V20230831

S/D660
SWING-ARM GATE OPENER
USER MANUAL

Read Carefully Before Use
Keep for Future Reference

Safety Information

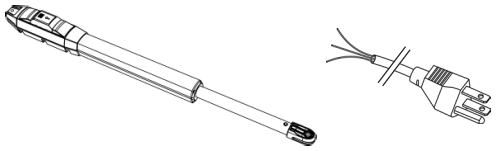
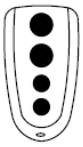
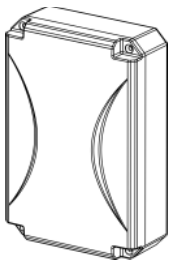
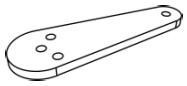
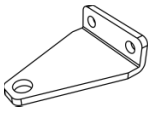
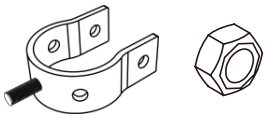
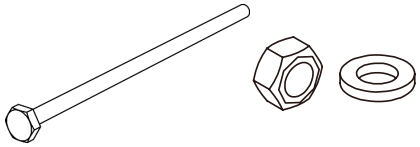
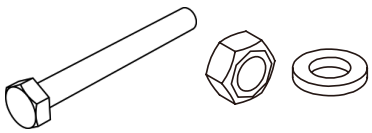
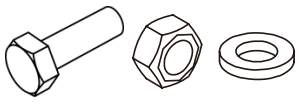
⚠ Warning!

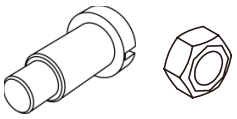
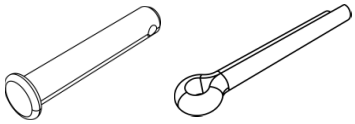
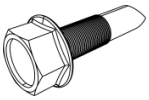
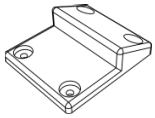
- Read these instructions completely before installation and use. Provide them to any technician used to install, maintain, or repair this device and provide them with the device if it is ever given or sold to a third party.
- Install and use this gate operator only in accordance with these instructions and all applicable local and national laws and regulations. Adding clearly visible warning signs may be necessary in your area and is a requirement for UL 325 compliance. Only use the device for its intended purpose, opening and closing gates for Class I residential vehicular traffic. Always aim to minimize public exposure to potential hazards such as pinch points. Failure to do so may result in serious property damage and severe personal injury.
- Install and use this operator only on firm and well-supported surfaces. Install and use this device so that its motor and other hazardous components are not in public areas and protected as much as possible from unauthorized access and use. There should be adequate clearance between your gate and any nearby structures to prevent any possibility of a pinching or crushing hazard during use. If this is impossible, the area should be guarded as well as possible and warnings placed nearby.
- **ONLY** allow trained technicians to install and repair this automatic gate operator and its electrical connections. Keep electronic components disconnected from any power source during installation and maintenance except as instructed for safely testing functionality.
- Confirm **BEFORE** any digging that there are no nearby gas, power, or other utility lines or that all such lines have been fully disabled and cleared to allow for safe work.
- **DO NOT** install this device in any area prone to flooding or in locations exposed to flammable or explosive fumes.
- **ONLY** use this device with gates of compatible weight and size.
- **ONLY** install fixed controls for the gate where they cannot be reached over, under, around, or through the gate. They should also be far enough away that operators cannot contact the moving gate during use. For full UL 325 compliance, there should be a clear line of sight between the control box and the gate, but the box and any other permanent access system should still be at least 6 feet (2 m) away from any of the gate's moving parts.
- When properly configured and activated, the gate operator's collision reaction system functions as a Type A entrapment protection and an attentive user and the device remote function together as a Type B1 non-contact sensor. If any other access system is added, additional contact or non-contact sensors such as photo eyes, edge sensors, and/or infrared sensors may be necessary to ensure legal and UL 325 safety compliance.
- **NEVER** allow children to play on or around this device or its attached gate. Keep controls away from children and out of their reach at all times and warn them of the gate's danger.
- **NEVER** pair a remote control for this device with any other control board. Never attempt to operate this device with two or more remotes or control devices at the same time.
- All provided components of this device are weatherproofed to withstand normal rain. Ensure adequate insulation and protection of all electrical connections and never direct pressurized water against any part of this device.
- Keep your gate well maintained and the device's piston(s) free of grime and debris. Periodically confirm that it runs smoothly under manual operation.
- **DO NOT** use if any component is missing, loose, worn, or damaged. Tighten, repair, or replace problematic parts before further use. Only replace components with identical parts and always fully replace damaged electrical cords.

Specifications

Input Power	110–120 V~ 60 Hz 24V DC	
Rated Power (ea.)	50 W	
Duty Cycle	S2 30 min.	
Max. Force (ea.)	630 lb.	2800 N
Max. Torque (ea.)	390 lb.-ft.	523 N·m
Max. Piston Speed	2.95 fpm	0.9 m/min.
Max. Stroke Length	13 in.	33 cm
Est. Time to Open 90°	10–17 sec.	
Max. Noise	58 dB	
Operational Temp. Range	−4° to 158°F	−20° to 70°C
Weatherproofing	IP44	
Max. Number of Remotes	32	
Remote Range	98 ft.	30 m
Remote Frequency	433.92 MHz	
Power Cord Length	4 ft. 11 in.	1.5 m

Package List

No.	Picture	Name	Qty.	
			S660	D660
A		Gate Opener with Motor & Wiring	1	2
B		Manual Release Key	2	2
C		Remote Controls	2	2
D		Control System with Casing	1	1
E		Post Base Brackets	2	4
F		Post Pivot Bracket(s)	1	2
G		Gate End Bracket(s)	1	2
H		Gate Tube Brackets & M8 Nuts	2	4
I		M10×200 Bolts, Nuts, & Washers	4	8
J		M8×70 Bolts, Nuts, & Washers	4	4
K		M8×25 Bolts, Nuts, & Washers	2	2

No.	Picture	Name	Qty.	
			S660	D660
L		Mounting Bolt(s), M8 Nut(s)	1	2
M		8×40 Clevis Pin(s) & Cotter(s)	1	2
N		6.3×25 Self-Drilling Screws with Bonded Washers	2	4
O		Limit Stop	1	1
P		Warning Sign(s)	1	2

Optional Equipment

IR Sensor System	Keypad	Alarm Lights	Electronic Lock
Backup Battery Box	PVC Tubing	Solar Panel System	Detection Loops

Not Included but Necessary

Hex Wrenches	Wire Stripper	Tape Measure	Deck Screws
Screwdrivers	Silicone	Level	Hacksaw
End Stops or Catches	Electrical Wiring	Pen	Cable Ties

Installation

Initial Setup

1. Double check your gate's weight and size. Confirm that your automatic gate operator will be able to provide the necessary torque using the chart below.

Single Gate Weight											
	kg	lb.									
	500	1100	✓	✗	✗	✗	✗	✗	✗	✗	✗
	400	880	✓	✗	✗	✗	✗	✗	✗	✗	✗
	300	660	✓	✓	✗	✗	✗	✗	✗	✗	✗
	250	550	✓	✓	✗	✗	✗	✗	✗	✗	✗
	200	440	✓	✓	✓	✗	✗	✗	✗	✗	✗
	150	330	✓	✓	✓	✓	✓	✗	✗	✗	✗
	100	220	✓	✓	✓	✓	✓	✓	✓	✓	✗
			4	6	8	10	12	14	16	18	20	ft.
			1.2	2	2.5	3	3.5	4.25	5	5.5	6	m
			Single Gate Length									

⚠ **DO NOT** continue with installation if your device's motor will not be able to provide the necessary torque for your gate. Contact customer service to work through your options.

2. Double check your gate's condition. Confirm that it is plumb and level both vertically and horizontally. Confirm that it swings smoothly on its hinges throughout its full range of motion without any binding or contact with the ground. Confirm that its posts are firmly secured in concrete and that the gate itself will not bend or flex once its movement is automated. Lubricate, repair, and reinforce the gate's components as needed.

   For full UL 325 compliance, place one or more warning signs so that they are clearly visible to anyone near the gate on either side. Such signs should warn of the possibility of serious injury or death from the moving gate, warn against allowing children nearby, and guide pedestrians to keep clear and to use a separate entrance.

   Ball bearing hinges are **HIGHLY** recommended for gate leaves heavier than 275 pounds (125 kg). For heavy gates, friction **WILL** cause excessive strain on standard hinges, leading to poorer performance and premature failure of the gate operator(s). Failure to use ball bearing hinges for such gates voids any warranty stated or implied.

   Support wheels are a likely point of failure and are **NOT** recommended for swing gates (cf. ASTM F2220). If your gate requires wheels, ensure that they rotate smoothly, have a clean and firmly mounted track along their entire path, and are protected against any obstruction or binding from corrosion. As potential pinch points, access to exposed wheels must also be restricted using roller guards.

   If you will use an electronic lock with your gate, make any necessary adjustments so that the two sides connected by the lock are spaced ⅝ to ¾ inch (1.5–2 cm) apart. (If you will not use an automated electronic lock, any range should be fine.)

3. Double check that there will be enough space around the gate along its **ENTIRE** range of motion to avoid any pinching or crushing hazard once its movement is automated. Make any necessary adjustments to eliminate hazardous areas around the gate.

   ⚠ If this is impossible for your location, post clear warnings about the potential danger and block all pedestrian access to the hazardous area.

4. Double check that the gate will not enter or obstruct **ANY** public area once its movement is automated.

   ⚠ If this is impossible for your location, get specific approval from the relevant authority. Post clear warnings and take every protective measure necessary so the gate will not risk accidents or block any public right of way.

5. Select the location for your control box. For full UL 325 compliance, it must be placed within sight of the gate but at least 6 feet (2 m) from any moving part. Never mount it on the same post as the gate itself. For best results, mount the box on a sturdy level surface within 20 feet (6 m) of the gate opener in a position inaccessible to anyone reaching through the gate. It must be at least 3 feet (1 m) above the ground to avoid damage from rain and snow and, for best results, place it 5 feet (1.5 m) or higher to help keep it inaccessible to small children and animals.

   The control box should be located at least 3 feet (1 m) away from any power outlet to avoid possible electrical interference. When using AC power, its own outlet should be visible from the gate and equipped with a GFCI or circuit breaker. If no outlet is available within 1000 feet (300 m) of the control box, the gate should be powered by a 24V DC battery, two 12V DC batteries wired to provide 24V power, and/or a dedicated solar system adequate to its needs (sold separately) or a licensed electrician should be consulted to safely make the necessary adjustments to handle the expected voltage drop along the power cord.

6. If using AC power, prepare the main power cord for the control system. If you will be using additional wire to extend the length of the provided power cord, be sure to keep all connections clean and well insulated. Any additional wiring should be a 3-core cable at least 16 AWG (1.5 mm²) thick for distances less than 300 feet (90 m) and 14 AWG (2.5 mm²) for distances beyond that. If the power outlet is located a considerable distance from the control box, the wiring should be placed inside a weatherproof PVC sheath and buried to avoid damage from animals, vehicles, etc. and minimize any risk of tripping.

   ⚠ **ONLY** make and adjust electrical connections while all lines are fully disconnected from power. **ALWAYS** confirm **BEFORE** digging that each area is free of underground utility lines or that any such lines have been deactivated and cleared to allow safe work.

7. Select the location for your automated gate operator(s). Each operator should be on the same side of the gate leaf as its hinge, positioned at a height between 1 foot (30 cm) off the ground and the midpoint of the gate. Its bolt will need to go all the way through a wood post at least 6 inches (15 cm) thick. Any thinner post should be made of metal and checked to confirm it will be able to bear the operator's force.

   If an operator will be located on the opposite side of the gate from the control box, its power and control wiring should be placed inside a weatherproof PVC sheath and buried to avoid damage from animals, vehicles, etc. and to minimize any risk of tripping. If additional length is needed, use 2-core cable at least 16 AWG (1.5 mm²) thick and ensure all connections are well insulated and protected against rain and other weather.

Operator Installation

1. Each automatic gate operator can be used to **PULL** a gate leaf open towards your property ("pull to open" or "PLO") or to **PUSH** the gate outwards ("push to open" or "PSO"). For a paired system controlling two gate leaves simultaneously, both operators should move in the same direction.

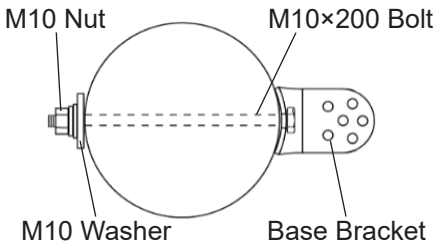
   In a pull to open setup, the operator(s) should be fully contracted when the gate is **OPEN**. The piston will retract during operation to pull the gate open inwards and then fully extend to push the gate closed again.

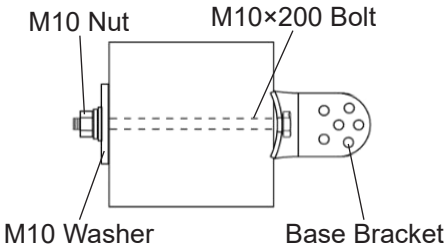
   In a push to open setup, the operator(s) work in just the opposite way. They should be fully contracted when the gate is **CLOSED**, extend during operation to push the gate open outwards, and then contract to pull the gate closed again.

2. The base of each gate operator must be firmly attached to a post beside the gate. Because of the forces involved, its bolts must go completely through wood at least 6 inches (15 cm) thick or completely through metal able to handle the stress. Each post should be well secured in a deep concrete foundation to avoid any movement over time.

   Alternatively, the base can be secured in masonry or concrete using heavy-duty drills and long anchor bolts. Using a professional contractor for such work is highly recommended to ensure all connections are snug and firm and to avoid any possible damage to your wall.

3. The end of each gate operator must be firmly attached to a bracket mounted on the gate itself. For a PLO setup, the bracket should be mounted to match the operator's contracted length when the gate is **OPEN**. For a PSO setup, it should match the contracted length when the gate is **CLOSED**. Check that your gate offers a secure crossbar at the necessary distance. Many gates will require you to install a new crossbar so that the operator's end bracket can be firmly attached at the correct distance.

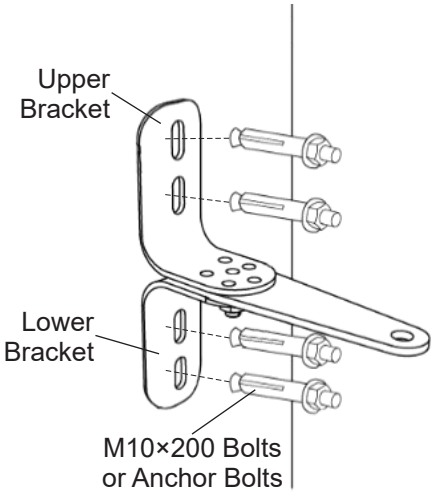
   

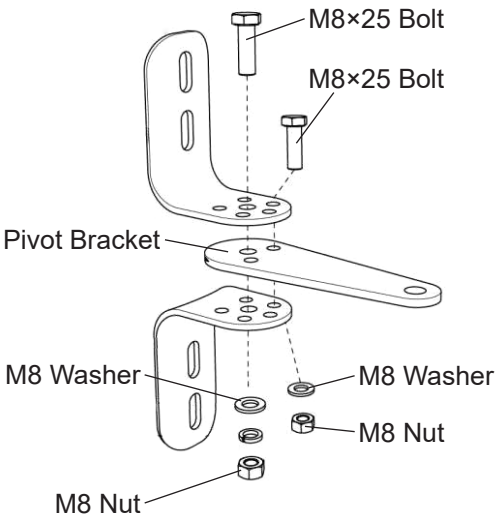
   ⚠ As you check and mark your locations, be sure the centerline of the base brackets will be **EXACTLY** in line with the center of the end bracket. Minor adjustments can be made using the bolts, but try to keep everything in line at each stage of installation.

4. Once the post and gate are fully prepared, mark the locations for the four bolt holes that will secure the base brackets (E) for each gate operator. You can use vises and/or clamps to hold the brackets and operator in place if needed.

   To use the provided hardware, drill holes 10.5 mm across straight through your support post. You can start by drilling the holes for the bottom base bracket first to get more exact placement for the other holes. Use the M10×200 bolts, their M10 washers, and M10 nuts (I) as shown to secure the base brackets. If you install the top bracket at this point, remember to leave just enough room between the two brackets for the pivot bracket that will need to be held securely between them.

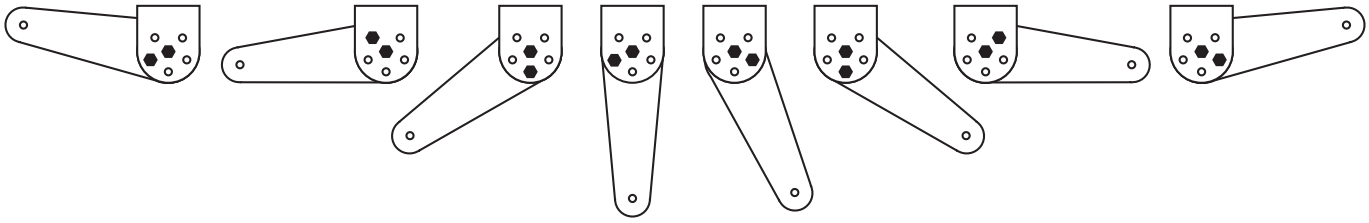
   

If you will need to use other hardware (e.g. for mounting through thicker posts or for mounting to solid masonry or concrete) make the necessary adjustments, being sure your fasteners will fit into the bracket bolt holes and securely hold the bracket assembly.

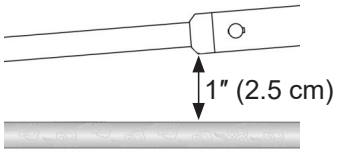


5. Each pivot bracket (F) can be fitted between its two base brackets in several positions. An M8×25 bolt, an M8 washer, and an M8 nut (K) should be used as shown to form the inner connection. A similar bolt, washer, and nut should be used to form the outer connection.

   The best position for the pivot bracket and its bolts will vary depending on your gate's specific circumstances. The most important factor is ensuring the operator can move your gate through its full range of motion without obstruction.



Another important consideration is providing for at least one inch (2.5 cm) of clearance between the widest part of the operator and your gate at both the open and closed positions. An easy way to make this adjustment is to fit the inner M10 bolt loosely, pivot the operator and pivot bracket as needed to adjust the clearance, and then install the M8 bolt and tighten both bolts to hold the pivot bracket in its best position.

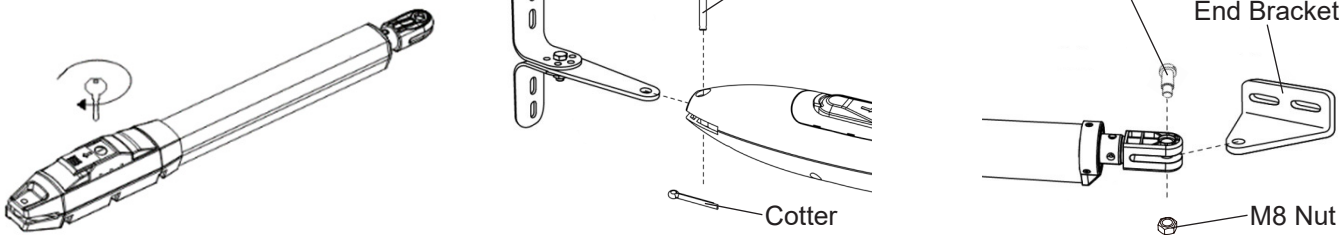


6. Mount each end bracket (G) to your gate at the appropriate location. Remember that it should match the length of your contracted operator when the gate is **OPEN** if you are using a pull to open setup but it should match the length of your contracted operator when the gate is **CLOSED** if you are using a push to open setup.

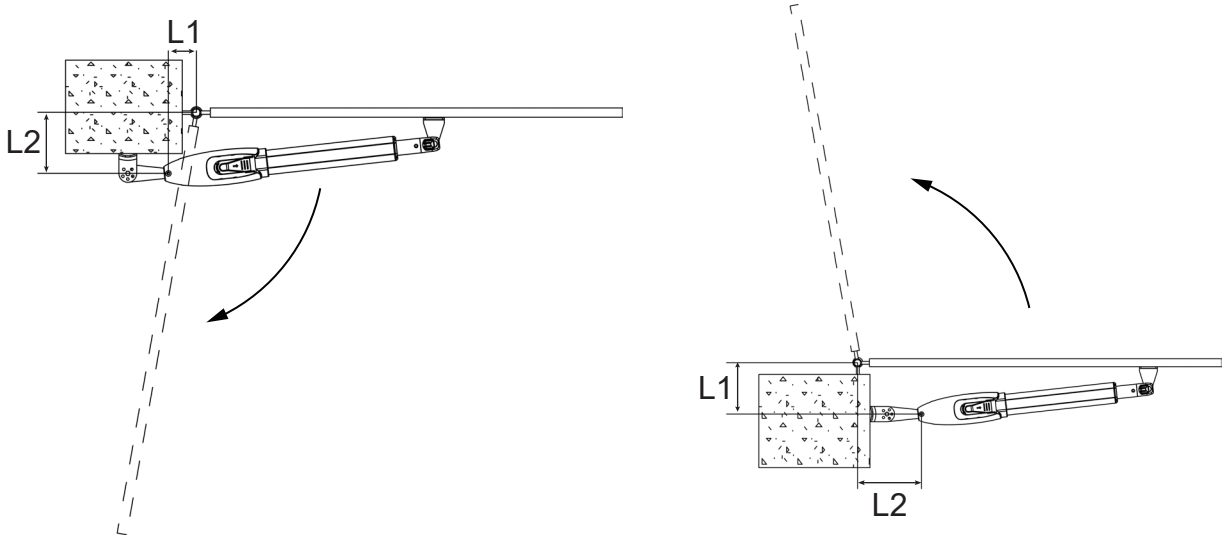
   Tube brackets (H) are included to easily secure each end bracket for most gates. Just fit the tube brackets around your gate's crossbars so the built-in bolts point inwards towards where your operator(s) will be mounted. Use M8×70 bolts, M8 washers, and M8 nuts (J) and the self-drilling screws (N) to lock them into place and then use their built-in bolts and M8 nuts (H) to mount the end bracket onto them.

   If your gate's design requires you to build your own crossbar to mount the operators at the correct distance, use the appropriate fasteners to firmly attach each end bracket as needed.

7. Use the manual release key (B) to unlock each operator. Confirm that the pistons move smoothly through their full range of motion. Attach the base of each operator to its pivot bracket with an 8×40 clevis pin and its cotter (M) and attach the end of each operator to its end bracket with a mounting bolt and M8 nut (L). Test that everything is completely level, adjusting as needed.



8. Gently move each gate leaf and operator through their full range of motion by hand, adjusting the positions of all the bolts and brackets as needed. Remember to ensure at least 1 in. (2.5 cm) of clearance between the widest part of each operator and the gate throughout the path.



Pull-to-Open (PLO) Setup **Push-to-Open (PSO) Setup**

The exact movement of the gate will depend on whether you are using a PLO or PSO setup, the exact distance from the base to the outer pivot hole (L1), and the exact distance from the outer pivot hole to the centerline of your gate (L2). The combination of these factors will determine the maximum open position of your gate as shown in the charts below.

Pull to Open Setup

			Length from Outer Pivot Hole to Base (L1)						
			10	12	14	16	18	20	cm
			4	4¾	5½	6¼	7	7¾	in.
Length from OPH to Centerline (L2)	10	4	103°	111.5°	118.5°	120.5°	108°	100.5°	
	12	4¾	101°	108.5°	115°	110°	100.5°	94.5°	
	14	5½	99.5°	106.5°	112.5°	101°	94°	X	
	16	6¼	98.5°	104.5°	101.5°	93°	X	X	
	18	7	97.5°	103°	92°	X	X	X	
	20	7¾	97°	90.5°	X	X	X	X	
	cm	in.							

Push to Open Setup

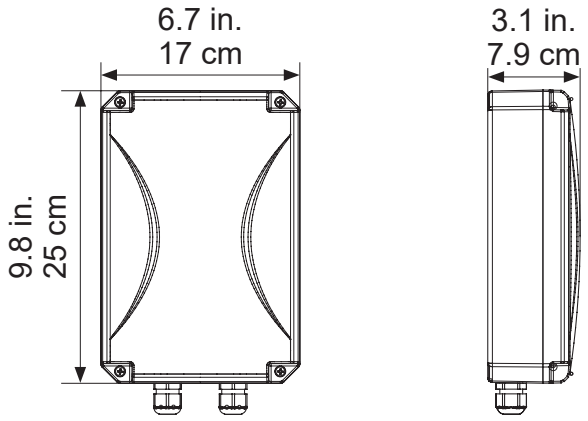
			Length from Outer Pivot Hole to Base (L1)						
			10	12	14	16	18	20	cm
			4	4¾	5½	6¼	7	7¾	in.
Length from OPH to Centerline (L2)	10	4	103°	101°	99.5°	98.5°	97.5°	97°	
	12	4¾	111.5°	108.5°	106.5°	105°	103°	100.5°	
	14	5½	118.5°	115°	112.5°	106°	96.5°	X	
	16	6¼	121°	110°	101.5°	93.5°	X	X	
	18	7	106°	98.5°	92°	X	X	X	
	20	7¾	96.5°	90.5°	X	X	X	X	
	cm	in.							

9. When everything is correctly adjusted for your needs, check that all fasteners are securely tightened and then use a hacksaw or similar tool to remove any excess length from your bolts to reduce the possibility of later accidents.
10. Check that all wiring is securely out of the gate's way throughout its full range of use. If necessary, use cable ties or other appropriate equipment to hold the wiring for each operator.
11. Gently move each gate leaf and operator through their full range of motion by hand once again. Confirm everything remains level and secure and then mark the desired closed and fully open positions. Install the limit stop (O) so that it holds the gate closed at the correct position. Install a separate end catch or end stop at the fully open position to limit the ability of the gate to overshoot its final position due to inertia, wind, etc.

    ⚠ Failure to install such catches and/or stops will allow the operator to exceed its designated stroke, **WILL** cause damage and premature failure, and voids any warranty stated or implied.
12. Once finished, use the manual release key to lock the operator(s) back into standard use.

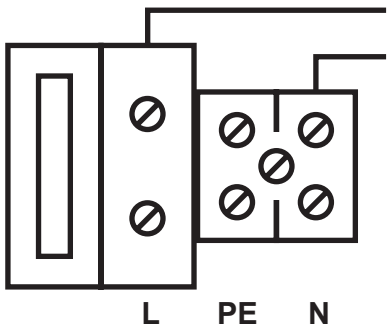
Control Box Installation

1. The control box should be attached to the location previously selected using 4 deck screws or 4 anchor bolts (not included). Be sure the box's strain relief slots are all pointed **DOWN** to help drain excess moisture.

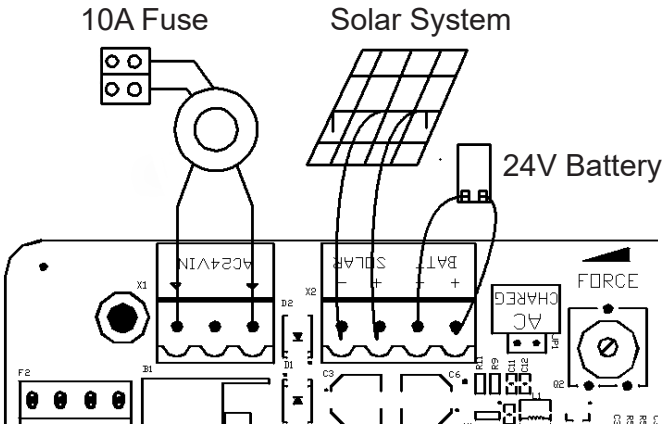


2. Remove the protective cover from the control box. Keep its fasteners nearby. Loosen the strain relief slots at the bottom of the box. In each step below, feed the wires through the strain reliefs before making connections so the wiring can be held securely in place between adjustments.

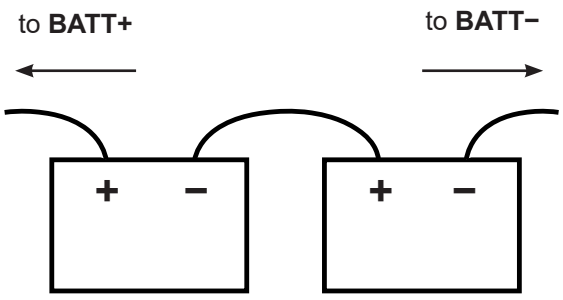
    ⚠ **NEVER** make electrical connections while your power supply is active. Turn off your AC power or disconnect your battery terminal(s) during any wiring adjustment.
3. If you will be using AC power, connect the provided cord or your extension to the main power terminal. This small white box runs to a 10A fuse and 24V transformer which should be prewired to the part of the circuit board's **X1** terminal marked **AC24VIN**. Use a small screwdriver to loosen and tighten the main power terminal's screws as needed. Connect the ground wire to the central pin, the live wire to the left pin, and the return or neutral wire to the right pin. Be sure no wiring is left bare and exposed.



If you will be using a dedicated solar system, follow its separate instructions for installation, adjust its wiring so no power will be flowing as you work, and connect its live wire to the **SOLAR+** pin on the **X2** terminal and its return or neutral wire to the **SOLAR−** pin. Any gate that will be using a solar system should also have a 24V battery attached (see below). This will allow the solar system to charge it during sunny days but still provide consistent service at night, in poor weather, and on occasions where the operator(s) must be used repeatedly in a short time.



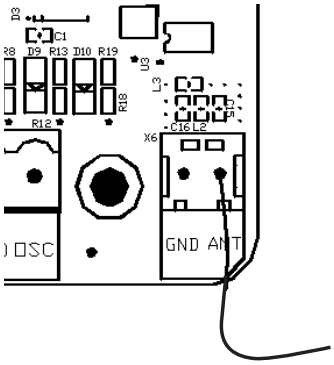
To use a 24V battery to provide primary or backup power, prepare weatherproof housing for it near the control box. Two 12V batteries can also be used as a single 24V unit by wiring the negative terminal of the first battery to the positive terminal of the second. Whether you are using one or two batteries, leave one terminal disconnected to prevent power from flowing during setup and adjustment. Connect the live wire from the battery's positive terminal to the **BATT+** pin on the board's **X2** terminal and the return or neutral wire from the negative terminal to the **BATT−** pin.



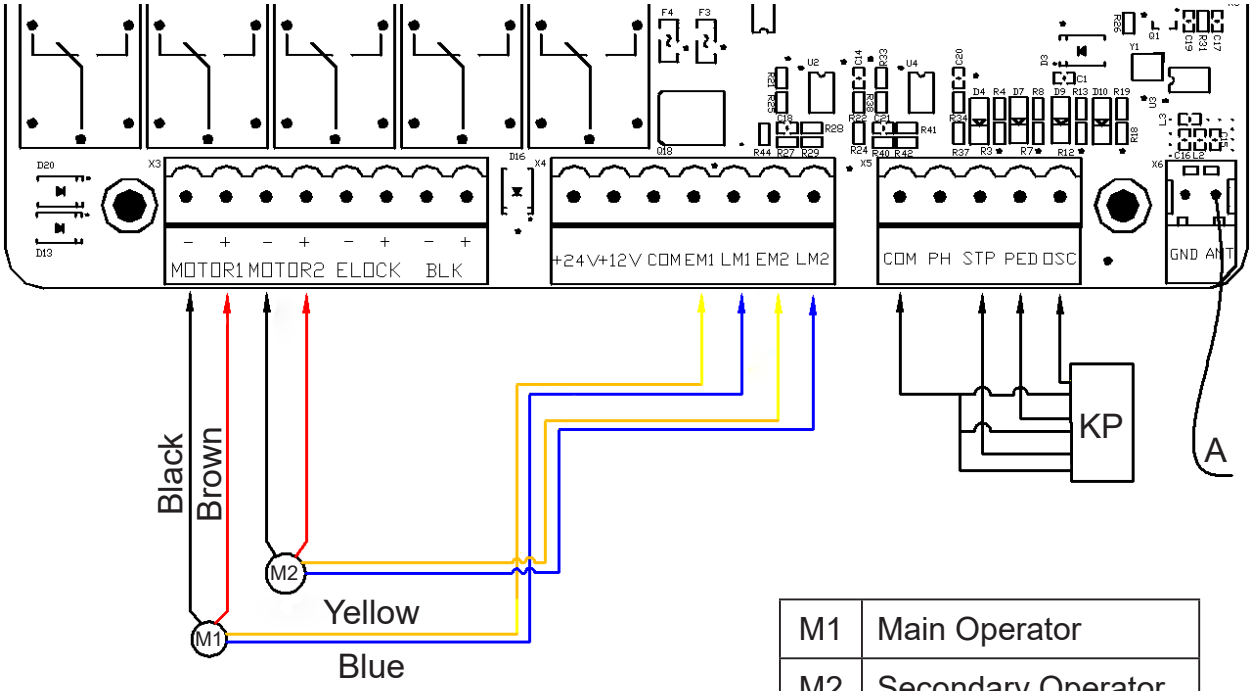
4. Each operator should have four wires to connect it to the circuit board for power and control signals. Connect them as shown on the right. The **MOTOR** pins are located on the board's **X3** terminal and the **EM** and **LM** pins are located on the **X4** terminal.

Wire Color	Master Operator	Secondary Operator
Brown	MOTOR1+	MOTOR2+
Black	MOTOR1−	MOTOR2−
Yellow	EM1	EM2
Blue	LM1	LM2

5. Double check that the wire from the remote control antenna is securely connected to the **ANT** pin on the **X6** terminal.



If your gate will have a separate keypad entry system, follow its separate instructions for installation and connect its wiring to the **X5** terminal. The return or neutral wires should be connected to the **COM** pin, the signal wire for **STOP** commands to the **STP** pin, the signal wires for pedestrian commands to the **PED** pin, and the signal wire for cyclical control—OPEN/STOP/CLOSE/STOP—to the **OSC** pin.

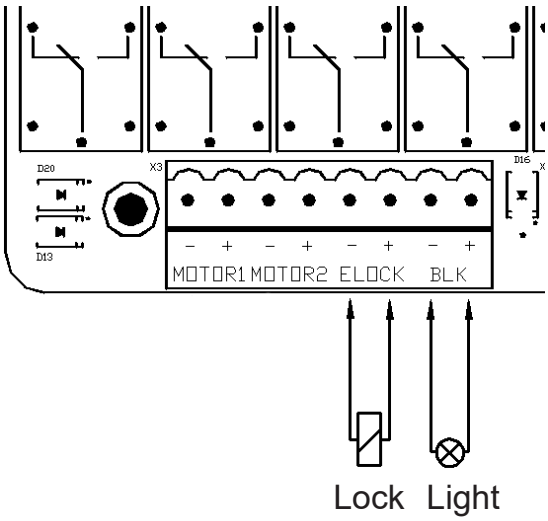


M1	Main Operator
M2	Secondary Operator
KP	Optional Keypad
A	Remote Antenna

6. Connect any other accessories you might wish to use with this gate opener, following their separate manuals to ensure safe and reliable operation. Some of the more common accessories for this gate opening system include:

Electronic Locks

The circuit board provides a 24V DC power. Make sure it is compatible with your electronic lock. To automatically control the electronic lock on your gate, connect its signal wire to the **ELOCK+** pin on the board's **X3** terminal. Connect its return or neutral wire to the **ELOCK−** pin.

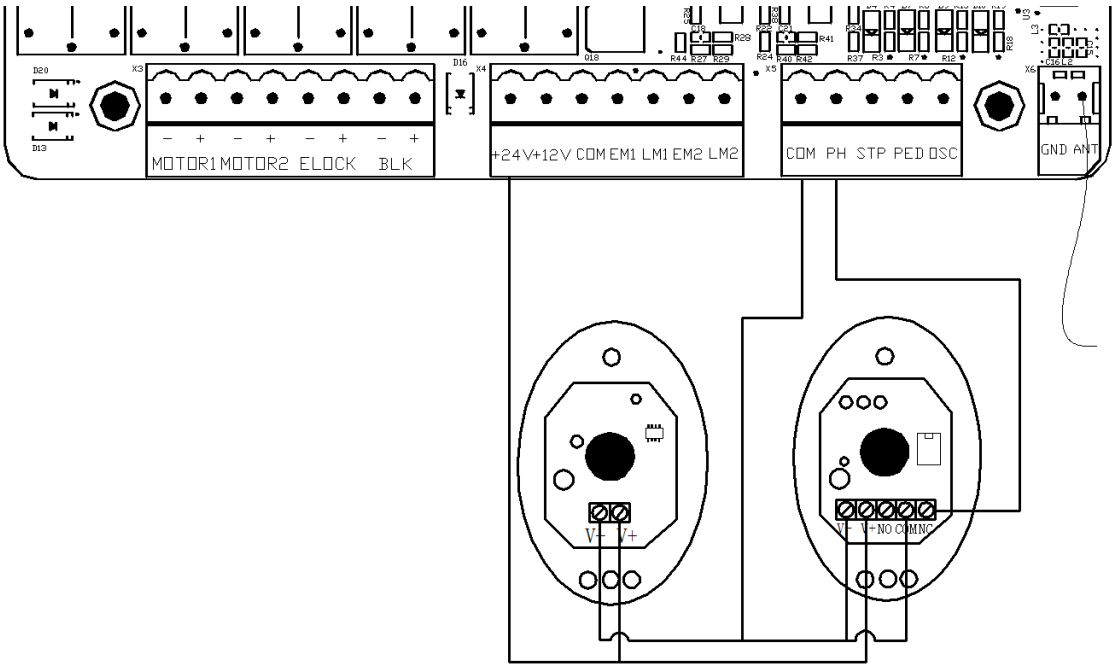


Alarm Lights

The circuit board provides a 24V DC power. Make sure it is compatible with your alarm light. To automatically control the alarm or indicator light when the gate is in motion, connect the light's signal wire to the **BLK+** pin on the **X3** terminal. Connect the light's return or neutral wire to the **BLK−** pin.

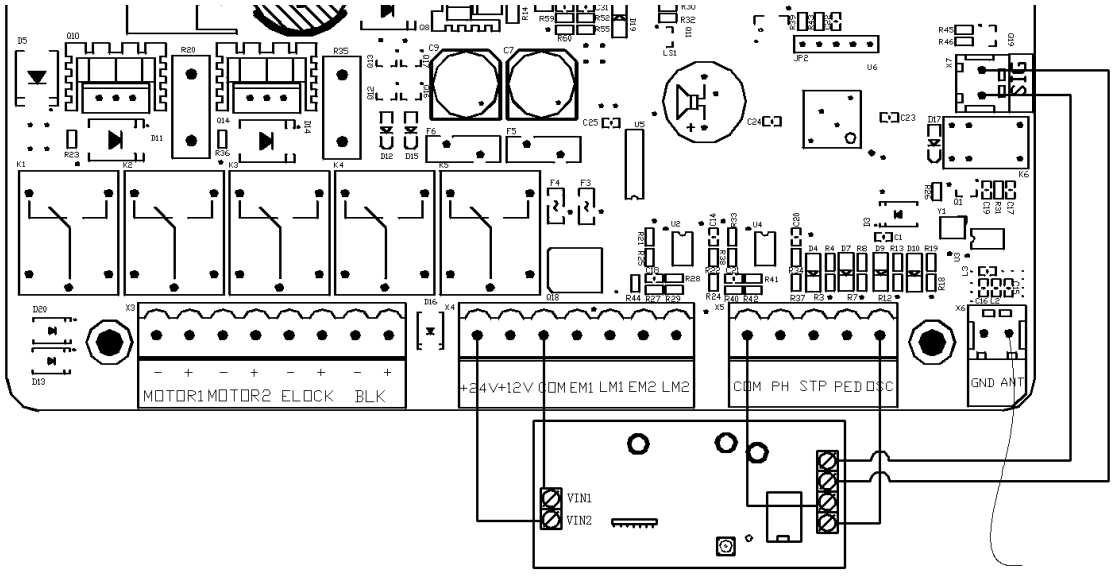
Infrared Sensors (“Photo Eyes”)

As shown below, connect the sensors’ common (COM) and return or neutral pins (V−) to the **COM** pin on the board’s **X5** terminal. Connect the receiver’s normally closed (NC) pin to the **PH** pin on the same terminal. Connect the power input pins (V+) on each sensor to the 24V power supply pin (**+24V**) on the board’s **X4** terminal. Remove any other wire connecting any of these pins directly, but save any such wire in a safe place in case you ever need to use the operator(s) without the photocells.



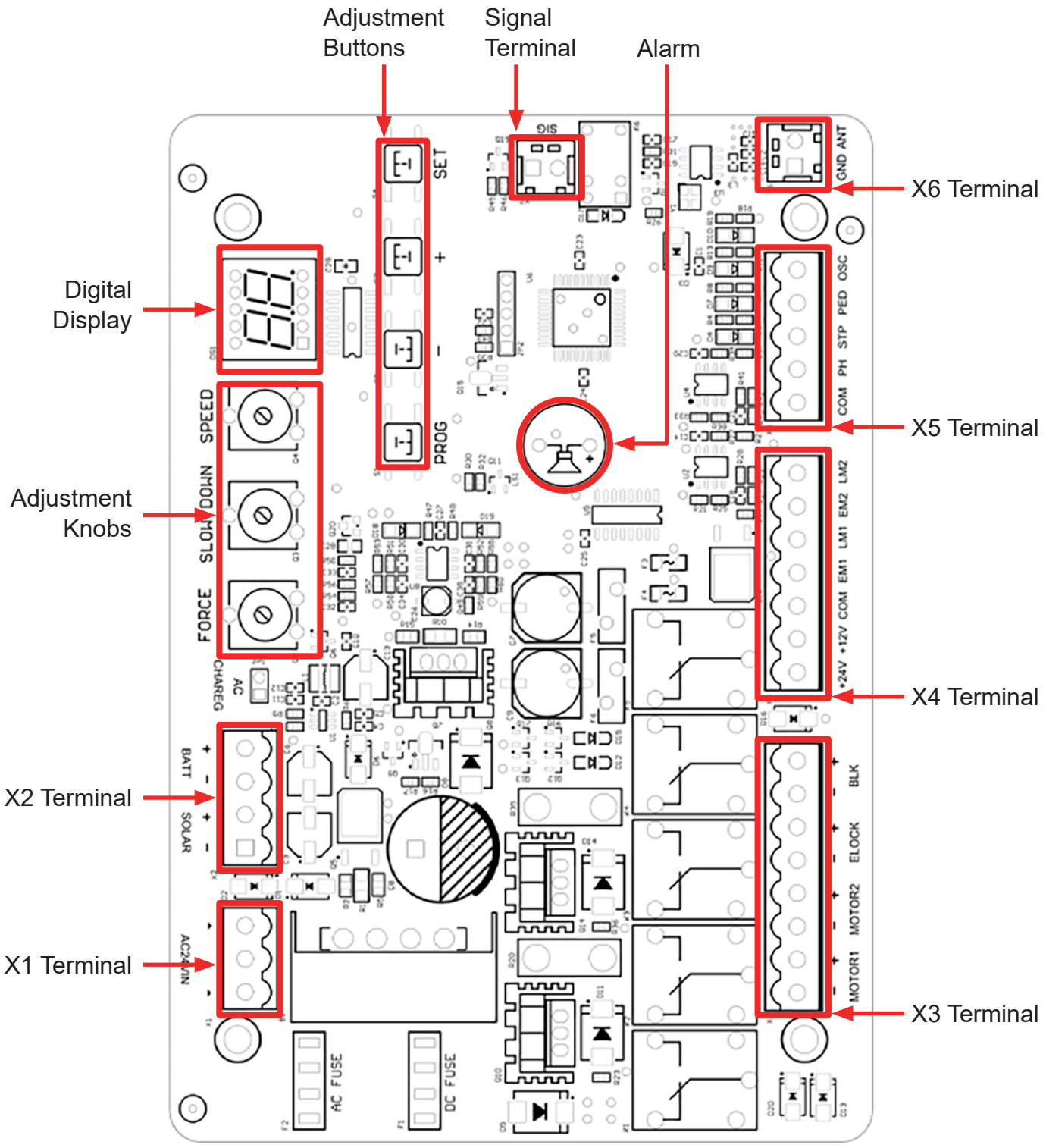
Wifi Module

To control your gate operator(s) using a 24V DC wifi system, connect its VIN1 pin to the **COM** pin on the board’s **X4** terminal. Connect its VIN2 pin to the 24V power supply pin (**+24V**) nearby. On the other side, connect the first two pins to the signal terminal (**SIG**), the third pin to the **COM** pin on the **X5** terminal, and the fourth pin to the cyclical control pin (**OSC**) nearby.

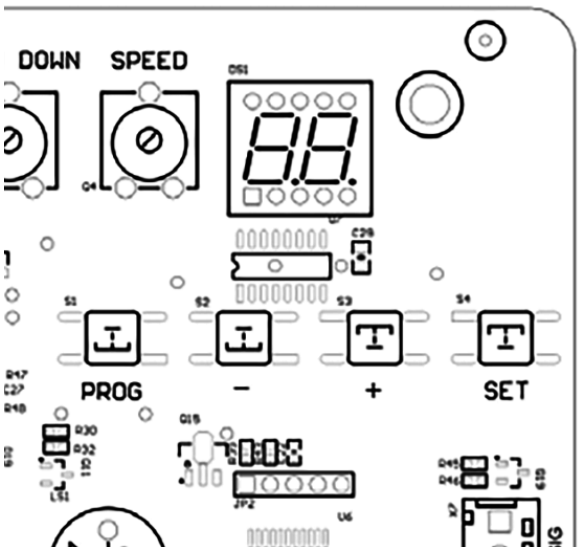


7. Once all your initial wiring is completed, tighten the strain relief slots to hold the wires in place and restore power to your system.

Circuit Board Diagram



Initial Testing



1. Your system should come correctly preprogrammed to work as a single operator for a single gate or as paired operators for two separate gate leaves. To confirm this before testing the gate, press the **PROG** button until the digital display changes from "--" to "NE". Press **+** or **–** until the display reads "SP". Press **SET** to confirm that the circuit board is using the proper operational mode. The display should read "OF" for one operator working alone and "ON" for two operators working together.

   If the setting doesn't match your system, use **+** or **–** to toggle to the correct setting and press **SET** to confirm your change.

2. Your system should come preprogrammed to use pull-to-open operation, opening inward towards your property. If your gate will be using push-to-open operation instead, pushing the gate outward, you will need to reset that parameter.

   Press the **PROG** button until the digital display changes from "--" to "RL". Press **+** or **–** until the display reads "dR". Press **SET** to enter the submenu and use **+** or **–** to toggle the setting from "IN" to "OU". Press **SET** to confirm your change.

3. Clear any obstacles from the gate's path and keep all bystanders away throughout the following steps.

4. **Limit Mode–Hall Sensor**

   The circuit board now needs to be trained to recognize inputs from its Hall sensors. This will also allow you to confirm the correct polarity of the operator wiring.

   ① Unlock each gate operator and open your gate halfway. Lock each operator again.

   ② Hold the **+** button on the circuit board until the digital display reads "SU". Release **+** and wait for the display to change to "A0".

   ③ In this mode, pressing **+** should open the gate and pressing **–** should close it for pull-to-open operation. The two buttons should have the opposite effect for push to-open operation. Press the correct button to move the first gate leaf to its fully open position.

   ④ The display should read "AK". Press **PROG** to save and the circuit board should automatically move to the next step.

   ⚠ If the **+** and **–** have the wrong effects in this mode, disconnect the circuit board from power, swap the position of the operator's two **MOTOR** wires, reconnect the board to power, and repeat this step. Other problems may arise from poor connections: Disconnect all power, correct the wiring, and check again.

   ⑤ For a single operator, the display should read "B". Press the correct button to move the gate to its fully closed position and press **PROG** to save. The display should change to "OK" and then automatically return to standby mode, reading "--".

   ⑥ For a two-operator system, the second step should display "B0". The adjustment buttons will now control the second gate leaf.

   ⑦ As before, use the correct button to move it to its fully open position. The display should read "bK".

⑧ Press **PROG** to save and the circuit board should move on to the third step, displaying “C”.

⑨ Use the correct button to move the first gate leaf to its fully closed position. Press PROG to save and the circuit board should move on to the final step, displaying “d”.

⑩ Use the correct button to move the second gate leaf to its fully closed position.

⑪ Press **PROG** to save. The display should change to “OK” and then automatically return to standby mode.

⚠ If the display doesn’t read “AK” or “bK”, check that both operators are fully contractible. If not, adjust the location of the end brackets.

Limit Mode—End Stop

Alternatively, you can set the stroke of your gate by using a different limit mode.

① Hold **PROG** until the display reads “rL”.

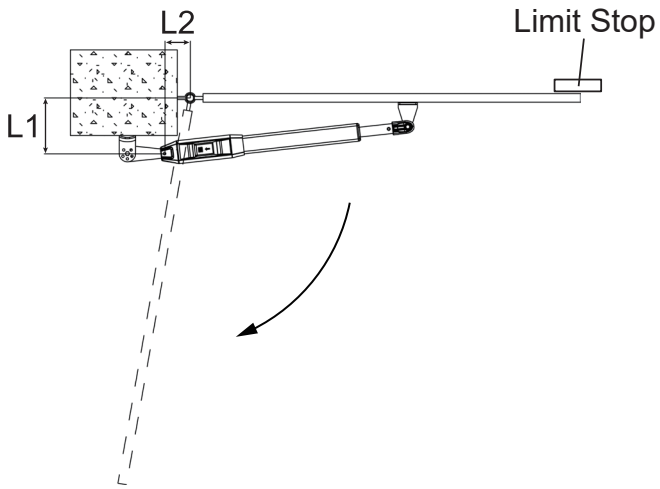
② Press “-” several times until the display reads “LP”.

③ Press **SET** and the display reads “LS”.

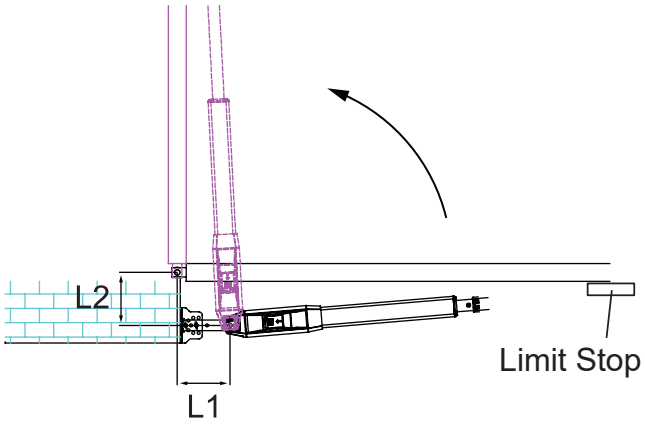
④ Press “-” once to change the reading into “RS”.

⑤ Press **SET** to save your change. Now the circuit board controls the operator to open and close your gate based on resistance detection and stored values.

Follow the steps below to retrain your circuit board about the limit stop.



Pull-to-Open (PLO) Setup



Push-to-Open (PSO) Setup

① Open your gate to its fully open position and lock the operator

② Hold the **+** button on the control board until the display reads “SU”.

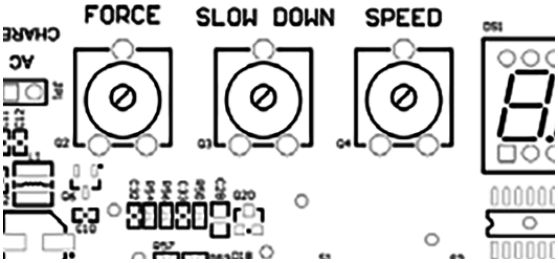
③ Your gate should start to close, stop at the limit stop, open to its fully opening position, and close and stop for a second time, indicating the retraining is done.

⚠ **ATTENTION!** For either PLO or PSO setup, after being initially opened, your gate should be moving to its closed position. If it is moving in the other direction, stop it and switch the operator’s motor pins’ wiring on the circuit board.

If the gate starts up too slow or too fast, use the **SLOW DOWN** knob on the circuit board to adjust the speed.

If the door stops abruptly due to wind or the friction of the gate itself or if the gate does not react appropriately to the end stops or closes you are using, turn **FORCE** knob to adjust the operator's force against resistance.

If you, by accident, turned the **SPEED** knob during any point of these steps, you have to start all over again.



5. The top button on both remote controls should already be paired with your circuit board. They use a single control mode at a distance of up to 98 feet (30 m). Pressing either button should cycle through the commands OPEN→STOP→CLOSE→STOP. Test both remotes through the full cycle of commands. The gate should now automatically stop at the right places but be ready to manually stop the gate using the remote if the memorized settings do not activate correctly. Confirm that the display shows "OP" as the door is opening and "CL" as it is closing. (If the top button on either remote does not control the gate, see below for pairing instructions and then repeat this testing.)
6. Your system does not come preprogrammed to automatically close your gate after reaching its fully open position. If you activate this function (see below), test that it works correctly by using either remote to open the gate to its fully open position and waiting to see if it begins closing automatically. Confirm that the remote can still stop the gate when it is closing automatically.
7. If you have installed any additional safety features like an infrared sensor system or magnetic detection loops, test them now and confirm that they work correctly and safely.
8. Disconnect your system from its power source. If any abnormalities have been detected during testing, make the necessary adjustments—e.g. by repositioning your end stops, shifting the adjustment knobs, or changing the stored parameters (see below)—or contact Customer Service. Once everything is functioning, replace the circuit board and motor covers and their fasteners, reconnect power, and enjoy!

Remote Pairing

The top button of each included remote should come already paired with your gate opener. Up to 30 additional remotes or wireless control buttons can be paired to the gate's circuit board. Be sure that they use the 433.92 MHz (LPD433 Channel 35) radio band or can be configured to do so.

1. Remote pairing must be done with the circuit board exposed and connected to power. Be careful and only touch the adjustment buttons while the circuit is live. Disconnect your power supply while the control box's cover is being removed or replaced and while making any adjustment to any wiring.
2. Press the **+** button until the digital display shows the current remote control mode ("PO", "Pd", or "SE") and then displays the number of currently paired remotes. Release the **+** button.
3. Press the remote button to be paired or enter a passcode and press the open button on your wireless control.
4. Press the same button on the remote control again or reenter the passcode and press the open button again on the wireless control. The digital display should show the new total number of devices and then automatically return to standby mode, displaying "--".
5. The button or keypad is now paired and can be used to open or close the gate. This pairing should remain stored in memory even when power to the gate opener is cut accidentally or at its circuit breaker.
6. Test that your gate responds correctly to commands from the new remote or keypad. When you are finished pairing and testing, disconnect the gate from power, replace the control box's cover and fasteners, and restore power.

When remote inputs are handled in four-button mode (see the "Pd" setting below), you can also pair a remote without opening the control box. Hold the bottom two buttons on any previously installed remote control to authorize remote pairing. Hold the bottom two buttons on the new remote to pair it. Test that each of the four buttons works safely and correctly.

This board cannot unpair an individual remote. If you need to remove lost remotes from the system's memory, you will need to delete **ALL** stored remotes at once. Open the control box as before. Hold the **+** button for about eight seconds. (Alternatively, press the **PROG** button until the digital display changes from "--" to "NE". Press **+** or **–** until the display reads "RE". Press **SET** to access the remote submenu. Press **+** or **–** until the display reads "rE". Press **SET** to confirm the deletion and exit.) Use any remote to test that all stored remotes have been purged.

Once this process is successful, pair the remotes that you want to continue using in the same way as before.

Parameter Adjustment

Aside from the three settings controlled by the adjustment knobs, all other parameters are controlled using the adjustment buttons and the digital display. There are two separate menus, one for basic settings and another for advanced settings.

In each case, use **PROG** to enter the main menus; **+** and **–** to toggle through menus and adjust values up or down; and **SET** to select submenus or confirm and save your changes. You can also wait one minute for the system to reset to standby ("--") without saving changes.

Basic Setting Menu

Submenu Name		Options	
NE	Operational Mode	**SA**	Use this setting for standard operation without autoclosure
		PE	Activates automatic gate closure
		HO	Activates automatic gate closure and only responds to one remote at a time (for commercial and large residential units)
		oc	Use this setting for standard fixed 3 button control systems
		oA	Use this setting for 3 button systems with automatic closure
SP	Gate Mode	**ON**	Use this setting for 2-leaf gates with twin operators
		OF	Use this setting for single gates with a single operator
OH	Gate Open Delay	**##**	Automatically delays opening the gate after a signal is received for this number of seconds (3 sec. default)
CH	Gate Close Delay	**##**	Automatically closes the gate from a fully open position after this number of seconds (15 sec. default) if activated
RE	Remote Settings	**PO**	Uses standard cyclical operation from a single button
		Pd	Uses four separate buttons for opening, closing, stopping, and opening the master side only on a 2-leaf gate
		SE	Opens only the master side of a 2-leaf gate
		rE	Deletes a saved remote (see above)
LC	Energy Saving Mode	**ON**	Reduces power consumption after more than 1 minute without use but causes a slightly slower response time
		OF	Uses standard operation

⚠ Electronic locks cannot be used when the OH value is set to 0, 1, or 2 seconds.

Advanced Setting Menu

Submenu Name		Options	
rL	Resistance Limit Time	**r1**	Sets the time in seconds that the master operator will slow at each end of its movement
		r2	Sets the time in seconds that the secondary operator will slow at each end of its movement
		L1	Adds a value in 1/100ths of a second to the **r1** value for fine tuning the master operator's movement
		L2	Adds a value in 1/100ths of a second to the **r2** value for fine tuning the secondary operator's movement
PH	Infrared Mode	**NO**	If an infrared sensor is attached to the system, use this setting for those that use a normally open signal
		NC	Use this setting with any infrared sensors that use a normally closed signal
EL	Electric Lock Mode	**NO**	If an electronic lock is attached to the system, use this setting for those that use a normally open signal
		NC	Use this setting with any electric locks that use a normally closed signal
Oc	Lock Pushback	**NO**	Opens the gate directly
		YS	Pushes outward when first opening, used to prevent catching on some delayed electric locks
PA	Alarm Light Mode	**NO**	If an alarm light is attached to the system, it will stay on continuously when the gate is in motion
		FL	Any alarm light will flash on and off when the gate is in motion
LP	Limit Mode	**RS**	Processes the open and close limits based on stored values and resistance detection
		LS	Processes the open and close limits based on stored values and magnetic detection from the Hall sensors
Nd	Gate Type	**00**	Use this setting for extremely heavy gates that respond poorly even with the **POWER** adjustment knob is at its maximum
		01	Use this setting for standard gates
		02	Use this setting for better operation with extremely small or light gates (under 110 lb. or 50 kg)
dr	Gate Direction	**IN**	Use this setting for pull-to-open gates
		OU	Use this setting for push-to-open gates
bE	Alarm Buzzer	**YS**	Sounds an alarm when the gate moves or an error occurs
		NO	Disables the alarm (Note that such an audible alarm may be required for automatic gates in your area)
FP	Parameter Reset	**OF**	Exits without changes
		ON	Removes all stored information, requiring setup to be repeated

Maintenance

- Always supervise children and pets near the gate, the operators, and their controls to prevent accidents.
- Always fully disconnect the control box from its power supply before removing its cover or making any adjustments to its wiring, except as specifically directed elsewhere in this manual. Use trained and licensed electricians for rewiring or electrical repair work.
- Keep your gate and its hinges clean and free of any corrosion, grime, or obstructions.
- Lubricate hinges as needed and, in climates where temperatures reach 34°F (1°C) or lower, spray silicone on the operator piston(s) every 4–6 weeks to prevent freezing.
- If your gate is not in regular use, test your gate opener's operation at least once a month. If any problems are noticed during testing or normal use, disconnect the control box from power, unlock the operator(s), and test manually that the gate still moves smoothly on its own. Tighten, repair, or replace problematic parts as needed. Only use identical components and always fully replace damaged or malfunctioning electrical cables.

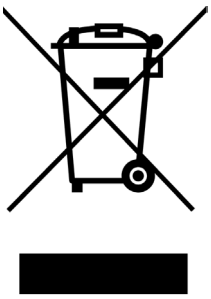
Troubleshooting

Possible Problems	Typical Solution(s)
The gate does not open or close normally and the digital display does not activate on the circuit board.	Verify that the power supply if functioning properly.
	Check that the fuse is not blown. If necessary, replace it with an identical 10A 250V fuse.
	Have a certified electrician rewire your system.
Operator 1 or 2 is blocked from opening (errors "E1" or "E2") or closing ("E3" or "E4").	Remove any obstacles that might be in the gate's path.
	Decrease the gate's obstruction sensitivity with the **FORCE** knob.
	Increase the gate's deceleration distance with the **SLOW DOWN** knob.
No infrared signal is detected by the circuit board ("E5").	Remove anything that might be in the sensors' path.
	Check all wiring for any damage or poor connections.
	If there is no IR system, replace the short wire between the **PH** and **COM** pins on the X5 terminal.
The master operator closes long before the secondary operator ("E6").	Adjust the open delay ("OH") settings to see if the situation resolves.
	Check all wiring for any damage or poor connections.
	Repeat the steps in Initial Testing above, teaching the system about its route again.
The motor overheats or the system misunderstands the operator(s) as overheated ("E7").	Wait for the operator(s) to cool before resuming operation.
	Repeat the steps in Initial Testing above, teaching the system about its route again.
	Have a certified electrician check the Hall sensors and repair or replace as needed.

Possible Problems	Typical Solution(s)
The system does not have or has forgotten its route information (“E8”).	Repeat the steps in Initial Testing above, teaching the system about its route again. (Remember that this is necessary after any adjustment of the **SPEED** knob.)
The gate opens but does not close.	If an IR system is installed, correct any problems it might have. If there is no IR system, replace the wire shorting the IR pins.
	Decrease the gate’s obstruction sensitivity with the **FORCE** knob.
The gate does not respond to commands from a remote.	Repeat the remote pairing process.
	Remove any obstructions between the remote and the control box.
	Replace the remote’s battery.
	Check that the receiver antenna is wired to the **ANT** pin.
The gate does not move even though the control box and operator(s) function normally.	Lubricate or repair the gate’s hinges. (Again, ball bearing hinges are highly recommended for any large gates.)
	Check that all components and fixtures remain level, fixing as needed.
The gate suddenly stops or reverses when moving.	Remove any obstacles that might be in the gate’s path.
	Check any IR sensors and wiring, adjusting as necessary.
	Decrease the gate’s obstruction sensitivity with the **FORCE** knob.

Disposal

Electrical products should not be disposed of with household products. In the EU and UK, according to the European Directive 2012/19/EU for the disposal of electrical and electronic equipment and its implementation in national laws, used electrical products must be collected separately and disposed of at the collection points provided for this purpose. Locations in Australia, Canada, and the United States may have similar regulations. Contact your local authorities or dealer for disposal and recycling advice.



Contact Us

Thank you for choosing our products! If you have any questions or comments, contact us at **contact@b2csupportpro.com** and we'll resolve your issue ASAP!

For a .pdf copy of the latest version of these instructions, use the appropriate app on your smartphone to scan the QR code to the right.

S G O - D 6 6 0 - 0 0
S G O - S 6 6 0 - 0 0
Rev. 31 Aug. 2023