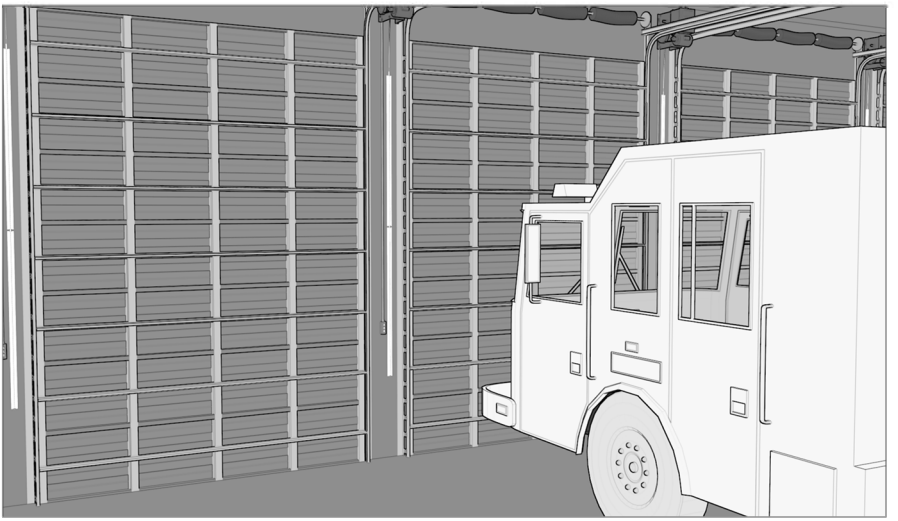
BRINK ALERT

LED SAFETY LIGHT SYSTEMS



DOOR SAFETY KIT

DSK5 / DSK10 / DSK15 / DSK20

INSTALLATION MANUAL

Table of Contents

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.

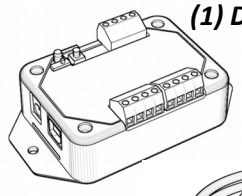
USE CAUTION WHEN WIRING: ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY QUALIFIED & EXPERIENCED INSTALLERS SHOULD ATTEMPT TO WIRE THIS SYSTEM.

- 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 heavy door equipment.
- Install as directed. BrinkAlert LED Safety Light Systems are intended for use as described herein and by the product literature available for download at www.BrinkAlert.com
- Any misuse, alteration, or modification of BrinkAlert branded products beyond what is described in the available product literature will void all warranties.

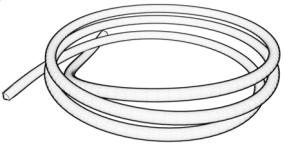
UNBOX - GET ORGANIZED

Items included in the box:

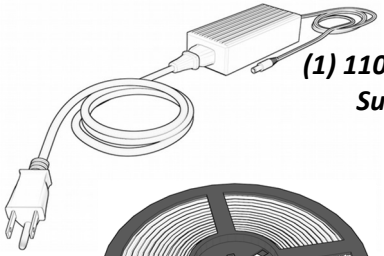
(1) Installation Manual



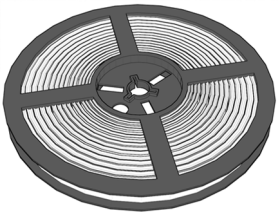
(1) DSK LED Controller {CONTROL-DSK}



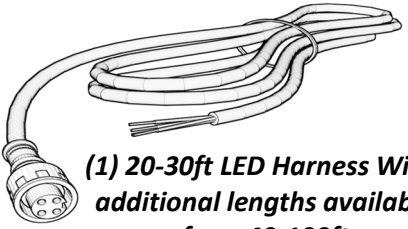
(1) 10ft Signal Wire



(1) 110V to 12VDC Power Supply w/cables {PS12VIN}

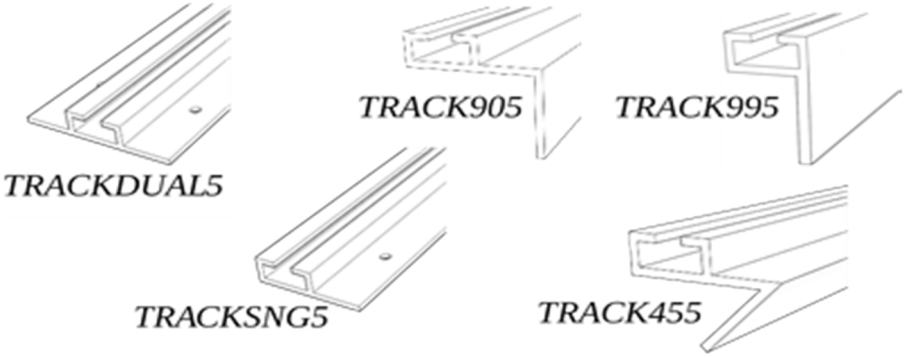


(1) LED Strip (5-20ft) {LED##}



(1) 20-30ft LED Harness Wire additional lengths available from 40-100ft {HARNESS##}

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



RECOMMENDED TOOLS AND SUPPLIES (not included)

General

- Ladder
- Wire Stripper
- Multi-Meter
- Screwdrivers (various)
- Utility Knife
- Double-sided foam tape or velcro
- Cleaner or Degreaser
- Clean Rags
- Wire Ties
- Marker

For Liftmaster or Limit Switch Installation include these items:

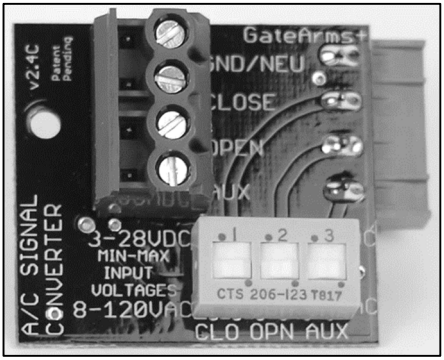
- Terminal Crimper
- Red Crimp Terminals
  - Spade and Female Quick Disconnect $^{3}/_{16}$" and $^{1}/_{4}$"

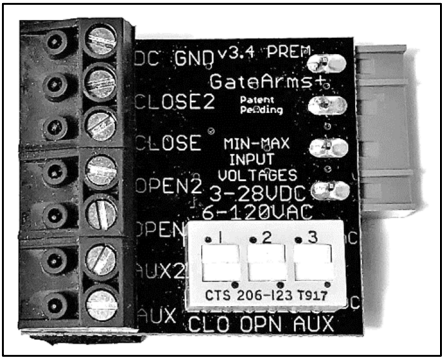
For Overhead Door Installation include these items:

- $^{1}/_{4}$" Socket
- Socket Wrench
- Long Wrench Extension
- OHD-brand Auxiliary Expansion Module (available at OHDParts.com)

Some installations will require an AC Signal Converter *(see page 2)*:

{ACSIGNALCONVERT4) OR {ACSIGNALCONVERT7}





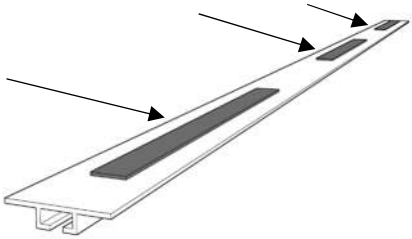
STEP BY STEP INSTRUCTIONS

1. INSTALL LED RETAINER

The installation method of the LED retainer depends on whether you are installing the standard LED retainer (rolling steel door) or the 90° retainer (sectional door).

1.1. Standard LED Retainer Installation (Rolling Steel Doors)

The standard LED retainer is installed directly on the wall using screws or 3 strips of double-sided foam tape per track.



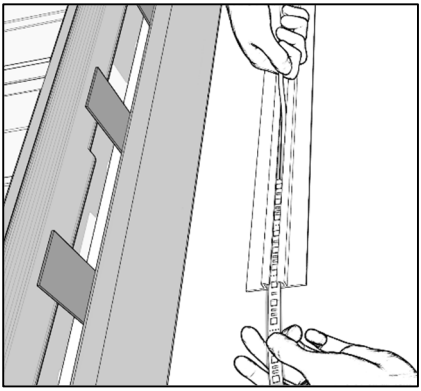
1.2. 90° Retainer Installation (Sectional Doors)

The 90° LED retainer is typically installed on a sectional door's guide rails. Mark and drill out holes in the LED retainer's flange where the guide rail bolts are located. Attach LED retainer track to door's guide rails using the existing bolts.

2. INSTALL LED STRIP

2.1 Insert cable end of LED strip into bottom end of lower retainer. Pull cable straight up along length of the track.

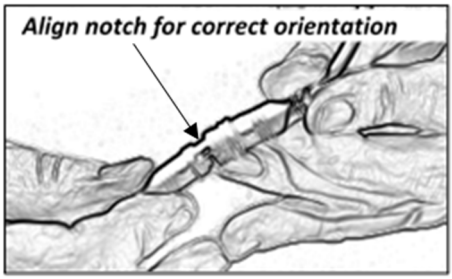
2.2 When fully-installed, crimp both ends of retainer track with pliers to ensure LED strip doesn't slide down in the track due to time or vibrations.



Pull cable through retainer track from bottom upwards

2.3 Connect LED Strip to LED Harness Wire

NOTE: there are arrows on either side of the connector that should point at each other to align the notch.

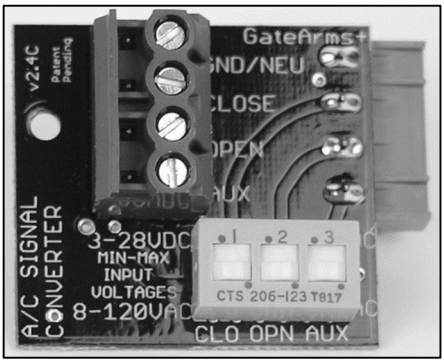


2.4 Run Harness Wire to Door Operator

Route the Harness Wire(s) from LED strip(s) to the top of door operator (or wherever you will mount the LED Controller), ensuring clean cabling.

2.5 Using A/C or D/C Signals?

Determine if your operator control board uses A/C or D/C for informational signals (at limit switches for example). A/C signals will damage this LED Controller. We manufacture an A/C Signal Converter (optional accessory) that allows for A/C signal use (maximum 120VAC). If you have a mixed scenario where some signal wires use A/C and others use D/C, please contact BrinkAlert Tech Support at 786-339-9840 and we will guide you through the programming. If all signals are D/C, do not use the A/C Signal Converter board.



NOTE: An easy guide is to check the safety eye voltage for A/C. If none, it is a D/C system.

2.6 Turn Off all power to the overhead door equipment

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

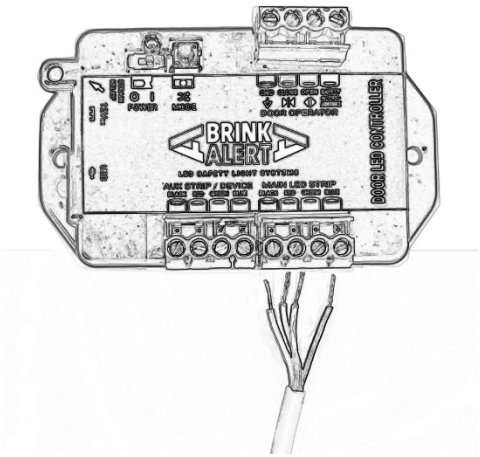
3. CONNECT LED CONTROLLER TO DOOR OPERATOR

3.1 Stage the LED Controller

1. Confirm the LED Controller's power switch is turned OFF.
2. Use Velcro or double-sided foam tape to secure the LED Controller and external power supply to the control box. Before applying adhesive to any surfaces, clean the contact areas thoroughly with a degreaser, then dry.
   NOTE: NEMA Box with LED Controller and power supply pre-installed.
3. Ensure that heat and humidity will not affect your attachment method.
4. Connect the power supply's 12V plug to the Controller. Zip tie the 12V plug to the Controller's loop.

3.2 Connect the LED Strip to the LED Controller

Connect the LED strip's Harness Wire to the LED Controller's "LED STRIP MAIN" header as shown. Match the colors on the wire to the colors described on the cover corresponding to each header port. Screw headers and wires should always face outwards from center.



3.3 Connect Signal Cable to LED Controller

Connect one end of the 4-conductor Signal Cable to the LED Controller's Signal Header as follows:

1. Connect the Black Wire to the Controller's GND port.
2. Connect the Red Wire to the Controller's CLOSE port.
3. Connect the Green Wire to the Controller's OPEN port.
4. Connect the 4th Wire (Yellow, White or Blue) to the Controller's AUX signal port.

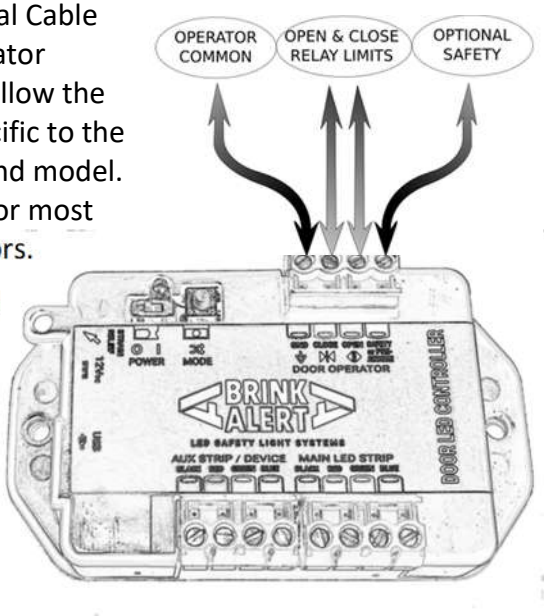
3.4 Pass Cable thru Hole into Operator Housing

Pass the Signal Cable into operator housing through an existing punch-out or by drilling a hole.

Consider using a cable strain-relief gland in the hole.
NOTE: Avoid sharing a hole with high voltage lines.

3.5 Connect Signal Cable to Operator

Connect the Signal Cable to the door operator control board. Follow the wiring guide specific to the operator make and model. See Appendix E for most common operators.



If you do not find your operator in Appendix E , call BrinkAlert Tech Support at 786-339-9840 for further assistance.

4. POWER UP & TEST THE CONFIGURATION

1. Plug 12V power supply into a live 110VAC outlet.
   NOTE: Power supply can accept 100-240VAC and can be hard-wired into the operator's load power.
2. Connect the 12VDC power cable to the LED Controller.
3. Power-up the LED Controller using its power switch.
4. LEDs should turn on immediately. If not, turn power off and check all connections.

4.1 Test the LED configuration

Open and close the garage door several times.

- LEDs should be solid red when door is fully closed.
- LEDs should flash red whenever the door is in motion.
- LEDs should be solid green when the door is fully open.
- If a safety device is installed and it is triggered, the LEDs should be flashing white. There is a 20 second delay before flashing white if the LEDs were green.
- If the safety device is being "monitored" through UL325 or current sense (see Appendix C), the LED will flash blue when safety device is disconnected or offline.

If there are any problems with the LED behavior during these events, turn off the door operator and review your wiring. Refer to the troubleshooting section of this manual or call BrinkAlert Tech Support at 786-339-9840.

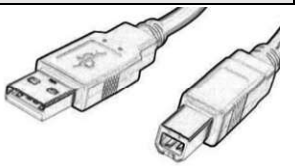
APPENDIX A: THE LED CONTROLLER CONFIGURATION TOOL

INSTALLING THE LED CONTROLLER CONFIGURATION TOOL

INSTALL PROGRAM

1. Request {CONTROL-DSK} LED config tool software from BrinkAlert.
2. 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 computer.
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 the device is NOT RECOGNIZED, you will need to manually connect the driver file to the device using the following steps:

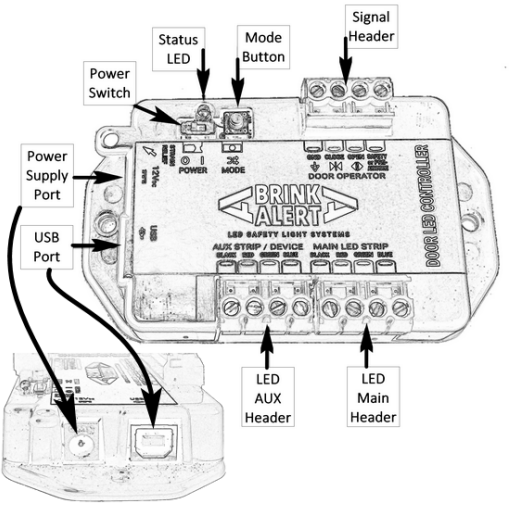
1. Open Device Manager in Windows
   a. Right-click “Computer”, then choose “Manage”
   b. Or, click “Start Button”, then “Administrative Tools”, then “Computer Management”, then “Device Manager”
2. Find “LED Driver” with an alert mark on it, probably in “Unknown Devices” group
3. Right-click that item,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

APPENDIX B: PROGRAMMING THE LED CONTROLLER

You can program most features using the Mode button and 1 or 2 jumper wires. Simply connect two pins with a jumper wire, and while holding the Mode button, turn-on the power switch. Contact our tech support team for assistance with jumper-based programming.

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 tool is also better for setting timers precisely and provides many advanced options.

- **Using MODE Button**
  (new in 2020)*
  1. Turn on LED Controller
  2. Hold/Release Mode button for 3 sec. to rotate through 3 scenarios.
  3. To remove special Programming, hold Mode button down for 3 seconds (with no jumpers) until fading effect of status LED reverts to solid.



Mode	Primary Configurations	Status LED	AUX LED Strip
1	Standard Operator L4, L5	Steady Light	Fades Off
2	Standard Operator Clone Mode	Slow Flashing	Clone Mode
3	A/C Signal Converter w/ non-UL325 safety device	Fast Flashing	Clone Mode

- **Single-Action Programming**
  1. Remove all press-on header(s) temporarily
  2. Turn off LED Controller.
  3. Connect jumper wire between 2 pins as described in instructions.
  4. While holding Mode button down, turn on power switch, then release Mode button. Status LED will flash for 2 seconds.
     Feature is now set.
  5. Turn off Controller. Remove jumper wire, reattach press-on headers. Turn on Controller.
- **Multi-Action Programming**

Use to set dimming level, duration of timers, and other features**.**

1. Follow single-action programming completely.
2. 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 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.
3. Turn LED Controller off, then back on again using its power switch

SINGLE-ACTION PROGRAMMING

Feature	Jumper Connections	Feature Description
Enable Clone mode	Aux Red → Close	Enables clone mode (Main & Aux LEDs are identical on both sides) Note that Mode 2 is also Clone Mode.
Enable Triggered Pre-Announce	Main Red → Open	Amber-flashing prior to door descent (requires relay or trigger wired to Signal-AUX)
Enable AC signal converter basic	Main Blue → Open	Configures LED Controller to use the AC Signal Converter v4 (basic)
Power Source Mode	Aux Red → Aux	Used to power external devices, typically a 12V safety sensor. The Aux Blue port detects loss of current and LEDs flash Blue if the device malfunctions.
Safety - Half-Monitored	Main Red → Aux	For certain safety eyes using heartbeat > 10 Hz
Safety - Non-Monitored	Main Green → Aux	Supports simple on/off safety signals (non-UL325)
Enter Demo Mode	Main Red → Close	Enables BrinkAlert demo unit to work correctly. Disables Mode Btn

MULTI-ACTION PROGRAMMING

Feature	Jumper Connections	Feature Description
Configure Safety Delay	Main Red & Main Blue→ Close	Length of time the safety beam must be blocked when the door is opened before the safety color appears
Enable Timed Pre-Announce	Main Blue → Aux	Length of time the fully-open lights remain green before beginning to flash Amber, indicating door is about to close. Flash red on closing. Default 8 seconds.
Configure Shut-off of Inside LED	Main Blue → Open Main Green → Close	Set time before Inside LED shuts OFF (door fully-closed)
Configure Shut-off of Outside LED	Main Blue → Open Main Red → Close	Set time before Outside LED shuts OFF (door fully-closed)
Configure brightness for Main LEDs	Main Green → Close	Main LED strip will dim to the configured brightness level continously. 16 levels of brightness.
Configure brightness for Aux LEDs	Main Blue → Close	Main LED strip will dim to the configured brightness level continously. 16 levels of brightness.

MONITOR THE SAFETY EYE

If the door has a safety device such as an electric eye or laser presence detector installed, its output can be connected to the Aux Signal port of the LED Controller so that the LED strip can flash white when the safety is tripped (optional). If you are not using such a device, leave this port disconnected.

Safety Device Condition	Door Status	LED Strip Color
All Clear	Fully Closed	Red
All Clear	Fully Opened	Green
Doorway Blocked	Fully Closed	Red (signal ignored)
Doorway Blocked	Moving	Flashing White
Doorway Blocked	Fully Opened	Green for 20 sec then Flashing White
Device Fault	Any	Flashing Blue

If the safety device is UL325 compliant, it will be detected when the LED Controller power up. If no device is detected on power-up, the AUX port will be ignored.

APPENDIX C: POWER & MONITOR EXTERNAL DEVICES

The LED Controller's 2nd LED header (called "LED STRIP AUX") can serve as a power supply for external devices that use 12VDC and less than 2Amp. We offer a variety of special firmware options to enable various scenarios. Contact our Tech Support Team for help!

Monitor Non-UL325 Device (Current-Sense Mode)

If a safety device (like a BEA Falcon) can operate at 12VDC, it is possible to continuously monitor the device's existence and functionality by using the LED Controller as its power source. If the LED Controller senses an unusual drop in the current consumption of the safety device, the LED strip will flash blue rapidly to indicate the device is malfunctioning. Simply attach the safety device's power wire (positive) to the "AUX DEVICE / BLACK" terminal and its ground wire (negative) to the "AUX DEVICE / BLUE" terminal.

NOTE: You must also program the LED Controller for this scenario.

	AUX DEVICE / BLUE PORT-CURRENT DRAW	LED Strip Color	Door Status
1	Higher than ~10mA	Not Affected	Normal Operation
2	Lower than ~10mA	Rapid Flash Blue	Safety Eye Disconnected

Powering and Triggering Horns and Alarms

The LED Controller can power audio alarms at any stage, including during pre-announce and descent.

Powering High Voltage Equipment

Installers can use the LED Controller's LED STRIP AUX port to trigger external relays which control high voltage devices.

APPENDIX D: TROUBLESHOOTING

Lights do not turn on

Possible Issue: Power Supply Problems

- Check LED Controller. Is its amber LED on?
- Is the 110V power adapter LED on? Check 110V power wiring at power source. Trace the wire from the LED Controller.
- Check the Press-on headers on the LED Controller's LED header(s). Are their wires well secured? Are they pressed in horizontally all the way? Is the plug inserted backwards?

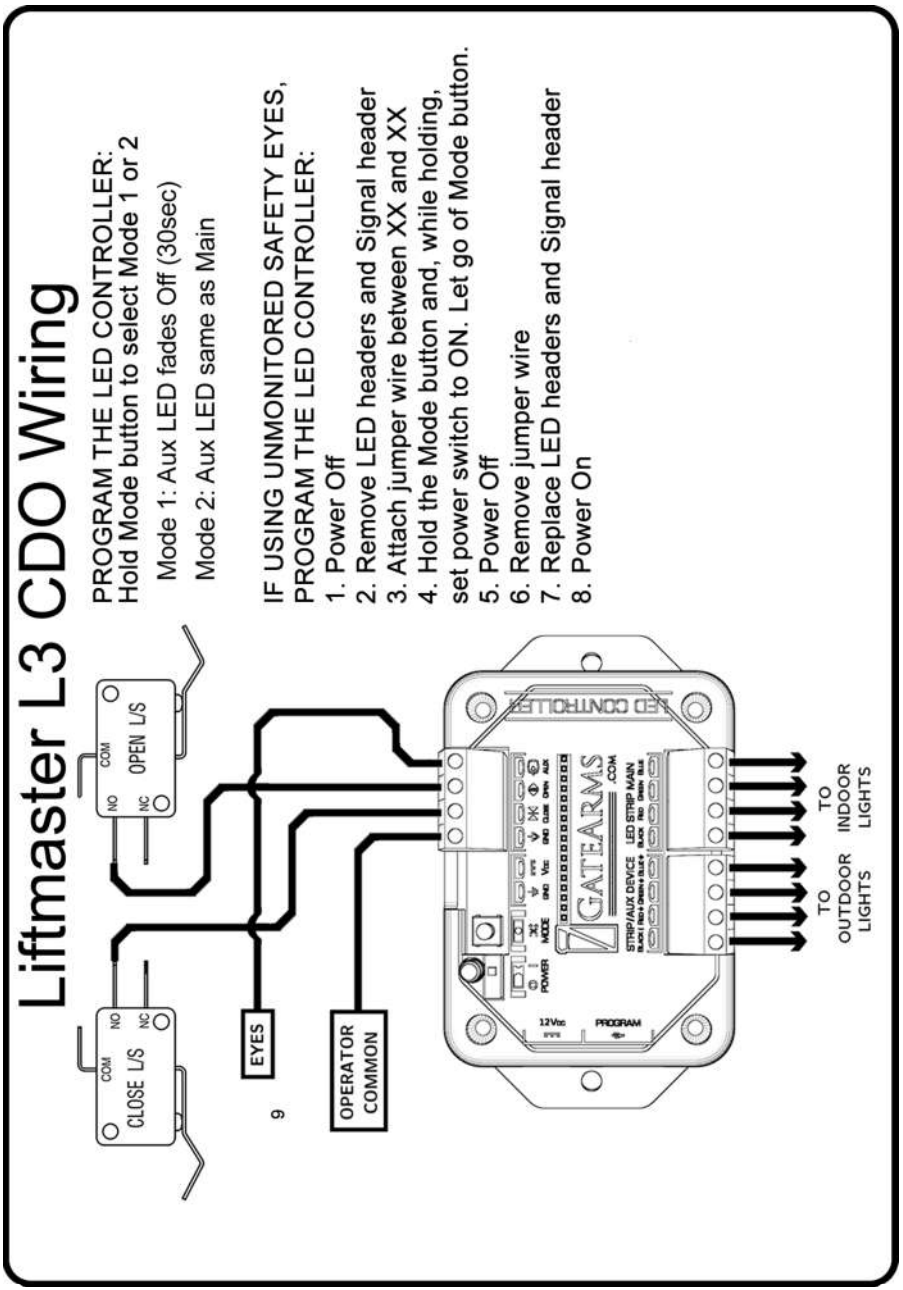
Lights do not change colors/keep flashing red

Possible Issue: Signal Wire Problems

- Signal wiring is disconnected.
- Use a multimeter to determine what type of signals exist for fully-open and fully-closed. Use wiring guide in Appendix E to determine which profile you should be using.
- Check if the LED Controller is properly grounded to the same common in use by the Operator.
    - If an A/C system, ensure Common is attached to the Operator's chassis and is truly grounded.
      REMINDER: If installing on an A/C system, the LED Controller must use an A/C Signal Converter Board.
- Potential programming issue

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!

APPENDIX E: WIRING GUIDES

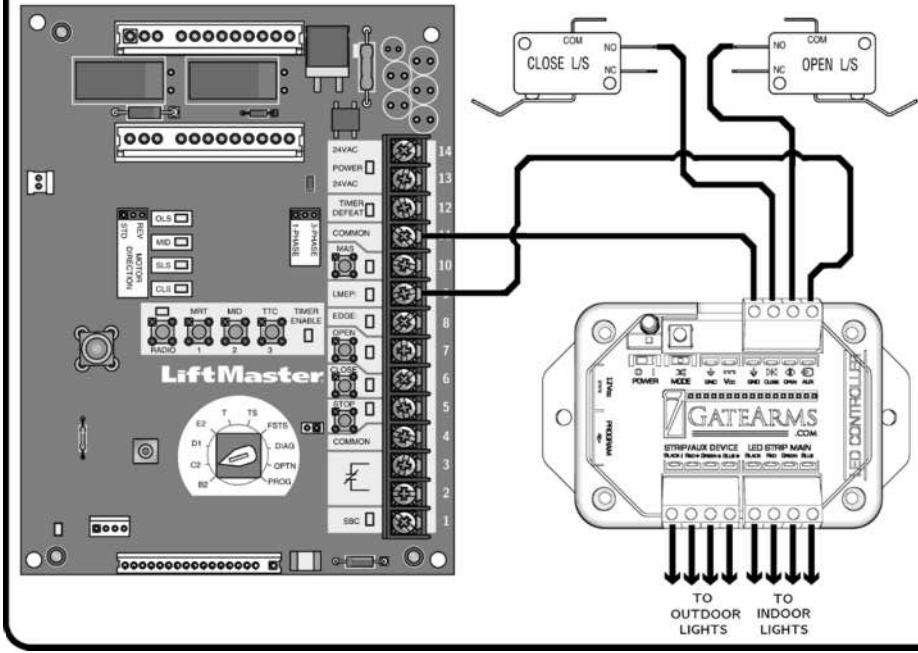


Liftmaster L4 / L5 CDO Wiring

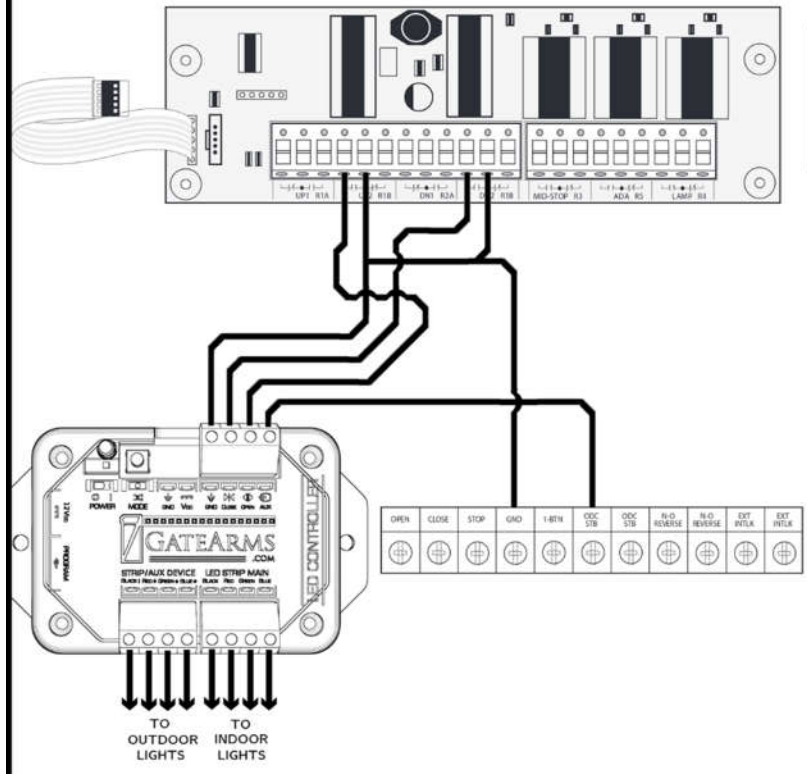
PROGRAM THE LED CONTROLLER (Mode 1 or 2):

Mode 1: Aux LED fades Off (30sec)

Mode 2: Aux LED same as Main



OHD RSX CDO Wiring

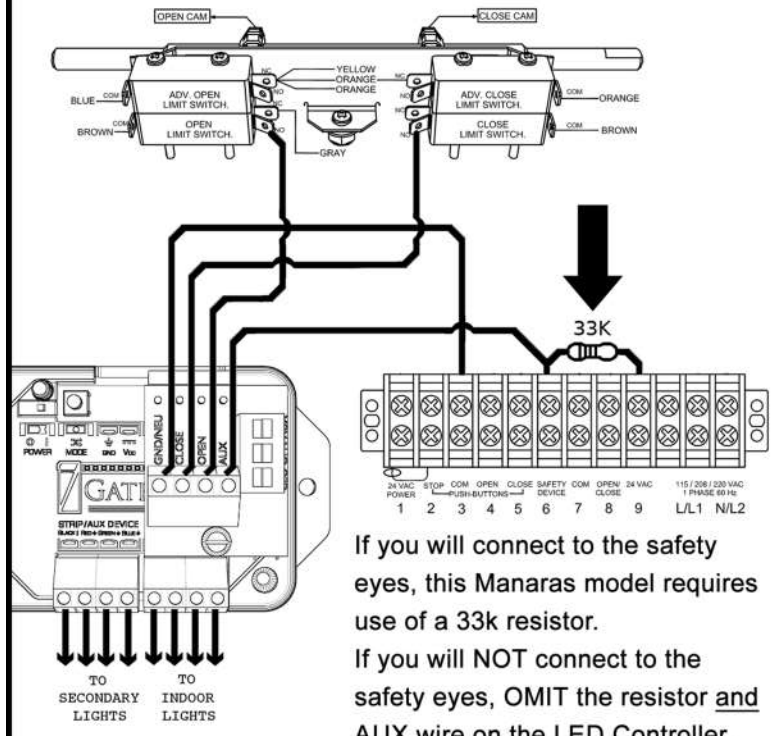


This OHD model requires use of the OHD-brand Auxiliary Output Expansion board.

PROGRAM the LED CONTROLLER (if connecting AUX to safety eyes):

1. Power Off the LED Controller
2. Remove LED headers and Signal header
3. Attach jumper wire between LED Main Red and Signal Aux.
4. Hold the Mode button and, while holding, set power switch to ON. Let go of Mode button.
5. Power Off
6. Remove jumper wire
7. Replace LED headers and Signal header
8. Power On

Manaras Opera CDO Wiring



If you will connect to the safety eyes, this Manaras model requires use of a 33k resistor.
If you will NOT connect to the safety eyes, OMIT the resistor and AUX wire on the LED Controller.

PROGRAM the LED CONTROLLER (use Mode 3):

1. Hold the Mode button for 3-4 seconds. Status LED will flash slowly.
2. Hold Mode button again for 3-4 seconds. Status LED will flash rapidly.

IF CONNECTING TO SAFETY EYES:

1. Power Off the LED Controller
2. Remove LED headers and Signal header
3. Attach jumper wire between Signal GND and Signal Aux.
4. Hold the Mode button and, while holding, set power switch to ON.
5. Let go of Mode button.
6. Power Off
7. Remove jumper wire
8. Replace LED headers and Signal header
9. Power On

support@BrinkAlert.com

786-339-9840

Manual Rev# R20-0515