LED SAFETY LIGHT SYSTEMS

LED SAFETY LIGHT KIT FOR FLAT, SWING & SLIDE GATES

INSTALLATION MANUAL

www.gateopenersafety.com | (888)-378-1043 | sales@gateopenersafety.com

IMPORTANT SAFETY INFORMATION

For safe installation and trouble-free operation, YOU MUST:

- Carefully read this instruction booklet before beginning.
- Always use appropriate PPE during installation including safety glasses, gloves and hearing protection as needed.
- Follow each installation step exactly as shown.
- Observe all local, state, and national electrical codes.
- Pay close attention to all danger, warning, and caution notices given in this manual.
- Always use the parts supplied by the manufacturer or other prescribed parts unless directed otherwise.
  NOTE: Use of non-prescribed parts can cause serious accidents such as the unit to fall, electric shock, or fire.

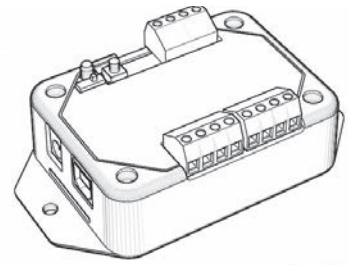
USE CAUTION WHEN WIRING: ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY QUALIFIED & EXPERIENCED INSTALLERS SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- Do not supply power to the unit until all wiring and connections are completed or reconnected and checked.
- Highly dangerous electrical voltages and moving parts are used in the operator. Carefully refer to the wiring diagram and these instructions when performing any wiring.
- Ground the unit following local electrical codes.
- Connect all wiring tightly. Loose connections can become disconnected due to vibrations from equipment.
- Install as directed. GateArms+ LED Safety Light Systems and LED Controllers are intended for use as described herein and by the product literature available for download at
- Any misuse, alteration, or modification of GateArms+ branded products beyond what is described in the available product literature will void all warranties.

KIT COMPONENTS

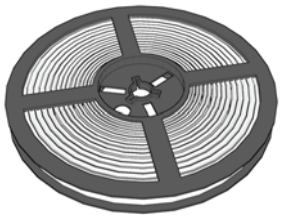
- (1-4) LED Strip(s) (5ft-20ft) **[LED##]**
- (1-4) 20ft LED Harness Cable(s) **[HARNESS##]**
- (1-4) LED Retainer Track(s)
- (5 per Track) #6 X ½" SS screws
- (1) Gate LED Controller **[CONTROL-GATE]**
- (1) 110V to 24VDC Power Supply **[PS24VIN-2.5A]**
- (1) 4ft Signal Cable (4-wire 22AWG)
- (1) Installation Manual

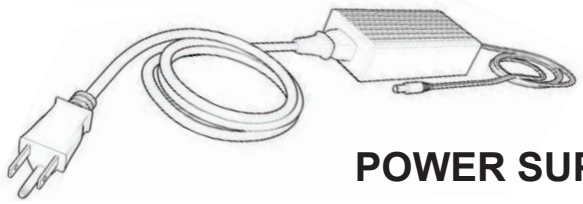
LED CONTROLLER



SIGNAL CABLE

LED STRIP

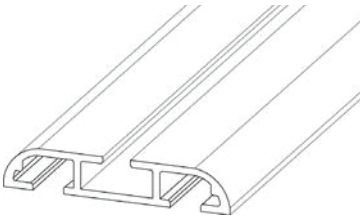




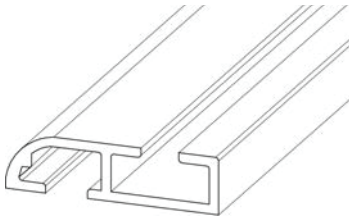
POWER SUPPLY

LED HARNESS CABLE

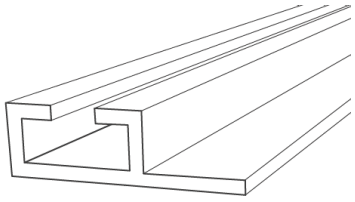
You should also have received (1) to (4) pieces of 5ft LED retainer track per kit ordered, in one or more of the following track styles:



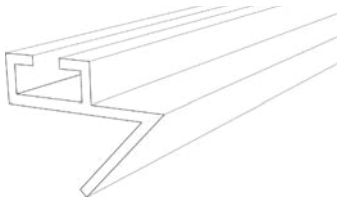
TRACKDUAL5



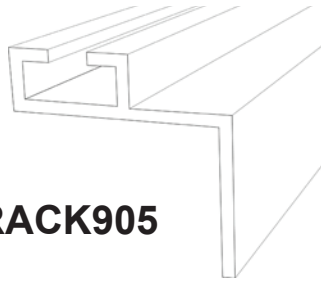
TRACKSNG5



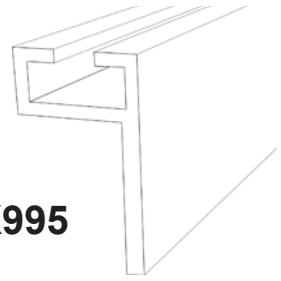
TRACKSNG5-CLASSIC



TRACK455



TRACK905



TRACK995

RECOMMENDED TOOLS & SUPPLIES (not included)

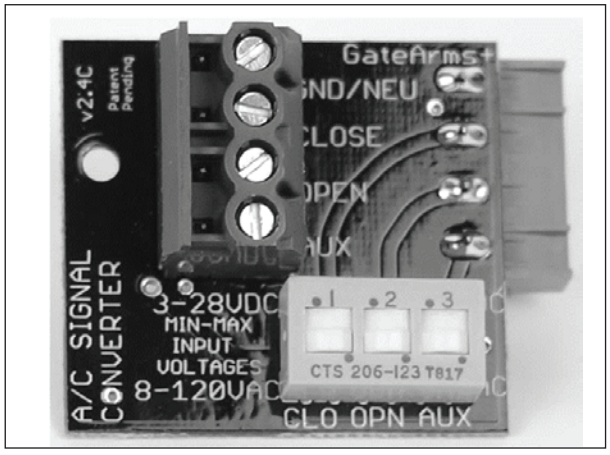
- Armoured Conduit
- Mini Pocket Slotted Screwdriver
- Powered Screwdriver
- Wire Stripper
- Multimeter
- Cleaner or Degreaser
- Clean Rags
- Double-sided foam tape
- Zip Ties
- Marker
- Power Drill
- Drill Bits (1/8”, 1/2”, 5/8”)

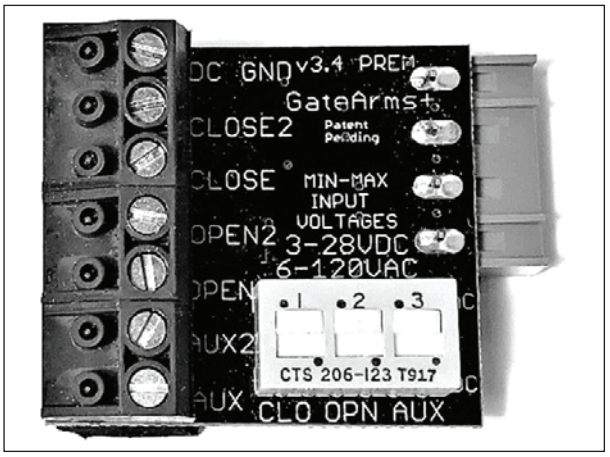
For Limit Switch Installation include these items:

- Terminal Crimper
- Red Crimp Terminals - Spade

Some installations will require an AC Signal Converter

[ACSIGNALCONVERT4] **OR** **[ACSIGNALCONVERT7]**





INSTALLATION OVERVIEW

1. TURN OFF OPERATOR POWER

WARNING: Serious injury could occur if power is not disconnected prior to installation.

2. INSTALL LED RETAINER TRACK

Attach the aluminum track to the swing gate by drilling through the mounting flange(s) and secure with screws.

The track can be mounted in various directions:

- Facing road surface
- Facing driver (lower horizontal edge)
- Facing driver (non-hinge vertical edge)

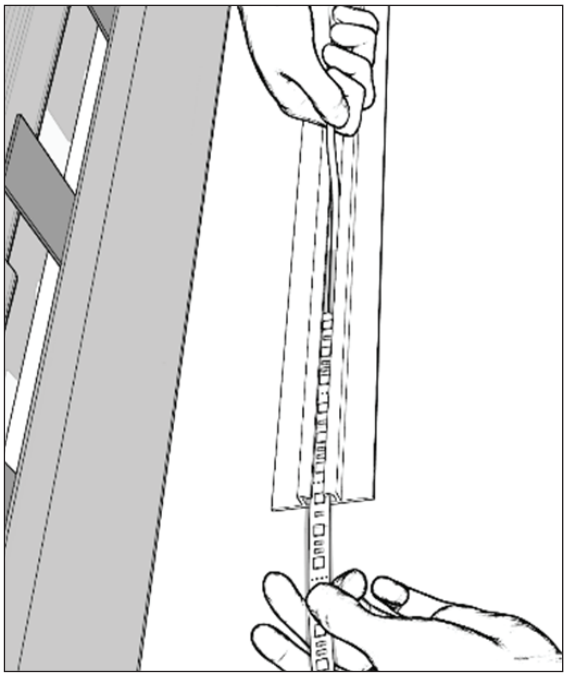
LED strips must not be installed with sharp turns or bends. To install LEDs at a 90° turn (on horizontal and vertical edges, for example), you must install two separate LED strips with two separate harness cables.

3. INSTALL LED STRIP

Swing or Flat Gate - Insert LED from far side of gate and pull towards the hindge/ operator side.

Slide Gate - Insert the cable end of LED strip into bottom end of lower retainer. Pull cable straight along the length of track.

NOTE: When fully-installed, crimp both ends of retainer track with pliers to ensure LED strip dosen't slide out from the track due to time or vibrations.

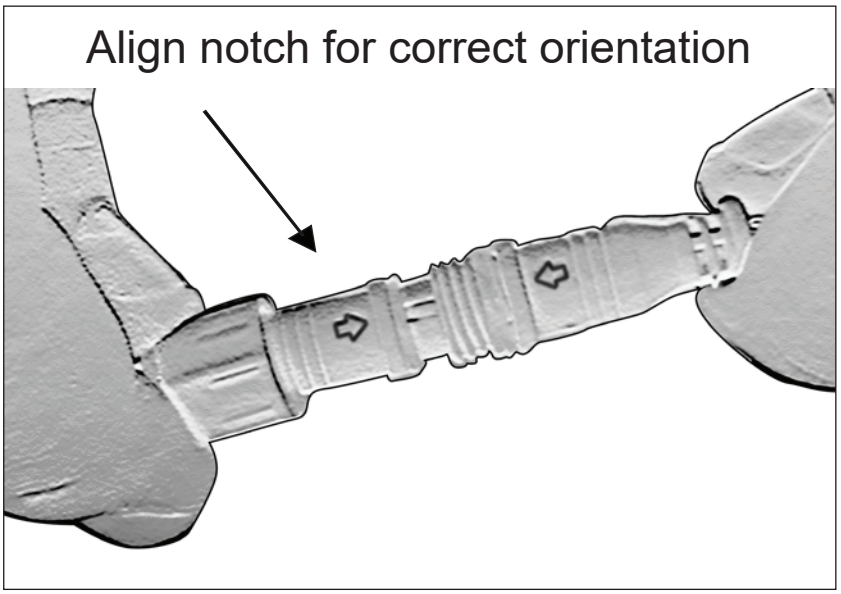


Pull cable through track

4. CONNECT LED STRIP TO LED HARNESS CABLE

Plug one end of the connector into the other using the arrow alignment notch. Tighten nut onto the connector.

There is dielectric grease inside the connector that ensures longevity of your connection points and creates a proper seal.



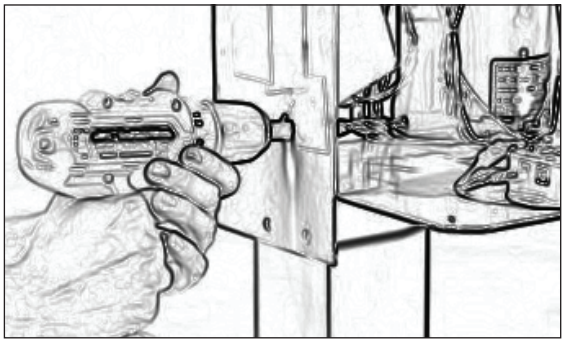
5. ROUTE HARNESS CABLE TO OPERATOR CABINET

Route the LED Harness Cable(s) from the gate hinge to the gate operator cabinet. Leave enough slack so the cable can move freely with the moving gate. Bring the end of the cable up to the operator cabinet, where you will create the pentration hole.

NOTE: Some installers use flexible armored conduit at the swing gate hinge to reduce fatigue on the harness cables.

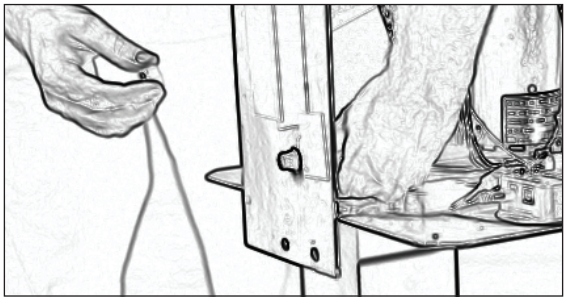
6. DRILL HOLE FOR CABLE RELIEF FITTING

Decide how to route the harness cable to the operator chassis, and where to penetrate the operator. Position the hole so that the cable will be as hidden and short as possible.



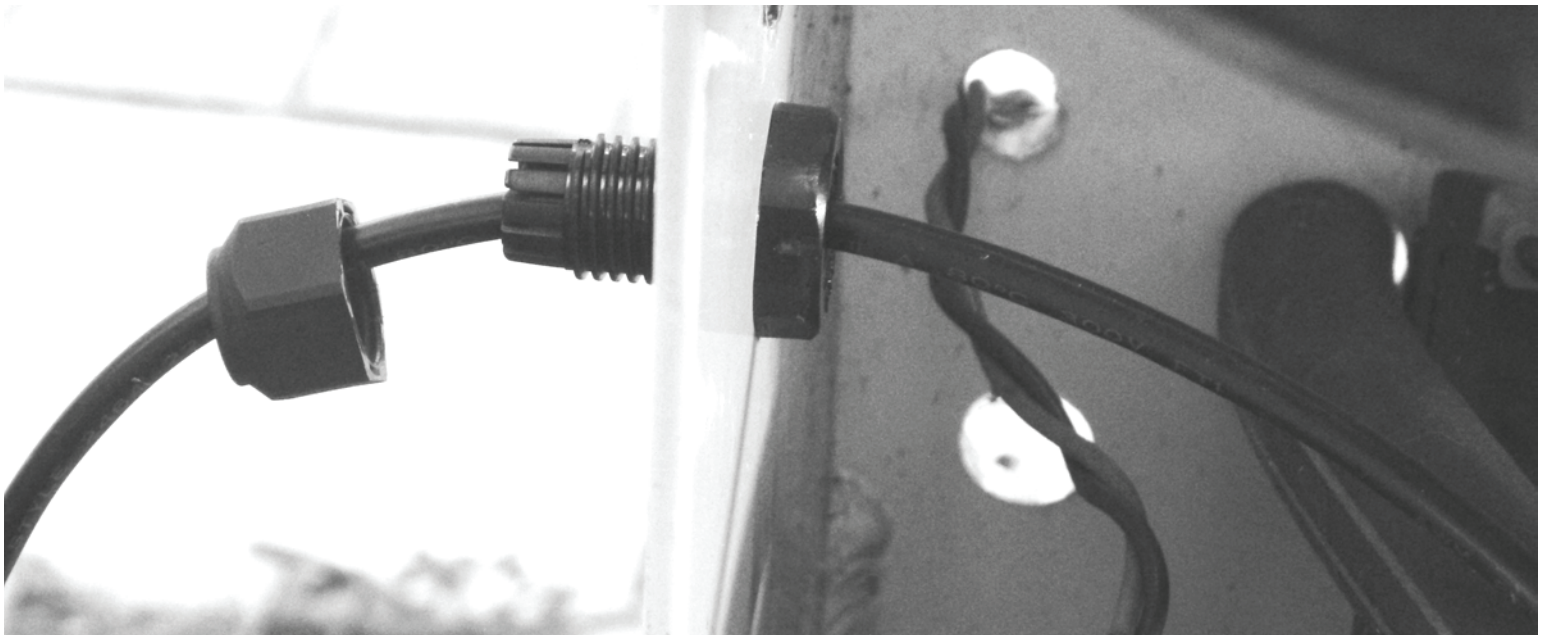
a. Drill hole in operator chassis (Single LED – 1/2”, Dual LED – 5/8”).

b. Deburr hole with drill bit or metal rattail file.

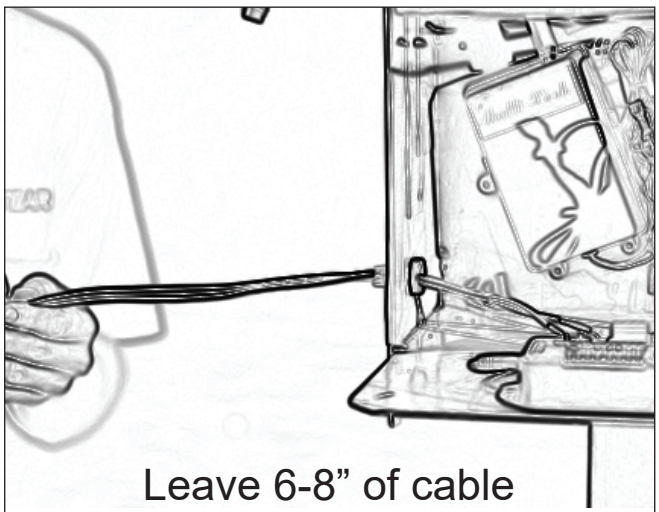


7. INSTALL CABLE RELIEF FITTING

Remove outer (tension) nut from the cable relief fitting, then insert fitting into the new hole. Tighten the back nut onto the fitting inside the operator housing. This nut holds the fitting to the operator wall.



8. PULL HARNESS CABLE(S) INTO OPERATOR



Leave 6-8” of cable outside operator

Slide raw wire end of LED Harness Cable through the cable relief tension nut, entering through the narrowest side.

If Dual LED, slide both cables through the same fitting.

Leave 6-8” of cable outside of the operator. It is essential that the cable always has some slack in it, regardless of gate position.

9. INSTALL POWER SUPPLY AND CONTROLLER INSIDE CABINET

Plug the DC power plug from 24V power supply into the power port of LED Controller located on the side near the USB port. Zip tie the 24V plug to the LED Controller's loop.

Place the 24V power supply and LED Controller inside the gate operator chassis where they will remain safe and dry. Route power supply power cord to an available receptacle on the operator's 120 VAC outlets.

NOTES:

1. **Do not plug 110v plug into the outlet yet!**

2. **IMPORTANT:** The controller can only accept power voltage of 24VDC. Higher voltage may irreversibly damage the LED Controller. **THIS WILL VOID WARRANTY.**

10. CONNECT HARNESS CABLE(S) TO CONTROLLER

Route LED Harness Cable through the inside of gate operator chassis until the end is located near where the LED Controller will be positioned.

Connect LED Harness Cable's wires to the press-on header(s). Match wire colors to labels on the LED Controller cover.

Push press-on header(s) vertically onto the LED Controller pins with screw heads facing outwards.

WARNING: Do not connect more than 20' of LEDs per header. More than 20' may cause LED dimming.

NOTE: Ensure all cables will always avoid the operator's pulley and other moving parts or sharp edges.

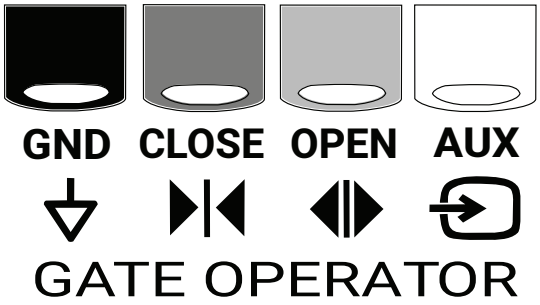
11. CONNECT SIGNAL CABLE TO LED CONTROLLER

The installation kit includes a 4-wire Signal Cable for connecting to the signal wire posts on the gate operator's control board.

Remove the upper-right 4-pin press-on wire header from the LED Controller.

Connect one end of the Signal Cable's wires to the press-on header. Note pin definitions on LED Controller cover.

- Black = Ground
- Red = Close
- Green = Open
- White = Aux



Plug press-on header into the LED Controller with screw heads facing OUT. Route the Signal Cable from the LED Controller to the gate operator's control board.

12. CONNECT SIGNAL CABLE TO OPERATOR

Connect the Signal Cable to the gate operator's control board. Many swing and slide gates provide relay outputs for fully-open and fully-closed. See Wiring Schematic insert for details.

WARNING - OVER-VOLTAGE WILL VOID WARRANTY
Signals entering the LED Controller cannot exceed 30 VDC.

Higher voltage may cause irreversible damage.
D/C SIGNALS ONLY: The LED Controller can only accept D/C. A/C signals may damage the LED Controller.
NOTE: We offer an optional **A/C Signal Converter board** that allows the use of A/C signals with this LED Controller.

13. CONFIRM WIRING

Take a moment to reconfirm all connections on each of the cables.

- Check both sides of the power cable.
- Check the gate operator's signal wire posts where the Signal Cable is connected. Ensure you are tied into the correct circuits for Open & Close, and that Common (Ground) is well connected.
- Check the LED strip(s) to ensure the wire colors correspond correctly to the colors printed on the LED Controller.

14. REVIEW WIRE MANAGEMENT

Use zip ties to secure all wiring inside the gate operator housing so the pulley and belt will never touch any wires.

15. TURN ON OPERATOR POWER

First, turn on the 110V switch and then plug the 24V power supply into the 110VAC outlet located inside the operator.
NOTE: Adapter can accept 100-240VAC.

16. TURN LED CONTROLLER POWER-SWITCH TO ON

Turn on the LED Controller. If the LED Controller's Status LED dosen't turn on, turn switch off and re-check power connections.

We need "Mode 3", where the Status LED is flashing rapidly. If the Status LED is solid or flashing slowly, hold the MODE button down again for 3 seconds and release.

Repeat until flashing rapidly. The LED strip will turn on after 2-3 seconds. If not, immediately turn off the LED Controller and review wiring.

17. TEST LED LIGHTS

Open the gate. The solid red LED lights should begin flashing red, then transition to green when the gate is fully open.

Close the gate. The solid green LED lights should begin flashing red, then transition to solid red when the gate is fully closed.

18. FINALIZE

- Close and secure gate operator case.
- Check the gate operator belt. If it is loose, tighten it.
- Add oil to gearbox if needed.

Still need help? Call our Tech Support line at (786)339-9840.
There are many subtle configuration settings that can be tweaked to get your project working. We are eager to help you ensure that EVERY PROJECT IS A SUCCESS!

CONGRATULATIONS!

You have completed the installation.

Run into an issue? No worries we have you covered.

Appendix A will help you install the Configuration Tool program. See Programming Guide insert after software installation.

Appendix B will help guide you through some common issues.

Wiring Schematic Insert will help you wire to the most common gate operators. Contact Tech Support if your operator is not listed.

LED Controller Programming Insert will help guide you with programming the controller's optional features.

APPENDIX A: INSTALL THE CONFIGURATION TOOL

INSTALL PROGRAM

1. Visit www.GateArms.com/downloads and click on the LED Controller Configuration Software to download.
2. You may need to stop any antivirus programs that are running.
3. Open (run) downloaded file with Administrative rights to install it.

CONNECT CONTROLLER TO PC

1. Detach power from LED Controller.
2. Use a Type-B (printer) USB cable (not included) to connect the LED Controller to the PC.
3. The PC should immediately recognize that the device was connected, although it will not install any supporting driver software.
4. Use the Configuration Tool to program the LED Controller.
5. Detach the USB Cable from the LED Controller.
6. Test LED Controller on your gate.

NOTE: If device is NOT RECOGNIZED, you will need to manually connect the driver file to the device using the following steps:

1. Open Device Manager in Windows
2. Right-click “Computer”, then choose “Manage”
3. Or, click “Start Button”, then “Administrative Tools”, then “Computer Management”, then “Device Manager”
4. Find “LED Driver” with an alert mark on it, probably in “Unknown Devices” group
5. Right-click that item, then choose “Update Driver Software”
6. Click “Browse…click “Browse” again if necessary, to search your computer C: drive
7. Open “Program Files (x86)”
8. Find folder “GateArms.com”, then “Configurator”, then “Driver” Click the “Driver” folder, then click “OK” button
9. Click the “Next” button and “Close”.

APPENDIX B: TROUBLESHOOTING

No gate lights on

Possible issue: Power Supply Problems

- Check LED Controller. Is its amber LED on?
- Is the 110V power adapter on? Check 110V power wiring at the operator's power source. Trace wire from LED Controller.
- Check Press-on Headers. Are the wires well-secured? Are they pressed in vertically all the way? Screws facing outwards? Match wire colors with the words on the LED Controller's cover.
- Ensure the external connector mating the LED Harness Cable to the LED Strip is fully connected. Check pins inside the connector.

LEDs change from Green back to Red while vehicle is still in the gate

Possible Issue 1: Controller "Close" set to Entering

- If the lights change when drivers enter the loop, set the LED Controller's Close to trigger on "Exiting".

Possible Issue 2: LED Controller's timer is set too low for your scenario

- Use the LED Controller's Configuration Tool and set the Auto-Close Timer to Disabled or to a higher value.

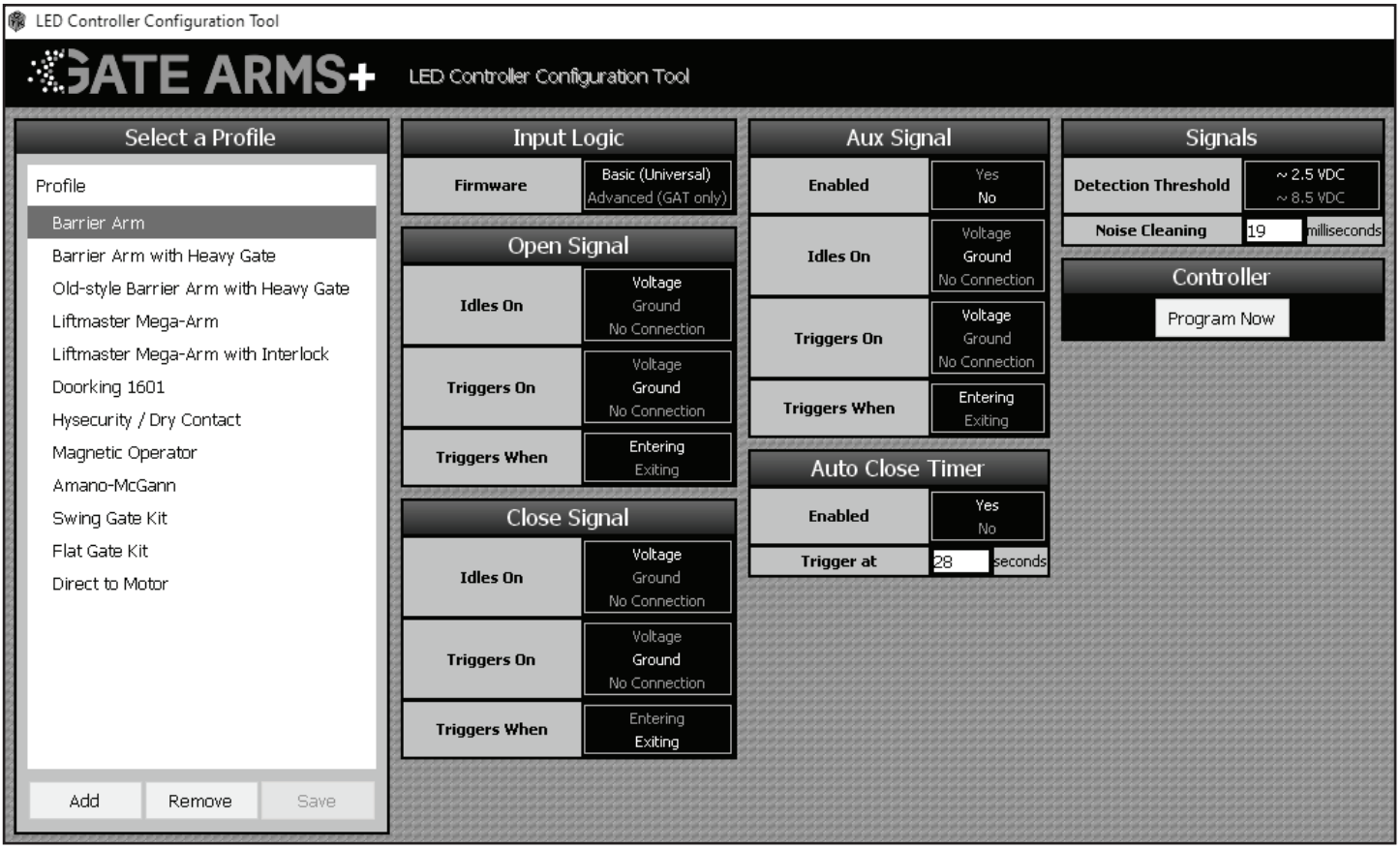
Red lights stay on, No green when gate opens

Possible Issue 1: Open Signal Wire disconnected

- If red stays on, the Open signal is not being received.
- Check Open (green) signal wire connection at the Signal Header of the LED Controller.
- Check the Open signal wire connection at the gate operator control board post. Refer to the Wiring Schematic insert and confirm correct wiring. Use a multimeter to ensure voltage or continuity is changing as expected when the gate opens.

Possible Issue 2: Controller Mis-programmed

- Ensure your LED Controller is programmed correctly for your particular gate scenario. Controllers are factory-set for a standard Swing Gate profile that has Open and Close limit switches or relays using dry-contacts. When triggered, the relay is grounded. Your controller may be in a Mode other than “Swing Gate Mode” or have custom programming that is interferring. Ensure the Status LED light is fast-blinking.



LED CONTROLLER PROGRAMMING - FLAT, SWING & SLIDE

* Visit www.GateArms.com/downloads to download the software.

"Idles On" (Voltage / Ground / No Connection):

Defines the input's default state when there is no activity at the gate.
[VOLTAGE] The signal input will idle with voltage on the pin.
[GROUND] The signal input will idle with ground on the pin.
[NO CONNECTION] The signal input will idle on a disconnected circuit.

"Triggers On" (Voltage / Ground / No Connection):

Defines what causes a signal to fire.
[VOLTAGE] The signal input will trigger on voltage higher than the "Signals-detection threshold" voltage in configuration tool.
[GROUND] The signal input will trigger on ground.
[NO CONNECTION] The signal input will trigger when the grounded (or powered) circuit loses continuity and then "floats".

"Triggers When" (Entering / Exiting):

This setting defines whether a signal fires at the beginning of a signal's duration ("Entering") or when signal terminates ("Exiting").
[For Open] This should generally be "Entering" since the LED(s) change state immediately when an open signal is received.
[For Close] This should generally be "Exiting" since the signal should fire only after a close (loop) event is no longer being received.

"Signals – Noise Cleaning":

The LED Controller is extremely sensitive to voltage changes, so it only will consider a voltage change significant if it persists for longer than the noise cleaning milliseconds. Shorter signals are ignored.

Signals

Default State: Sets the color that appears on power-up.
Detection Threshold (8.5V / 2.5V): Trigger is fired when voltage crosses this threshold. Default is 2.5V.

Auto-Close Timer

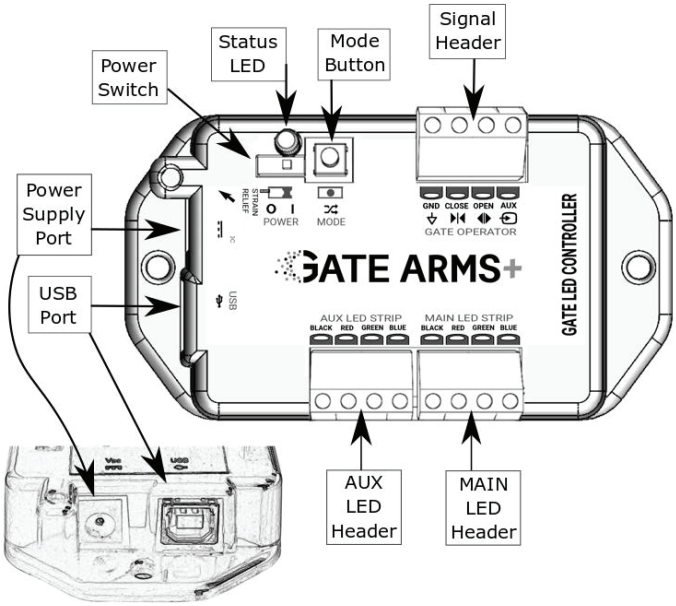
When this Timer is enabled, it will reset green to red after the given time expires. This timer acts as a secondary (back-up) close event.
NOTES:

1. If the gate(s) is kept in a "locked open" position for extended periods, you should disable the timer to maintain green LED state.
2. In heavy gate (interlock) scenarios, you often must disable or extend the Timer's time-out because heavy gates are slow to open.

PROGRAM THE LED CONTROLLER MANUALLY

LED Controllers are shipped from our factory pre-programmed and ready to use. You can program most features using the LED Controller Configuration Tool on the PC or using the Mode button and 1 or 2 jumper wires. Contact GateArms+ Tech Support for assistance with any programming needs.

NOTE: Programming with a jumper is easy when no computer is available. If you need to program several controllers at once you should use the PC Configuration Tool. This program is also better for setting timers precisely.



Using MODE Button

1. Turn on LED Controller
2. Hold/Release Mode button for 3 sec. to rotate through 3 scenarios.
   Mode 1: Voltage-Drop with Interlock Option. No flashing in motion.
   Mode 2: Same as Mode 1, but with flashing-red in motion.
   Mode 3: Dry-contact limits with Interlock Option. Flashing-red in motion. Default profile for most operators.

Remove Special Programming

Hold Mode button down for approximately 3 seconds (with no jumpers) until fading effect of status LED reverts to solid.

Single-Action Programming

1. Remove all press-on headers temporarily.
2. Turn off LED Controller using power switch.
3. Connect jumper wire between 2 pins as described in following table.
4. While holding “Mode” button down, turn on power switch. Status LED will flash for 2 seconds. Release button. Feature is now set.
5. Turn off LED Controller. Remove jumper wire, reattach press-on headers. Turn on LED Controller.

Multi-Action Programming

Use for setting dimming level or duration of timers.

1. Follow single-action programming completely.
2. Turn LED Controller off, then back on again using its power switch.
3. Either tap or hold-down the Mode button, depending on need.
   a. For setting the dimming level: Press and release “Mode” button quickly. Each tap dims by 1 level (16 levels).
   b. For setting time: Hold the “Mode” button for the duration you desire. Time is set when you release the button.
4. Turn LED Controller off, then back on again using its power switch.

Fig. 1

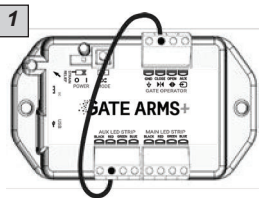


Fig. 2

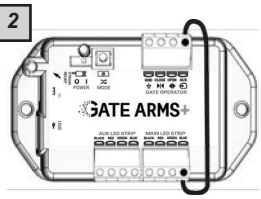


Fig. 3

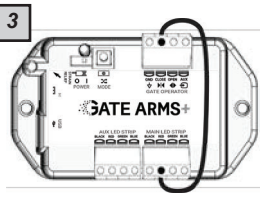


Fig. 4

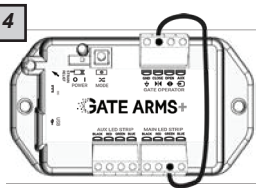


Fig. 5

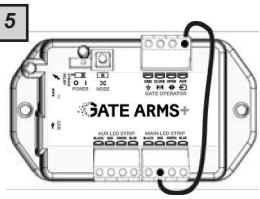


Fig. 6

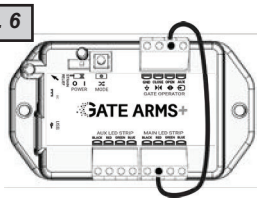


Fig. 7

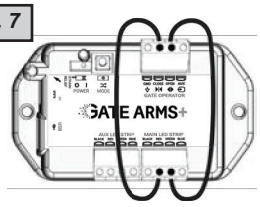
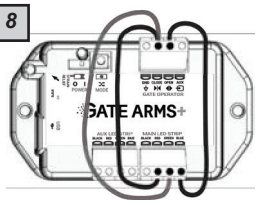


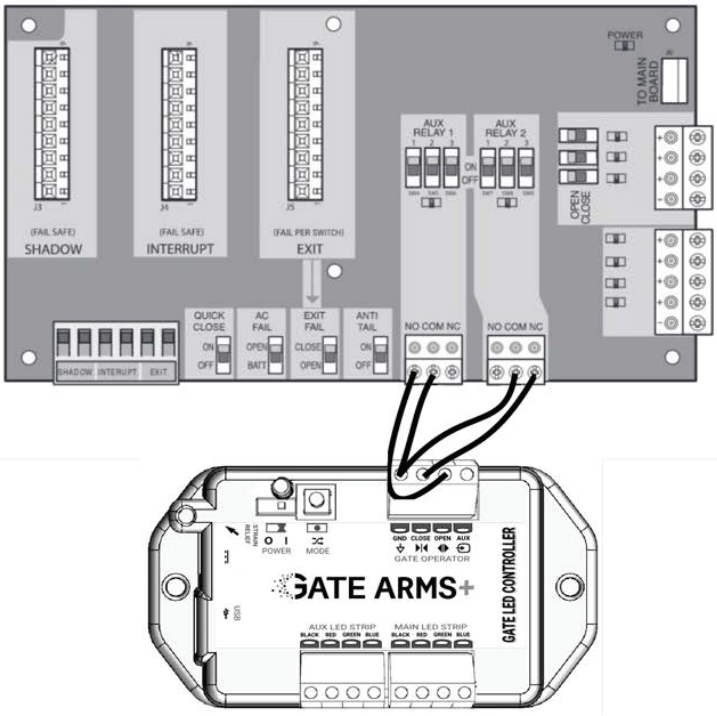
Fig. 8



	Feature	Jumper Connections	Description
Fig. 1	Enable Clone mode	Aux Red → Close	Enables clone mode (MAIN & AUX LED are identical on both sides).
Fig. 2	Enable Toggle Clicker on Aux	Blue → Aux	When AUX is triggered, the state of the LED(s) will toggle between red and green.
Fig. 3	Disable the Auto-Close Timer	Red → Close	Disables the auto-close timer. Default is 30 seconds.
Fig. 4	Enable Auto-Close & Configure Timer	Green → Close	When enabled, close will auto-trigger after a configured time. Default is 29 seconds.
Fig. 5	Enable Dimming on Aux Signal	Red → Aux	When AUX is triggered, LED strip(s) will dim to the configured brightness level. Default is 1/4th brightness.
Fig. 6	Configure the Brightness Level	Red → Open	LED strip(s) will dim to the configured brightness level continuously. There are 16 levels of brightness.
Fig. 7	Enable Green Fade-Out	Red → Close, Green → Open	When enabled, the green light stays on only for a short time. Default is 5 seconds.
Fig. 8	Flash on ALL Movement (Set time)	Blue → Open, Red & Green → Close	When enabled, the LED(s) will flash red when gate is opening or closing. Default is 3 seconds.

WIRING SCHEMATIC - FLAT, SWING & SLIDE

Liftmaster CSW24 Wiring

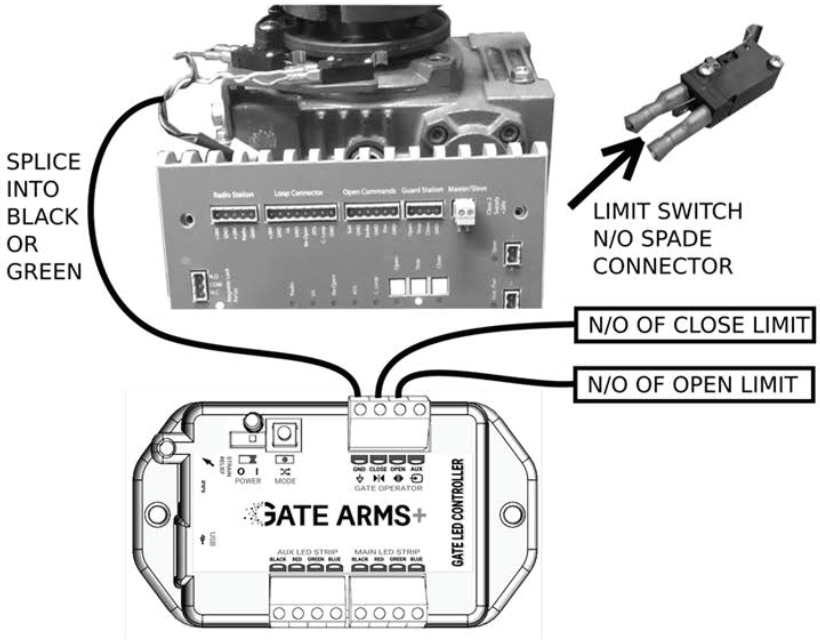


PROGRAM THE LED CONTROLLER:

1. **Turn On LED Controller using power switch.**
2. **Look at the amber status LED near the Mode button.**
3. **Hold the Mode button down for approximately 3 seconds to cycle through the modes.**
4. **Select Mode 3 as indicated below.**

Custom Profile Mode		Slowly fading in and out
Profile Mode 1, Factory Reset		Steady Light
Profile Mode 2		Flashing about once per second
Profile Mode 3	✔	Rapid flashing

Viking F-1 Wiring



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