ELECTRO LOCK™
DOOR RESTRICTOR

# Installation Manual

## V.8.30.17

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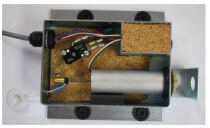
# Introduction

Please read the entire installation procedure and do not begin assembly of the system until you understand the procedure completely.

The following hardware and components should be included in the ElectroLock Door Restriction package. Be sure you have this hardware before beginning installation.

# ElectroLock Components and Hardware

| Components | Qty |
|---|---|
| Electrosensors™ (with Model "A" only) | 5 |
| Manual Release Wand | (opt) |
| Controller/Power Supply | 1 |
| MagnaLatch™  | 1 |
| Locking Block | 1 |

## Hardware

| | |
|---|---|
| 1/4" x 20" x 3/4" self-threading screws & lock and flat washers | 8 |
| 1/4" x 20" x 3/4" mounting screws & lock and flat washers | 2 |
| 1" TEK screws and washers | 10 |

## Before Getting Started

Be sure you have enough #14 wire and Greenfield to connect the ElectroLock controller to the Car Top Junction Box.

MagnaLatch is pre-wired to the controller with an 8' cable. **Do not disconnect this cable.**

**NOTE: DO NOT USE CAR LIGHTING SUPPLY AS A POWER SOURCE FOR ELECTROLOCK.**

(The use of this power source violates ASME A17 Code.)

## Installing ElectroLock

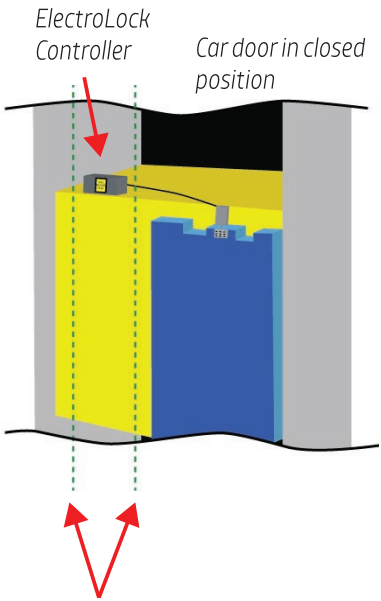
It is important to install the ElectroLock Door Restrictor System as indicated by the following steps to ensure proper operation. If the "Door Zone Input" method of activation is selected (see page 8), in lieu of the RFID and target method of activation, skip Steps 1 and 6.

## Step 1

### Identify the Electrosensor Target Lane

A. Identifying where your Electrosensors will be placed is important. Even though you will install the Electrosensors last, you will need to know where to mount the other ElectroLock components to ensure they ultimately line up. (see Fig. 1)

B. When considering where to place the Target Lane, note that the Electrosensors can be affixed to either the rail, the fascia or the hatch wall. In any case, the target faces of the Electrosensors must be mounted 4" from any metal object so the effectiveness of the RFID Reader Head is not compromised.




*Example of Electrosensor Target Lane*

## Step 2

### Align & Mount the ElectroLock Controller

A. The ElectroLock Controller should be mounted to the header or car top in line with the proposed Target Lane. (See Fig. 2) Note: If the "Door Zone" signal is being used in lieu of the RFID reader and target system, the Controller can be mounted anywhere on the car.

B. Once placement is identified, use four (4) sets of enclosed, self-threading 1/4" x 20" x 1" mounting screws, lock and flat washers to secure Power Supply / RFID Reader head to the car top.

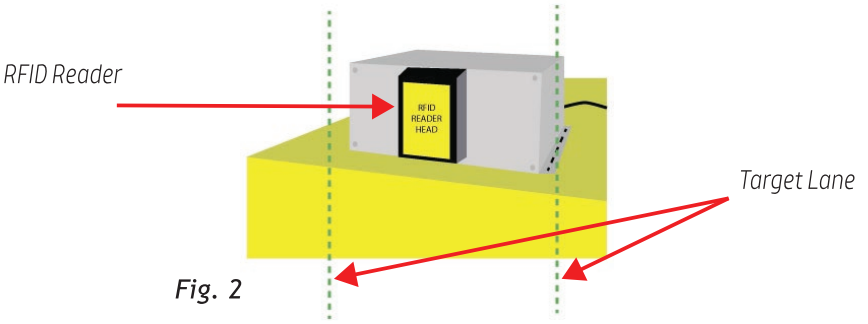



*Fig. 2*

## Step 3

### Align & Mount the Lock Block

Mount the Lock Block to either car door hanger bracket using two (2) 1/4" x 20" x 3/4" mounting screws, plus two (2) lock and two (2) flat washers. (See Fig. 3).

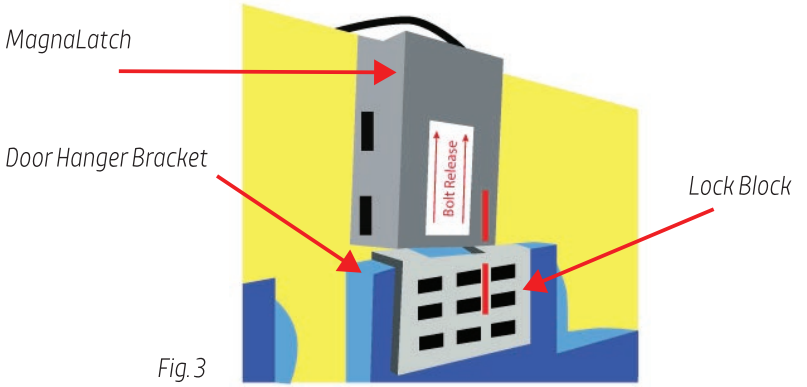



*Fig. 3*

## Step 4

### Align & Mount the MagnaLatch

A. Place the car door in the fully closed position to prepare to install the MagnaLatch Assembly.

B. ***For Horizontal Alignment:*** Align the colored arrows (See Fig. 4) located on the MagnaLatch Assembly and Lock Block.

C. ***For Vertical Alignment:*** Align MagnaLatch vertically so that the Lock Block passes between the solenoid brass housing and the solenoid pin stabilizing bracket. (See Fig 5).

D. Mount using four (4) 1/4" x 20" x 1" self-threading mounting screws, utilizing the lock and flat washers where appropriate.

*Fig. 4*

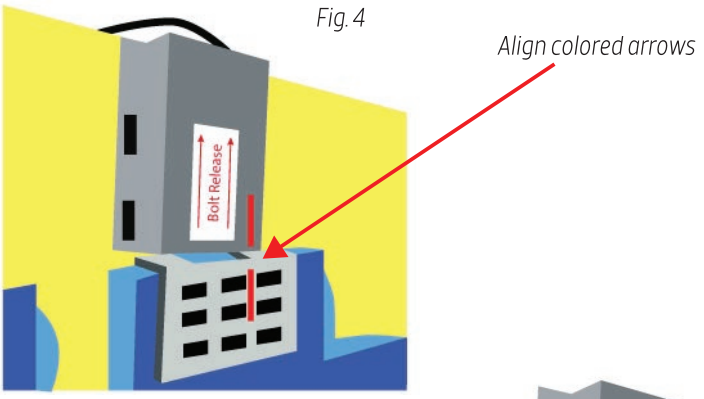
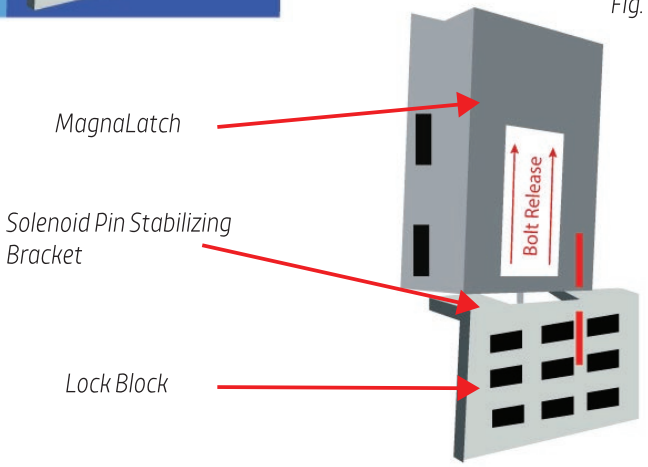



*Fig. 5*



# Step 5

## Applying Power

When the ElectroLock controller and MagnaLatch have been installed, you are ready to apply power. The ElectroLock utilizes two types of power supply.

The first type is a universal input supply which can operate within the 120V AC/DC to 220V AC/DC range. This power supply is used to allow the installer to utilize the Host Controller voltage found on the car top. This power supply can be identified by the exposed components and heat sinks visible on the light tan piggy back PC board.

The second type of power supply is for an input of 48VDC (an example would be voltage found on Composite Dover equipment). It can be identified by its silver color and square shape.

The type of power supply provided is a decision reached through information provided by the personnel ordering the equipment. **Reminder: it is against the ASME A17 Code to use the car lighting supply to power the ElectroLock.** To apply power to the ElectroLock Controller, connect power source to terminals P1 and P6. When taping into DC voltage for your source, be sure to connect the positive input voltage to P1 (+) and the negative side of the source to P6 (–).

# Step 6

## Aligning the Electrosensors

**Please read before beginning alignment**

The controller has been designed with a unique install feature: At the lower right corner of the power supply board is an LED labeled "Target Acquired", above that is a Piezo signal generator.

When the JB Jumper is in the "A" position (factory setting) and power is applied to the system, the LED will illuminate and the Piezo will produce a high-pitched audio signal when the Electrosensor is aligned with the RFID Reader Head (which is mounted on the control box).

***This feature provides visual and audio feedback during the next phase of installation—Electrosensor alignment and mounting.***

When all the sensors are installed, the JB jumpers must be placed in the "B" position to extinguish the audible tone.

There are two important considerations when aligning the Electrosensors to the RFID Reader Head (Figs. 6 & 7):

A. The Electrosensor should be mounted in the Target Lane, no more than 1.5" from the RFID Reader Head (refer to Step #1).

B. The Electrosensor should be a minimum of 4" away from the steel fascias.

**Note: Never mount Electrosensors with steel directly behind them. Doing this will minimize the effectiveness of the RFID Reader Head.**

### Electrosensor to Reader Head Adjustment

When the Elevator is level at each landing, the vertical center of the Electrosensor should be aligned to the red line on the RFID Reader Head which reads "Trigger Point". The Electrosensor horizontal alignment should be in the middle of the Reader Head.

*Fig. 6*

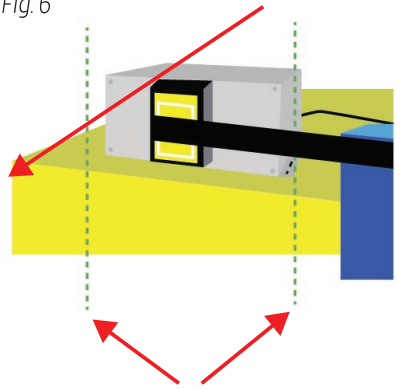
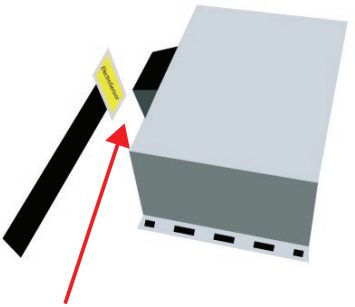



*Fig. 7*



*Electrosensor within 1.5" of RFID Reader and well away from steel fascia.*

## Additional Functions (optional)

### Time Delay Function (for slower elevators)

When activated, the Time Delay Function provides a delay between the acquisition of a target and the Magnalatch bolt retraction (the unlocked position). The delay prevents the Magnalatch from unlocking the door as the elevator passes each target thus preventing operation in flight. This function is activated by moving the JA jumper from the "B" position (factory setting) to the "A" position and rotating the "RT" potentiometer to increase or decrease the time between target acquisition and MagnaLatch bolt retraction.

# Additional Functions (optional)

## Positive Action Switch (optional)

When the "Positive Action Switch" feature is provided the output contacts are located on terminals X7 and X8. The switch, which is built into the bolt assembly, can only close when the bolt is in the locked or extended position. This allows the bolt to provide direct feed back to the controller as to its position. When the switch is wired in series to the gate switch contacts it can provide an indication that the gate is not only closed but locked as well. ***This feature is not provided on all ElectroLocks. When the "Positive Action Switch" feature is desired it must be specially ordered from Electrodyn Systems.***

## MagnaLatch Bolt Release Button

The Bolt Release Button is a small red button on the outside of the Power Supply Unit. When depressed, the MagnaLatch Bolt will retract, allowing the door to be opened even though the RFID reader may not be in range of a sensor, or the Door Zone is not engaged.

If a remote release button is desired, a set of terminals is provided for the installer to add a normally opened spring loaded device whose contacts will remain open when no force is applied. The remote device should be wired to terminals "Z-9" and "Z-10", located on the power board.

## Special Functions Outputs

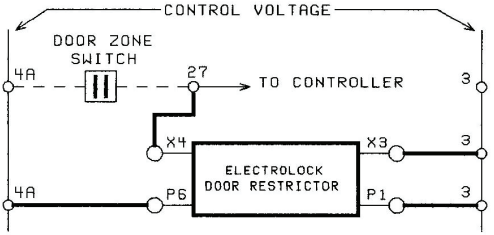
ElectroLock provides two (2) sets of normally open dry output contacts for use as feedback to the Host Control system. They both provide MagnaLatch bolt position and are rated 5A/250VAC.

The first set of contacts, located between terminals "X1" and X2", closes when the MagnaLatch bolt is in the locked position and can be used to signal the Host Controller that the gate is locked.

The second set of contacts, located between terminals "X5" and X6", closes when the MagnaLatch bolt is in the unlocked position and can be used to signal the Host Controller that it is OK to send the "Open Signal" to the Door Operator. This set of contacts can also be used to keep the "Open Signal" from the Door Operator by routing the signal through terminals "X5" and "X6", thus avoiding a condition in which the gate is trying to open while the MagnaLatch is still in the locked position which could result in the loss of a door motor.

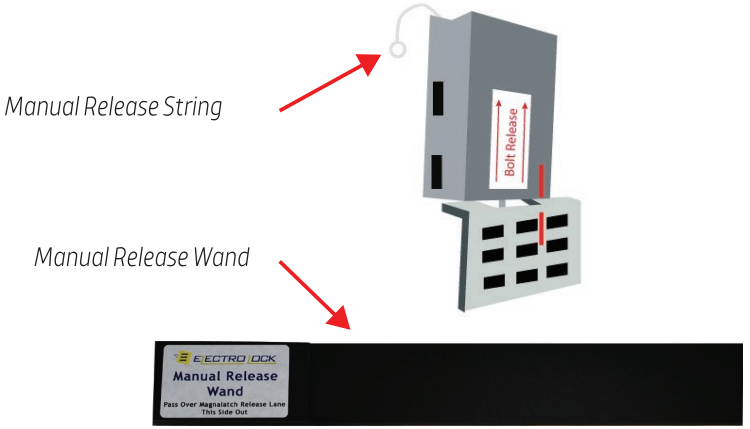
## Door Zone Input

The ElectroLock provides an alternate method to using the RFID Reader and targets to unlock the door. A signal can be introduced in voltages ranging from 24V AC/DC to 240V AC/DC at terminals "X3" and "X4" to activating the ElectroLock to unlock the door when in the unlocking zone. This is usually a signal produced by the "Door Zone" device located on the car top. The "X4" terminal is connected directly to the door zone output terminal while the "X3" terminal is connected to the return side of the power source used to produce the door zone signal (see typical diagram below). When the circuit is complete it will cause the MagnaLatch to enter the unlocked state. **If this method of activation is chosen the JC jumper on the power board must be in the "B" position (for location of the jumper, see adjacent page).**

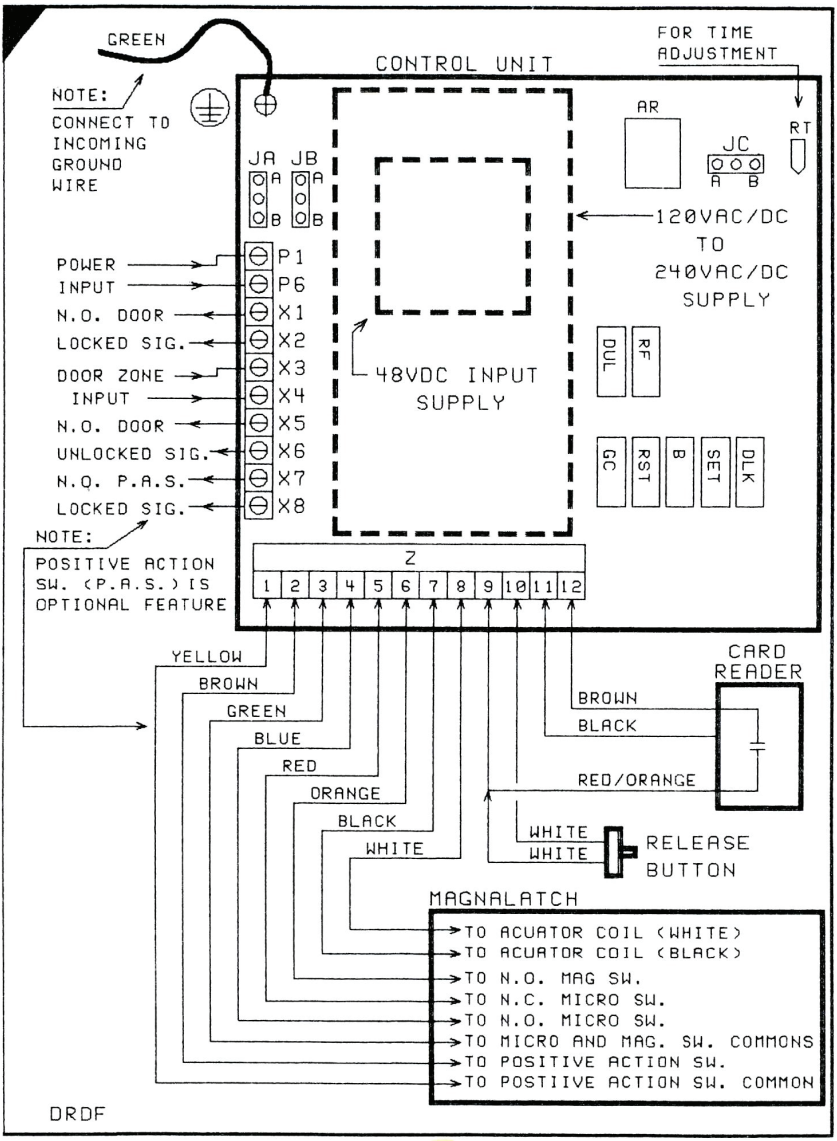



## Manual Release Tool (Optional)

The manual release tool is comprised of an 18" wand with a magnet embedded in the head. The tool is designed to release the MagnaLatch bolt when it is in the locked position and power has been lost. This is accomplished by passing the magnetic end of the wand over the left side of the MagnaLatch housing cover in the lane marked "RELEASE LANE". This lifts the bolt into the unlocked position to allow the car door to be opened. The release tool works on all MagnaLatch units with a "RELEASE LANE" sticker on their cover.



# Illustration / Schematic



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