**ELITE SERIES COMMERCIAL HIGH-TRAFFIC AC SWING GATE OPERATOR**

**INSTALLATION MANUAL**

**Model CSW200UL**

OPERATOR REQUIRES A LIFTMASTER EXTERNAL MONITORED ENTRAPMENT PROTECTION DEVICE BE INSTALLED IN ALL ENTRAPMENT ZONES

- THIS PRODUCT IS TO BE INSTALLED AND SERVICED 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, III and IV vehicular swing gate applications.
- Visit LiftMaster.com to locate a professional installing dealer in your area.
- This gate operator is compatible with MyQ® and Security+ 2.0® accessories.

Access installation and technical support guides or register this product

1. Take a photo of the camera icon including the points (Ø).
2. Send it in by texting the photo to 71403.

CSW200101UL
1 HP Single Phase

CSW200501UL
1/2 HP Single Phase

LiftMaster
300 Windsor Drive
Oak Brook, IL 60523
SAFETY SYMBOL AND SIGNAL WORD REVIEW

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.

SAFETY SYMBOL AND SIGNAL WORD REVIEW

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

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

IMPORTANT NOTE:

• BEFORE attempting to install, operate or maintain the operator, you must read and fully understand this manual and follow all safety instructions.

• DO NOT attempt repair or service of your gate operator unless you are an Authorized Service Technician.

SAFETY
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.

UL325 Entrapment Protection Requirements

- A minimum of two independent* monitored entrapment protection devices are required to be installed at each entrapment zone
- Every installation is unique. It is the responsibility of the installer to install external monitored entrapment protection devices in each entrapment zone
- This vehicular swing gate operator will operate only after installation of a minimum of two independent* monitored entrapment protection devices in either the open or close direction. If no entrapment zone exists in the other direction of gate travel, then the inherent (built into the operator) is all that is required in that direction.
- Entrapment protection device types include inherent (built into the operator), monitored external photoelectric sensors or monitored external edge sensors
- This operator is provided with an inherent entrapment protection device built into the operator that serves as one of the two independent devices

* Independent - the same type of device shall NOT be used for both entrapment protection devices.

IMPORTANT SAFETY INSTRUCTIONS

**WARNING**

To reduce the risk of 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 gate operator properly can increase the risk of INJURY or DEATH.
- Use the emergency release ONLY when the gate is not moving.
- KEEP GATES PROPERLY MAINTAINED. Read the owner’s manual. Have a qualified service person make repairs to gate hardware.
- The entrance is for vehicles ONLY. Pedestrians MUST use separate entrance.

**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 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:
   - Edges Sensors (contact)
   - Photoelectric Sensors
   - Vertical Posts
   - Instructional and Precautionary Signage

4. Install the gate operator only when:
   a. The operator is appropriate for the construction and the usage class of the gate.
   b. All exposed pinch points are eliminated or guarded, and guarding is supplied for exposed rollers.

5. The operator is intended for installation only on gates used for vehicles. Pedestrians must be supplied with a separate access opening. The pedestrian access opening shall be designed to promote pedestrian usage. Locate the gate such that persons will not come in contact with the vehicular gate during the entire path of travel of the vehicular gate.

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

7. The gate must be properly installed and work freely in both directions prior to the installation of the gate operator.

8. 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. 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 in the area of the gate. Each placard is to be visible by persons located on the side of the gate on which the placard is installed.

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. See Install Entrapment Protection section.
   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.
   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.
   d. 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 4 inches (10.1 cm) but less than 16 inches (406 mm) above the ground at any point in its arc of travel, one or more contact sensors shall be located on the bottom edge.
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, in accordance with the following.

1.8.1 Vehicular horizontal swing gate. Shall not result in continuous, unimpeded movement in either direction along the arc of its path of travel.

1.9 For pedestrian access in the vicinity of an automated vehicular gate, a separate pedestrian gate shall be provided. The pedestrian gate shall be installed in a location such that a pedestrian shall not come in contact with a moving vehicular access gate. A pedestrian gate shall not be incorporated into an automated vehicular gate panel.

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 When the gate operator requires replacement, the existing gate shall be upgraded to conform to the provisions of this specification.

2.4 When the gate of an automated gate system requires replacement, the new gate shall conform to the provisions of this specification.

3. Vehicular Horizontal Swing Gate

3.1 The following provisions shall apply to Class I, Class II and Class III vehicular horizontal swing gates:

3.1.1 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 3.1.1.1 and 3.1.1.2

3.1.1.1 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 center line of the pivot point of the gate. Exception: For a gate not in compliance with this provision, the defined area must be provided with entrapment protection per UL 325.

3.1.1.2 Except for the zone specified in Section 3.1.1.1, 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). Exception: For a gate not in compliance with this provision, the defined area must be provided with entrapment protection per UL 325.

3.2 Class IV vehicular horizontal swing gates shall be designed, constructed and installed in accordance with security related parameters specific to the application in question.
**INTRODUCTION**

**Carton Inventory**

NOT SHOWN: Documentation packet and hardware bag

**Tools Needed**

1/2" wrench for cover screw 5/16", 3/4" wrench for 1/2" concrete anchors, Screwdrivers (phillips head and flat head), Cable cutters and strippers
## Operator Specifications

<table>
<thead>
<tr>
<th>Usage Classification</th>
<th>Class I, II, III, &amp; IV</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Main AC Supply</strong></td>
<td>Model CSW200501UL 1/2 HP: 120 Vac, 6 Amps (12 Amps including accessory outlets)</td>
</tr>
<tr>
<td></td>
<td>Model CSW200101UL 1 HP: 120 Vac, 12 Amps (18 Amps including accessory outlets)</td>
</tr>
<tr>
<td></td>
<td>When Optional Transformer Kit Model 3PHCONV is installed in the field, operator is rated 208/240/480/575 VAC, 4.8/4.2/2.1/1.7 A, 60 Hz, 1 PH</td>
</tr>
<tr>
<td><strong>Accessory Power</strong></td>
<td>24 Vdc, 500 mA maximum</td>
</tr>
<tr>
<td><strong>Maximum Gate Weight/Length</strong></td>
<td>Model CSW200501UL 1/2 HP: 600 lbs. (272.2 kg), 20 feet (6.1 m)</td>
</tr>
<tr>
<td></td>
<td>Model CSW200101UL 1 HP: 1000 lbs. (453.6 kg), 22 feet (6.7 m)</td>
</tr>
<tr>
<td><strong>90 Degree Travel Time</strong></td>
<td>20 seconds</td>
</tr>
<tr>
<td><strong>Maximum Travel Range</strong></td>
<td>115 degrees</td>
</tr>
<tr>
<td><strong>Maximum Daily Cycle Rate</strong></td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Maximum Duty Cycle</strong></td>
<td>Continuous</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>Without Heater: -20°C to 60°C (-4°F to 140°F)</td>
</tr>
<tr>
<td></td>
<td>With Optional Heater: -40°C to 60°C (-40°F to 140°F)</td>
</tr>
<tr>
<td><strong>Expansion Board</strong></td>
<td>Provided</td>
</tr>
<tr>
<td><strong>External Entrapment Protection Device Inputs (non-contact and/or contact)</strong></td>
<td>Main board - up to 2 close entrapment protection devices and 1 open entrapment protection device.</td>
</tr>
<tr>
<td></td>
<td>Expansion board - up to 3 entrapment protection devices configurable to either close or open and up to 4 edge sensors using wireless edge sensor kit model LMWEKITU.</td>
</tr>
</tbody>
</table>

*Travel time and range are affected by A and B mounting dimensions, see INSTALLATION.*

### CSW200501UL 1/2 HP

- 27.6" (70.1 cm)
- 14.6" (37.6 cm)
- 18.8" (47.8 cm)
- 20.2" (51.3 cm)
- 16.4" (41.7 cm)
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).

**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.

**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.

**Check your gate**
Gate **MUST** be level. Gate and gate post **MUST** be plumb. Gate **MUST** have a smooth bottom edge, no protrusions should exist.

- Remove ANY/ALL wheels from the bottom of gate.
- Gate **MUST** NOT hit or drag across ground
- Gate **MUST** swing freely and be supported entirely by its hinges.
Types of Installations

Standard Installation
The illustration is an example of a standard installation.

Compact Installation
The illustration is an example of a compact installation. If the operator arm will hit an obstruction when the gate is in the open position, refer to LiftMaster.com for compact installation instructions. *Entrapment protection devices must be employed in this area.*
Step 1 Determine Location for Operator

DO NOT run the operator until instructed.
The illustration below shows the recommended dimensions for a standard installation. If these dimensions are not applicable for your installation refer to the chart on the following page for alternate dimensions.

**Standard Installation**
Refer to the illustration to determine the measurements and location of the concrete pad.

*NOTE: There should only be a maximum of 4" (10.2 cm) from the center of the hinge to the edge of the post or column. If the distance is greater than 4" (10.2 cm) entrapment protection for this area is required.*

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**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.
- DO NOT touch the heater when switch is on, heater may be hot.
Chart Installation
Refer to the illustration to determine the measurements and location of the concrete pad.

**NOTE:** There should only be a maximum of 4" (10.2 cm) from the center of the hinge to the edge of the post or column. If the distance is greater than 4" (10.2 cm), entrapment protection for this area is required.

If this dimension is between 20" (50.8 cm) and 32" (81.3 cm), a compact installation is necessary. Refer to LiftMaster.com for compact installation instructions.

Dimension (A) thru (E) are from the center of one pivot point to the center of another pivot point.

**Caution:** If the gate is longer than 18 feet (5.5 m), follow **CHART A: A-2**.

**Suggestion:** The dimensions between the gate and the concrete pad is always 10 inches (25.4 cm) less than the dimension D.

**Example:** D = 42" (106.7 cm), if the dimensions between the gate and the concrete pad is 32" (81.3 cm).

### Chart A

<table>
<thead>
<tr>
<th>A (ft)</th>
<th>B (ft)</th>
<th>C (ft)</th>
<th>D (ft)</th>
<th>E (ft)</th>
<th>Distance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>46&quot;</td>
<td>35.5&quot;</td>
<td>29.5&quot;</td>
<td>35&quot;</td>
<td>11&quot;</td>
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<tr>
<td>2</td>
<td>46.8&quot;</td>
<td>35.5&quot;</td>
<td>33.5&quot;</td>
<td>42&quot;</td>
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<tr>
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<td>46.8&quot;</td>
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<td>31.5&quot;</td>
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<td>47.3&quot;</td>
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<td>42.5&quot;</td>
<td>33&quot;</td>
<td>26.5&quot;</td>
<td>28.5&quot;</td>
<td>11&quot;</td>
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</table>

### Chart B

<table>
<thead>
<tr>
<th>A (ft)</th>
<th>B (ft)</th>
<th>C (ft)</th>
<th>D (ft)</th>
<th>E (ft)</th>
<th>Distance</th>
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<td>39&quot;</td>
<td>27.5&quot;</td>
<td>28.5&quot;</td>
<td>14&quot;</td>
</tr>
</tbody>
</table>
Step 2 Install the Operator

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 (15.2 cm) above the ground and deeper than the frost line. Ensure the pad is tall enough to avoid possible flooding.
3. Secure the operator to the concrete pad with appropriate fasteners.

**NOTE:** An alternative to a concrete pad is to post mount the operator, see Accessories.
**Step 3 Position Gate Bracket**

*NOTE:* It may be necessary to attach horizontal reinforcement to the gate before attaching the gate bracket.

1. Position the operator arm onto the output shaft so that the pin slides into the slot.
2. Measure 46” (116.8 cm) along the gate length from the gate hinge center.
3. Measure 27.5” (69.9 cm) up from the concrete pad to the gate hinge position on the gate as shown.
4. Make sure the operator arm is level and tack weld the gate bracket in this position. Use the set screws on the arm to temporarily hold the arm in place while determining the correct measurements.

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**Step 4 Adjust the Operator Arm Length**

*NOTE:* The length of the arm can be adjusted if necessary. If adjusting the length, ensure that both sections of the arm are adjusted proportionally. Use the set screws on the arm to temporarily hold the arm in place while determining the correct measurements.

1. Close the gate and measure the distance of the operator arm from the gate bracket to the output shaft center. This distance is E.
2. Open the gate 90° (do not allow arms to scissor when open). Measure both sections of the arm (D and C). The arm lengths are correct as long as C+D=E (arm should be perpendicular to the gate in the open position as shown).
**Step 5 Secure the Operator Arm**

Once the operator arm measurements are verified:

1. Weld the gate bracket to the gate.
2. Weld the short arm section.
3. Weld the long arm section.
4. Remove the set screws from the arm. **NOTE:** Completely weld around the outer tubing and bracket.
5. Adjust the nuts on the operator arm so the operator arm fits snug on the output shaft yet still allows enough room to swivel (the handle must be in a 90° position).
6. Tighten the handle by pushing it down. Test to make sure the operator arm does not slip on the output shaft.
Step 6 Install Entrapment Protection

Entrapment protection MUST be installed according to the following UL 325 requirements:

- Swing gate operators require the installation of the first external monitored entrapment protection device to function.
- Every installation is unique. It is the responsibility of the installer to ensure that ALL entrapment zones are protected with an external monitored entrapment protection device, protecting both the open and close gate cycles.
- LiftMaster monitored external entrapment protection devices MUST be used with LiftMaster operators to meet UL325 requirements, see Accessories.
- Test ALL entrapment protection devices after completing installation of the operator. For testing instructions, refer to the manual provided with your entrapment protection device.

Definitions

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

SWING GATE ENTRAPMENT ZONE: Locations between a moving gate or moving, exposed operator components and a counter opposing edge or surface where entrapment is possible up to 1.8 m (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 101.6 mm (4 in) and less than 406 mm (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 101.6 mm (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).

Illustrations provided by DASMA Gate Systems Safety Guide
Wire Entrapment Protection Devices

There are three options for wiring the entrapment protection devices depending on the specific device and how the device will function. Refer to the specific entrapment protection device manual 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. Additional entrapment protection devices may be wired to the expansion board.

Control Board

CLOSES EYES/INTERRUPT
(2 Terminals) The CLOSE EYES/INTERRUPT 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.

CLOSE EDGE
(2 Terminals) The CLOSE EDGE 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 EYES/EDGE
(2 Terminals) The OPEN EYES/EDGE input is for photoelectric sensor or 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.

Expansion Board

EYE ONLY and COM
Open or Close Direction Photoelectric Sensors, the functionality is based on the switch settings (located next to the terminals)
Switch set to CLOSE: gate reverses fully when an obstruction is sensed
Switch set to OPEN: gate reverses 4 seconds when an obstruction is sensed

EYE/EDGE and COM
Open or Close Direction Photoelectric Sensors or Edge Sensor, the functionality is based on the switch settings (located next to the terminals)
Switch set to CLOSE: gate reverses fully when an obstruction is sensed
Switch set to OPEN: gate reverses 4 seconds when an obstruction is sensed
Step 7 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.

Step 8 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 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.
- 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.

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. An optional Transformer Kit (Model 3PHCONV) can be used to change the input voltage (208/240/480/575 Vac) to an output voltage of 120 Vac (refer to Accessories).

**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.

### MAXIMUM WIRE LENGTH (FEET)

<table>
<thead>
<tr>
<th>AMERICAN WIRE GAUGE (AWG)</th>
<th>1/2 HP STANDARD OPERATOR</th>
<th>1.0 HP STANDARD OPERATOR</th>
<th>TRANSFORMER KIT POWERING OPERATOR AND PARTIAL LOAD OF 120 VAC ACCESSORIES</th>
</tr>
</thead>
<tbody>
<tr>
<td>120 VAC, 12A (includes fully loaded outlets)</td>
<td>120 VAC, 6A (operator only)</td>
<td>120 VAC, 18A (includes fully loaded outlets)</td>
<td>120 VAC, 12A (operator only)</td>
</tr>
<tr>
<td>208 VAC, 4.8A</td>
<td>240 VAC, 4.2A</td>
<td>480 VAC, 2.1A</td>
<td>575 VAC, 1.7A</td>
</tr>
<tr>
<td>14</td>
<td>85 (25.9 m)</td>
<td>165 (50.3 m)</td>
<td>55 (16.8 m)</td>
</tr>
<tr>
<td>12</td>
<td>130 (39.6 m)</td>
<td>260 (79.2 m)</td>
<td>90 (27.4 m)</td>
</tr>
<tr>
<td>10</td>
<td>210 (64 m)</td>
<td>420 (128 m)</td>
<td>140 (42.7 m)</td>
</tr>
<tr>
<td>8</td>
<td>330 (100.6 m)</td>
<td>670 (204.2 m)</td>
<td>220 (67.1 m)</td>
</tr>
<tr>
<td>6</td>
<td>530 (161.5 m)</td>
<td>1,060 (323.1 m)</td>
<td>350 (106.7 m)</td>
</tr>
<tr>
<td>4</td>
<td>850 (259.1 m)</td>
<td>1,700 (518.2 m)</td>
<td>560 (170.7 m)</td>
</tr>
</tbody>
</table>

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.

Power wiring
1. Make sure the AC power switch on the operator is OFF (the AC power switch will turn the incoming 120 Vac power ON or OFF).
2. Turn off the AC power from the main power source circuit breaker.
3. Run the AC power wires to the junction box on the operator.
4. Remove the junction box cover.
5. Connect the green wire to the earth ground rod and AC ground using a wire nut. **NOTE:** The earth ground rod can be grounded to the chassis.
6. Connect the white wire to NEUTRAL using a wire nut.
7. Connect the black wire to HOT using a wire nut.
8. Replace the junction box cover. Ensure the wires are not pinched.
9. Turn on the AC power from the main power source circuit breaker.
10. Turn on the AC power switch.
Step 9 Dual Gate Setup

There are two options for dual gate communication: wired or wireless. Follow the directions according to your application. Do not use wired and wireless communication simultaneously.

Wireless setup

To activate the wireless feature:

1. Choose an operator to be the network primary operator. All wireless accessories will need to be programmed to the primary operator. **NOTE**: We recommend that all accessories and board configurations are set on the primary operator.
2. Press and release the LEARN button on the primary operator. The green XMITTER LED will light. **NOTE**: The operator will time out of programming mode after 180 seconds.
3. Press and release the LEARN button again on the primary operator. The yellow NETWORK LED will light.
4. Press and release the OPEN test button to assign this operator as network primary.
5. Press and release the LEARN button on the second operator. The green XMITTER LED will light.
6. Press and release the LEARN button again on the second operator. The yellow NETWORK LED will light.
7. Press and release the CLOSE test button to assign this operator as network second.

Both operators will beep and the yellow NETWORK LEDs will turn off indicating programming is successful.

To deactivate the wireless feature:

1. Press and release the LEARN button on either operator. The green XMITTER LED will light.
2. Press and release the LEARN button again on the same operator. The yellow NETWORK LED will light.
3. Press and hold the LEARN button for 5 seconds. The yellow NETWORK LED will blink (operator will beep) then turn off indicating successful deactivation.
4. Repeat the steps for the other operator.
**Wired setup**

Before digging, contact local underground utility locating companies. Use PVC conduit to prevent damage to cables.

1. **Disconnect ALL power to the operator.**
2. Trench across driveway to bury the shielded twisted pair cable.
3. Connect the wires from the shielded twisted pair cable to the Com Link terminals on the primary gate operator control board. **NOTE:** We recommend that all accessories and board configurations are set on the primary operator.
4. Route the shielded twisted pair cable to the secondary gate operator’s control board.
5. Connect the wires from the shielded twisted pair cable to the Com Link terminals on the secondary control board (Com Link A to Com Link A and Com Link B to Com Link B). Ground the shield of the cable to the chassis ground of one operator.
6. **Connect ALL power to the operator.**

**Bipart delay/synchronized close**

The LOCK/BIPART DELAY switch is used only with dual gate applications and serves two functions:

- **BIPART DELAY**
  - **SWING GATE APPLICATIONS:** The BIPART DELAY is used in applications where a mag-lock, solenoid lock, or decorative overlay would require one gate to close before the other. The operator with the LOCK/BIPART DELAY switch ON will delay from the close limit when opening and be the first to close from the open limit.
  - **SLIDE GATE APPLICATIONS:** Not applicable, set to OFF.

- **SYNCHRONIZED CLOSE**
  - The BIPART DELAY is also used in applications where one gate travels a longer distance than the other. To synchronize the closing of the gates, set the LOCK/BIPART DELAY switch to ON for both operators.
Step 10 Install the Cover

Before installing the cover, follow the instructions in the Adjustment section to set the handing and limits.
The operator cover consists of two pieces: a rear cover and a front cover. The front cover can easily be removed to access the electrical box. To access the reset switch slide the access door up. The front cover and access door can be locked with the key.

1/2 HP
1. Remove the operator arm from the output shaft by releasing the handle.
2. Place the rear cover over the operator.
3. Secure both sides of the rear cover to the chassis with the provided screws.
4. Reattach the operator arm to the output shaft (making sure the pin fits into the slot) and secure by pushing the handle down.
5. Place the operator arm cover over the operator arm and secure.
6. Align the front cover with the back cover and fit the front cover into the grooves of the back cover.
7. Secure both sides of the front cover to the chassis with the provided screws.

TO LOCK THE ACCESS DOOR
From the factory the access door for the reset switch will not be locked. To lock the access door follow the steps below:
1. Locate the lock tab on the back of the front cover and remove the screw securing the tab to the cover.
2. Turn the tab 180 degrees, then secure with the screw. The access door can now be locked.

1 HP
1. Remove the operator arm from the output shaft by releasing the handle.
2. Place the rear cover over the operator.
3. Secure both sides of the rear cover to the chassis with the provided screws.
4. Reattach the operator arm to the output shaft (making sure the pin fits into the slot) and secure by pushing the handle down.
5. Place the operator arm cover over the operator arm and secure.
6. Secure the front cover to the back cover.
ADJUSTMENT

Adjust the Handing and Limits

⚠️ 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.

The adjustments allow you to set where the gate will stop in the open and close position. The force is adjusted automatically when you set the limits but should be fine tuned using the FORCE dial on the control board (refer to Force Dial section). The Test Buttons on the control board will not work until the handing is set. For dual gate applications the limits will have to be set for each operator. The gate MUST be attached to the operator before setting the limits and force.

OPEN RIGHT: If the operator is installed on the right side of the driveway when looking out of the property, the gate should be set to open right.

OPEN LEFT: If the operator is mounted on the left side of the driveway when looking out of the property, the gate should be set to open left.

Set the handing

1. To set the initial handing of the operator, make sure that both OPEN LEFT and OPEN RIGHT LEDs are flashing. If they are not flashing, press and hold both the OPEN LEFT and OPEN RIGHT handing buttons until both handing LEDs start to flash and the operator beeps.

2. Press and release either the OPEN RIGHT or OPEN LEFT button depending on which direction the gate should open. The corresponding handing LED will turn solid.

To relearn the handing, repeat the steps above.

Set the limits

1. Make sure the gate is closed.
2. Press and release the OPEN test button to open the gate.
3. Press the STOP test button when the desired OPEN limit is reached. Adjust the limit nut or cam so it makes contact with the OPEN limit switch at this position. If the gate stops early, move the limit nut or cam to allow for additional travel.
4. Press and release the CLOSE test button to close the gate.
5. Press the STOP test button when the desired CLOSE limit is reached. Adjust the limit nut or cam so it makes contact with the CLOSE limit switch at this position. If the gate stops early, move the limit nut to allow for additional travel.

Set the Force and Run Distance

1. Press the OPEN test button to open the gate.
2. Press and release both the OPEN LEFT and OPEN RIGHT handing buttons.
3. Press the handing button below the solid LED.
4. Run the operator one full cycle using the test buttons. The initial forces and run distance will be set during this cycle.

<table>
<thead>
<tr>
<th>HAN DING LEDs</th>
<th>OPERATION MODE</th>
<th>EXPLANATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN LEFT LED</td>
<td>OPEN RIGHT LED</td>
<td>OPERATOR MODE</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>NORMAL MODE</td>
</tr>
<tr>
<td>BLINKING</td>
<td>BLINKING</td>
<td>HANDING SETUP MODE</td>
</tr>
<tr>
<td>BLINKING</td>
<td>ON</td>
<td>HANDING SETUP MODE</td>
</tr>
<tr>
<td>ON</td>
<td>BLINKING</td>
<td>HANDING SETUP MODE</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>NORMAL MODE</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>NORMAL MODE</td>
</tr>
</tbody>
</table>

NOTE: The OPEN limit switch is always on the top and the CLOSE limit switch is always on the bottom.
Readjust the Limits
To readjust the limits, follow the “Set the Limits” and “Set the Force and Run Distance” instructions above. It is important that the force and run distance are set after every limit readjustment.

Fine Tune the Force
Once the initial limits have been set, the REVERSAL FORCE DIAL on the control board is used for fine tuning the force where wind or environmental changes may affect the gate travel. The REVERSAL FORCE DIAL is set to minimum at the factory.

Based on the length and weight of the gate it may be necessary to make additional force adjustments. 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. The force setting is the same for both the open and close gate directions.

Settings 1-3: Fixed force settings (the force will not adjust due to gate wear or temperature changes)
Settings 4-10: Automatically increase the force due to gate wear or temperature changes
1. Open and close the gate with the TEST BUTTONS.
2. If the gate stops or reverses before reaching the fully open or closed position, increase the force by turning the force control slightly clockwise.
3. Perform the “Obstruction Test” after every limit and force setting adjustment (see below).

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 TEST BUTTONS, ensuring that the gate is stopping at the proper open and close limit positions.
2. Place an object between the open gate and a rigid structure. Make sure that any external entrapment protection devices will NOT be activated by the object.
3. Run the gate in the close direction. The gate should stop and reverse upon contact with the object. If the gate does not reverse off the object, reduce the force setting by turning the force control slightly counter-clockwise. The gate should have enough force to reach both the open and close limits, but MUST reverse after contact with an object.
4. Repeat the test for the open direction.

Test the operator after any adjustments are made.
OPERATOR OVERVIEW

MANUAL RELEASE HANDLE
Pull the manual release handle to manually open and close the gate.

LIMIT SWITCHES
Page 22

AC POWER SWITCH
The AC Power switch on the operator will turn the incoming 120 Vac power ON or OFF.

RESET BUTTON
- Press the reset button to stop a moving gate during a normal open/close cycle, like a stop button.
- Press the reset button once while the gate is in open position to disable the Timer-to-Close. The gate will stay in the open position. To restart the Timer-to-Close either press the reset button or activate the gate with a programmed remote control.
- Press the reset button to shut off the alarm and reset the operator.
Learn Button
The LEARN button is used for programming (refer to Programming).

Diagnostic Display
The diagnostic display will show the operator type, firmware version, and codes. The operator type will display as “SG” followed by a “20” which indicates the operator type as CSW200UL. The firmware version will show after the operator type, example “1.2”. For more information about the codes refer to the Troubleshooting section.

Handing Buttons
The handing buttons are used to determine which direction the gate will open and they are also used to set the limits (refer to the Adjustment section).
OPEN RIGHT: If the operator is installed on the right side of the drive when looking out of the property, a swing gate will swing to the right (turn counter clockwise) when opening and a slide gate will slide to the right when opening.
OPEN LEFT If the operator is mounted on the left side of the drive when looking out of the property, a swing gate will swing to the left (turn clockwise) when opening and a slide gate will slide to the left when opening.
NOTE: For gates installed on the outside of the property, the setting will be opposite. Determine the direction by looking towards the property from the outside.

Bipart Delay
Used in dual gate applications where a maglock, solenoid lock, or decorative overlay would require one gate to close before the other. The BIPART DELAY is also used in applications where one gate travels a longer distance than the other.
ON/OFF: The operator with the BIPART DELAY dial ON will delay from the close limit when opening and be the first to close from the open limit.
BOTH OFF: No affect.
BOTH ON: No affect.

Timer-to-Close (TTC)
The TTC is factory set to OFF (0). Rotate the TIMER-TO-CLOSE dial to the desired setting (0 to 180 seconds). Any radio command, single button control, or CLOSE command on the control board prior to the TTC expiring will close the gate. The TTC is reset by any signals from the open controls, loops, close edges, and close photoelectric sensors.
0 seconds (OFF): The gate will remain open until the operator receives another command from a control.
1-180 seconds (ON): The gate will automatically close after the specified time period.
**CONTROL BOARD OVERVIEW**

**Reversal Force Dial**
The REVERSAL FORCE dial adjusts the force. See the *Adjustment* section.

**Settings 1-3:** Fixed force settings (the force will not adjust due to gate wear or temperature changes)

**Settings 4-10:** Automatically increase the force due to gate wear or temperature changes

![Image of Reversal Force Dial]

**Test Buttons**
Used to operate the gate (OPEN, STOP and CLOSE). Also used to view the code history (refer to the Troubleshooting section).

![Image of Test Buttons]

**Status LEDs**

<table>
<thead>
<tr>
<th>LED</th>
<th>STATE</th>
<th>DEFINITION</th>
</tr>
</thead>
<tbody>
<tr>
<td>INPUT POWER</td>
<td>OFF</td>
<td>Off state</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>AC power available</td>
</tr>
<tr>
<td>TIMER</td>
<td>OFF</td>
<td>The timer is disabled</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>The timer is enabled</td>
</tr>
<tr>
<td></td>
<td>1 blink/second</td>
<td>The timer is running</td>
</tr>
<tr>
<td></td>
<td>2 blinks/second</td>
<td>The timer is paused</td>
</tr>
<tr>
<td></td>
<td>8 blinks/second</td>
<td>The timer is cancelled</td>
</tr>
<tr>
<td>GATE MOVING</td>
<td>OFF</td>
<td>The gate is stopped</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>The gate is opening or closing</td>
</tr>
<tr>
<td></td>
<td>1 blink/second</td>
<td>E1 (single entrapment)</td>
</tr>
<tr>
<td></td>
<td>8 blinks/second</td>
<td>E2 (double entrapment)</td>
</tr>
<tr>
<td>ACC PWR OVLD</td>
<td>OFF</td>
<td>Accessory power is okay</td>
</tr>
<tr>
<td></td>
<td>ON</td>
<td>Accessory overload protector opened</td>
</tr>
</tbody>
</table>
WIRE ACCESSORIES TO CONTROL BOARD

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.

Three Button Control Station

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>OPEN and COMM</td>
<td>Opens a closed gate. Hard open (maintained switch overrides external safeties and resets alarm condition). If maintained, pauses Timer-to-Close at OPEN limit. Opens a closing gate and holds open an open gate (within line-of-sight).</td>
<td>![Diagram]</td>
</tr>
<tr>
<td>CLOSE and COMM</td>
<td>Closes an open gate. Hard close (maintained switch overrides external safeties and resets alarm condition within line-of-sight)</td>
<td></td>
</tr>
<tr>
<td>STOP and COMM</td>
<td>Stops a moving gate. Hard stop (maintained switch overrides Open and Close commands and resets alarm condition). If maintained, cancels Timer-to-Close at OPEN limit. Overrides Open and Close commands (within line-of-sight).</td>
<td></td>
</tr>
</tbody>
</table>

Fire Department

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>FIRE DEPT (+) and OPEN (+)</td>
<td>FIRE DEPT and OPEN terminals act as a hard open. Maintained input overrides (ignores) external safeties (photoelectric sensor and edge), pauses Timer-to-Close. Momentary input logic as single button control and safeties remain active, re-enables Timer-to-Close.</td>
<td>![Diagram]</td>
</tr>
</tbody>
</table>

External Control Devices

These terminals are used for connecting loops and various control devices such as telephone entry keypads, vehicle probes, etc. Connect the accessory to the terminals based on how the accessory should function.

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
</table>
| EXIT and COM    | This input is a soft open command (maintained switch does not override external safeties and does not reset alarm condition). Used for exit probe, telephone entry, external exit loop detector, or any device that would command the gate to open.  
  - Opens a closing gate and holds open an open gate, if maintained, pauses Timer-to-Close at OPEN limit. | ![Diagram]     |
| SHADOW and COM  | This input is used for external shadow loop detector when loop is positioned under the swing of the gate.  
  - Holds open gate at open limit  
  - Only active when the gate is at the OPEN limit, disregarded at all other times  
  - Pauses Timer-to-Close at OPEN limit | ![Diagram]     |
| INTERRUPT and COM | This input is used for photoelectric sensors and external interrupt loop detector when loop is on the outside of the gate.  
  - Holds open gate at open limit  
  - Stops and reverses a closing gate to open limit  
  - Pauses Timer-to-Close at OPEN limit, activates quick close and anti-tailgate features when enabled on the expansion board | ![Diagram]     |
Photoelectric Sensors and Edge Sensors

The EYES/EDGE terminals are used for connecting entrapment protection devices. At least one external monitored entrapment protection devices are required prior to gate movement. Monitored entrapment protection devices should have been installed with the operator at the time of installation. Only ONE monitored device may be connected to each input. A monitored device sends a pulsed signal to the operator so the operator is aware of the device. If the operator does not receive the signal from the device indicating it is working properly, it will not run in that direction.

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOSE EYES/INTERRUPT</td>
<td>The CLOSE EYES/INTERRUPT input is for close direction photoelectric sensors. When an obstruction is sensed during gate closing the gate will open to the full open position. This input will be disregarded during gate opening and resets the Timer-to-Close.</td>
<td><img src="image" alt="Wiring Diagram" /></td>
</tr>
<tr>
<td>CLOSE EDGE</td>
<td>The CLOSE EDGE input is for the close direction edge sensors. 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.</td>
<td></td>
</tr>
<tr>
<td>OPEN EYES/EDGE</td>
<td>The OPEN EYES/EDGE input is for open direction photoelectric sensors or edge sensors. 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.</td>
<td></td>
</tr>
</tbody>
</table>

Locks

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NC and COM</td>
<td>Normally Closed (N.C.) output for maglocks. Relay activates prior to motor activation and during motor run. Relay is off when motor is off.</td>
<td><img src="image" alt="Maglock Wiring" /></td>
</tr>
</tbody>
</table>
**CAUTION**

- To AVOID damaging the circuit board, relays or accessories, DO NOT connect more than 42 Vdc (32 Vac) to the AUX relay contact terminal blocks.

---

**EXIT FAIL Switch**

OPEN: If the EXIT plug-in loop detector (model LOOPDETLM) detects a fault, then the gate will open and remain open until fault is cleared.

CLOSE: If the EXIT plug-in loop detector (model LOOPDETLM) detects a fault, faults are ignored (EXIT loop is faulted and inoperative).

**AC FAIL Switch**

NOT USED

**ANTI TAIL Switch**

OFF: When CLOSE EYES/Interrupt loop is activated it causes a closing gate to stop and reverse.

ON: When CLOSE EYES/Interrupt loop is activated it causes a closing gate to pause. Once the vehicle is clear the gate will continue to close.

**QUICK CLOSE Switch**

OFF: No change to the gate’s normal operation.

ON: When CLOSE EYES/Interrupt loop is deactivated it causes an opening or a stopped gate to close (ignores the Timer-to-Close).
**EXPANSION BOARD OVERVIEW**

**Auxiliary Relay 1 and 2**

Normally Open (N.O.) and Normally Closed (N.C.) relay contacts to control external devices, for connection of Class 2, low voltage (42 Vdc [34 Vac] max 5 Amps) power sources only. Function of relay contact activation determined by switch settings.

<table>
<thead>
<tr>
<th>AUX RELAY SETTING</th>
<th>SWITCH SETTINGS</th>
<th>AUX RELAY 1</th>
<th>AUX RELAY 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Off (no feature selected)</td>
<td>OFF OFF OFF</td>
<td>Relay always off.</td>
<td></td>
</tr>
<tr>
<td>Open Limit Switch</td>
<td>OFF OFF ON</td>
<td>Energizes at open limit. Use with SAMS (Sequenced Access Management System, jointly with barrier gate).</td>
<td></td>
</tr>
<tr>
<td>Close Limit Switch</td>
<td>OFF ON OFF</td>
<td>Energizes when not at close limit. For an additional audible or visual display, connect an external light (low voltage).</td>
<td></td>
</tr>
<tr>
<td>Gate Motion</td>
<td>OFF ON ON</td>
<td>Energizes when motor is on (gate in motion). For an additional audible or visual display, connect an external buzzer or light (low voltage).</td>
<td>Energizes 3 seconds before gate motion and remains energized during gate motion. The onboard alarm will sound. For an additional audible or visual display, connect an external buzzer or light (low voltage).</td>
</tr>
<tr>
<td>Pre-Motion Delay</td>
<td>ON OFF OFF</td>
<td>Energizes 3 seconds before gate motion and remains energized during gate motion. The onboard alarm will sound. For an additional audible or visual display, connect an external buzzer or light (low voltage).</td>
<td></td>
</tr>
<tr>
<td>Power</td>
<td>ON ON OFF</td>
<td>Not used.</td>
<td></td>
</tr>
<tr>
<td>Tamper</td>
<td>ON OFF ON</td>
<td>Energizes if gate is manually tampered with by being pushed off of close limit. For an additional audible or visual display, connect an external buzzer or light (low voltage).</td>
<td></td>
</tr>
<tr>
<td>Cycle Quantity Feedback*</td>
<td>ON ON ON</td>
<td>The 1, 2, and 3 LEDs will blink out the cycle count (cycle count is stored on the control board). See below.</td>
<td>Red/green light functionality, see below.</td>
</tr>
</tbody>
</table>

* Cycle count

First, note the current Aux Relay switch positions. To determine the actual cycles that the gate operator has run (in thousands), set all three Aux Relay switches to the ON setting for Aux Relay 1. The Expansion Board's 1, 2, and 3 LEDs will blink out the cycle count, with 1 LED blinking 1000's, 2 LED blinking 10,000's, 3 LED blinking 100,000's, and simultaneously all three LED's blink 1,000,000's (e.g. 1 LED blinks 3 times, 2 LED blinks 6 times, and 3 LED blinks once. Cycle count is 163,000.). Cycle count displayed is between 1,000 and 9,999,999 cycles. After servicing, set Aux Relay switches back to their appropriate positions. Cycle count cannot be reset or changed. If under 1,000 cycles the 1, 2, and 3 LEDs will turn on for 10 seconds, then turn off.

**NOTE:** The expansion board will flash the cycle count 3 times then all the LEDs will turn on solid for 10 seconds then turn off.

**Auxiliary relay wiring example**

![Auxiliary relay wiring diagram](image)

<table>
<thead>
<tr>
<th>GATE STATE</th>
<th>AUX RELAY 1 SWITCHES</th>
<th>AUX RELAY 2 SWITCHES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Closed</td>
<td>Red light OFF*</td>
<td>Green light OFF</td>
</tr>
<tr>
<td>Opening</td>
<td>Red light ON/Flash</td>
<td>Green light ON</td>
</tr>
<tr>
<td>Open</td>
<td>Red light OFF</td>
<td>Green light ON</td>
</tr>
<tr>
<td>Closing</td>
<td>Red light ON/Flash</td>
<td>Green light OFF</td>
</tr>
<tr>
<td>Defined Mid Stop</td>
<td>n/a</td>
<td>n/a</td>
</tr>
<tr>
<td>Undefined Mid Stop</td>
<td>Red light ON</td>
<td>Green light OFF</td>
</tr>
<tr>
<td>Timer more than 5 seconds</td>
<td>Red light OFF</td>
<td>Green light ON</td>
</tr>
<tr>
<td>Timer less than 5 seconds</td>
<td>Red light ON/Flash</td>
<td>Green light OFF</td>
</tr>
</tbody>
</table>

* For red light ON when gate is closed, set switch 1 on AUX RELAY 1 to ON

![Traffic light wiring diagram](image)

**CLASS 2 POWER SOURCE**

(42 Vdc [34 Vac], 5 A maximum)
Photoelectric Sensors and Edge Sensors

The EYES/EDGE terminals are used for connecting entrapment protection devices. **At least one external monitored entrapment protection devices are required prior to gate movement.** Monitored entrapment protection devices should have been installed with the operator at the time of installation. Only ONE monitored device may be connected to each input. A monitored device sends a pulsed signal to the operator so the operator is aware of the device. If the operator does not receive the signal from the device indicating it is working properly, it will not run in that direction.

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EYE ONLY and COM</td>
<td>Open or Close Direction Photoelectric Sensors, the functionality is based on the switch settings (located next to the terminals)</td>
<td><img src="image1" alt="WIRING EXAMPLE" /></td>
</tr>
<tr>
<td></td>
<td><strong>Switch set to CLOSE</strong>: gate reverses fully when an obstruction is sensed</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Switch set to OPEN</strong>: gate reverses 4 seconds when an obstruction is sensed</td>
<td></td>
</tr>
<tr>
<td>EYE/EDGE and COM</td>
<td>Open or Close Direction Photoelectric Sensors or Edge Sensor, the functionality is based on the switch settings (located next to the terminals)</td>
<td><img src="image2" alt="WIRING EXAMPLE" /></td>
</tr>
<tr>
<td></td>
<td><strong>Switch set to CLOSE</strong>: gate reverses fully when an obstruction is sensed</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Switch set to OPEN</strong>: gate reverses 4 seconds when an obstruction is sensed</td>
<td></td>
</tr>
<tr>
<td>EYE/EDGE and COM</td>
<td>Open or Close Direction Photoelectric Sensors or Edge Sensor, the functionality is based on the switch settings (located next to the terminals)</td>
<td><img src="image3" alt="WIRING EXAMPLE" /></td>
</tr>
<tr>
<td></td>
<td><strong>Switch set to CLOSE</strong>: gate reverses fully when an obstruction is sensed</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>Switch set to OPEN</strong>: gate reverses 4 seconds when an obstruction is sensed</td>
<td></td>
</tr>
</tbody>
</table>

**Control Station**

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>SBC and COM</td>
<td>• Gate command sequence - Open, Stop, Close, Stop, ...</td>
<td><img src="image4" alt="WIRING EXAMPLE" /></td>
</tr>
<tr>
<td></td>
<td>• Soft Open, Soft Close, Soft Stop (maintained switch does not override external safeties and does not reset alarm condition)</td>
<td></td>
</tr>
<tr>
<td>OPEN and COM</td>
<td>• Open command - opens a closed gate</td>
<td><img src="image5" alt="WIRING EXAMPLE" /></td>
</tr>
<tr>
<td></td>
<td>• Soft open (maintained switch does not override external safeties and does not reset alarm condition)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If maintained, pauses Timer-to-Close at OPEN limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Opens a closing gate and holds open an open gate</td>
<td></td>
</tr>
<tr>
<td>CLOSE and COM</td>
<td>• Close command - closes an open gate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Soft close (maintained switch does not override external safeties and does not reset alarm condition)</td>
<td></td>
</tr>
<tr>
<td>STOP and COM</td>
<td>• Stop command - stops a moving gate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If maintained, pauses Timer-to-Close at OPEN limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Overrides an Open or Close command</td>
<td></td>
</tr>
</tbody>
</table>
Loops

<table>
<thead>
<tr>
<th>TERMINALS</th>
<th>FUNCTION</th>
<th>WIRING EXAMPLE</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXIT</td>
<td>Loop wire connection for plug-in loop detector when loop is inside secured area near gate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Open command - opens a closed gate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Soft open (maintained switch does not override external safeties and does not reset alarm condition)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• If maintained, pauses Timer-to-Close at OPEN limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Opens a closing gate and holds open an open gate</td>
<td></td>
</tr>
<tr>
<td>SHADOW</td>
<td>Loop wire connection for plug-in loop detector when loop is positioned under the gate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Holds open gate at open limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Disregarded during gate motion</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pauses Timer-to-Close at Open Limit</td>
<td></td>
</tr>
<tr>
<td>INTERRUPT</td>
<td>Loop wire connection for plug-in loop detector when loop is on the outside of the gate.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Holds open gate at open limit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Stops and reverses a closing gate</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Pauses Timer-to-Close at Open Limit</td>
<td></td>
</tr>
</tbody>
</table>

ADDITIONAL WIRING

SAMS Wiring With Relays Not Energized
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.

Field Wiring

**WARNING**

**CONTROL BOARD**

**OPEN and COM**: Hard Open (line-of-sight)

**CLOSE and COM**: Hard Close (line-of-sight)

**STOP and COM**: Hard Stop (line-of-sight)

**EXIT**: Soft Open (used for exit probe, telephone entry, external exit loop detector, or any device that would command the gate to open)

**EDGES SENSOR**: for CLOSE cycle

**EDGES SENSOR**: for OPEN cycle

**SHIELD TWISTER PAIR CABLE**: (Primary/Secondary link to other gate operator) (Ground the shield of the cable to the chassis ground of each operator)

**Maglock (Optional)**

**NOTES**:
- These switches determine if the corresponding photoelectric sensor or edge sensor will function for the OPEN or CLOSE cycle.
- These switches control how the Auxiliary Relays will function.
Remote Controls (Not Provided)
A total of 50 Security+ 2.0® remote controls or KPW250 keypads and 2 keyless entries (1 PIN for each keyless entry) can be programmed to the operator. When programming a third keyless entry to the operator, the first keyless entry will be erased to allow the third keyless entry to be programmed. When the operator’s memory is full it will exit the programming mode and the remote control will not be programmed. **NOTE:** If installing an 86LM to extend the range of the remote controls DO NOT straighten the antenna.

There are 3 different options for programming the remote control depending on how you would like the remote control to function. Choose a programming option:

<table>
<thead>
<tr>
<th>OPTION</th>
<th>DESCRIPTION</th>
<th>PROGRAMMING STEPS</th>
</tr>
</thead>
</table>
| Single button as OPEN only | Program a single button on the remote control for open only. The Timer-to-Close can be set to close the gate. | 1. Press and release the LEARN button (operator will beep and green XMITTER LED will light). **NOTE:** The operator will time out of programming mode after 30 seconds.  
2. Press the OPEN button.  
3. Press the remote control button that you would like to program. |
| Single button (SBC) as OPEN, CLOSE, and STOP | Program one remote control button as an open, close, and stop. | 1. Press and release the LEARN button (operator will beep and green XMITTER LED will light). **NOTE:** The operator will time out of programming mode after 30 seconds.  
2. Press the remote control button that you would like to program. |
| Three separate buttons as OPEN, CLOSE, and STOP | Program each remote control button as an open, close, and stop. | 1. Press and release the LEARN button (operator will beep and green XMITTER LED will light). **NOTE:** The operator will time out of programming mode after 30 seconds.  
2. Press the OPEN, CLOSE, or STOP button, depending on the desired function.  
3. Press the remote control button that you would like to program. |

The operator will automatically exit learn mode (operator will beep and green XMITTER LED will go out) if programming is successful. To program additional Security+ 2.0® remote controls or remote control buttons, repeat the programming steps above.

**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.
LiftMaster Internet Gateway (not provided)

To program the operator to the LiftMaster Internet Gateway:

Using the learn button on the operator's control board

1. Connect the ethernet cable to the LiftMaster Internet Gateway and the router.
2. Connect power to the LiftMaster Internet Gateway.
4. Register the LiftMaster Internet Gateway.
5. Use an internet enabled computer or smartphone to add devices. The LiftMaster Internet Gateway will stay in learn mode for three minutes.
6. Press the Learn button twice on the primary operator (the operator will beep as it enters learn mode). The LiftMaster Internet Gateway will pair to the operator if it is within range and the operator will beep if programming is successful.

Using the reset button on the operator

1. Connect the ethernet cable to the LiftMaster Internet Gateway and the router.
2. Connect power to the LiftMaster Internet Gateway.
4. Register the LiftMaster Internet Gateway.
5. Use an internet enabled computer or smartphone to add devices. The LiftMaster Internet Gateway will stay in learn mode for three minutes.
6. Ensure gate is closed.
7. Give the operator an OPEN command.
8. Within 30 seconds, when the gate is at the open limit press and release the reset button 3 times (on primary gate) to put primary operator into High Band Learn Mode (the operator will beep as it enters learn mode). The LiftMaster Internet Gateway will pair to the operator if it is within range and the operator will beep if programming is successful.

The status as shown by the LiftMaster Internet Gateway app will be either “open” or “closed”. The gate operator can then be controlled through the LiftMaster Internet Gateway app.

Constant Pressure Override (CPO)

Constant Pressure Override is for use with KPW5 and KPW250 keypads (not provided). The KPW5/KPW250 wireless commercial keypads are security keypads and can only be programmed to ONE gate operator (see the KPW5/KPW250 manual for complete programming instructions).

The Constant Pressure Override feature is intended to temporarily override a fault in the entrapment protection system, in order to operate the gate until the external entrapment protection device is realigned or repaired. Use the feature only in line of sight of the gate when no obstructions to travel are present. External entrapment protection devices include LiftMaster monitored photoelectric sensors and LiftMaster monitored wired and wireless edge sensors. Be sure to repair or replace these devices promptly if they are not working properly.

To use Constant Pressure Override:

1. Enter a valid 4-digit PIN.
2. Press and hold # for 5 seconds to enter CPO. Continue to hold # to keep the operator in motion. A continuous tone will sound until limit is met and/or # is released.
3. The operator will stop when either the operator reaches a limit or the user releases #.

Gate Hold Open Feature

The gate hold open feature will disable the timer and keep the gate at the open limit. The gate hold open feature can be activated through the Reset Button as described on page 25 or through the KPW5 and KPW250 keypads (not provided).

To use the gate hold open feature:

1. Enter a valid 4-digit PIN when the gate is at the Open Limit and the timer is running
2. The Operator will chirp indicating the timer is canceled.

To restart the gate:

1. Re-enter the 4-digit PIN
2. Activate a Hard input or a programmed remote

Erase All Codes

1. Press and release the LEARN button (operator will beep and green XMITTER LED will light).
2. Press and hold the LEARN button again until the green XMITTER LED flashes and then release the button (approximately 6 seconds). All remote control codes are now erased.

To Remove and Erase Monitored Entrapment Protection Devices

1. Remove the entrapment protection device wires from the terminal block.
2. Press and release the OPEN LEFT and OPEN RIGHT buttons simultaneously. The handing direction LED will remain solid. The other direction LED will begin flashing (entering setup mode).
3. Press the OPEN LEFT and OPEN RIGHT buttons simultaneously to exit.
## Gate operator setup examples

The following are example setups for the gate operator. Your specific site requirements may be different. Always setup the operator system to the site requirements, including all necessary entrapment protection devices.

**RESIDENTIAL:** One to four residential homes sharing a gated entrance/exit, allowing vehicle access trumps security concerns

**COMMERCIAL/GENERAL ACCESS:** A residential community (more than four homes) having one or more gated entrances/exits, allowing vehicle access trumps security concerns

**COMMERCIAL:** Business site where security (gate closed) is important

**INDUSTRIAL:** Large business site where security is required

<table>
<thead>
<tr>
<th>Setting</th>
<th>Residential</th>
<th>Commercial/General Access</th>
<th>Commercial</th>
<th>Industrial</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quick Close switch setting</td>
<td>Normally set to OFF. Normal gate close (timer or control).</td>
<td>Normally set to OFF. Normal gate close (timer or control).</td>
<td>Normally set to OFF. Normal gate close (timer or control).</td>
<td>Set to ON, so that gate closes immediately after vehicle passes CLOSE EYES/Interrupt loop.</td>
</tr>
<tr>
<td>Anti-Tail switch setting</td>
<td>Normally set to OFF. CLOSE EYES/Interrupt loop reverses a closing gate.</td>
<td>Normally set to OFF. CLOSE EYES/Interrupt loop reverses a closing gate.</td>
<td>Set to ON. In attempt to prevent vehicle tail-gating, CLOSE EYES/Interrupt loop pauses a closing gate.</td>
<td>Set to ON. In attempt to prevent vehicle tail-gating, CLOSE EYES/Interrupt loop pauses a closing gate.</td>
</tr>
<tr>
<td>Bipart Delay switch setting</td>
<td>For DUAL-GATE site, set to ON for gate that delays upon opening.</td>
<td>For DUAL-GATE site, set to ON for gate that delays upon opening.</td>
<td>For DUAL-GATE site, set to ON for gate that delays upon opening.</td>
<td>For DUAL-GATE site, set to ON for gate that delays upon opening.</td>
</tr>
<tr>
<td>Aux Relay Out – Open Limit Switch</td>
<td>Typically not required.</td>
<td>Use with SAMS (Sequence Access Management System).</td>
<td>1. Use with SAMS (Sequence Access Management System). 2. Connect “Gate Open” indicator (e.g. light).</td>
<td>1. Use with SAMS (Sequence Access Management System). 2. Connect “Gate Open” indicator (e.g. light).</td>
</tr>
<tr>
<td>Aux Relay Out – Close Limit Switch</td>
<td>Typically not required.</td>
<td>Typically not required.</td>
<td>Connect “Gate Close/Secure” indicator (e.g. light).</td>
<td>Connect “Gate Close/Secure” indicator (e.g. light).</td>
</tr>
<tr>
<td>Aux Relay Out – Gate Motion</td>
<td>Attach alert signal (audible or visual alert system).</td>
<td>Attach alert signal (audible or visual alert system).</td>
<td>Attach alert signal (audible or visual alert system).</td>
<td>Attach alert signal (audible or visual alert system).</td>
</tr>
<tr>
<td>Aux Relay Out – Pre-Motion Delay</td>
<td>Attach alert signal (audible or visual alert system).</td>
<td>Attach alert signal (audible or visual alert system).</td>
<td>Attach alert signal (audible or visual alert system).</td>
<td>Attach alert signal (audible or visual alert system).</td>
</tr>
<tr>
<td>Cycle Quantity Feedback</td>
<td>Use during servicing only to determine operator cycles.</td>
<td>Use during servicing only to determine operator cycles.</td>
<td>Use during servicing only to determine operator cycles.</td>
<td>Use during servicing only to determine operator cycles.</td>
</tr>
<tr>
<td>Fire Dept Open Input</td>
<td>Typically not required.</td>
<td>Connect emergency access system (Knox box switch, SOS system, etc.).</td>
<td>Typically not required.</td>
<td>Typically not required.</td>
</tr>
<tr>
<td>Heater Accessory (Models HTRNB and HTR60)</td>
<td>The heater keeps the gearbox and batteries at a suitable temperature when the outside temperature is below -4°F. The thermostat MUST be set between 45°F and 60°F to ensure proper gate operation.</td>
<td>The heater keeps the gearbox and batteries at a suitable temperature when the outside temperature is below -4°F. The thermostat MUST be set between 45°F and 60°F to ensure proper gate operation.</td>
<td>The heater keeps the gearbox and batteries at a suitable temperature when the outside temperature is below -4°F. The thermostat MUST be set between 45°F and 60°F to ensure proper gate operation.</td>
<td>The heater keeps the gearbox and batteries at a suitable temperature when the outside temperature is below -4°F. The thermostat MUST be set between 45°F and 60°F to ensure proper gate operation.</td>
</tr>
</tbody>
</table>
## Dual Gate Settings

*NOTE:* We recommend that all accessories and board configurations are set on the primary operator.

### Main Control Board

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>PRIMARY OPERATOR</th>
<th>SECONDARY OPERATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timer-to-Close</td>
<td>Set the TTC dial to desired setting</td>
<td>OFF</td>
</tr>
<tr>
<td>Bi-Part Delay Switch</td>
<td>Bi-Part Delay: ON (will open last and close first)</td>
<td>Bi-Part Delay: OFF (will open first and close last)</td>
</tr>
<tr>
<td></td>
<td>Tandem Mode: OFF</td>
<td>Tandem Mode: OFF</td>
</tr>
</tbody>
</table>

### ACCESSORY

<table>
<thead>
<tr>
<th>ACCESSORY</th>
<th>PRIMARY OPERATOR</th>
<th>SECONDARY OPERATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remote Controls</td>
<td>Program remote controls 1 to 50 to the primary operator.</td>
<td>Program remote controls 51 to 100 to the secondary operator.</td>
</tr>
<tr>
<td>LiftMaster Internet Gateway</td>
<td>Program to primary operator.</td>
<td></td>
</tr>
<tr>
<td>Garage and Gate Monitor</td>
<td>Program to primary operator.</td>
<td></td>
</tr>
</tbody>
</table>

### Expansion Board

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>PRIMARY OPERATOR</th>
<th>SECONDARY OPERATOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>QUICK CLOSE Switch</td>
<td>ON</td>
<td>OFF</td>
</tr>
<tr>
<td>ANTI-TAIL Switch</td>
<td>ON</td>
<td>OFF</td>
</tr>
</tbody>
</table>
**MAINTENANCE**

## 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 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.
- 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 LiftMaster professional.
- Activate gate ONLY when it can be seen clearly, is properly adjusted and there are no obstructions to gate travel.

### 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.

### Maintenance Chart

Disconnect all power to the operator before servicing.

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>TASK</th>
<th>CHECK AT LEAST ONCE EVERY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrainment Protection Devices</td>
<td>Check and test inherent (built into the operator) and external devices for proper operation</td>
<td>X</td>
</tr>
<tr>
<td>Warning Signs</td>
<td>Make sure they are present and replace if worn or broken, see Accessories</td>
<td>X</td>
</tr>
<tr>
<td>Manual Disconnect</td>
<td>Check and test for proper operation</td>
<td>X</td>
</tr>
<tr>
<td>Belt and Pulley</td>
<td>Check for excessive slack, wear or damage</td>
<td>X</td>
</tr>
<tr>
<td>Gate</td>
<td>Inspect for wear or damage; ensure it still complies with ASTM F2200, see page 5</td>
<td>X</td>
</tr>
<tr>
<td>Accessories</td>
<td>Check all for proper operation</td>
<td>X</td>
</tr>
<tr>
<td>Electrical</td>
<td>Inspect all wire connections</td>
<td>X</td>
</tr>
<tr>
<td>Chassis Mounting Bolts</td>
<td>Check for tightness</td>
<td>X</td>
</tr>
<tr>
<td>Operator</td>
<td>Inspect for wear or damage</td>
<td>X</td>
</tr>
</tbody>
</table>

**NOTES:**

- Severe or high cycle usage will require more frequent maintenance checks.
- 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.
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.

### Diagnostic Codes

#### To View the Codes

The codes will show on the diagnostic display.

1. Press and hold the STOP button...
2. ...then press and hold the OPEN button until “Er” shows on the display.

The operator will show the code sequence number followed by the code number:

- **CODE SEQUENCE NUMBER**
  - The first number shown is the most recent code (example: “01”). The display will show the sequence of codes that occurred starting with “01” and going up to code “20”.

- **CODE NUMBER**
  - The second number shown after the code sequence number is the code itself (31-59, example “31”). Refer to the chart on the following page for an explanation of each code.

#### To Exit

Press and release the STOP button to exit. The display will also time out after two minutes of inactivity.

#### To Scroll Through the Saved Codes

1. Press the OPEN button to cycle to the most recent code (“01”).
2. Press the CLOSE button to cycle to the oldest code (up to “20”).

The operator will only keep track of up to 20 codes, then will start saving over the oldest codes as new codes occur.

#### To Reset the Code History

1. Press and hold the STOP button for six seconds. The display will show “Er” then “CL” alternately for six seconds.
2. Release the STOP button. The code history has now been reset and the display will show “- -” until a new code occurs.
3. Press and release the STOP button to exit.
## TROUBLESHOOTING

### Diagnostic Codes Table

Some codes are saved in the code history and some are not. If a code is not saved it will briefly appear on the display as it occurs, then disappear.

<table>
<thead>
<tr>
<th>Code</th>
<th>Meaning</th>
<th>Solution</th>
<th>Saved</th>
</tr>
</thead>
<tbody>
<tr>
<td>51</td>
<td>Main control board has experienced an internal failure.</td>
<td>Disconnect all power, wait 15 seconds, then reconnect power (reboot). If</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>issue continues, replace main control board.</td>
<td></td>
</tr>
<tr>
<td>35</td>
<td>Max-Run-Time Exceeded Error</td>
<td>Check for an obstruction, then reprogram the limits.</td>
<td>YES</td>
</tr>
<tr>
<td>36</td>
<td>Product ID Error</td>
<td>Was the control board just replaced? If so, erase limits, enter limit setup</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>mode and set limits. If not, disconnect all power, wait 15 seconds, then</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>reconnect power before changing product ID harness.</td>
<td></td>
</tr>
<tr>
<td>37</td>
<td>Product ID Failure</td>
<td>Unplug product ID harness then plug back in. Disconnect all power, wait</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>15 seconds, then reconnect power before replacing product ID harness.</td>
<td></td>
</tr>
<tr>
<td>43</td>
<td>Exit Loop Error</td>
<td>Failure or missing loop (SHORT or OPEN - LiftMaster Plug-in Loop Detector</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>only) Check loop wiring throughout connection. May be a short in the loop,</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>or an open connection in the loop.</td>
<td></td>
</tr>
<tr>
<td>44</td>
<td>Shadow Loop Error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>45</td>
<td>Interrupt Loop Error</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46</td>
<td>Wireless edge battery low</td>
<td>Replace batteries in wireless edge.</td>
<td>YES</td>
</tr>
<tr>
<td>47</td>
<td>Power board fault</td>
<td>Relay fault detected in the power board. Replace the power board.</td>
<td>YES</td>
</tr>
<tr>
<td>50</td>
<td>Run-Distance Error</td>
<td>The limits are less than the minimum requirement or longer than what</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>was learned. Check limit positions and proper switch function. Run-</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>distance can be re-learned by setting the handing again.</td>
<td></td>
</tr>
<tr>
<td>53</td>
<td>Brownout occurred</td>
<td>AC/DC board supply dipped below allowable level. Review power supply and</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>wiring. If rebooting, ensure enough time for discharge of power to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>force a fresh boot.</td>
<td></td>
</tr>
<tr>
<td>54</td>
<td>Wireless Second Operator Communication Error</td>
<td>Check the second operator for power. If OFF, restore power and try to run</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>the system. If powered, deactivate the wireless feature and then re-learn</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>the second operator.</td>
<td></td>
</tr>
<tr>
<td>55</td>
<td>System AC Overvoltage</td>
<td>Call utility.</td>
<td>YES</td>
</tr>
<tr>
<td>56</td>
<td>System AC Undervoltage</td>
<td>Check wiring and wire gauge to operator.</td>
<td>YES</td>
</tr>
<tr>
<td>57</td>
<td>Limit Error - Stuck Switch</td>
<td>Check switch for proper operation. Check harness for shorts. Replace if</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>defective.</td>
<td></td>
</tr>
<tr>
<td>58</td>
<td>Limit Error - Wrong Switch</td>
<td>Check motor wiring.</td>
<td>YES</td>
</tr>
<tr>
<td>59</td>
<td>Missing Power Board</td>
<td>Check harness for shorts. Check for presence of power board.</td>
<td>YES</td>
</tr>
<tr>
<td>60</td>
<td>Minimum number of monitored entrapment protection devices not installed.</td>
<td>Review monitored entrapment protection device connections. This swing</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>gate operator will operate only after installation of a minimum of one</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>external safety device in either the open or close direction.</td>
<td></td>
</tr>
<tr>
<td>61</td>
<td>CLOSE EYE/INTERRUPT held more than 3 minutes</td>
<td>Check wired input on main control board; check for alignment or</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>obstruction.</td>
<td></td>
</tr>
<tr>
<td>62</td>
<td>CLOSE EDGE held more than 3 minutes</td>
<td>Check wired input on main control board; check for alignment or</td>
<td>YES</td>
</tr>
<tr>
<td>63</td>
<td>OPEN EYE/EDGE held more than 3 minutes</td>
<td>obstruction.</td>
<td></td>
</tr>
<tr>
<td>64</td>
<td>CLOSE EYE/INTERRUPT held more than 3 minutes</td>
<td>Check wired input on expansion board; check for alignment or</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>obstruction. The photoelectric sensors may be installed too far apart.</td>
<td></td>
</tr>
<tr>
<td>65</td>
<td>CLOSE EYE/EDGE held more than 3 minutes</td>
<td>Check wired input on expansion board; check for alignment or</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>obstruction. The photoelectric sensors may be installed too far apart.</td>
<td></td>
</tr>
<tr>
<td>66</td>
<td>OPEN EYE/EDGE held more than 3 minutes</td>
<td>Check wired input on expansion board; check for alignment or</td>
<td>YES</td>
</tr>
<tr>
<td></td>
<td></td>
<td>obstruction. The photoelectric sensors may be installed too far apart.</td>
<td></td>
</tr>
<tr>
<td>67</td>
<td>Wireless edge triggered more than 3 minutes</td>
<td>Check wired input for wiring issue or obstruction.</td>
<td>YES</td>
</tr>
<tr>
<td>68</td>
<td>Wireless edge loss of monitoring</td>
<td>Check wireless edge inputs.</td>
<td>YES</td>
</tr>
<tr>
<td>69</td>
<td>Wireless edge triggered</td>
<td>IF an obstruction occurred, no action required. If an obstruction did NOT</td>
<td>NO</td>
</tr>
<tr>
<td></td>
<td></td>
<td>occur, check inputs and wiring.</td>
<td></td>
</tr>
<tr>
<td>Code</td>
<td>Meaning</td>
<td>Solution</td>
<td>Saved</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>70</td>
<td>CLOSE EYE/INTERRUPT triggered, causing reversal, preventing close, or resetting TTC</td>
<td>IF an obstruction occurred, no action required. If an obstruction did NOT occur, check alignment, inputs, and wiring on main control board</td>
<td></td>
</tr>
<tr>
<td>71</td>
<td>CLOSE EDGE triggered, causing reversal, NO preventing close, or canceling TTC</td>
<td>IF an obstruction occurred, no action required. If an obstruction did NOT occur, check alignment, inputs, and wiring on expansion board.</td>
<td>NO</td>
</tr>
<tr>
<td>72</td>
<td>OPEN EYE/EDGE triggered, causing reversal or preventing opening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>73</td>
<td>CLOSE EYE/INTERRUPT triggered, causing reversal, preventing close, or resetting TTC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>74</td>
<td>CLOSE EYE/EDGE triggered, causing reversal and preventing close or canceling TTC</td>
<td>IF an obstruction occurred, no action required. If an obstruction did NOT occur, check alignment, inputs, and wiring on expansion board.</td>
<td>NO</td>
</tr>
<tr>
<td>75</td>
<td>OPEN EYE/EDGE triggered, causing reversal or preventing opening</td>
<td></td>
<td></td>
</tr>
<tr>
<td>80</td>
<td>Close input (EYE/EDGE) communication fault from other operator</td>
<td>Check inputs and communication method between operators, either wired bus or radio. Ensure operator is powered. May have to erase the wireless communication and reprogram the two operators.</td>
<td>YES</td>
</tr>
<tr>
<td>81</td>
<td>Open input (EYE/EDGE) communication fault from other operator</td>
<td></td>
<td></td>
</tr>
<tr>
<td>82</td>
<td>Close input (EYE/EDGE) communication fault (expansion board)</td>
<td>Check the connections between the main board and the expansion board.</td>
<td>YES</td>
</tr>
<tr>
<td>83</td>
<td>Open input (EYE/EDGE) communication fault (expansion board)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>84</td>
<td>Non-monitored device detected on the wireless safety system</td>
<td>Non-monitored contact closure devices are not supported. Make sure connected devices are monitored. Check edges for proper orientation and resistive end cap connection.</td>
<td>YES</td>
</tr>
<tr>
<td>91</td>
<td>Force Reversal (Operator 1)</td>
<td>Check for obstruction. If no obstruction, check that the mechanical assembly is engaged and free to move. See section on Limit and Force Adjustment, and Obstruction Test.</td>
<td>YES</td>
</tr>
<tr>
<td>93</td>
<td>RPM / STALL Reversal (Operator 1)</td>
<td>Check for obstruction. If no obstruction, check the operator wiring and that the mechanical assembly is engaged and free to move. Replace APE assembly.</td>
<td>YES</td>
</tr>
<tr>
<td>95</td>
<td>AC motor no start condition</td>
<td>Motor start sequence failed. If the gate and motor are NOT moving, or moving too slow, check for an obstructed gate, binding in the mechanism, and relay board and start capacitor connections. If the gate and motor ARE moving, failure is due to loss of the encoder signal. Check the encoder cup and sensor on the limit shaft, and wiring.</td>
<td>YES</td>
</tr>
<tr>
<td>96</td>
<td>Current Sensor Fault</td>
<td>A fault was detected on the current sensor. Make sure the current sensor is connected to the main control board. Check the current sensor harness for an open or short. The operator will need a power cycle to resume operation after correcting the fault. If the fault continues, replace the power board.</td>
<td>YES</td>
</tr>
<tr>
<td>99</td>
<td>Normal Operation</td>
<td>No action required</td>
<td>YES</td>
</tr>
</tbody>
</table>
Operator Alarm

If a contact sensor detects an obstruction twice consecutively the alarm will sound (up to 5 minutes) and the operator will need to be reset.

When the inherent force of the operator (RPM/current sensor) detects the following (twice consecutively) the alarm will sound (up to 5 minutes) and the operator will need to be reset.

A. The operator arm or gate is incorrectly installed.
B. The gate does not meet specifications.
C. Gate hinges are too tight or broken and the gate is not moving freely.
D. The gate is moving and a car pushes the gate.
E. A foreign object is on the gate frame while the gate is moving.
F. The gate hits the driveway or curb and gets stuck or bent in an awkward position.

Remove any obstructions. Press the reset button to shut off the alarm and reset the operator. After the operator is reset, normal functions will resume.
## Troubleshooting Chart

<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSES</th>
<th>SOLUTIONS</th>
</tr>
</thead>
</table>
| Operator does not run and diagnostic display not on. | a. No power to control board  
  b. Open fuse  
  c. Defective control board | a. Check AC power  
  b. Check fuses  
  c. Replace defective control board |
| Control board powers up, but motor does not run. | a. Reset switch is stuck  
  b. Stop button active or jumper not in place for stop circuit  
  c. Open or Close input active  
  d. Entrapment Protection Device active  
  e. Vehicle loop detector or probe active  
  f. Defective control board | a. Check reset switch  
  b. Check Stop button is not “stuck on”, or verify that the stop button is a normally closed circuit, or put a jumper on the stop circuit.  
  c. Check all Open and Close inputs for a “stuck on” input  
  d. Check all Entrapment Protection Device inputs for a “stuck on” sensor  
  e. Check all vehicle detector inputs for a “stuck on” detector  
  f. Replace defective control board |
| Gate moves, but cannot set correct limits. | a. Gate does not move to a limit position  
  b. Gate is too difficult to move | a. Use manual disconnect, manually move gate, and ensure gate moves easily limit to limit. Repair gate as needed.  
  b. Gate must move easily and freely through its entire range, limit to limit. Repair gate as needed. |
| Gate does not fully open or fully close when setting limits. | a. Gate does not move to a limit position  
  b. Gate is too difficult to move | a. Use manual disconnect, manually move gate, and ensure gate moves easily limit to limit. Repair gate as needed.  
  b. Gate must move easily and freely through its entire range, limit to limit. Repair gate as needed. |
| Operator does not respond to a wired control/command (example: Open, Close, SBC, etc.) | a. Check Open and Close command input LEDs  
  b. Stop button is active  
  c. Reset button is stuck  
  d. Entrapment Protection Device active  
  e. Vehicle loop detector or vehicle probe active | a. Check all Open and Close inputs for a “stuck on” input  
  b. Check Stop button is not “stuck on”  
  c. Check Reset button  
  d. Check all Entrapment Protection Device inputs for a “stuck on” sensor  
  e. Check all vehicle detector inputs for a “stuck on” detector |
| Operator does not respond to a wireless control or transmitter | a. Check XMITTER LED when wireless control is active  
  b. Stop button is active  
  c. Reset button is stuck  
  d. Poor radio reception | a. Activate wireless control and check XMITTER LED is on. Re-learn wireless control/transmitter to control board. Replace wireless control as needed.  
  b. Check Stop button is not “stuck on”  
  c. Check Reset button  
  d. Check if similar wired control operates correctly. Check if wireless controls works properly when within a few feet of operator. Check operator’s antenna and antenna wire. Check other wireless controls or devices. |
| Gate stops during travel and reverses immediately. | a. Control (Open, Close) becoming active  
  b. Vehicle loop detector active | a. Check all Open and Close inputs for an active input  
  b. Check all vehicle detector inputs for an active detector |
| Gate opens, but will not close with transmitter or Timer-to-Close. | a. Open control active  
  b. Vehicle loop detector active  
  c. Fire Dept input active  
  d. Timer-to-Close not set  
  e. Close Entrapment Protection Device active | a. Check all Open inputs for an active input  
  b. Check all vehicle detector inputs for an active detector  
  c. Check Fire Dept input  
  d. Check Timer-to-Close (TTC) setting  
  e. Check all Entrapment Protection Device inputs for an active sensor |
| Gate closes, but will not open. | a. Vehicle loop detector active | a. Check all vehicle detector inputs for an active detector |
| Exit loop activation does not cause gate to open. | a. Exit vehicle detector setup incorrectly  
  b. Replace defective Exit loop detector. |
| Interrupt loop does not cause gate to stop and reverse. | a. Vehicle detector setup incorrectly  
  b. Replace defective Interrupt loop detector. |
| Shadow loop does not keep gate at open limit. | a. Vehicle detector setup incorrectly  
  b. Replace defective Shadow loop detector. |
<table>
<thead>
<tr>
<th>SYMPTOM</th>
<th>POSSIBLE CAUSES</th>
<th>SOLUTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Obstruction in gate's path does not cause gate to stop and reverse.</td>
<td>a. Force adjustment needed</td>
<td>a. Refer to the Adjustment section to conduct the obstruction test and perform the proper force adjustment that is needed.</td>
</tr>
<tr>
<td>Photoelectric sensor does not stop or reverse gate.</td>
<td>a. Incorrect photoelectric sensor wiring</td>
<td>a. Check photoelectric sensor wiring. Retest that obstructing photoelectric sensor causes moving gate to stop, and may reverse direction.</td>
</tr>
<tr>
<td></td>
<td>b. Defective photoelectric sensor</td>
<td>b. Replace defective photoelectric sensor. Retest that obstructing photoelectric sensor causes moving gate to stop, and may reverse direction.</td>
</tr>
<tr>
<td></td>
<td>c. Photoelectric sensors installed too far apart</td>
<td>c. Move the photoelectric sensors closer together or use edge sensors instead.</td>
</tr>
<tr>
<td>Edge Sensor does not stop or reverse gate.</td>
<td>a. Incorrect edge sensor wiring</td>
<td>a. Check edge sensor wiring. Retest that activating edge sensor causes moving gate to stop and reverse direction.</td>
</tr>
<tr>
<td></td>
<td>b. Defective edge sensor</td>
<td>b. Replace defective edge sensor. Retest that activating edge sensor causes moving gate to stop and reverse direction.</td>
</tr>
<tr>
<td>Alarm sounds for 5 minutes or alarm sounds with a command.</td>
<td>a. Double entrapment occurred (two obstructions within a single activation)</td>
<td>a. Check for cause of entrapment (obstruction) detection and correct. Press the reset button to shut off alarm and reset the operator.</td>
</tr>
<tr>
<td>On dual-gate system, incorrect gate opens first or closes first.</td>
<td>a. Incorrect Bipart switch setting</td>
<td>a. Change setting of both operator’s Bipart switch settings. One operator should have Bipart switch ON (operator that opens second) and the other should have Bipart switch OFF (operator that opens first).</td>
</tr>
<tr>
<td>Alarm beeps when running.</td>
<td>a. Expansion board setting</td>
<td>a. Pre-warning is set to ‘ON’</td>
</tr>
<tr>
<td></td>
<td>b. Constant pressure to open or close is given</td>
<td>b. Constant pressure to open or closed is given</td>
</tr>
<tr>
<td>Expansion board function not controlling gate.</td>
<td>a. Defective main board to expansion board wiring</td>
<td>a. Check main board to expansion board wiring. If required, replace wire cable.</td>
</tr>
<tr>
<td></td>
<td>b. Incorrect input wiring to expansion board</td>
<td>b. Check wiring to all inputs on expansion board.</td>
</tr>
<tr>
<td></td>
<td>c. Defective expansion board or defective main board</td>
<td>c. Replace defective expansion board or defective main board</td>
</tr>
<tr>
<td>Maglock not working correctly.</td>
<td>a. Maglock wired incorrectly</td>
<td>a. Check that Maglock is wired to N.C. and COM terminals. Check that Maglock has power (do not power maglock from control board accessory power terminals). If shorting lock’s NO and COM wires does not activate Maglock, then replace Maglock or Maglock wiring (refer to Wiring Diagrams).</td>
</tr>
<tr>
<td>Solenoid lock not working correctly.</td>
<td>a. Solenoid wired incorrectly</td>
<td>a. Check that Solenoid is wired to N.O. and COM terminals. Check that Solenoid has power (do not power solenoid from control board accessory power terminals). If shorting lock’s NC and COM wires does not activate Solenoid, then replace Solenoid lock or Solenoid wiring (refer to Wiring Diagrams).</td>
</tr>
<tr>
<td>Quick Close not working correctly.</td>
<td>a. Quick Close setting incorrect</td>
<td>a. Check that Quick Close setting is ON</td>
</tr>
<tr>
<td></td>
<td>b. Interrupt loop detector</td>
<td>b. Check operation of Interrupt Loop detector</td>
</tr>
<tr>
<td></td>
<td>c. Defective Expansion board</td>
<td>c. Replace defective Expansion board</td>
</tr>
<tr>
<td>Anti-Tailgating not working correctly.</td>
<td>a. Anti-Tail setting incorrect</td>
<td>a. Check that Anti-Tail setting is ON</td>
</tr>
<tr>
<td></td>
<td>b. Interrupt loop detector</td>
<td>b. Check operation of Interrupt Loop detector</td>
</tr>
<tr>
<td></td>
<td>c. Defective Expansion board</td>
<td>c. Replace defective Expansion board</td>
</tr>
<tr>
<td>AUX Relay not working correctly.</td>
<td>a. AUX Relay setting incorrect</td>
<td>a. Check AUX Relay switches settings</td>
</tr>
<tr>
<td></td>
<td>b. AUX Relay wiring incorrect</td>
<td>b. Check that wiring is connected to either N.O. and COM or to N.C. and COM.</td>
</tr>
<tr>
<td></td>
<td>c. Defective Expansion board</td>
<td>c. Set AUX Relay to another setting and test. Replace defective expansion board.</td>
</tr>
</tbody>
</table>
Universal single and 3-button remote controls
Ideal for applications requiring a large number of remote controls.
Models 811LM and 813LM

Security+ 2.0® 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+® or Security+ 2.0® code format.
Models 892LT and 894LT

LiftMaster® internet gateway
Internet enabled accessory which connects to the computer and allows you to monitor and control gate operators and lighting accessories enabled by MyQ® technology.
Model 828LM

LiftMaster Cloud™ connected access protocol - high capacity
Model CAPXL

Plug-in loop detector
Low power. Conveniently plugs into existing control board.
Model LOOPDETLM

LiftMaster door and gate monitor
Model 829LM

3-button control station
Model 02-103

Stop Button
Model AEXITP

LiftMaster elite series maglock package
Model MG1300RLYPKG

Heater kit accessory
Model HTRNB
Model HTR460 for 460V applications

Post-mounting plate
For post-mounting models CSL24UL and SL3000 commercial slide gate operators. Posts not included.
Model MPEL

Steel stand for mounting to concrete pad
Model MSEL

Uphill swivel arm
Model K75-50292

Power Hinges

Warning sign
Model 40-3505

Transformer kit
Changes input voltage (208/240/480/575 Vac) to an output voltage of 120 Vac. Rated 208/240/480/575 Vac, 4.8/4.2/2.1/1.7 A, 60 Hz, 1 PH
Model 3PHCONV
Entrapment protection
If the gate opening distance is greater than the maximum separation distance of the photoelectric sensors, then edge sensors MUST BE USED. Refer to the photoelectric sensor instructions for maximum separation distance.

LiftMaster monitored through beam photoelectric sensor
Model LMTBUL

LiftMaster monitored retro-reflective photoelectric sensor
Model LMRRUL

LiftMaster monitored wireless edge kit (transmitter and receiver)
Model LMWEKITU

LiftMaster monitored wireless edge transmitter
Model LMWETXU

Large profile monitored edge (82 ft. roll)
Model L50
Large profile ends kit (10 pair)
Model L50E
Small profile monitored edge (82 ft. roll)
Model S50
Small profile ends kit (10 pair)
Model S50E

Plastic channel
8 ft. (2.4 m) for both small and large profile edges (pack of 10).
Model L50CHP

Aluminum channel for edge (pack of 8)
10 ft. (3.1 m) for small and large profile edges.
Model L50CHAL

LiftMaster large profile monitored edges (4ft.,5ft., 6ft.)
Model L504AL, L505AL, L506AL

LiftMaster small profile monitored edges (4ft.,5ft., 6ft.)
Model S504AL, S505AL, S506AL

Edge cutting tool
Model ETOOL
REPAIR PARTS

CSW200501UL 1/2 HP

NOT SHOWN

Plastic Standoffs for main control board (10 per bag) K77-37683
Reset Button with ID K94-37449
Hall Effect Sensor Board K1D8427
Wire Harnesses (main board to power board, main board to ground, main board to transformer, and power board to transformer) K77-37693
Wire Harness (main board to expansion board) K94-34778

Drive Belt 1/2 HP 4L190 K10-50110
Motor Pulley K17-50006
Motor 1/2 HP K20-1050B-1RSX
Chain K19-50040
Sprocket K19-5001EEG
Sprocket and Chain Kit K77-37635
Output Shaft K07-50227
Top Gear Box Assembly K75-50224
Chassis K73-37195
Electrical Box Assembly K73-37300-2
Junction Box K77-37636

Output Arm K09-50119
Operator Cover and Cludge Cover K77-38534
Lock and Keys K75-35260
Key Only K80-50236

Transformer K21-14182
Power Board, 1 Phase K1D8402-1CC
Main Control Board K1D6701-1CC
Expansion Board K1D6387-1CC
Dust Guard K12-34729

Cludge Cover K13-5011-17-1
Limit Assembly K78-37325
Limit Switch K33-50099
Capacitor K290-03AU2415
Transformer K21-14182
Power Board, 1 Phase K1D8402-1CC
Main Control Board K1D6701-1CC
Expansion Board K1D6387-1CC
Dust Guard K12-34729

Alarm with harness K34-37461
Bottom Gear Reducer K32-37430-1
Sprocket and Chain Kit K77-37635
Top Gear Box Assembly K75-50224
Sprocket and Chain Kit K77-37635
Top Gear Box Assembly K75-50224

Plastic Standoffs for main control board (10 per bag) K77-37683
Reset Button with ID K94-37449
Hall Effect Sensor Board K1D8427
Wire Harnesses (main board to power board, main board to ground, main board to transformer, and power board to transformer) K77-37693
Wire Harness (main board to expansion board) K94-34778
CSW200101UL 1 HP

**REPAIR PARTS**

### Plastic Standoffs for main control board (10 per bag)
- K77-37683

### Reset Button with ID
- K94-37449

### Hall Effect Sensor Board
- K1D8247

### Wire Harnesses (main board to power board, main board to ground, main board to transformer, and power board to transformer)
- K77-37693

### Wire Harness (main board to expansion board)
- K94-34778
LiftMaster 7 Year residential / 5 Year Commercial Limited Warranty

LiftMaster (“Seller”) 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 7 Year residential / 5 Year Commercial from the date of purchase [and that the CSW200UL is free from defect in materials and/or workmanship for a period of 7 Year residential / 5 Year Commercial 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 7 YEAR RESIDENTIAL / 5 YEAR COMMERCIAL LIMITED WARRANTY PERIOD SET FORTH ABOVE (EXCEPT THE IMPLIED WARRANTIES WITH RESPECT TO THE CSW200UL, WHICH ARE LIMITED IN DURATION TO THE 7 YEAR RESIDENTIAL / 5 YEAR COMMERCIAL LIMITED WARRANTY PERIOD FOR THE CSW200UL, AND NO IMPLIED WARRANTIES WILL EXIST OR APPLY AFTER SUCH PERIOD. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. THIS LIMITED WARRANTY DOES NOT COVER NON-DEFECT DAMAGE, DAMAGE CAUSED BY IMPROPER INSTALLATION, OPERATION OR CARE (INCLUDING, BUT NOT LIMITED TO ABUSE, MISUSE, FAILURE TO PROVIDE REASONABLE AND NECESSARY MAINTENANCE, UNAUTHORIZED REPAIRS OR ANY ALTERATIONS TO THIS PRODUCT), LABOR CHARGES FOR REINSTALLING A REPAIRED OR REPLACED UNIT, OR REPLACEMENT OF BATTERIES.

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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