

LiftMaster®
ELITE SERIES™

CSL24V™ & CSL24VH™

VEHICULAR SLIDE GATE OPERATOR

INSTALLATION MANUAL



Your model may look different than the model illustrated in this manual.

**THIS PRODUCT IS TO BE
INSTALLED AND SERVICED BY
A TRAINED GATE SYSTEMS
TECHNICIAN ONLY.**

Visit www.liftmaster.com to
locate a professional installing
dealer in your area.

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, III and IV vehicular slide
gate applications.

UL325
compliant

 **UL**
LISTED

UL991
compliant

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SAFETY

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

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

IMPORTANT NOTE

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

SAFETY SYMBOL AND SIGNAL WORD REVIEW

WARNING

MECHANICAL

WARNING

ELECTRICAL

CAUTION

UL325 MODEL CLASSIFICATIONS

CLASS I – RESIDENTIAL VEHICULAR GATE OPERATOR

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

CLASS II – COMMERCIAL/GENERAL ACCESS VEHICULAR GATE OPERATOR

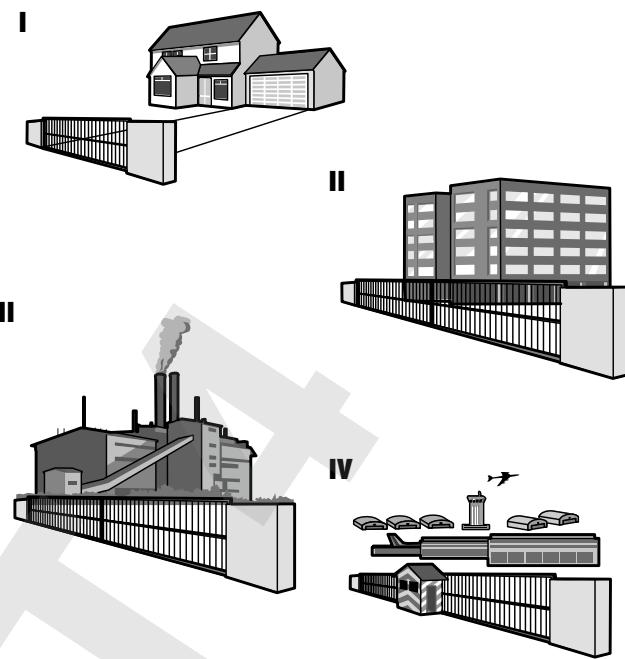
A vehicular gate operator (or system) intended for use in a commercial location or building such as a multi-family housing unit (five or more single family units) hotel, garage, retail store or other building servicing the general public.

CLASS III – INDUSTRIAL/LIMITED ACCESS VEHICULAR GATE OPERATOR

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



UL325 ENTRAPMENT PROTECTION REQUIREMENTS

This chart illustrates the entrapment protection requirements for the UL325 classes.

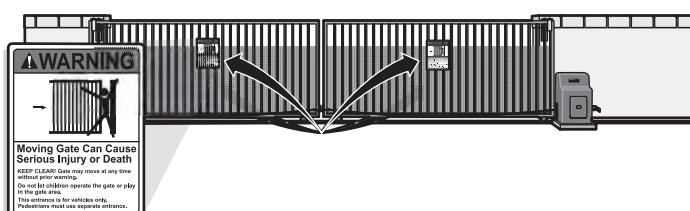
GATE OPERATOR ENTRAPMENT PROTECTION		
UL325 Classification	Slide Gate Operator	
	Primary Type	Secondary Type
CLASS I-CLASS IV	A	B1 or B2

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

For Example: For a gate system that is installed on a single-family residence (UL325 Class I) you must provide the following: As your primary type of entrapment protection you must provide

- Type A - Inherent (built into the operator) entrapment sensing and at least one of the following as your secondary entrapment protection:
 - Type B1 - Non-contact sensors such as photoelectric sensors,
 - Type B2 - Contact sensors such as gate edges

NOTE: UL requires that all installations must have warning signs placed in plain view on both sides of the gate to warn pedestrians of the dangers of motorized gate systems.



SAFETY

SAFETY INSTALLATION INFORMATION

SAFETY INSTALLATION INFORMATION

1. Vehicular gate systems provide convenience and security. Gate systems are comprised of many component parts. The gate operator is only one component. Each gate system is specifically designed for an individual application.
2. Gate operating system designers, installers and users must take into account the possible hazards associated with each individual application. Improperly designed, installed or maintained systems can create risks for the user as well as the bystander. Gate systems design and installation must reduce public exposure to potential hazards.
3. A gate operator can create high levels of force in its function as a component part of a gate system. Therefore, safety features must be incorporated into every design. Specific safety features include:
 - Gate Edges
 - Photoelectric Sensors
 - Vertical Posts
 - Guards for Exposed Rollers
 - 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 4 feet (1.2 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 operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.

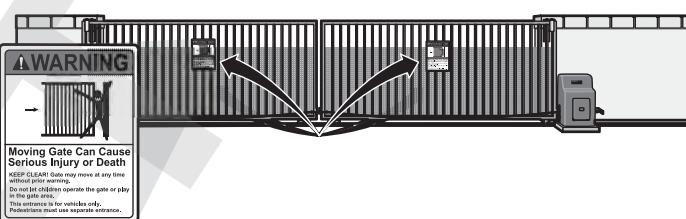


6. The gate must be installed in a location so that enough clearance is supplied between the gate and adjacent structures when opening and closing to reduce the risk of entrapment. Swinging gates shall not open into public access areas.
7. The gate must be properly installed and work freely in both directions prior to the installation of the gate operator.

8. Controls intended for user activation must be located at least 6 feet (1.8 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.



9. The Stop and/or Reset (if provided separately) must be located in the line-of-sight of the gate. Activation of the reset control shall not cause the operator to start.
10. A minimum of two (2) WARNING SIGNS shall be installed, one on each side of the gate where easily visible.



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

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.

1. GENERAL REQUIREMENTS

- 1.1 Gates shall be constructed in accordance with the provisions given for the appropriate gate type listed, refer to ASTM F2200 for additional gate types.
- 1.2 Gates shall be designed, constructed and installed to not fall over more than 45 degrees from the vertical plane, when a gate is detached from the supporting hardware.
- 1.3 Gates shall have smooth bottom edges, with vertical bottom edged protrusions not exceeding 0.50 inches (12.7 mm) when other than the exceptions listed in ASTM F2200.
- 1.4 The minimum height for barbed tape shall not be less than 8 feet (2.44 m) above grade and for barbed wire shall not be less than 6 feet (1.83 m) above grade.
- 1.5 An existing gate latch shall be disabled when a manually operated gate is retrofitted with a powered gate operator.
- 1.6 A gate latch shall not be installed on an automatically operated gate.
- 1.7 Protrusions shall not be permitted on any gate, refer to ASTM F2200 for Exceptions.
- 1.8 Gates shall be designed, constructed and installed such that their movement shall not be initiated by gravity when an automatic operator is disconnected.
- 1.9 A pedestrian gate shall not be incorporated into a vehicular gate panel or that portion of the adjacent fence that the gate covers in the open position.

2. SPECIFIC APPLICATIONS

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

3. VEHICULAR HORIZONTAL SLIDE GATES

- 3.1 The following provisions shall apply to Class I, Class II and Class III vehicular horizontal slide gates:
 - 3.1.1 All weight bearing exposed rollers 8 feet (2.44 m), or less, above grade shall be guarded or covered.
 - 3.1.2 All openings located between 48 inches (1.22 m) and 72 inches (1.83 m) above grade shall be designed, guarded or screened to prevent a 4 inch (102 mm) diameter sphere from passing through the openings anywhere in the gate, and in that portion of the adjacent fence that covers in the open position.

3.1.3 A gap, measured in the horizontal plane parallel to the roadway, between a fixed stationary object nearest the roadway, (such as a gate support post) and the gate frame when the gate is in either the fully open position or the fully closed position, shall not exceed 2 1/4 inches (57 mm), refer to ASTM F2200 for Exception.

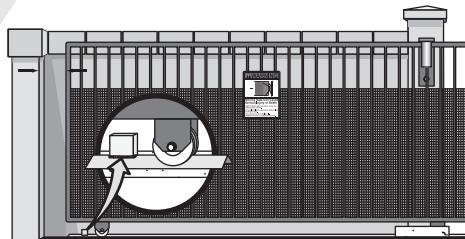
3.1.4 Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.

3.1.5 All gates shall be designed with sufficient lateral stability to assure that the gate will enter a receiver guide, refer to ASTM F2200 for panel types.

3.2 The following provisions shall apply to Class IV vehicular horizontal slide gates:

3.2.1 All weight bearing exposed rollers 8 feet (2.44 m), or less, above grade shall be guarded or covered.

3.2.2 Positive stops shall be required to limit travel to the designed fully open and fully closed positions. These stops shall be installed at either the top of the gate, or at the bottom of the gate where such stops shall horizontally or vertically project no more than is required to perform their intended function.



4. VEHICULAR HORIZONTAL SWING GATES

- 4.1 The following provisions shall apply to Class I, Class II and Class III vehicular horizontal swing gates:
 - 4.1.1 Gates shall be designed, constructed and installed so as not to create an entrapment area between the gate and the supporting structure or other fixed object when the gate moves toward the fully open position, subject to the provisions in the 4.1.1.1 and 4.1.1.2.
 - 4.1.1.1 The width of an object (such as a wall, pillar or column) covered by a swing gate when in the open position shall not exceed 4 inches (102 mm), measured from the centerline of the pivot point of the gate, refer to ASTM F2200 for exception.
 - 4.1.1.2 Except for the zone specified in Section 4.1.1.1, the distance between a fixed object such as a wall, pillar or column, and a swing gate when in the open position shall not be less than 16 inches (406 mm), refer to ASTM F2200 for exception.
- 4.2 Class IV vehicular horizontal swing gates shall be designed, constructed and installed in accordance with security related parameters specific to the application in question.

SAFETY

REQUIRED ENTRAPMENT PROTECTION DEVICES

REQUIRED ENTRAPMENT PROTECTION DEVICES

WARNING

To prevent SERIOUS INJURY or DEATH from a moving gate:

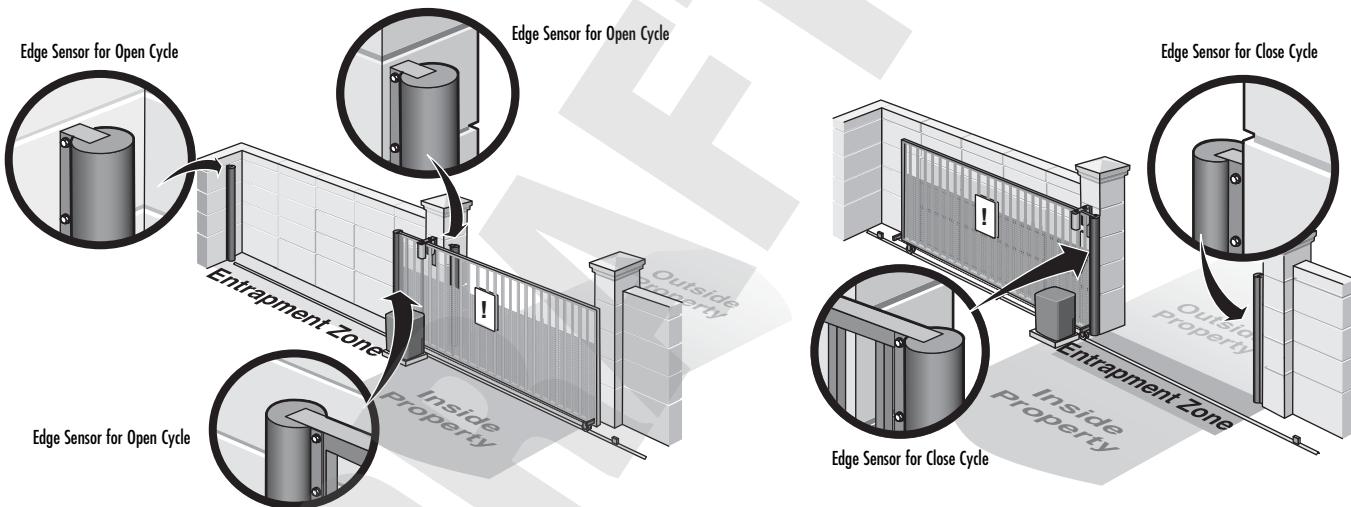
- Entrapment protection devices **MUST** be installed to protect anyone who may come near a moving gate.
- Locate entrapment protection devices to protect in **BOTH** the open and close gate cycles.
- Locate entrapment protection devices to protect between moving gate and **RIGID** objects, such as posts or walls.

An entrapment zone is every location or point of contact where a person can become entrapped between a moving gate and a stationary object. All gate operator systems **REQUIRE** two independent entrapment protection systems for each entrapment zone. This operator contains an inherent (internal) entrapment protection system (the primary entrapment protection system) and **REQUIRES** the addition of an external entrapment protection system (non-contact photoelectric sensor or contact safety edge sensor) for **EACH** entrapment zone.

Your application may contain one or many entrapment zones. Property owners are obligated to test entrapment protection devices monthly.

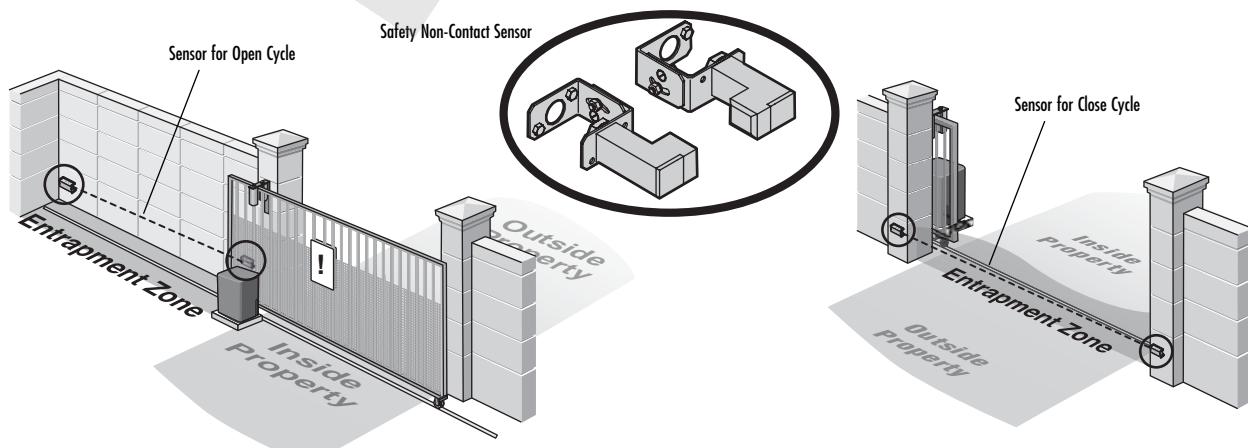
CONTACT SENSORS (EDGE SENSORS)

If the electrically activated edge sensor comes in contact with an obstruction while the gate is moving, the gate will stop and reverse. The gate will not be able to travel in that direction until the obstruction is cleared. Use edge sensor models G65MG0204, G65MGR020, or G65MGS020.



NON-CONTACT SENSORS

If the photoelectric sensor beam gets blocked while the gate is moving, the gate will stop and reverse. The gate will not be able to travel in that direction until the obstruction is cleared. It is best to use monitored photoelectric sensors, model CPS-UN4. If a monitored photoelectric sensor is not working or loses power or the beam is blocked, then **ALL** gate operation in that direction will stop. Unmonitored photoelectric sensor models AOMRON and RETROAB are also acceptable.



SAFETY

IMPORTANT SAFETY INFORMATION

IMPORTANT SAFETY INFORMATION

INSTALLATION

WARNING

To prevent SERIOUS INJURY or DEATH from a moving gate:

- Pinch points must be guarded at all times. Install enclosed-style gate tracks and roller guards.
- Place screen mesh 4 feet (1.2 m) high on the gate to prevent access through openings anywhere the gate may travel.
- Mount controls at least 6 feet (1.8 m) from the gate or ANY moving part of the gate.
- Install Warning signs on EACH side of gate in PLAIN VIEW. Permanently secure each Warning sign in a suitable manner using fastening holes.
- This operator is intended for vehicular use only. To prevent INJURY to pedestrians, a separate pedestrian access should be supplied, visible from the gate. Locate the pedestrian access where there is not a chance of INJURY at any point during full movement of the gate.
- Contact sensors MUST be located at the leading and trailing edges, and post mounted both inside and outside a horizontal slide gate. Non-contact sensors such as photo eyes MUST be mounted across the gate opening and operate during BOTH the open and close cycles.
- Entrapment protection devices MUST be installed to protect anyone who may come near a moving gate.
- Locate entrapment protection devices to protect in BOTH the open and close gate cycles.
- Locate entrapment protection devices to protect between moving gate and RIGID objects, such as posts or walls.
- 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 a rigid object.
- DO NOT touch the heater when switch is on, heater may be hot.

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.

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 or solar 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. We recommend that you install an edge sensor BEFORE proceeding with the control station installation.
- ALL power wiring should be on a dedicated circuit and well protected. The location of the power disconnect should be visible and clearly labeled.
- ALL power and control wiring MUST be run in separate conduit.

ADJUSTMENT

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 a rigid object.

SAFETY

IMPORTANT SAFETY INFORMATION

IMPORTANT SAFETY INFORMATION

ADDITIONAL FEATURES

WARNING

To prevent SERIOUS INJURY or DEATH from a moving gate:

- Entrapment protection devices **MUST** be installed to protect anyone who may come near a moving gate.
- Locate entrapment protection devices to protect in **BOTH** the open and close gate cycles.
- Locate entrapment protection devices to protect between moving gate and **RIGID** objects, such as posts or walls.

MAINTENANCE AND OPERATION

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 or solar 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.**
- Test the gate operator monthly. The gate **MUST** reverse on contact with a rigid object or reverse when an object activates the non-contact sensors. After adjusting the force or the limit of travel, retest the gate operator. Failure to adjust and retest the gate operator properly can increase the risk of INJURY or DEATH.
- Use the 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 LiftMaster professional.
- 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.

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.

INTRODUCTION

OPERATOR SPECIFICATIONS + CARTON INVENTORY & OPERATOR DIMENSIONS

OPERATOR SPECIFICATIONS

This model is intended for use in vehicular swing gate applications:

Gate Classifications: CLASS I, II, III, & IV

Main AC Supply: 120 Vac or 240 Vac

Solar Power Max: 24 Vdc at 50 watts max.

Current Consumption: 4 Amps at 120 Vac or 2 Amps at 240 Vac

Main Supply (Motor): 24 Vdc

Accessory Power: 24 Vdc nominal Class II battery voltage source is limited to:

- Accessory wire up to 50 feet - 500 mA
- Accessory wire 50 feet up to 250 feet - 250 mA
- Accessory wire 250 feet up to 1000 feet - 100 mA

NOTE: Increased accessory power drawn from the operator will shorten the battery life (solar applications ONLY).

Heater Draw (Optional): 325 watts (120 Vac ONLY)

Maximum Gate Weight: 1000 lbs.

Maximum Gate Travel Distance: 50 feet

Daily Cycle Rate AC power: Continuous duty

Ambient Temperature:

- Without Heater: -20°C to 50°C (-4°F to 122°F)
- With Heater: -40°C to 50°C (-40°F to 122°F)

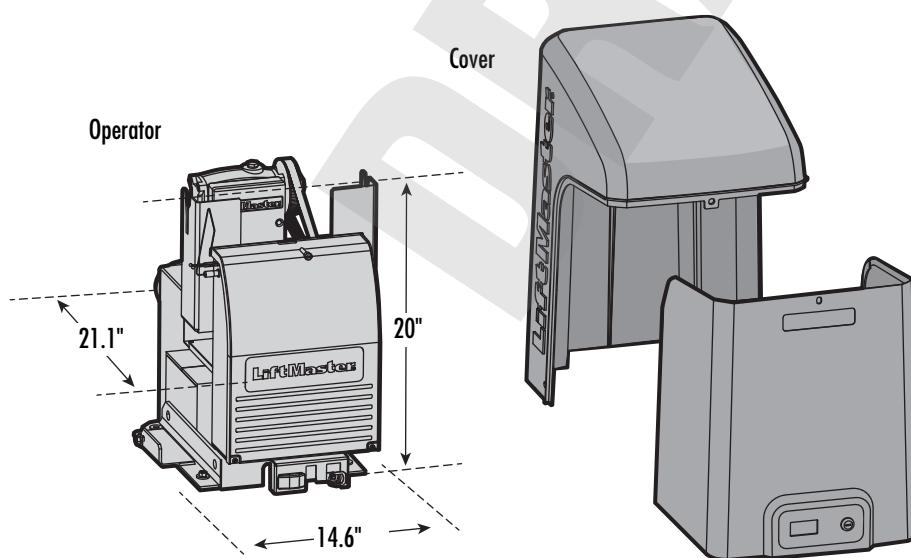
NOTE: These temperatures are UL Listed to 40°C but Chamberlain tested to 50°C.

Fuse Protection Battery: 30 Amp

Fuse Protection DC Power: 30 Amp

CARTON INVENTORY & OPERATOR DIMENSIONS

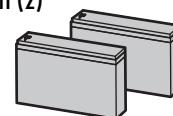
NOT SHOWN: Documentation Packet, Chain #41 - 30 feet, Eye Bolt Kit



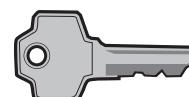
Warning Signs (2) and Warranty Card



Battery 12 Vdc 7AH (2)



Key



INTRODUCTION

FEATURES

FEATURES

OPERATOR FEATURES

- Advanced "Centerpiece" Control Board
- EMI AC Power Surge Protection and Filter Board
 - Main AC voltage input selection: 120 Vac (factory setting) or 240 Vac (field change)
- DC motor
- AC powered with integrated battery backup
- 24 Vdc accessory power
- Programmable with up to 50 remote controls, compatible with: Security MAX codes at either 310, 315, or 390 MHz
- Manual - Secure power failure selection
- SAMS compatible
- Slow-start and slow-stop gate motion
- Reset Switch
- Audible Alarm
- Party Hold-Open mode
- Internal Heater option (factory installed or field installed) 120 Vac powered ONLY
- Integrated internal antenna with external antenna option

CONTROL BOARD FEATURES

- Electronic Limit adjustment and control
- Adjustable reversal force
- Adjustable Timer-to-Close (TTC)
- Maximum Run Timer
- Bipart Delay switch (dual gate applications)
- Feedback and Diagnostic LEDs
- Integrated Radio Receiver, Single Button Control (SBC) and 3-Button Station control, three radio frequencies supporting Security MAX

- COMMANDS:
 - OPEN, CLOSE, or STOP: accessory connection and on-board button
 - Single Button Close (SBC): accessory connection
 - FIRE DEPARTMENT OPEN: accessory connection
 - INTEGRATED RADIO RECEIVER:
- LOOPS:
 - EXIT, SHADOW, or INTERRUPT LOOP: plug-in loop detector (Model SPI) and accessory connection

EXPANSION BOARD FEATURES

- Plug-in Loop Detector Connectors (Model LOOPDETLM Loop Detector)
 - SHADOW
 - INTERRUPT
 - EXIT, with Fail Safe/Fail Secure selection
- Quick-Close ON/OFF selection switch
- AC Fail Open/Battery selection switch
- Low Battery Open/Close selection switch
- Anti-Tail ON/OFF selection switch
- Single Button Control (SBC) accessory connection
- 3-Button station accessory connection

- AUX Relays (2) each independently selectable operation:
 - OPEN LIMIT: ON at open limit switch
 - CLOSE LIMIT: ON at close limit switch
 - GATE MOVING: ON with gate moving
 - PRE-ALERT DELAY: ON 3 seconds before gate motion
 - TAMPER: ON when gate manually pulled from close limit
 - POWER: ON with AC or Solar power available
 - CYCLE QUANTITY: LEDs blink operational cycle count

PREPARATION

SITE PREPARATION

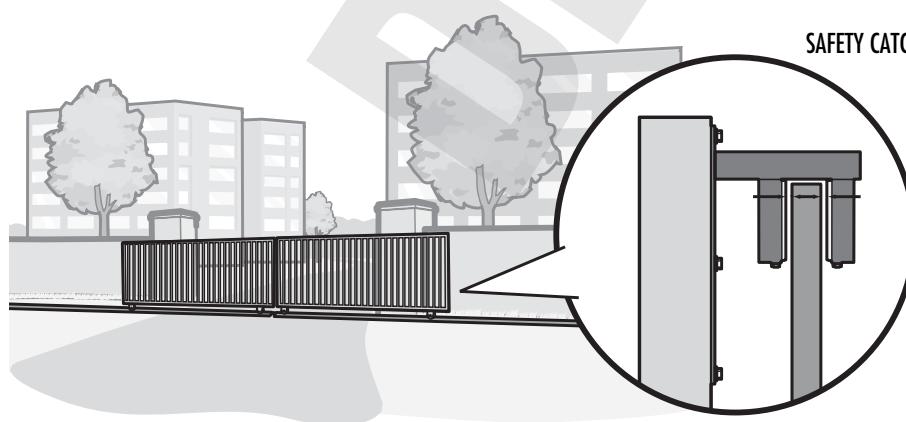
Check the national and local building codes **BEFORE** installation.



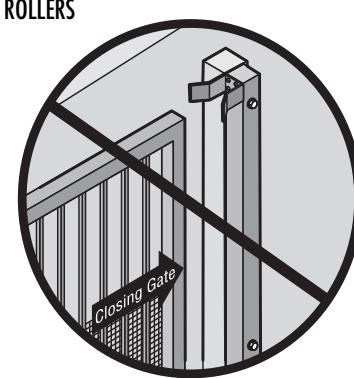
GATE

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.

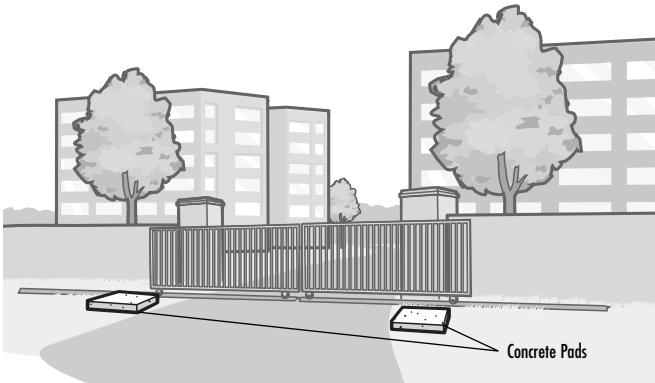


DO NOT use a gate catch post.

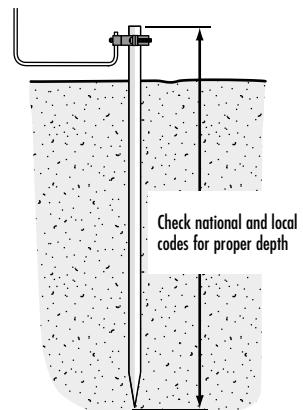
Because the coasting distance may vary due to changes in temperature, it is **NOT** recommended to install a stop or catch post in front of the gate's path. To do so will cause the gate to hit the post in certain instances.

CONDUIT & CONCRETE PAD

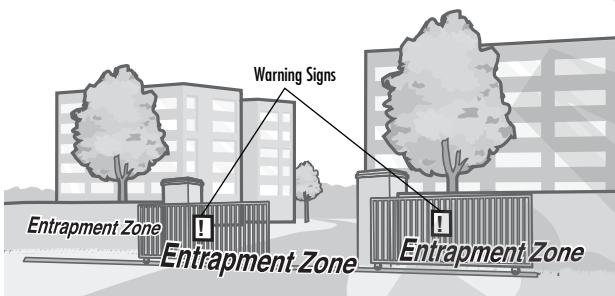
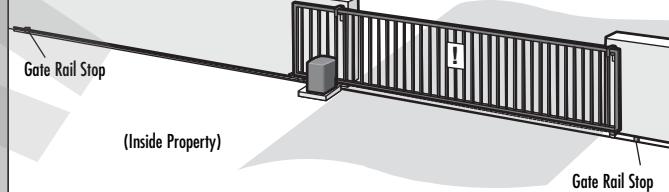
Conduit must be UL approved for low and high voltage. Consider the operator placement BEFORE installing the pad or post.

**EARTH GROUND ROD**

Proper grounding gives an electrical charge, such as from an electrical static discharge or a near lightning strike, a path from which to dissipate its energy safely into the earth. Without this path, the intense energy generated by lightning could be directed towards the gate operator. Although nothing can absorb the tremendous power of a direct lightning strike, proper grounding can protect the gate operator in most cases.

**SAFETY**

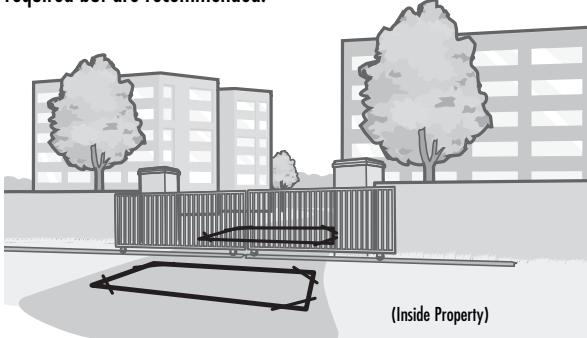
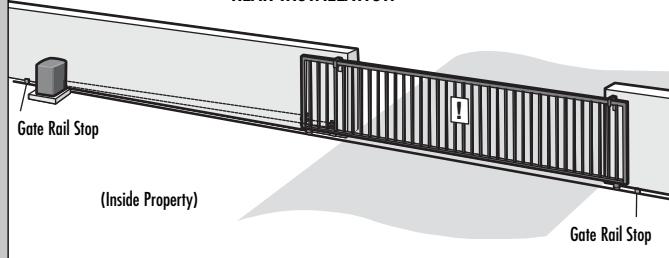
Entrapment protection devices are required to protect against any entrapment or safety conditions encountered in your gate application (refer to page 5 for more details). Install warning signs on both sides of the gate.

**TYPES OF INSTALLATIONS****STANDARD INSTALLATION**

The illustration is an example of a standard installation.

VEHICLE LOOPS

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.

**REAR INSTALLATION**

The illustration is an example of a rear installation.

INSTALLATION

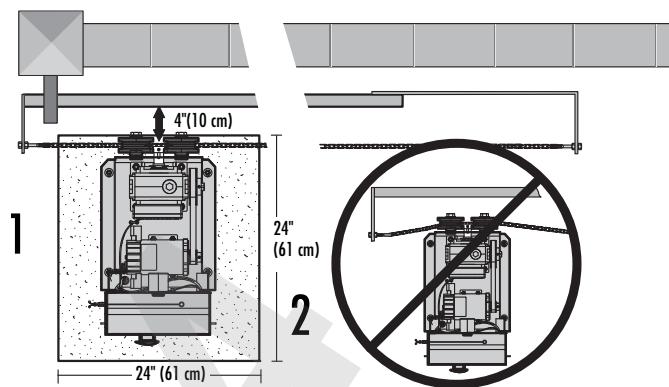
DETERMINE LOCATION FOR CONCRETE PAD & OPERATOR + CONCRETE PAD & OPERATOR ATTACHMENT

DETERMINE LOCATION FOR CONCRETE PAD AND OPERATOR

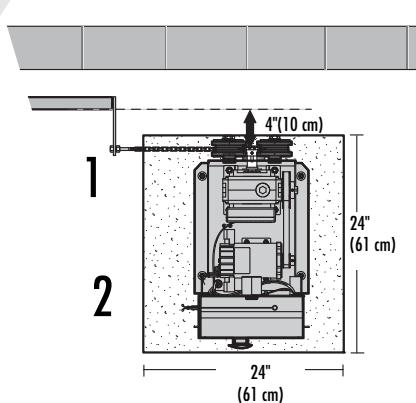
- 1 The gate operator should be installed near the front roller of the gate or near the back of the gate (in the OPEN position). The space between the gate and the output sprocket must be a minimum of 4 inches.

- 2 Lay out the concrete pad.

STANDARD INSTALLATION



REAR INSTALLATION



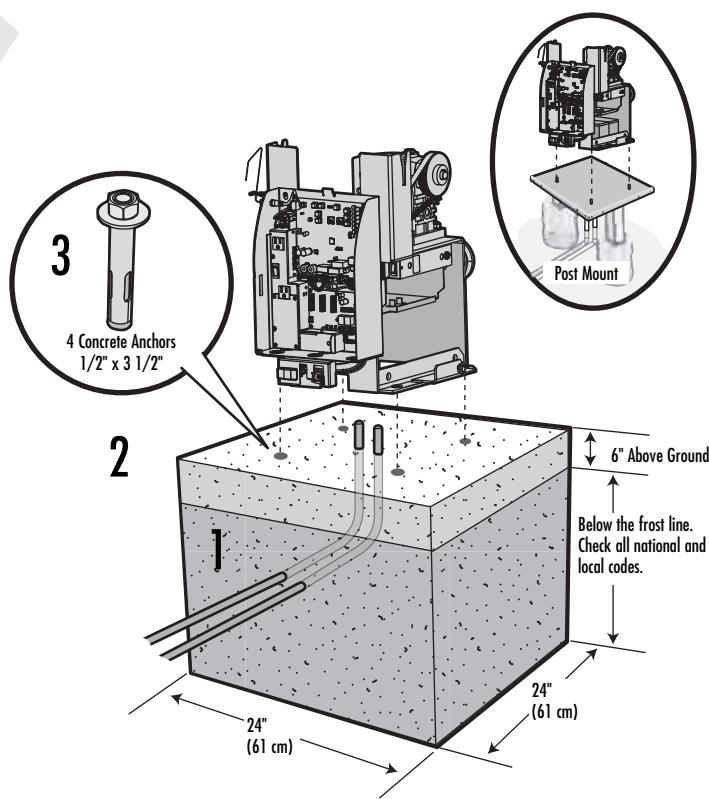
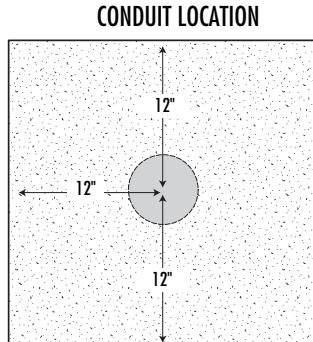
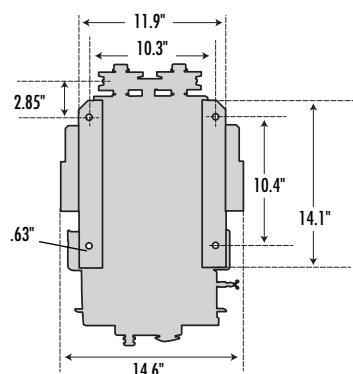
CONCRETE PAD AND OPERATOR ATTACHMENT

Check the national and local building codes before installation.

- 1 Install the electrical conduit.
- 2 Pour a concrete pad (reinforced concrete is recommended). The concrete pad should be 6 inches above the ground and deeper than the frost line.
- 3 Attach the operator to the concrete pad with appropriate fasteners.

NOTE: An alternative to a concrete pad is to post mount the operator (refer to accessories).

MOUNTING FOOTPRINT



INSTALLATION

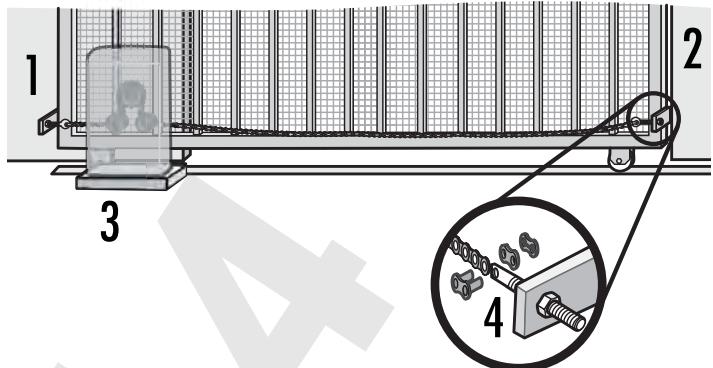
STANDARD INSTALLATION ONLY + REAR INSTALLATION ONLY

STANDARD INSTALLATION ONLY

DO NOT run the operator until instructed.

- 1 Open the gate and line up the front bracket so the chain will be level with the idler pulley and parallel to the ground. Weld the front bracket in this position.
- 2 Close the gate and line up the rear bracket so the chain will be level with the idler pulley and parallel to the ground. Weld the rear bracket in this position.
- 3 Route the chain through the operator.
- 4 Connect the chain to the brackets using the eye bolt hardware. Chain should not be too tight or have excessive slack.

NOTE: The chain should have no more than 1 inch of sag for every 10 feet of chain length.



REAR INSTALLATION ONLY

DO NOT run the operator until instructed.

NOTE: This installation will require two extra idler pulleys. Make sure all exposed pinch points are guarded. Refer to Gate Construction Information on page 4.

- 1 Move the back pulley to the bottom hole in the operator.
- 2 Close the gate and align the bottom bracket so the chain will be level with the bottom idler pulley and parallel to the ground. Weld the bottom bracket in this position.
- 3 Align the top bracket so the chain will be level with the top idler pulley and parallel to the ground. Weld the upper bracket in this position.
- 4 Route the chain through the operator.
- 5 Connect the chain to the brackets using the eye bolt hardware. Chain should not be too tight or have excessive slack.

The chain should have no more than 1 inch of sag for every 10 feet of chain length.

