

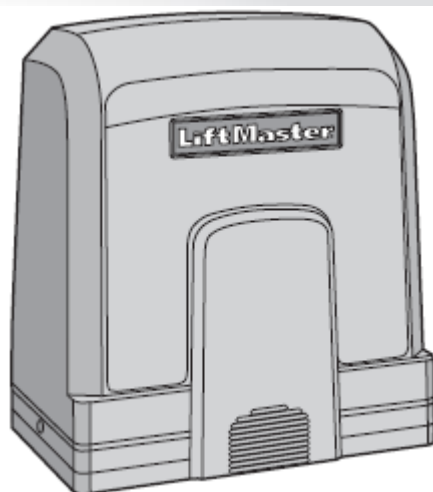
# Vehicular Slide Gate Operator

## Installation Manual

**Model SL600UL – SL1000UL**



**EXTERNAL SAFETY  
DEVICES  
REQUIRED. SEE SAFETY  
SECTION FOR  
UL 325 ENTRAPMENT  
PROTECTION  
REQUIREMENTS**



- THIS PRODUCT MUST BE INSTALLED AND SERVICED IN ACCORDANCE WITH THIS MANUAL BY A TRAINED GATE SYSTEMS TECHNICIAN ONLY.
- This model is for use on vehicular passage gates ONLY and not intended for use on pedestrian passage gates.
- This model is intended for use in Class I, II and III vehicular slide gate applications.
- Visit [LiftMaster.com](http://LiftMaster.com) to locate a professional installing dealer in your area.
- This gate operator is compatible with MyQ® and Security+ 2.0® accessories.



LiftMaster  
300 Windsor Drive  
Oak Brook, IL 60523

**LiftMaster®**

# TABLE OF CONTENTS

**NOTE:** The original installation and operating instructions were compiled in English. Any other available language is a translation of the original English version

<b>SAFETY</b>	<b>3</b>	Advanced Learning Mode	22
Safety Symbol and Signal Word Review	3	Stand-by Mode	22
Usage Class	4	Obstruction Test	22
UL325 Entrapment Protect	5	Programming and Erasing of Remote Controls, Radio Accessories and myQ Devices	23
Role of Dealers, Installers, and Trained Gate System Technicians	5	Advanced Settings	24
Role of End Users/Home Owners	5	Overview Advanced Settings	24
Gate Construction Information	6	Transmitter Settings	24
		Input Settings	24
<b>INTRODUCTION</b>	<b>7</b>	Partial Opening	25
Carton Inventory	7	Timer To Close	25
Tools Needed	7	E-Lock / Mag-Lock Settings	25
Operator Specification	8	Flashing Light Settings	25
Operator Dimension	8	Pre-Flashing	25
Site Preparation	9	Special Contact Settings	25
		Start Speed in Open and Close Directions	25
<b>INSTALLATION</b>	<b>10</b>	Maintenance Counter	26
Overview of Gate Opener	10	Force Motors Open and Close Directions	26
Prepare and Install the Mounting Plate	10,11,12	Speed Motors in Open and Close Directions	26
Install the Operator	12	Soft-Stop Speed	26
Emergency Release Mechanism	13	Factory Default Settings	27
Reset Button	13	Finish and Exit	27
Operator Alarm	13	Dual Gate Application	27
Install the Gate Rack	14	Battery backup mode	27
Install the Limit Switch Bracket	14		
Install Entrapment Protection	15	<b>TROUBLESHOOTING</b>	<b>28</b>
Wire Entrapment Protection Devices	16	Error Codes	28
Earth Ground Rod	16		
Power Wiring	17	<b>MAINTENANCE</b>	<b>29</b>
Limit Switch Position Set Up	18	Maintenance Chart	29
Install Warning Signs	18	Batteries	29
Access to the control Board and Motor connection	19		
Wiring Diagram Overview	19	<b>REPAIR PARTS</b>	<b>30</b>
Display, Programming Buttons and Function Setting	20		
General Programming Overview	20	<b>ACCESSORIES</b>	<b>31</b>
Wing Movement Direction	21		
Basic Settings	21	<b>WARRANTY</b>	<b>32</b>
Application Settings	21		
Direction Motor Settings	21	<b>SAFETY CHECKLIST</b>	<b>33,34</b>
Limit Learning	21		
Standard Learning Mode	21		
Advanced Learning Mode	22		
Stand-by Mode	22		
Obstruction Test	22		
Programming and Erasing of Remote Controls, Radio Accessories and myQ Devices	23		

# SAFETY

## Safety Symbol and Signal Word Review

These Safety Symbols and Signal Words on the following pages 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.

 **WARNING**

### MECHANICAL

 **WARNING**

### ELECTRICAL

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.

 **CAUTION**

### 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 Gate Systems Technician.*



**WARNING:** This product can expose you to chemicals including lead, which are known to the State of California to cause cancer or birth defects or other reproductive harm. For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

## Usage Class

### Class I - Residential Vehicular Gate Operator

A vehicular gate operator (or system) intended for use in garages or parking areas associated with a residence of one- to four single families.

### Class II - Commercial/General Access Vehicular Gate

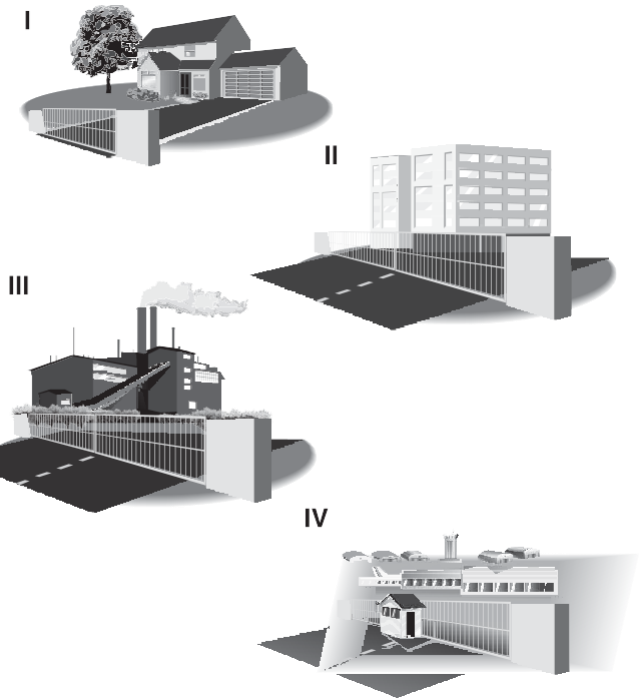
A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units), hotel, garages, retail store, or other buildings accessible by or servicing the general public.

### Class III - Industrial/Limited Access Vehicular Gate

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

### Class IV - Restricted Access Vehicular Gate Operator

A vehicular gate operator (or system) intended for use in a guarded industrial location or building such as an airport security area or other restricted access locations not servicing the general public, in which unauthorized access is prevented via supervision by security personnel.



**Model SL600UL, SL1000UL rated  
for Class I, II and III only**

## UL325 Entrapment Protection Requirements

### Definitions

**ENTRAPMENT:** The condition when a person is caught or held in a position that increases the risk of injury.

**SLIDE GATE ENTRAPMENT ZONE:** An entrapment zone exists if at any point during travel, the gap between the gate and any opposing fixed edge or surface such as posts, walls, pillars, columns or the operator itself, is less than 16" (406 mm) in a location up to 6 ft. (1.8 m) above grade.

### INDEPENDENT MONITORED ENTRAPMENT

**PROTECTION DEVICE:** An entrapment protection device is independent if it is a different type (photoelectric sensors, edge device, inherent protection device) from the other devices in the same entrapment zone.

Use the *Site Planning Safety Checklist* in the appendix to identify entrapment zones found in your installation.

### Requirements

- A **minimum of two** independent monitored entrapment protection devices are required to be installed at each entrapment zone.
- It is the responsibility of the installer to install external monitored entrapment protection devices for **each entrapment zone**.
- The operator will only operate with a **minimum of two** independent monitored entrapment protection devices installed in each direction; two in the open direction and two in the closed direction.

Acceptable entrapment protection device types include:

- Inherent (built into the operator)
- LiftMaster monitored external photoelectric sensors, see [page 31](#) for acceptable sensors.
- LiftMaster monitored external edge sensors, see [page 31](#) for acceptable sensors.

## IMPORTANT SAFETY INSTRUCTIONS

### WARNING

To reduce the risk of severe INJURY or DEATH:

- 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 an object or reverse when an object activates the noncontact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the operator properly can increase the risk of INJURY or DEATH.**
- Use the manual disconnect 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.
- **SAVE THESE INSTRUCTIONS.**

## 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 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 gate system design. Specific safety features include:
  - Edges Sensors (contact)
  - Guards for Exposed Rollers
  - Photoelectric Sensors
  - Screen Mesh
  - 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 openings of a horizontal slide gate are guarded or screened from the bottom of the gate to a minimum of 6 feet (1.8 m) above the ground to prevent a 2-1/4 inches (6 cm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position.
  - c. All exposed pinch points are eliminated or guarded, and guarding is supplied for exposed rollers.
5. The gate 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 pedestrian access 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.
7. The gate must be properly installed and work freely in both directions prior to the installation of the gate operator.
8. Permanently mounted access controls intended for users to activate, must be located at least 6 feet (1.8 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. Exception: Emergency access controls only accessible by authorized personnel (e.g. fire, police) may be placed at any location in the line-of-sight of the gate.
9. For a gate operator utilizing a Stop and/or Reset button, it must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
10. A minimum of two (2) WARNING SIGNS shall be installed in the area of the gate. Each warning sign is to be visible by persons located on the side of the gate on which the sign is installed.
11. For a gate operator utilizing a non-contact sensor:
  - a. See Install Entrapment Protection section for 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. 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.
  - c. A wireless device such as 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 device shall function under the intended end-use conditions.

## Role of Dealers, Installers, and Trained Gate System Technicians

- Ensure entire system being designed, manufactured, and installed meets all applicable standards and codes including UL 325 and ASTM F2200.
- Demonstrate the basic functions and safety features of the gate system to owners/end users/general contractors, including how to turn off power and how to operate the manual disconnect feature.
- Leave safety instructions, product literature, installation manual and maintenance manual with end user.
- Explain to the owners the importance of testing by a trained gate system technician that includes a routine re-testing of the entire system including the entrapment protection devices, and explain the need for the owners to insure that this testing is performed monthly.

## Role of End Users/Home Owners

- Contact a trained gate systems technician to maintain and repair the gate system (End users should never attempt to repair the gate system).
- Retain and utilize the installation manual and maintenance and important safety instructions; see [page 29](#).
- Routinely check all gate operator functions and gate movement.
- Discontinue use if safety systems operate improperly, the gate is damaged, or the gate is difficult to move. Contact trained gate systems technician to repair the gate system.
- Prominently display and maintain warning signs on both sides of the gate.

## Gate Construction Information

Vehicular gates should be installed in accordance with ASTM F2200: Standard Specification for Automated Vehicular Gate Construction. For a copy, contact ASTM directly at 610-832-9585 or [www.astm.org](http://www.astm.org).

### 1. General Requirements

1. Gates shall be constructed in accordance with the provisions given for the appropriate gate type listed, refer to ASTM F2200 for additional gate types.
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.
3. Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 0.50 inches (12.7 mm) when other than the exceptions listed in ASTM F2200.
4. The minimum height for barbed tape shall not be less than 8 feet (2.44 m) above grade and for barbed wire shall not be less than 6 feet (1.83 m) above grade.
5. An existing gate latch shall be disabled when a manually operated gate is retrofitted with a powered gate operator.
6. A gate latch shall not be installed on an automatically operated gate.
7. Protrusions shall not be permitted on any gate, refer to ASTM F2200 for Exceptions.
8. Gates shall be designed, constructed and installed such that their movement shall not be initiated by gravity when an automatic operator is disconnected, in accordance with the following.
  1. Vehicular horizontal slide gate shall not result in continuous, unimpeded movement in either lineal direction of its travel.
9. For pedestrian access in the vicinity of an automated vehicular gate, a separate pedestrian access shall be provided or available. The pedestrian access shall be installed in a location such that a pedestrian shall not come in contact with a moving vehicular access gate during the entire path of travel of the vehicular gate. A pedestrian gate shall not be incorporated into an automated vehicular gate panel.

### 2. Specific Applications

1. Any non-automated gate that is to be automated shall be upgraded to conform to the provisions of ASTM F2200.
2. This specification shall not apply to gates generally used for pedestrian access and to vehicular gates not to be automated.
3. When the gate operator requires replacement, the existing gate shall be upgraded to conform to the provisions of ASTM F2200.
4. When the gate of an automated gate system requires replacement, the new gate shall conform to the provisions of ASTM F2200.

### 3. Vehicular Horizontal Slide Gates

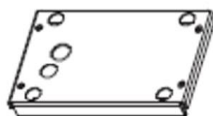
1. The following provisions shall apply to Class I, Class II and Class III vehicular horizontal slide gates:
  1. All weight bearing exposed rollers 8 feet (2.44 m), or less, above grade shall be guarded or covered.
  2. All openings shall be designed, guarded, or screened from the bottom of the gate to the top of the gate or a minimum of 6 ft. (1.83 m) above grade, whichever is less, to prevent a 2 1/4 in. (57 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that the gate covers in the open position. The gate panel shall include the entire section of the moving gate, including any back frame or counterbalance portion of the gate.
  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 2-1/4 inches (57 mm). Exception: All other fixed stationary objects greater than 16 in. (406 mm) from the gate frame shall not be required to comply with this section.
  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.
  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.

# INTRODUCTION

## CARTON INVENTORY



Gate Operator



Mounting plate



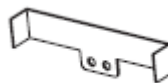
M8x80 Expanding screw (4)



M8 X40 Screw with hexagon nut and plain washer (4 sets)



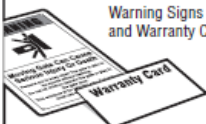
Release key (2)



Limit switch bracket (2)



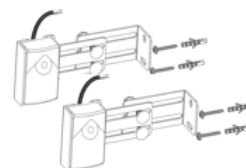
Remote Control (2x)



Warning Signs (2) and Warranty Card



Installation Manual



Photoeye / (IR) Infrared

## TOOLS NEEDED



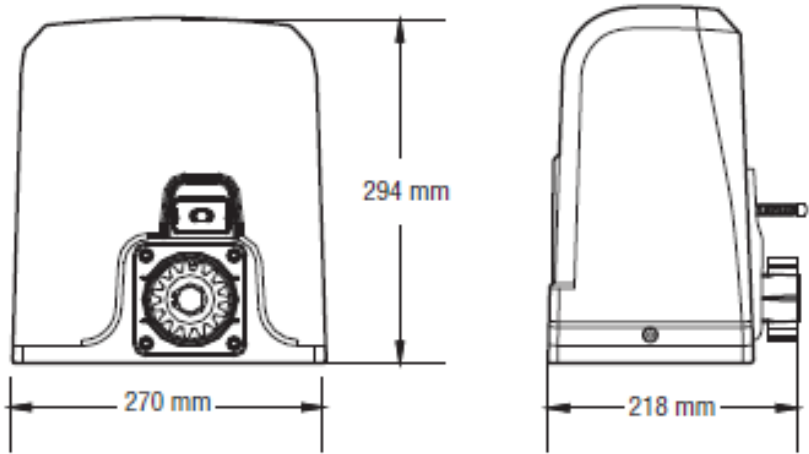


# INTRODUCTION

## OPERATOR SPECIFICATION

	SL600UL / SL1000UL
Usage Classification	Class I, II and III
Main AC Supply	120Vac; 2A; 60Hz
System Operating Voltage	24 Vdc Transformer Run / optional Battery Backup
Accessory Power	24 Vdc, 500mA max
Battery Backup	optional 2 x 12V, 2.2Ah batteries model 490EV
Maximum Gate Weight	SL600UL : 1323 lbs (600 kg) SL1000UL : 2205 lbs (1000 kg)
Maximum Gate Travel Distance	SL600UL : 26 ft (8m)   SL1000UL : 39 ft (12m)
Maximum Gate Travel Speed	7.8 inch /second (200mm / sec)
Maximum Daily Cycle Rate	Max 50 cycles per day
Operating Temperature	-20°C to 55°C (-4°F to 131°F)
External Entrapment Protection Device Inputs (non-contact and/or contact)	Up to 2 close entrapment protection devices and 2 open entrapment protection device.

## OPERATOR DIMENSIONS





# INTRODUCTION

## SITE PREPARATION

Check the national and local building codes **BEFORE** installation. Refer also to the *Site Planning Safety Checklist*.

### Conduit and Concrete Pad

Trench and install conduit. Before trenching, contact underground utility locating companies. Conduit must be UL approved for low and high voltage. Consider the operator placement **BEFORE** installing the pad or post.



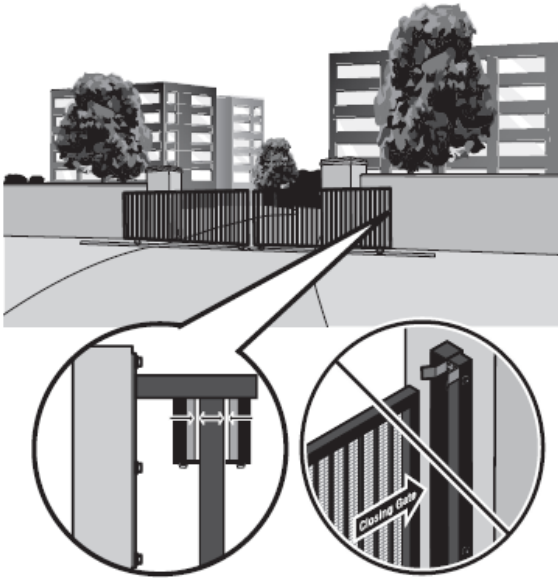
### Safety

Entrapment protection devices are required to protect against any entrapment or safety conditions encountered in your gate application. Install a warning sign (two provided) on the inside and outside of the property, where easily visible



### Gate

Gate must be constructed and installed according to ASTM F2200 standards (refer to page 4). Gate must fit specifications of operator (refer to specifications).

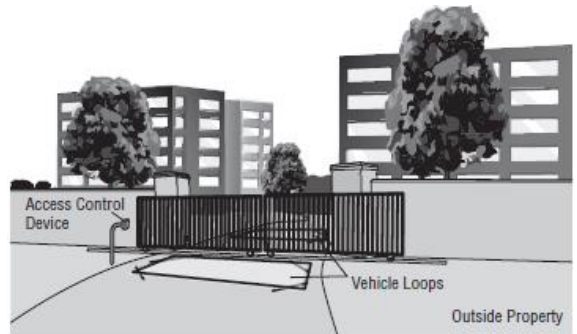


**SAFETY CATCH ROLLERS**  
Install catch rollers with safety covers on the side of a post or wall with a minimal distance of half an inch between the rollers and gate

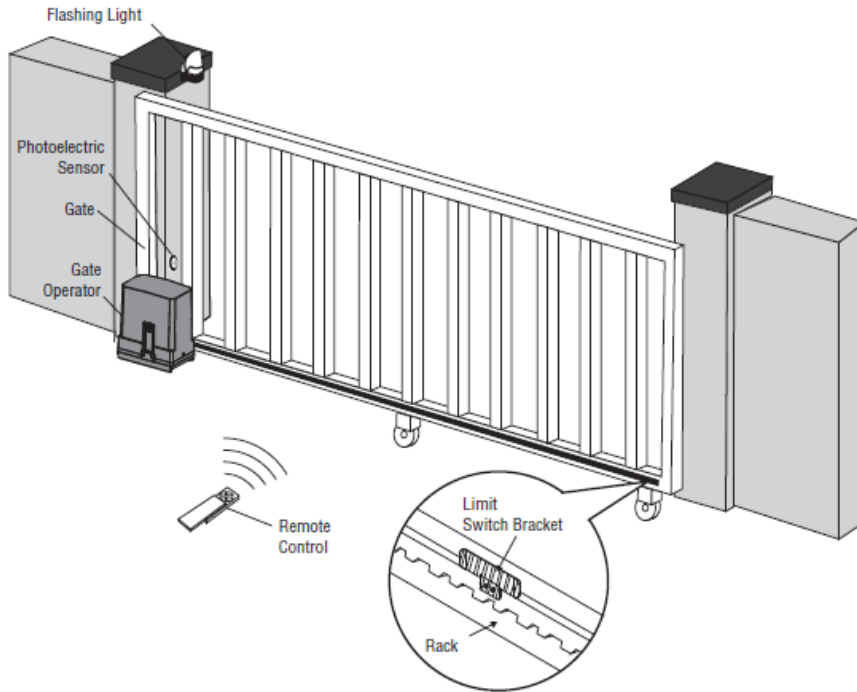
**DO NOT** use a gate catch post. Because the coasting distance may vary due to changes in temperature, it is **NOT** recommended to install a catch post in front of the gate's path. To do so will cause the gate to hit the post in certain instances.

### Additional Accessories

The vehicle loops allow the gate to stay open when vehicles are obstructing the gate path. Suggested for vehicles 14 feet (4.27 m) or longer. Vehicle loops are not required but are recommended. Before installing your Access Control Device(s) be sure to complete a site survey and determine the best device for your site needs



## OVERVIEW OF GATE OPENER



### ⚠ CAUTION

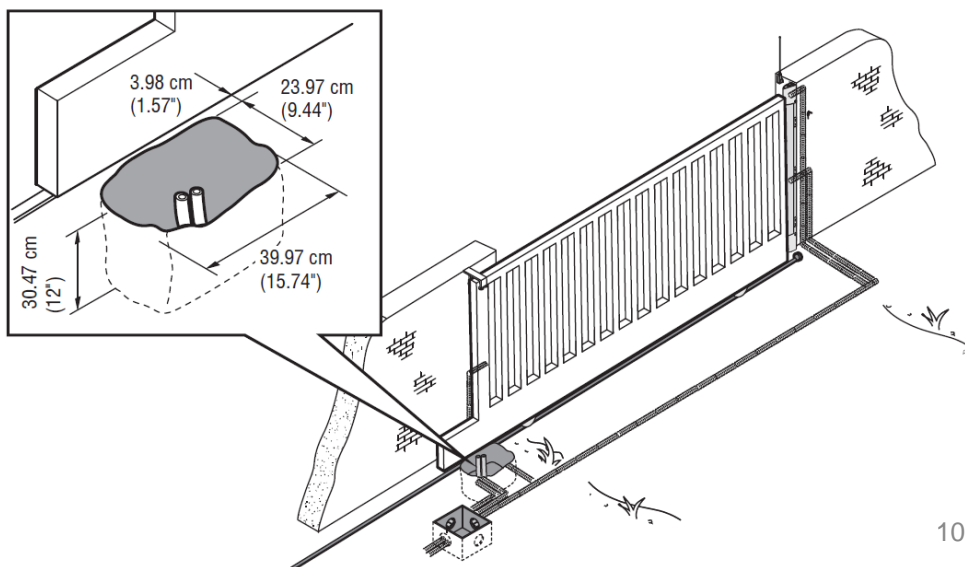
- To AVOID damaging gas, power or other underground utility lines, contact underground utility locating companies BEFORE digging more than 18 inches (46 cm) deep.
- ALWAYS wear protective gloves and eye protection when changing the battery or working around the battery compartment.

## PREPARE AND INSTALL THE MOUNTING PLATE

The instructions and illustrations in this manual are examples ONLY. Your installation may vary depending on space, obstructions, and accessories. It is up to the installer to select the most suitable solution. Check all national and local building codes.

1. Dig a hole to the side of the gate (Figure 1).
2. The concrete pad should be deeper than the frost line.

Figure 1



# INSTALLATION

2. Prepare a trench and install the electrical conduit. Conduit have to be 3/4" and 1/2" diameter maximum

**NOTE:** The number of conduits will depend on your site and the accessories to be installed.

3. Prepare a form box larger than the mounting plate and insert the form box in the hole (Figure 2). The form box should be 1-3/4" (50 mm) above the ground (Figure 2).

4. Insert an iron grid inside the form to reinforce the concrete (Figure 2).

Figure 2

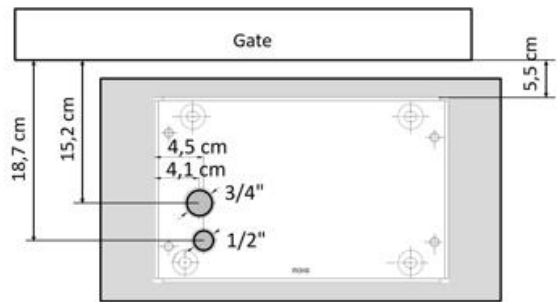
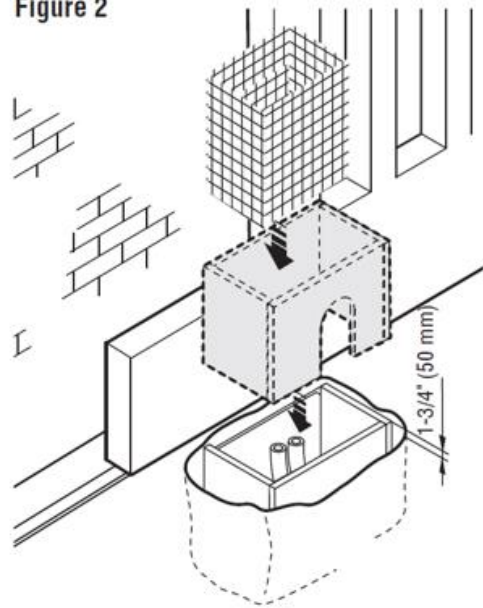


Figure 3

5. Fill the form box with concrete and wait for at least 24 hours to allow the concrete to cure (Figure 3)

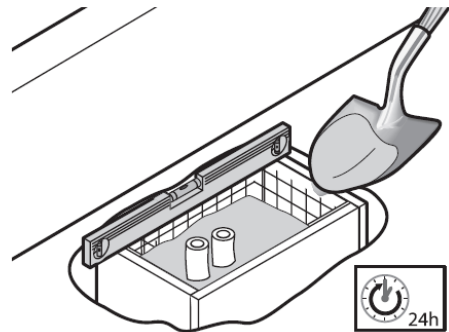
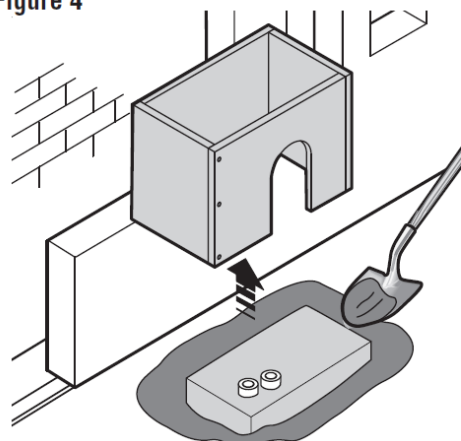


Figure 4

6. Remove the form box (Figure 4).

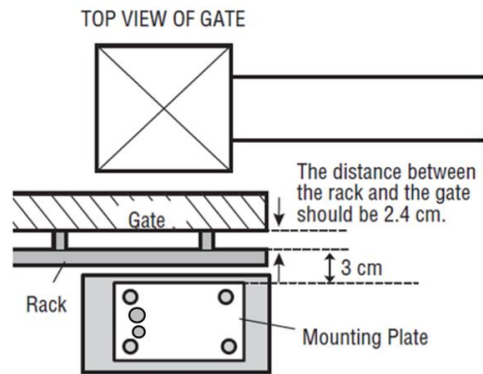
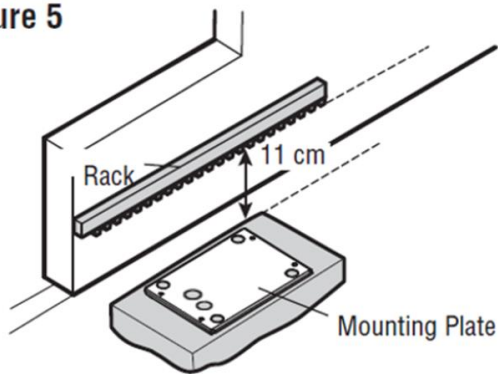
7. Fill the hole around the concrete form with soil (Figure 4).



# INSTALLATION

- Position the mounting plate relative to the gate (Figure 5).

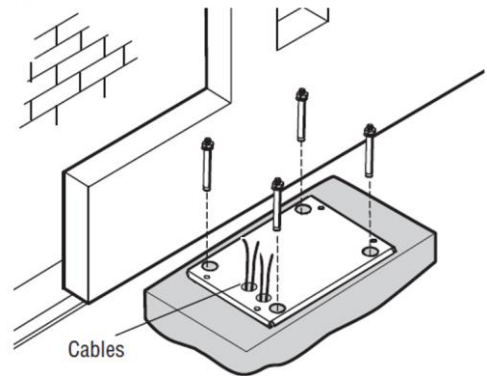
**Figure 5**



- Run all cables through the knockout (Figure 6).

- Mark the mounting hole locations, drill with a masonry bit. Screw the mounting plate into place with provided anchoring hardware (Figure 6).

**Figure 6**

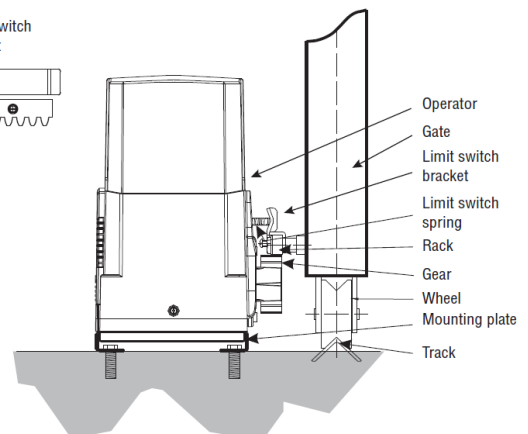
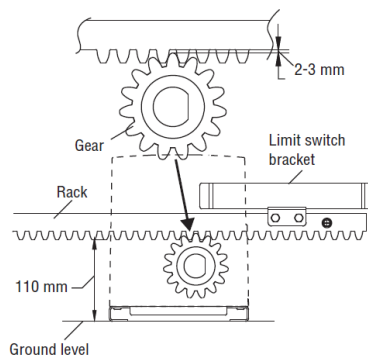
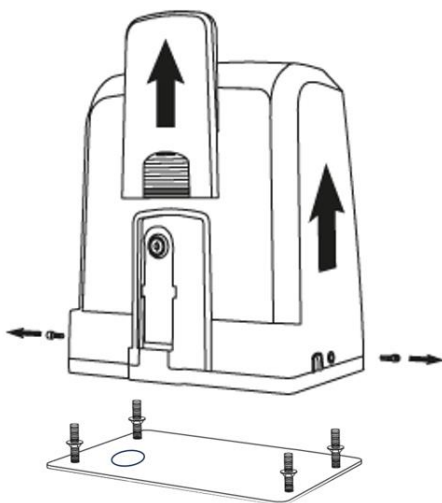


## INSTALL THE OPERATOR – Do Not Run the Operator Until Instructed

- Once the base plate is fixed, remove the small front plastic cover from the operator and make a manual release by putting the key into keyhole, turning right and pulling the lever down (see manual release page 13).
- Remove the 2 screws on the sides of the cover.
- Remove the Operator cover
- Put the operator on the base plate using the anchor screws and hole in the operator housing.
- Feed the cables through the respective hole in the operator housing bottom.
- Secure the operator using washer, spring washer and the nut.

**Note:** make sure the sliding gate can be moved smoothly before installation. There must be a clearance between rack and gear as shown, or the gate movement may be affected.

**Note:** at the end of the installation, reposition the Operator cover following the step 3, 2 and 1.

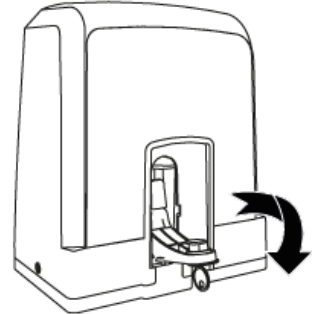
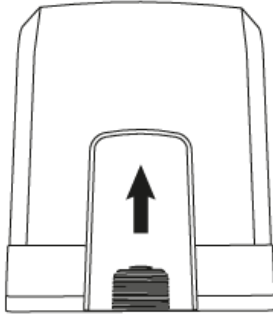


## EMERGENCY RELEASE MECHANISM

- Remove the small front plastic cover from the operator.
- Put the key into keyhole and turn it right 90°.
- Pull the lever down.

To re-engage the operator follow the procedure backwards

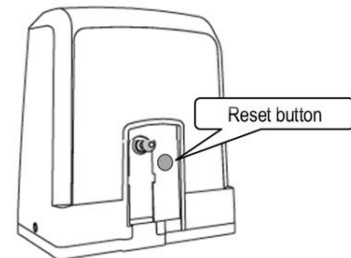
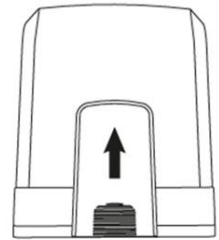
## Do Not Run the Operator Until Instructed



## RESET BUTTON

The reset button is located on the front of the operator below the release lever cover and serves several functions:

- Toggling the reset button will stop a moving gate during a normal open/ close cycle, like a stop button. The operator does not need to be reset after doing this.
- Reset command shall deactivate TTC if gate is Open and gate will remain in Open position.
  - A second Reset command will re-activate TTC. (no additional command required)
  - A TX/Input command shall activate the gate and TTC will function normally on next Open cycle.
- Reset command shall be equal to STOP command when gate is Opening or Closing.
- Reset command shall cancel an active Alarm (Alarm State).
- Reset command shall stop Learning process.
- Maintained Reset command (active for more than 5 seconds) will activate the e-lock (if installed) for 30 seconds. Subsequent reset commands have no effect. Note: E-Lock setting is "01", "02", or "03" if e-lock is installed.
- Maintained Reset command (active for more than 5 seconds) will de-activate the mag-lock (if installed) for 2 minutes. Subsequent reset commands have no effect. Note: E-Lock setting is "04" if mag-lock is installed.

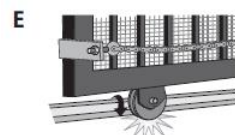
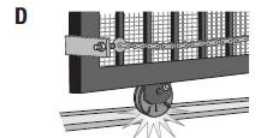
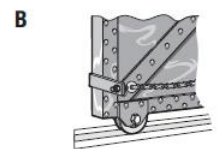
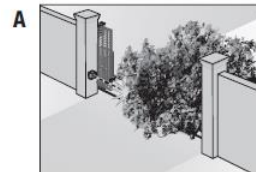


## OPERATOR ALARM

If a contact sensor detects an obstruction twice consecutively, the alarm will sound for a minimum of 5 minutes, and the operator will need to be reset. When the inherent force of the operator detects the following twice consecutively, the alarm will sound for a minimum of 5 minutes and the operator will need to be reset.

- The gate is hitting an obstruction.
- The gate does not meet specifications.
- Debris is on the gate's track such as mud, rocks, dirt, etc.
- The gate has one or more broken axles or wheels.
- The gate wheel is off the gate rail.

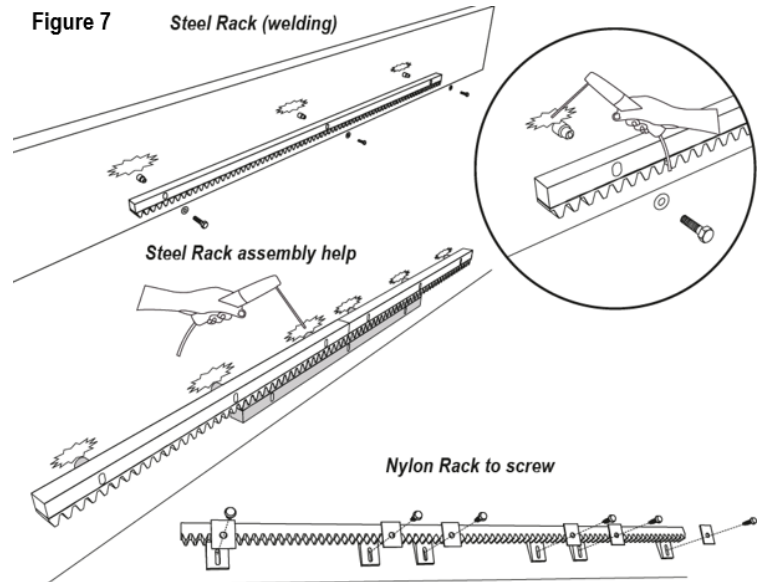
Remove any obstructions or repair gate system. Press the reset button to shut off the alarm. After the operator is reset, normal functions will resume.



## INSTALL THE GATE RACK

1. Manually move the gate into CLOSED position.
2. The steel or nylon rack can be attached by welding (steel only) or with screws (see Figure 7). Put the first rack segment at the end of the gate so that it connects to the operator sprocket and attach the rack to the gate. Then move the gate and attach the next rack segment near to the previous segment. Proceed this way until you will reach complete OPEN position.

Figure 7



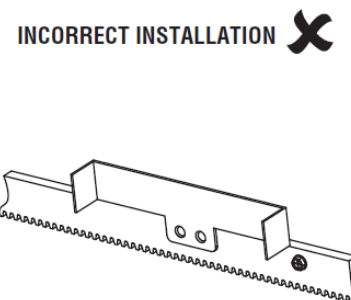
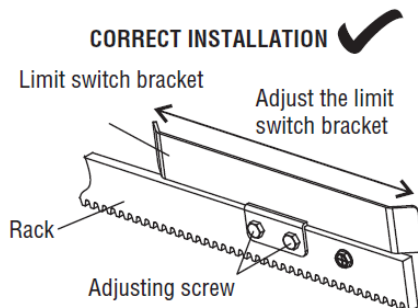
## INSTALL THE LIMIT SWITCH BRACKET

Position the brackets at the ends of the rack where the end positions are assumed.

The distance from the two bracket have to be at least 3ft .

The bracket positions can be adjusted by sliding the bracket alongside the rack, then prefix it by the screw. Fine adjustment can be done later during the learning, see page 18

If the limit switch bracket is installed incorrectly, the gate cannot learn the travel limit.





# INSTALLATION

## ⚠ WARNING

Be sure power is NOT connected to the gate opener  
Before installing the entrapment protection device  
To prevent **SERIOUS INJURY** or **DEATH** from a  
moving gate:

- ALL gate operator systems REQUIRE two independent entrapment protection systems for each entrapment zone.

- Entrapment protection devices MUST be installed to protect anyone who may come near a moving gate.
- Entrapment protection devices MUST be located 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, walls, pillars, columns, or operator itself.

## INSTALL ENTRAPMENT PROTECTION

Install entrapment protection devices according to the *UL 325 Entrapment Protection Requirements* section, see page 4. Use the *Site Planning Safety Checklist* to identify entrapment zones that will result from the installation.

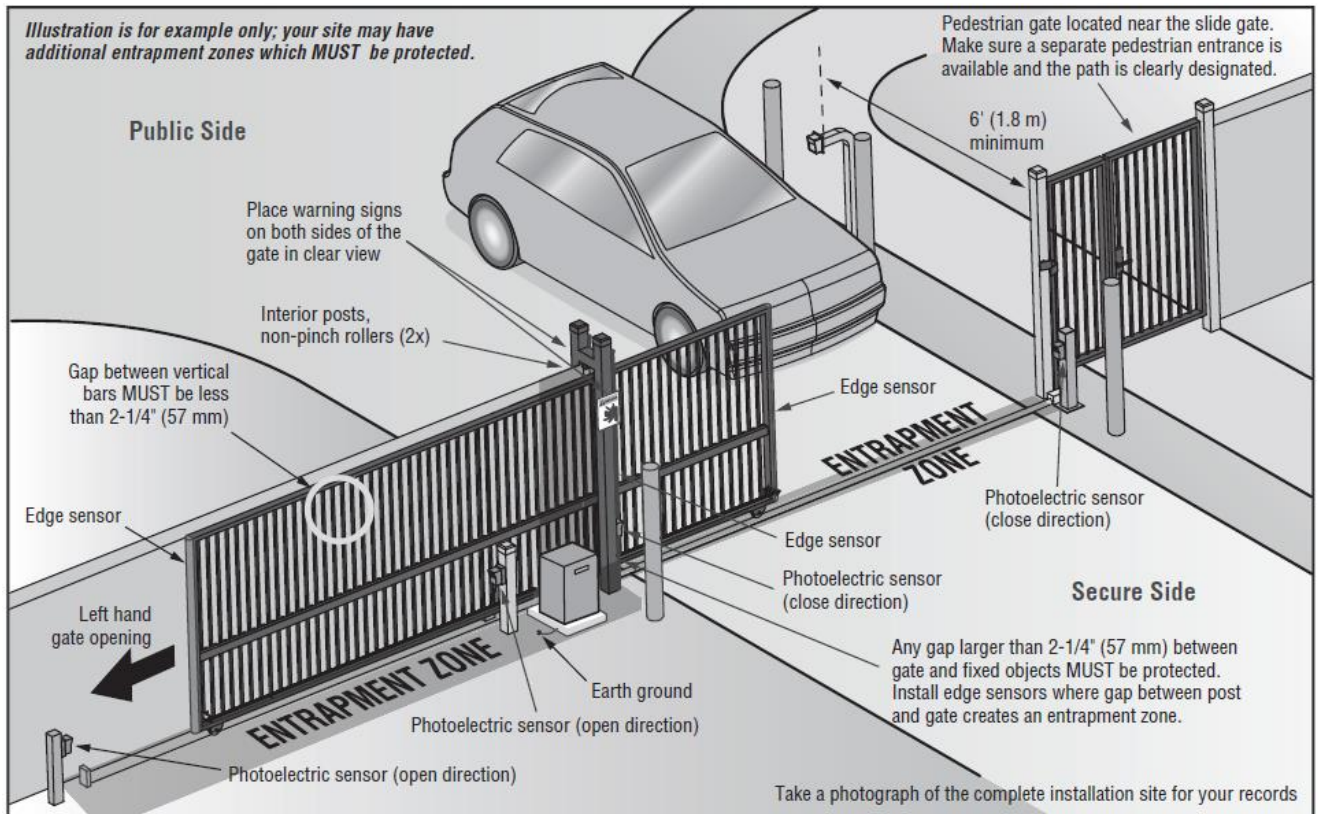
1. Install entrapment protection devices for ALL entrapment zones. This operator has an inherent entrapment protection device built-in. The installer MUST provide one additional entrapment protection device for each entrapment zone.
2. The operator will NOT run unless a **minimum of two** external devices are connected; one in the open direction and one in the closed direction.
3. Test ALL entrapment protection devices AFTER installing the operator, refer to the manual provided with your entrapment protection device. Test the inherent entrapment protection by following the Obstruction Test instructions on page 22.

### Definitions

**ENTRAPMENT:** The condition when a person is caught or held in a position that increases the risk of injury.

**SLIDE GATE ENTRAPMENT ZONE:** An entrapment zone exists if at any point during travel, the gap between the gate and any opposing fixed edge or surface such as posts, walls, pillars, columns or operator itself, is less than 16" (406 mm) in a location up to 6 ft. (1.8 m) above grade.

*Illustrations provided by DASMA Gate Systems Safety Guide*





# INSTALLATION

## Wire Entrapment Protection Devices

There are four options for wiring external entrapment protection devices depending on the specific device and how the device will function. Refer to the manual included with your entrapment protection device for more information. These entrapment protection device inputs are for monitored devices, which include pulsed photoelectric sensors, resistive edge sensors, and pulsed edge sensors. **Only one monitored entrapment protection device may be wired to each input.**

### ⚠ WARNING

Be sure power is NOT connected to the gate opener  
Before installing the entrapment protection device  
To prevent **SERIOUS INJURY** or **DEATH** from a  
moving gate:

- ALL gate operator systems **REQUIRE** two independent entrapment protection systems for each entrapment zone.

- Entrapment protection devices **MUST** be installed to protect anyone who may come near a moving gate.
- Entrapment protection devices **MUST** be located 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, walls, pillars, columns, or operator itself.

**Note:** One entrapment protection device is provided with the operator. Additional devices may be selected from the accessories page.

### CLOSE EYES

The CLOSE EYES (IRCL/GND) input is for photoelectric sensor entrapment protection for the close direction. When an obstruction is sensed during gate closing the gate will open to the full open position and resets the Timer-to-Close. This input will be disregarded during gate opening.

### OPEN EYES

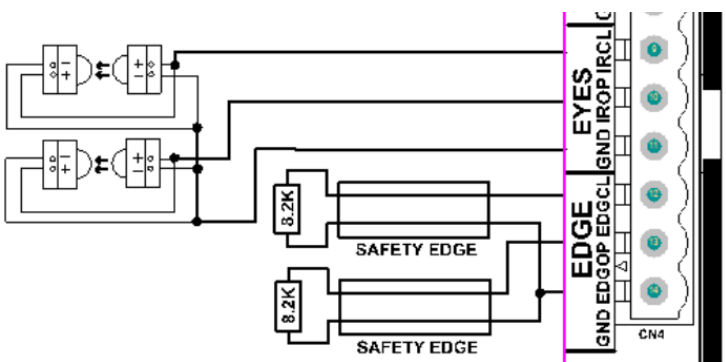
The OPEN EYES (IROP/GND) input is for photoelectric sensor entrapment protection for the open direction. When an obstruction is sensed during gate opening the gate will reverse for 4 seconds then stop. This input will be disregarded during gate closing.

### CLOSE EDGE

The CLOSE EDGE (EDGCL/GND) input is for edge sensor entrapment protection for the close direction. When an obstruction is sensed during gate closing the gate will reverse to the full open position, disengaging the Timer-to-Close. This input will be disregarded during gate opening.

### OPEN EDGE

The OPEN EDGE (EDGCL/GND) input is for edge sensor entrapment protection for the open direction. When an obstruction is sensed during gate opening the gate will reverse for 4 seconds then stop. This input will be disregarded during gate closing.

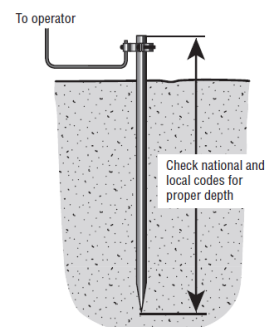


## Earth Ground Rod

Use the proper earth ground rod for your local area. The ground wire must be a single, whole piece of wire. Never splice two wires for the ground wire. If you should cut the ground wire too short, break it, or destroy its integrity, replace it with a single wire length.

1. Install the earth ground rod within 3 feet (.9 m) of the operator.
2. Run wire from the earth ground rod to the operator.

**NOTE:** If the operator is not grounded properly the range of the remote controls will be reduced and the operator will be more susceptible to lightning and surge damage.



# INSTALLATION

## Power 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 (AC and battery) 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 national and 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.
- 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.

The operator can be wired for 120 Vac. Follow the directions according to your application. For dual gate applications, power will have to be connected to each operator. Main power supply and control wiring MUST be run in separate conduits.

**NOTE:** If using an external receiver use shielded wire for the connections and mount the receiver away from the operator to avoid interference from the operator.

AMERICAN WIRE GAUGE (AWG)	STANDARD OPERATOR	
	120 VAC, 10A (includes fully loaded outlets)	120 VAC, 4A
14	100 (30.5 m)	250 (76.2 m)
12	160 (48.8 m)	400 (121.9 m)
10	250 (76.2 m)	630 (192 m)
8	400 (121.9 m)	1,000 (304.8 m)
6	636 (193.9 m)	1,600 (487.7 m)
4	1,000 (304.8 m)	2,500 (762 m)

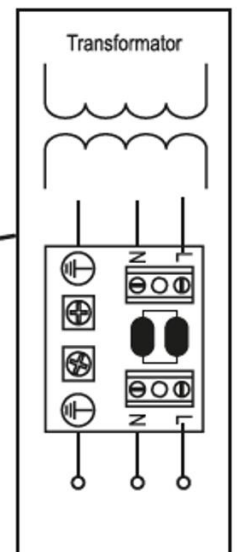
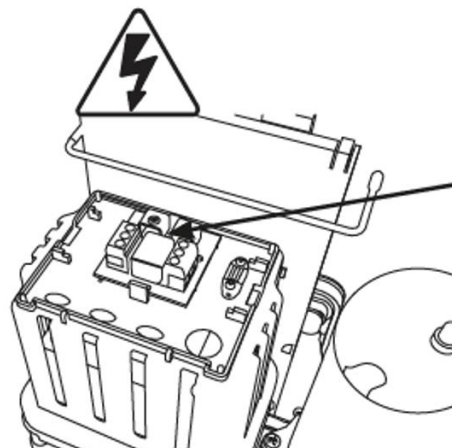
Chart assumes: copper wire, 65°C, 5% drop

All control wiring used to connect external devices to Class 2 circuits of the operator must be (QPTZ) Power-Limited Circuit Cables, Type CL2, CL2P, CL2R, or CL2X or other cable with equivalent or better electrical, mechanical, and flammability ratings.

Mains power wiring must be done by a certified electrician specialist.

To connect the mains power supply remove the operator cover as described above.

1. Turn off the AC power from the main power source circuit breaker.
2. Insert the AC power wires through the wire in hole closest to the motor.
3. Connect the "hot" wire to the L terminal on the power board.
4. Connect the neutral wire to the N terminal on the power board.
5. Tighten the watertight connector nut.
6. Restore power to the operator.



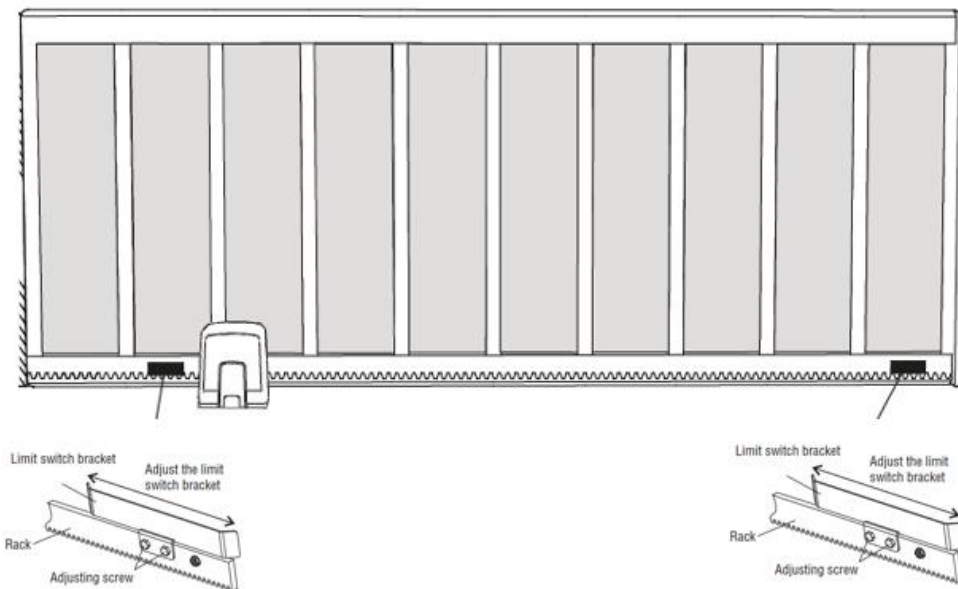
# INSTALLATION

## Limit switch position set up

1. Ensure that the brackets limit switch are installed on the rack as described at page 14
2. Release the operator
- 3, Power the operator
4. With the manually released operator move the gate in OPEN direction to reach the spring of the operator.
5. When reached, section of the upper right digital segment on display will be on.
6. If needed, adjust the position of the bracket, verify that the upper right digital will be on and fix the screws of the bracket.
- 7, Repeat the same in CLOSE direction to reach the bracket fixed at the Close position on the opposite side of the gate.
8. When reached, section of the lower right digital on display will be on.
10. If needed, adjust the position of the bracket, verify that the lower right digital will be on and fix the screws of the bracket.
11. Move the gate in in the middle position (between open and close limit).
12. Turn off the power and reengage the operator

**NOTE:** per default, the motor is considered to be installed on the Left hand side (as the picture below). In case is installed on the Right hand side, go to "Direction Motor settings" of the programming to make the correct settings

Then operator is ready for the Learning phase.

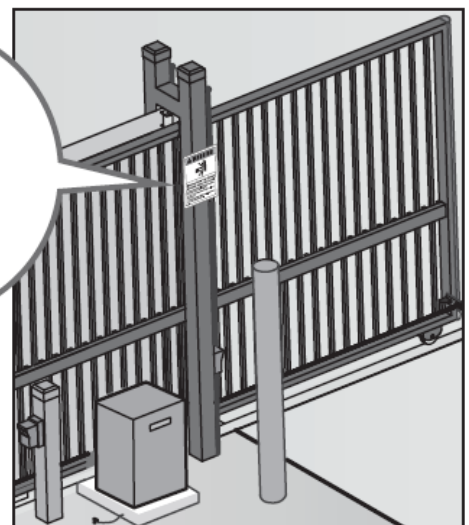


## Install Warning Signs

Installers **MUST** install the UL required warning signs. The signs **MUST** be installed in plain view on **both sides** of each gate installed. Use the fastening holes in each corner to permanently secure the sign.



Place warning signs on **both sides** of the gate in clear view



## Access to the control Board and Motor connection

**⚠ WARNING**

- **DISCONNECT** power (AC or solar and battery) **BEFORE** installing or servicing operator.
- Replace **ONLY** with fuse of same type and rating.



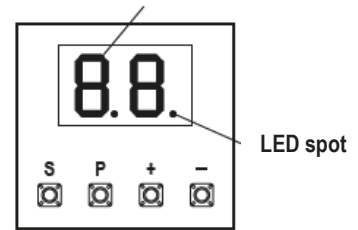
## Display, Programming Buttons and Function Setting

Programming buttons function (4 buttons):

Button	Function
S	program / delete remote controls and specific functions
P	enter programming mode, select function and save
+/-	Navigate through the menu and change the value on display

Function and programmed values are shown on LED display.

2-digit LED display



### Function setting - programming mode

LED display shows following values after control board is powered:

	Control board is pre-programmed to relevant application (see below under "Application" and "Stand-by Mode" for status description).
	"EO", in case the control board has not been programmed yet or reset by function "Factory Default". From this status, an Input or transmitter command will be always ignored.

## General Programming Overview

The programming is divided in 2 sections:

1. Basic Settings (Page 21)
2. Advanced Settings (Page 24)

After Basic Settings are done, following parameters will be learned automatically during Learning phase:

1. Travel length from **FULL CLOSED** to **FULL OPEN** position.
2. Opening and closing force for each motor.

### NOTE:

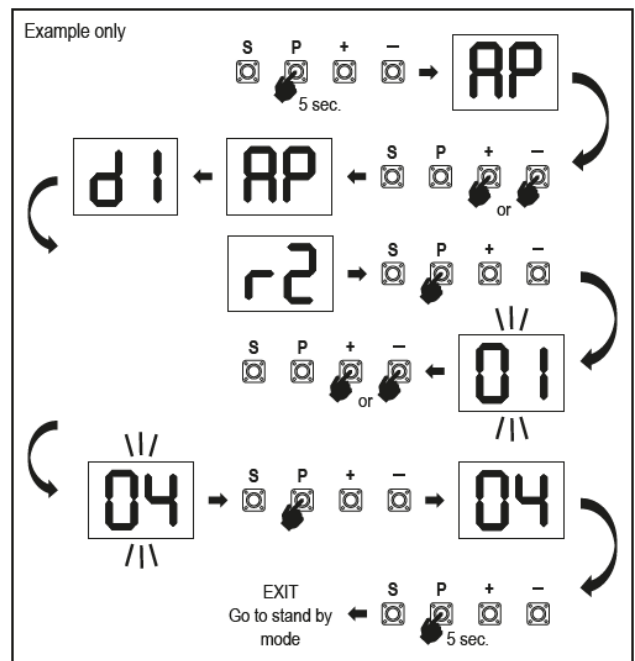
- Basic Settings and Learning phase must be completed to enable operation.
- After the Learning phase and Programming are finished the operator will work as per default settings.
- Advanced Settings cannot be accessed if Basic Settings and Learning phase are not completed.
- **Before making the programming ensure that the relevant entrapment devices are connected.**

### General setup:

1. Press and hold "P" button for 5 seconds to enter the menu. "AP" on the display indicates the first available function in menu.
2. Use "+" and "-" buttons to navigate between the functions.
3. Press "P" button to select the required function.
4. The default setting or previously programmed value will appear. This will be indicated by flashing of value on display.
5. Use "+" or "-" buttons to select the required value. New setting will flash, press "P" button to confirm selection.
6. The programmed function is shown on display.
7. To change the setting of another function, repeat the sequence from the points #2 to #6
8. To exit to the Function menu, press "P" button for 5 seconds, then the board will go in Stand-by mode.

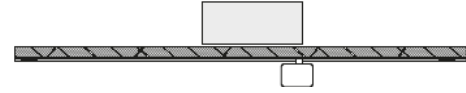
If "P" button is not pressed to confirm new value setting, new settings will be saved after 3 minutes and programming will exit menu and return into Stand-by mode.

**NOTE:** To operate the gate or execute any command, setting menu must be finished by pressing the "P" button for 5 seconds, or by selecting FE Function, or waiting 3 minutes for automatic exit and return into Stand-by mode.



## Wing Movement Direction

Before programming, move the gate manually in the middle position and re-engage release mechanism (see page 6). Press and hold the “-” button on the control board and ensure that the motor is moving in **CLOSE** direction. If correct, immediately let go of the “-” button and gate stops.



If motor is moving in **OPEN** direction, go to the functions “d1” and change the direction settings.

Once **CLOSE** direction is set correctly, leave the gate in the middle position. The operator is ready for the Learning phase.

Note: gate can be moved with “+” and “-” buttons prior to final settings if required.

Press and hold the “+” button on the control board to move the gate into **OPEN** position. When button is released operator stops.

Press and hold the “-” button on the control board to move the gate into **CLOSE** position. When button is released operator stops.

## Basic Settings

### Basic Settings Overview

LED		Function
		Basic Settings (mandatory)
	AP	Application
	d1	Direction Motor 1
	LL	Limit Learning Phase

### Application Settings

Application function shown on display.

This function is already pre-set at factory at correct value as defined for the delivered operator.

	No application selected
	Sliding gate, SL600UL and SL1000UL (default)

Values 02 and 03 are not suitable for SL application and shall not be chosen

### Direction Motor Settings

Direction Motor function shown on display

Defines movement direction of the Motor.

	Motor is installed on left hand side (default).
	Motor is installed on right hand side.

### Limit Learning



Before Limit Learning Phase can be started the preparation for the learning of the end limit position must be done as described in the section Limit switch position Set up.

Assure that the Limit positions are checked and the door is in the the middle position to start the Limit Learning Phase.

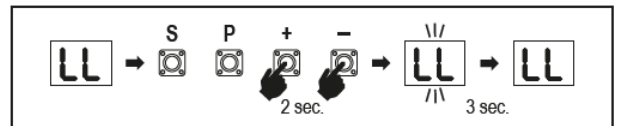
Before starting a Learning phase ensure that:

1. Other Basic Settings are completed
2. Bracket for limit switch are installed and working correctly
3. First movement will be in **CLOSE** direction.

Available Learning methods:

### Standard Learning Mode (Automatic)

1. OPEN the LL menu.
2. Press and hold “+” and “-” buttons for 2 seconds.
3. Automatic learning process starts. LL will flash on the display during complete process.
4. Gate moves in **CLOSE** direction until the **CLOSE** limit switch is reached, and stops for 2 seconds., then moves in the **OPEN** direction.
5. Gate moves in **OPEN** direction until the open limit switch is reached.
6. Gate moves in **CLOSE** direction until the close limit switch is reached, and stops.
7. Standard Learning phase is finished. LL will appear on display and board will return in stand-by mode after 3 seconds.



Following settings are done during Standard Learning Mode:

1. Travel length from **FULL CLOSED** to **FULL OPEN** position.
2. Opening and closing force.
3. 60 cm of travel travel in both directions is assigned for Soft Stop.



# INSTALLATION

## Advanced Learning Mode (manual setting of Soft Stop position)

### Advanced Learning Mode (manual setting of Soft Stop)

1. Open LL Menu.
2. Press and hold "+" and "-" buttons for 2 seconds. Automatic learning starts, LL will flash on the display during the complete process.
3. Gate moves in **CLOSE** direction up to the close limit switch is reached, and stop for 2 seconds, then moves in the **OPEN** direction.
4. To define start of the Soft Stop in **OPEN** direction press "P" button at required start point. Gate will continue opening until limit switch is reached, stops for 2 seconds, then moves in **CLOSE** direction.
5. To define start of the Soft Stop in **CLOSE** direction press "P" button at required start point. Gate will continue closing until limit switch is reached, then stops.
6. Advanced learning phase is finished, LL will appear on the display and board will return in stand by mode after 3 sec.

Following settings are done during Advanced Learning Mode:







- Travel length from **FULL CLOSED** to **FULL OPEN** position.
- Opening and closing force.
- Starting position of the Soft Stop.

**NOTE:** To stop Learning phase press "S" button. The Learning process will be interrupted, "LE" will flash on LED display. After 5 seconds "LL" will appear on display indicating readiness to start Learning phase again. If Learning process was not completed, it needs to be re-done.

**ATTENTION:** Learning phase must be completed to enable operation.

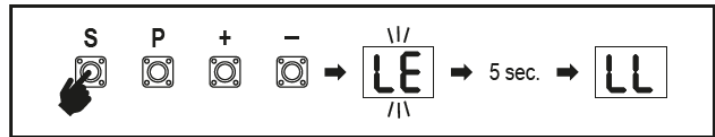
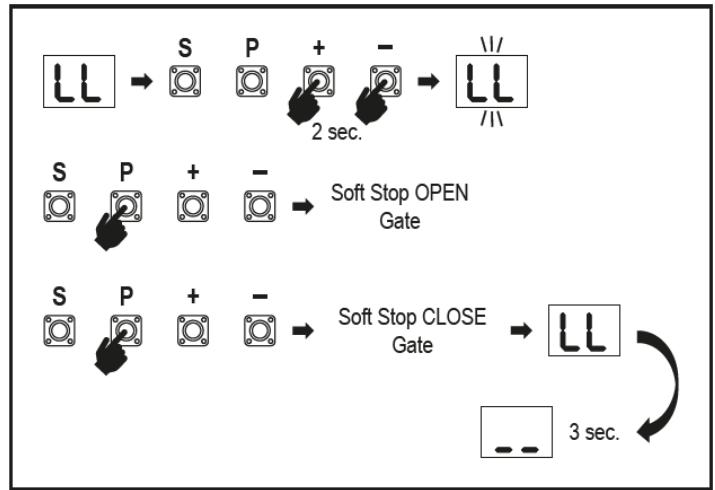
### Stand-by Mode

After the control board is powered on and programming is finished, the LED display lights completely for 2 seconds and goes into the stand-by mode. During Stand-by mode the LED display shows current gate status.

	One motor
Motor is opening, upper section of the display flashes.	
Motor stops at the opening position on the limit switch, upper section of the display is on.	
Motor is closing, lower section of the display flashes.	
Motor stops at the closed position on the limit switch, lower section of the display is on.	
Motor stops in the middle, middle of the display is on.	
Motor stops at the opening position with TTC active, "tC" will flash in the display.	

Herewith the Basic Settings are completed. Before to operate your gate, proceed first with the Obstruction Test. In case of adjustment to do go to Advanced Settings, make the changes then repeat the Obstruction Test

**Note:** reposition the Operator cover following the step 3, 2 and 1 on page 12.

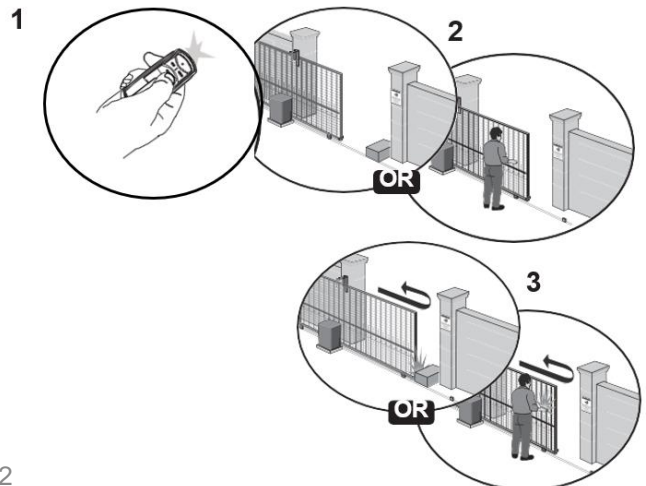


### Obstruction Test

The operator is equipped with an inherent (built in to the operator) obstruction sensing device. If the gate encounters an obstruction during motion, the operator will reverse direction of the gate and then stop. The following procedure will test ONLY the inherent (built in to the operator) obstruction sensing device:

1. Open and close the gate with the Remote Control, ensuring that the gate is stopping at the proper open and close limit positions.
2. Either place an object between the open gate and the fixed closed catch post **or** obstruct the gate by hand. Make sure that any external entrapment protection devices, such as an edge or photoelectric sensor will NOT be activated by the object or by hand.
3. Run the gate in the close direction. The gate should stop and reverse upon contact with the object or hand. If the gate does not reverse, reduce the force by changing the settings on Force function described at page 26. The gate should have enough force to reach both the open and close limits, but **MUST** reverse after contact with an object or hand.
4. Repeat the test for the open direction.

**Test the operator after any adjustments are made.**





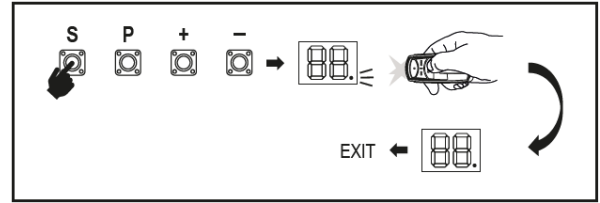
# INSTALLATION

## Programming and Erasing of Remote Controls, Radio Accessories and myQ Devices

### Program remote control devices (transmitters and wireless wall controls):

**NOTE:** the remote controls delivered with the operator are already factory prelearned to the operator (top button near the LED) and do not require extra programming.

1. Press and release "S" button. An LED spot turns ON in the display. The operator will stay in Radio programming mode for 3 minutes. Any radio accessory device can be learned within first 30 seconds. During the remaining 2.5 minutes only myQ devices can be learned.
2. Choose the required button on your transmitter and hold it until the dot in the display turns off.



To program a wireless keypad, please follow the respective manual of the accessory.

### Programming Transmitter in Partial opening

Press and hold "S" and "+" buttons at the same time, until the LED spot starts flashing. Press and hold the desired free button on transmitter to program the Partial Opening Mode.

The LED spot turns off when the programming is finished. If there is a light connected to SPEC contact it will flash once.

### Program myQ gateway (828LM):

#### 1. Connect

Connect ethernet cable (1) provided with gateway to router (2). Use the plug valid for your country (not all models). Connect power (3) to the internet gateway (4). When the internet gateway connects to the internet, the green light (5) will stop blinking and will light solid.

#### 2. Create an account

Download the free myQ App from App Store or Google Play Store and create an account. If you already have an account, use your username and password.

#### 3. Register the internet gateway

Enter the Serial Number located on the bottom of the internet gateway when prompted.

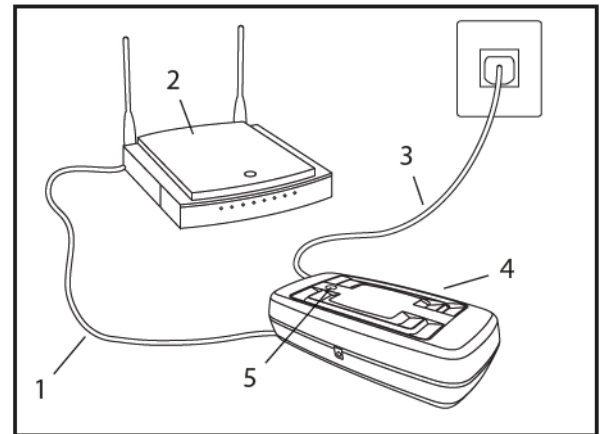
#### 4. Add myQ devices

To add your gate operator to the registered gateway follow the instructions on the app. When adding a new myQ capable gate operator press and release "S" button on operator control board. An LED spot turns ON in the control board display.

**Note:** After you add a device, the blue light on the internet gateway will appear and stay on.

#### 5. Test

After having installed and registered correctly you may now test the following features: open or close the gate, request status GATE OPEN or GATE CLOSED. For more functions see [www.liftmaster.com](http://www.liftmaster.com)



### Erase radio control devices (transmitters, wireless wall controls, wireless keypads):

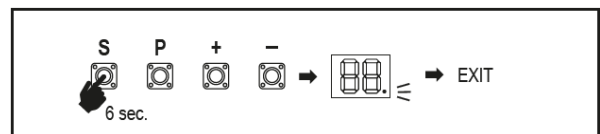
Press and hold "S" button for > 6 seconds. All radio control devices (transmitters, wall controls, keypads) are erased. The LED spot in the display turns OFF.

**Note:** It is not possible to erase radio control devices individually.

### Erase myQ devices:

1. Erase remote control devices first as indicated above.
2. Within next 6 seconds press and hold "S" button. An LED spot turns ON in the display.
3. Press and hold "S" button for > 6 seconds. All myQ devices are erased. The LED spot in the display turns OFF.

**NOTE:** It is not possible to erase myQ devices individually. It is not possible to erase myQ devices only.



# INSTALLATION

**NOTICE:** This device complies with Part 15 of the FCC rules and Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.










Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device must be installed to ensure a minimum 20 cm (8 in.) distance is maintained between users/bystanders and device. This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules and Industry Canada ICES standard. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

## Advanced Settings

### Overview Advanced Settings

LED		Function
	tr	Transmitter
	i1	Input 1 command
	i2	Input 2 command
	Pd	Partial Opening
	tC	Timer To Close (TTC)
	EL	E-lock
	FL	Flashing Light
	PF	Pre-Flashing
	SP	Special contact
	St	START Speed in OPEN and CLOSE
	Cn	Maintenance counter
	F1	Force Motor in Open
	F2	Force Motor in Close
	S1	Speed Motor in OPEN
	S2	Speed Motor in CLOSE
	SF	SOFT-STOP Speed in OPEN and CLOSE
	Fd	Factory default
	FE	Finish and Exit





## Transmitter Settings



Transmitter function defines how Transmitter commands are working.

**Note:** Under settings "01", "02" and "03", TTC timer will be overridden by a transmitter command and will CLOSE the gate.

Under setting "04", active TTC timer countdown will be re-set to start again by Transmitter command.












	Residential Mode: Open – Close – Open
	Standard Mode: Open – Stop – Close – Stop – Open (Default)
	Automatic with Stop Mode: Open – Stop – Close – Open
	Car Park Mode: Open, to complete Open position. Additional command during the opening will be ignored

## Input Settings



Inputs function define the way Input commands from external accessories are executed. Each of the 2 Inputs can be programmed individually.

**NOTE:** Under settings "01", "02" and "03", TTC timer will be overridden by an Input command and will CLOSE the gate. Under setting "06", active TTC timer countdown will be re-set to start again by an Input command

	Open – Close – Open
	Open – Stop – Close – Stop – Open (Default)
	Open – Stop – Close – Open
	Partial opening
	STOP (NC contact)
	Open, to complete OPEN position. Additional Open command during the opening will be ignored (combine with timer)
	Close, to complete CLOSE position. Additional Close command during the closing will be ignored
	Open – Stop – Open - Stop
	Close – Stop – Close - Stop
	Open, hold to run
	Close, hold to run

# INSTALLATION

## Partial Opening

**Pd**

Partial opening only gives you the ability to open active leaf to a pre-set value only.

**NOTE:** Pd command will work starting from Close limit position and during closing movement. If a Pd command is executed from a complete OPEN position, the gate will close.

An Open or transmitter command will always override the Pd command.

<b>01</b>	1,5 m opening travel
<b>02</b>	2 m opening travel (default)
<b>03</b>	3 m opening travel

### Programming Transmitter in Partial Opening

1. Press and hold „S“ and „+“ buttons on the control board at the same time, until the LED spot starts flashing.
2. Press and hold the desired free button on transmitter to program the Partial Opening Mode.
3. The LED spot turns off when the programming is finished. If there is a light connected to SPEC contact it will flash once.

## Timer To Close

**EC**

Timer to close (TTC) function enables automatic closing of the gate from a complete OPEN position after a pre-set period of time. Minimum two entrapment protection devices have to be installed to monitor closing and opening movement to enable TTC operation. TTC will also work with activated partial opening. If TTC function is active, timer is counting down, and the IR beams are interrupted, the TTC timer shall re-start. When the TTC function is active, „tC“ flashes on the display when the timer is running.

<b>00</b>	TTC not active (Default)	<b>05</b>	1 minute
<b>01</b>	10 seconds	<b>06</b>	1,5 minutes
<b>02</b>	20 seconds	<b>07</b>	2 minutes
<b>03</b>	30 seconds	<b>08</b>	3 minutes
<b>04</b>	45 seconds	<b>09</b>	5 minutes

## E-Lock / Mag-Lock Settings

**EL**

E-Lock function defines e-lock/mag-lock behavior.

24VDC – 500mA e-lock or mag-lock can be connected

<b>00</b>	e-lock/mag-lock not installed (Default)
<b>01</b>	e-lock active for 1 second
<b>02</b>	e-lock active for 2 seconds
<b>03</b>	e-lock active for 5 seconds
<b>04</b>	Magnetic lock, constantly active at gate CLOSED; constantly inactive during OPEN and CLOSE movement, gate OPEN or STOP position. Magnetic lock will be deactivated in Battery Back-up mode.

## Flashing Light Settings

**FL**

Flashing Light function allows to select which type of Flashing Lamp is connected.

24VDC- max 500 mA Flashing lamp (FLA1-LED) can be connected.

<b>00</b>	no flashing lamp installed
<b>01</b>	continuous 24V supply - for flashing lamp with own control board (FLA1-LED) (Default)
<b>02</b>	interrupted 24V supply - for flashing lamp without own control board

## Pre-Flashing

**PF**

Pre-Flashing Function defines time interval of pre-flashing of the flashing lamp prior to gate movement.

Function not active if Flashing Lamp (FL) Function is set to “00”.

**Note:** pre-flashing is hidden if the flashing lamp is not installed

<b>00</b>	No pre-flashing (Default)	<b>03</b>	3 seconds
<b>01</b>	1 seconds	<b>04</b>	4 seconds
<b>02</b>	2 seconds	<b>05</b>	5 seconds

## Special Contact Settings

**SP**

Special Contact Function defines relay activation time. A 24V max 500mA relay can be connected to manage other devices, e.g. courtesy light.

The time set here will also control countdown for myQ remote light.

<b>00</b>	no activation (Default)	<b>05</b>	1,5 minutes
<b>01</b>	15 seconds	<b>06</b>	2 minutes
<b>02</b>	30 seconds	<b>07</b>	3 minutes
<b>03</b>	45 seconds	<b>08</b>	4 minutes
<b>04</b>	1 minute	<b>09</b>	5 minutes

## Start Speed in Open and Close Directions

**St**

Start Speed function allows switching the Soft-Start in OPEN and CLOSE directions ON and OFF.

<b>00</b>	deactivated (Default)
<b>01</b>	Soft Start active: motor will accelerate gradually until it reaches standard speed.
<b>02</b>	Hard Start active, motor will start at the regular Speed and for the first second the force sensor will not be considered.

# INSTALLATION

## Maintenance Counter



Maintenance Counter function allows to set maintenance interval in cycles.

4 seconds pre-flashing of the Flashing Lamp will be a signal the interval is reached.

If PF Function (Pre-Flashing) is active then 4 second pre-flashing will be added to the set time. To reset counter after maintenance is done, it will be enough to program the cycles one more time.

<b>00</b>	No counter (Default)	<b>03</b>	3000 cycles
<b>01</b>	1000 cycles	.....	... cycles
<b>02</b>	2000 cycles	<b>20</b>	20000 cycles

## WARNING

To reduce the risk of SEVERE INJURY or DEATH:

- Without a properly installed safety reversal system, persons (particularly small children) could be SERIOUSLY INJURED or KILLED by a moving gate.
- Too much force on gate will interfere with proper operation of safety reversal system.
- NEVER increase force beyond minimum amount required to move 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 an object.

## Force Motors in Open and Close Directions

The force is set to DEFAULT but should be fine tuned following the steps below to compensate for environmental changes.

Based on the length and weight of the gate it may be necessary to make additional force adjustment. The force setting should be high enough that the gate will not reverse by itself nor cause nuisance interruptions, but low enough to prevent serious injury to a person.

**After any force adjustment, ALWAYS conduct Obstruction Test, see page 22**

### Motor Force in OPEN direction



Force Motor in OPEN direction allows force adjustment on top of force set during the Learning phase.

<b>00</b>	Standard force (Default)	<b>02</b>	+ 30%
<b>01</b>	+ 15%	<b>03</b>	+ 50%

### Motor Force in CLOSE direction



Force Motor in CLOSE direction allows force adjustment on top of force set during the Learning phase.

<b>00</b>	Standard force (Default)	<b>02</b>	+ 30%
<b>01</b>	+ 15%	<b>03</b>	+ 50%

## Speed Motors in Open and Close Directions

### Motor Speed in OPEN direction



Motor Speed in OPEN direction allows closing speed adjustment compared to the speed set during Learning phase.

<b>00</b>	Standard speed Default)	<b>04</b>	+ 50%
<b>01</b>	+ 10%	<b>05</b>	- 10%
<b>02</b>	+ 20%	<b>06</b>	- 20%
<b>03</b>	+ 30%		

### Motor Speed in CLOSE direction



Motor Speed in CLOSE direction allows closing speed adjustment compared to the speed set during Learning phase.

<b>00</b>	Standard speed Default)	<b>04</b>	+ 50%
<b>01</b>	+ 10%	<b>05</b>	- 10%
<b>02</b>	+ 20%	<b>06</b>	- 20%
<b>03</b>	+ 30%		

### Soft-Stop Speed



Soft-Stop Speed function allows adjustment of the Soft-Stop speed compared to default values set during Learning phase. Soft-Stop speed is 50% of the standard speed as per default setting. Standard speed change impacts the Soft-Stop speed.

<b>00</b>	Standard speed Default)	<b>04</b>	- 50%
<b>01</b>	- 10%	<b>05</b>	+ 10%
<b>02</b>	- 20%	<b>06</b>	+ 20%
<b>03</b>	- 30%		

# INSTALLATION

## Factory Default

Fd

Factory default function resets control board to the original factory set-ups. All settings, including limit settings, will be erased. LED display will show "E0". Programmed remote controls will remain learned. If Remote control accessories need to be erased refer to the respective Radio Controls Programming section of this manual.

	no reset (Default)
	reset to the factory default settings

## Finish and Exit

FE

To exit the programming phase and save all changes, move to FE function and press "P" button. The control board will go into Stand-by mode and is ready to work.

There are also other ways to exit the programming and save settings:

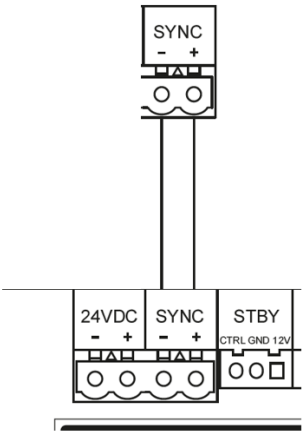
- Press and hold "P" button for 5 seconds
- Wait 3 minutes after the last changes in the programming for automatic exit

## Dual Gate Application

Before to proceed with the Dual gate installation be sure that both units are not powered by AC or BBU. Using the SYNC terminal on the Control Board, it is possible to synchronize with a second sliding gate operator for double wing application. The Control Boards of the 2 operators must be programmed individually (Basic and Advanced settings). After the programming is finished all the peripheral and radio accessories (IRs, Safety Edge, TX, ect) shall be connected/programmed only on one unit, that will become the PRIMARY unit. The PRIMARY unit will control the second unit by SYNC connection (SECONDARY unit). The PRIMARY unit must be the operator on the gate with longer travel. If gate leaves have equal width choose any of the operators to be the Primary unit. Following devices can be connected to the PRIMARY unit and will have effect on the SECONDARY unit as well: Infrared Photocells, Safety Edge, Input Command (Key Switches, Emergency Stop Button, etc.), Remote control (TX), Flashing light, Maglock/ E-lock, Special Contact (relay)

DUAL GATE WIRE TYPE (SHIELDED TWISTED PAIR CABLE)	
22AWG up to 200 feet (61 m)	18AWG - 200-1000 feet (61-305 m)
Wire must be rated at 30 Volt minimum	

## Secondary Control Board



## Battery Back-Up Mode (BBU)

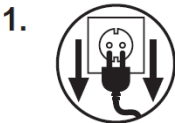
bU

Optional 12V, 2.2Ah lead batteries SKU 490EV (optional, not included) can be mounted inside operator housing. Follow the manual of SKU Nr 490EV for exact installation procedure. The Flashing lamp (if mounted) will pre-flash 3 seconds before to open - close the gate, as warning that the main power is off. Control board will switch into super stand-by mode about 3 minutes after the last movement. In super stand-by mode, only radio receiver and wired devices to Inputs terminals will remain active, to be able to reactivate the application. All other accessories and peripheral devices will not be functioning. When in Battery Back-up mode, TTC, myQ Smartphone Control and wireless myQ devices will be disabled. Full charged battery capacity shall support up to ~20 cycles at a rate of 2 per hour. After 24 hours of BBU mode the battery shall provide power for 1 complete opening and closing cycle.

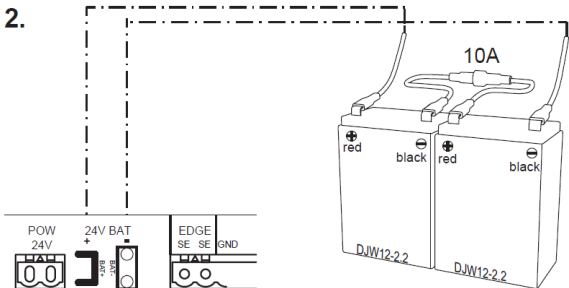
Please note that only the specified battery can be use. Use of any other battery leads to loss of warranty and loss of liability of Chamberlain for any related damages resulting from use of unspecified batteries.

**NOTE:** You may see a small spark when plugging into the board.

To install it follow the picture below



Motor power off.



Motor power on.

# TROUBLESHOOTING

## WARNING

To protect against fire and electrocution:

- DISCONNECT power (AC or solar and battery) BEFORE installing or servicing operator.

For continued protection against fire:

- Replace ONLY with fuse of same type and rating.

## ERROR CODE

Error code	Issue	Possible reason	Solution
E0	Press transmitter, but no gate movement.	AP is set to 00	Check if AP is set to 00. If yes, change to correct application setting.
E1	Gate do not close, but can open.	1.IRCL is not connected, or wire is cut open. 2.IRCL wire is shorten or reverse connected. 3.IRCL is not aligned or blocked for a moment.	1.Check if IRCL is not connected, or wire is cut open. 2.Check IRCL connection, change wires if needed. 3.Align IRCL transmitter and receiver to make sure both LED is on, instead of blinking. Make sure there is nothing hanging on gate that may cause IR blocking in short time.
E2	Gate can close when it's at open limit, but cannot open when it's at close limit.	1.IROP is not connected, or wire is cut open. 2.IROP wire is shorten or reverse connected. 3.IROP is not aligned or blocked for a moment.	1.Check if IROP is not connected, or wire is cut open. 2.Check IROP connection, change wires if needed. 3.Align IROP transmitter and receiver to make sure both LED is on, instead of blinking. Make sure there is nothing hanging on gate that may cause IR blocking in short time.
E3	Gate do not close, but can open.	1.EDGCL safety edge is not connected with 8.2kohm resistor. 2.EDGCL safety edge wire is shorten. 3.EDGCL safety edge is pressed.	1.Check if safety edge is connected with 8.2kohm resistor, and if the resistor is cut off. 2.Check safety edge wires and replace new wire if needed. 3.Check if safety edge is pressed.
E4	Gate can close when it's at open limit, but cannot open when it's at close limit.	1.EDGOP safety edge is not connected with 8.2kohm resistor. 2.EDGOP safety edge wire is shorten. 3.EDGOP safety edge is pressed.	1.Check if safety edge is connected with 8.2kohm resistor, and if the resistor is cut off. 2.Check safety edge wires and replace new wire if needed. 3.Check if safety edge is pressed.
E5	Press transmitter, but no gate movement.	1.STOP switch is open. 2.STOP switch is not connected.	1.Check if STOP switch is open or damaged. 2.Check if STOP switch is disconnected. If yes, then reconnect STOP switch or add a short wire for the switch connectors.
E6	Press transmitter, but no gate movement.	1.Limit switch is not connected or wrong connection. 2.SL unit with limit switch connected, but wrong LA setting as application 3.LA unit but wrong SL setting as application	1.Check if limit switch is connected correctly. If not, fix the connection. 2.Change AP setting to correct SL application. 3.Change AP setting to correct LA application.
E7	Press transmitter, but no gate movement.	PCBA amplifier for motor 1 fail	Close main switch power 20s and reset to check if PCBA recovers. If not, change PCBA.
E9	Press transmitter, but no gate movement.	PCBA memory mistake	Close main switch power 20s and reset to check if PCBA recovers. If not, change PCBA.
F1	Motor 1 stop and reverse during open or close	Motor 1 is blocked or bonded.	Check and remove obstruction. Clean gate.
F3	Motor 1 stop and reverse during open or close	Motor 1 stall or RPM is damaged.	Check if motor 1 stall or RPM is damaged.
F5	Press transmitter, but opener has no action.	ESARM fail	Close main switch power 20s and reset to check if PCBA recovers. If not, change PCBA.
F6	Door reverse during closing	1.22V ; Connected with AC power, battery voltage is lower than 22V during closing. 2.24.8V; Connected only with battery power, battery voltage is lower than 24.8V during closing.	Charge battery.
F7	Press transmitter, but no gate movement.	NTC on PCBA is open or shorten.	Close main switch power 20s and reset to check if PCBA recovers. If not, change PCBA.
F8	Cannot sync	Sync connector is shorten.	Check if Sync connector is shorten.
F9	Press transmitter or push button, but opener has no action.	AP menu is reset to factory default.	Relearn limits.
LE	Opener stops suddenly	Press S button during limit learning.	Relearn limits
AL	Alarm is active.	Double entrapment detected.	1.Press Reset Button or Stop Command. 2.Wait 5 minutes for timeout.



## IMPORTANT SAFETY INSTRUCTIONS

### WARNING

To reduce the risk of SEVERE INJURY or DEATH:

- READ AND FOLLOW ALL INSTRUCTIONS.
- ANY maintenance to the operator or in the area near the operator MUST NOT be performed until disconnecting the electrical power (AC and battery) 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 national and local electrical codes.

**NOTE:** The operator should be on a separate fused line of adequate capacity.

- 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.
- The entrance is for vehicles ONLY. Pedestrians MUST use separate entrance.

• **TEST THE GATE OPERATOR MONTHLY.** The gate MUST reverse on contact with an object or reverse when an object activates the noncontact 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 manual disconnect 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.
- ALL maintenance MUST be performed by a Trained Gate Systems Technician.
- Activate gate ONLY when it can be seen clearly, is properly adjusted and there are no obstructions to gate travel.
- To reduce the risk of FIRE or INJURY to persons use ONLY LiftMaster part 29-NP712 for replacement batteries.

## SAVE THESE INSTRUCTIONS.

### CAUTION

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

## Maintenance Chart

**Disconnect all power (AC or battery) to the operator before servicing.** The operator's AC Power switch ONLY turns off AC power to the control board and DOES NOT turn off battery power. ALWAYS disconnect the batteries to service the operator.

DESCRIPTION	TASK	CHECK AT LEAST ONCE EVERY		
		MONTH	6 MONTHS	3 YEARS
Entrapment Protection Devices	Check and test inherent (built into the operator) and external devices for proper operation	X		
Warning Signs	Make sure they are present and replace if worn or broken, see Accessories	X		
Manual Disconnect	Check and test for proper operation		X	
Sprocket and Rack	Check the clearance between the parts		X	
Gate	Inspect for wear or damage; ensure it still complies with ASTM F2200, see page 33	X		
Accessories	Check all for proper operation		X	
Electrical	Inspect all wire connections		X	
Chassis Mounting Bolts	Check for tightness		X	
Operator	Inspect for wear or damage		X	
Batteries	Replace			X

### NOTES:

- Severe or high cycle usage will require more frequent maintenance checks.
- Rack does not require lubrication.
- Make sure the sliding gate can be moved smoothly. There must be a clearance between rack and gear as shown, or the gate movement may be affected, see page 12
- 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.

### Batteries

Batteries will degrade over time depending on temperature and usage.

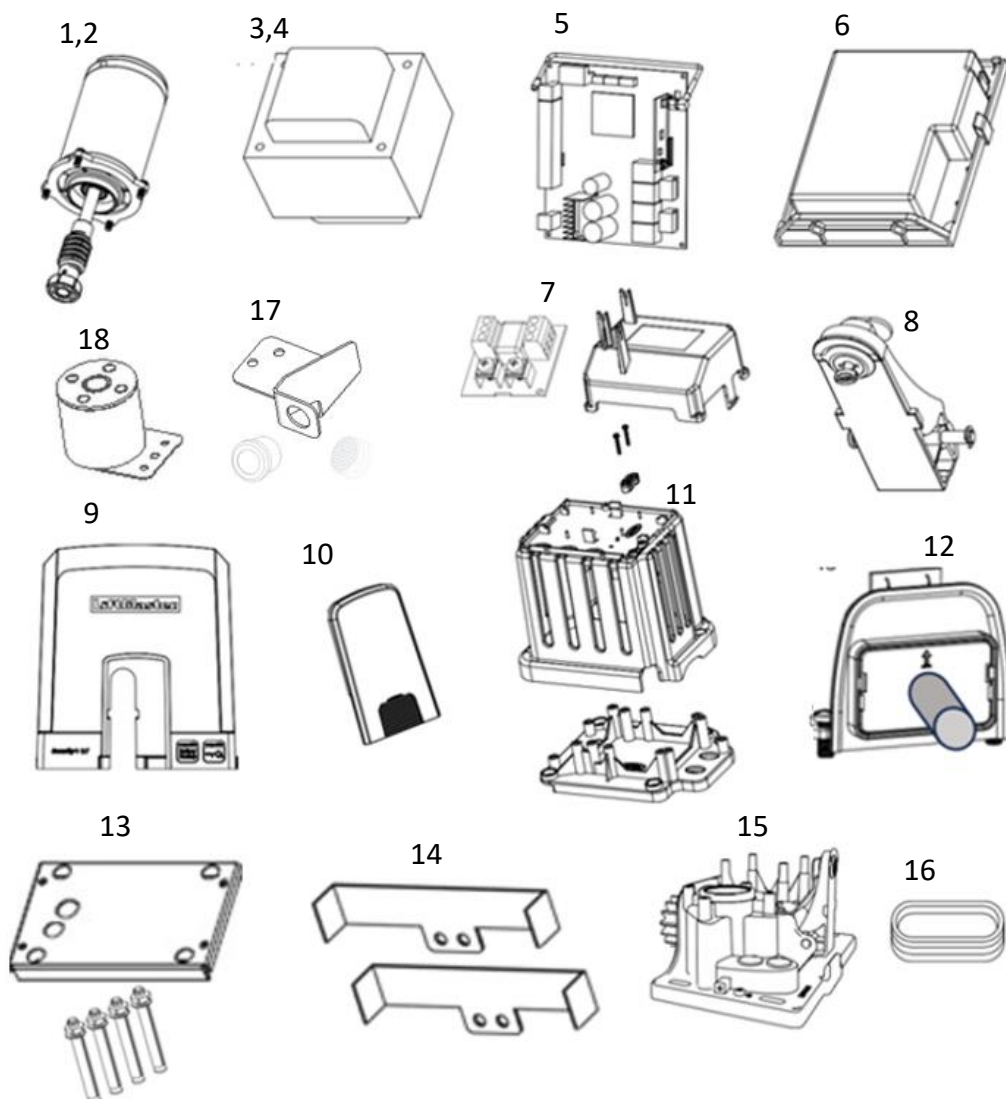
3 second pre-flashing with a command if the battery is low.

Batteries do not perform well in extremely cold temperatures. For best performance, the batteries should be replaced every 3 years. Use only LiftMaster part 490EV for replacement batteries. The batteries contain lead and need to be disposed of properly.

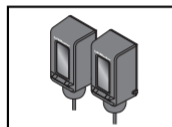


# REPAIR PARTS

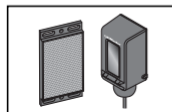
	ITEMNUMBER	ITEM DESCRIPTION
1	041-0517-000	MOTOR WITH COUPLING, SCREWS SLIDER - SL600ULC
2	041-0518-000	MOTOR WITH COUPLING, SCREWS SLIDER - SL1000ULC
3	041-0519-000	TRANSFORMER 96VA SL600UL
4	041-0520-000	TRANSFORMER 120VA SL1000UL
5	041-0521-000	CONTROL BOARD PRO CB324UL
6	041-0522-000	PCB HOLDER AND COVER WITH SCREW
7	041-0523-000	FILTER BOARD WITH HOLDER AND COVER
8	041-0524-000	RELEASE ASSEMBLY WITH KEYS SLIDER
9	041-0525-000	MOTOR COVER WITH SCREWS FOR SL BLACK
10	041-0526-000	PLASTIC KEY RELEASE COVER SL BLACK
11	041-0527-000	TRANSFORMER HOLDER, COVER, CABLE HOLDER
12	041-0528-000	LIMIT SWITCH, COVER, SCREWS FOR SLIDER
13	041-0530-000	GROUND PLATE WITH SCREWS FOR SLIDER
14	041-0532-000	LIMIT SWITCH BRACKETS SET W.SCREWS FOR SLIDER
15	041-0533-000	BASE AND GEARBOX ASSEMBLY SL
16	041-0534-000	CABLE ENTRY GROMMET FOR SLIDER
17	041-0535-000	RESET BUTTON, CABLE AND BRACKET
18	041-0536-000	SIREN



## Entrapment Protection



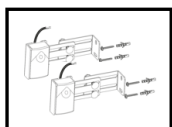
**LiftMaster monitored through beam photoelectric sensor**  
Model LMTBUL



**LiftMaster monitored retro-reflective photoelectric sensor**  
Model LMRRUL

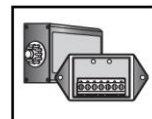


**S504AL, S505AL, S506AL**  
Monitored Small Profile Resistive Edge with aluminum channel 4 ft, 5 ft or 6ft.



**771UL Photoeye**  
Infrared Safety Sensor

## Miscellaneous



**Loop Detector**  
Low power loop detectors mounted and wired separately inside control box. LiftMaster low power accessory.  
Model LD7LP



**Magnetic gate lock**  
Outdoor magnetic lock, transformer, junction box, mounting plate and hardware. Not for use with Solar Applications. Must be powered separately.  
Model MG1300



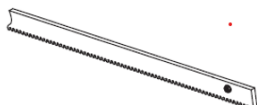
**827LM, 837LM**  
myQ LED Light.



**FLA1-LEDUL**  
Flashing Lamp

**202097**

4x 1 meter rack with screws



## Remote Controls



**TX4UL**  
Remote Control



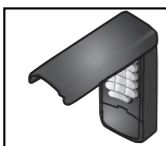
**3-button remote control**  
The 3-button remote control can be programmed to control the operator. Includes visor clip.  
Model 893MAX



**3-button mini-remote control**  
The 3-button remote control can be programmed to control the operator. Includes key ring and fastening strip.  
Model 890MAX



**Security+ 2.0<sup>®</sup> learning remote controls**  
One button can control a gate operator and the other(s) can control garage door(s). It can also be programmed to Security+<sup>®</sup> or Security+ 2.0<sup>®</sup> code format. Model 894LT



**Keyless entry**  
Enables homeowner to operate gate operator from outside by entering a 4-digit code on a specially designed keypad.  
Model 878MAX



**LiftMaster<sup>®</sup> Internet Gateway**  
Internet enabled accessory which connects your gate operator to your WiFi network and allows you to monitor and control gate operators and lighting accessories enabled by myQ<sup>®</sup> technology.  
Model 828LM



**Wireless commercial keypad**  
Durable wireless keypad with blue LED backlight metal keypad, zinc-alloy metal front cover and 5 year 9V lithium battery. Security+ 2.0<sup>®</sup> compatible.  
Model KPW250



**490EVUL**  
24V Backup Battery



**SWG-ANT-UL**  
Antenna Kit with Cable

# WARRANTY

## Two Year Limited Warranty

LiftMaster warrants to the first purchaser of this product, for the structure in which this product is originally installed, that it is free from defect in materials and/or workmanship for a period of TWO years from the date of purchase. The proper operation of this product is dependent on your compliance with the instructions regarding installation, operation, maintenance and testing. Failure to comply strictly with those instructions will void this limited warranty in its entirety.

If, during the limited warranty period, this product appears to contain a defect covered by this limited warranty, call **1-800-528-2806**, toll free, before dismantling this product. Then send this product, pre-paid and insured, to our service center for warranty repair. You will be advised of shipping instructions when you call. Please include a brief description of the problem and a dated proof-of purchase receipt with any product returned for warranty repair. Products returned to Seller for warranty repair, which upon receipt by Seller are confirmed to be defective and covered by this limited warranty, will be repaired or replaced (at Seller's sole option) at no cost to you and returned pre-paid. Defective parts will be repaired or replaced with new or factory-rebuilt parts at Seller's sole option.

**ALL IMPLIED WARRANTIES FOR THE PRODUCT, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE LIMITED IN DURATION TO THE TWO YEAR LIMITED WARRANTY PERIOD SET FORTH ABOVE, AND NO IMPLIED WARRANTIES WILL EXIST OR APPLY AFTER SUCH PERIOD.**

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**THIS LIMITED WARRANTY DOES NOT COVER ANY PROBLEMS WITH, OR RELATING TO, THE GATE OR GATE HARDWARE, INCLUDING BUT NOT LIMITED TO THE GATE SPRINGS, GATE ROLLERS, GATE ALIGNMENT OR HINGES. THIS LIMITED WARRANTY ALSO DOES NOT COVER ANY PROBLEMS CAUSED BY INTERFERENCE. ANY SERVICE CALL THAT DETERMINES THE PROBLEM HAS BEEN CAUSED BY ANY OF THESE ITEMS COULD RESULT IN A FEE TO YOU.**

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# Swing and Slide Gate Operator UL 325 and ASTM F2200 Site Planning Safety Checklist

Please Print

Name:

Phone:

Address:

City/State/ZIP:

Email:

Satisfactory

Needs Repair/Replacement

## Gate Safety Check — Simple steps to quickly determine if an End User's gate operator is safe.

### UL 325 Standard

Component:	Result (Circle)	Comments:	Figures (On Back)
1. Gate Operator is approved to current UL 325 standards (check operator label)	Pass / Fail		
2. Proper gate warning signs attached to both sides of gate area	Pass / Fail		1,4
3. All entrapment zones protected by 2 safety devices/obstruction tested			1,4
Close Side (circle two)      Photo Eye      Reversing Edge      Inherent Reverse	Pass / Fail		
Open Side (circle two)      Photo Eye      Reversing Edge      Inherent Reverse	Pass / Fail		
Other Entrapment Zones	Pass / Fail		
*Entrapment Zone: The location where a person can be caught or held in a position that increases the risk of injury			

Gate Construction Evaluation: Gate Constructed with Safety in mind. ASTM F2200 Standards are followed

Component:	Result (Circle)	Comments:	Figures (On Back)
<b>All Gates</b>			
Gates have smooth bottom edges, no protrusions exceed 1/2" beyond base of gate	Pass / Fail		5
All access controls at least 6 ft. from gate	Pass / Fail		1,4
Barbed tape (razor wire) at least 8 ft. above grade	Pass / Fail		
Barbed wire at least 6 ft. above grade	Pass / Fail		
Separate pedestrian gate – out of reach of a moving gate – vehicular gate is for automotive traffic only	Pass / Fail		1,4
Gate does not move on its own if disconnected from operator	Pass / Fail		
Gates prevented from falling over if disconnected from supporting hardware	Pass / Fail		

### SWING

Distance from pivot point to column edge is less than 4 in. or external entrapment protection is provided	Pass / Fail		4
Distance from open gate to wall, column, or other fixed object is greater than 16 in. or external entrapment protection is provided	Pass / Fail		4

### SLIDE

Roller covers on weight bearing exposed rollers 8 ft., or less, above grade	Pass / Fail		1
Meshing installed up to 6 ft. above grade if pickets spaced equal to or greater than 2 1/4 in. apart	Pass / Fail		3
Gap between gate and fence post less than 2 1/4 in. & gap protected with safety device	Pass / Fail		2
Positive stops at both fully open and fully closed positions	Pass / Fail		1
Receiver guides recessed behind receiver post for receiver guides less than 8 ft.	Pass / Fail		
Other:	Pass / Fail		

Please Print

First & Last Name of Dealer:

First & Last Name of Installer:

Name of Dealership:

Phone:

Dealership Address (Street Address/City/State/Zip):

Dealer Signature:

Installer Signature:

Customer Signature:



# GETTING STARTED WITH SWING AND SLIDE GATE OPERATORS.

Always design, install and maintain safe gate access systems in accordance with UL 325 & ASTM F2200 standards.

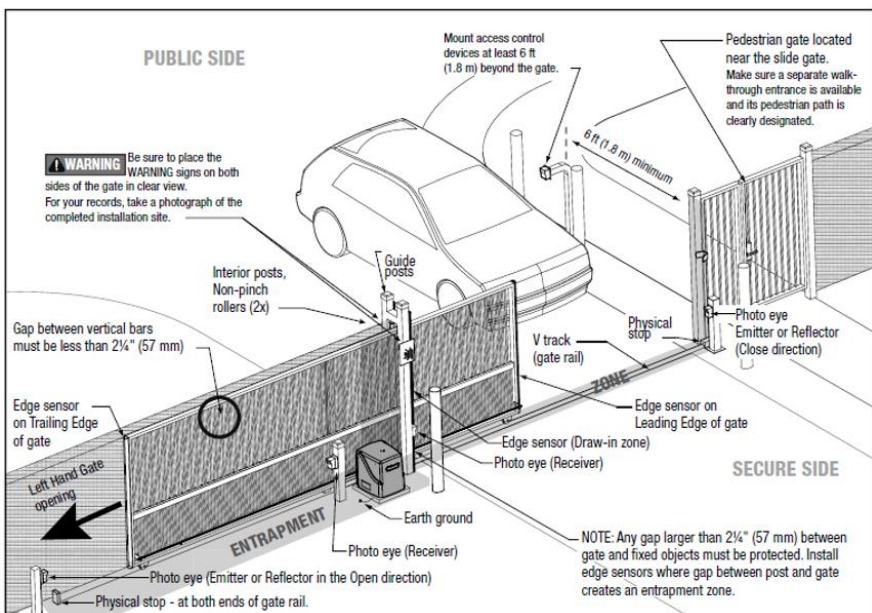
- Only install the operator on gates used for vehicular traffic.
- A separate pedestrian entry/exit must be clearly visible to promote pedestrian usage and located so pedestrians do not come in contact with the vehicular gate while it is moving.
- Install two independent<sup>†</sup> entrapment protection devices protecting each entrapment zone.
- Pickets of a slide gate must be designed or screened to prevent persons from reaching through, or passing through a gate.
- Every Installation is unique. It is the responsibility of the installer to ensure all

entrapment zones are protected with a minimum of two independent<sup>†</sup> entrapment protection devices.

- A slide gate operator will only operate with a minimum of two independent monitored entrapment protection devices installed in each direction, two in the open direction and two in the closed direction<sup>†</sup>.
- A swing gate operator will only operate with a minimum of two independent monitored entrapment protection devices installed in either the open or closed direction. If no entrapment zone exists in the other direction, only one means of entrapment protection is required in that direction<sup>†</sup>.

<sup>†</sup>Independent the same type of device shall not be utilized for both entrapment protection devices.

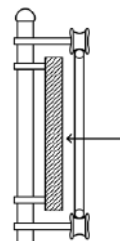
SLIDE GATE SITE LAYOUT GUIDELINES **FIGURE 1**



SLIDE GATE SPACING GUIDELINES **FIGURE 2**

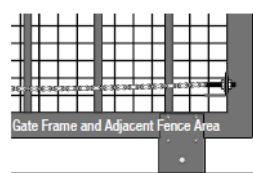
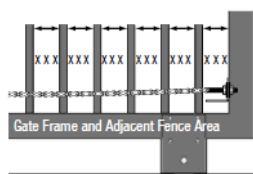
## Slide Gate Gaps

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 2 1/4 in.. Exception: All other fixed stationary objects greater than 16 in. from the gate frame shall not be required to comply with this section. Any gap must be protected. Install safety device to protect entrapment zone.



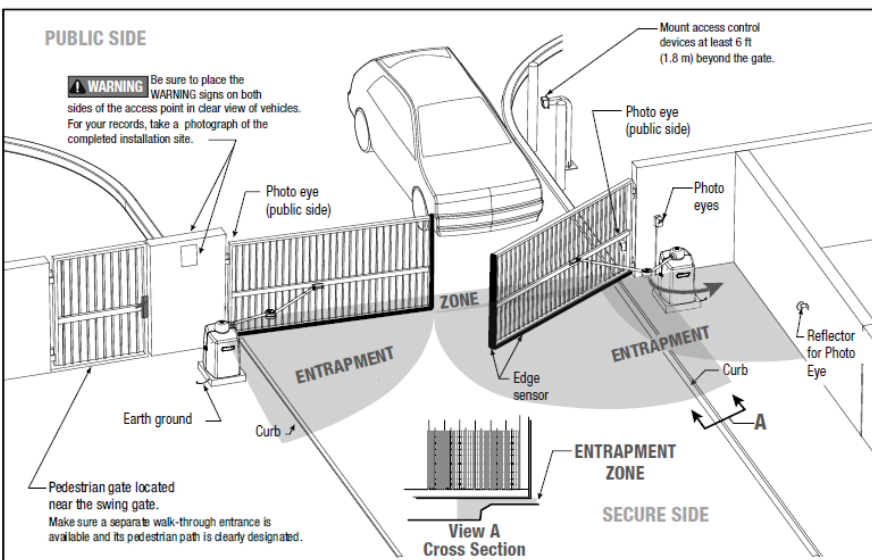
SLIDE GATE OPENINGS GUIDELINES **FIGURE 3**

Openings of a horizontal slide gate must be smaller than 2 1/4" or else be guarded or screened. These design rules apply to both the moving gate as well as the portion of adjacent fence that the gate covers in the open position. See Illustrations below.



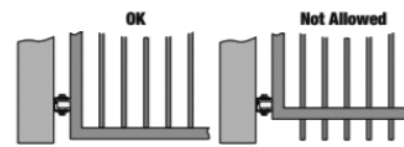
For gaps (xxx) equal to or larger than 2 1/4", a wire mesh screen must be applied to the gate. Wire mesh screen openings must be smaller than 2 1/4". The minimum height of wire mesh screen: 6 ft. above grade.

SWING GATE SITE LAYOUT GUIDELINES **FIGURE 4**



Base of Swing and Slide Gate **FIGURE 5**

All Gates must have smooth bottom edges, no protrusions should exist. If gate hardware or sensors protrude, they must have smooth surfaces free of any sharp cutting edges that do not exceed 1/2 inch beyond the base of the gate.



## Definitions

**Entrapment:** The condition when a person is caught or held in a position that increases the risk of injury.

**Slide Gate Entrapment Zones:** An entrapment zone exists if at any point during travel, the gap between the moving gate and fixed counter opposing edges or surfaces is less than 406 mm (16") in a location up to 1.8 m (6ft.) above grade.

**\*\*Swing Gate Entrapment Zones:** Locations between a moving gate or moving, exposed operator components and a counter opposing edge or surface where entrapment is possible up to 1.8m (6 ft) above grade. Such locations occur if during any point in travel a) The gap between the bottom of a moving gate and the ground is greater than 101.6mm (4 in) and less than 406mm (16 in); or b) The distance between the center line of the pivot and the end of the wall, pillar, or column to which it is mounted when in the open or closed position exceeds 101.6mm (4 in). Any other gap between a moving gate and fixed counter opposing edges or surfaces or other fixed objects is less than 406 mm (16 in) (examples are walls, curbs, berms, or other immovable objects).

The above examples are two of many installation possibilities and are for illustration purposes only. See device and operator manuals for complete instruction. Visit [DASMA.com](http://DASMA.com) for more information.

**LiftMaster**

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