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# Access Controller Installation Manual



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## Guardian II Controllers

### G50 (607-0071-000A) - Open Construction:



The open construction Guardian II board mounts directly on top of a Guardian II receptacle. The receptacle typically mounts in a customer's enclosure or faceplate. A 1" square hole must be cut in the panel to insert the receptacle. After the receptacle has been installed, the Guardian II PCB with its female header is lowered onto the male pins of the receptacle PCB and secured with a nylon tie strap. A tri-color LED (*mounts in a 5/16" diameter hole*) and wiring harness are included. This model can be easily integrated into existing faceplates and enclosures.



### G150 (607-0072-000A) - Doorframe Mounting Plate (Stainless Steel):

The controller and tri-color LED are mounted on a 5-1/4" x 1-3/4" stainless steel faceplate that can be installed on a standard 2" exterior doorframe. A 4-1/4" x 1-1/2" rectangular hole and two #8-32 tapped holes must be drilled to fasten the plate to the frame using the security screws provided.

[See Figure 3 for template](#)



### G250 (607-0073-000A) - One Gang Remodel Box Assembly

This model is used in interior applications such as lobbies, computer rooms, storage areas, etc. This single gang remodel box mounts thru a cutout in drywall. The box has two mounting ears that allow it to be self-securing within the wall. Wall thicknesses of 1/4" to 1-1/4" can be accommodated. The controller and tri-color LED are mounted to a stainless steel faceplate designed to fit the single gang box.

[See Figure 4a for template](#)



### G250 (607-0073-002A) - One Gang Outlet Box Assembly

This model can be surface mounted in interior or exterior applications. The enclosure combines weatherproof cast aluminum, 3 hole (1/2") box with an extension ring assembly. The controller and tri-color LED are mounted to the same stainless steel faceplate as the other G250 model. Approximate dimensions are: 4-3/4"h x 3"w x 3-1/4"d.

[See Figure 4b for dimension drawing](#)



### G450 - Ruggedized Aluminum Enclosure:

Used where harsh outdoor conditions exist. The controller and tri-color LED are mounted in a 4-7/8" x 3-1/8" x 2-1/4" aluminum enclosure which can be mounted directly on a surface (wall) or to the back (secured side) of the optional, 11 gauge mounting plate with (2) security screws. The plates come in stainless steel or aluminum and are typically welded in place.



The optional installation kit, 702-0071-000A contains (2) tamper-resistant 1/4-20 x 2-1/2" screws and (1) 1/4" drive spanner bit. Both the plates and installation kit can be purchased separately.

[See Figure 5 for template](#)

## Pre-installation of controllers

Physical installation of the Guardian II controller can vary from site to site. The [templates](#) supplied in this guide are drawn full size to help you with the physical layout and installation of your new controllers.

Our controllers are truly "stand alone" devices. This means that once you supply power to the controller and connect device (electronic strike, magnetic lock) wires, your system is ready to start up. The Guardian II controller requires no wiring back to a central computer. All data is transferred between controllers and your PC computer, via our rugged Admin and Export keys. It is good practice to mount your controller as close to the door strike as possible, to minimize the wiring distance between the two devices.

## Required power for controllers

Power required for the Guardian II controller is 9-12 VAC or VDC (0.3A). The maximum input voltage to the controller is 12V. **Important: For AC supplies, a voltmeter should be used to verify that the input voltage DOES NOT exceed 12V<sub>RMS</sub>.**

## New installations

Wiring diagrams for the **Power Fail Lock** and the **Power Fail Unlock** installations can be found on pages 8 & 9. The wires in the controller harness are color-coded. A 12 VDC electric strike (308-0045-000), available from Larco, can be configured as either **Power Fail Lock** or **Power Fail Unlock** simply by re-positioning the two screws on the side of the assembly. The electric strike, as it is shipped from Larco (sold separately), will typically be set to "**Power Fail Secure (lock)**" by the factory. Before installation of the strike, check to make sure that the strike is set to the mode you require.

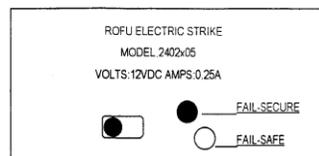


Figure 1

**Fail Secure (Lock)**

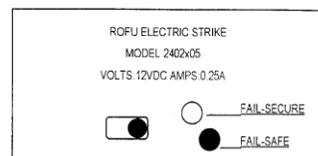


Figure 2

**Fail Safe (Unlock)**

A diode is integrated on-board the Guardian II printed circuit board to protect its relay. **The diode must be wired when using DC power.**

## Previously installed electric strikes

The Guardian II controller operates (1) Form C, SPDT 2A@30VDC relay contact that acts as a switch for electric strike or other device. If you have an electric strike installed, check to make sure that it does not exceed a maximum current draw of 2 Amps @ 30 VDC resistive load.

If you are using a magnetic latch, check the voltage requirement and make sure that the current draw does not exceed 2 amps. Some magnetic latches require a high voltage to operate. A separate power supply must be used to power the magnetic latch only. In that case, refer to the wiring diagrams on [page 9](#).

Note: For either installation (Power Fail Lock or Power Fail Unlock) ALWAYS make the power connections last.

For DC strikes, make sure the diode (*White/Red* & *White/Black* wires) are connected according to the correct wiring diagram [on pages 8 -10](#). **Connecting this diode backwards can possibly damage the Guardian II controller.** If you are providing your own strike, a diode may already be installed. If so, check to make sure that the cathode (the end with the band) is connected correctly.

If, for any reason, the Guardian II controller has to be removed, disconnect power to the controller, prior to disconnecting any other wires.

### Diode protection for new or replacement installations

If this is a new installation and the electric strike has been purchased from Larco, the strike should be installed as shown in the appropriate diagram for your application (pgs. 8 & 9). If you are replacing an existing unit and a strike is already installed, it is very important to check the rating of the strike and that it matches the 12 VAC or 12 VDC at 2 amps or less. If this is not the case, a separate power supply will have to be provided and connections made according to the applicable drawing.

For DC applications, check if the currently installed strike already has a diode installed. If it does, make sure that polarity is observed. If a diode was not installed, connect the *White/Red* or *White/Black wires* (for DC applications only). The installation of this diode is mandatory when using DC devices, to reduce any inductive kickback generated by the strike and preserve the relay's contact life.

**CAUTION: If an AC strike or magnetic latch is installed, DO NOT connect to the *White/Red* or *White/Black* wires.**

### Mode selection and installation of the locking device

#### Selecting Power Fail-Secure or Power Fail-Safe

Prior to mechanical installation of the strike, you must first determine which configuration of the locking device is correct for your application. With the electric strike available from Larco, there are two possible options:

1. **Power Fail-Secure** - Should a power failure occur, the strike would revert to a LOCKED condition. This is commonly referred to as "Power Fail Secure" and also "Power Fail Lock". The secured area typically has a means of allowing personnel to exit the area if a power failure occurs. This configuration is typical for any area that must remain secured if power fails. ([Fig. 1](#))
2. **Power Fail-Safe** - Should a power failure occur, the strike would revert to an UNLOCKED condition. This is commonly referred to as "Power Fail Safe" or "Power Fail Unlock". This configuration is not typically used where a secured area may be compromised. ([Fig. 2](#)) If you are using a strike that is already installed or if you plan to supply the electric strike, verify that it is compatible with the electrical requirements for Guardian II controller and that it will function properly for your application.

**Mechanical installation of the electric strike (optional)**

An installation diagram and a template for cutout requirements are supplied in the packaging box with the strike. Depending on your specific requirements, strike installation may require additional mechanical work. In any case, make sure that there is ample space for connecting the wires of the strike to those coming from the Guardian II controller.

The standard mounting hardware (screws) supplied with the strikes are not stainless steel. You may want to replace this hardware with stainless steel materials, along with a tamper-resistant head.

**Wiring the controller**

Use continuous runs of wire with no splices. Avoid running the low power and strike wires parallel or near high-voltage AC lines. When crossing AC lines always try to cross at 90-degree angles. Never run AC power cables or AC transformer lines with any communication or alarm signal lines. Avoid high-voltage lighting fixtures when routing wires. Do not allow wires to contact any hot surfaces such as hot water pipes or heating elements.

The Guardian II system should not be connected to earth ground. Earth ground should only be made to the Guardian II metal enclosure (if so equipped) and to any remote release button enclosure, if it is metal. Do not mix electrical and earth grounds.

**Use of externally supplied power for electric strike or magnetic latch**

If a voltage other than 12 VDC or VAC is required or if the current requirement for the electric strike or latch is greater than 2 amps, an outside source of power will be required. Refer to the appropriate wiring diagram if external power needs to be supplied to the electric strike or magnetic latch. Always double-check your connections prior to re-applying power.

Externally supplied power for the strike may be either AC or DC. However, voltage and operating current of the controller device must not exceed the maximum rating of the relay within the Guardian II controller which is: **2 Amps @ 30 VDC resistive load.**

**Enclosures and mounting plate templates** ([see pages 13 -15 of this guide](#))

**Important: When installing the 607-0073-002A G250 Controller (Outlet) all unused conduit holes must be sealed, using Teflon tape and/or other waterproof sealant on the threaded hole plugs (supplied).**

**If not sealed completely, damage to the electronics may occur and is NOT covered under warranty.**

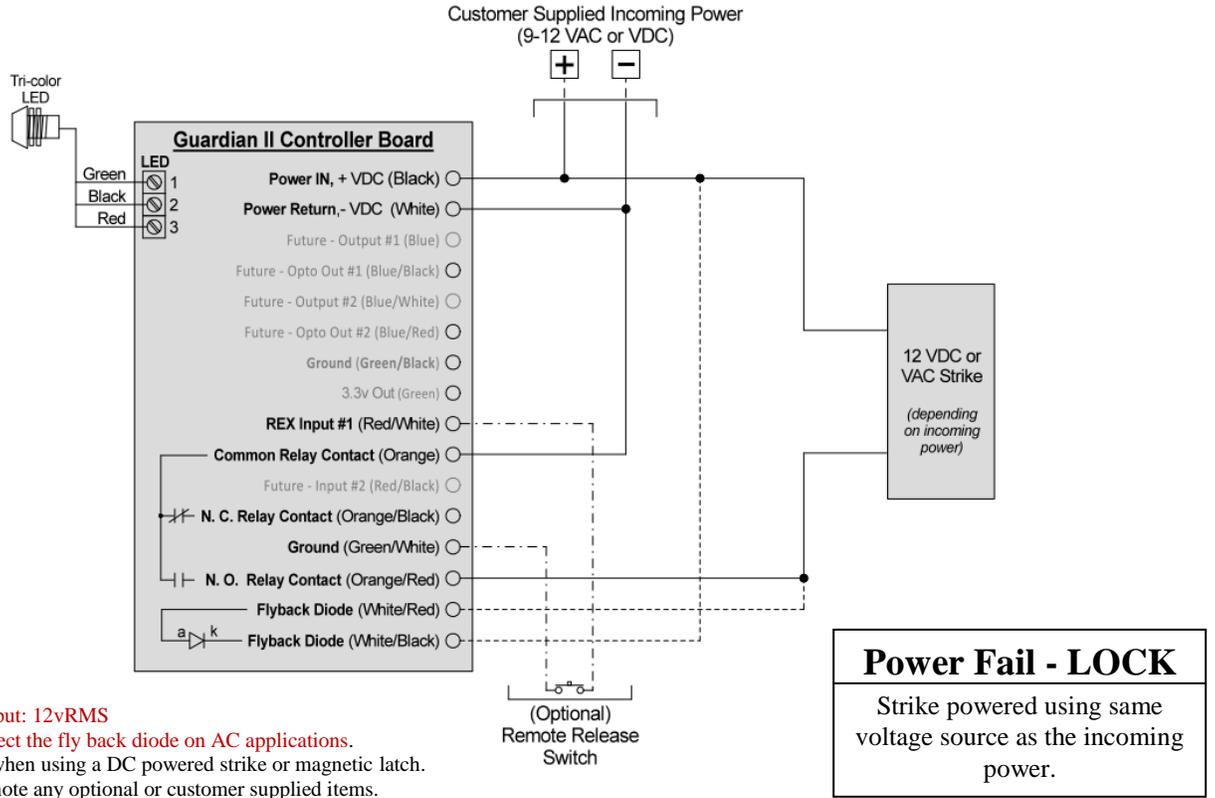
### Startup

Once your installation is complete and power is applied, the tri-color LED on the Guardian II controller will turn **amber** for 1 second and then change to **red**. This indicates that the unit is powered up and ready for programming.

The electric strike or the magnetic latch should also be functioning according to the operating mode selected during the installation (Fail Safe or Fail Secure). Typically, with installations providing access control to buildings, storage areas, etc., the function selected will be a secure or locked condition if power fails. In some other installations, the function selected will be a safe or unlock condition if power fails. If the operation of the system is not as expected, double-check all the wiring and make sure that the correct power is being supplied to the Guardian II controller.

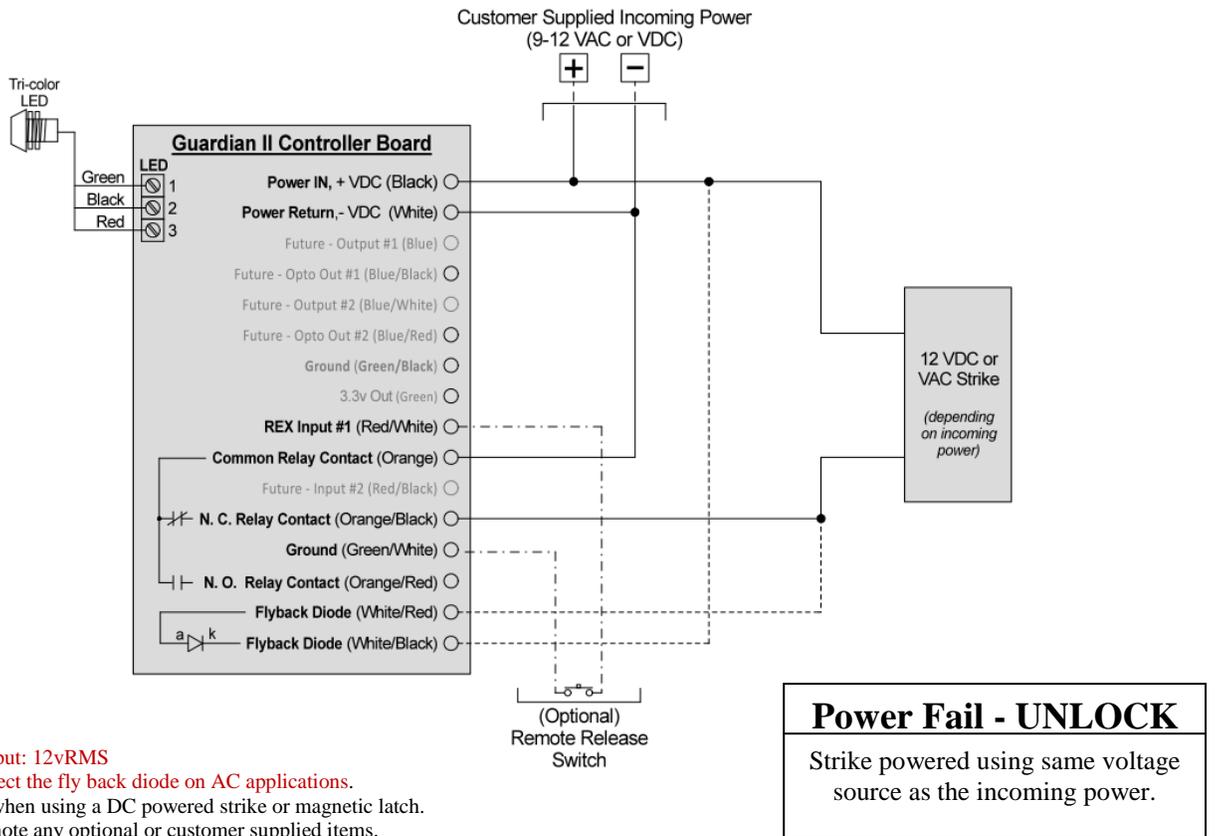
Assuming that the Guardian II controller is functioning properly, please refer to the Larco Guardian II Software User Manual (#223-0084-000) to complete the installation.

Wiring Diagrams



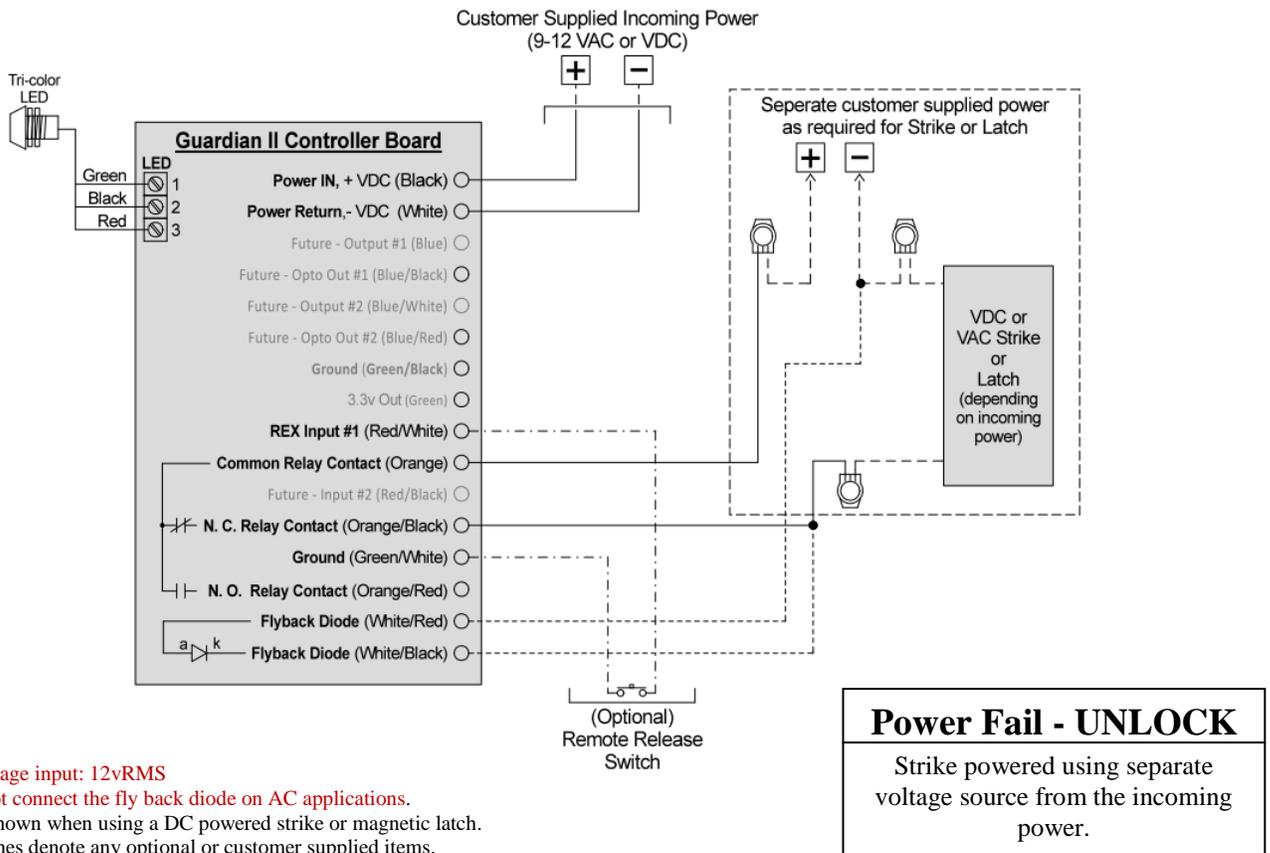
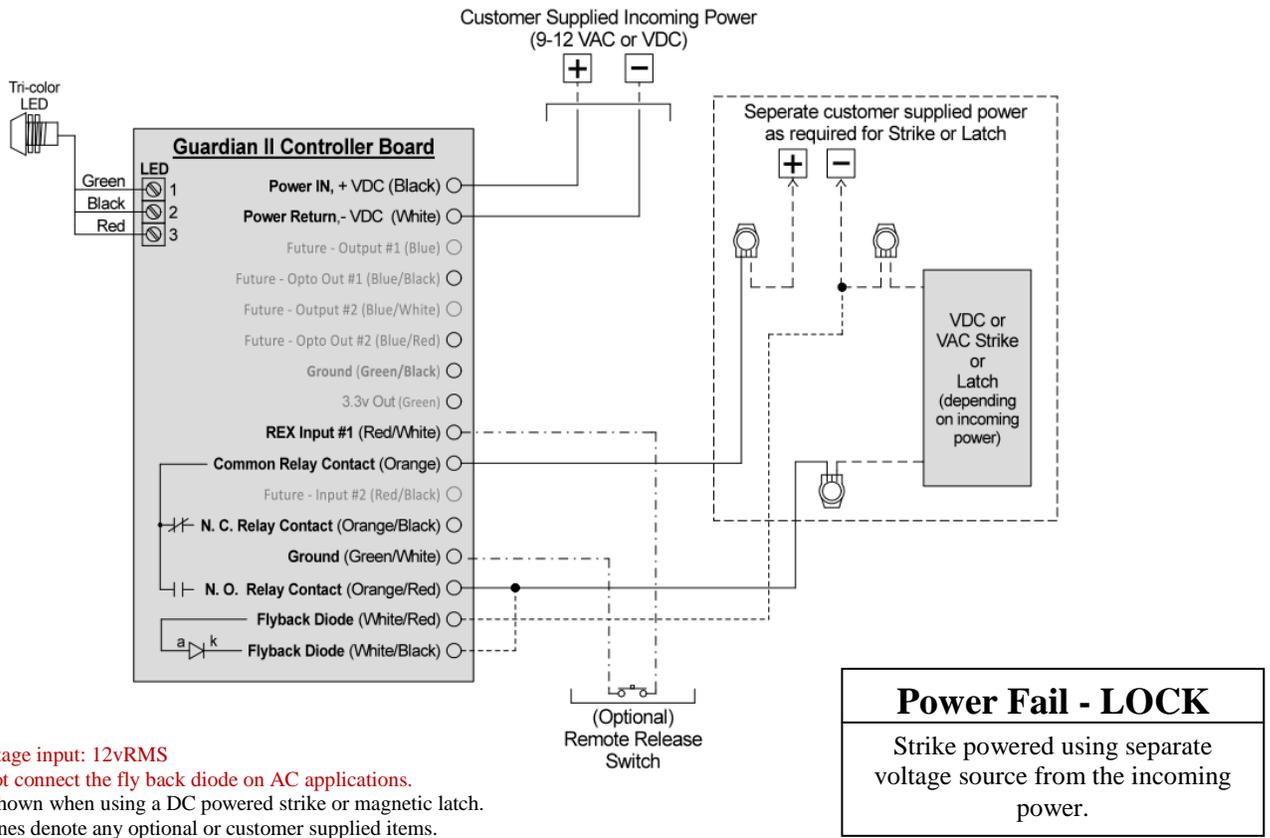
Notes:

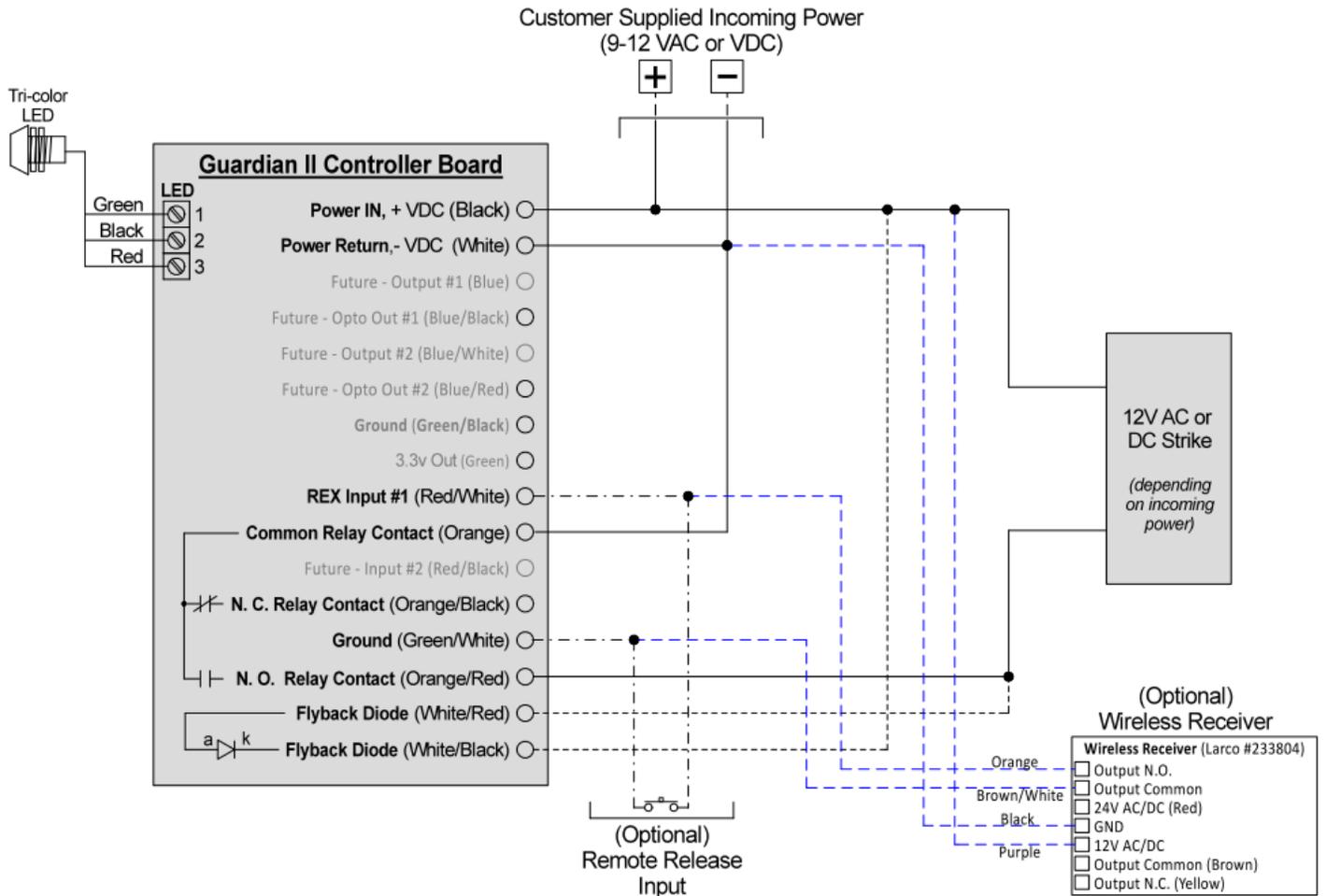
1. Maximum AC voltage input: 12vRMS
2. Important – Do not connect the fly back diode on AC applications.
3. Connections are shown when using a DC powered strike or magnetic latch.
4. All long dashed lines denote any optional or customer supplied items.



Notes:

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Notes:

1. Maximum AC voltage input: 12vRMS.
2. Important – Do not connect the fly back diode on AC applications.
3. Connections are shown when using a DC powered strike or magnetic latch.
4. All long dashed lines denote any optional or customer supplied items.

**Power Fail – LOCK with 433 MHz Wireless Receiver**

Controller, Strike & Receiver powered using same voltage source.

The Larco 433MHz Dual Channel Micro handheld Transmitter (#234518) is used to activate the wireless receiver.

### Enclosure Templates

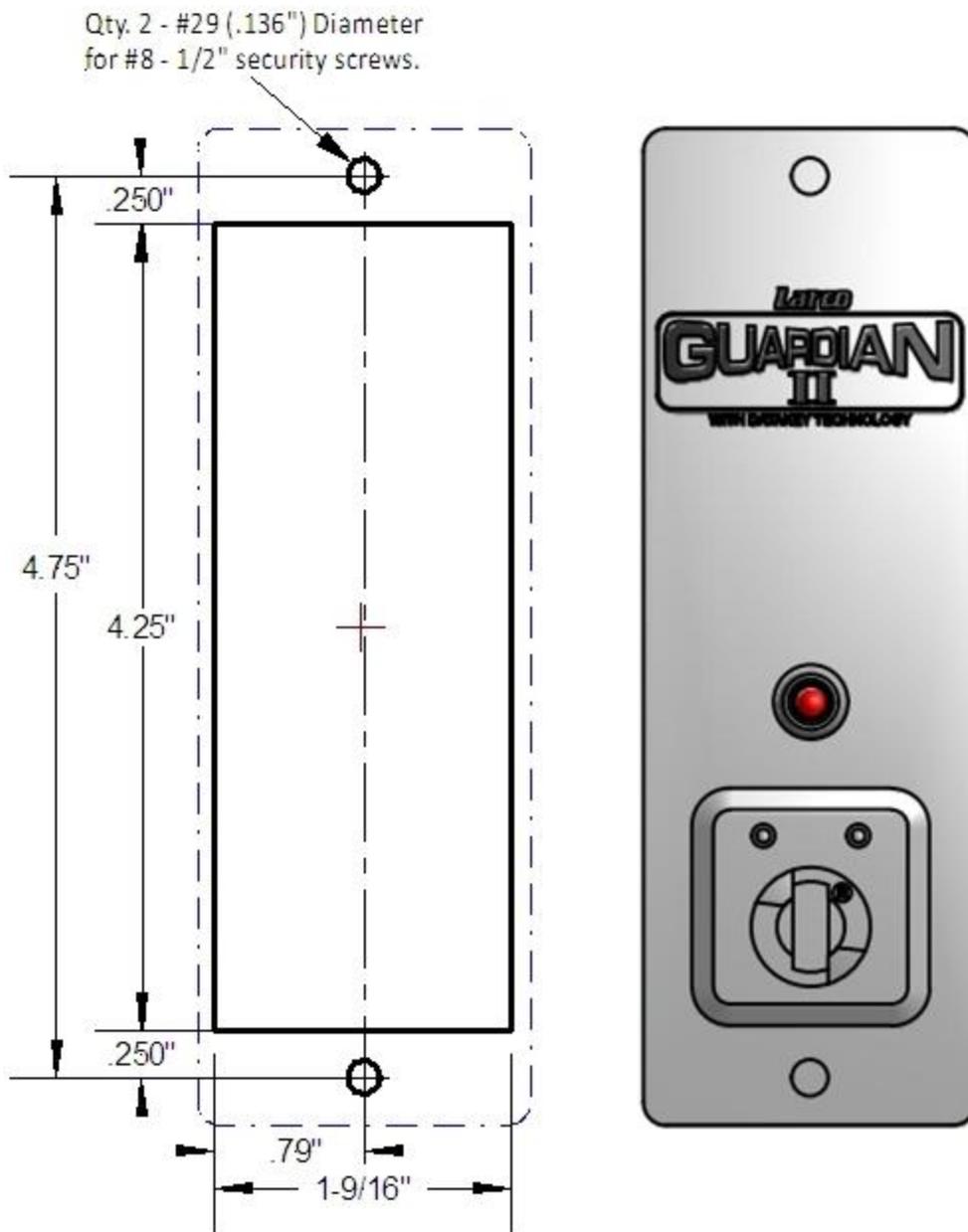
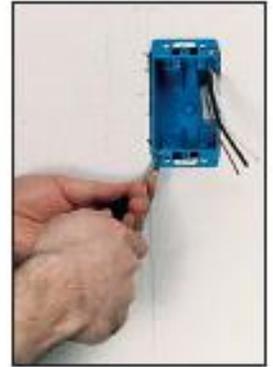
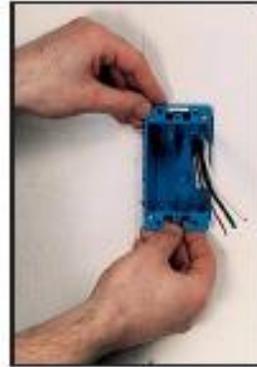


Figure 3  
**G150 Template**  
for P/N: 607-0073-000A

Enclosure mounting templates (continued)

Tape the paper template on the wall



Important: When installing the **607-0073-002A G250 Controller (Outlet)** all unused conduit holes must be sealed, using Teflon tape and/or other waterproof sealant on the threaded hole plugs (supplied). If not sealed completely, damage to the electronics may occur and is NOT covered under warranty.

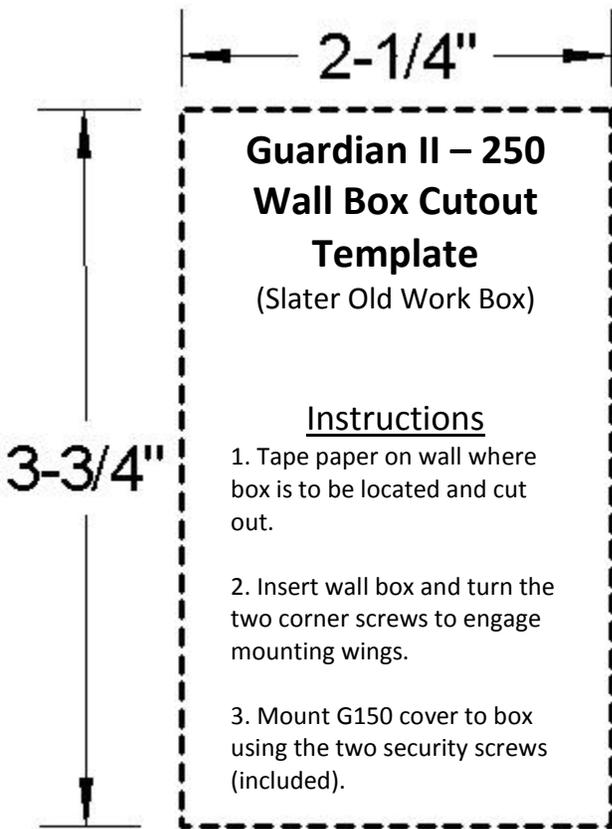


Figure 4A

**G250 Remodel Box - Wall Template**  
P/N: 607-0073-000A

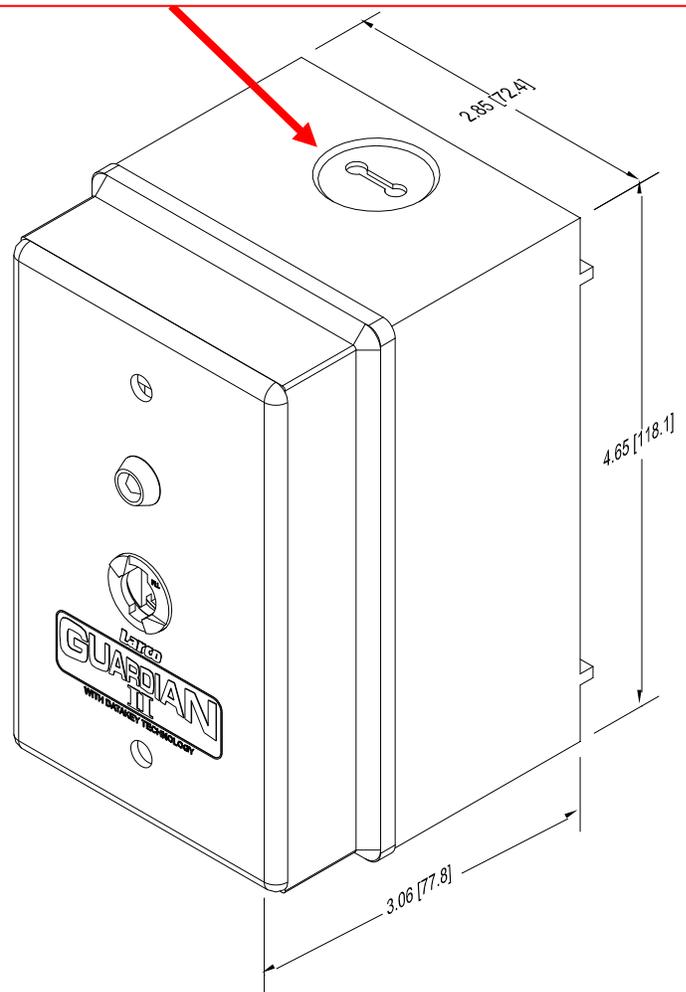


Figure 4B

**G250 Outlet Box – Dimensions**  
P/N: 607-0073-002A

Enclosure mounting templates (continued)



Figure 5

**G450 Controller Template**

(Enclosure size: 4-7/8h" x 3-1/8"w x 2-1/4"d)  
Controller typically mounts behind a plate  
*(shown in red dashes above)*  
with (2) ¼-20 x 2-1/2" stainless screws  
inserted from the back, into the tapped holes



Figure 6

**G450 on Mounting Plate**

(Mounting plate size: 6.92"h x 4.15"w x .125"d)  
P/N: 327-0333-00XA ( X = 4 Stainless, 5 for Aluminum)

Controller Board

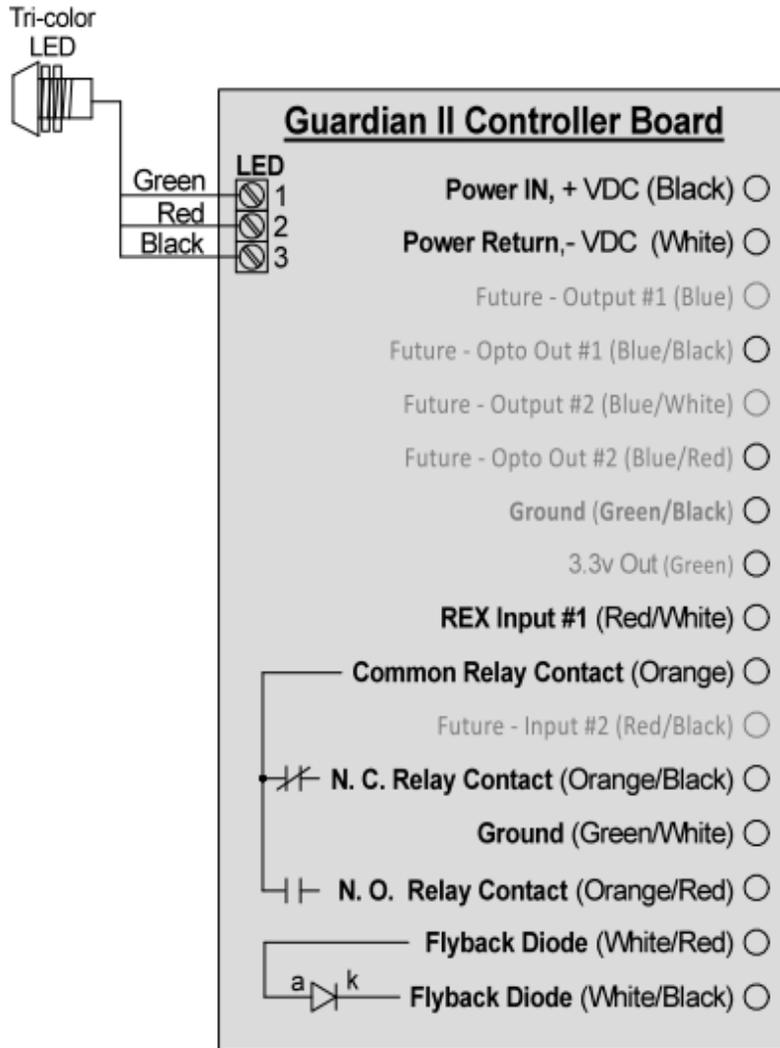


Figure 7

Guardian II Controller Board

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