

## INSTALLATION AND OPERATING INSTRUCTIONS For Model GL1 Gate Locks

**QUICK NOTES:**

- 1) See Page 2 for information on optional Securitron mounting brackets (sold separately).
- 2) See SECTION 5 for instructions on the Fail Safe trigger conversion.

### 1. SPECIFICATIONS

Physical:

Holding Force: 2,000 Lbs. [907 Kg]

Dimensions:

Inches: 2-3/4" L X 7-1/4" H X 3-1/4" D

Millimeters: 70 L X 184 H X 83 D

Electrical:

12 Volts DC Current Requirement:

Initial (Peak): (~1 sec.) 870 mA

Reduced: 290 mA

Power Consumption: 3.5 Watts

24 Volts DC Current Requirement:

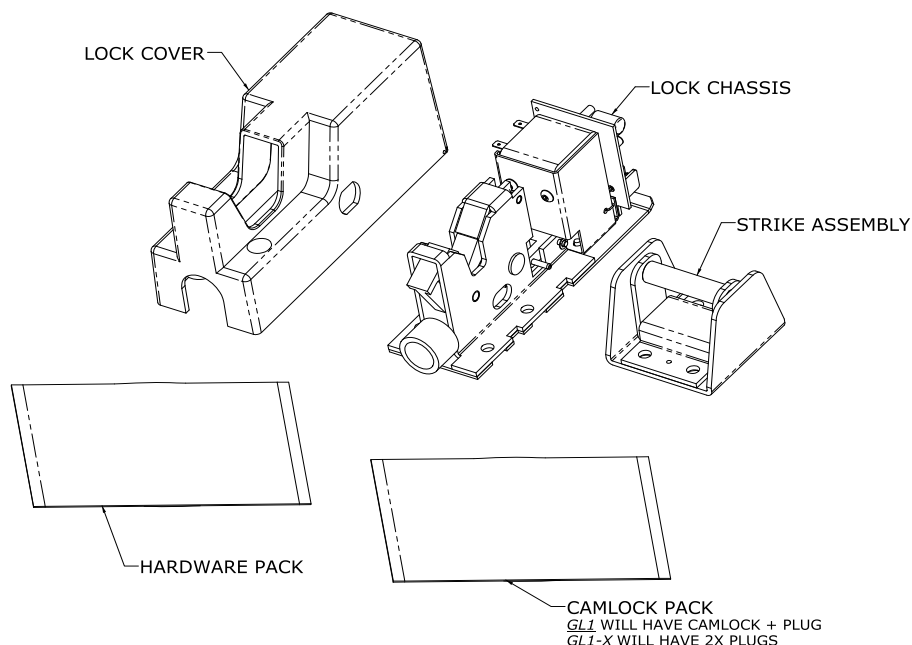
Initial (Peak): (~1 sec.) 720 mA

Reduced: 170 mA

Power Consumption: 4.1 Watts

### 2. PRODUCT OVERVIEW

Upon unpacking this product, an inventory should be made to ensure that all the required components and hardware have been included. Along with these instructions and the installation template, the lock assembly should include the following items:



### 3. RECOMMENDED TOOLS

Hammer

Center punch

Drill bits: 5/16", 3/8", 13/16"

Screwdriver, #2 Phillips

Hex (Allen) wrench, 3/16" or 5mm  
 (Tap, 1/4-20 UNC-2B or M6-1.0)

### 4. INSTALLATION INSTRUCTIONS

#### Pre-Installation Survey

Due to the variety of mounting configurations available with this product, it is strongly recommended that an initial physical survey and assessment be made of the actual area to which the lock will be installed. A determination of the optimal method of mounting should be made prior to installation with considerations made to the following:

A. Physical strength of mounting areas:

It is recommended that the structural integrity of mounting surfaces be strong enough to meet or exceed the holding force of the lock.

B. Protection of the lock from external attack:

The lock and the wiring must be protected to a reasonable degree from potential damage due to intruders or vandals.

C. Convenience and accessibility of area to be protected:

The lock assembly should be installed in a location that will not hinder or create a potential safety hazard to authorized personnel routinely accessing the protected area.

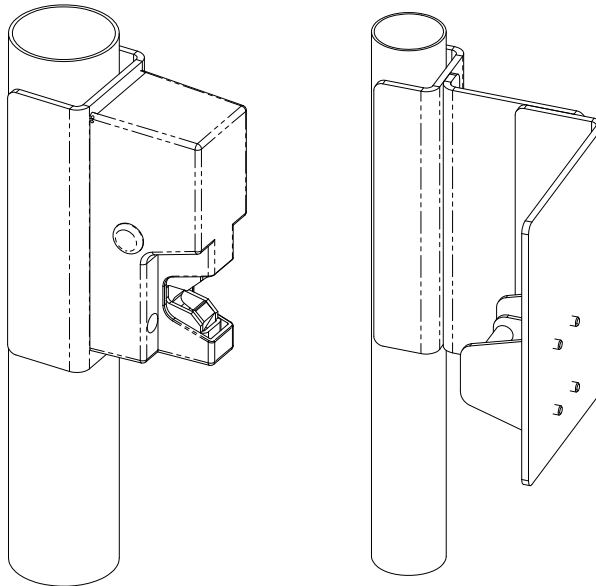
Because of the diversity in gate construction and installation configurations, optimum mounting platforms may be achieved by welding adequate size metal plates, channels or tubing to the fence frame and the gate. Formed angle and brackets along with appropriately sized fasteners may also be utilized to mechanically secure mounting platforms for the lock and strike.

***Mounting bracket kits such as the FMK-SL (Sliding Gate) and the FMK-SW (Swing Gate) are recommended for installing the GL1 on your gate.***

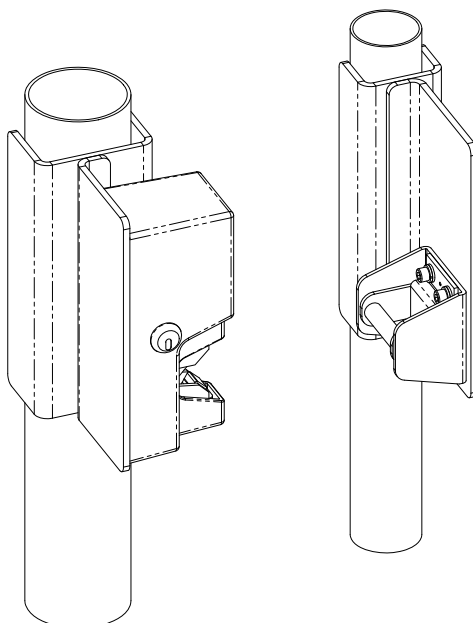
**INSTALLATION WARNINGS:**

- 1. The lock must be mounted in the upright vertical or horizontal position.**
- 2. Make sure all welding is completed prior to making any electrical connections to the mounted lock. Welding in or around a lock assembly that is connected electrically can cause damage to the electronic components.**
- 3. Not recommended for dual swing gates.**

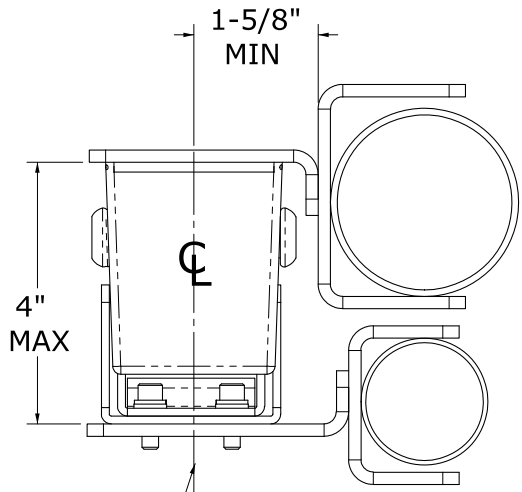
The following illustrations show some basic mounting configurations on a chain-link style fence frame and gate:



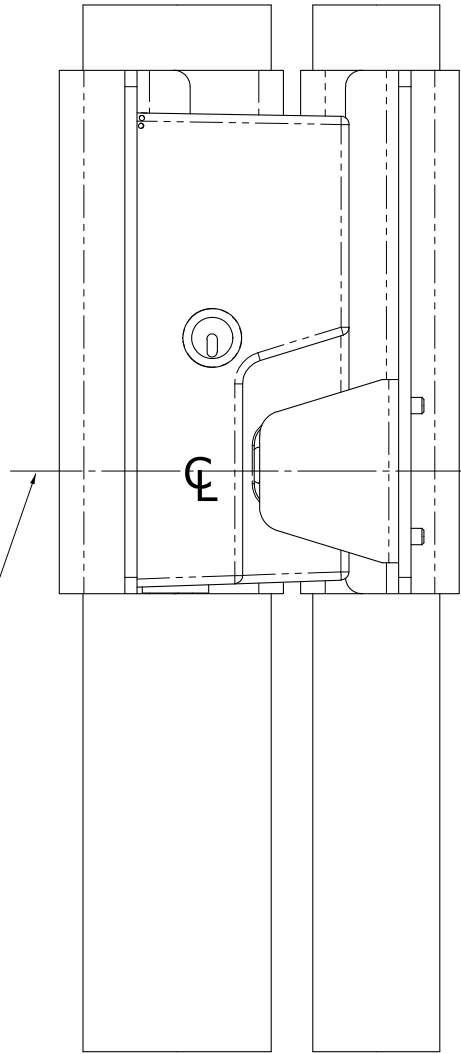
**Swinging Gate Mount**



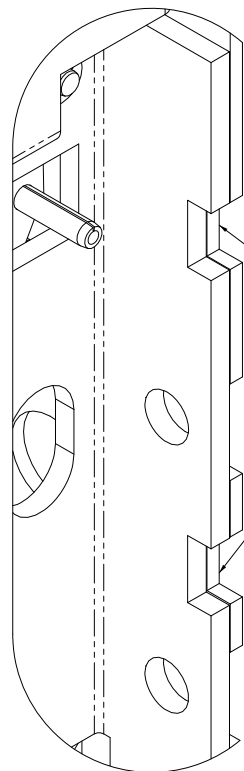
**Sliding Gate Mount**



STRIKE MUST BE CENTERED WITH LOCK CATCH OPENING WHEN GATE IS IN CLOSED POSITION



**Installation Spacing Dimensions**

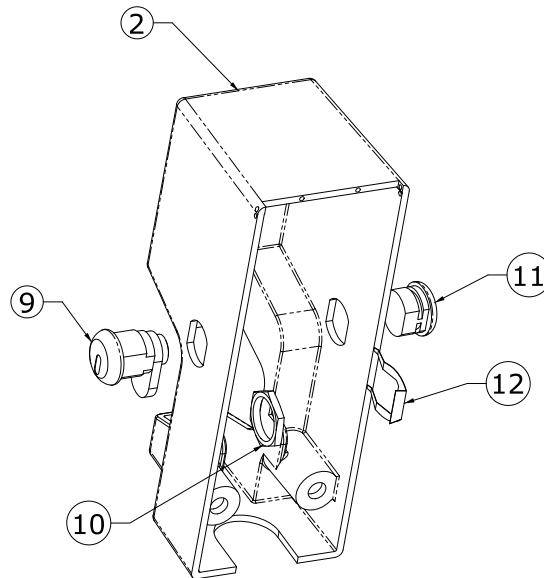


USE THE CUTOUTS ON BOTH SIDES FOR WELDING CHASSIS. WELD BEAD MUST NOT GO OUTSIDE THE EDGES OR THE COVER WILL NOT FIT. GRIND SIDES FLUSH

**Chassis Welding**

## Manual Override/Cover Hole Plug Installation

The Gate Lock provides for the additional function of a key operated (cam type) manual override for use **ONLY** when the lock is operated in the **fail locked mode**. The key operated cam lock can be assembled to either side of the lock cover.



**Cam Lock & Plug Installation**

ITEM	QTY	DESCRIPTION
2	1	Lock Cover
9	1	Cam Lock (Manual Override)
10	1	Hex Nut, Cam Lock Mounting
11	1	Plug, Cam Lock Hole
12	1	Spring Clip, Cam Lock Hole Plug

### **Manual Override Cam Lock Installation:**

1. If it is desired to implement the manual override, select the side of the lock cover that will be the most convenient for the key access after installation. (The Gate Lock latching mechanism features an actuator lever that will engage the cam lock from either side of the cover).
2. Install the provided cam lock (**Item #9**) so that when the cylinder is in the key-out position the cam points down. Assemble the cam lock as necessary so that the key rotation moves the cam to point toward the rear (opening) of the cover. **Note:** This is critical to the proper operation of the mechanical override function. The rear cam of the lock must come into contact with the actuator lever pin to operate the release trigger of the lock mechanism when the cover is assembled to the lock chassis.
3. Slip the cam lock mounting hex nut (**Item #10**) over the cam inside the cover and thread the nut onto the cam lock body by hand.
4. Using a 7/8" open-end (or adjustable) wrench, tighten to secure the hex nut in place.

#### **Note:** If the manual override is not used:

- a. Install the cam lock through the non-accessible hole of the cover and install the hex nut as directed in steps 3 and 4 (above).
- b. Assemble the cover hole plug (provided) through the side that is accessible as directed in the following *Cam Lock Hole Plug Installation* instructions.

### **Cam Lock Hole Plug Installation:**

1. Insert the cam lock hole plug (**Item #11**) through the desired hole in the lock cover.
2. Slide the spring clip (**Item #12**) along the inside wall of the cover and into the grooves of the plug to secure.

## Fail Locked and Fail Safe Modes

The GL1 Gate Lock, as delivered from the factory, is configured to operate in one of two power failure modes:

### Fail Locked Mode:

In this mode, at loss of power, the lock's latching mechanism will lock when the gate is closed and remain in the latched/locked condition until power is restored or the mechanism is disengaged by the manual override.

### Fail Safe Mode:

In the fail safe configuration, when there is a loss of power to the lock, the latching mechanism will not lock when the gate is closed and will unlock if the gate was previously secured.

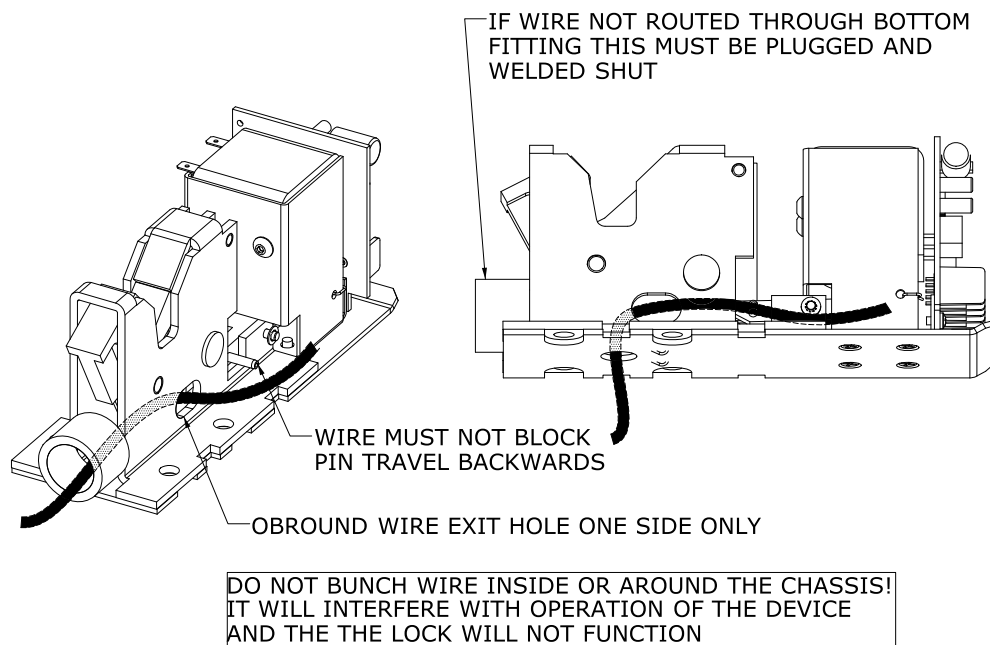
Each unit can be converted from the fail locked to the fail safe mode (or fail safe to fail locked) as required. If this is necessary, follow the step-by-step instructions provided in *Section 6 GL1 Fail Locked to Fail Safe Trigger Conversion*.

**Note:** The manual override is non-functional in the fail safe mode.

## Electrical and Cover

Using the following instructions complete the installation of the lock mounting chassis to the fence frame.

1. Verify that all necessary welding has been completed.
2. Route all electrical wiring through either the wire conduit coupling provided in the bottom of the chassis or through the optional 1/2" (12.7mm) hole in the rear of the lock mounting chassis. **Note:** If the conduit coupling is not used, a 1/2"-14 NPS conduit or pipe plug should be installed and tack-welded into place to close the fitting.
3. Feed wires through the obround hole in the right side of the lock mounting chassis.



## Wire Routing

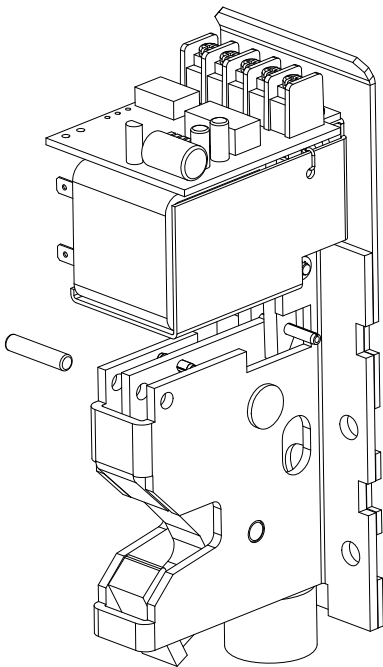
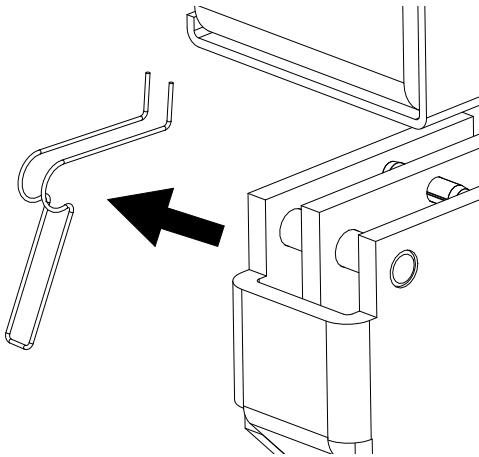
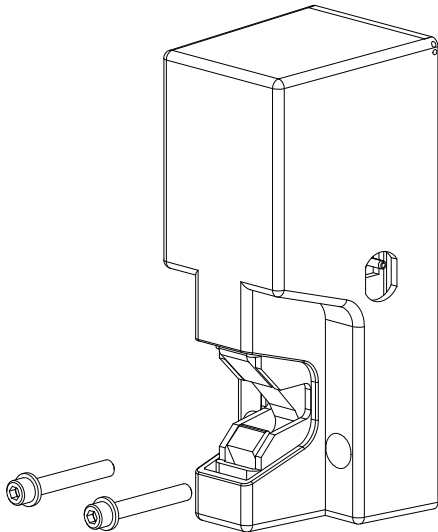
4. Make all necessary wire connections at the terminal block on the PC Board. See Section 6, page 9 for electrical wiring diagram.

**Note:** Ensure wiring does not interfere with the manual override cam lock if it is installed to the right side of the lock.

5. After the electrical wiring has been completed, install the lock cover over the lock mounting chassis by engaging the lip at the top/rear of the cover with the top edge of the mounting chassis. Secure the cover to the mounting surface using two (2) socket head cap screws, two (2) split lock washers and two (2) flat washers. Fully tighten the screws using a hex wrench.

## 5. GL1 FAIL LOCKED TO FAIL SAFE TRIGGER CONVERSION

Mount unit before initiating conversion of unit.



Disconnect power from the GL1 and control device.

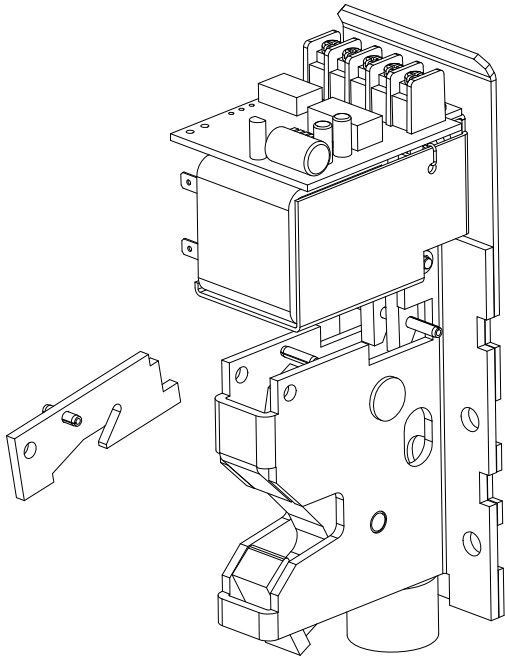
Ensure that the gate is secured in an open position so it cannot close and injure the operator.

Remove the cover from the GL1 by removing the two screws.

Remove the legs of the spring from under the roll pin in the trigger. Remove the spring from the front of the chassis. **DO NOT LOSE THE SPRING.**

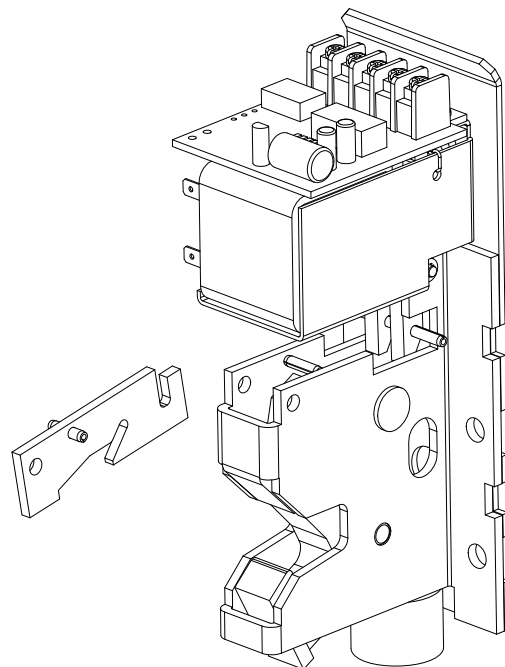
Using a small screwdriver or punch to start it moving, remove the Trigger Pin.

Grab the Trigger with one hand and hold the Transfer Bar back by pressing on the long roll pin with the other hand.



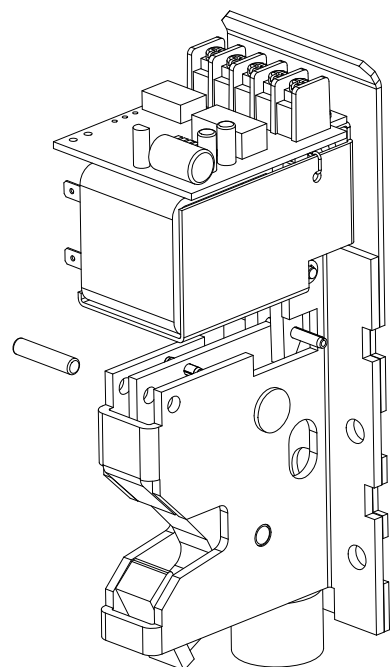
Pull the Trigger out the front of the lock Chassis.

You may need to move the Catch (hook) back and forth to clear the slot on the bottom of the Trigger.



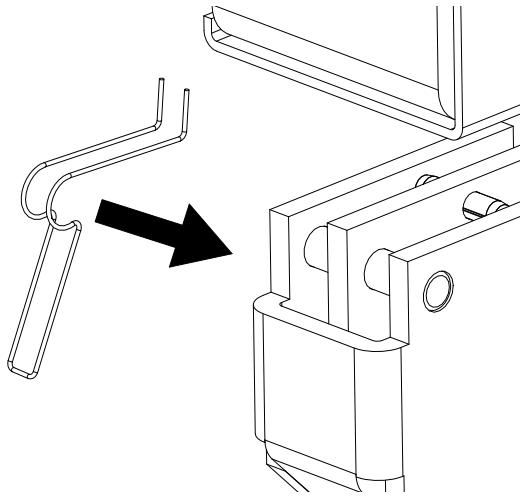
Insert the new Trigger into the lock Chassis.

The back of the Trigger must fit in the center slot of the Transfer Bar and UNDER the pin.

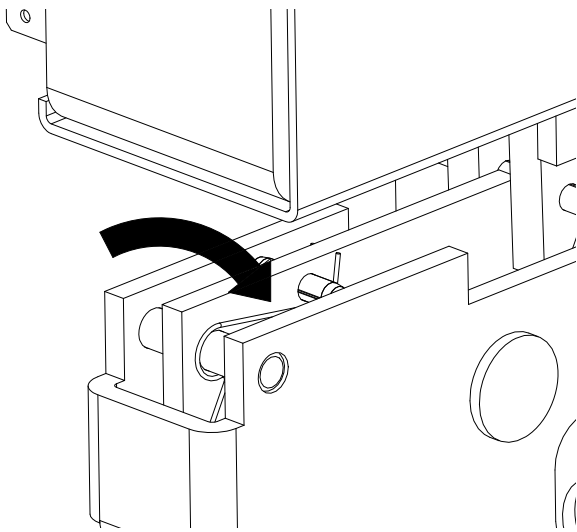


You may need to move the Catch (hook) up/back to get the Trigger into position where the pivot pin hole lines up with the holes in the Chassis.

Reinstall the pivot pin and check to make sure all wires clear the Cover and Transfer Bar cross pin.



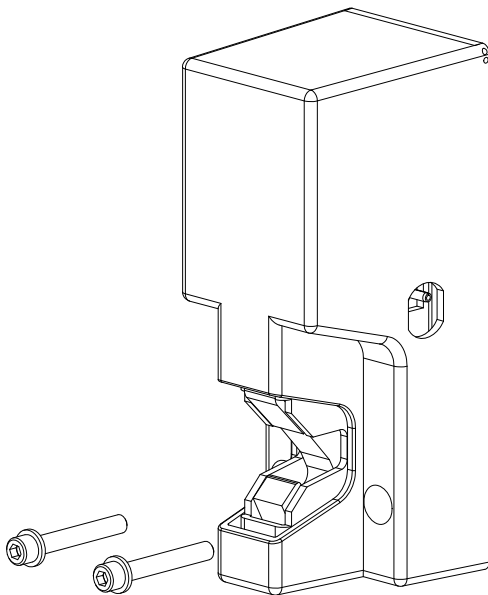
The spring fits behind the front wall of the chassis as shown and the spring legs go on the sides of the trigger.



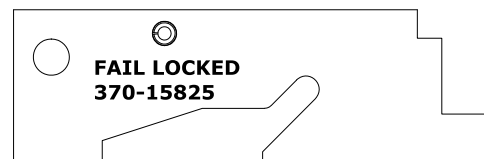
Hook the loops of the spring under the trigger hinge pin as illustrated.

Use needle nose pliers to bend the legs of the spring under the cross pin in the trigger.

Replace the Cover and test for correct operation.



USE THIS SAME PROCEDURE FOR FAIL SAFE TO FAIL SECURE CONVERSION.





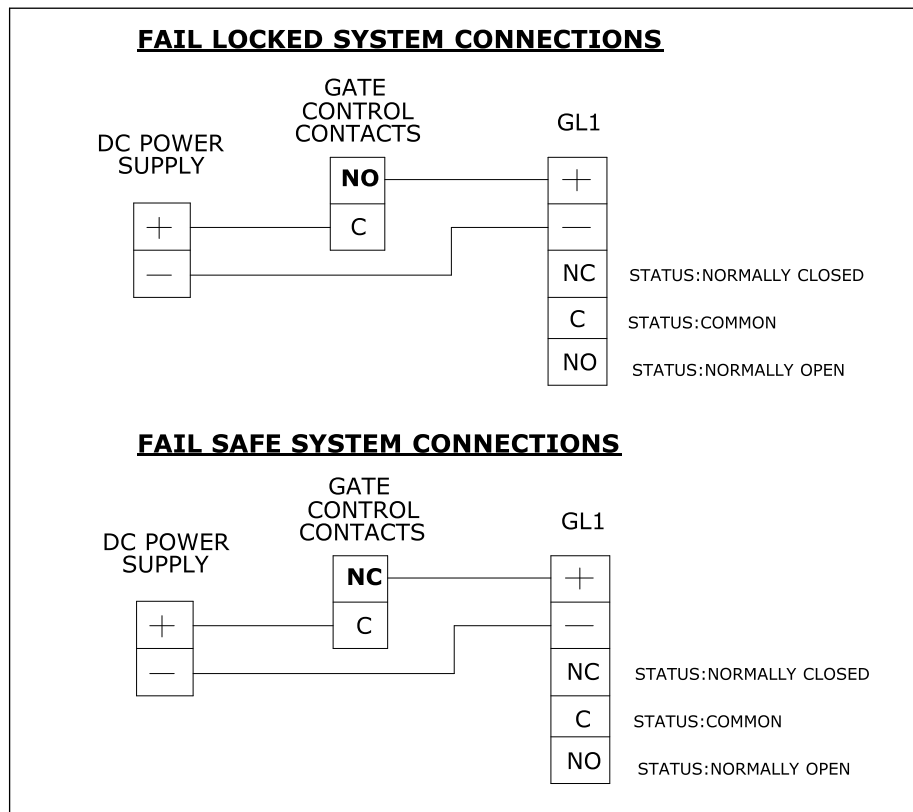
## 6. OPERATING INSTRUCTIONS

The Gate Lock is a direct latching fail safe/locked electromechanical lock which incorporates Securitron's unique dual voltage system. The GL1 **does NOT** automatically re-lock if the strike is not moved from the latch. The **strike must always be pushed closed** to mechanically re-latch in order for the GL1 to re-lock.

In Fail Locked mode: Applying input voltage of 12 or 24 volts DC, observing polarity (See **Wiring diagram below**), will energize and **unlock** the Gate Lock allowing the gate to be opened. Removing the input voltage will de-energize the Gate Lock and will allow it to mechanically latch securely when the gate is closed.

In Fail Safe mode: The input voltage must be maintained to keep the Gate Lock in a **locked** mode. Removing the input voltage will de-energize and **unlock** the Gate Lock allowing the gate to be opened. Applying input voltage will energize and **lock** the Gate Lock awaiting the gate to be closed.

Additionally, the Gate Lock may include an optional gate status sensing feature. When the gate (strike assembly) is latched closed the Gate Lock will report this closed condition by outputting a closed circuit condition between the C and NC terminals. When the gate is open, the closure will be between the C and NO terminals. This dry Single Pole Double Throw (SPDT) output can carry **1 Amp @ 30VDC maximum**.



Wiring Diagram

## 7. WIRE GAUGE SIZING

Distance	Gauge 12V	Gauge 24V	Distance	Gauge 12V	Gauge 24V
100 FT	20 GA	22 GA	800 FT	12 GA	14 GA
200 FT	18 GA	20 GA	1500 FT	10 GA	10 GA
400 FT	14 GA	16 GA	2000 FT	8 GA	8 GA

The general practice of wire sizing in a DC circuit is to avoid causing voltage drops in connecting wires that reduce the voltage available to operate the device. As Gate Locks are low power devices, they can be operated long distances from their power source. For any job that includes long wire runs, the installer must be able to calculate the correct gauge of wire to avoid excessive voltage drops.

This is done by taking the current draw of the lock and multiplying by the resistance of the wire  $I \times R =$  Voltage drop (i.e. 0.7 Amp.  $\times$  1.6 Ohms = 1.12 Volts dropped across the wire). For example a 5% drop in voltage is acceptable so if this were a 24 Volt system (24 Volts  $\times$  .05 = 1.2 Volts) a 1.12 Volt drop would be within tolerance.

To calculate the wire resistance, you need to know the distance from the power supply to the lock and the gauge (thickness) of the wire. The following chart shows wire resistance for solid copper wire per 1000 ft (305 meters):

Wire Gauge	Resistance/1,000 ft	Wire Gauge	Resistance/1,000 ft
8 Gauge	.6 Ohms	16 Gauge	4.1 Ohms
10 Gauge	1.0 Ohms	18 Gauge	6.4 Ohms
12 Gauge	1.6 Ohms	20 Gauge	10.1 Ohms
14 Gauge	2.5 Ohms	22 Gauge	16.1 Ohms

## 8. TROUBLESHOOTING

### **PROBLEM: The lock does not latch.**

- Check lock-to-strike engagement distance...Strike may be mounted too far away from the lock (see page 2).
- Check wire routing...Ensure wiring does not impede the function of the lock mechanism manual override/actuator lever, or behind lock catch (see page 4)
- For fail safe models – Ensure that there is power supplied to the unit and that the lock is wired correctly (see page 9).

### **PROBLEM: The lock output does not report secure condition.**

- Check wiring...Ensure wires are connected to the appropriate terminals (see **Wiring diagram** page 9).
- Check status of lock/strike...Verify that lock and strike are physically latched.

### **PROBLEM: The lock does not release.**

- Check for excessive pre-load to lock...The Gate Lock latching mechanism is not designed to release under pre-loads in excess of 100 lbs.
- Check incoming voltage at the lock...
  - For fail locked models electrical power is required to energize and release the lock - Verify that there is power to the lock and that the voltage being delivered is within the operating specifications (see page 9).
  - For fail safe models electrical power is removed to de-energize and release the locking mechanism – Verify that the power to the lock has been terminated (see page 9).
- Check wire routing...Ensure wiring does not impede the function of the lock mechanism manual override/actuator lever (see page 4).

### **PROBLEM: Cover does not fit on the lock.**

- Check welding...If the lock chassis was welded to the mounting surface; verify that there are no welds that extend beyond the edge of the chassis back plate (see page 2).
- Check wire routing...Ensure that the placement of the wires is not inhibiting the proper fit of the cover to the lock chassis.

### **PROBLEM: Manual override does not work.**

- Check cover...Make sure that the lock cover is fully seated and securely fastened in place.
- Check cam lock installation...Verify that the cam lock is correctly installed and functions properly – review installation instructions and check rotation direction (see page 3).
- Check wire routing...Ensure that the placement of the wires does not impede the rotation of the cam or movement of the latching mechanism (see page 4).

**IF YOUR PROBLEM PERSISTS  
CALL SECURITRON TOLL FREE  
1-800-MAG-LOCK**

## 9. MAGNACARE® LIFETIME REPLACEMENT WARRANTY

For warranty information visit: [www.securitron.com/en/site/securitron/About/MagnaCare-Warranty/](http://www.securitron.com/en/site/securitron/About/MagnaCare-Warranty/)