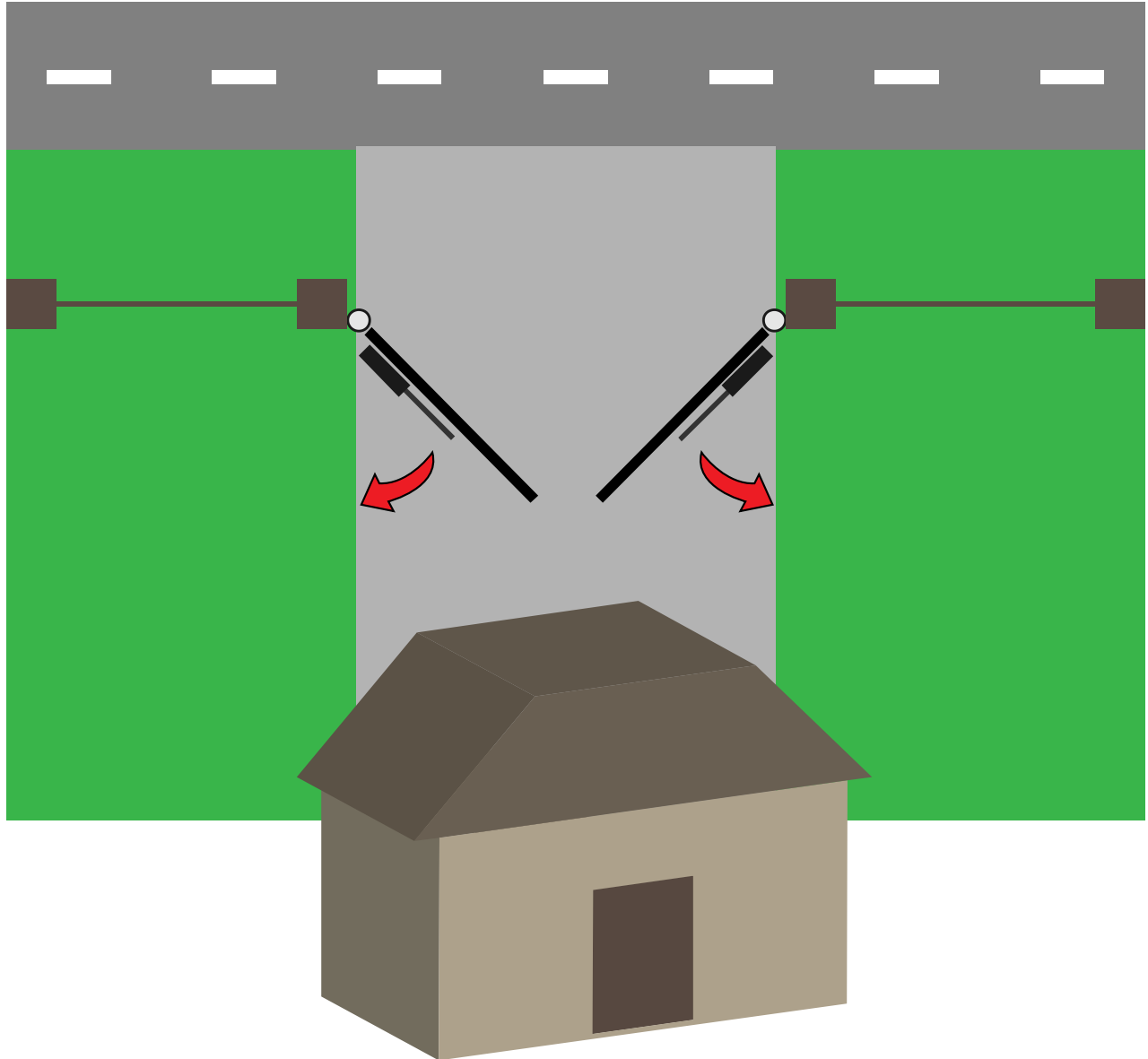
- 2) The shaft can now be turned to open and close manually.



- 3) Replace pin to exit manual operation.

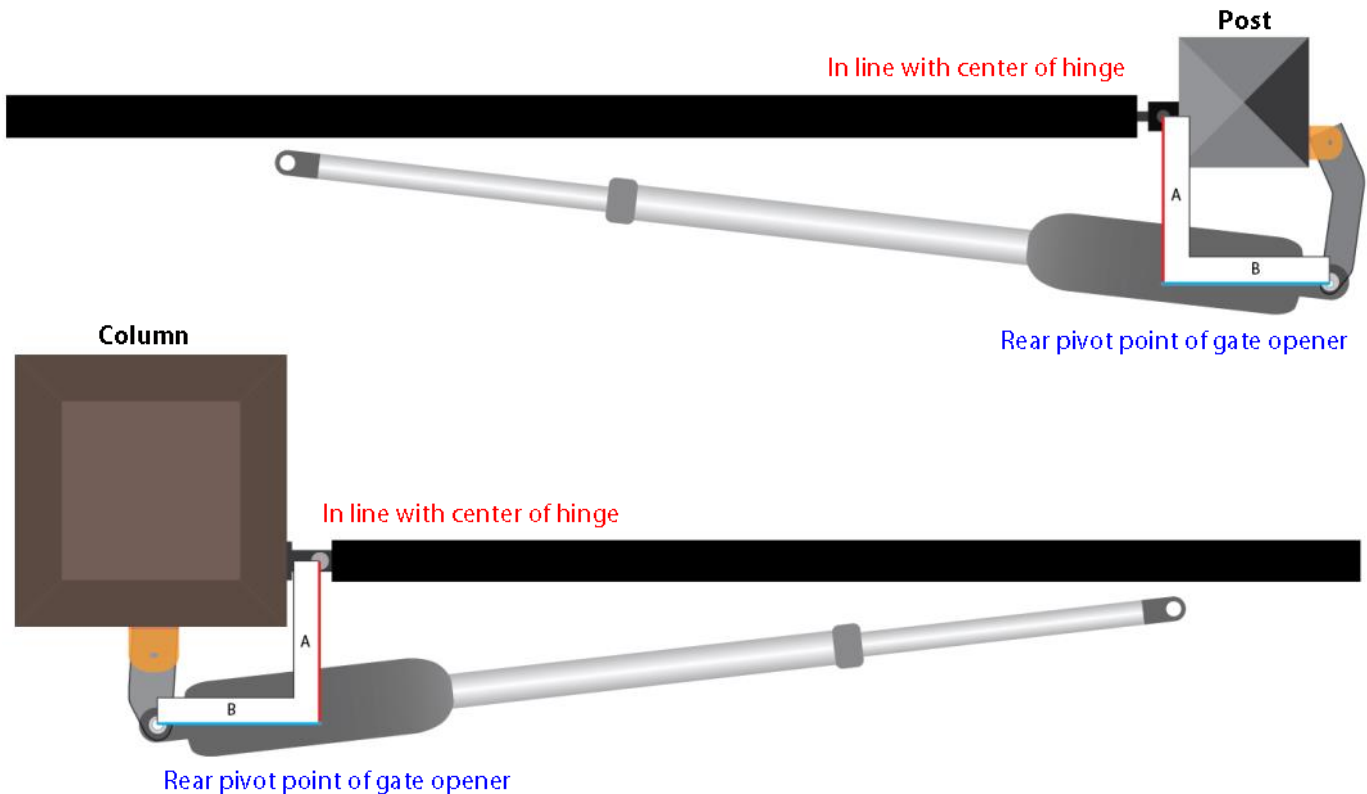
IMPORTANT: Pull to Open Operation

This means the gate operator is mounted on the inside of the property and pulls your gate in towards the property. **If you are going to use push to open operation “X” out the next 3 pages and use the push to open section instructions.**



IMPORTANT: Determining Correct Setback

Below are 2 common examples of setback mountings. These are not the only options for mounting.



There are 4 factors to keep in mind when finding the setback mounting:

- 1) The (A) measurement is perpendicular from the gate in the CLOSED position.
- 2) There must be clearance for your gate opener to attach to the gate in the closed position. This is most commonly an issue on columns. Re-positioning of the hinges or Push-To-Open operation may be required to achieve clearance.
- 3) The brackets do not and must not move after installation.
- 4) The "L" shape brackets can be mounted anywhere on the post or column. They can be mounted on a separate post or fence as well. The only factor of importance is that when mounting of the brackets is done the hole in the boomerang bracket that the gate opener mounts on matches the setback on this page.

It is best to C-Clamp brackets on and test arm movement clearance before permanently attaching them.

Variations to the ideal setback can be made, so long as the total is less than the combined measurements for the desired opening arc and the motor body is more than 2 inches away from the gate in both the open and closed position. (setback variations significantly reduces the length and weight capacity of the operator)

Use one of the rows to the right:

A	B	Sum	α
6"	8½"	14	110°
7 ½"	9"	16 ½	100°
9 ½"	9 ½"	19	90°

To determine the position of the gate mounting bracket (above is for the post mounting bracket) refer to step 13 in the section "Installation of operator"

Installation of Operator—Pull-to-Open

1) Locate the set back template found in the box to determine the proper setback. Create a template out of the boomerang bracket by tracing it on a piece of cardboard.

2) Find the proper setback for your operator (from previous page). Hold the lower “L” shaped bracket along with the boomerang bracket template against the post near the hinge. [See Fig. 1]

Mark how much of the boomerang bracket you will trim off on the template. **The hole on the end of the boomerang bracket should be in the setback position.**

NOTE: The “L” shape brackets in our illustrations are on the opposite side of the post as the hinges. The “L” shape brackets in your situation may be on the rear face of the post, this will be determined by the relation of the setback to the hinge location of your gate.

3) Trim boomerang bracket template, then double check setback positioning. Using the template, mark the boomerang bracket for cutting. [See Fig. 2]

4) Cut off the excess length (if any) of the boomerang bracket using a sawzall or hack-saw.



CAUTION: Observe all safety precautions recommended by manufacturer of the cutting tool.

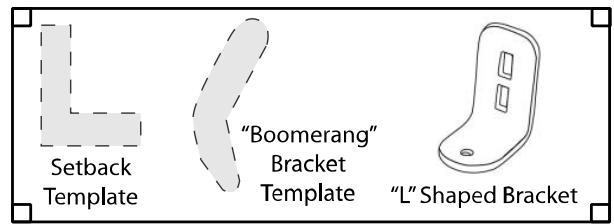


Fig 1

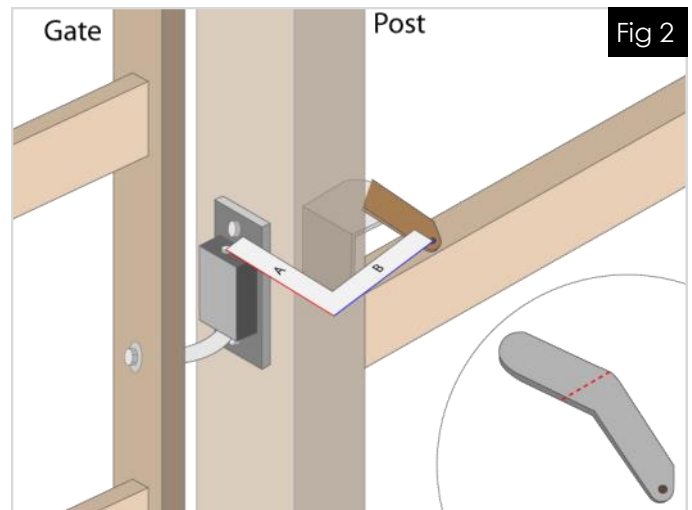
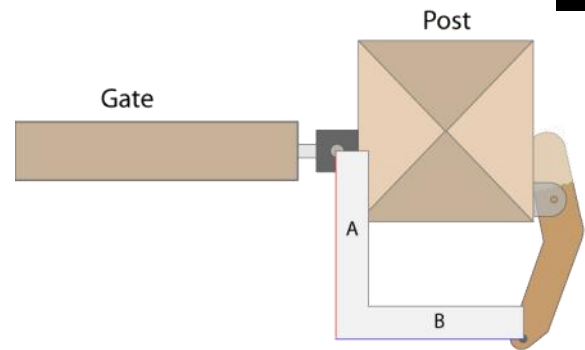
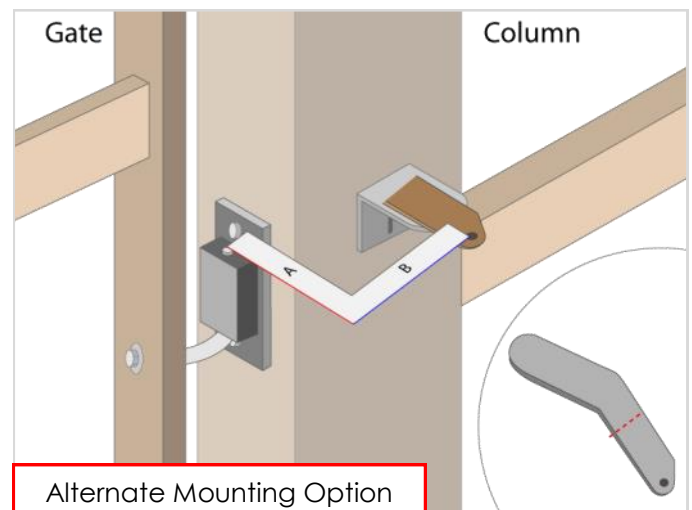


Fig 2



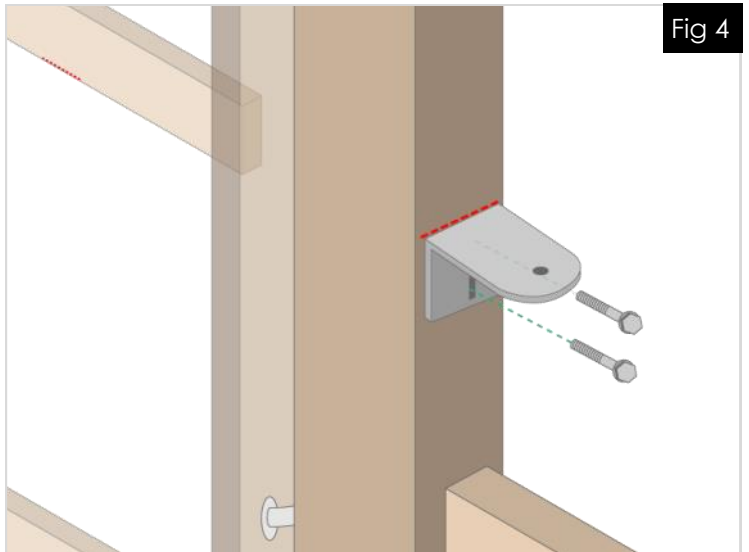
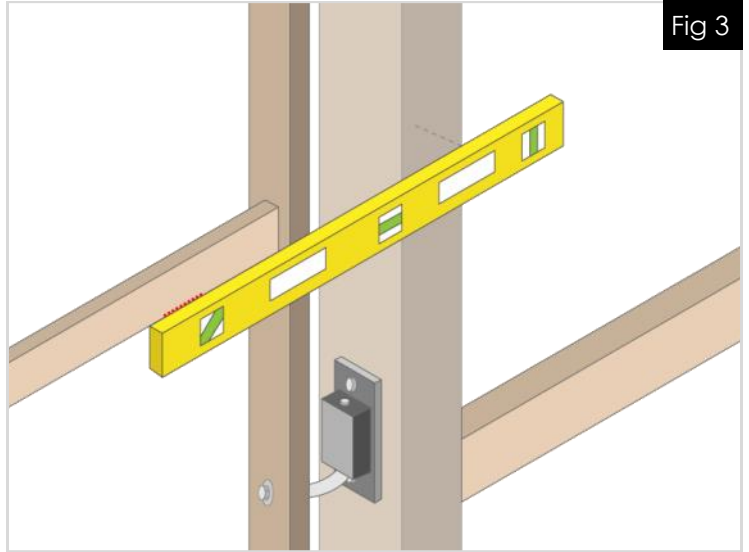
Alternate Mounting Option

Installation of Operator—Pull-to-Open

5) Utilizing a level, mark a line on the post that is level with the bottom of the horizontal cross member. [See Fig. 3]

6) Place the lower "L" shaped bracket so the top of the bracket is aligned with the mark on the post. Mark then drill and attach the bracket using 3/8" carriage bolts. [See Fig. 4]

Check "L" shaped bracket for levelness before putting in the second bolt.



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Installation of Operator—Pull-to-Open

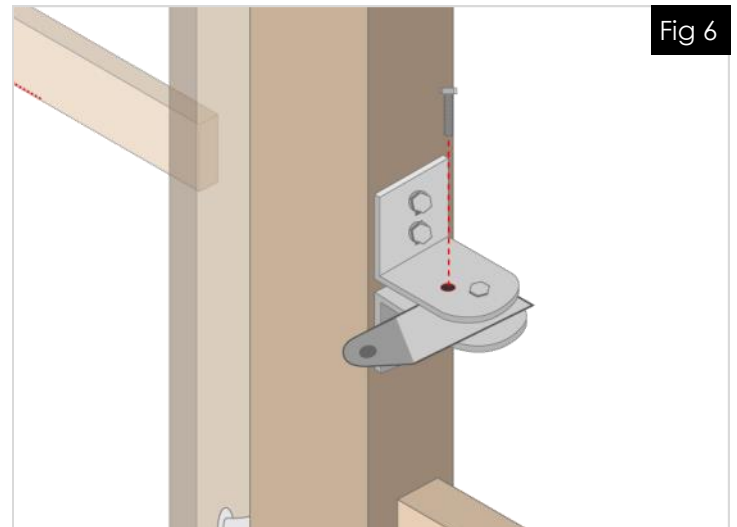
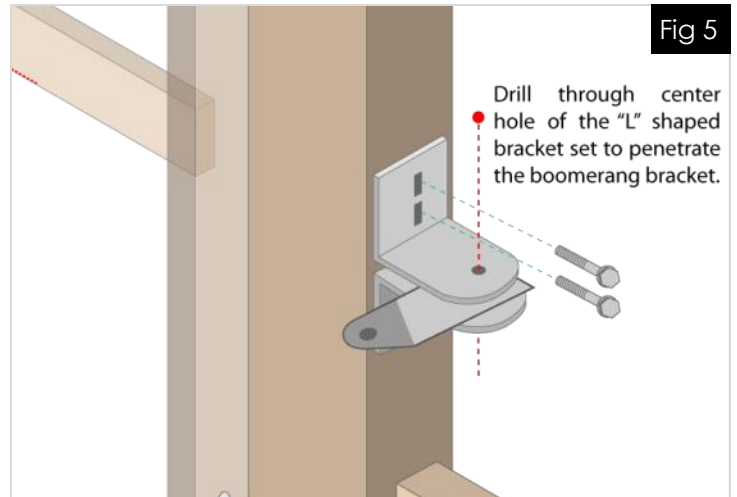
Before permanently attaching any brackets, be sure to test arm motion and clearance.

7) Place the upper “L” shaped bracket and the boomerang bracket on the lower “L” shaped bracket. **Position the brackets in the setback that is being used.**

8) With the 3 brackets clamped together, mark then drill the upper “L” shaped bracket in place and attach it using 3/8” carriage bolts. [See Fig. 5]

9) Drill through the center hole of the “L” shaped set to penetrate the boomerang bracket. **Double check the setback on the boomerang bracket.**

10) Drill the set hole through all 3 brackets using a 5/16” drill bit in an area behind the first hole. Secure the hole with a 5/16” bolt and the provided nuts and lock washers. [See Fig. 6]



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Installation of Operator—Pull-to-Open

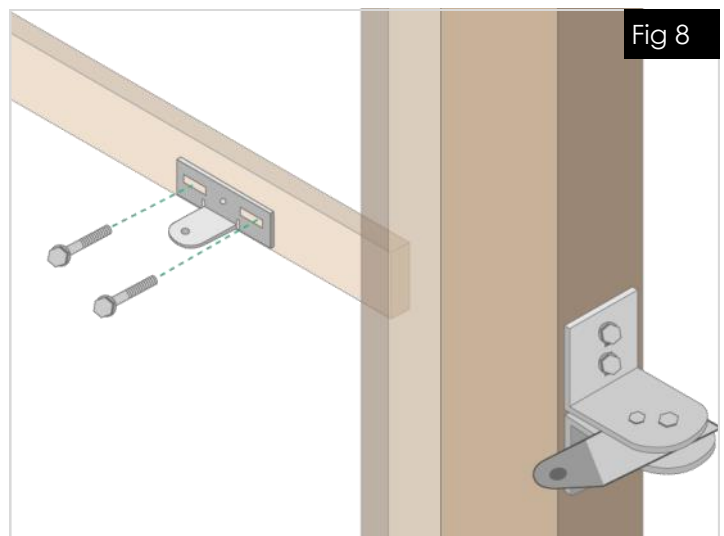
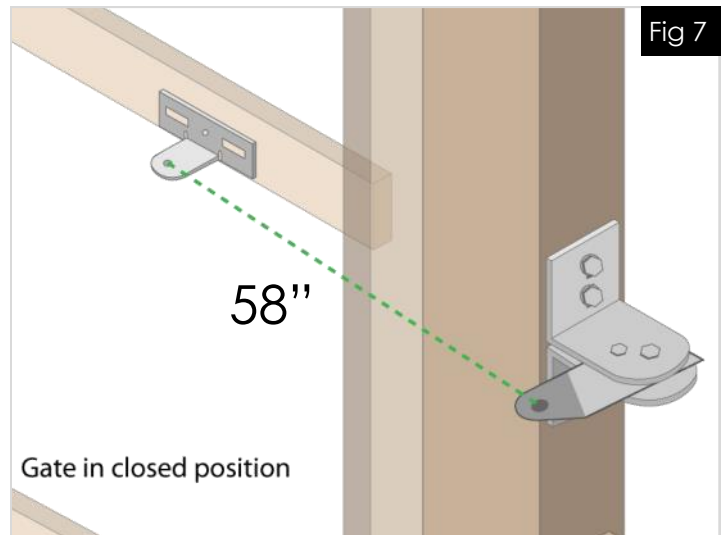
Before permanently attaching any brackets, be sure to test arm motion and clearance.

13) **WITH THE GATE IN THE CLOSED POSITION** measure 58" from the center of the hole on the boomerang bracket to the center of the hole on the gate bracket - this should be the position of the gate bracket on the closed gate. [See Fig. 7]

14) Additionally measure and mark the gate mounting bracket so that it is vertically centered on the horizontal bar.

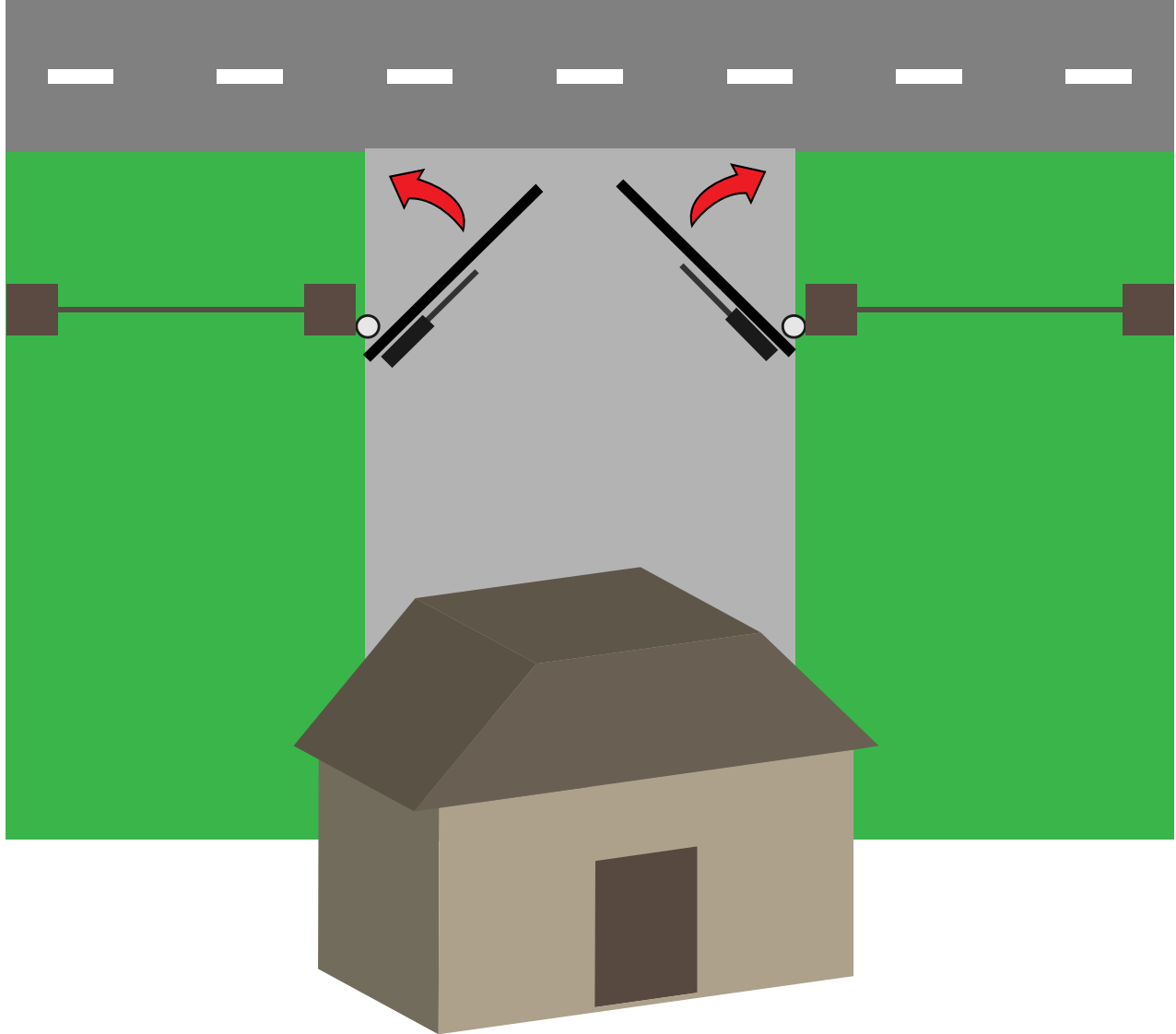
15) To ensure that the gate mounting bracket is leveled, secure one side of the bracket, check for levelness, and secure the other side with provided carriage bolts, nuts, and washers. [See Fig. 8]

Note: Secure the center hole of the gate bracket with a bolt.



IMPORTANT: Push to Open Operation

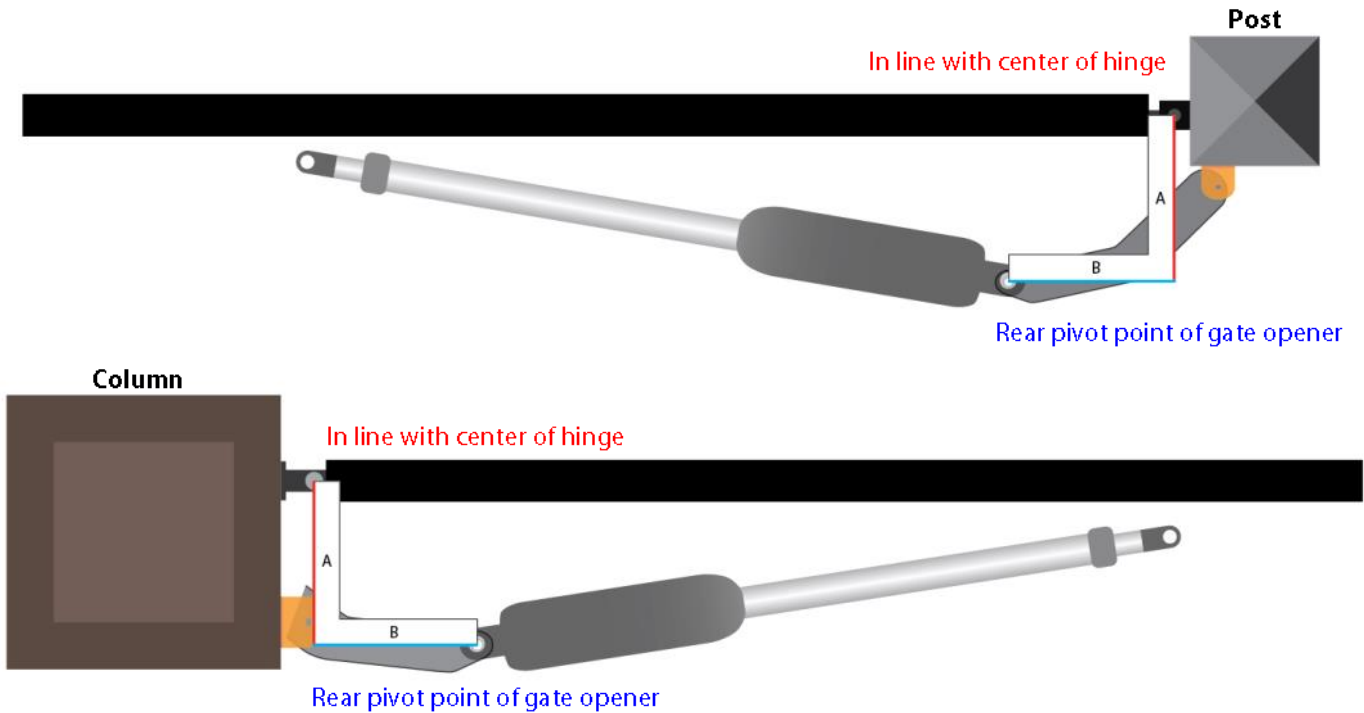
This operation is commonly used if your driveway slopes up after the gate, preventing it from swinging in. This means the gate operator is mounted on the inside of the property and pushes your gate out away from the property.



IMPORTANT: Determining Correct Setback

Below are 2 common examples of setback mountings.

These are not the only options for mounting.



There are 4 factors to keep in mind when finding the setback mounting:

- 1) The (A) measurement is perpendicular from the gate in the CLOSED position.
- 2) There must be clearance for your gate opener to attach to the gate in the closed position. This is most commonly an issue on columns. Re-positioning of the hinges or Push-To-Open operation may be required to achieve clearance.
- 3) The brackets do not and must not move after installation.
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It is best to C-Clamp brackets on and test arm movement clearance before permanently attaching them.

To determine the position of the gate mounting bracket (above is for the post mounting bracket) refer to step 13 in the section "Installation of operator - PTO"

Use one of the rows to the right:

A	B	Sum	α
6"	5 ½"	14	110°
7 ½"	9"	16 ½	100°
9 ½"	9 ½"	19	90°

Variations to the ideal setback can be made, so long as the total is less than the combined measurements for the desired opening arc and the motor body is more than 2 inches away from the gate in both the open and closed position. (variations significantly reduces the length and weight capacity of the operator)

Installation of Operator—Push-to-Open

1) Locate the set back template found in the box to determine the proper setback. Create a template out of the boomerang bracket by tracing it on a piece of cardboard.

2) Find the proper setback for your operator (from previous page). Hold the lower “L” shaped bracket along with the boomerang bracket template against the post near the hinge. [See Fig. 1]

Mark how much of the boomerang bracket you will trim off on the template. **The hole on the end of the boomerang bracket should be in the setback position.**

NOTE: The “L” shape brackets in our illustrations are on the rear side of the post. The “L” shape brackets in your situation may be on the same face of the post as your hinges, this will be determined by the relation of the setback to the hinge location of your gate.

3) Trim boomerang bracket template, then double check setback positioning. Using the template, mark the boomerang bracket for cutting. [See Fig. 2]

4) Cut off the excess length (if any) of the boomerang bracket using a sawzall or hack-saw.



CAUTION: Observe all safety precautions recommended by manufacturer of the cutting tool.

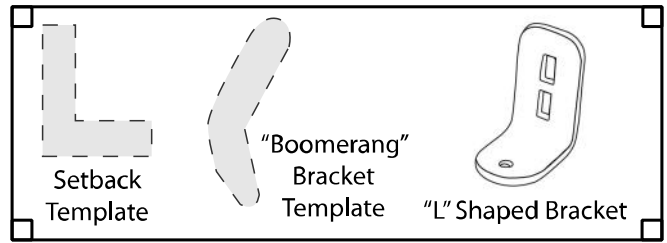
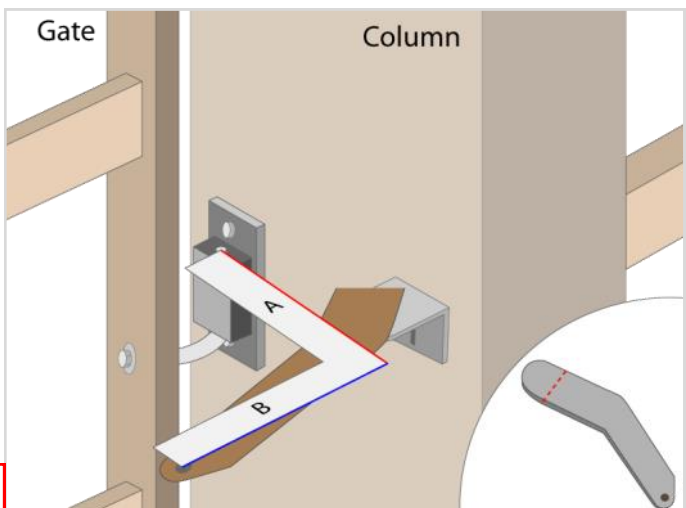
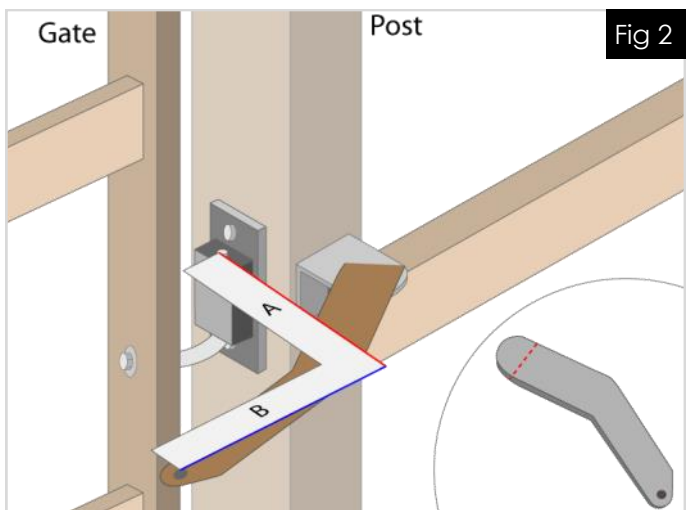
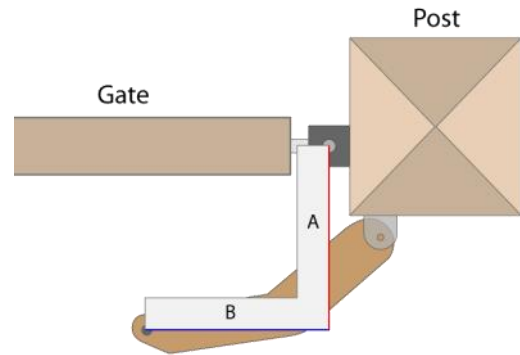


Fig 1



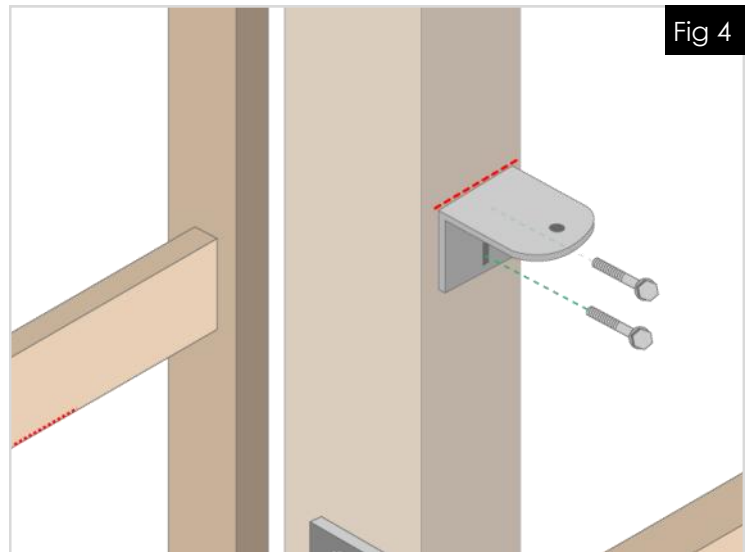
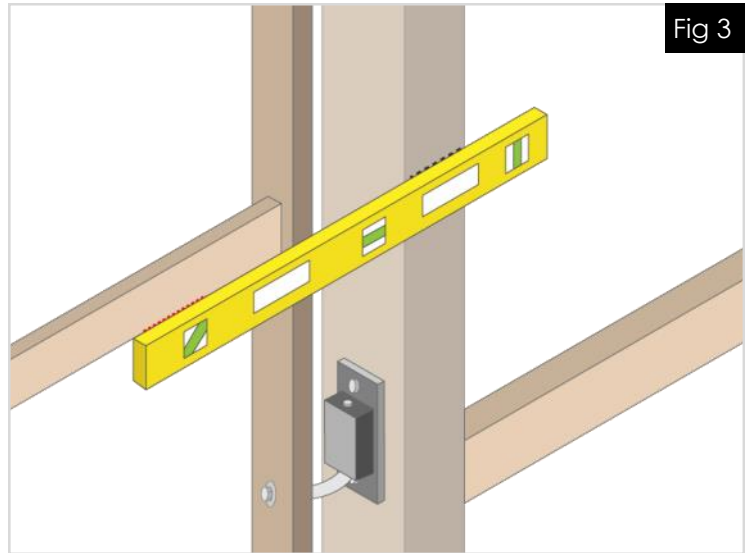
Alternate Mounting Option

Installation of Operator—Push-to-Open

5) Utilizing a level, mark a line on the post that is level with the bottom of the horizontal cross member. [See Fig. 3]

6) Place the lower “L” shaped bracket so the top of the bracket is aligned with the mark on the post. Mark then drill and attach the bracket using 3/8” carriage bolts. [See Fig. 4]

Check “L” shaped bracket for levelness before putting in the second bolt.



Continue on next page.

Installation of Operator—Push-to-Open

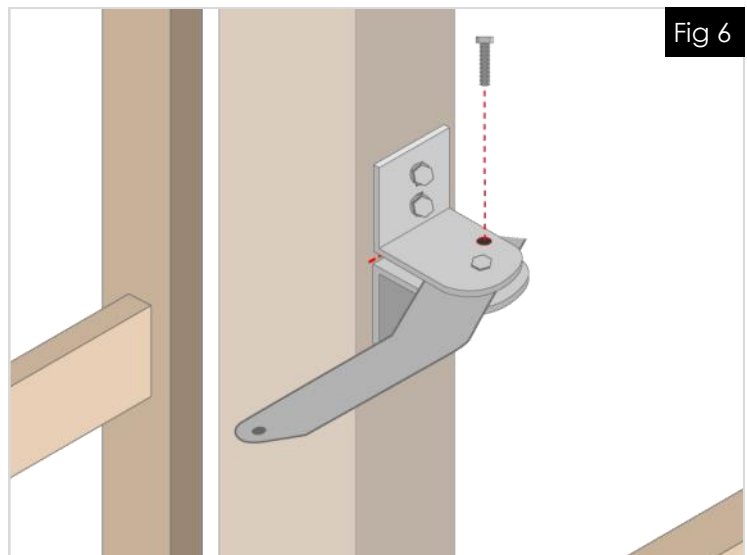
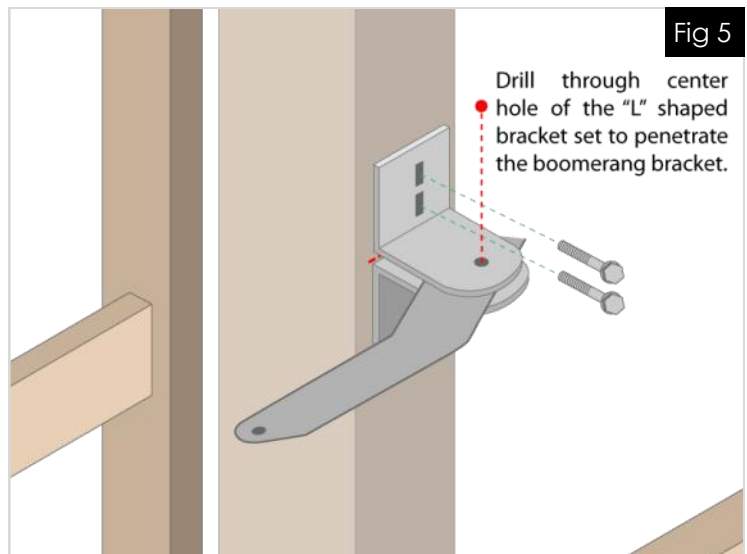
Before permanently attaching any brackets, be sure to test arm motion and clearance.

7) Place the upper “L” shaped bracket and the boomerang bracket on the lower “L” shaped bracket. **Position the brackets in the setback that is being used.**

8) With the 3 brackets clamped together, mark then drill the upper “L” shaped bracket in place and attach it using 3/8” carriage bolts. [See Fig. 5]

9) Drill through the center hole of the “L” shaped set to penetrate the boomerang bracket. **Double check the setback on the boomerang bracket.**

10) Drill the set hole through all 3 brackets using a 5/16” drill bit in an area behind the first hole. Secure the hole with a 5/16” bolt and the provided nuts and lock washers. [See Fig. 6]



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Installation of Operator—Push-to-Open

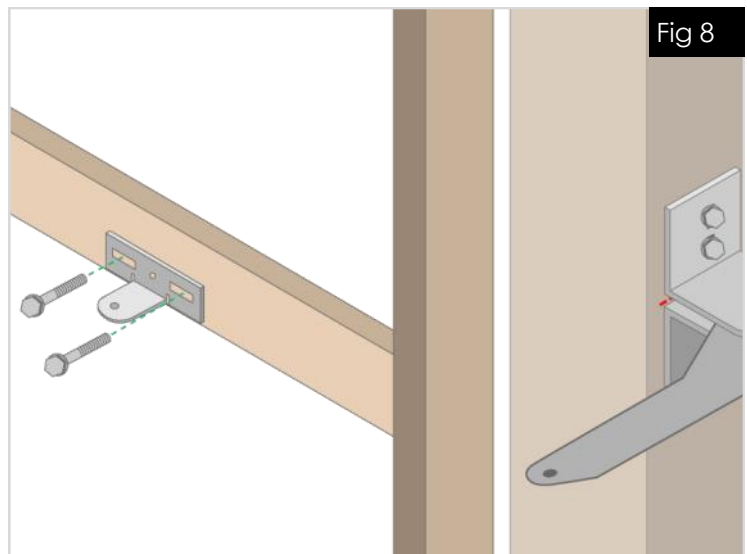
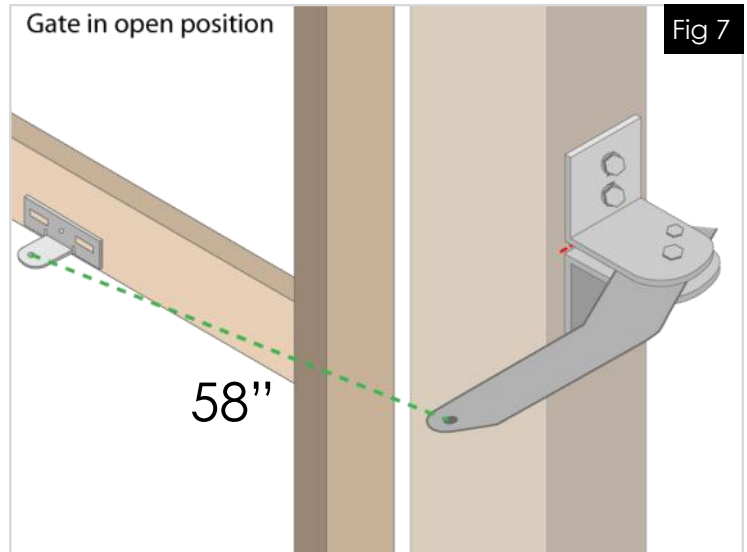
Before permanently attaching any brackets, be sure to test arm motion and clearance.

13) **WITH THE GATE IN THE OPEN POSITION** measure 58" from the center of the hole on the boomerang bracket to the center of the hole on the gate bracket - this should be the position of the gate bracket on the closed gate. [See Fig. 7]

14) Additionally measure and mark the gate mounting bracket so that it is vertically centered on the horizontal bar.

15) To ensure that the gate mounting bracket is leveled, secure one side of the bracket, check for levelness, and secure the other side with provided carriage bolts, nuts, and washers. [See Fig. 8]

Note: Secure the center hole of the gate bracket with a bolt.



Section 3:

Gate Operator Mounting, Wiring
Motors & Power

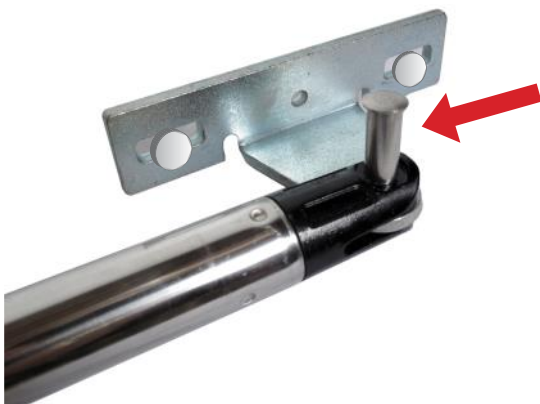
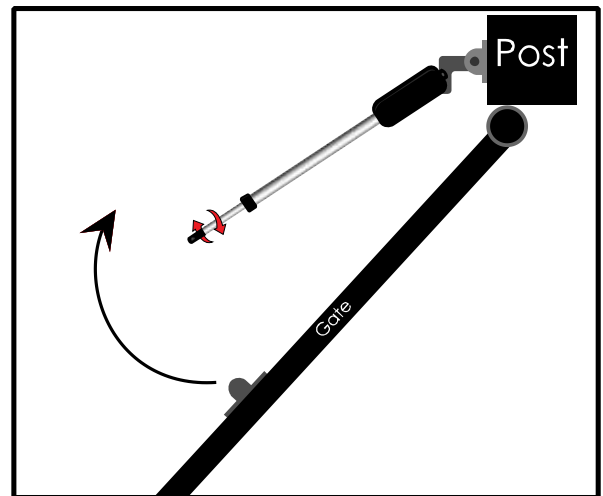
Mounting Gate Operator(s) & Finding Limits

1) Slide the rear of the gate operator into the boomerang bracket. Next, secure the operator onto the bracket with a connector pin.



2) Utilize the C-clip pliers in order to attach a C-clip on the bottom side of the connector pin.

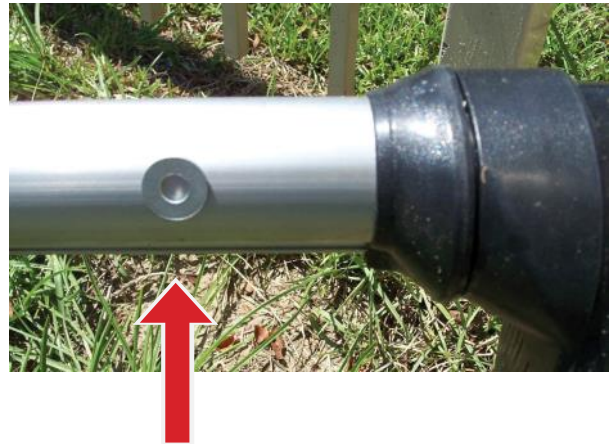
3) Move the gate along with the operator to the open position. **Manually turn** the piston until it fits the bracket that is mounted on the gate.



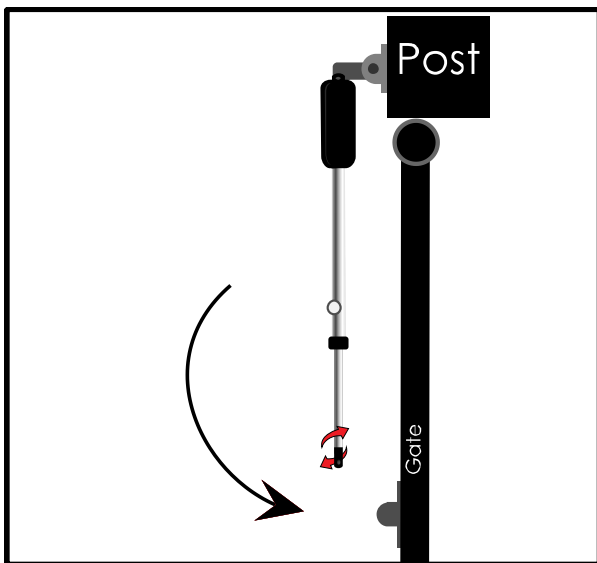
4) Temporarily secure the front of the arm with a clevis pin. You will be locating and setting the limits in the next page.

Mounting Gate Operator(s) & Finding Limits

5) Take a metal washer and drag it along the side of the gray shaft until it is attracted by the internal magnet. Move the closer limit switch on the bottom of the arm to line up with the washer.



Underneath the arm there are slides secured with Philip head screws. After loosening the screws, the switches will be able to slide. See picture of limits on page 4.2



6) To find the limit in the closed position, disengage the temporary pin, and manually turn the piston until it fits the gate in the desired closed position.

As you close the gate you can leave the washer on the side and it will move along with the magnet.

7) Move the other limit switch on the bottom to line up with the washer.

Once you set the limits, secure the front side of the gate operator with the clevis pin and the cotter pin.



Control Box & Running Wires

Control Box Mounting:

- The control box can be mounted on a post or fence line.
- If you have a dual operator set up, make sure it is located within 45' of the slave motor.
- Allow at least 3 feet of clearance off the ground.

Wiring:

- Protect incoming wires with strain reliefs (not included)

Dual Operation Junction Box:

You will need the following items for this installation:

- Second Junction Box
- Screws
- PVC Conduit

- 1) Set aside the junction box cover and screws.
- 2) Drill two holes in the bottom of the junction box large enough to fit the cables.
- 3) Mount the junction box within 5 feet of slave operator.

The junction box can be mounted on a post or a fence line. Allow at least 3 feet of clearance off the ground.

- 4) Insert operator cable and extension cable into the holes in the bottom of the junction box, and seal with caulk.

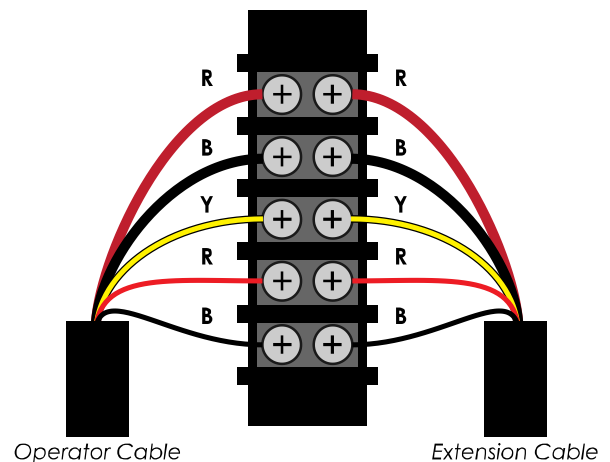
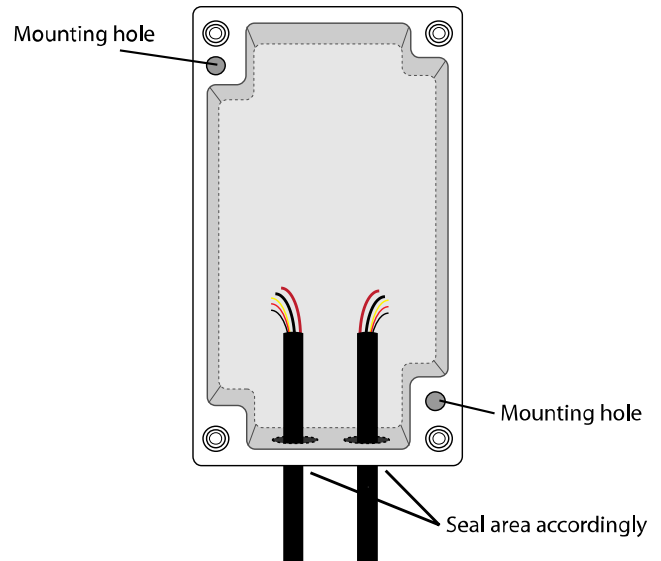
*You may also use a watertight connector and connector nut to secure the cables. Found at your local hardware store.

- 6) Insert wires from extension cable and operator cable into the terminal block connector as seen to the right.

- 7) The terminal block may be kept loose or fastened inside of the junction box.

- 8) Install and secure cover.

See next page for instructions on running wire under the driveway.



TIP: If junction box is located in a high moisture area, apply petroleum jelly on to the terminal block to protect from moisture.

Easy Wiring Under Driveway

This portion of the manual will explain how to create an easy conduit for the wires for dual gates.

This is what you would need to get started:

- Narrow shovel.
- $\frac{3}{4}$ ' water pipe no more than 5' in length (you would need a total number of pipes that would equal your driveway width plus 1').
- $\frac{3}{4}$ ' electric rigid pipe couplings (one for each joint in the water pipe).
- 1 $\frac{3}{4}$ ' "Tee"
- 1 $\frac{3}{4}$ ' Plug.
- 1 $\frac{3}{4}$ ' male galvanized pipe X female hose fitting (usually in Brass).
- Large hammer.

All the above items could be found in a local home supply store.

Dig a trench perpendicular to the driveway approximately 6 to 8 inches deep and 6' long

Hook up a typical garden hose assembled to the first length of pipe as shown

Turn on water and push the pipe under the driveway, matching the pitch of the driveway. If you hit a rock use the hammer to force the pipe past the rock.

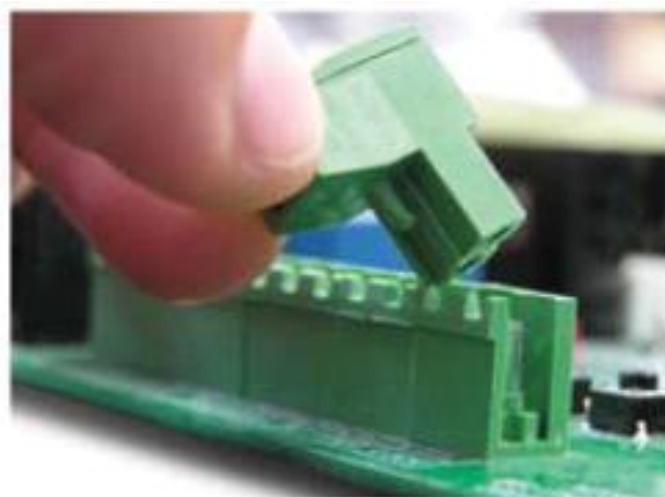
Attach additional pieces of pipe to the initial length by removing the tee and using the coupling to add the additional length of pipe, reassemble the tee and repeat the above steps until only 6 inches of pipe is sticking out from under the driveway. On the opposite side of the driveway look for a wet spot or water bubbling up, dig to find the end of the pipe.



This process is good for driveways up to 24' in width.

For Your Convenience

The green terminal strips on the control board are easily removed for wiring. Simply pull straight out on the terminal strip to remove it from the board. It will slide right off. Slide it back on when you are finished with your wiring connections.



Be sure you are placing your wires in the terminal block correctly.

Take the terminal block off of the control board to insert wires. Hold with screw terminals facing upward.

Turn the screw counter-clockwise to open the terminal and clockwise to close the terminal.

The terminals come closed. Be sure not to mistake this for open and insert the wires below the terminal clamp. This will lack the conductivity to complete the circuit.

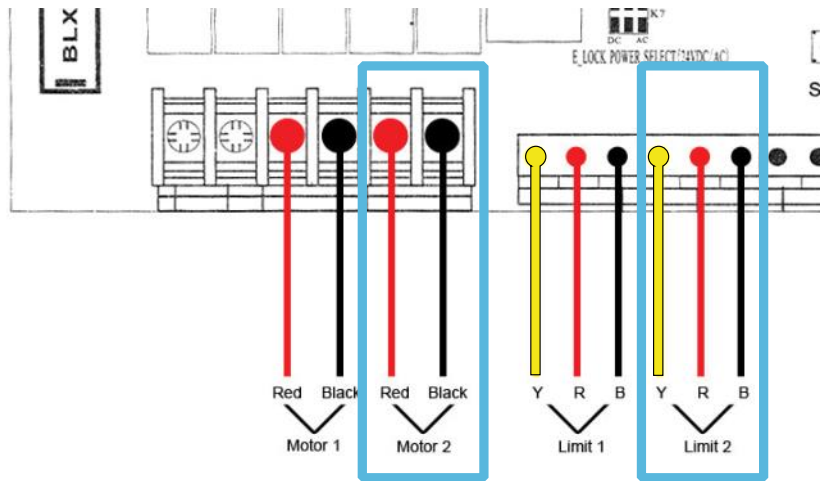


Wiring the Operator Arm(s)

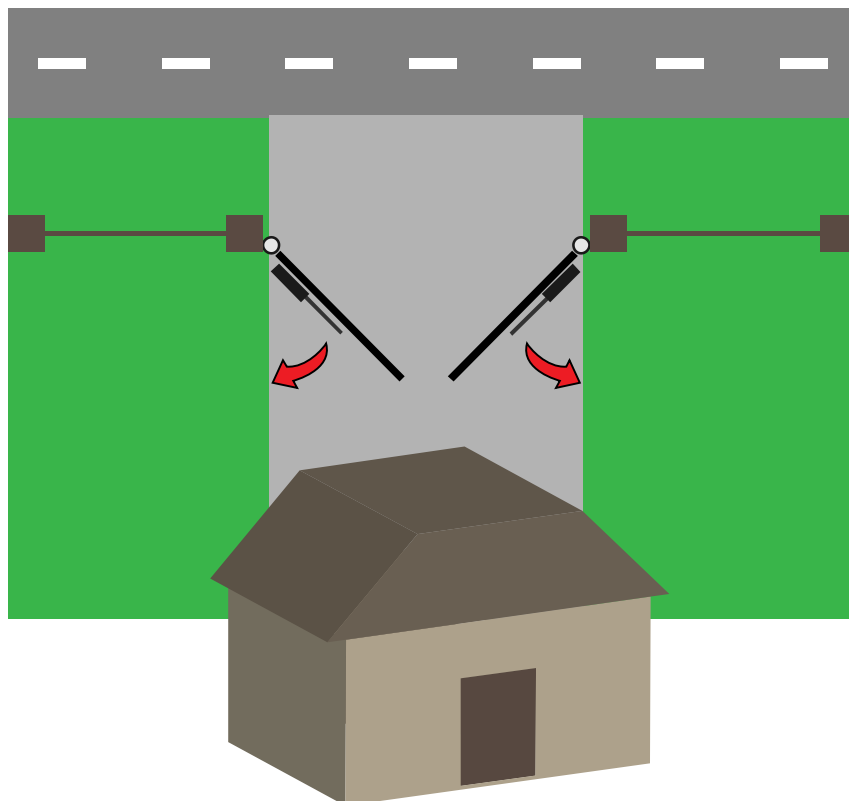
For a dual gate use the provided wire to connect the secondary motor to the control board.

Pull to Open

(Opening out towards property)



It is important to choose the correct type operation type

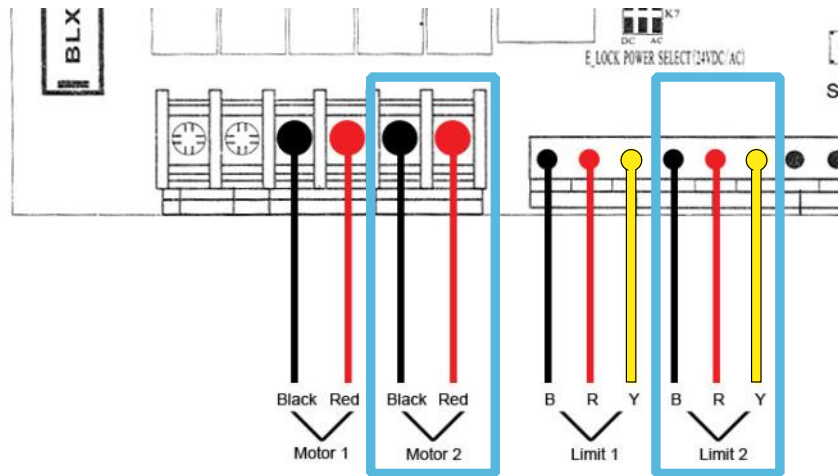


Wiring the Operator Arm(s)

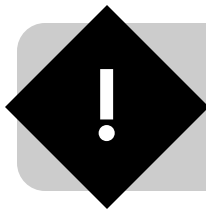
For a dual gate use the provided wire to connect the secondary motor to the control board.

Push to Open

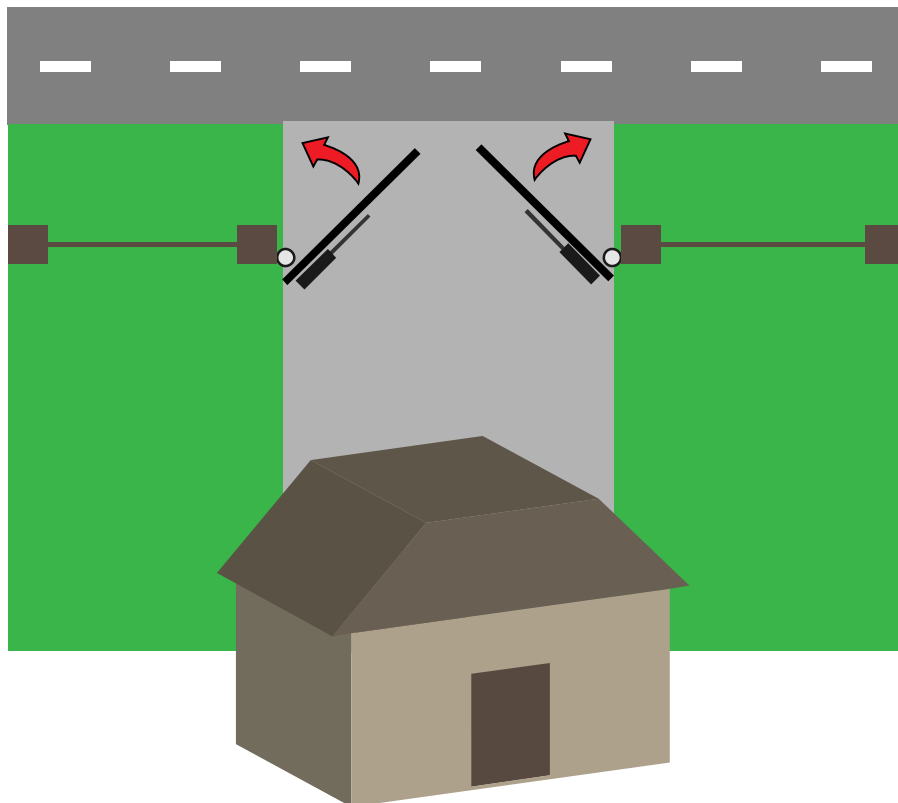
(Opening out towards the street)



If second arm is purchased



It is important to choose the correct type operation type

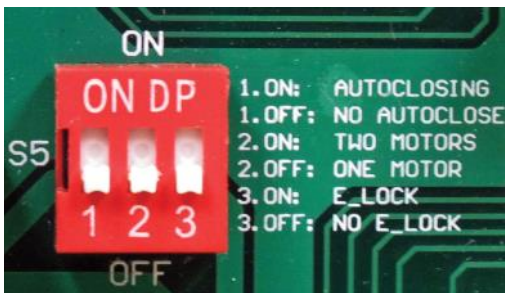


Temporary Safety Jumpers & Dip Switch Settings

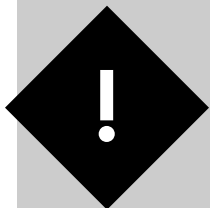
If you are not using a safety device like a photo eye or safety loop the Photocell terminal must remain jumped to the GND terminal.



Dip Switches—To change any dip switches, you must turn the power off before changing the setting.



- 1. ON:** Auto-Close on (the gate will re-close from the open position after a time set in the programming section)
OFF: Auto-Close off
- 2. ON:** Dual gate opener (2 motors)
OFF: Single gate opener (1 motor)
- 3. ON:** Gate lock terminals active
OFF: Gate lock terminals inactive



IMPORTANT: We recommend before turning the gate opener on for the first time to have dip switch 1 OFF. If the dip switch is set to on, the gate will auto-reclose after turning it on without any intentional activation on your part.

Power

The only power connected to the Estate Swing E-S1000H control board will be the battery (not included).

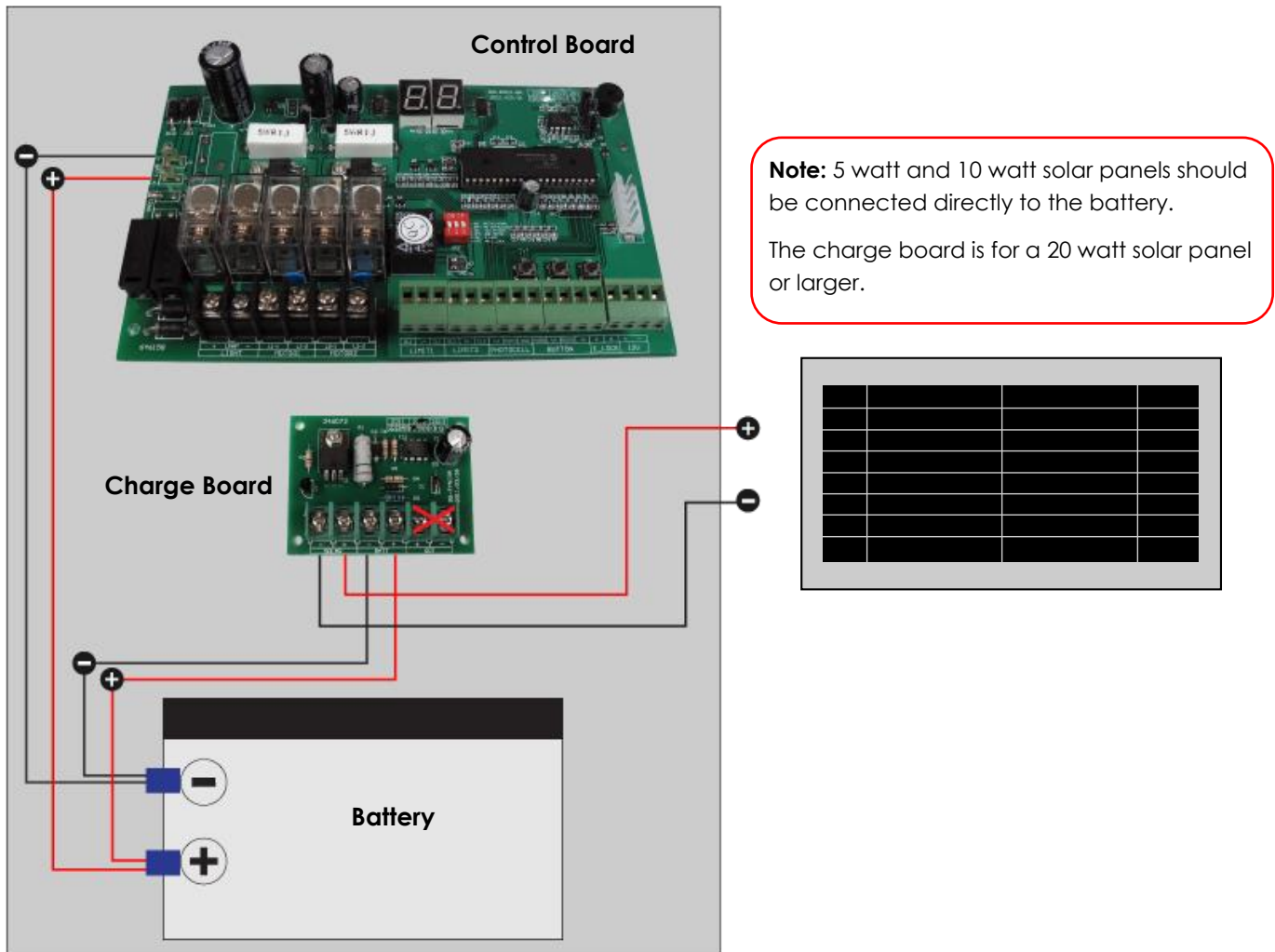
Important: Please respect polarity when attaching the battery terminals. Do not cross wires.

A 12/V 35Ah battery (or higher) power is required for this system. The battery size may be increased for power storage.

Note: Deep cycle marine batteries are available at auto part stores, home stores, and battery stores.

Battery charging is done directly to the battery through a solar panel or charge controller. See the sample below.

Solar Option

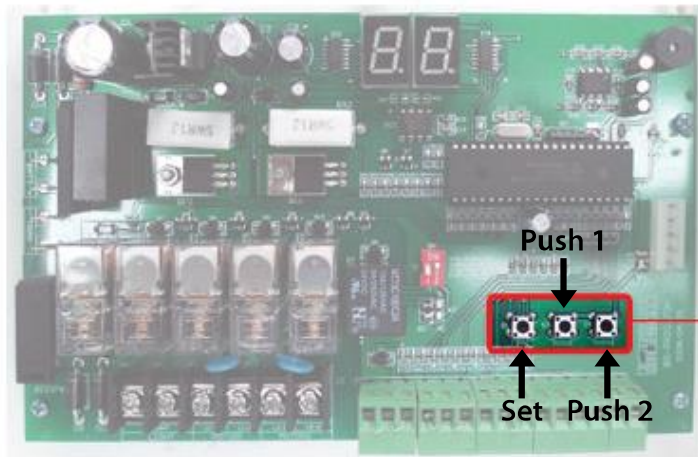


Section 4:

Start Up and Operation

First Run

This is our recommended procedure to run the gate for the first time.



The SET, OPEN, CLOSE Buttons are located here

PUSH 1 or PUSH 2 to increase or decrease the parameter. Then press SET button to move to the next parameter.

1. Press SET button to begin.
2. LED shows P1: **Press Push 1 to get P1 setting to 30.**
3. Press SET button.
4. LED shows P2: **Press Push 1 to get P2 setting to 10.**
5. Press SET button.
6. LED shows P3: **Press Push 1 to get P3 setting to 30.**
7. Press SET button.
8. LED shows P4: **Press Push 1 to get P4 setting to 3.**
9. Press SET button.
10. LED shows P5: **Press Push 1 to get P5 setting to 2.**
11. Press SET button.
12. LED shows P6: **Press Push 1 to get P6 setting to 10.**



Make sure the first switch is turned off (down)



Manually detach the end of the gate opener, then turn shaft repeatedly until it reaches the gate bracket with the gate in the halfway position. Re-attach gate opener to the gate bracket. Activate using Push 1 button (as shown above) The gate should run open. Press Push 1 again and it should run closed.

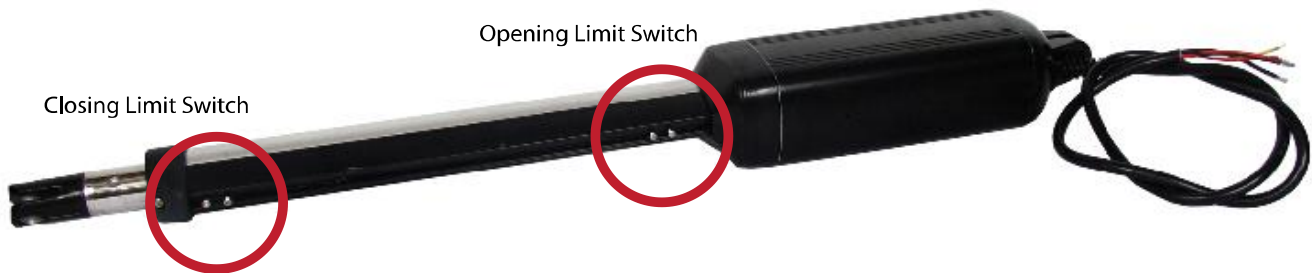
The gate is now set up for regular use.

Determine Run Time

Once you complete the first run, press the button and actuate your gate a few times. When the gate stops on the limits: If the gate has stopped short of or further than desired position, adjust the limit switches:

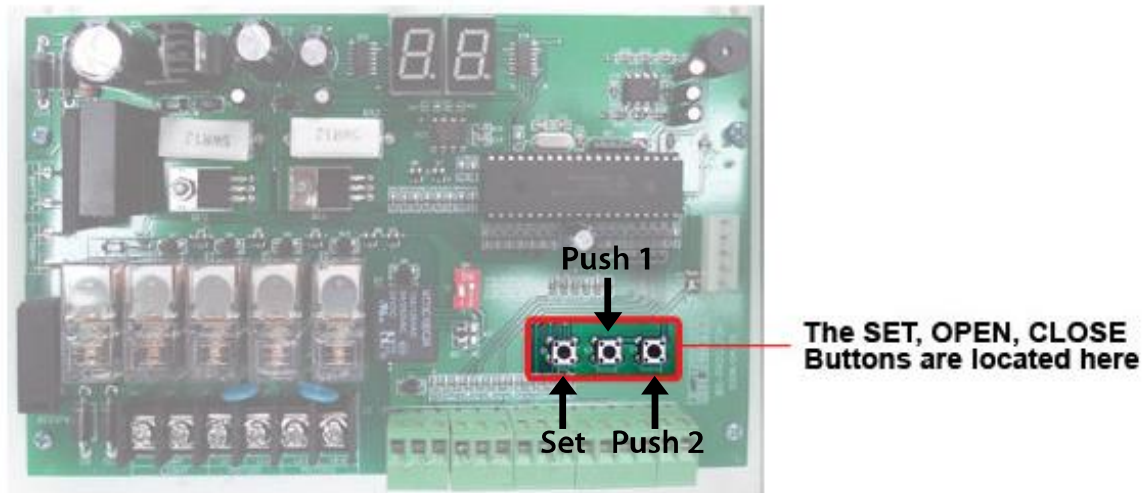
After you have your limits in the correct position secure the position of the switches with the screws and run your gate through a few cycles. On the display you will see a count while the arms are moving. This is your run time. Record your run time below.

Actual Run Time: _____



Note: The above example is for Pull-To-Open operation. If you are installing your gate opener as Push-To-Open then the open limit will be reverse of the above.

Operating Parameters Customization



1. LED shows P1: **P1 is for setting your run time**. The run time will be determined from the time you had determined during the set up of the limit switches. Take that determined run time and add 1 second. So if it takes 10 seconds to get from closed to open between limit switches; set the run time to 11 seconds. The options are 0-99 seconds.

2. LED shows P2: **P2 is for setting your slow down time**. The gate opener will slow down to half speed after the time set on P2 expires. If you wish to have the gate open and close faster make the slow down start time a longer period of time. If you want to put less stress on the gears and gate set the slow time shorter to slow the momentum sooner. The options will adjust to match the previously set run time. NOTE: motor must be in slow down to detect limits—be sure this number does not exceed the time the motor take to move from one limit to the other.

3. LED shows P3: **P3 is the force setting**, the lower the number the easier the gate will reverse directions when it meets resistance. This number may have to be changed to a higher setting if your gate is obstructing unexpectedly. The number should be set to the highest number during initial setup and reduced to the point of reliable operation that takes into account change in gate resistance through out the year. The options are 0-32.

4. LED shows P4: **P4 is for setting a delay between leafs** if you have overlapping gates or a gate lock. The motor wired into the master terminals (1) opens first if there is a delay and closes second. It is recommended to have a delay of 3 seconds to avoid any jamming issues between leafs.

5. LED shows P5: **P5 is the release for the gate lock** – this option determines the length of time 24VDC will be sent out of terminals E_LOCK. The options are 1-4 seconds.

6. LED shows P6: **P6 is the delay for automatic re-close from the open position** – this option needs to be turned on using the dip switch on the board. The options are 0-99 seconds.

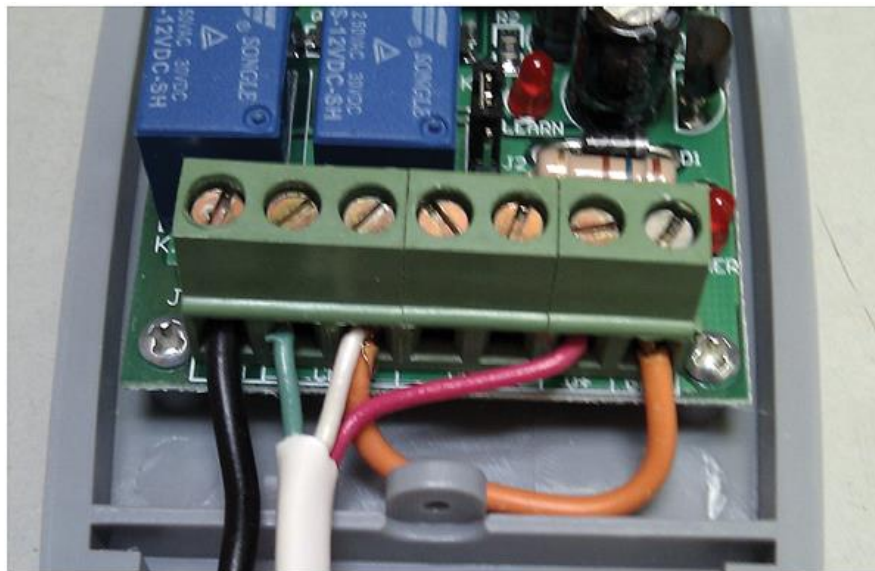
433 Plug-in Receiver

1. With the red plug already inside the control box, run the grey receiver wire out of the box through one of the water tight connections.

2. Find a location for the receiver box on the gate post or a fence post that is within the length of the receiver wire.

3. Using a #6 screw attached the top of the receiver to the post. If you are happy with this position use the small provided set screw in the bottom hole to secure the receiver in place.

4. Attach the receiver wire to the terminals as seen below. Please note that you will find a factory installed jumper wire connected on the receiver. Leave this jumper wire in place. One of the terminals that has the jumper wire will have the White wire added to the terminal.



Green = CH1 White = CH1 Red=V+

433 Plug-in Receiver

5. Plug the white clip inside the control box into the control board. The groove in the white clip should snap into the guide on the 5 prong connector.

(Fig 1)

6. The red power light should come on the receiver. (Fig 2)

7. Program your remotes to the receiver:

A. Press and release the LEARN1 button at the top of the receiver board (ex 1). The learn LED will illuminate steady (ex 2). (Fig 3)

B. Press and hold the button on the remote you wish to program to the receiver.

C. Hold the remote button until the Learn LED flashes and then turns off. (caution your gate opener may be triggered during this process)

D. Repeat A through C for all additional remotes.



Fig 1

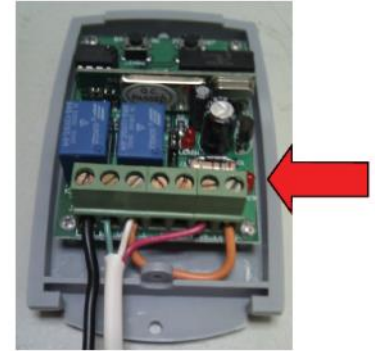


Fig 2

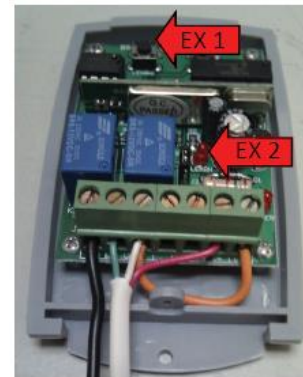


Fig 3

NOTES ABOUT REMOTES:

You can program up to 400 codes into the receiver. This could mean 1 button on 400 different remotes or this could mean all 4 buttons on 100 remotes or anything in between. Some choose to program all 4 buttons to a single receiver if they are not using multiple gates to eliminate pressing the incorrect button on the remote. To do so follow the programming above with each button of the remote. You can erase all programmed codes by holding Learn 1 until the Learn LED comes ON and then turns OFF.

8. Put the cover on the receiver and secure it in place using the provided screw.

IMPORTANT: The receiver is a drip proof receiver. This means that it is designed to prevent water from accessing the inside of the receiver when the water is moving downward with gravity (rain for example).

DO NOT mount the receiver anyplace that water may access it from another angle. For example: Do not mount near sprinklers. Do not mount the receiver horizontally. Do not mount the receiver near a flat surface where water could splash upwards.

Section 5:

Maintenance, Troubleshooting &
Accessories

Maintenance

- 1) Lubricate the rear pivot and front pivot of the bracket.
- 2) Lubricate the gate hinges about every 3 months and also check for levelness of gate.



Troubleshooting

Establish what the gate opener is doing or not doing:

This is the most important step. You should identify something that is happening. All too often we hear someone say that it is not doing anything - the reality however is the gate opener is always doing something. The motors may not move but the display may change or there may be a clicking noise, however it is very rare that there truly is nothing at all that is happening. Also sometimes we hear about intermittent issues. Wait for the issue to be currently occurring and then use the definition of that issue to be what is happening.

Things that could be happening and what the issue is:

The motor won't move and it displays LU on the display.

LU means low voltage. The battery voltage should be above 12.4 VDC. If the battery drops below this then the system will show LU and the battery should be charged.

Other possibilities of LU are:

- The wire leading from the battery to the control board has a switch, fuse or diode on it. We do not provide a switch, fuse or diode however some individuals utilize these on their wires leading to the board. This can cause the board to not read the battery correctly.
- The battery size is too small. The minimum battery size the system can detect is 12V 7a/h. If the battery is smaller it will not detect the voltage of the battery correctly.
- The logic chip on the board has suffered an electrical pulse and is no longer reading the battery correctly. In order to verify this is the issue you must follow this process:
 - a. Disconnect the battery from the control board and from the charging source (solar panel or transformer)
 - b. Disconnect the large Red and large Black motor wire from the control board terminals L1-1 and L1-2
 - c. Take the ends of the wires that normally attach to the control board from the batteries and attached them to the prongs of a multi-meter set to DC voltage.
 - d. Read the battery voltage through the wires and ensure this voltage is above 12.6 volts
 - e. Take the red and black wires from the motor and touch them directly to the battery terminals. This will cause the motor to run. The polarity of the red and black motor

Troubleshooting

Fixes for LU:

If the battery is reading low and the battery is new, the battery may just need to be charged. New batteries as they sit on the shelf lose their charge and typically are sold discharged.

If the new battery will not charge it could have a dead cell, have a battery store or auto parts store test for this.

If the new battery tests good at the store and the temperature is cold the battery may need to be insulated. Cold batteries have a constricted output. There are multiple products for warming a battery. There is a battery wrap that is powered and has a thermostat that turns it on when needed. Also standard insulation can be used to wrap the battery. As the battery charges heat will be produced and this heat can be trapped by the insulation to warm the battery. This method is a possible solution for solar, however, one big downside is at night when the solar panel is not charging the battery, heat will not be created and the battery may get too cold to put out power.

The motor will not move and the display reads PH

PH stands for Photo Cell. On an Estate Swing gate opener the safety terminal (Photo) is a Normally Closed connection. What this means is the gate opener needs the Photo terminal to be connected to the ground terminal in order to operate.

Fixes for PH:

- If you are not using a safety device such as a photo eye or loop detector the Photo terminal must be connected to the GND terminal using a short piece of wire.
- If you are using a safety device please check to make sure the NC terminal or wire is being used and not the NO wire or terminal.

Single gate, E-S 1000H: The motor will not move and the display reads OP or CL and then numerically counts up

The display is showing the correct information as if the board was activated and the motor was moving. There are only 3 possible causes in this case:

- Highest likelihood is the motor fuse is blown
- Second most likely is a motor wire not attached to the correct terminals (L1-1 and L1-2) or the wire leading to the motor is damaged
- Third is the motor relay is burnt from a power surge.

Fixes for counting with no movement:

Open the third fuse box from the left (the fuse boxes are in the lower left corner, they are hinged on the top and if a flat head screw driver is inserted in the slot on the bottom it will flip open). If blown replace this fuse - it is a 8A 240V standard fuse. You can also take the center fuse (this is for the secondary arm and move it to the third slot since this is a single gate opener and you are not using the center fuse).

Troubleshooting

- If replacing the fuse does not help, the motor can be tested using the following procedure:
 - a. Disconnect the battery from the control board and from the charging source (solar panel or transformer)
 - b. Disconnect the large Red and large Black motor wire from the control board terminals L1-1 and L1-2
 - c. Take the red and black wires from the motor and touch them directly to the battery terminals. This will cause the motor to run. The polarity of the red and black motor wires on the battery positive and negative will cause the motor to extend or retract. Swap polarity to cause the opposite reaction from the motor.
 - d. If the motor moves then we can assume if the board was putting out voltage from the two terminals L1-1 and L1-2 the motor would move.
 - e. If the motor does not move the wire is most likely damaged, inspect the wire for damage.
- If both the above are done (fuse replaced and the motor tested direct off the battery) then the source of the issue is one of the clear relay blocks above the L1-1 and L1-2 terminals are no longer functioning and the board should be repaired or replaced.

Dual gate, E-S 1000D: One or both motors will not move and the display reads OP or CL and then numerically counts up

The display is showing the correct information as if the board was activated and the motor was moving. There are only 3 possible causes in this case:

- Highest likelihood is the motor fuse(s) are blown
- Second most likely is a motor wire not attached to the correct terminals (L1-1 and L1-2 for master L2-1 and L2-2 for slave) or the wire(s) leading to the motor(s) are damaged
- Third is the motor relay is burnt from a power surge.

Fixes for counting with no movement:

- Open the middle and third fuse boxes from the left (the fuse boxes are in the lower left corner, they are hinged on the top and if a flat head screw driver is inserted in the slot on the bottom it will flip open). If one or both are blown replace the fuse(s) - they are 8A 240V standard fuse. If one arm is moving and the other is not, you can swap the center and right hand fuse to see if the issue swaps motor and ensure the fuse is the issue if you do not have a multi-meter to test the fuse.

Troubleshooting

- If replacing the fuse does not help, the motor can be tested using the following procedure:
 - a. Disconnect the battery from the control board and from the charging source (solar panel or transformer)
 - b. Disconnect the large Red and large Black motor wire from the control board terminals L1-1 and L1-2 for master or L2-1 and L2-2 for slave
 - c. Take the red and black wires from the motor and touch them directly to the battery terminals. This will cause the motor to run. The polarity of the red and black motor wires on the battery positive and negative will cause the motor to extend or retract. Swap polarity to cause the opposite reaction from the motor.
 - d. If the motor moves then we can assume if the board was putting out voltage from the two terminals L1-1 and L1-2 for master or L2-1 and L2-2 for slave the motor would move.
 - e. If the motor does not move the wire is most likely damaged, inspect the wire for damage.
- If both the above are done (fuse replaced and the motor tested direct off the battery) then the source of the issue is one of the clear relay blocks above the L1-1 and L1-2 or L2-1 and L2-2 terminals are no longer functioning and the board should be repaired or replaced.

Gate is open, displays shows AU and the gate will not close

AU stands for Auto Reclose. This means that the gate is in the Auto Reclose countdown. The auto reclose is controlled by the first dip on the red block in the center of the board. If the first dip switch is in the up position, the gate will auto reclose after the number of seconds that have been selected in the P6 setting have elapsed in the open position. The AU is what it displays after the gate has reached the open position and it is counting down to automatically reclose.

There are two reasons this may be on the display and the gate will not close:

- If the gate opener is in the open position and power is disconnected and reconnected the gate will not move and AU will be on the display.
- A device that is wired into accessory terminal PUSH2 is making a connection to the COM terminal.
- The gate opener is a single gate and the number 2 dip switch is in the up position.

Continue on next page.

Troubleshooting

Fixes for AU and not closing:

- If the first is true, power has been applied to the board with the gate(s) open the board is in a safety mode. In order to exit this, manually disconnect the piston from the gate bracket and twist the piston so the gate is approximately half way open, then reconnect the piston to the gate bracket. Disconnect power and reconnect, it will show AU still however a signal from a device should activate the gate.
- If the above does not fix the issue remove the button block (second to last terminal block on right side of bottom of the board). This will prevent the need to unwire the accessories. Move the gate to the half way open position. Disconnect and reconnect the power. Activate the gate using the PUSH1 button (center button on the board). The gate should now be operational and it is confirmed the accessory in PUSH2 is malfunctioning. Troubleshoot the accessory in PUSH2.
- The second dip switch is for single or dual. If the dip switch is up, it is set for dual. If you have a single gate opener and the dip switch is set for dual it will never start to close because the second leaf starts first. Since it cannot start nothing will happen. Move the dip switch to down.

Gate stops before reaching the full open or full closed position (NOTE: This is if the gate stops, not if the gate stops and reverses for 3 feet)

The gate is designed to stop for one of two reasons: it has reached the limit switch and the motor is triggered to stop receiving power or the P1 parameter, run time is reached and the board will stop putting out power to the motor.

Possibilities for cause of stopping short:

- Run time is too short. The P1 parameter is the amount of time that the board will put power to the motor for. The purpose of having a run time is to allow the board to have a slow down point so it can move at two different speeds. On a new installation sometimes this was just set low. On an existing installation that was working fine, as temperatures change, the battery voltage changes or the motor ages the gate may move slower and cause a previously sufficient run time to no longer be enough.
- Limit switch is not in the correct location. For a gate installation in which the piston is extended in the closed position (pull to open) the limit switch for the closed position is at the end of the arm and the limit switch for the open position is in by the motor. For a gate installation in which the piston is retracted in the closed position (push to open) the limit switch for the closed position is in by the motor and the limit switch for the open position is at the end of the arm.
- Gate or post bracket has shifted.

Continue on next page.

Troubleshooting

Only for dual gates: If the secondary slave leaf is stopping short of the closed position check this first. The motor that is wired in to be the secondary slave gate leaf (leaf wired into L2-1 and L2-2 terminals) MUST reach its closed position first. If the primary master motor reaches the closed position first the secondary leaf will immediately stop moving.

Fixes for gate stopping short:

- The first thing to try is to increase the run time. Press the set button and P1 will show on the display. Then press the Push1 button (center button) and add 10 seconds to the run time. The run time really can't be too long, just too short.
- If the above does not correct the situation, prior to adjusting limit switches ensure your brackets are not moving. The post bracket where the boomerang bracket is should have 2 bolts through it. If it does not it will pivot and the open or closed position will change. On the gate bracket there could also be shifting and this is actually a common area overlooked. The gate bracket has 3 holes, two oblong holes and one small round hole in the center. In many installations we find only the two outside oblong holes are used. Over time these bolts will loosen and the pressure of the piston pushing and pulling on the gate bracket will shift that bracket on the oblong holes. This gives that bracket about an inch of play horizontally which can translate into a significantly different stopping point for the gate. The center hole is a small set bolt intended to prevent this horizontal shifting of the bracket.
- If that does not fix the problem check the limit switch location. The inner piston that extends and retracts has a magnet affixed to the end of it. The magnet is never exposed; it is always inside of the outer piston tube. This magnet will move back and forth as the piston moves in and out. Find this magnet with a piece of metal such as a washer. Move your gate to the open position and the washer should be in toward the base of the arm (pull to open) and out toward the end of the arm (push to open). Move the limit switch to the location of the washer. Move the gate to the closed position and adjust the opposite limit switch to the washer. Final adjustments may be needed after however this will get it approximately to the correct location.
- **Only for dual gates: If the secondary slave leaf is stopping short of the closed position check this first.** Do this for this scenario before trying the above other fixes. There are two ways to fix this issue. One is to increase the P4 setting. The P4 setting is the delay between gate leaves, this number must be increased so the slave leaf can travel longer prior to the master leaf beginning to close. This will ensure the slave will close first. (keep in mind this will affect overall run time and they may need to be increased as well)

Continue on next page.

Troubleshooting

- The second way to fix this issue is to change which gate is the wired into the Motor 1 (L1-1, L1-2)terminal vs the Motor 2 (L2-1, L2-2) terminals. This is a better solution for gates that open to significantly different degrees of opening and do not overlap in the closed position. If this is the case you can swap the red and black in Motor1 with the red and black in Motor 2. It will remain the same color sequence; you are simply swapping the pairs of wires. Then swap the Limit1 block with the Limit2 block. You do not need to unwire the limit switches, simply pull the terminal blocks off the board and swap them.

The open limit switch cannot be adjusted to the correct location

The open limit switch intentionally has a limited amount of wire for adjustment. This is to force the installation to utilize the majority of the stroke length of the opener arm. The stroke length is the amount of travel the piston can move in and out. If the piston has to move all the way in and out to gate the gate from closed to open this means the gate is going to move a steady, stable pace and the motor will have plenty of leverage on the gate. However if only half of the stroke is being used (the piston only has to travel half of the distance it could) and the gate is being moved from closed to open the gate is going to move at twice the speed, swing and stop violently and the motor will have poor leverage on the gate. This will decrease the life of the opener and circuit board and also result is a sporadic performance of the opener.

Fix for the limit switch adjustment:

- The only way to fix this issue is to move the rear pivot point of the gate opener further away from the hinge of the gate. This is the hole in the boomerang bracket referred to in the set-back description. The setback is a two measurement position that places this rear pivot point away from the hinge of the gate. The most common issue is that the setback measurements for a 110 degree opening were used when in reality the gate is only opening 90 degrees. Another issue is a limitation in space or understanding of the measurement. If this is the case and you need suggestions please feel free to take some pictures of this area of the gate and email them to us for suggestions. You can test your new position before re-mounting the boomerang bracket by extending and retracting the piston manually and matching it up with the gate bracket to make sure it is almost fully extended and retracted in the open and closed positions.

During a cycle the gate stops and reverses 3 feet

This is the reaction of the gate during an obstruction. The gate opener for safety purposes will stop and reverse off an obstacle. However the nature of how an obstacle is detected can result in the gate stopping and reversing for 3 seconds without something in the gate's path. This is because obstructions are detected through amperage usage by the motor and the reaction of the systems power supply to that resistance.

Continue on next page.

Troubleshooting

Possibilities for obstruction detection:

- Wind resistance. Wind is the number one reason the gate will stop and reverse with nothing in the way. Even a relatively open picket style gate still gets pushed fairly significantly by wind.
- Incorrect setting on P3 force setting for size gate and/or current weather conditions. The force setting is adjustable from 0 to 32 and the setting may need to be changed over time to a higher setting depending on the temperature, age of the motor and size of the gate.
- Leverage not being fully utilized by operator. The piston of the gate opener should move from nearly fully extended to nearly fully retracted when opening and closing. If it is not then this means that the gate opener is positioned closer to the gate hinge than it needs to be and thus it does not have as much leverage as it could or should.
- Mechanical issues with gate or brackets. The gate must swing on the same level plane as the motor. If they are not traveling on the same plane eventually they will be pulling different directions and cause a bind. This can happen from the gate sagging or from the brackets sagging. Also the swing path must be level to earth; if the swing path is uphill gravity will work against the system and cause obstruction. Another mechanical issue is lubrication of the gate hinges and pivot points.
- Low battery combined with resistance. As a battery gets lower in voltage the amperage spike from resistance will be greater than with a fully charged battery. So as a battery ages or has low voltage less amounts of resistance can result in obstructions.
- Internal lubrication of piston needs to be done or gear housing needs to be tightened. The screw drive of the gate opener should get light lubrication over time and if a grinding noise is being heard in conjunction with the obstructions then the gear box bolts may need tightening.

Fixes for obstruction detection:

- For wind resistance the fix could be to decrease the coverage on the gate if it is a solid face gate. Unfortunately this situation is one that is difficult with swing gate openers. All brands of gate openers that have safety contend with this issue. No matter how powerful the motor is in a gate opener, none are built to push hard enough to hurt a person. And there is no way to differentiate between a person in the path of the gate vs wind in the path of the gate. So the sensors on any gate opener, no matter how large or powerful, will always react to this issue. One important note however in regard to wind causing an obstruction: if any of the other issues listed here as causes of obstruction (P3, leverage, lubrication, etc.) are not investigated and corrected they could be a contributing factor. And if eliminated the wind issue could lessen or go away.

Continue on next page.

Troubleshooting

- To increase the force setting press the set button until P3 is on the display. Then press the Push1 button (center button) and increase the force setting until the gate no longer obstructs.
- Fixing the leverage issue is probably one of the most important things you can do and can be a contributing factor to a lot of other issues. To fix this issue is to move the rear pivot point of the gate opener further away from the hinge of the gate. This is the hole in the boomerang bracket referred to in the setback description. The setback is a two measurement position that places this rear pivot point away from the hinge of the gate. The most common issue is that the setback measurements for a 110 degree opening were used when in reality the gate is only opening 90 degrees. Another issue is a limitation in space or understanding of the measurement. If this is the case and you need suggestions please feel free to take some pictures of this area of the gate and email them to us for suggestions.
- You can test your new position before remounting the boomerang bracket by extending and retracting the piston manually and matching it up with the gate bracket to make sure it is almost fully extended and retracted in the open and closed positions.
- If it is suspected that a mechanical issue is present one way to determine this is to remove the end of the piston from the gate bracket and hold the end of the piston. Trigger the gate opener to function. If the gate opener moves in and out without obstruction while not attached to the gate it can be determined the mechanical interaction between the gate opener and the gate is causing the issue.
- To lubricate the internal screw drive there are holes that exist in the outer tube housing; these holes are located under the limit switch channel on the bottom of the arm. Remove the cap on the end of the outer tube and move the limit switch channel out of the way. With the piston extended, spray garage door lubricant in small quantities into the holes. This will spray lubrication on the screw drive. Move the piston in and out by turning the piston to spread the lubrication on the screw drive.
- To tighten the bolts on the gear box remove the four long bolts on the rear of the operator. The main motor housing will slide off and the motor and gear box will be accessible. If a bolt or bolts are loose, pray the bolt with Lock-Tite and tighten the bolt down to secure it in place.

The gate will go too far in one direction and then only a few inches in the other direction

This is because the limit switch order is backward from the motor lead order.

Fix for gate going too far one direction and only a few inches in the other:

- If the display is showing OP and the gate is indeed opening then the limit wires are backward. Swap the first and third limit switch wire in the limit1 block for the master operator or single gate. Swap the first and third wire in the limit2 block if the issue is on the secondary operator.

Troubleshooting

DUAL GATE: One leaf continues to travel past its limit switch while the other leaf stops inconsistently

This is because the limit switch wires from motor 1 are in the limit 2 block and the limit switch wires from motor 2 are in the limit 1 block. As motor 1 travels past its limit switch motor 2 will be triggered to stop. Motor 1 will keep traveling because its limits are paired with motor 2. However since motor 2 stopped, motor 2 will never reach its limits and motor 1 will travel until it obstructs.

Fix for issue of one leaf past its limit, other inconsistent:

- Remove the limit 1 and limit 2 blocks and swap them

Remote will not open the gate but gate will operate from Push1 button

Possibilities of issue:

- Receiver has no power
- Remote has not been learned to the receiver
- Remote has been learned to the wrong channel
- Wiring is not correct to the receiver
- Receiver plug in connection on board is not functioning
- Receiver wires have an internal split
- Receiver jumper is not making good contact

Fixes for the remote not working:

- Look in the lower left side of the receiver at the light marked Power. If this light is not on there is no power to the receiver. Check the wiring to the receiver (this will be described below). Also check the first fuse on the left side of the board.
- If you have not been through a programming sequence, this must be done prior to using the remotes. Press and release the Learn1 button in the upper left side of the receiver - the Learn light in the center of the board will illuminate. Press and hold a button on a remote until that learn light on the receiver flashes and turns out.
You can now repeat this procedure for other buttons of the same remote or buttons on other remotes.

Continue on next page.

Troubleshooting

- There are two learn buttons at the top of the receiver. There is a Learn1 and a Learn2. The wiring instructions provided in the manual are utilizing Channel1. Channel 1 is activated by anything learned to the Learn1 button. Learn2 is pair to Channel2, which this channel is not utilized in the instruction manual. Please consult estate swing if you wish to utilize Channel2 to activate a different device. To fix this error if you have programmed to Learn2 instead of Learn1, first clear Learn2: Press and hold the Learn2 button, the learn light will illuminate, continue to hold the Learn2 button until the learn light turns off. Then follow the learn procedure for a remote on the Learn1 button.
- There is a white clip that attaches to the control board on the 5 pins on the right hand side of the board. There are three wires in this clip red, white and green. On the board the clip should be plugged in so the red wire is on the bottom. The other end gets wired into the receiver. The wires and terminals should be as follows:
 - a. First terminal on left, ANT - this is your antenna wire, this stays in place.
 - b. Second terminal from left, CH1 - the green wire should be in this terminal.
 - c. Third terminal from left, CH1 - this terminal should have 2 wires, the white wire and also a short jumper wire. After connecting both wires, give them a tug, with two wires in the terminal it is possible that one may not be grabbed by the screw terminal.
 - d. Fourth and fifth terminals from the left, CH2 and CH2 - these terminals will be left empty. Sixth terminal from left, V+ - the red wire should be in this terminal.
 - e. Last terminal on right, GND - the other end of the jumper wire should be connected to this terminal.
- If the programming is correct and the wiring is correct but the remote will not activate the gate, then the receiver plug should be checked. First check the fuse. The first fuse on the left side of the board protects the receiver input plug. This is a 250V 2 amp fuse. Second you can manually test the plug connector. Remove the white connector from the control board to reveal the 5 prongs on the lower right hand side of the control board. Take a small flat head screw driver and place the head between the second and third prong from the bottom. Turn the head of the screw driver until a connection is made between the second and third prong from the bottom. The gate should open if this terminal is working correctly. If it does activate the gate then the receiver or the wire to the receiver is the issue, double check all receiver related solutions.

Continue on next page.

Troubleshooting

- On thin gauge wires it is possible that the wire can get pinched and internally a split could form. It would be very difficult to identify this from looking at the wire. To eliminate the wire as an issue wire the receiver to the accessory terminals at the bottom following these instructions and a set of wires. You can use any wire, you will need 4 conductors. Remove the existing wire AND the jumper wire:
 - a. First terminal on left, ANT - this is your antenna wire, this stays in place.
 - b. Second terminal from left, CH1 - connect this terminal to PUSH1 on the PUSH block.
 - c. Third terminal from left, CH1 - connect this terminal to COM on the PUSH block.
 - d. Fourth and fifth terminals from the left, CH2 and CH2 - these terminals will be left empty.
 - e. Sixth terminal from left, V+ - connect this terminal to the V+ terminal on the PHOTO-CELL block.
 - f. Last terminal on right, GND - connect this terminal to the GND terminal on the PHOTOCELL block.
- Give a tug on all wires going into the receiver to make sure they are all making a good connection. Also make sure the wire itself is connected in the terminal and not the colored wire covering.

My accessory that is wired into the gate opener is no longer working

If the accessory is powered off the control board it could be a blown fuse. Otherwise it may be the accessory and this can be confirmed using jumper contacts.

Fixes for the accessory is not working:

- If the accessory is getting power from the gate opener, check the first fuse on the left side of the control board. It is a 250V 2 Amp fuse. If the fuse is good but the accessory still does not have power move the wire from the 12V terminal to the V+ terminal.
- If it is a device that should be activating the gate there should be wires going to PUSH1 or Push2 and Com. Remove these wires. Insert a short piece of wire into PUSH1 or PUSH2 and Com. Momentarily contact those two wires together. If the gate opens the issue lies within the accessory itself and the accessory should be replaced or troubleshot according to the accessories instructions.

The battery continually reaches LU and is a solar installation

It is either not enough incoming power to charge the battery, the positioning of the panel or the size of the battery.

Continue on next page.

Troubleshooting

Possible issues:

- The battery is too small to support the system after the sun is not charging it.
- The accessories being used have a high draw and are draining the battery.
- The solar panel is facing the wrong direction or has shadows.
- The solar panel is too small to charge the battery past what is being used.
- The battery is aging and cannot recharge.

Fixes for repeated low battery:

- If the battery is over 3 years old replace the battery.
- The first thing to do is to test the battery voltage at the end of the day when the sun is setting. If the battery is not fully charged (13.4VDC) then the solar panel may be too small or positioned wrong.
- If the battery becomes fully charged at the end of the day but then drains overnight the solar panel is re-charging enough but the accessories are either drawing too much or the battery is too small for the system. Purchase a larger battery or find a different power source for the accessories.
- The solar panel should be facing south. Any other direction and it is not getting direct sunlight because we are in the Northern hemisphere.
- If any part of the day cast shadows move the solar panel or cut away branches. Ambient light will not charge the system; this is the same for the panel facing the wrong direction. Although it looks like light is reaching the panel it has to be direct sun light.

The battery continually reaches LU and is a plug installation

It is either the battery is charger malfunctioning or the battery is aging.

Fixes for repeated low battery with plug in option:

- If the battery is over 3 years old replace the battery.
- Test the output of the charge board, there should be 18VDC being fed to the battery. If there is not voltage to the battery terminals test the transformer for output. Replace either the transformer or the charge board, which ever part is not putting out power.
- Bring the battery to an auto parts store for a load test, if the battery reads ok at rest but fails under load, the battery has a dead cell and needs to be replaced.

The display does not show AU in the open position with dip switch 1 on (up)

The dip switch only take effect after power down and back up

Troubleshooting

Fix for not showing AU:

- Disconnect the power to the system, wait 20 seconds, then reapply power.

The gate lock terminals are not putting out power

Causes for the issue:

- The third dip switch is off (down).
- The closed limit switch was not reached. The lock will only trigger when the gate is being opened from the closed limit switch, not from stopping on run time.

Fixes for lock output not putting out power:

- Disconnect power to the system, wait 20 seconds, move the 3rd dip switch to the up (on) position and reapply power.
- Increase the P1 setting by 10. it is best to do this while you have the end of the gate operator arm disconnected from the gate and you are holding it in your hand. This will allow the piston to extend to the limit switch. Move the piston extended to its limit back to the gate bracket and see if this lines up with your desired closed position. If it does not adjust your limit switch until it does.

Gate will move too far open or closed, stops and reverses 3 feet:

There could be multiple issues at hand so please do the fixes in order. After a fix is done do not undo that fix when moving to the next if the next is needed.

Fix sequence for gate moves too far open, stops and reverses 3 feet:

- Change the P3 setting to 28. Remove the end of the piston(s) from the gate, hold it in your hand to prevent it from spinning and run an opening cycle. If the issue still occurs, run it again and watch the display:

If the display is showing OP and the gate is opening then the limit wires are backward. Swap the first and third limit switch wire in the limit1 block for the master operator or single gate. Swap the first and third wire in the limit2 block if the issue is on the secondary operator. If the display is showing OP but the gate is beginning to close the motor wires are backward. Swap the position of the motor leads L1 and L2 for the appropriate motor that is having the issue.

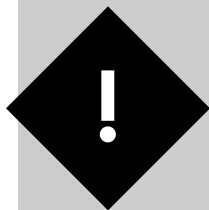
Troubleshooting

- If the issue did not occur off the gate with P3 at 28:

PULL TO OPEN: Run the piston to the retracted position. Manually move the gate to the open position. Swing the piston over to the gate bracket; if the piston is retracted too far to attach to the gate bracket with the gate open, move the limit switch toward the center of the arm and run the piston through another cycle. Repeat trying to attach to the gate in the open position until the limit is stopping the piston at a point where when attached to the gate bracket the gate is in the correct open position. Repeat this procedure with the piston extending and the gate in the closed position.

PUSH TO OPEN: Run the piston to the extended position. Manually move the gate to the open position. Swing the piston over to the gate bracket; if the piston is extended too far to attach to the gate bracket with the gate open, move the limit switch toward the center of the arm and run the piston through another cycle. Repeat trying to attach to the gate in the open position until the limit is stopping the piston at a point where when attached to the gate bracket the gate is in the correct open position. Repeat this procedure with the piston retracting and the gate in the closed position.

Troubleshooting



If you call in for technical support or warranty support: Before any control board or motor will be permitted to be sent in for testing or warranty you will be required to e-mail digital photos to the technician.

This is done in your best interest to save unnecessary shipping expenses and time lost. Many times we can come up with solutions to issues by seeing pictures that relay information that is impossible to relay through a phone conversation.

Below are examples of control board pictures and motor pictures that we will be looking for:



Pictures shown are actual customer photos

Control Board Overview



Caution! Do not run power to the control board other than the battery.

Gate Opener reactions to signals:

PUSH1 (PUSH 1 terminal, PUSH 1 button):

Details:

- Will activate gate with momentary contact (momentary contact between PUSH1 and COM) or if you momentarily press the PUSH1 button.
- Controls both leaves in 2 leaf mode (Dip switch 2 in the ON position).
- Acts as party mode control to suspend auto-reclose by activating while counting down auto reclose in the open position.

Operational Sequence for terminal with auto close ON (Dip switch 1 in on position):

1. In closed position - momentary contact will open gates.
2. When opening - momentary contact will stop gates and then it will auto reclose.
3. When stopped mid cycle waiting auto reclose - momentary contact will move the gate in the direction opposite what it was moving before stopped.
4. When open and counting auto-reclose pause time - momentary contact will stop pause time.
5. Stopped in open position from override of auto-reclose from PUSH1 or Receiver - momentary contact will reactivate pause time and close gate.
6. When closing - momentary contact will stop the gate and then it will auto reclose.

Operational Sequence for terminal with auto close OFF (Dip switch 1 in off position):

1. In closed position - momentary contact will open gates.
2. When opening - momentary contact will stop gates.
3. When stopped mid cycle - momentary contact will move the gate in the direction opposite what it was moving before stopped.
4. When open - momentary contact will close gates.
5. When closing - momentary contact will stop the gate.
6. When stopped mid cycle - momentary contact will open the gate.
7. When open with auto-reclose off - momentary contact will have no effect.
8. When closing - momentary contact will re-open the gate.

Control Board Overview



Caution! Do not run 110V AC power direct to the board. This will cause permanent damage to both boards and void your warranty. Caution!

Gate Opener reactions to signals:

Receiver (5 Prong Receiver):

Details:

- Will activate gate with momentary contact, press remote.
- Controls both leaves in 2 leaf mode (Dip switch 2 in the ON position).
- Acts as auto reclose override.

Operational Sequence for terminal with auto close ON (Dip switch 1 in on position):

1. In closed position - momentary contact will open gates.
2. When opening - momentary contact will stop gates and then it will auto reclose.
3. When stopped mid cycle waiting auto reclose - momentary contact will move the gate in the direction opposite what it was moving before stopped.
4. When open and counting auto-reclose pause time - momentary contact will override reclose, count, and immediately close gate.
5. When closing - momentary contact will stop the gate and then it will auto reclose.

Operational Sequence for terminal with auto close OFF (Dip switch 1 in off position):

1. In closed position - momentary contact will open gates.
2. When opening - momentary contact will stop gates.
3. When stopped mid cycle - momentary contact will move the gate in the direction opposite what it was moving before stopped.
4. When open - momentary contact will close gates.
5. When closing - momentary contact will stop the gate.
6. When stopped mid cycle - momentary contact will open the gate.
7. When open with auto-reclose off - momentary contact will have no effect.
8. When closing - momentary contact will re-open the gate.

Control Board Overview



Caution! Do not run 110V AC power direct to the board. This will cause permanent damage to both boards and void your warranty. Caution!

Gate Opener reactions to signals:

PUSH2 (PUSH 2 terminal and PUSH 2 button):

Details:

- Will activate gate with momentary contact (momentary contact between PUSH2 and COM).
- Controls both leaves in 2 leaf mode (Dip switch 2 in the ON position).
- Only opens the gate, never closes it.
- Pause time is able to be re-set if this terminal is closed through a momentary contact. Then the time will be reset, count down the pause time, and reclose.
- Ideal for exit wand or exit loop.

Operational Sequence for terminal with auto close ON (Dip switch 1 in on position):

1. In closed position - momentary contact will open gates.
2. When opening - momentary contact will have no effect.
3. When stopped mid cycle from PUSH 1 or the Receiver - momentary contact will open the gate.
4. When open with auto-reclose on - momentary contact will re-set pause time and will start counting again after release of momentary contact.
5. When pause time countdown is stopped in open from a momentary contact of PUSH 1 or the Receiver - momentary contact will have no effect.
6. When closing - momentary contact will re-open the gate.

Operational Sequence for terminal with auto close OFF (Dip switch 1 in off position):

1. In closed position - momentary contact will open gates.
2. When opening - momentary contact will have no effect.
3. When stopped mid cycle - momentary contact will open the gate.
4. When open with auto-reclose off - momentary contact will have no effect.
5. When closing - momentary contact will re-open the gate.

PUSH 1 and PUSH 2 – these terminals can hold as many normally open connections as needed, they will be wired in parallel. They are used for keypads, push buttons, universal receivers, etc.

Control Board Overview

Light: Sends pulses of 12VDC only while gate is running, and whether it is open or closed.

Motor 1: L1-1, L1-2 = 24VDC power to single motor or master motor

Motor 2: L2-1, L2-2 = 24VDC power to slave motor

Limit1: OL1 = Open limit for single motor or master (normally closed)
V+ = Common for limits, +12VDC
CL1 = Closed limit for single motor (normally closed)

Limit 2: OL2 = Open limit for slave motor (normally closed)
V+ = Common for limits, +12VDC
CL2 = Closed limit for slave motor (normally closed)

Photocell: Photo = Input for safety eye photo beam connection (normally closed)
GND = Ground for photocell power/ground for photo connection
V+ = +12VDC, Max 50 milliamps for photocell power
12v = Accessory power max 350 milliamps

Button: PUSH 1 = Ground for Push 1 Accessory
COM = Positive voltage +12VDC for Push 1/2 accessory (relay only, not main power)

PUSH 2 = Ground for Push 2 accessory

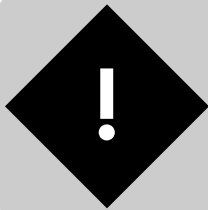
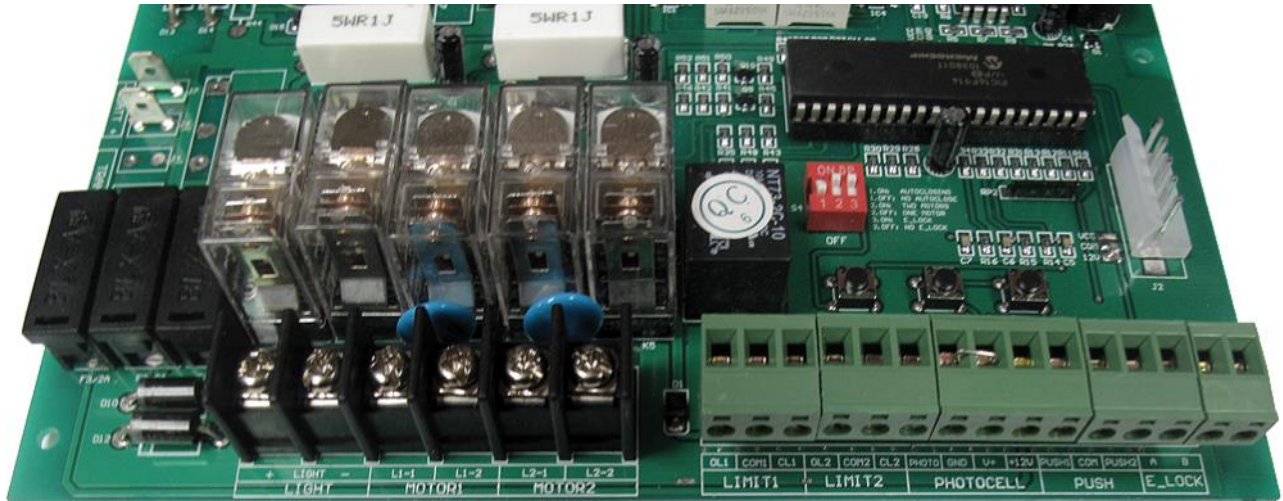
**PUSH 1 / COM is for push buttons, keypads, receivers, or any other dry and momentary contact.*

**PUSH 2 / COM is for exit wand, exit loops or other open only dry contact and momentary contact*

E_Lock: Solenoid lock output - 12VDC (4 Amp max)
A = Positive B = Negative

Fuses: (2) F1 = 8A 250V, protects power to motors, fused individually
F2 = 2A 250V, protects power to accessory 12V terminals

Control Board Overview



Caution! Do not run 110V AC power direct to the board. This will cause permanent damage to both boards and void your warranty. Caution!

Display Indicators:

Lights off on board & stand by / normal operation

Lower right hand "dots" flashing normal pace:

Active / Awaiting command

EL: Sending voltage to EL terminals (electric lock)

OP: Opening cycle

AU: Auto-reclose countdown

CL: Closing cycle

PH: Photocell is tripped or not jumped.

LU: Low Voltage Lock Out

If the gate(s) come in contact with an obstruction the gate(s) will reverse direction for 2 seconds and stop to allow the obstacle to be cleared from the gate path.

Buzzer / Obstructions:

If the gate(s) obstructs 3 times in a row the gate(s) will go into a hard shutdown mode and a buzzer alarm will sound. At this point no accessories or remotes will be able to activate the gate opener until the gate opener is reset by disconnecting primary power battery.

Accessories Wiring

The manufacturer instructions that come with your accessory should have markings for wires or terminals to connect to the gate opener. Please look for terminals named below in the instructions for the accessory.

Keypads, Receivers:

- **Normally Open (NO) or Input (INP) or Relay of entry device** = COM terminal of PUSH block on gate opener control board.
- **Common (COM) or Ground (GND) or Relay of entry device** = PUSH1 terminal of PUSH block on gate opener control board.

NOTE: If the power for the accessory shares a Ground wire/terminal with the relay – Do Not power that accessory off this control board (example: WKP-P keypad). Instead power that device with batteries.

- **12V Power positive (+) or (12V) or (PWR) of entry device** = +12V terminal of PHOTO block on gate opener control board.
- **12V Power Negative (-) or (GND) or (PWR) of entry device** = GND terminal of PHOTO block on gate opener control board.

Push Button, Intercoms:

- **Normally Open (NO) or Input (INP) or Relay of entry device** = COM terminal of PUSH block on gate opener control board.
- **Common (COM) or Ground (GND) or Relay of entry device** = PUSH1 terminal of PUSH block on gate opener control board.

Push buttons do not require power and Intercoms draw too much power to power from the gate opener.

Exit Wand/Sensor, Exit Loop Detector, Exit Device:

- **Normally Open (NO) or Input (INP) or Relay of exit device** = COM terminal of PUSH block on gate opener control board.
- **Common (COM) or Ground (GND) or Relay of exit device** = PUSH2 terminal of PUSH block on gate opener control board.
- **12V Power positive (+) or (12V) or (PWR) of exit device** = +12V terminal of PHOTO block on gate opener control board.
- **12V Power Negative (-) or (GND) or (PWR) or Shield wire of exit device** = GND terminal of PHOTO block on gate opener control board.

Accessories Wiring

Photo Eye, Safety Edge, Safety Loop:

- **Normally Closed (NC) of safety device** = *Photo terminal of PHOTO block on gate opener control board.*
- **Common (COM) or Ground (GND) of safety device** = *GND terminal of PHOTO block on gate opener control board.*
- **12V Power positive (+) or (12V) or (PWR) of safety device** = *V+ terminal of PHOTO block on gate opener control board.*
- **12V Power Negative (-) or (GND) or (PWR) of safety device** = *GND terminal of PHOTO block on gate opener control board.*

**Remove safety jumper from PHOTO terminal if using a safety device.*

Solenoid Gate Lock:

- **Positive Lead of lock** = *A terminal of E_LOCK block on gate opener control board.*
- **Negative Lead of lock** = *B terminal of E_LOCK block on gate opener control board.*

Magnetic Gate Lock: Magnetic gate locks must have their own power supply and their own relay.

- **Coil of relay for magnetic lock** = *A terminal of E_LOCK block on gate opener control board.*
- **Coil of relay for magnetic lock** = *B terminal of E_LOCK block on gate opener control board.*

Connect positive lead of the power supply directly to the positive lead of the mag lock.

Connect negative lead of the power supply to the N/C terminal of the relay.

Connect the COM terminal of the relay to the negative lead of the mag lock.