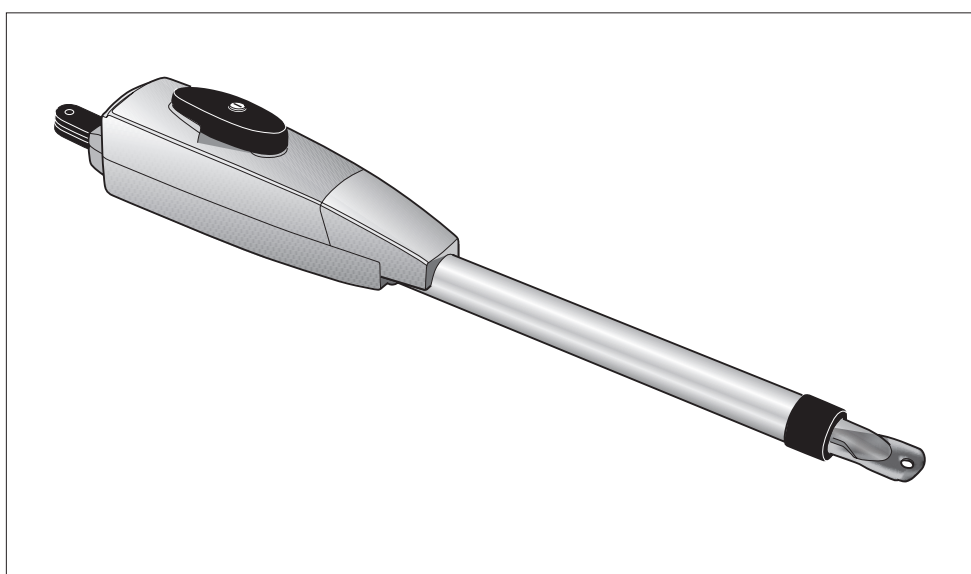


Merlin® *WINGMATE* 4

MGL400-24 & MGL400-24S

SWING GATE OPENER

OWNER'S MANUAL



The MGL400-24 is intended for use with vehicular swing gates.
For residential applications only (refer to page 2 for more details).

DESIGNED FOR PROFESSIONAL INSTALLATION

Serial # Primary Arm _____

Serial # Secondary Arm _____

Serial # Control Box _____

Installation Date _____



TABLE OF CONTENTS

SAFETY

Safety Symbol and Signal Word Review
Installation Classifications
Safety Installation Information
Gate Construction Information
Important Safety Information

INTRODUCTION

Operator Specifications
Carton Inventory
Additional Items Needed for Installation
Wiring Specifications and Tools Needed

INSTALLATION

Overview of Typical Installation
Check Your Gate
Mounting Options
Manual Release
Determine Position of the Pull-to-Open Bracket
Assemble Gate Post Bracket (Pull-to-Open)
Attach Brackets to Gate Operator
Determine Mounting Location
Measuring and Marking for the Gate Bracket
Position Gate Operator on Gate
Test Gate Travel
Secure Post Bracket to Gate Post
Secure Gate Bracket to Gate
Warning Sign Placement
Standard Control Box

WIRING

Connect the Gate Operator (Gate 1) to the Control Box
Set the Bipart Delay (Model MGL400-24S Only)
Connect the Gate Operator (Gate 2) to the Control Box (Model MGL400-24S Only)
Junction Box (Model MGL400-24S Only)
Earth Ground Rod Installation (Optional)
Connect Batteries

1-6 ADJUSTMENT

1 Set DIP Switch
2 Limits
3 Force Adjustment
4 Timer-to-Close

5-6 PROGRAMMING

7 Remote Controls
7 Keyless Entry
7 Erase All Codes
8 Test

8 ADDITIONAL FEATURES

9-19 Control Inputs
9-10 Loop Inputs
11 Photo/Edge Inputs (P 6-7-8 and 9)
11 Safety Accessories for Secondary Entrapment Protection

12 OPERATION AND MAINTENANCE

12 Reset Button
13 Remote Control
13 Maintenance
14 Manual Release

15 TROUBLESHOOTING

16 Basic Control Board Layout
16 Wiring Diagram
17 Diagnostic Codes
17 Troubleshooting Chart and Tips

18-19 REPAIR PARTS

20 Control Box
21 Gate Operator Arm

20-25 ACCESSORIES

23-24 WARRANTY POLICY

25 TEMPLATE

26-30

26
27-29
30
30

31

31
31
31
31

32-35

32
33
33
34

36-37

36
36
37
37

38-41

38
39
39
40-41

42-43

42
42

43

44

BACK COVER

SAFETY » SAFETY SYMBOL AND SIGNAL WORD REVIEW

When you see these Safety Symbols and Signal Words on the following pages, they will alert you to the possibility of ***Serious Injury or Death*** if you do not comply with the warnings that accompany them. The hazard may come from something mechanical or from electric shock. Read the warnings carefully.

When you see this Signal Word on the following pages, it will alert you to the possibility of damage to your gate and/or the gate operator if you do not comply with the cautionary statements that accompany it. Read them carefully.

IMPORTANT NOTE

- BEFORE attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow all safety instructions.
- DO NOT attempt repair or service of your gate operator unless you are an Authorized Service Technician.

WARNING

MECHANICAL

WARNING

ELECTRICAL

CAUTION

SAFETY » INSTALLATION CLASSIFICATIONS

* **MGL400-24** is designed for Residential use only. If you are unsure which classification matches your site, call our customer service to clarify. Commercial & Industrial installations will void your warranty.

RESIDENTIAL – VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in a home of one to four single family dwellings, or a garage or parking area associated therewith.



RESIDENTIAL

NOT SUITABLE FOR:

COMMERCIAL – GENERAL ACCESS VEHICULAR GATE OPERATOR

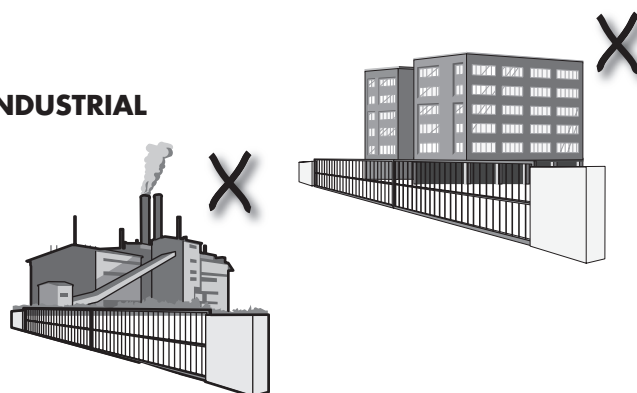
A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units) hotel, garage, retail store or other building servicing the general public.

INDUSTRIAL – GENERAL ACCESS VEHICULAR GATE OPERATOR

A vehicular gate operator (or system) intended for use in a industrial location or building such as a factory or loading dock area or other locations not intended to service the general public.

COMMERCIAL

INDUSTRIAL



SAFETY ACCESSORY SELECTION

Merlin gate operators will accept external entrapment protection devices to protect people from motorized gate systems. Below are the types of entrapment protection systems for use on this operator.

ENTRAPMENT PROTECTION TYPES

- Type A: Inherent obstruction sensing system, self-contained within the operator. This system must sense and initiate the reverse of the gate within two seconds of contact with a solid object **(included)**.
- Type B: Connections provided for a non-contact device, such as a photoelectric eye can be used as a secondary protection **(included)**.
- Type C: Connections provided for a contact sensor. A contact device such as a gate edge can be used for secondary protection (optional).

NOTE: We recommend warning signs are placed in plain view on both sides of the gate to warn pedestrians of the dangers of motorized gate systems.



ENTRAPMENT PROTECTION REQUIREMENTS

GATE OPERATOR ENTRAPMENT PROTECTION

Installation	Swing Gate (Arm) Operator	
CLASS	Primary Type	Secondary Type (recommended)
RESIDENTIAL	A	B or C

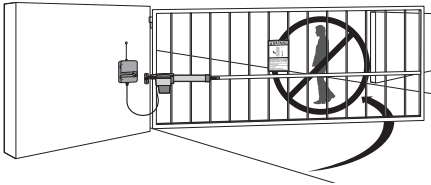
The chart above illustrates the entrapment protection requirements for each of the three classes.

In order to complete a proper installation you must satisfy the entrapment protection chart shown above. That means that the installation must have one primary means of entrapment protection. A secondary means of entrapment protection is **highly recommended**. Both primary and secondary entrapment protection methods must be designed, arranged or configured to protect against entrapments in both the open and close directions of gate travel.

For Example: For a slide gate system that is installed on a single-family residence you must provide the following: As your primary type of entrapment protection you must provide Type A inherent (built into the operator) entrapment sensing and we highly recommend at least one of the following as your secondary entrapment protection: Non-contact sensors such as photoelectric eyes (type B), Contact sensors such as gate edges (type C).

SAFETY » SAFETY INSTALLATION INFORMATION

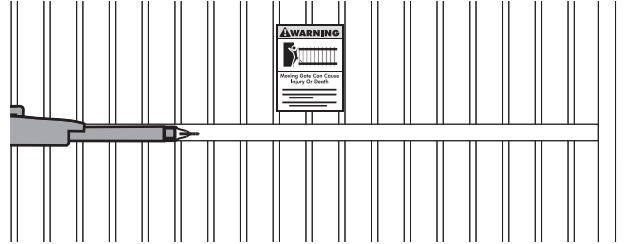
1. Vehicular gate systems provide convenience and security. Gate systems are comprised of many component parts. The gate operator is only one component. Each gate system is specifically designed for an individual application.
2. Gate operating system designers, installers and users must take into account the possible hazards associated with each individual application. Improperly designed, installed or maintained systems can create risks for the user as well as the bystander. Gate systems design and installation must reduce public exposure to potential hazards.
3. A gate operator can create high levels of force in its function as a component part of a gate system. Therefore, safety features must be incorporated into every design. Specific safety features include:
 - Gate Edges • Guards for Exposed Rollers • Photoelectric Sensors
 - Vertical Posts • Instructional and Precautionary Signage
4. Install the gate operator only when:
 - a. The operator is appropriate for the construction and the usage class of the gate.
 - b. All exposed pinch points are eliminated or guarded, and guarding is supplied for exposed rollers.
5. The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.
6. The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates shall not open into public access areas.
7. The gate must be properly installed and work freely in both directions prior to the installation of the gate operator.



8. Controls intended for user activation must be located at least 6 feet (1.83 m) away from any moving part of the gate and where the user is prevented from reaching over, under, around or through the gate to operate the controls. Outdoor or easily accessible controls shall have a security feature to prevent unauthorized use.
9. The Stop and/or Reset (if provided separately) must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
10. WARNING SIGNS are included and should be installed, one on each side of the gate where easily visible.



11. For a gate operator utilizing a non-contact sensor:
 - a. Reference owner's manual regarding placement of non-contact sensor for each type of application.
 - b. Care shall be exercised to reduce the risk of nuisance tripping, such as



when a vehicle trips the sensor while the gate is still moving.

- c. One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists, such as the perimeter reachable by a moving gate or barrier.
12. For a gate operator utilizing a contact sensor such as an edge sensor:
 - a. One or more contact sensors shall be located where the risk of entrapment or obstruction exists, such as at the leading edge, trailing edge and post mounted both inside and outside of a vehicular horizontal slide gate.
 - b. One or more contact sensors shall be located at the bottom edge of a vehicular vertical lift gate.
 - c. A hard wired contact sensor shall be located and its wiring arranged so the communication between the sensor and the gate operator is not subject to mechanical damage.
 - d. A wireless contact sensor such as the one that transmits radio frequency (RF) signals to the gate operator for entrapment protection functions shall be located where the transmission of the signals are not obstructed or impeded by building structures, natural landscaping or similar obstruction. A wireless contact sensor shall function under the intended end-use conditions.
 - e. One or more contact sensors shall be located on the inside and outside leading edge of a swing gate. Additionally, if the bottom edge of a swing gate is greater than 6 inches (152 mm) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.
 - f. One or more contact sensors shall be located at the bottom edge of a vertical barrier (arm).

SAFETY » GATE CONSTRUCTION INFORMATION

Vehicular gates should be installed in accordance with local standards.

1. GENERAL REQUIREMENTS

- 1.1 Gates shall be constructed in accordance with the provisions given for the appropriate gate type listed.
- 1.2 Gates shall be designed, constructed and installed to not fall over more than 45 degrees from the vertical plane, when a gate is detached from the supporting hardware.
- 1.3 Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 12.7 mm when other than the exceptions listed in ASTM F2200.
- 1.4 The minimum height for barbed tape shall not be less than 2.44 m above grade and for barbed wire shall not be less than 1.83 m above grade.
- 1.5 An existing gate latch shall be disabled when a manually operated gate is retrofitted with a powered gate operator.
- 1.6 A gate latch shall not be installed on an automatically operated gate.
- 1.7 Protrusions shall not be permitted on any gate, refer to ASTM F2200 for Exceptions.
- 1.8 Gates shall be designed, constructed and installed such that their movement shall not be initiated by gravity when an automatic operator is disconnected.
- 1.9 A pedestrian gate shall not be incorporated into a vehicular gate panel or that portion of the adjacent fence that the gate covers in the open position.

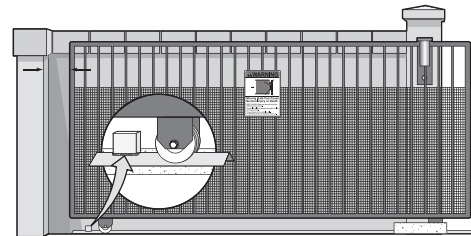
2. SPECIFIC APPLICATIONS

- 2.1 Any non-automated gate that is to be automated shall be upgraded to conform to the provisions of this specification.
- 2.2 This specification shall not apply to gates generally used for pedestrian access and to vehicular gates not to be automated.
- 2.3 Any existing automated gate, when the operator requires replacement, shall be upgraded to conform to the provisions of this specification in effect at that time.

3. VEHICULAR HORIZONTAL SLIDE GATES

- 3.1 The following provisions shall apply to Residential I, Commercial I and Commercial II vehicular horizontal slide gates:
 - 3.1.1 All weight bearing exposed rollers 2.44 m, or less, above grade shall be guarded or covered.
 - 3.1.2 All openings located between 1.22 m and 1.83 m above grade shall be designed, guarded or screened to prevent a 102 mm diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that covers in the open position.

- 3.1.3 A gap, measured in the horizontal plane parallel to the roadway, between a fixed stationary object nearest the roadway, (such as a gate support post) and the gate frame when the gate is in either the fully open position or the fully closed position, shall not exceed 57 mm, refer to ASTM F2200 for Exception.
- 3.1.4 Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.
- 3.1.5 All gates shall be designed with sufficient lateral stability to assure that the gate will enter a receiver guide, refer to ASTM F2200 for panel types.
- 3.2 The following provisions shall apply to Class IV vehicular horizontal slide gates:
 - 3.2.1 All weight bearing exposed rollers 2.44 m, or less, above ground shall be guarded or covered.
 - 3.2.2 Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.



4. VEHICULAR HORIZONTAL SWING GATES

- 4.1 The following provisions shall apply to Residential I, Commercial I and Commercial II vehicular horizontal swing gates:
 - 4.1.1 Gates shall be designed, constructed and installed so as not to create an entrapment area between the gate and the supporting structure or other fixed object when the gate moves toward the fully open position, subject to the provisions in the 4.1.1.1 and 4.1.1.2.
 - 4.1.1.1 The width of an object (such as a wall, pillar or column) covered by a swing gate when in the open position shall not exceed 102 mm, measured from the centerline of the pivot point of the gate, refer to ASTM F2200 for exception.
 - 4.1.1.2 Except for the zone specified in Section 4.1.1.1, the distance between a fixed object such as a wall, pillar or column, and a swing gate when in the open position shall not be less than 406 mm, refer to ASTM F2200 for exception.
 - 4.2 Class IV vehicular horizontal swing gates shall be designed, constructed and installed in accordance with security related parameters specific to the application in question.

SAFETY » IMPORTANT SAFETY INFORMATION

WARNING

- To prevent Serious Injury or Death from a moving gate - FOLLOW ALL INSTRUCTIONS
- Check that the temperature range of -20°C to +50°C is suitable for the location.

INSTALLATION

WARNING

To prevent SERIOUS INJURY or DEATH; one or more non-contact sensors shall be located where the risk of entrapment or obstruction exists.

To prevent SERIOUS INJURY or DEATH from a moving gate:

- Entrapment protection devices MUST be installed to protect anyone who may come near a moving gate.
- Locate entrapment protection devices to protect in BOTH the open and close gate cycles.
- Locate entrapment protection devices to protect between moving gate and RIGID objects, such as posts.
- A swinging gate shall NOT open into public access ways.

To prevent SERIOUS INJURY or DEATH from a moving gate:

- Install warning signs on the front and back of the gate in PLAIN VIEW.
- Permanently secure each warning sign in a suitable manner using fastening holes.

ALWAYS wear protective gloves and eye protection when changing the battery or working around the battery compartment.

- DO NOT use flooded lead acid battery.
- Flooded lead acid batteries will produce gases when discharging and recharging which can explode.
- DO NOT dispose of battery in fire. Battery may explode. Check with local codes for disposal instructions.

WIRING

WARNING

To reduce the risk of SEVERE INJURY or DEATH:

- ANY maintenance to the operator or in the area near the operator MUST NOT be performed until disconnecting the electrical power and locking-out the power via the operator power switch. Upon completion of maintenance the area MUST be cleared and secured, at that time the unit may be returned to service.
- Disconnect power at the fuse box BEFORE proceeding. Operator MUST be properly grounded and connected in accordance with local electrical codes. NOTE: The operator should be on a separate fused line of adequate capacity.
- ALL electrical connections MUST be made by a qualified individual.

- DO NOT install ANY wiring or attempt to run the operator without consulting the wiring diagram. We recommend that you install an optional reversing edge BEFORE proceeding with the control station installation.
- ALL power wiring should be on a dedicated circuit and well protected. The location of the power disconnect should be visible and clearly labeled.
- ALL power and control wiring MUST be run in separate conduit.
- BEFORE installing power wiring or control stations be sure to follow ALL specifications and warnings described below. Failure to do so may result in SEVERE INJURY to persons and/or damage to operator.

CAUTION

To AVOID damaging plug-in transformer, it MUST be enclosed in a suitable weatherproof enclosure and provided with proper weatherproof fixtures.

To AVOID damaging gas, power or other underground utility lines, contact underground utility locating companies BEFORE digging.

To reduce the risk of FIRE or INJURY to persons use only Merlin replacement batteries.

ADJUSTMENT

WARNING

Without a properly installed safety reversal system, persons (particularly small children) could be SERIOUSLY INJURED or KILLED by a closing gate.

- Too much force on gate will interfere with proper operation of safety reversal system.
- NEVER increase force beyond minimum amount required to close gate.
- NEVER use force adjustments to compensate for a binding or sticking gate.
- If one control (force or travel limits) is adjusted, the other control may also need adjustment.
- After ANY adjustments are made, the safety reversal system MUST be tested. Gate MUST reverse on contact with a rigid object.

SAFETY » IMPORTANT SAFETY INFORMATION

OPERATION AND MAINTENANCE



WARNING

- READ AND FOLLOW ALL INSTRUCTIONS.
- NEVER let children operate or play with gate controls. Keep the remote control away from children.
- ALWAYS keep people and objects away from the gate. NO ONE SHOULD CROSS THE PATH OF THE MOVING GATE.
- Test the gate operator monthly. The gate MUST reverse on contact with a rigid object or stop when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of INJURY or DEATH.
- Use the emergency release ONLY when the gate is not moving.
- KEEP GATES PROPERLY MAINTAINED. Read the owner's manual. Have a qualified service person make repairs to gate hardware.
- The entrance is for vehicles ONLY. Pedestrians MUST use separate entrance.
- Disconnect ALL power before performing ANY maintenance.
- ALL maintenance MUST be performed by a Merlin professional.
- SAVE THESE INSTRUCTIONS.

CAUTION

To reduce the risk of FIRE or INJURY to persons use only Merlin replacement batteries.

To avoid SERIOUS personal INJURY or DEATH from electrocution, DISCONNECT electrical power to operator BEFORE proceeding.

TROUBLESHOOTING



WARNING

To protect against fire and electrocution:

- Disconnect power and battery BEFORE installing or servicing operator.

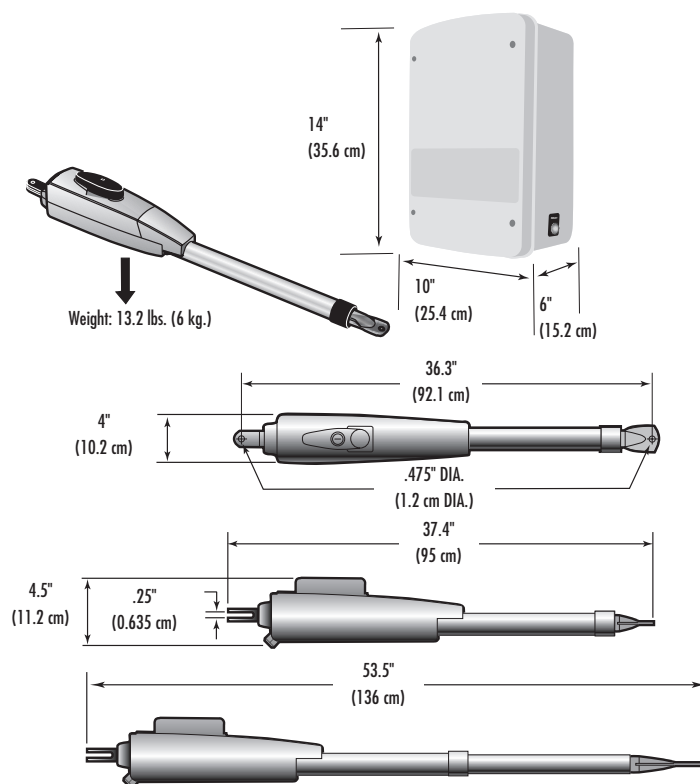
For continued protection against fire:

- Replace ONLY with fuse of same type and rating.

INTRODUCTION » OPERATOR SPECIFICATIONS + CARTON INVENTORY

OPERATOR SPECIFICATIONS

Operating Cycles:	100 per day
Main Supply (Motor):	24 Vdc
Current Consumption:	2A
Power Consumption:	48 Watts
Battery Charger Supply:	26 Vac, 29VA or 36 Vdc, 40VA
Maximum Gate Width:	4.9 m
Maximum Gate Weight:	249.5 kg
Protection Class:	NEMA 3R
Travel Speed:	14-18 seconds for a 90° opening
Rated Operating Time:	4 Minutes
Temperature:	-20° C to + 50° C
Main Supply (Control)	
Dedicated Circuit:	240 V~/50 Hz
Absorbed Power:	0.75 Watts
Protection Fuse Battery:	ATC 20A



CARTON INVENTORY

Carton inventory is based on a Single Operator. For Primary (Gate 1) and Secondary (Gate 2) installation the carton inventory is doubled except for control box.

- Standard Control Box - 433 MHz (1)
- Antenna (1)
- Transmitters (2)
- Hardware Bag (1)
- Gate Operator Arm
- Motor Cable - Six Conductor, 9 feet (2.7 m)
- Warning Sign (2)
- Battery (2)
- Transformer (1)

MGL400-24S (SECOND GATE OPERATOR ARM)

- Motor Cable - Six Conductor, 40 feet (12.2 m)
- Junction Box - IP56 (1)
- Phillips Head Mounting Screws (4)
- Anchors (4)
- Terminal Block - Twelve Connectors (1)

HARDWARE INVENTORY

- Post Bracket (1)
- Pull-to-Open Bracket (1)
- Hex Bolt 5/16"-18 X 1-1/2" (5)
- Square Neck Carriage Bolt 3/8"-16 X 6" (2)
- Hex Nut 3/8"-16 (2)
- Hex Nut 5/16"-18 (5)
- Flat Washer 5/16" (5)
- Flat Washer 3/8" (5)
- Lock Washer 5/16" (5)
- Lock Washer 3/8" (5)
- Gate Mounting Bracket (1)
- Hairpin Clip (2)
- Pin (2)
- Hex Bolt 3/8"-16 X 1-1/2" (1)
- Bolt 2-3/4" (2)
- Keylock Cap (1)
- Keys (2)

INTRODUCTION » ADDITIONAL ITEMS NEEDED FOR INSTALLATION + TOOLS NEEDED



ADDITIONAL ITEMS NEEDED FOR INSTALLATION



PERMANENT FASTENERS FOR WARNING SIGN



EARTH GROUND ROD (OPTIONAL)



POWER SUPPLY:

*** Mains powered** - If the opener is to be mains-powered, then the 3-pin power plug should be shielded from the effects of weather. If the plug is cut off for hard-wiring, then the safety of the unit becomes the responsibility of the installing electrician. An isolating switch is recommended, but all mains wiring should be in accordance with regulations.

*** Solar Powered Panels** - The size of these depends on: the duty cycle of the gates; the hours of sunlight; and the number and type of accessories fitted. 30 watts is recommended for Residential use.

*** Battery Powered with trickle charging** - Due to the high cost of long runs of heavy cable, it may be more economic in some installations to operate the gates from a battery, which is charged from a remotely located trickle charger.

For example: a 26 VAC 1.1 Amp plug pack can be located at the house, with appropriate wiring to the gate, controller, and battery some distance away. Follow the tables for minimum recommended conductor sizes for different distances.

Cable length	Conductor size mm ²	AWG#
Up to 30 m	1.5 mm ²	16
Up to 100 m	2.5 mm ²	14



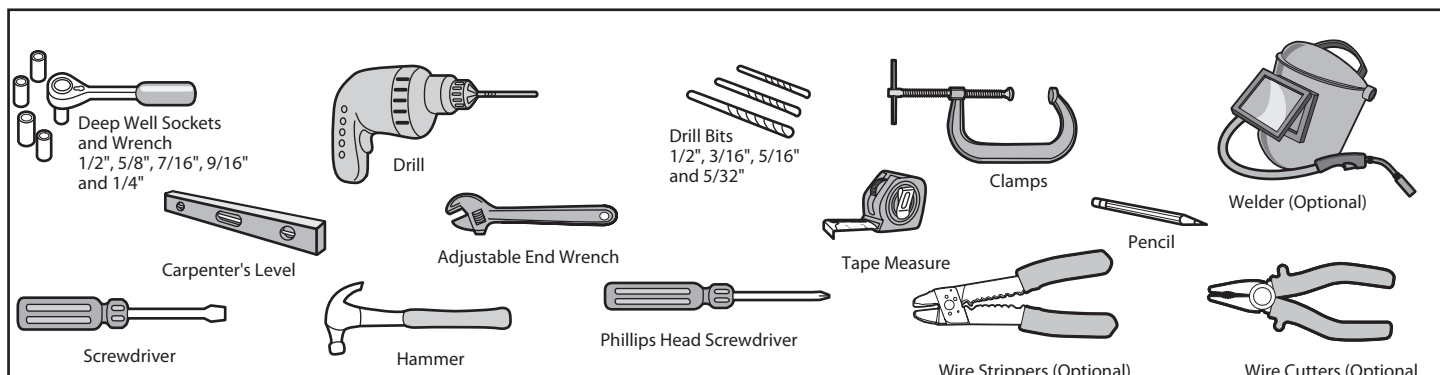
WIRING: All wiring must be arranged to prevent water entering the controller enclosure. Do not wire mains voltage and low voltage control wires in the same conduit.

*** Low voltage cable sizes** - Voltage will drop along low voltage cables over long distances. It is recommended to use cable with conductors of the following minimum cross sectional areas. The table lists lengths for twin-core cable, from a 24 V supply and 5 Amp load.

Cable length	Conductor size mm ²	AWG#
3 m	1 mm ²	16
5 m	1.5 mm ²	16
10 m	2.5 mm ²	14
15 m	4 mm ²	12
20 m	6 mm ²	10
25 m	6 mm ²	10
30 m	10 mm ²	8

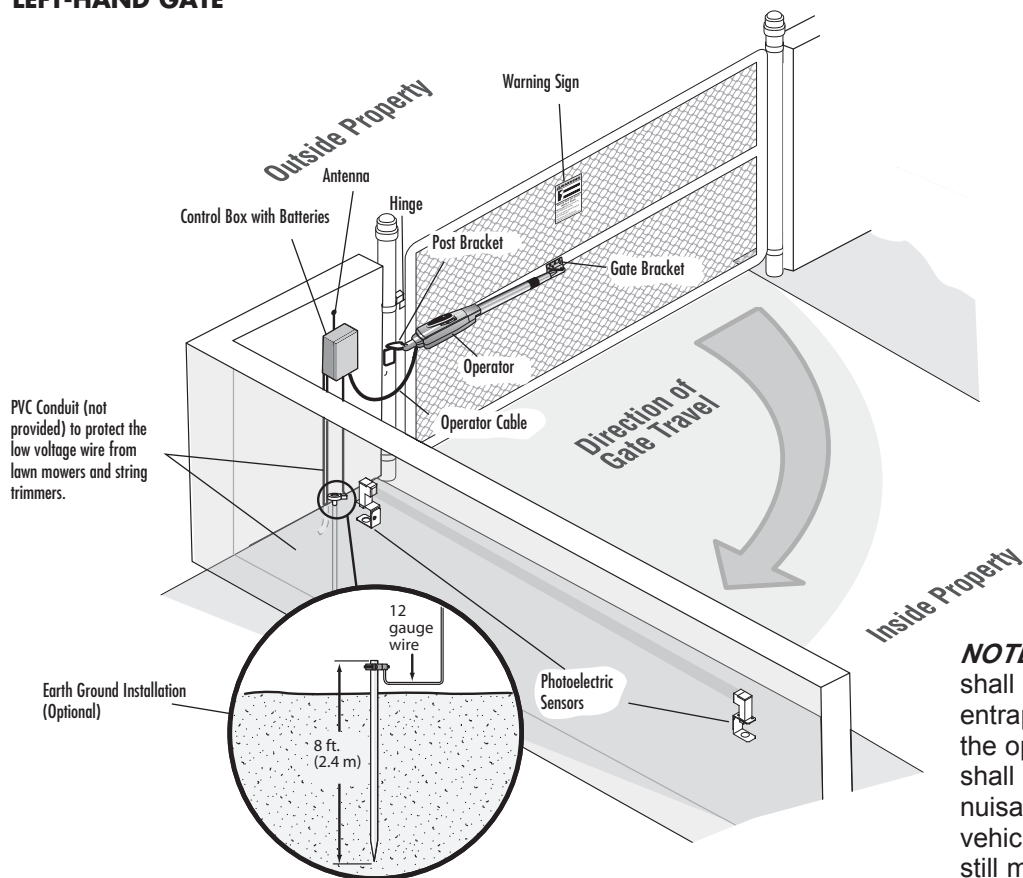
TOOLS NEEDED

During assembly, installation and adjustment of the operator, instructions will call for tools as illustrated below.



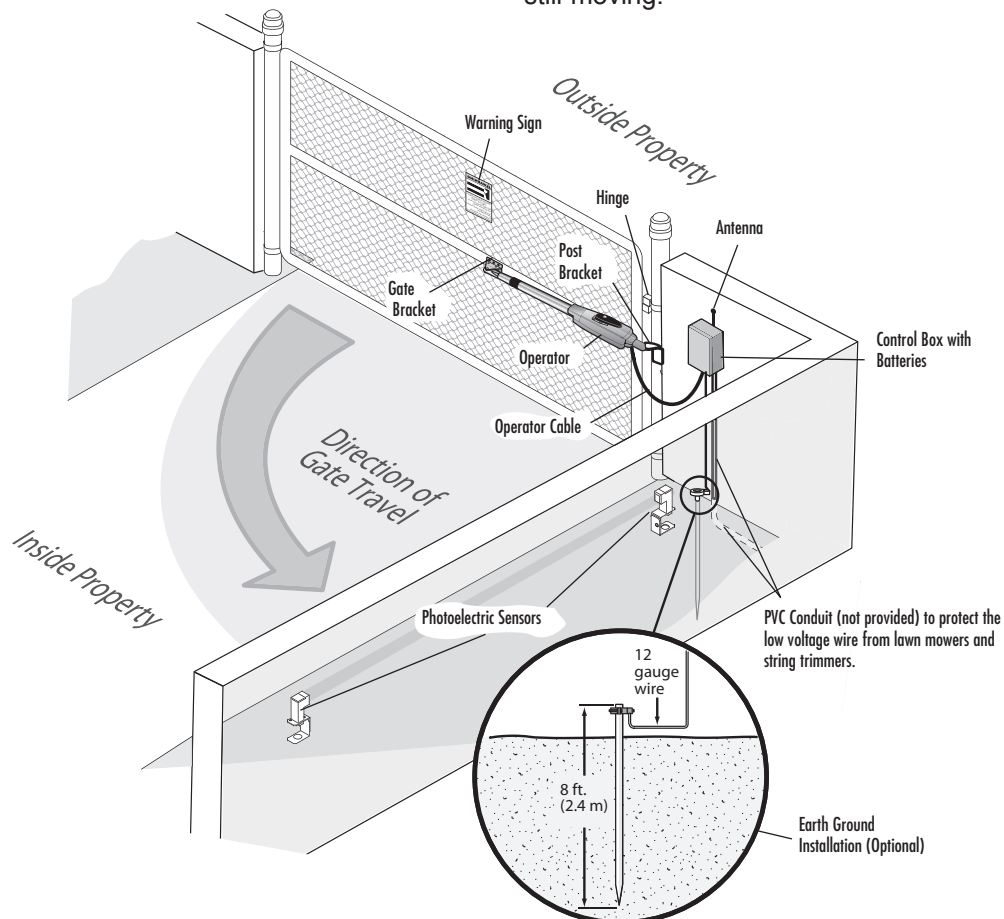
INSTALLATION » OVERVIEW OF TYPICAL INSTALLATION

LEFT-HAND GATE



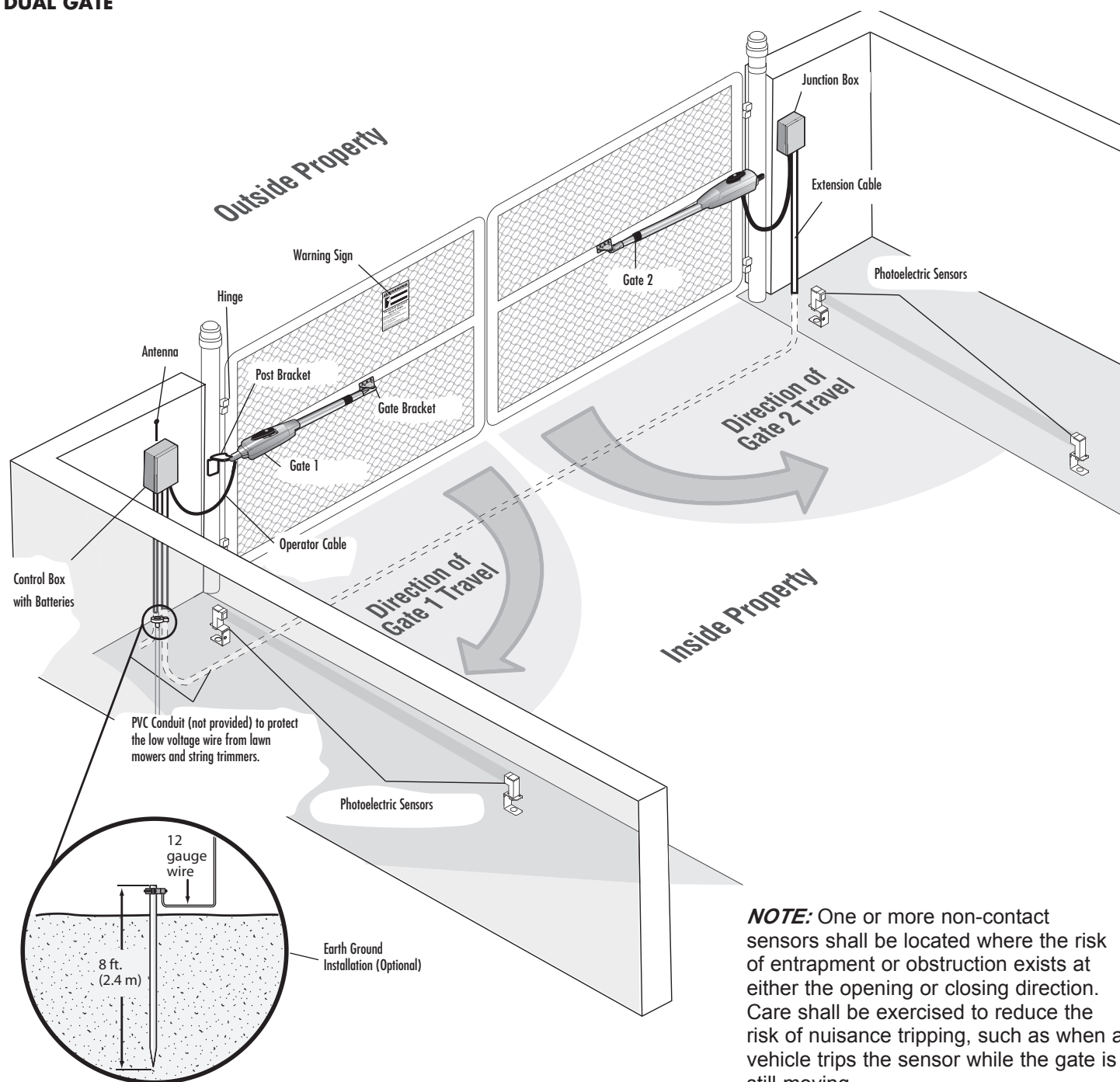
NOTE: One or more non-contact sensors shall be located where the risk of entrapment or obstruction exists at either the opening or closing direction. Care shall be exercised to reduce the risk of nuisance tripping, such as when a vehicle trips the sensor while the gate is still moving.

RIGHT-HAND GATE



INSTALLATION » OVERVIEW OF TYPICAL INSTALLATION

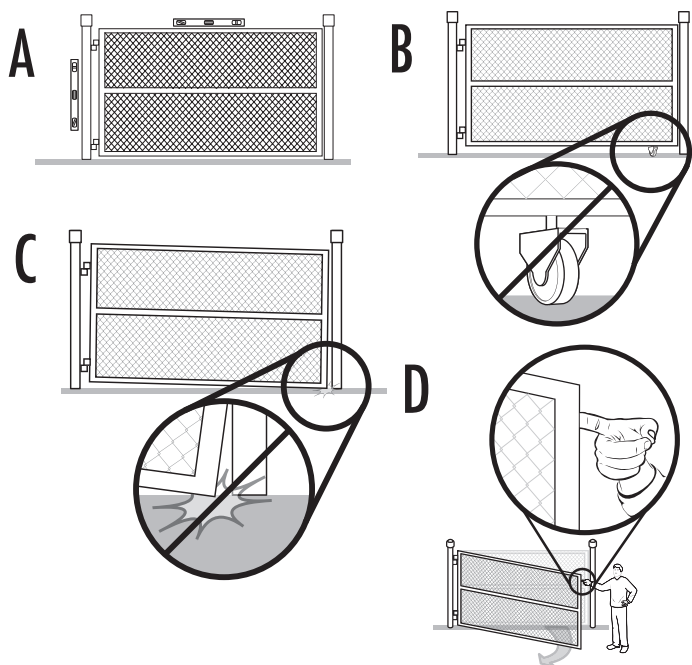
DUAL GATE



INSTALLATION » CHECK YOUR GATE + MOUNTING OPTIONS

CHECK YOUR GATE

- A** Gate MUST be level. Gate and gate post MUST be plumb.
- B** Remove ANY/ALL wheels from the bottom of gate.
- C** Gate MUST NOT hit or drag across ground.
- D** Gate MUST swing freely and be supported entirely by its hinges.

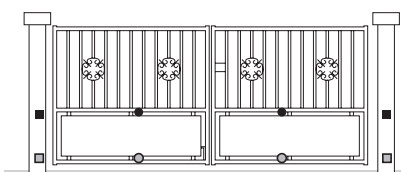
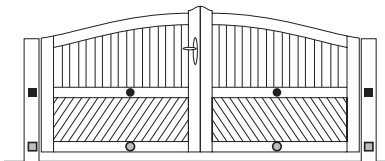
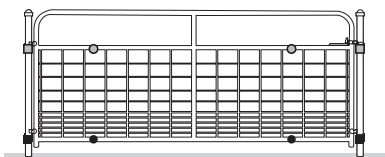
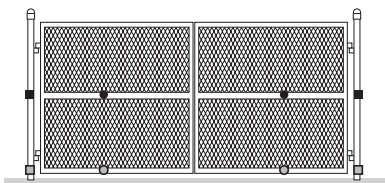


MOUNTING OPTIONS

Mounting locations vary depending on type and style of your gate. Minimum distance from the ground should not be less than 10.2 cm from the bottom of the gate operator arm.

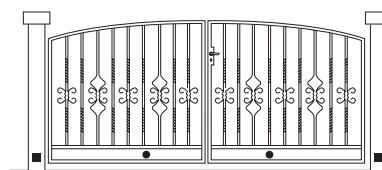
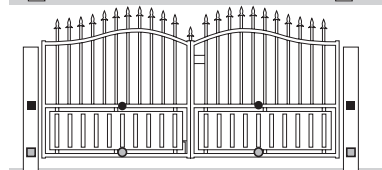
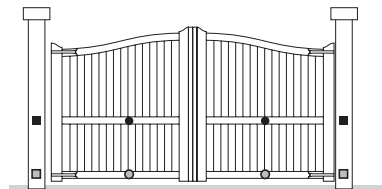
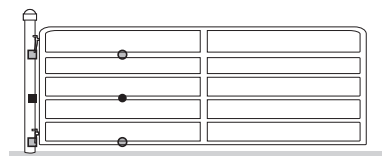
RECOMMENDED:

- = Gate post bracket mounting locations
- = Gate bracket mount locations



OPTIONAL:

- = Gate post bracket mounting locations
- = Gate bracket mount locations



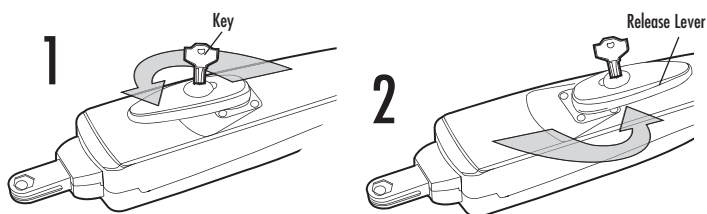
INSTALLATION » MANUAL RELEASE + DETERMINE POSITION OF THE PULL-TO-OPEN BRACKET

MANUAL RELEASE

1 Insert the key into the lock and turn it 180° counterclockwise.

2 Turn the release lever 180° counterclockwise.

The operator is now in manual mode.

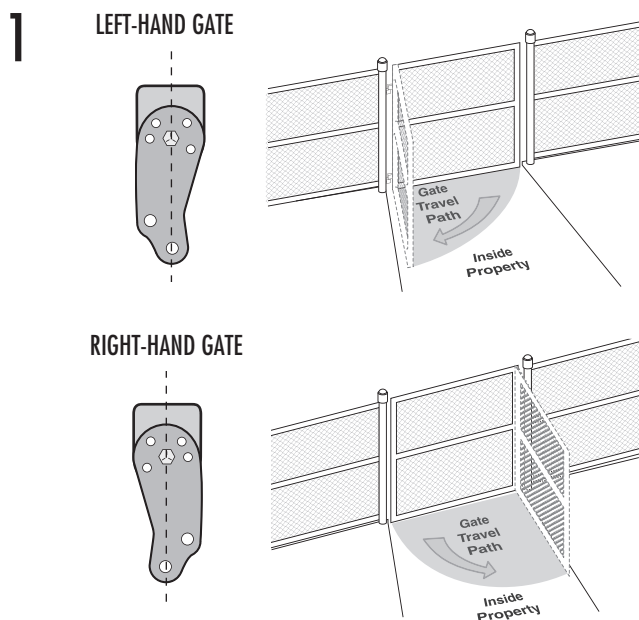


DETERMINE POSITION OF THE PULL-TO-OPEN BRACKET

The Pull-to-Open bracket can be assembled to work on a **Left-Hand** or a **Right-Hand** gate.

1 Review the gate types and select the type of installation you will require.

NOTE: If the *Pull-to-Open* bracket is not assembled correctly you will damage the operator.

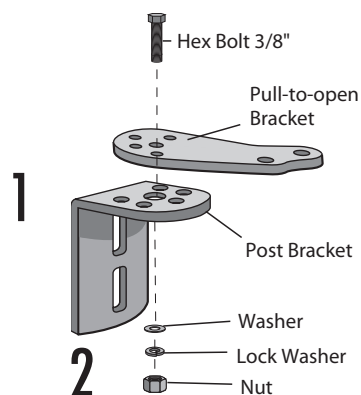


INSTALLATION » ASSEMBLE GATE POST BRACKET (PULL-TO-OPEN) + ATTACH BRACKETS TO GATE OPERATOR

All the illustrations on the following pages display a typical Left-Hand Gate installation.

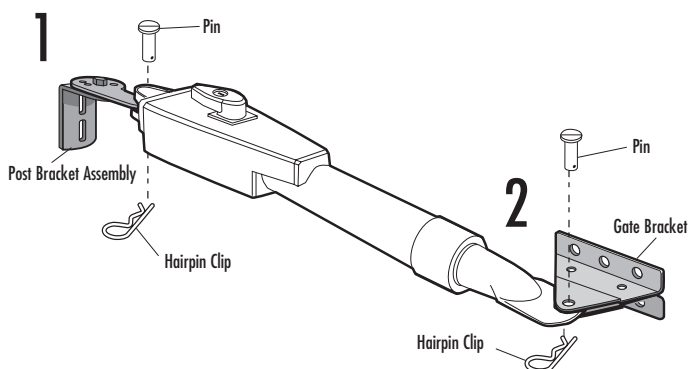
ASSEMBLE GATE POST BRACKET (PULL-TO-OPEN)

- 1 Assemble gate post bracket by placing Pull-to-Open bracket on top of post bracket.
- 2 Insert the bolt through both brackets and secure with washer, lock washer and nut.



ATTACH BRACKETS TO GATE OPERATOR

- 1 Attach post bracket assembly to operator using pins and hairpin clips.
- 2 Attach gate bracket to operator using pins and hairpin clips.



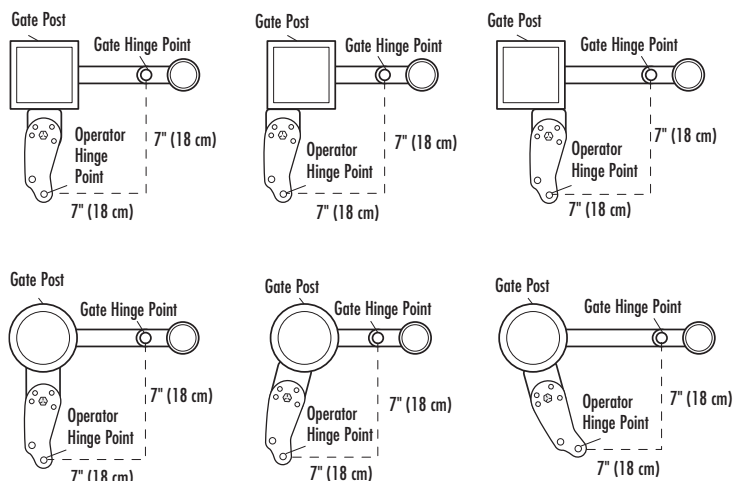
INSTALLATION » DETERMINE MOUNTING LOCATION + MEASURING AND MARKING FOR THE GATE BRACKET

DETERMINE MOUNTING LOCATION

The gate post bracket assembly can be mounted at several places on the gate post. Refer to the illustrations on page 11 for the ideal mounting location.

Refer to the illustrations to determine the appropriate dimensions for the Pull-to-Open bracket.

NOTE: It may be necessary to add shims (angle iron, sheets of metal or wood) to the gate post to achieve the required dimensions.



MEASURING AND MARKING FOR THE GATE BRACKET

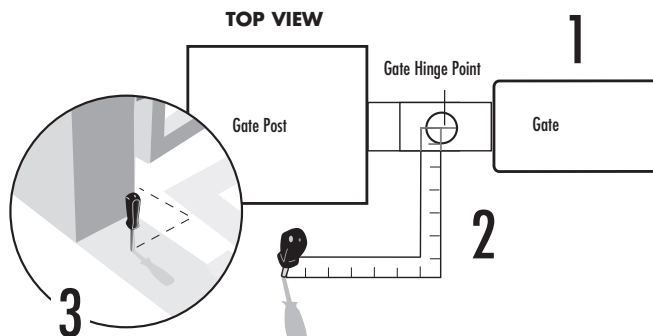
Before proceeding, begin with the gate in the fully closed position. There are two methods for determining the proper location of the post brackets:

- Paper template (Located on the back page of this manual. Must be cut out.)
- Tape measure.

Either method will work depending on preference.

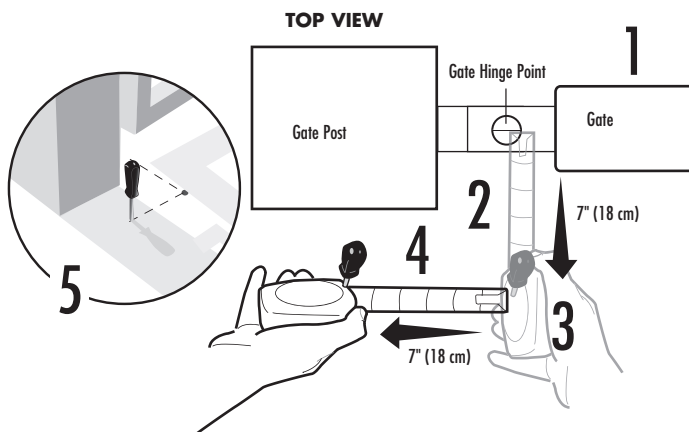
TEMPLATE METHOD

- 1 Close the gate.
- 2 Place the template (provided on the back page of this manual) under the center of the gate hinge point.
- 3 Use a screwdriver or dowel rod to temporarily mark the location in front of the gate post.



TAPE MEASURE METHOD

- 1 Close the gate.
- 2 Place the measuring tape under the center of the gate hinge point and measure out 18 cm.
- 3 Use a screwdriver or dowel rod to temporarily mark the location of the first measurement.
- 4 Measure 18 cm from the previous mark.
- 5 Use the screwdriver or dowel rod to mark the location of the second measurement.

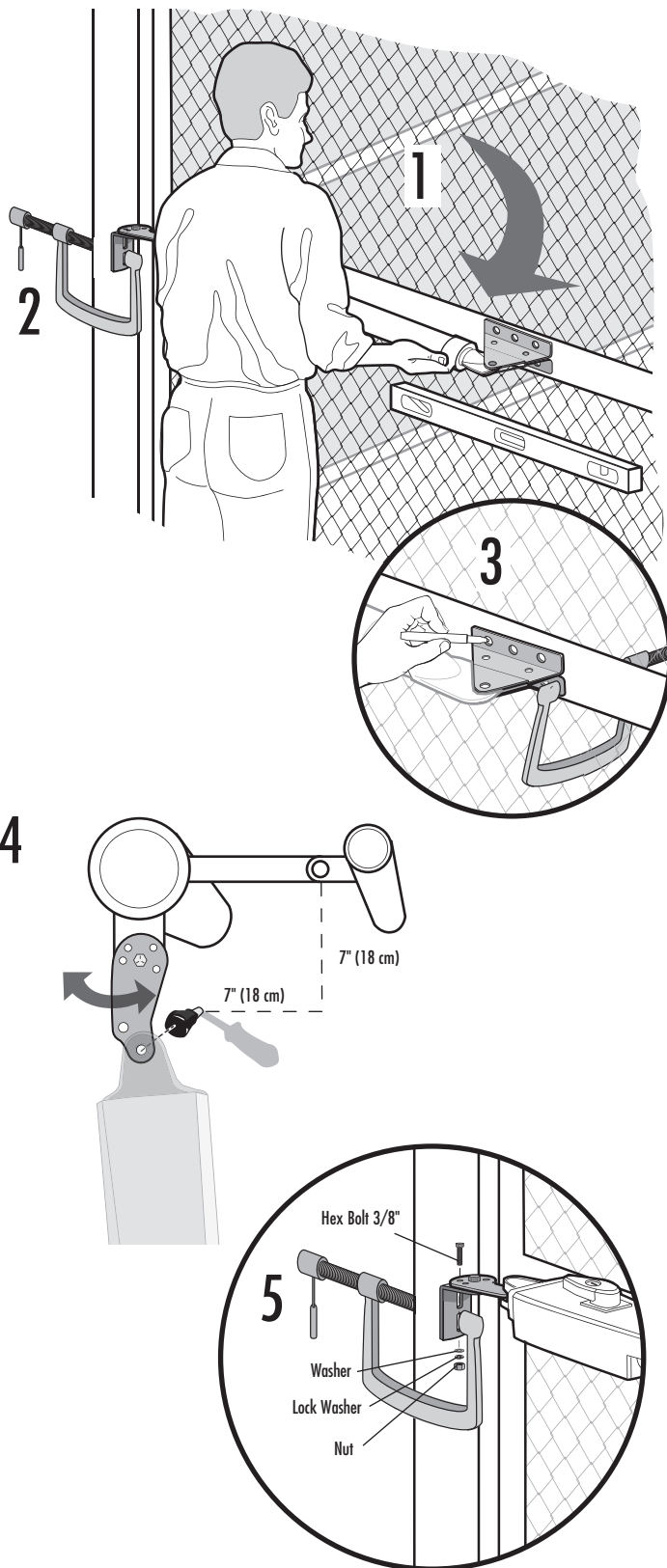


INSTALLATION » POSITION GATE OPERATOR ON GATE

POSITION GATE OPERATOR ON GATE

NOTE: The post bracket assembly can be mounted at several places on the gate post. Refer to page 11 for mounting options.

- 1** Open the gate to desired open position (no greater than 100°) and hold operator against gate.
- 2** Place the operator arm against gate post at the desired position. Temporarily secure gate post bracket with clamp. **The gate operator (arm) must be level.**
- 3** Mark mounting holes on gate for reference. Temporarily secure the gate bracket using a clamp.
- 4** Align the Pull-to-Open bracket to a position as **CLOSE AS POSSIBLE** above the screwdriver or dowel rod.
- 5** Insert hex bolt through Pull-to-Open bracket and post bracket and secure with washer, lock washer and nut.

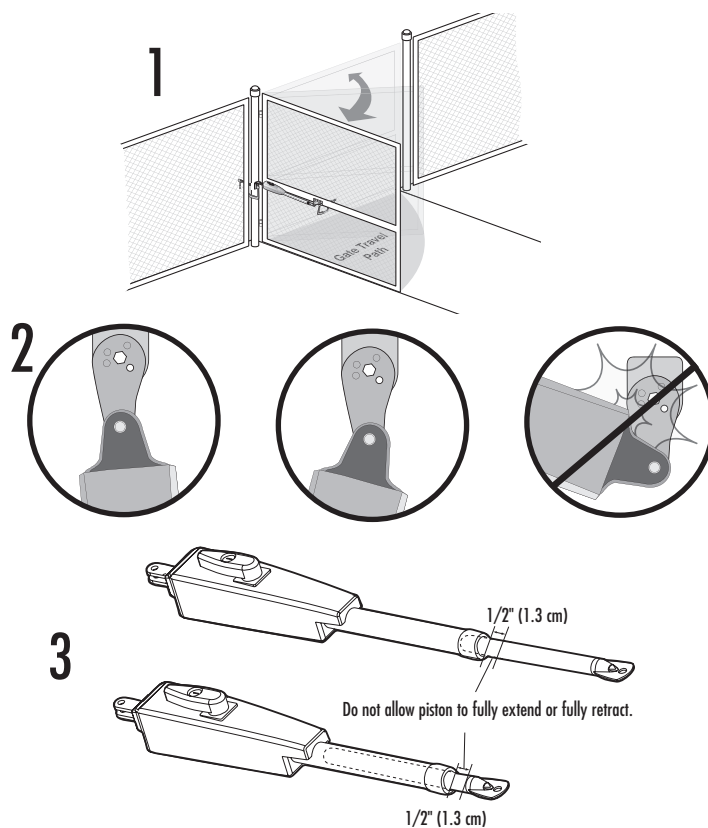


INSTALLATION » TEST GATE TRAVEL + SECURE POST BRACKET TO GATE POST

TEST GATE TRAVEL

NOTE: If gate does not open and close completely adjust the position of the gate bracket and mark new mounting holes.

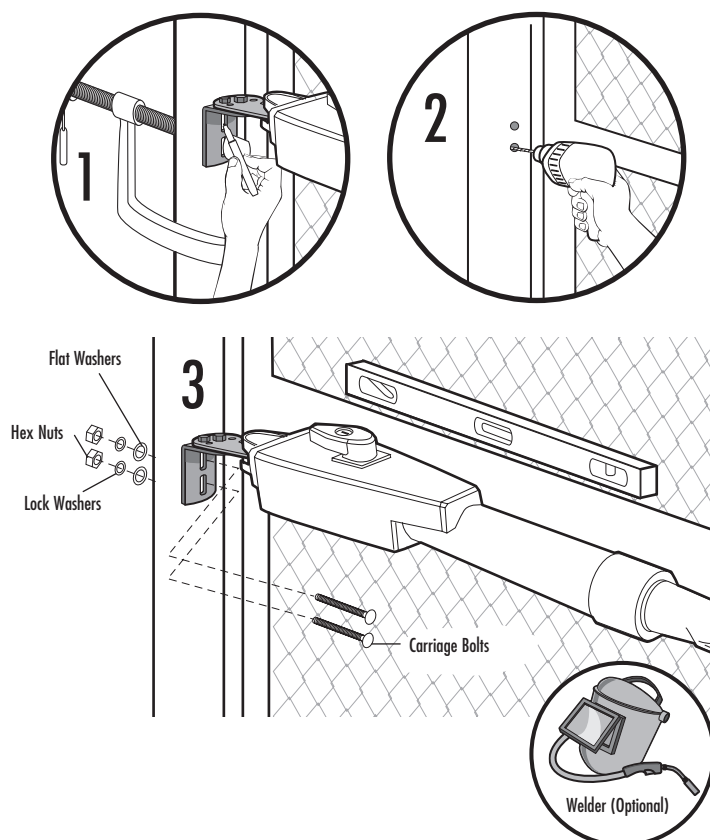
- 1 Manually open and close the gate.
- 2 Ensure that the operator does not bind against the Pull-to-Open bracket.
- 3 Ensure that the piston does not bottom out.



SECURE POST BRACKET TO GATE POST

The gate operator (arm) must be level.

- 1 Mark holes for the post bracket. Remove the clamp and the operator, set aside.
- 2 Drill adequate holes in the gate post.
- 3 Secure the post bracket to the gate post using hardware.



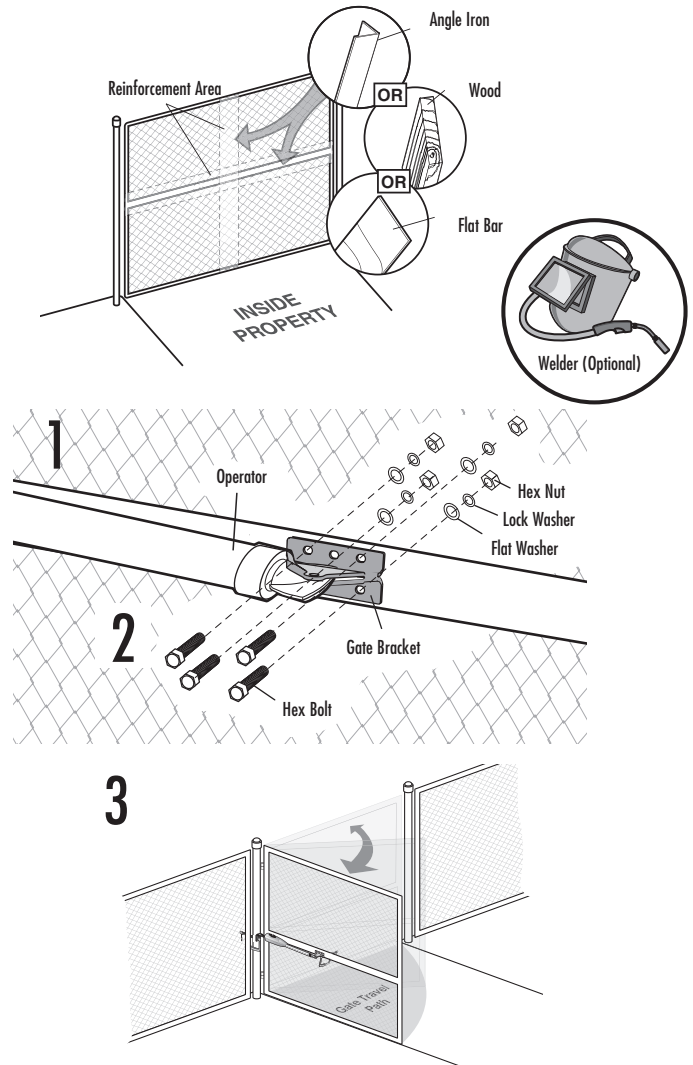
INSTALLATION » SECURE GATE BRACKET TO GATE + WARNING SIGN PLACEMENT

SECURE GATE BRACKET TO GATE

The gate operator (arm) must be level.

Some installations may require additional reinforcement be installed on the gate.

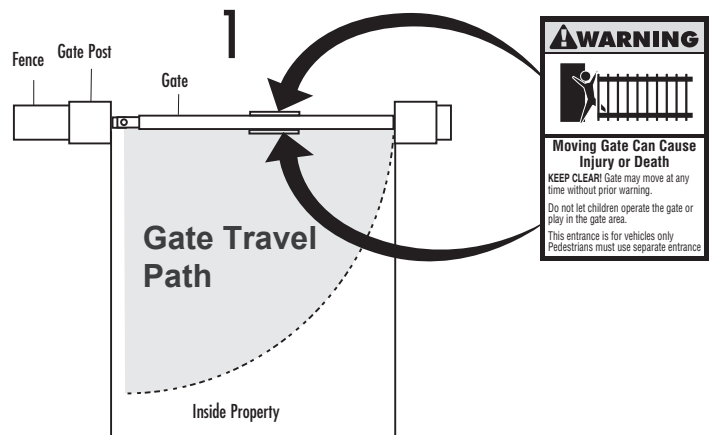
- 1 Drill holes in gate (or reinforcement, if necessary) that are large enough for the gate bracket mounting hardware.
- 2 Secure the gate operator to the gate using hardware (not provided).
- 3 Manually move the gate to verify that it opens and closes fully.



WARNING SIGN PLACEMENT

Warning signs should be installed on both sides of the gate and in plain view.

- 1 Fasten warning signs to the gate with cable ties or screws.



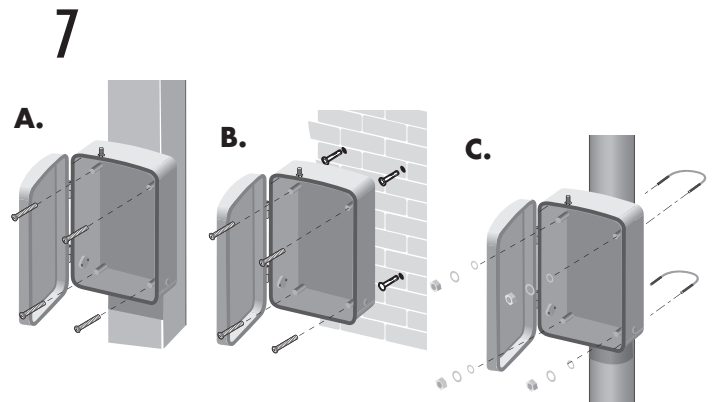
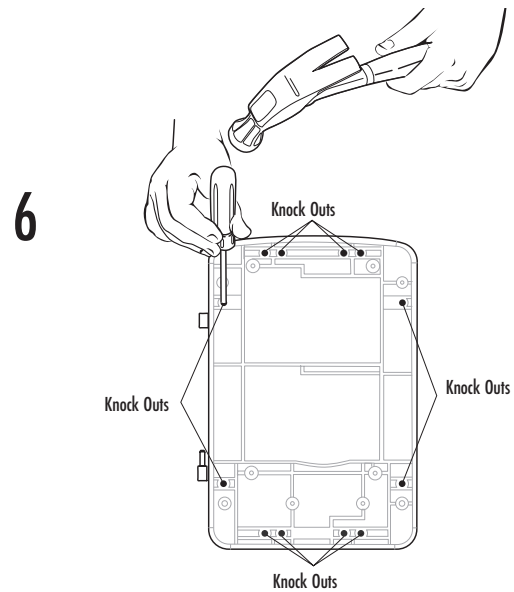
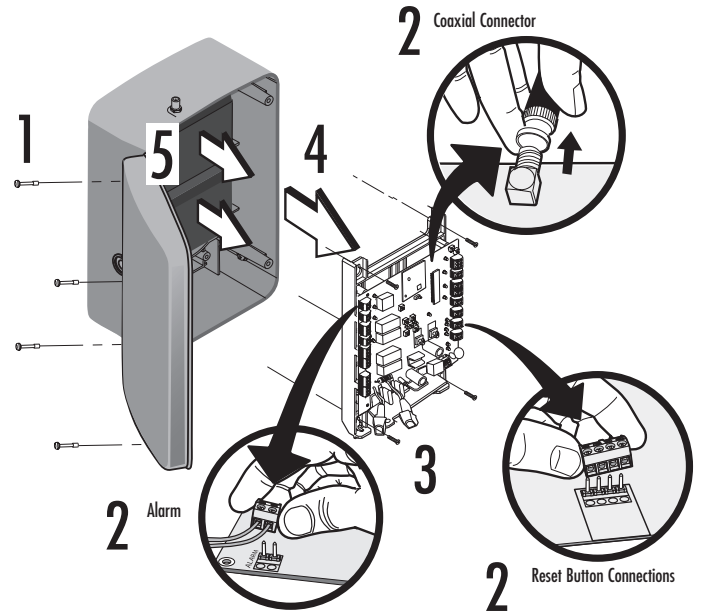
If installing a 2nd (or slave) operator, repeat the previous installation steps for the second gate before proceeding to the next page.

INSTALLATION » STANDARD CONTROL BOX

MOUNT THE CONTROL BOX

The control box **MUST** be mounted within 1.5 m of the gate operator. Mount the control box as high as possible for best radio reception.

- 1** Remove screws and open the control box.
- 2** Disconnect the reset button, alarm, and coaxial connector.
- 3** Loosen screws to remove the control board and mounting bracket.
- 4** Remove the control board.
- 5** Remove batteries and set aside.
- 6** Select mounting holes and knock out using a screwdriver and hammer.
- 7** Secure the control box to mounting surface using the appropriate hardware (not provided).
 - A.** Post
 - B.** Wall
 - C.** Column
- 8** Waterproof all knockout holes using silicon sealant.

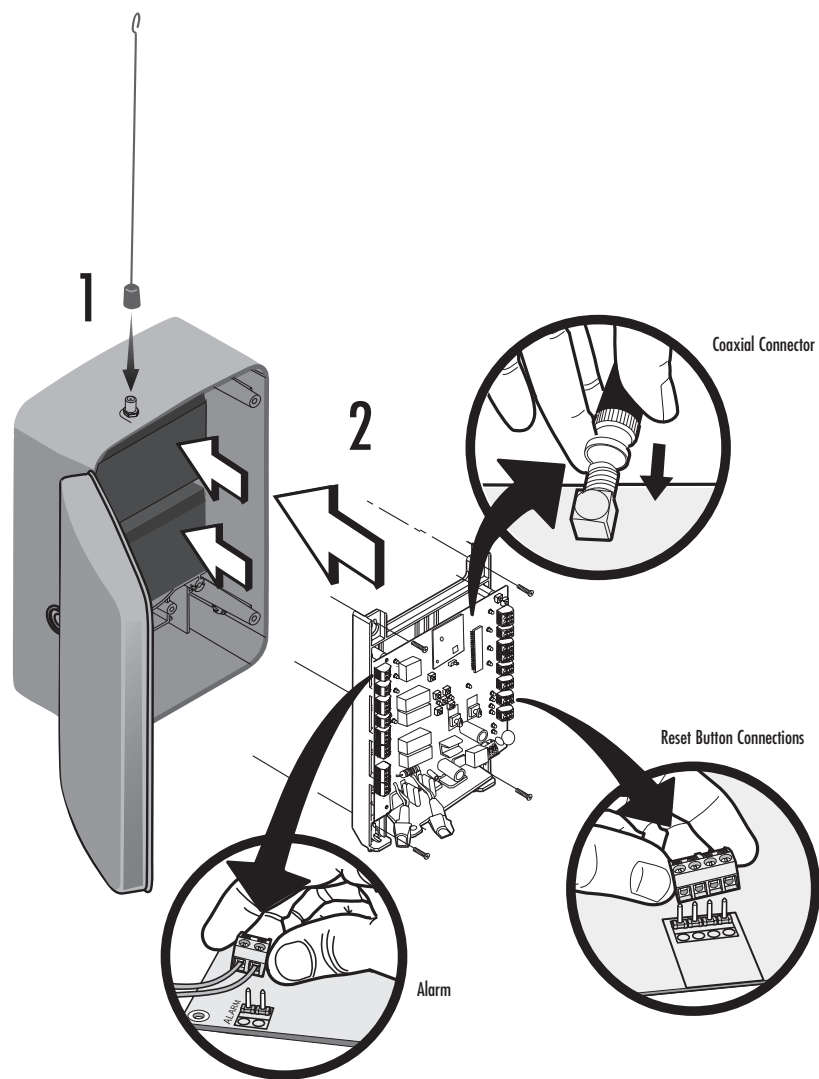


INSTALLATION » STANDARD CONTROL BOX

INSTALL THE CONTROL BOARD

NOTE: Make sure the battery leads are on the right side of the control box and not pinched.

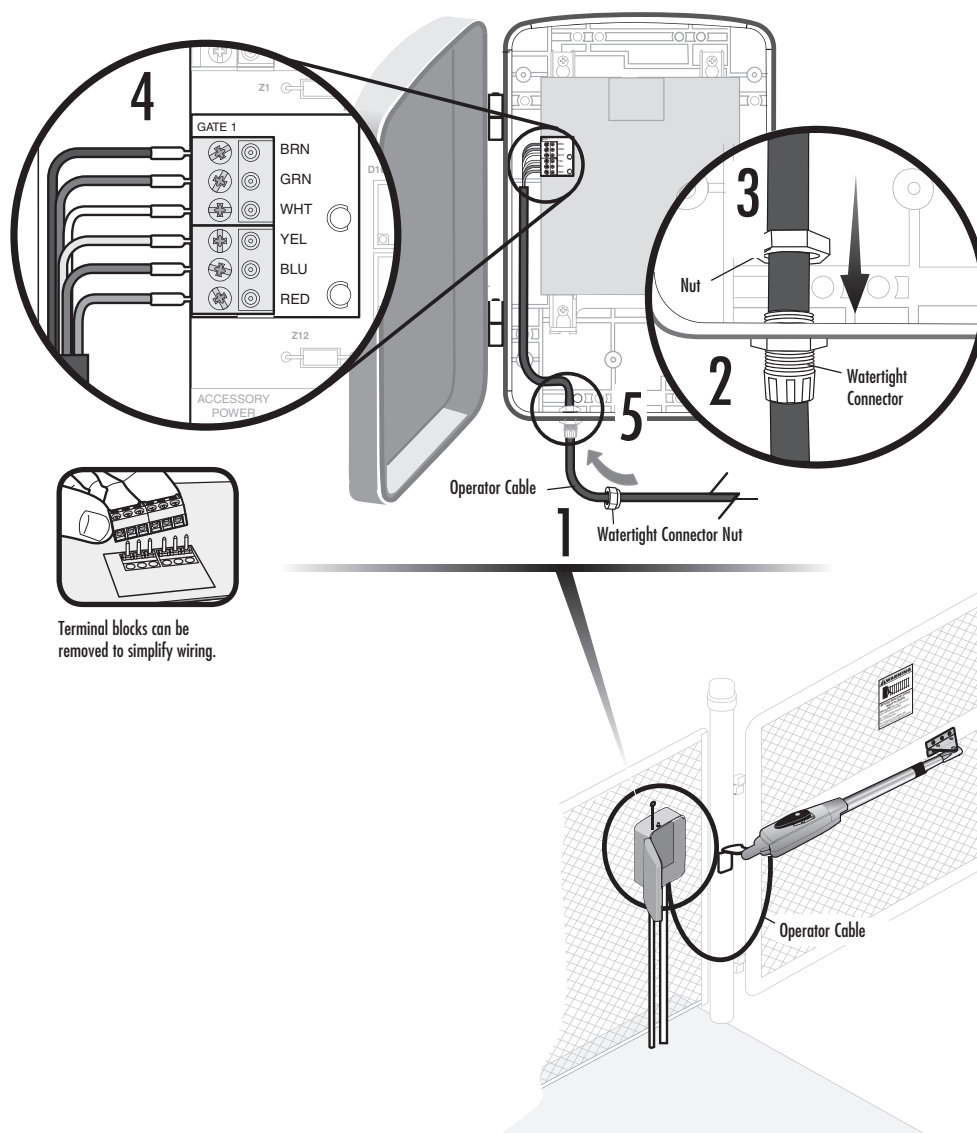
- 1 Attach the antenna. Ensure the connection to the control box is tight and a good water seal.
- 2 Reinstall the batteries, control board, alarm and reset button. (NOTE: do not connect the batteries to the control board at this time.)



WIRING » CONNECT THE GATE OPERATOR (GATE 1) TO THE CONTROL BOX

CONNECT THE GATE OPERATOR (GATE 1) TO THE CONTROL BOX

- 1 Select hole in bottom of the control box to be used for the operator cable.
- 2 Insert the watertight connector into the bottom of the control box and tighten with nut.
- 3 Insert the operator cable through the watertight connector mounted in the bottom of the control box.
- 4 Extend the operator cable and wires to the **Gate 1** connector and connect as shown.
- 5 Tighten watertight connector nut.



If installing one operator, proceed to page 25.
If installing two operators, continue to the next page.

WIRING » SET THE BIPART DELAY (MODEL MGL400-24S ONLY)

SET THE BIPART DELAY (MODEL MGL400-24S ONLY)

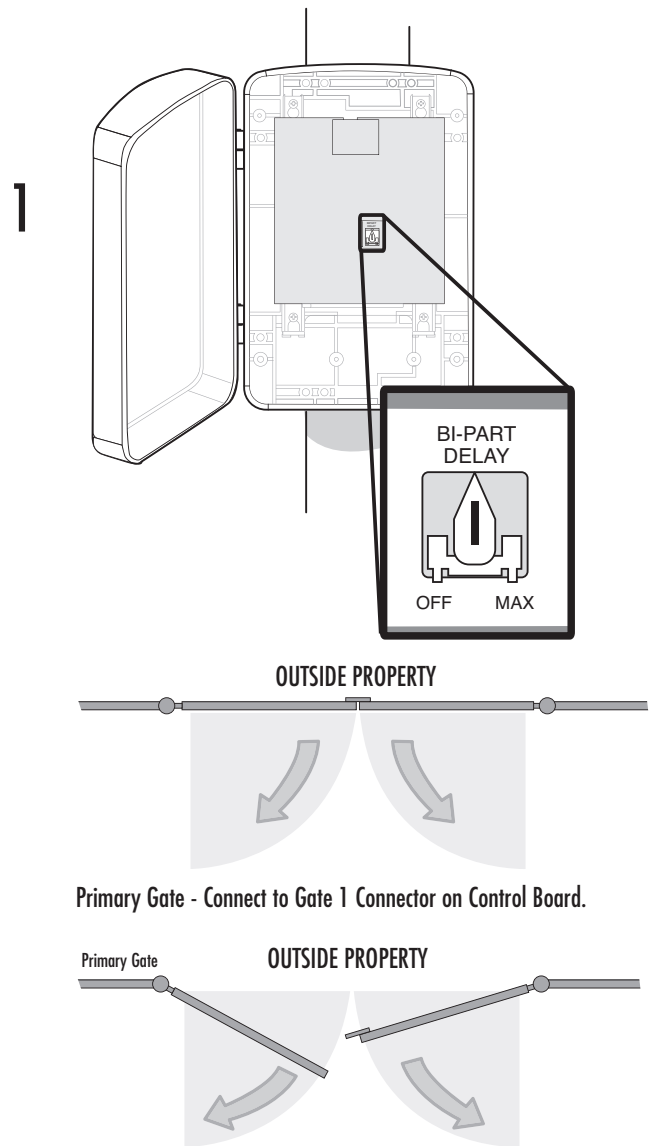
In some dual gate installations, one gate will need to open first and close second. This would happen if there was an ornamental overhang on one gate or if using a solenoid lock, for example. This gate is called the Primary gate and needs to be connected to Gate 1 connections on the control board. Thus, it is preferred that the control box be installed on the same side as this gate. If there is no appropriate location on that side for the control box, then mount the control box on the opposite side, but connect the operator closest to the control box to the Gate 2 connector and the operator on the opposite side to the Gate 1 connector.

NOTE: The gate with the longer travel span (opening) must be set as the primary gate (GATE 1).

- 1 Set the Bipart Delay to desired setting. The range is 0 to 8 seconds, 0 seconds is OFF.

The following illustration shows a dual gate configuration with a decorative overlapping piece on the outside of the gate.

If a solenoid lock is being used on a gate, the gate with the lock attached to it is the primary gate.



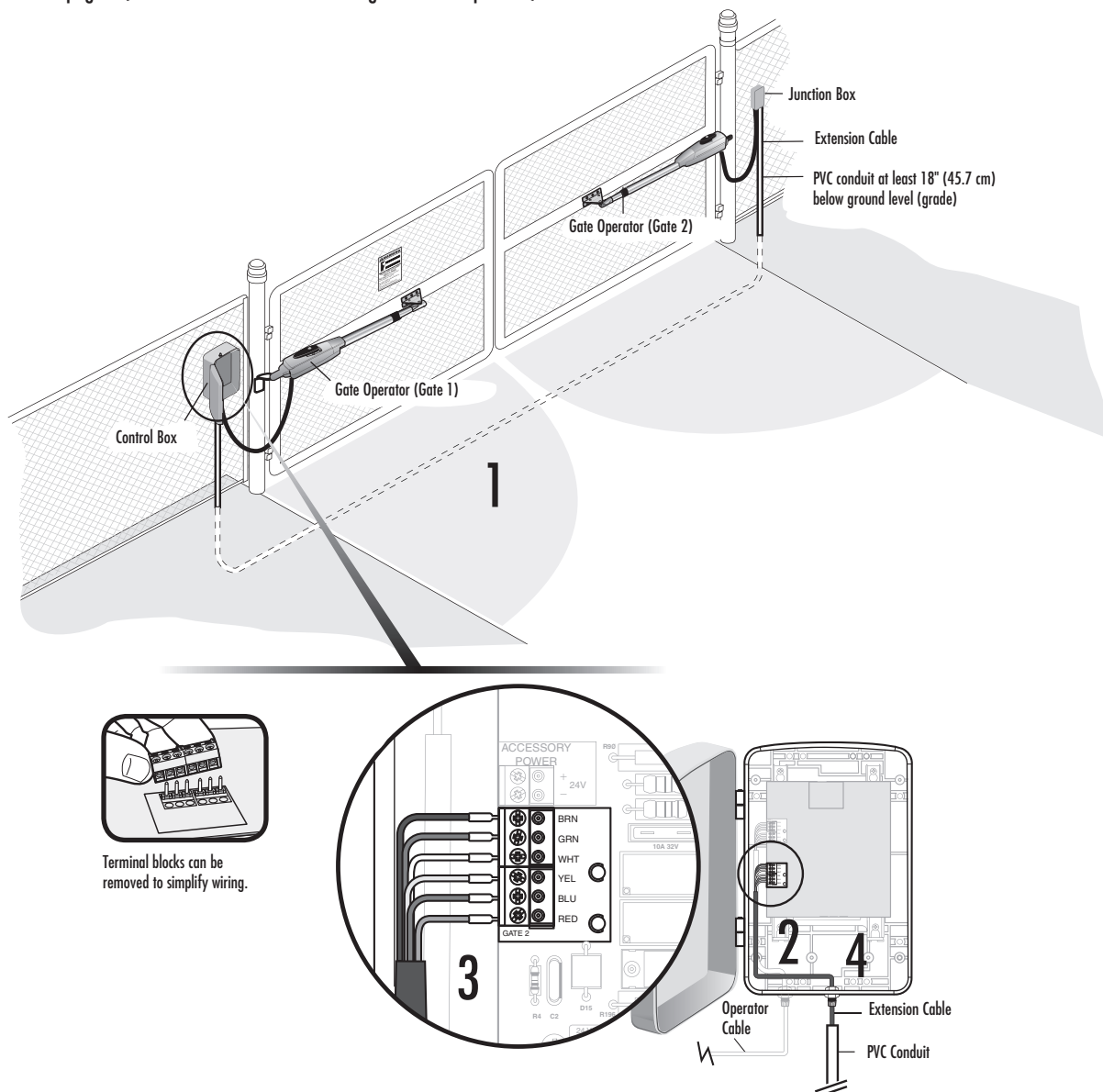
WIRING » CONNECT THE GATE OPERATOR (GATE 2) TO THE CONTROL BOX (MODEL MGL400-24S ONLY)

CONNECT THE GATE OPERATOR (GATE 2) TO THE CONTROL BOX (MODEL MGL400-24S ONLY)

Before digging, contact local underground utility locating companies.

- 1 Trench across driveway to bury the extension cable. Use PVC conduit to prevent damage to cables.
- 2 Select hole in bottom of the control box to be used for the extension cable. Insert extension cable through watertight connector nut and through an available watertight connector mounted in the control box.
- 3 Extend cable and wires to **Gate 2** connector and connect as shown.
- 4 Secure extension cable to control box using watertight connector nut.

NOTE: Use the extension cable provided or ensure cable diameter complies with the table shown on page 8 (cable that is too thin can cause gate to be inoperable).



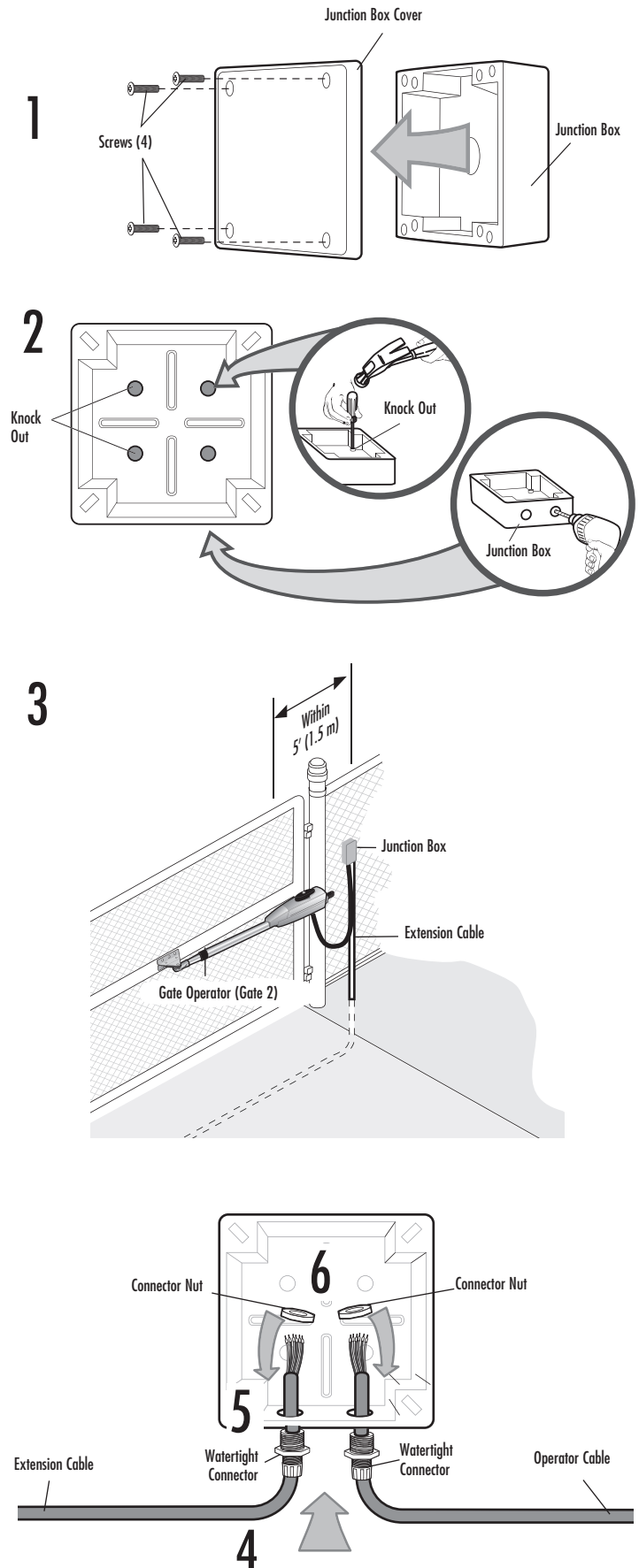
WIRING » JUNCTION BOX (MODEL MGL400-24S ONLY)

JUNCTION BOX

The following items are required to complete the junction box installation:

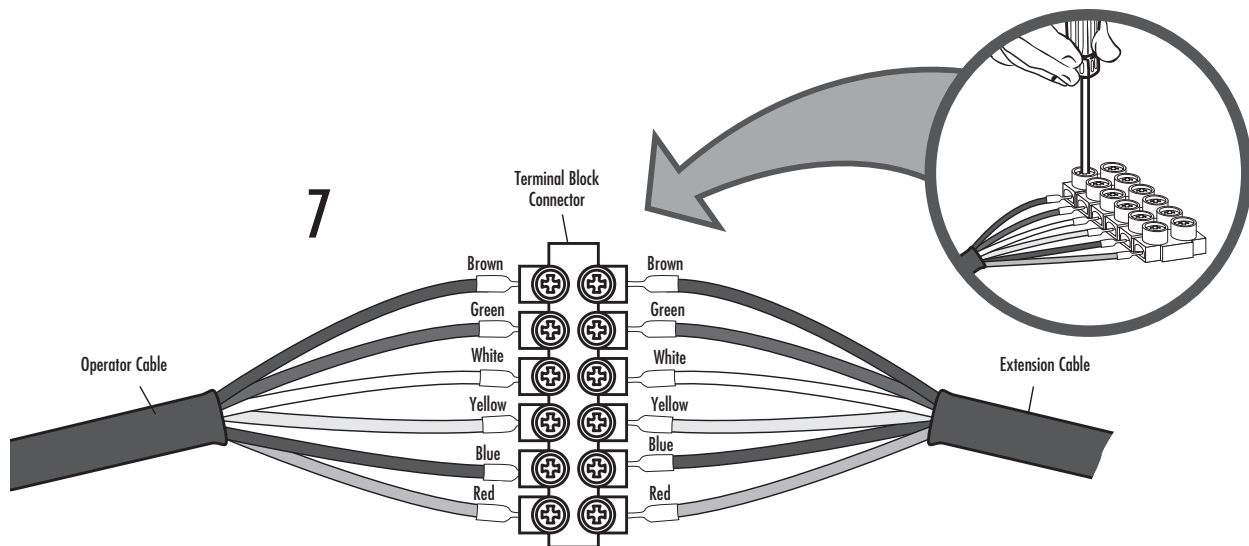
- 4 x 4 Junction Box with 3/4" NPT threaded port holes
- Screws
- PVC Conduit

- 1 Open the junction box by removing screws (4) and set aside.
- 2 Select holes to be used for mounting and knock out using a screwdriver and hammer. Drill two holes in the bottom of the junction box large enough for the watertight connectors.
- 3 Mount the junction box within 1.5 m of second operator.
- 4 Route operator cable and extension cable through watertight connector nut and watertight connector.
- 5 Insert cables and watertight connectors into the holes in the bottom of the junction box (not provided).
- 6 Secure with connector nut.



WIRING » JUNCTION BOX (MODEL MGL400-24S ONLY)

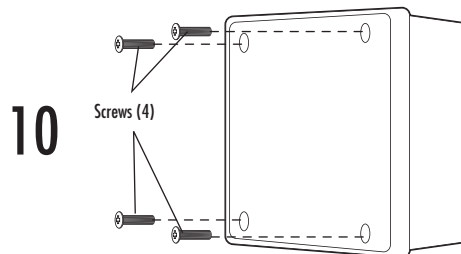
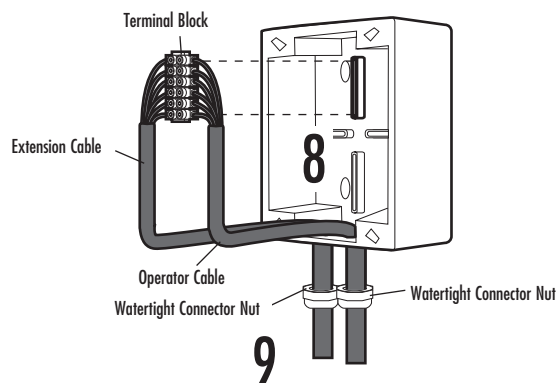
- 7** Insert wires from extension cable and operator cable into terminal block connector.



- 8** Put wires inside of junction box.

- 9** Secure operator and extension cables with watertight connector nut.


- 10** Reinstall cover.

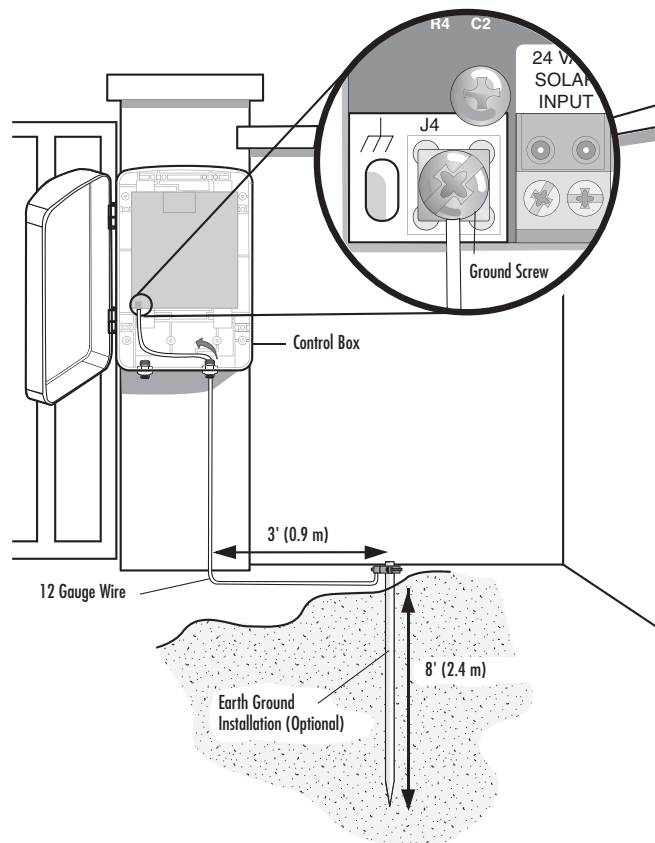


WIRING » EARTH GROUND ROD INSTALLATION (OPTIONAL)

EARTH GROUND ROD INSTALLATION (OPTIONAL)

NOTE: For proper operation, do not connect the earth ground rod to the green screw on the outlet plate.

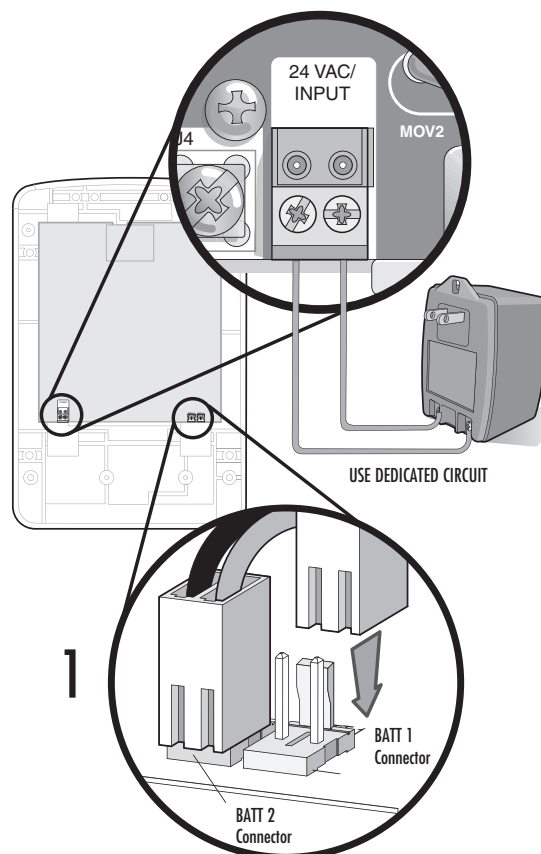
- 1 Install earth ground rod within 900 mm of the operator.
- 2 Disconnect and remove the green/yellow ground wire connected to the screw terminal of the control board.
- 3 Attach earth ground rod wire to the screw terminal of the control board marked . Ensure the power wiring ground connection remains securely connected to the green screw on the outlet plate.



CONNECT POWER

The batteries are the main source of power for the operator. The operator is a battery run system. Both batteries are charged in circuit using the transformer (provided). The 24 Vac input can accept a charging transformer (26 Vac, 29 VA or 36 Vdc, 40 VA).

- 1 Connect the plugs from the batteries to the connectors on the control board.
- 2 Connect Mains Power to the charging transformer.



ADJUSTMENT » DIP SWITCH SETTINGS

DIP SWITCH SETTINGS

The Save switch must be in the OFF position prior to adjusting the switches. After the adjustments are made switch the Save Switch to the ON position in order for the changes to be saved.

A SAVE SWITCH S1-1

This switch (S1-1) is used to save the settings for switches 2 through 5. (Turn OFF)

B MAG DELAY ENABLE

This switch (S1-2) enables the Maglock feature. On an open command there will be a 1/2 second delay before the motor starts, to allow the Maglock to release.

C MODE DUAL/SINGLE

This switch (S1-3) sets the mode as Dual or Single Gate.

D SAFETY INPUTS

Swing gates allow four safety inputs. A DIP switch is required for determining between N/O and N/C edges and N/O and N/C eyes.

EDGE INPUT

Set switch (S1-4) to the following settings:

N/O Edge (Active Close) = 8.2K, 10K Edge, N/O dry contact edge

N/C Edge (Active Open) = N/C dry contact edge

NOTE: Monitored Edges should be set in the N/O position, as the activation condition is shorting the terminals. Unused inputs in N/C mode require a wire bridge (JUMPER).

E PHOTO EYE INPUT (IR BEAMS)

This switch (S1-5) differentiates between N/O and N/C dry contact photoelectric eye inputs.

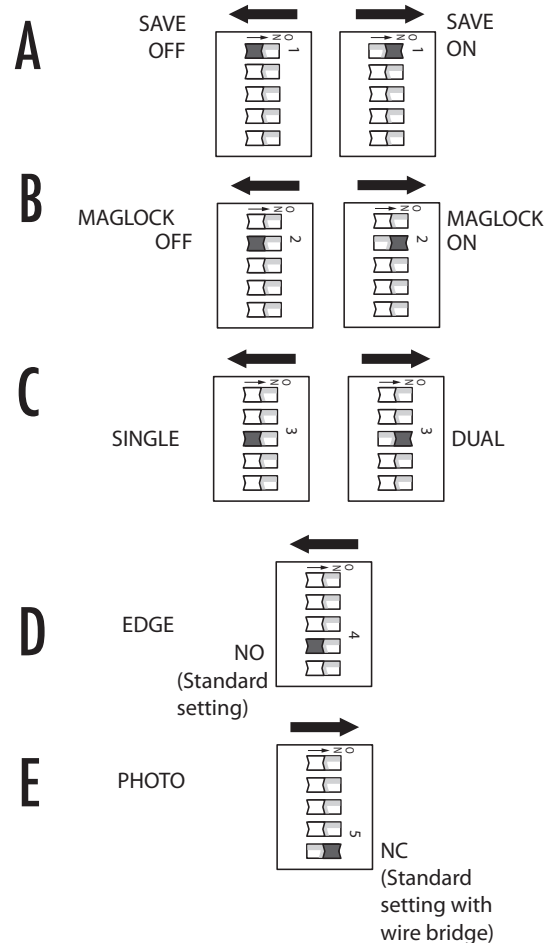
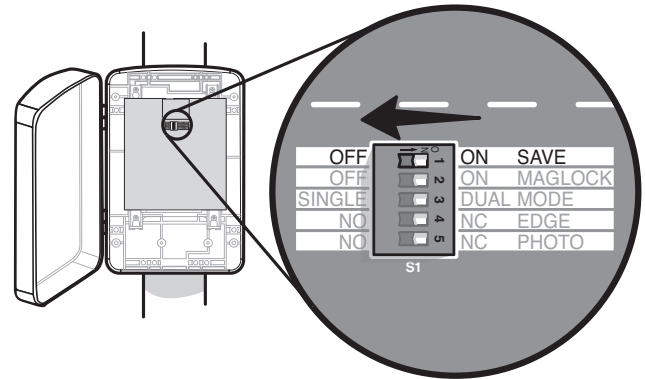
N/O Position is not active and should not be used.

N/C Position is for Chamberlain Pulsing Beams 771A & 772 and will automatically learn in N/C mode.

N/C Dry contact beams can be used in this position.

Unused inputs in N/C mode require a wire bridge (JUMPER).

F Return Save Switch to ON.



ADJUSTMENT » LIMITS

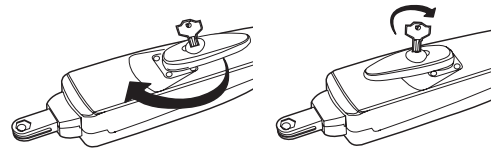
LIMITS

The limits are internal settings that indicate when the gates are in the fully open position and the fully closed position. For proper functionality, the limits must be programmed during the installation process. The programming uses a combination of buttons on the control board.

The specific buttons used for programming depends on which side of the gate the control box is mounted and how many operators the installation includes. Refer to page 12 to determine if the gate is Left-handed or Right-handed. The programming times-out automatically after 60 seconds of inactivity.

1 Close the gate.

2 Engage the operator by turning the release lever clockwise 180°, then turning the key clockwise 180°.

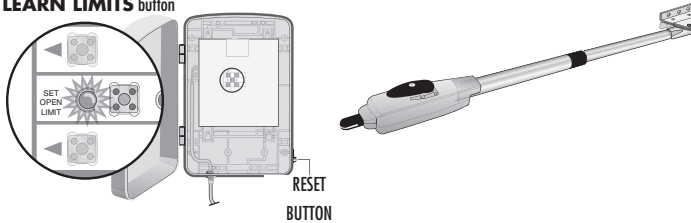


SINGLE ARM LEFT-HAND SIDE

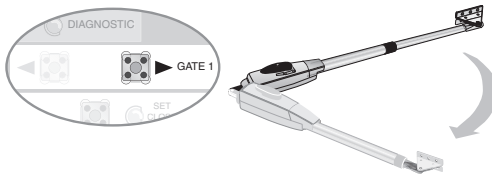
PROGRAM OPEN

3 Press the **LEARN LIMITS** button (SET OPEN LIMIT LED will blink).

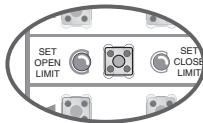
LEARN LIMITS button



4 Press the **Gate 1** right button to move gate to the desired OPEN position.

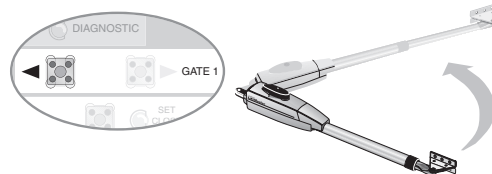


5 When gate is in the desired position, press the **LEARN LIMITS** button again. Control board "Alarm LED" will flash.



PROGRAM CLOSE

6 Press the **Gate 1** left button to move gate to the desired CLOSED position.



7 When gate is in the desired closed position, press the **LEARN LIMITS** button again.



The **SET OPEN LIMIT** and **SET CLOSE LIMIT** LEDs stop blinking, programming is now complete. (If the SET OPEN LIMIT LED continues to blink, repeat programming. If the problem continues, see Troubleshooting section.)

Test the limits by pressing the Single Button Control to open and close the gate.

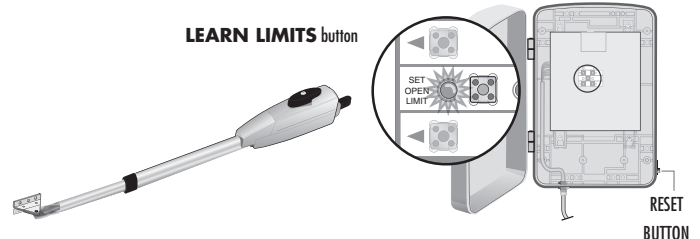
OR

SINGLE ARM RIGHT-HAND SIDE

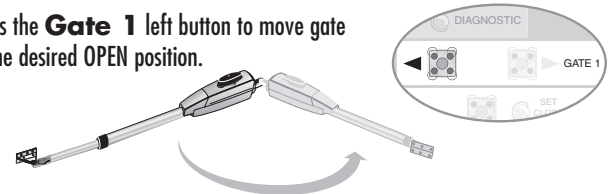
PROGRAM OPEN

3 Press the **LEARN LIMITS** button (SET OPEN LIMIT LED will blink).

LEARN LIMITS button



4 Press the **Gate 1** left button to move gate to the desired OPEN position.

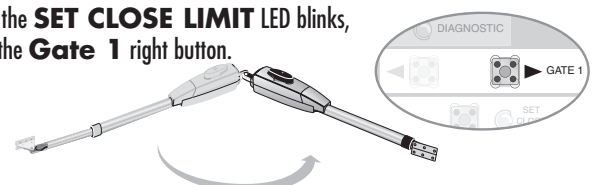


5 When gate is in the desired position, press the **LEARN LIMITS** button again. Control board "Alarm LED" will flash.



PROGRAM CLOSE

6 When the **SET CLOSE LIMIT** LED blinks, press the **Gate 1** right button.



7 When gate is in the desired closed position, press the **LEARN LIMITS** button.



ADJUSTMENT » LIMITS

LIMITS

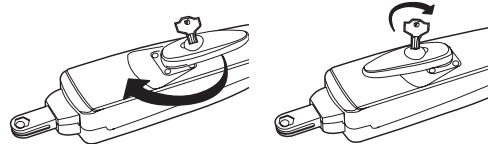
NOTES:

- The gate with the longer travel span (opening) must be set as the primary gate (GATE 1).
- If one gate is overlapping the other, the gate that is overlapping must be connected to GATE 1 so it will start moving before the other gate; GATE 2 may need to be closed first if there is overlap or a gate lock is being used.
- Programming times-out automatically after 60 seconds of inactivity.

DUAL GATE (LEFT-SIDE PRIMARY OPERATOR)

1 Close the gate.

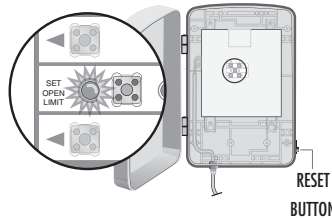
2 Engage the operator by turning the release lever clockwise 180°, then turning the key clockwise 180°.



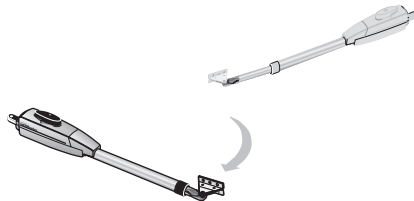
PROGRAM OPEN

3 Press the **LEARN LIMITS** button (SET OPEN LIMIT LED will blink).

LEARN LIMITS button



4 Press the **GATE 1** right button to open the left operator.



5 Press the **GATE 2** right button to move the right operator into the OPEN position.



6 Press the **LEARN LIMITS** button. Control board "Alarm LED" will flash.



PROGRAM CLOSE

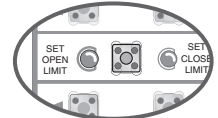
7 When the **SET CLOSE LIMITS** LED blinks, press the **GATE 2** left button to close the right operator.



8 Press the **GATE 1** left button to close the left operator.



9 Press the **LEARN LIMITS** button.



The control board beeps and the **SET OPEN LIMIT** and **SET CLOSE LIMIT** LEDs stop blinking, programming is now complete. (If the SET OPEN LIMIT LED continues to blink, repeat programming. If the problem continues, see Troubleshooting section.)

Test the limits by pressing the SBC to open and close the gate.

ADJUSTMENT » LIMITS

LIMITS

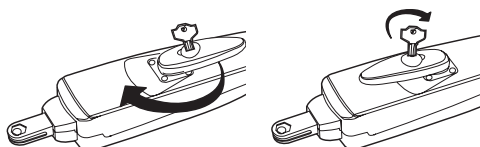
NOTES:

- The gate with the longer travel span (opening) must be set as the primary gate (GATE 1).
- If one gate is overlapping the other, the gate that is overlapping must be connected to GATE 1 so it will start moving before the other gate; GATE 2 may need to be closed first if there is overlap or a gate lock is being used.
- Programming times-out automatically after 60 seconds of inactivity.

DUAL GATE (RIGHT-SIDE PRIMARY OPERATOR)

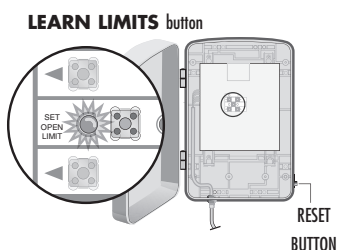
1 Close the gate.

2 Engage the operator by turning the release lever clockwise 180°, then turning the key clockwise 180°.



PROGRAM OPEN

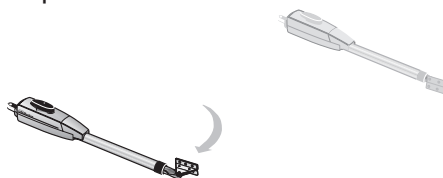
3 Press the **LEARN LIMITS** button (SET OPEN LIMIT LED will blink).



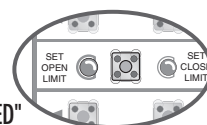
4 Press the **GATE 1** left button to open the right operator.



5 Press the **GATE 2** left button to move the left operator into the OPEN position.

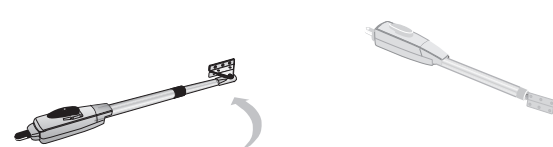
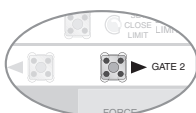


6 Press the **LEARN LIMITS** button. Control board "Alarm LED" will flash.

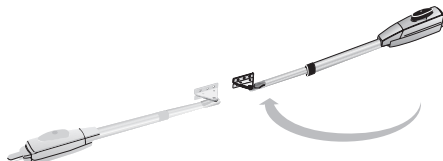


PROGRAM CLOSE

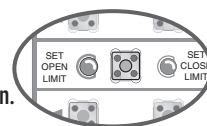
7 When the **SET CLOSE LIMITS** LED blinks, press the **GATE 2** right button to close the left operator.



8 Press the **GATE 1** right button to close the right operator.



9 Press the **LEARN LIMITS** button.



The control board beeps and the **SET OPEN LIMIT** and **SET CLOSE LIMIT** LEDs stop blinking, programming is now complete. (If the SET OPEN LIMIT LED continues to blink, repeat programming. If the problem continues, see Troubleshooting section.)

Test the limits by pressing the SBC to open and close the gate.

ADJUSTMENT » FORCE ADJUSTMENT + TIMER-TO-CLOSE (TTC)

⚠ WARNING

Without a properly installed safety reversal system, persons (particularly small children) could be **SERIOUSLY INJURED** or **KILLED** by a closing gate.

- Too much force on gate will interfere with proper operation of safety reversal system.
- NEVER increase force beyond minimum amount required to close gate.
- NEVER use force adjustments to compensate for a binding or sticking gate.
- If one control (force or travel limits) is adjusted, the other control may also need adjustment.
- After ANY adjustments are made, the safety reversal system **MUST** be tested. Gate **MUST** reverse on contact with a rigid object.

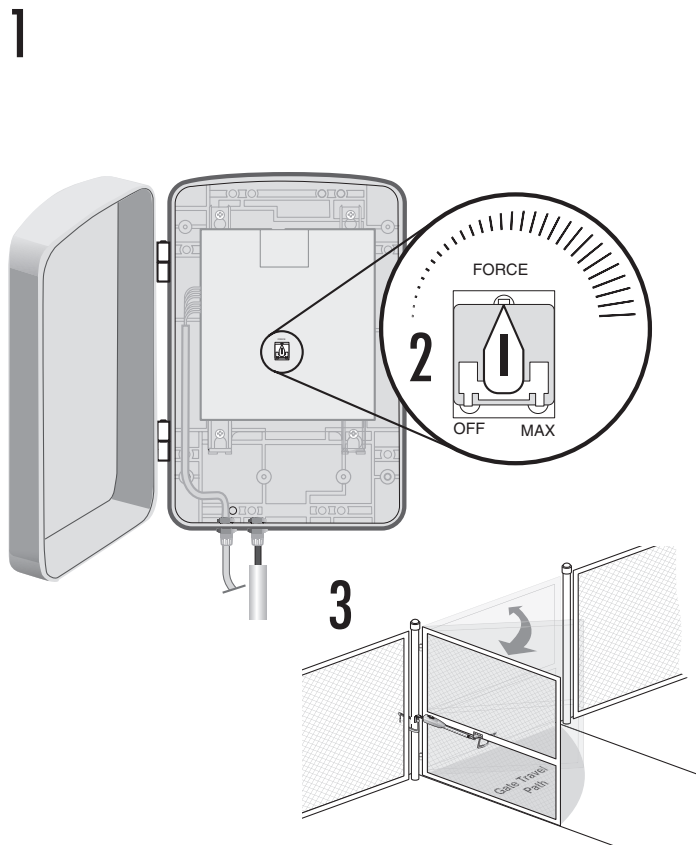
FORCE ADJUSTMENT

The operator is equipped with an obstruction current sensing feature. If the gate encounters an obstruction the operator will automatically reverse direction and stop. Based on the length and weight of the gate it may be necessary to make force adjustments. The force adjustment should be high enough that small objects such as branches or wind will not cause nuisance interruptions but low enough to prevent serious injury to a person or a vehicle.

TO ADJUST THE FORCE

- 1 Using the 3-button remote or the Single Button Control (SBC) button on the control board, open and then close the gate.
- 2 If the gate stops or reverses before reaching the fully open or closed position increase the force by turning the force control slightly.
- 3 Run operator through a complete cycle.
- 4 Test the force by making sure the gate will stop and reverse on contact with an obstruction.

NOTE: Weather conditions can affect the gate movement, so seasonal adjustment may be required. The force control is factory set to the mid position.



TIMER-TO-CLOSE (TTC)

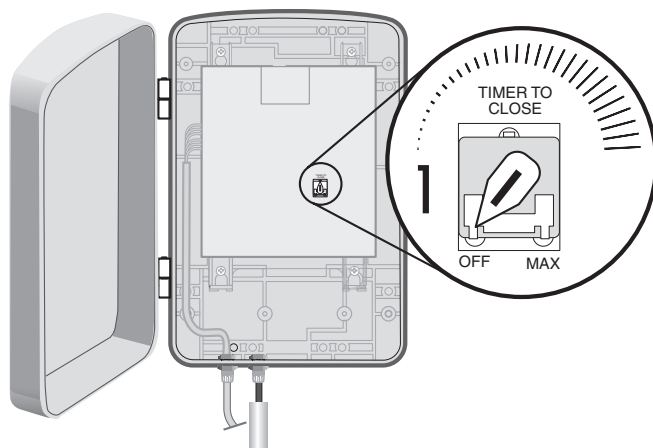
The Timer-to-Close feature can be set to automatically close the gate after a specified time period. The TTC is factory set to OFF.

If the TTC is set to the OFF position, then the gate will remain open until the operator receives another command from a remote control or SBC. The gate must be fully open for the timer feature to activate and close the gate.

TO SET THE TIMER-TO-CLOSE

- 1 Rotate the Timer-to-Close dial to the desired setting. The range is 0 to 180 seconds, 0 seconds is OFF. The "TIMER RUNNING LED" will flash once for every second of adjusted time.

NOTE: Any radio command, SBC or CLOSE command on the control board prior to the TTC expiring will close the gate. The TTC is reset by any signals from the loops, close edges and close photoelectric sensors (IR's).

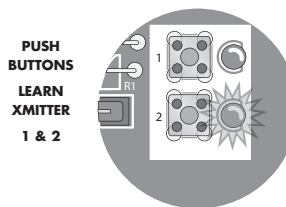


PROGRAMMING » REMOTE CONTROLS + KEYLESS ENTRY + ERASE ALL CODES + TEST

A combined total of 50 remote controls and keyless entry PIN can be programmed to the operator. For highest level of security, we recommend the Security+® line of products. Refer to Accessories.

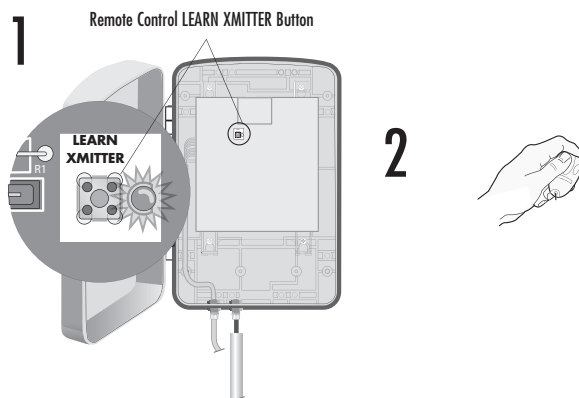
XMITTER button 1 will open gate 1 only.

XMITTER button 2 will open both gates with one command from the remote control.



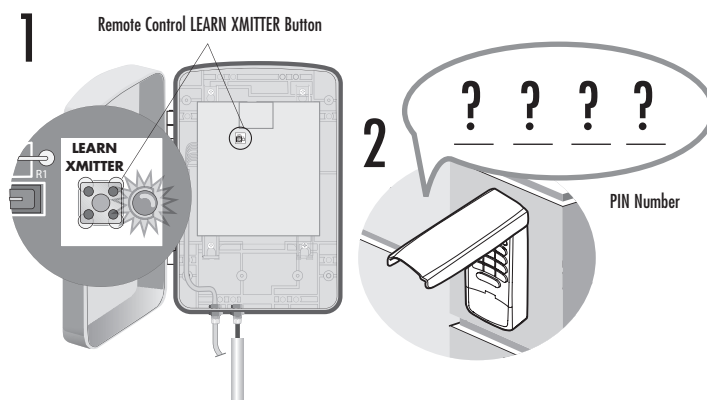
TO ADD OR REPROGRAM A REMOTE CONTROL

- 1 Press LEARN XMITTER button and release (LED will light up).
 - 2 Press the remote control button. The LED will flash and the alarm LED will activate twice.
- To program additional remote controls, repeat steps until all remote controls are programmed.



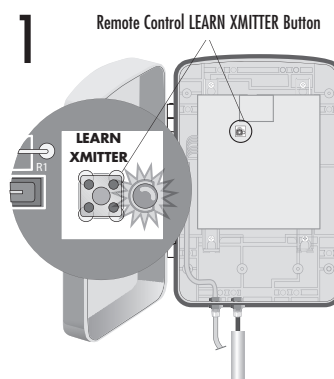
TO ADD A WIRELESS KEYLESS ENTRY (NOT PROVIDED)

- 1 Press LEARN XMITTER button and release (LED will light up).
- 2 Enter a 4-digit personal identification number (PIN) of your choice on the keypad.
- 3 Press the ENTER button on the keypad. The LED will flash and the alarm LED will activate twice.



TO ERASE ALL CODES

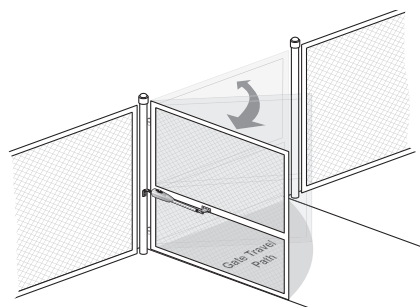
- 1 Press and hold the LEARN XMITTER button on control board until the learn indicator light goes out (approximately 6 seconds). All previous codes are now erased.



TEST

After any adjustments are made, test the operator:

- 1 Use the Single Button Control (SBC) button to open and close the gate.
- 2 Test the limits by making sure the gate is stopping at the OPEN and CLOSE limits.
- 3 Test the force by making sure the gate will stop and reverse on contact with an obstruction.



ADDITIONAL FEATURES » CONTROL INPUTS

CONTROL INPUTS

WIRE STOP BUTTON (OPTIONAL)

A jumper wire is factory installed between the stop and common input.

Stop (N/C) - Stop only (does not reset alarm).

NOTE: Stop jumper is required for normal operation (the Stop LED will be lit except when the control board goes into Sleep Mode). Remove only if remotely mounted Stop button is added.

OPEN

Opens only or reverses a closing gate.

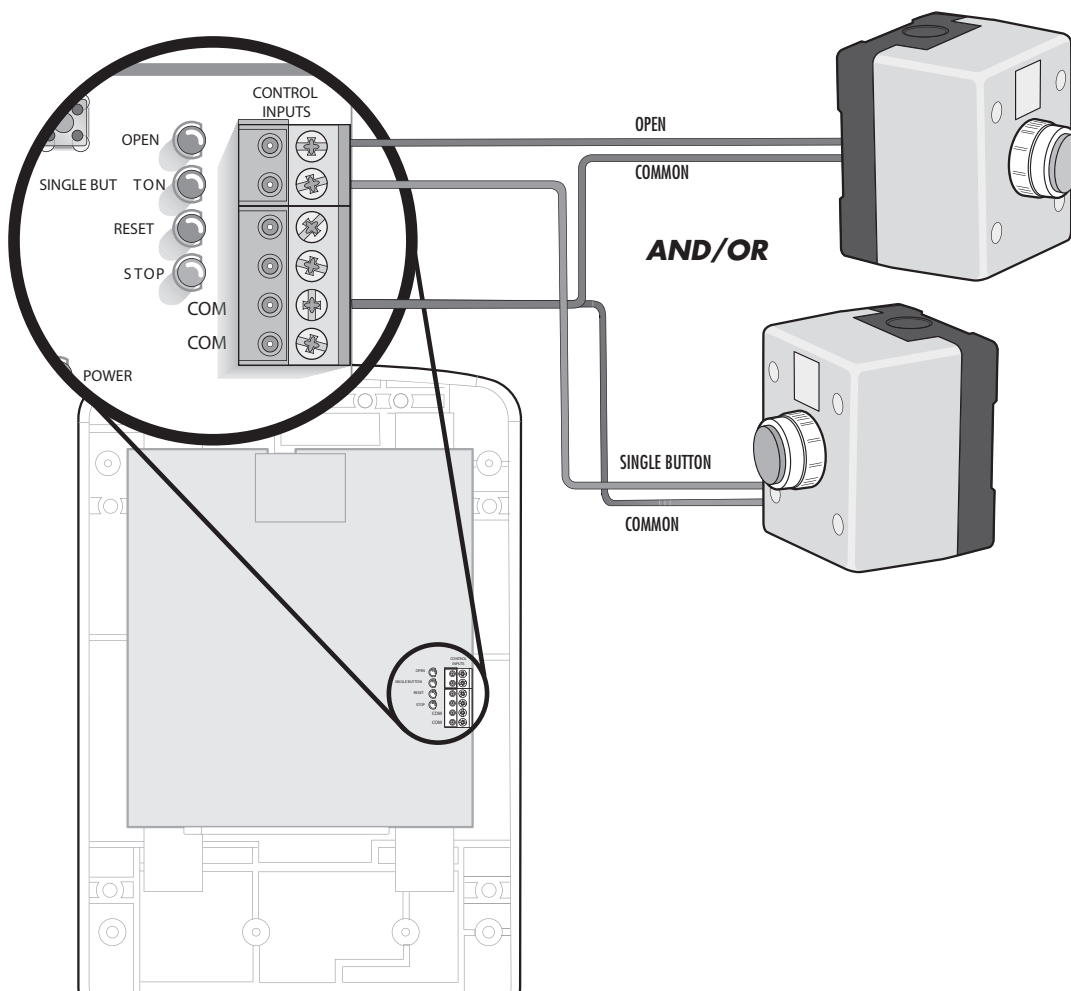
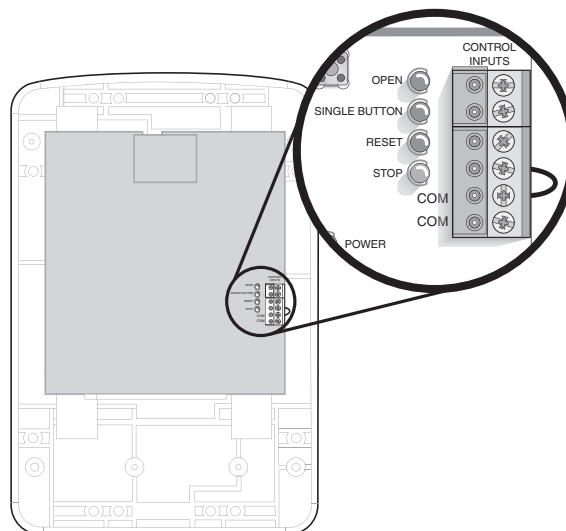
SBC (SINGLE BUTTON CONTROL) INPUT

This input will command the gate to OPEN / STOP / CLOSE / STOP in sequence.

RESET CONTROL INPUT (N/O)

This input will NOT stop the gate. This input is NOT active.

NOTE: All Control Inputs must be Normally Open (N.O.) dry contact type.



ADDITIONAL FEATURES » LOOP INPUTS + PHOTO/EDGE INPUTS

LOOP INPUTS

OPEN INPUT AND EXIT LOOP

These terminals are intended for use as a general open control. Accessories such as telephone entry systems, radio receivers (open only applications), exit loop detectors, keypads and 7-day timers may be wired to this input.

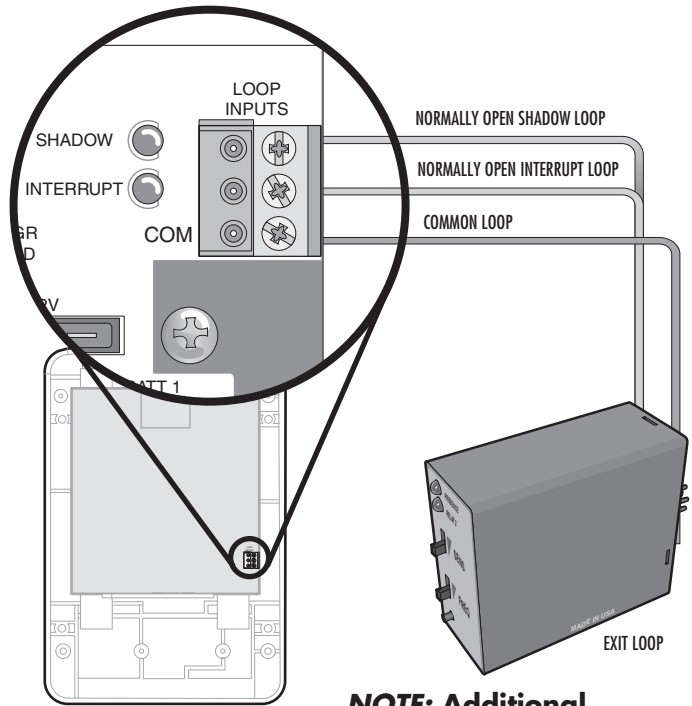
SHADOW LOOP INPUT TERMINAL AND COMMON

This input protects cars by preventing the gate from moving off the open or close limit when the shadow loop input is active.

NOTE: Shadow loop is disabled when gate is moving.

INTERRUPT LOOP INPUT TERMINAL AND COMMON

This input functions to reverse a closing gate to the open limit. Latching this input will reset the timer to close.



NOTE: Additional enclosure required. Refer to loop detector manufacturer instructions for connections.

PHOTO/EDGE INPUTS (SEE ITEMS 2,3,4 & 5 BASIC CONTROL BOARD LAYOUT PAGE 38)

CLOSE SAFETY EDGE

This input will reverse a closing gate. It will disable the Timer-to-Close if that feature has been enabled. Activating this input while the gate is opening will have no effect. Order part number MGL400-BOX to enclose safety electronics.

OPEN SAFETY EDGE/PHOTOELECTRIC SENSOR (ENTRAPMENT)

If an Open Edge device or a Retro-Reflective Photoelectric Sensor has been connected to Terminal P8, then this input will reverse an opening gate for 2 seconds then stop. Activating this input with an Open Edge device or a Retro-Reflective Photoelectric Sensor connected to Terminal P8 while the gate is closing will have no effect.

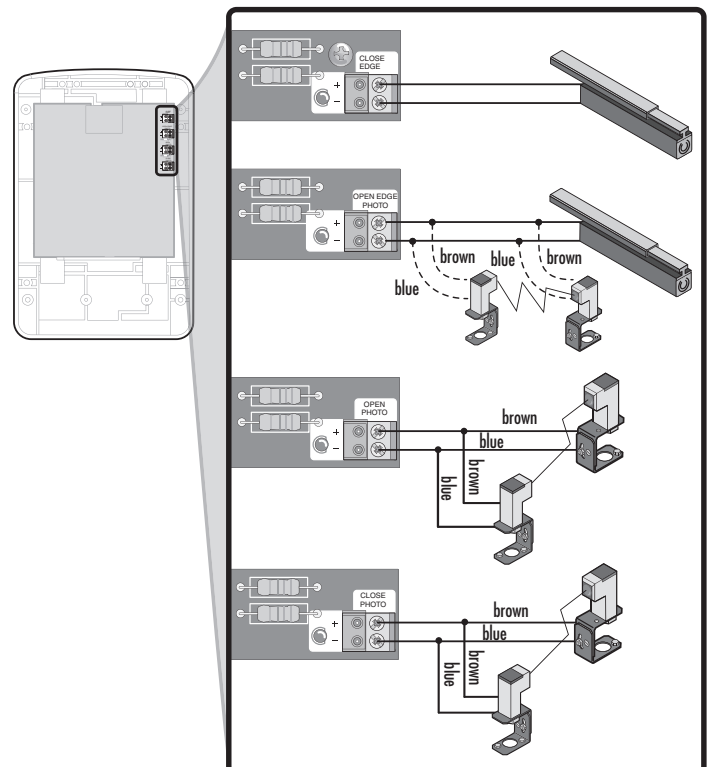
If a Chamberlain Pulsing Photoelectric Sensor (See Accessories) has been connected to Terminal P8, then this input will pause an opening gate until the obstruction has been removed. Upon removing the obstruction, the gate will continue to open. Activating this input with a Chamberlain Pulsing Photoelectric Sensor (See Accessories) connected to Terminal P8 while the gate is closing will have no effect.

OPEN SAFETY PHOTOELECTRIC SENSOR (ENTRAPMENT)

This input will pause an opening gate until the obstruction has been removed. Upon removing the obstruction, the gate will continue to open. Activating this input while the gate is closing will have no effect.

CLOSE SAFETY PHOTOELECTRIC SENSOR

This input will reverse a closing gate to the open limit. Activating this input while the gate is opening will have no effect. The Timer-to-Close will reactivate at the open limit.

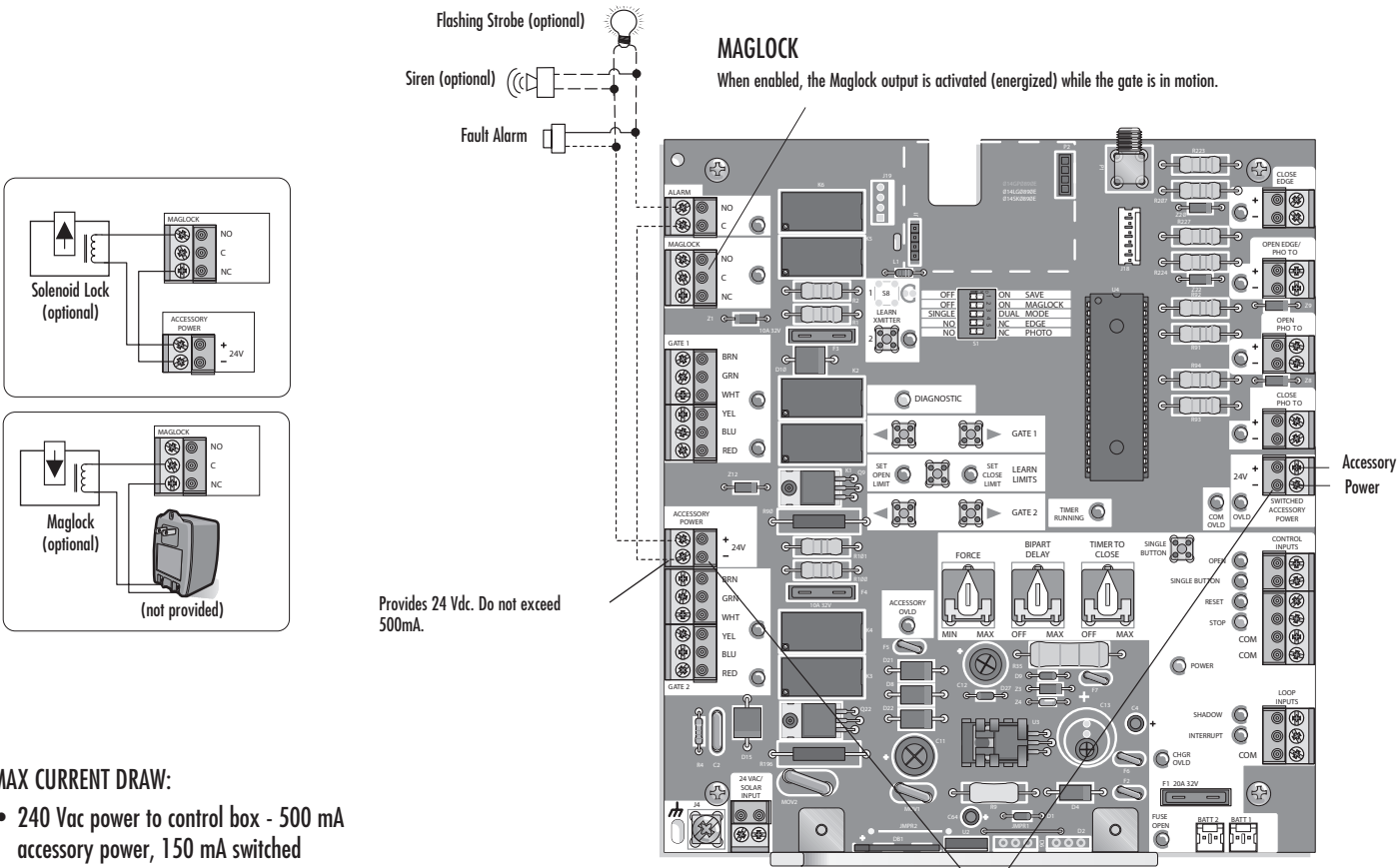


ADDITIONAL FEATURES » SAFETY ACCESSORIES FOR SECONDARY ENTRAPMENT PROTECTION

SAFETY ACCESSORIES FOR SECONDARY ENTRAPMENT PROTECTION

The following devices are acceptable for Safety Accessories for secondary entrapment protection. These devices have been tested with the MGL400-24 to meet local standards.

PHOTOELECTRIC CONTROLS		
MODEL	DESCRIPTION	VOLTAGE
771ANZ	Send, Receive IR Beams (wire not included)	+6 Vdc
772ANZ	Send, Receive IR Beams (wire not included)	+6 Vdc



MAX CURRENT DRAW:

- 240 Vac power to control box - 500 mA accessory power, 150 mA switched accessory power.
- 24 V power to control box depending on wire gauge and distance - 300 mA accessory power, 75 mA switched accessory power.

Make sure the rubber seal around the cover is intact and close the cover. Secure the control box cover with screws (4). Installation is complete.

IMPORTANT INSTALLATION TIPS

The MGL400-24 is a 24 Vdc battery run/battery back-up system. The two (2) 12 Vdc, 7-amp hour batteries (included) are required for the system to function properly regardless of the power supply (AC transformer). The power supply provides charging to the system.

Accessory Power Supply: To simplify installation, 24Vdc accessory power is available from two different terminals on the control board. While this provides enough power for most basic installations, it is important not to exceed the current draw capacity. For some applications, a separate power supply may be required to avoid exceeding maximum current draw.

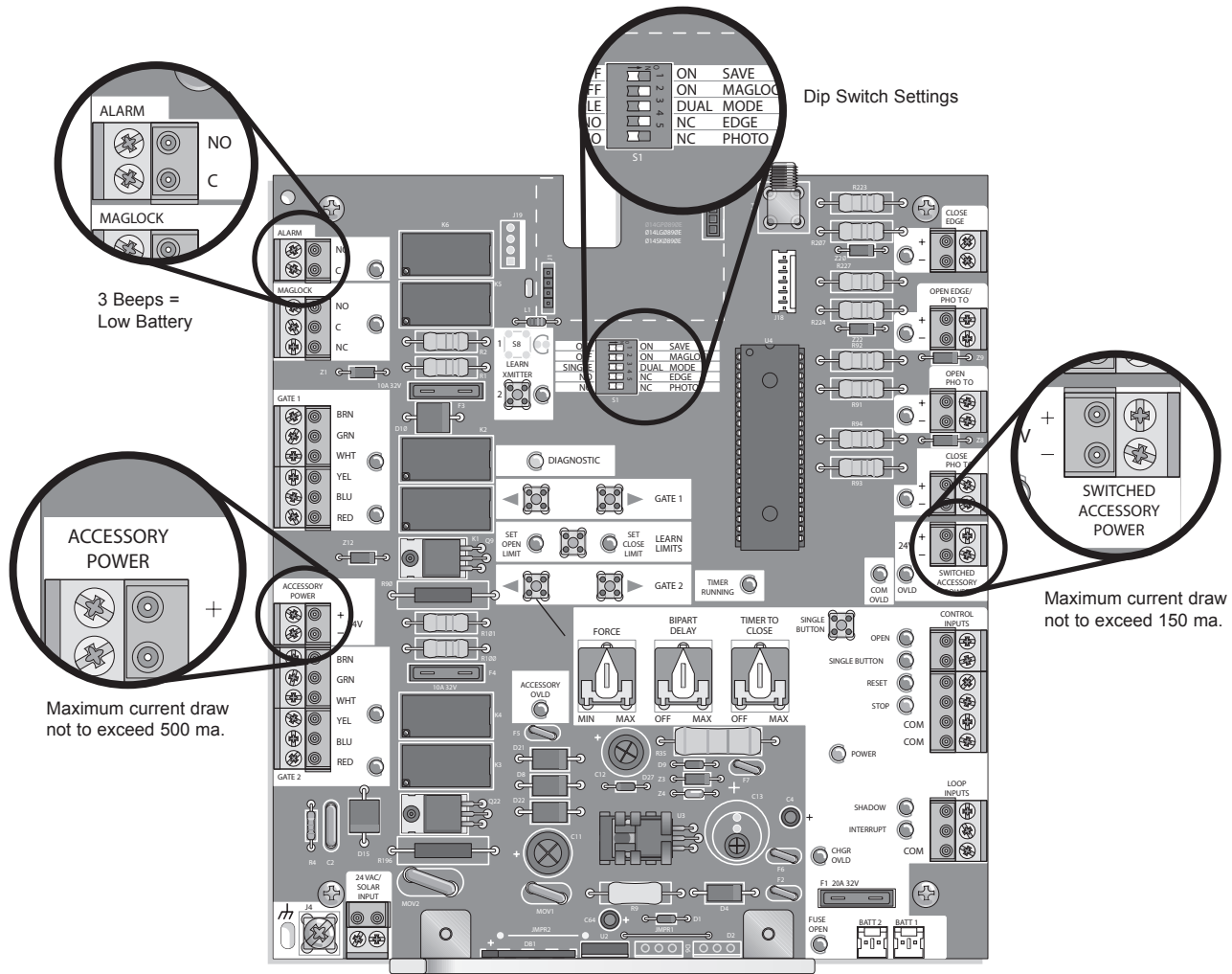
A. "SWITCHED ACCESSORY POWER TERMINALS", Maximum current draw not to exceed 150 ma.

Utilizing this feature maximizes battery performance and extends battery life. Accessories connected to the "Switched Accessory Power terminal" go into the sleep mode 60 seconds after the last operator command. When the MGL400-24 is in the "sleep" mode the stop LED will not be lit, only the power LED will be lit. The next run command will cancel the "sleep" mode and activate the accessories.

IMPORTANT: Save switch must be on to activate sleep mode

B. "ACCESSORY POWER", Maximum current draw not to exceed 500 ma.

This supply connection draws power from the unit continuously and only devices that require power to operate the unit should be drawn from this area.



INSTALLATION STEPS CONTINUED

INSTALLATION TIPS CONTINUED

Before powering up the MGL400-24.

- Install gate and opener in the open position.
- Disengage the opener (using the manual release) and operate gate manually to ensure gate opens and closes smoothly without any interference with mounting hardware.
- Complete full open and close cycle and ensure piston does not bottom out in either full open/close position.
- Adjust mounting hardware as necessary to eliminate interference and ensure proper piston travel.
- Repeat above steps and verify proper installation.
- Close the gate (recommended programming limits from closed position).
- Re-engage the opener (using the manual release).
- Proceed with programming limits.
- Press program limit button. Open limit light flashes. Installer must program open limit first.

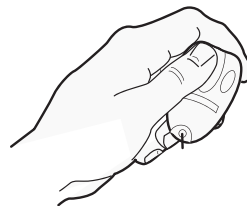
OPERATION AND MAINTENANCE » REMOTE CONTROL

REMOTE CONTROL

Once the remote control has been programmed operator will operate as follows:

When gate is in the closed position, activation of the remote control button will open the gate. During the open cycle another activation of the remote control will stop the gate and the next activation of the remote control will close the gate.

When the gate is in the open position, activation of the remote control button will close the gate.



OPERATION AND MAINTENANCE » MAINTENANCE + MANUAL RELEASE

MAINTENANCE

Disconnect power before servicing.

DESCRIPTION	TASK	CHECK AT LEAST ONCE EVERY		
		MONTH	6 MONTHS	3 YEARS
External Entrapment Protection System	Check and test for proper operation	X		
Manual Release	Check and test for proper operation		X	
Gate	Inspect for wear or damage	X		
Accessories	Check all for proper operation		X	
Electrical	Inspect all wire connections		X	
Mounting Hardware	Check for tightness		X	
Batteries	Replace			X
Operator	Inspect for wear or damage		X	
Warning Signs	Make sure they are present	X		

NOTES:

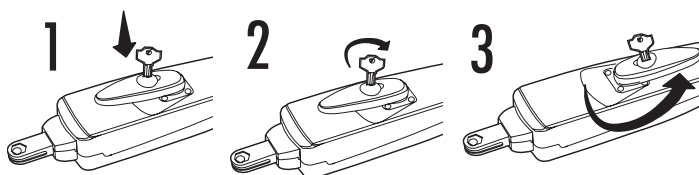
- Severe or high cycle usage will require more frequent maintenance checks.
- Inspection and service should always be performed anytime a malfunction is observed or suspected.
- When servicing, please do some "house cleaning" of the operator and the area around the operator. Pick up any debris in the area. Clean the operator as needed.
- It is suggested that while at the site voltage readings be taken at the operator. Using a Digital Voltmeter, verify that the incoming voltage to the operator is within ten percent of the operator's rating.
- Refer to FORCE ADJUSTMENT section for instructions to adjust the gate force.

MANUAL RELEASE

In case of a power failure, the operator can be disengaged from the gate. With an operator, the release action may sometimes feel stiff/jerky, which is normal and has no effect on function.

RELEASE

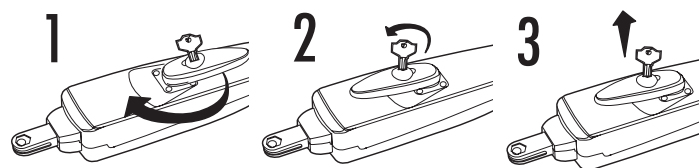
- 1 Insert the key into the lock.
- 2 Turn the key clockwise 180°.
- 3 Turn the release lever 180°.



Operator is in manual mode and the gate can be opened and closed manually.

ENGAGE

- 1 Turn the release lever 180°. This engages the motor.
- 2 Turn the key counter-clockwise 180°. This locks the release lever.
- 3 Remove the key and store in a safe place.

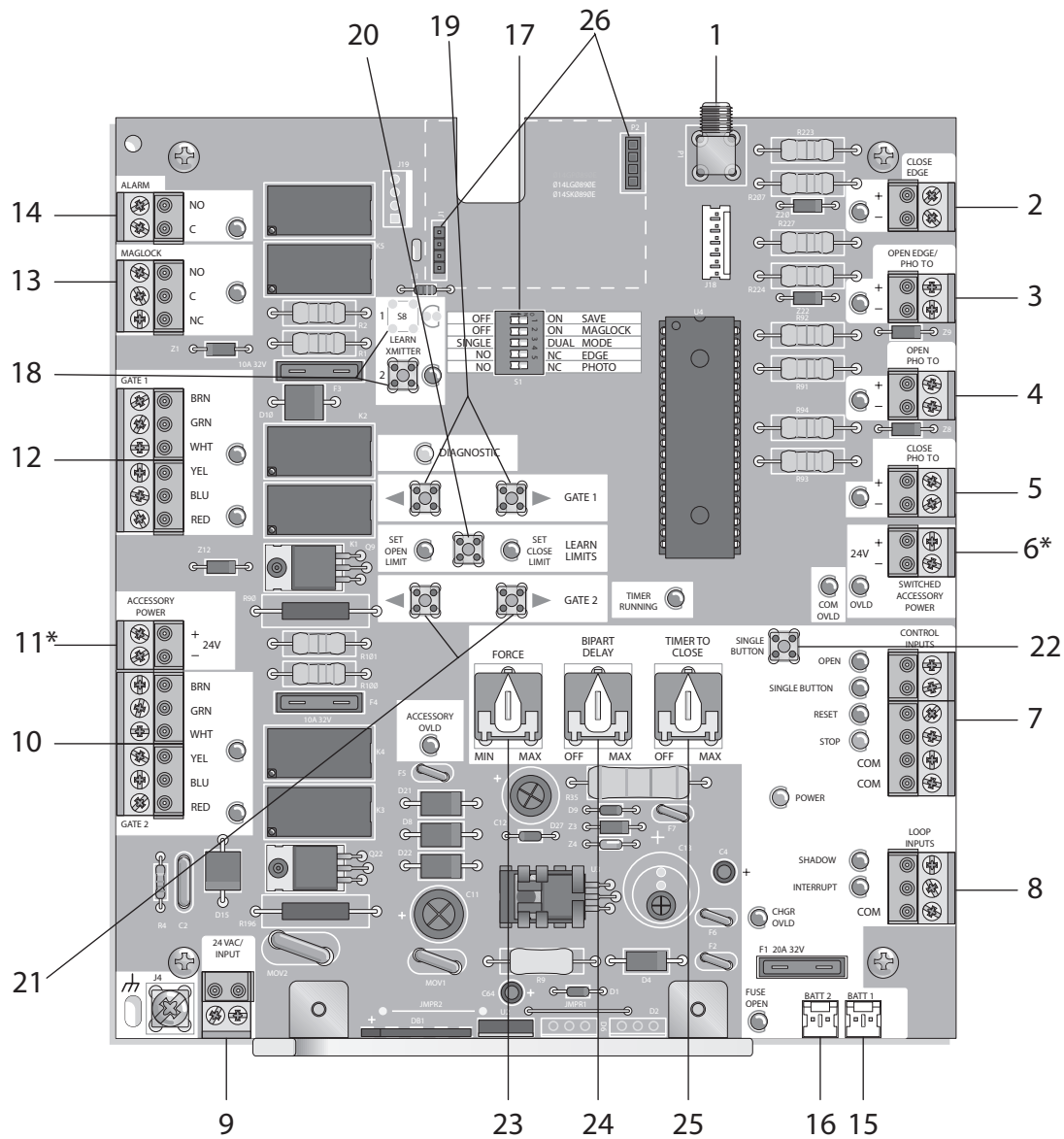


The operator is now engaged.

INSTALL SAFETY LABEL FOR MANUAL RELEASE ADJACENT TO MECHANISM

TROUBLESHOOTING » BASIC CONTROL BOARD LAYOUT

BASIC CONTROL BOARD LAYOUT



ITEM	DESCRIPTION	FUNCTION	ITEM	DESCRIPTION	FUNCTION
1	Connector P1	Antenna Input	14	Connector P15	Alarm
2	Connector P6	Close Edge	15	Connector	Battery 1
3	Connector P8	Open Edge/Photo	16	Connector	Battery 2
4	Connector P7	Open Photo	17	DIP Switch	S1
5	Connector P9	Close Photo	18	Pushbuttons	Learn Xmitter - Program Remotes
6	Connector P12	Switched Accessory Power	19	Pushbuttons	Gate 1 - Jag Learn Limit
7	Connector P10	Control Inputs	20	Pushbutton	Learn Limits
8	Connector P11	Loop Inputs	21	Pushbuttons	Gate 2 - Jag Learn Limit
9	Connector P5	24 Vac Input	22	Pushbutton	Single Button
10	Connector P16	Gate 2	23	Potentiometer	Force
11	Connector P13	Accessory Power	24	Potentiometer	Bipart Delay
12	Connector P17	Gate 1	25	Potentiometer	Timer-to-Close
13	Connector P14	Maglock/Solenoid	26	Connector	Receiver

TROUBLESHOOTING » WIRING DIAGRAM + DIAGNOSTIC CODES

⚡ WARNING

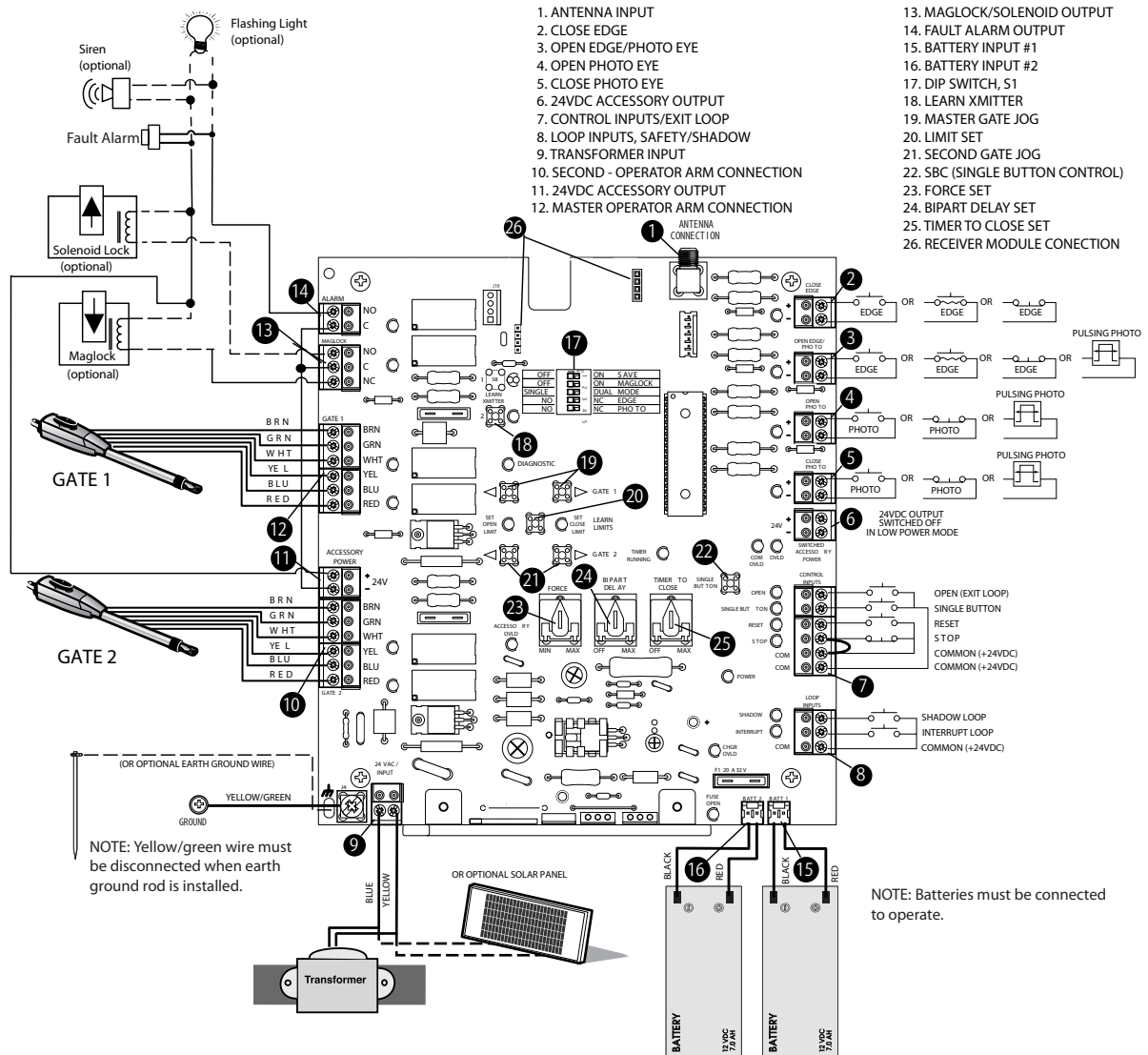
To protect against fire and electrocution:

- DISCONNECT power and battery BEFORE installing or servicing operator.

For continued protection against fire:

- Replace ONLY with fuse of same type and rating.

WIRING DIAGRAM



DIAGNOSTIC CODES

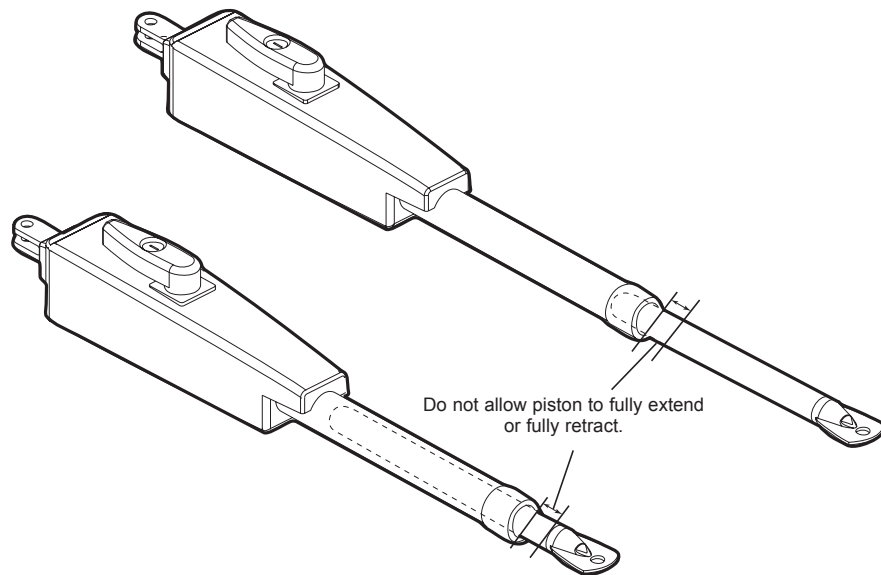
# OF BLINKS	MEANING	# OF BLINKS	MEANING
1	No Stop Switch Connected	6	Force Reversal
2	Gate 1 Arm Disengaged	7	Processor Reset
3	Gate 2 Arm Disengaged	8	ROM Check Failed
4	Both Gate Arms Disengaged	9	RAM Check Failed
5	RPM Reversal	10	EEPROM Check Failed - Reset Limits

TROUBLESHOOTING » TROUBLESHOOTING CHART

FAULT	POSSIBLE CAUSE	FIX
OPERATOR IS DEAD No LED lights are on.	1) No voltage to board. 2) Bad control board.	Battery must be >23 V, AC or needs to be connected. Replace control board.
OPERATOR DOES NOT RUN Operator does not respond to any commands.	1) Low/disconnected battery. 2) Remote not programmed. 3) STOP connection loose/disconnected. 4) Constant Open Command (Check LED's). 5) Limits not programmed correctly. 6) Bad control board.	Voltage must be >23 V at battery connection. See Programming Remote instructions. Check STOP connections. Clear all Open/Safety devices from obstruction. See Programming Limits instructions. Replace control board.
MOTOR DOES NOT RUN Relays "click" when radio or SBC signal is given, but the operator does not move.	1) Low Battery. 2) Cable wiring between control box and operator arm disconnected or loose. 3) Batteries not connected. 4) Bad motor. 5) Bad control board.	Voltage must be >23 V at battery connection. Check wiring on control board to arm, replace wire if needed. Connect batteries. Replace motor. Replace control board.
GATE STOPS AND REVERSES (Force Reversal)	1) Gate met an obstruction. 2) Force set too low. 3) Bad gate hardware. 4) Incorrect Arm installation.	Clear gate from obstruction. See Force Adjustment section. Service/replace gate hardware. See Installation section of operator arm.
RPM REVERSAL	1) Obstructed Arm (bottoms out). 2) Bad RPM Sensor. 3) Too much mA pulled off board.	Check for obstruction on arm, verify arm is not bottomed out. Replace arm. Move accessories to separate power source. Use reference chart on next page to determine max mA draw for circuit board.
GATE STOPS Gate starts to run, then stops and does not reverse.	1) Low battery. 2) Gate met an obstruction.	Voltage must be >23 V at battery connection. Clear gate from obstruction.
GATE OPENS BUT DOES NOT CLOSE	1) Constant Open Command (Check LED's). 2) Timer-to-Close not set. 3) Accessory device wired to Open Only command.	Clear all Open/Safety devices from obstruction. See Timer-to-Close section for adjustment instructions. Rewire desired accessory device to Single Button Input.
Alarm LED flashes (3 times) when command is given.	1) Battery Low >23.5 V	Operator will resume normal operation once battery voltage reaches 24 V.
GATE'S DO NOT OPEN/CLOSE IN SYNC	1) Bipart Delay not set. 2) Limits not programmed correctly. 3) Incorrect Arm Installation	See Bipart Delay section for adjustment instructions. See Programming Limits section for instructions. See Installation section for instructions.
GATE DOES NOT AUTOMATICALLY CLOSE Auto Close Timer not closing gate.	1) Timer-to-Close not turned on. 2) Gate has opened on Obstruction Reversal. 3) Operator in "Party Mode". 4) Constant Open Command (Check LED's).	See Timer-to-Close section for instructions. Check DIAG code, clear obstruction. Use remote control/SBC to resume normal operation. Clear all Open/Safety devices from obstruction.
ACCESSORY DEVICE NOT WORKING PROPERLY	1) Not installed properly. 2) Enabling Switch not turned on. 3) Loose/disconnected wires. 4) Bad accessory device	Check for proper installation of accessory. Turn applicable switches on. Check proper installation of wires. Replace accessory device.

TROUBLESHOOTING » TIPS

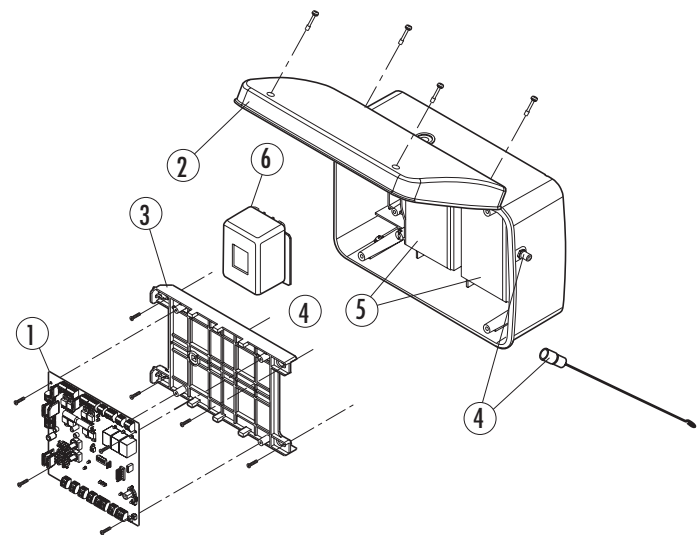
1. Dip Switch Settings: The SAVE switch must be put to the ON position after any adjustments have been completed for proper operation. When additional adjustments are required the SAVE switch needs to be in the OFF position and then returned to the SAVE position when completed.
2. Two (2) 12 Vdc 7-amp hour batteries must be connected at all times to ensure proper operation (located behind the control board).
3. Whenever the combined battery voltage is less than 23 Vdc the alarm LED will flash 3 times indicating low battery condition. Check power supply to correct problem or move accessories to switched power.
4. If accessory power exceeds maximum current draw the control board will lock up (notice "OVLD" LED on) and recycling of power will be required (removal of power supply and battery supply).
5. Upon installation, do not allow the travel of the piston to bottom out in either the open or closed positions to avoid damage to the arm. Allow approximately 6.35 mm (1/4") of additional travel in both directions.



REPAIR PARTS » CONTROL BOX + GATE OPERATOR ARM

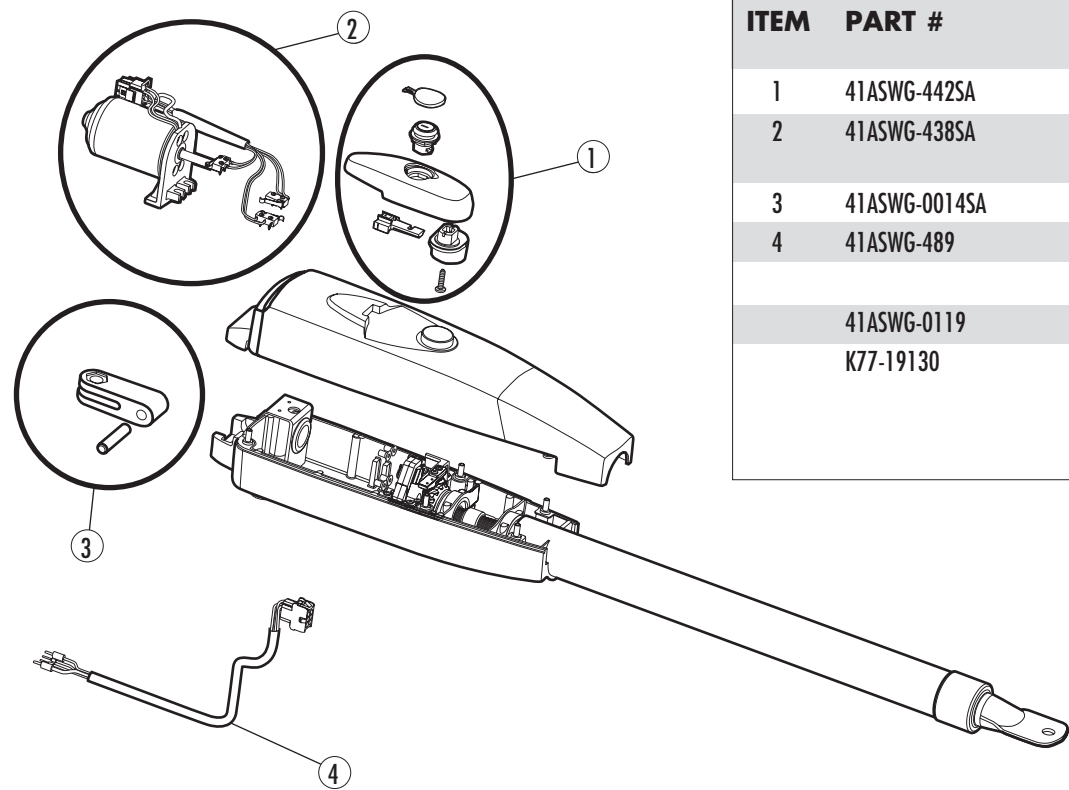
CONTROL BOX

Refer to the parts lists below for replacement parts available for your operator.
If optional modifications and/or accessories are included with your operator, certain components may be added or removed from these lists.



ITEM	PART #	DESCRIPTION	QTY
1	K001A6039	Control Board	1
2	K75-15480	Control Box & Cover with Gasket	1
3	K75-30764	Control Board Bracket	1
4	K74-19499	Antenna	1
5	K74-30762	Battery	2
6	M66726	Transformer	1
Not Shown			
	K74-30941	ATC Fuse Kit Includes 20 Amp (1), 15 Amp (2)	
	041A5456B	Receiver Module -433 MHz	

GATE OPERATOR ARM



ITEM	PART #	DESCRIPTION	QTY
1	41ASWG-442SA	Release Lever	1
2	41ASWG-438SA	Motor with Limit Switch Harness	1
3	41ASWG-0014SA	Rear Connector	1
4	41ASWG-489	Cable 24 V with Connector	1
Not Shown			
	41ASWG-0119	Release Key	1
	K77-19130	Hardware Bag Complete with: Gate bracket, post bracket, Pull-to-Open bracket and hardware	

ACCESSORIES

C945



3-Button Mini-Remote Control with SECURITY+® (C):

With key ring and fastening strip.

C943



3-Button SECURITY+® Remote Control:

Includes visor clip.

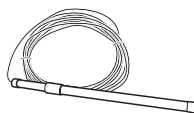
ANT4X-1LM



Remote Antenna Mounting Kit:

Kit contains antenna bracket and 4.0 m of cable. Recommended for increasing the effective range of remote controls.

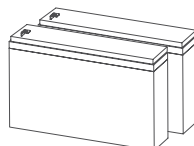
921GA-CP3



Vehicle Exit Sensor:

One piece outdoor buried vehicle motion detector with sensing probe is housed in a small relay type housing so it is easy to integrate with gate, providing for free exit only.

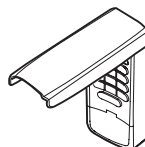
29-NP712



7 AH/12 Vdc Gate Access System Battery:

The gate access system battery is a replacement battery for the operator. The model MGL400-24 requires two batteries.

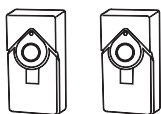
C840



SECURITY+® Keyless Entry:

Enables homeowner to operate gate by entering a password on a specially designed keypad.

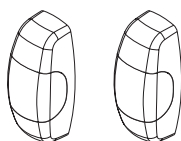
771ANZ



Safety Beams:

Kit contains send and receive beams, IP44 rated. Brackets and wires not included.

772ANZ



Safety Beams:

Kit contains send and receive beams, IP44 rated. 772 design provides extra UV protection and adjustable beam direction allowing for more versatile applications. Brackets and wires not included.

CHAMBERLAIN LIMITED WARRANTY

Merlin Professional MGL400-24

Linear Swing Gate Opener

Chamberlain Australia Pty Limited / Chamberlain New Zealand Limited (Chamberlain), the manufacturer of Merlin® automatic gate openers, is committed to manufacturing and supplying high quality goods.

As part of this commitment, we seek to provide reliable service and support for our goods and are pleased to provide you, the original purchaser, with this Chamberlain Limited Warranty.

We also provide the following statement as required by the Australian Consumer Law: In Australia, in addition to your rights under this Chamberlain Limited Warranty, our goods come with guarantees that cannot be excluded under the Australian Consumer Law. You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.

Chamberlain's warranty

Chamberlain warrants to the original purchaser of the Merlin® Swing Gate Opener (Unit) that all parts of the Unit, other than remote controlled transmitters and accessories, globes and batteries, are free from defects in materials and workmanship for a period of 24 months from the date of purchase when installed in a residential premise with a residential specified gate that is designed for the sole purpose of domestic domicile. Chamberlain warrants that remote controlled transmitters and accessories included with the Unit are free from defects in materials and workmanship for a period of 12 months from the date of purchase.

Batteries and globes are not covered under the Chamberlain Limited Warranty.

It is a condition of this Chamberlain Limited Warranty that the Unit is sold, installed and serviced by a Professional Dealer appointed by Chamberlain. A Merlin® branded gate opener purchased over the internet and installed by a person other than a Professional Dealer will not be covered by this Chamberlain Limited Warranty.

During the applicable Chamberlain Limited Warranty period, if you are concerned that the Unit may be defective, for prompt on-site service call the Professional Dealer that sold/installed the opener, or our service centre on the toll free number below and a Chamberlain technician will diagnose the problem and arrange for this to be rectified. Once the problem has been diagnosed, subject to your rights under the Australian Consumer Law with respect to major failures, Chamberlain or

its Professional Dealer will provide you with:

1. repairs to the Unit

or

2. a replacement Unit.

Repairs and replacement parts provided under this Chamberlain Limited Warranty are provided free of charge and are warranted for the remaining portion of the original warranty period.

This Chamberlain Limited Warranty provides benefits which are in addition to your other rights and remedies as a consumer.

Exclusions

If our service centre determines that a warranty claim has been made in respect of a failure or defect arising under or out of any exclusion detailed below such that the claim is not covered under this Chamberlain Limited Warranty, we may, subject to your other rights and remedies as a consumer, charge you a fee to repair, replace and/or return the Unit to you. This Chamberlain Limited Warranty does not cover any failure of, or defect in, the Unit due to:

- 1 non-compliance with the instructions regarding installation, operation, maintenance and testing of the Unit or of any product with which the Unit is used;
- 2 any attempt by a person other than a Professional Dealer to repair, dismantle, reinstall or move the Unit to another location once it has been installed;
- 3 tampering, neglect, abuse, wear and tear, accident, electrical storm, excessive use or conditions other than normal domestic use;
- 4 problems with, or relating to, the gate or gate hardware, including but not limited to the gate;
- 5 problems caused by electrical faults or replacement of batteries;
- 6 water or moisture ingress that causes corrosion or electrical malfunction;
- 7 corrosion caused by sea air if located near a waterway, beach etc;
- 8 fitment in a commercial operating application; or
- 9 solid panel gates installed in an unprotected wind affected location resulting in the gate not closing.

NB: A General Purpose Outlet (GPO) ie: power point must be supplied by the consumer as this electrical fitting does not form a part of the Unit (opener). Excludes solar installations.

If this Chamberlain Limited Warranty does not apply, you may have rights available to you under the Australian Consumer Law.

Liability – Australia only

Except as set out in the Australian Consumer Law (being Schedule 2 of the Competition and Consumer Act 2010) (as amended, consolidated or replaced):

- 1 all other guarantees, warranties and representations in relation to the Unit or its supply are excluded to the extent that Chamberlain can lawfully exclude them; and
- 2 under no circumstances will Chamberlain be liable for consequential, incidental or special damages arising in connection with the use, or inability to use, the Unit, other than those which were reasonably foreseeable as liable to result from the failure.

Liability – New Zealand only

Except as set out in the Fair Trading Act 1986 and the Consumer Guarantees Act 1993 (as amended, consolidated or replaced):

- 1 all other guarantees, warranties and representations in relation to the Unit or its supply are excluded to the extent that Chamberlain can lawfully exclude them; and
- 2 under no circumstances will Chamberlain be liable for consequential, incidental or special damages arising in connection with the use, or inability to use, the Unit, other than those which were reasonably foreseeable as liable to result from the failure.

Note

We request that you retain your sales docket or invoice as proof-of-purchase and attach it to this manual to enable you to establish the date of purchase in the unlikely event of a warranty service being required. Chamberlain reserves the right to change the design and specifications of the Unit without prior notification. Some features or accessories of the Unit may not be available in certain markets or areas. Please check with your distributor.

Chamberlain service centre contact details

Australia

Phone toll free 1800 638 234

Fax toll free 1800 888 121

Chamberlain Australia Pty. Ltd.

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New Zealand

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TEMPLATE FOR POST BRACKET MOUNTING

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