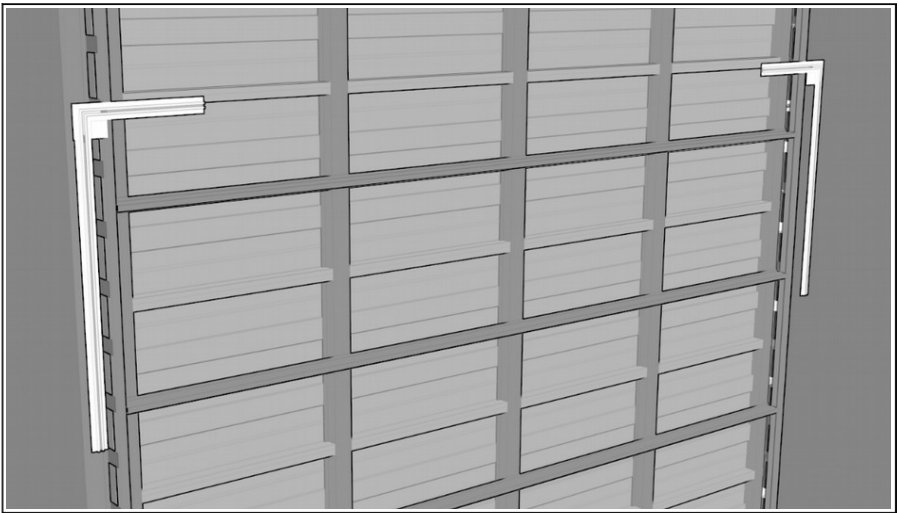




TRUCK RESTRAINT LIGHT KIT with DOCK LEVELER LIGHTS

INSTALLATION MANUAL



Models 'TRLK11' and 'TRLK13'

IMPORTANT

Read all instructions in this manual before installing.
Perform steps in the order given. Failure to comply could result
in property damage or personal injury.
Keep manual for future reference.
Download the latest manual from www.BrinkAlert.com.



SAFETY PRECAUTIONS

For safe installation and trouble-free operation, you must:

- Carefully read this instruction booklet before beginning.
- 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.
- Use the parts supplied by the manufacturer or other prescribed parts unless directed otherwise. The use of non-prescribed parts can cause serious accidents such as unit failure, electric shock, or fire.

If necessary, ask for help

If you require help for any reason, contact BrinkAlert support at 844-428-3276.

When Wiring

ELECTRICAL SHOCK CAN CAUSE SEVERE PERSONAL INJURY OR DEATH. ONLY A QUALIFIED EXPERIENCED TECHNICIAN 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 the heavy door equipment.
- Do not modify the components, or install differently than what is described in this manual.

1. BEFORE YOU BEGIN

1-1. Components Included

- (1) Instruction Manual
- (1) NEMA Enclosure Box
 - (4) Wall Mount Clip
 - (4) Wall Mount Screws 3/16" x 3/8"
- (1) LED Controller (Dual)
- (1) AC Signal Converter Premium
- (1) Power Brick with Cables (110VAC-12VDC 5A)
- (2) Corner LED Retainers (1' x 1' or 1' x 3')
 - Includes Left-Hand and Right-Hand LED Retainers
 - Each Retainer contains 2 LED strips (4 total)
 - Each Retainer contains a Bracket Wiring Junction Box with a Corner-Plate PCB inside that includes a removable 4 pin press-on header
- (2) Wall Brackets (telescoping) for wall-to-LED Brackets
- (2) Wall Brackets (telescoping) for supporting 1' x 3' LED Brackets (1' x 3' version only)

Components Included with TRLK-LEVELERKIT (optional):

- (2) 3-5 ft LED Strip (depending on model selected)
- (2) 20 ft LED harness wires
- (1) Dock Leveler Junction Box with PCB
- (1) Leveler Lip Switch with wire and brackets
- (1) 20 ft of 22/6 cable

1-2. Required Components Not Supplied

These parts must be supplied by the installer.

- Door Limit Switch (for fully-open) and associated wiring.
- Bolts, washers, or hardware used to attach the Wall Brackets to the Corner Plates and to the wall.
- 22 AWG / 4 conductor wire: Used to connect LED Controller to Corner Plate PCB boards, Truck-Restraint panel lights, and Door Limit Switch relay – 100' minimum, prefer Black, Red, Green, Blue conductors
- Tap-cons: Used for attaching NEMA box, wall brackets, and limit switch to the wall
- Dielectric grease

1-3. Recommended Tools

We recommend that installers have these tools available:

- 5/16" Open end wrench
- Philips screwdriver, medium
- Flat screwdriver, very small
- Wire stripper
- Multimeter (AC / DC)
- Drill & drill bits: For attaching bracket and box to wall
- Level
- Ladder

2. INSTALLATION WORK

2-1. LED Controller Programming

The LED controller comes programmed for a standard truck-restraint + fully-open door limit switch / deployed dock-leveler scenario.

Door & Leveler Lip	Truck Restraint	Light Colors	Description
Either not fully Open	Stored	Red	Door is not receiving trucks at this time LOW DANGER
Door Fully Open, Lip Extended	Engaged	Green	It is safe to load or unload the truck at this time
Either not fully Open	Engaged	Flashing Red	Warning: Restraint is engaged while door is not fully opened or leveler lip not extended. Perhaps door-creep or leveler not ready. HIGH DANGER
Door Fully Open, Lip Extended	Failed State / Restraint Override	Flashing Amber	Warning: Restraint Override is enabled. Perhaps truck does not have restraint bar, or truck restraint was engaged too soon. MEDIUM DANGER
Either not fully Open	Failed State / Restraint Override	Flashing Red	Warning: Restraint-fail AND door-creep or leveler problem. HIGH DANGER

Contact BrinkAlert Technical Support for assistance with changing the programming. Options including dimming and alternating green / red instead of flashing amber.

2-2. Turn Off All Power to Truck Restraint, Dock Leveler and Door Operator



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

2-3. Install NEMA Enclosure Box

1. Decide whether to mount box vertically or horizontally. If horizontal, you may want the hinge on bottom so the door hangs down when open for convenient access.
2. You will need access to 110VAC power, so install the box close enough to an available electrical source to use the enclosed 110V power cable. Alternatively, you could run new 110VAC wiring in conduit directly into the NEMA Box.
3. Consider where you want to drill penetration holes into the NEMA Box. You'll drill at least 3 holes in the box, for 110VAC power, 2 signal cables, 2 LED Supply cables
 - Loosely connect 4 wall-mount clips to back of NEMA Box by passing the 4 small machine screws through round section of clips. Orient clips properly so box can be secured to the wall. Tighten screws when clips are positioned.
4. Position box on wall and mark drill-points where you will use tap-cons or other methods to adhere the box to the wall.

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5. Drill holes in wall for mounting box, then attach box to the wall with tap cons.
 6. If Power Supply and LED Controller were not pre-installed in the NEMA box, install them at this time. Position the LED Controller so its cables are in-line with the new box holes.

2-4. Install LED Supply Cables on corner LED Retainers (2)

1. Remove the Press-on Header from the Corner-Plate PCB.
2. Insert 4 stripped wires from a 22-4 cable reel into the Press-On Header's ports. Secure the header's screws tightly. Tug on each wire to ensure a solid connection.
3. Push the Press-on Header back onto the Corner-Plate PCB, ensuring the cable's wire colors match the colors printed on the PCB.
4. Temporarily position the Corner LED Retainer near where it will be installed. Cut off enough 22-4 cable to reach from its corner of the dock-door to the inside of the NEMA Enclosure.
5. Repeat 1 to 4 above for the Corner LED Retainer on the other side of the door.

2-5. Install Wall Brackets and Corner LED Retainers

1. Drill the Corner Plates on the Corner LED Retainers as needed to provide bolt-holes through which you can mount your wall brackets.
2. Mark the wall where you intent to mount the brackets.
3. Connect the Corner Plates to the brackets loosely.
4. Hold the Corner Plates + brackets up to the wall and confirm you like the location, you'll be able to drill safely, and you'll be able to mount the bracket successfully. Ensure that no forklifts or trucks will hit the LED retainers.
5. Drill the holes in the wall for the brackets
6. Attach the brackets to the wall tightly using tap-cons.
7. Tighten the bolts mounting the Corner Plates to the brackets
 - You might prefer to wait on finalizing the Corner Plate mounting until you confirm that all the wiring and lights are working correctly.
8. The TRLK13 units have a second wall bracket for the bottom of the vertical track. This helps secure it against moving around.

2-6. Install & Route LED Supply Cables

1. Drill two (2) 5/8" holes in NEMA Box for (2) signal and (2) LED cables.
2. Install cable strain-relief fittings in those 2 holes.
3. Route your 2 LED Supply Cables into the NEMA Box through one strain-relief fitting. Secure the Cables with zip-ties between the Retainers and NEMA box.
4. Remove the 4 Press-On Headers from the LED Controller (2 from AC Signal Converter, 2 from LED headers on LED Controller).
5. If installation includes dock-leveler lighting, connect both LED Supply Cables to the same Press-On Header (2 wires per pin) on the LED header ports. Otherwise connect Supply Cables to their own Header (MAIN & AUX).
 - a) Ensure the cable's wires are oriented according to the LED STRIP MAIN header on the LED Controller (L-R: BLK, RED, GRN, BLU).
 - b) Remember the press-on header wires must face away from the center of the LED Controller.
6. Push the Press-on Header onto the LED Controller's LED STRIP MAIN port (and AUX port if using dock-leveler lighting).

2-7. Connect to Truck-Restraint Control Box

1. Route a 22-4 cable (the “Signal Cable”) from the truck-restraint’s control box into the NEMA Box.
2. Connect the 22-4 cable to the 3-pin and 4-pin Press-on Headers. Follow the specific wiring schematic for your make & model of truck restraint.
3. Push Press-On Headers onto the LED Controller AC Signal Converter’s header.
4. Connect the Signal Cable to your truck restraint’s signal lights on the Restraint Control Box’s door or front panel.
 - ***ENSURE RESTRAINT IS POWERED OFF!!***
 - See specific wiring schematic for your make & model of truck-restraint.

2-8. Install Dock-Leveler LEDs (if used)

1. Install LED Retainers
 - (a) Carefully remove brush seal tracks
 - (b) Press the brush seal track into the corner of the LED Retainer with brush facing out and LED facing up.
 - (c) Attach both LED Retainer and brush seal track (pressed-together) onto the leveler side, with screws passing directly through both.
 - (d) Note: Some Entrematic levelers have a 1/4” lip that extends over the sides of the leveler. Ask BrinkAlert

for the free shim that should be used behind the LED Retainer.

2. Insert LEDs into LED Retainers
 - (a) Insert LED strip into door-side of Retainer.
 - (b) Pass the cable end of the LED strip into the leveler pit.
 - (c) Ensure cable will not get pinched during leveler operation.
3. Attach LED Harness Wires to LED cable ends
 - (a) Ensure Connector is full of dielectric grease
 - (b) Match arrows on male and female sides of the LED Cable Connector and press together
4. Install Pit Junction Box
 - (a) Mount Junction Box to side of pit wall to keep protected
5. Install Dock-Leveler Switch on Leveler Lip (if used)
 - (a) On levelers with lambda, attach switch to underside of lambda with wheel touching the leveler lip.
 1. Adjust switch wheel's connecting brace so that the switch can close fully when leveler lip is stored. Wheel should extend as leveler lip goes up.
 2. Drill into lambda and attach switch using bolts and nuts.

- (b) On levelers using gravity switch with magnetic attachments, attach switch to the underside of the leveler lip.
 - 1. Pick a location which moves with the lip, like on a moving part of a hinge. A corner by a hinge that supports the bracket on 2 sides is optimal and will minimize vibrations during closing.
 - 2. Adjust the switch so it triggers when the lip is 80% extended.
 - i. Note that if your leveler is frequently deployed below-grade, you should set your switch to trigger at the lowest expected level so that it always turns green when the lip is extended.
- 6. Connect Leveler Switch Cable (if used) to Junction Box PCB
 - (a) Pass Switch Cable into the Junction Box through the small strain fitting.
 - (b) Remove the Press-on Header from the Switch header on the Junction Box PCB and connect it to the Switch Cable (switch wires are interchangeable).
 - (c) Reinstall the Press-on Header on the Switch header.
- 7. Drill Penetration Hole into Pit
 - (a) Using a long drill bit, drill a hole through the concrete to create a passageway for the 22-6 cable from the top-deck into the leveler pit.
- 8. Pass the 22-6 Cable out of the Pit through the drilled

hole

9. Route the 22-6 Cable into the NEMA Box, using same cable relief hole as the Restraint Signal Cable.
10. Connect the 22-6 Cable's Signal Wires
 - (a) Remove the Press-on Header from the LED Controller's Signal Header.
 - (b) Connect the White Wire to GND
 - (c) Connect the Yellow Wire to OPEN
 - (d) Reinstall the Press-on Header on the Signal header.
11. Connect 22-6 Cable's LED Wires
 - (a) Remove the Press-on Header from the LED AUX Header.
 - (b) Connect the 4 wires to the Press-on Header, ensuring the wire colors match the colors written on the Controller.
 - (c) Reinstall the Press-on Header on the LED AUX header.

2-9. Bring 110VAC into NEMA Box

The power adapter mounted in the NEMA Box converts 110VAC to 12VDC, which powers the LED Controller. You must provide a 100-240VAC supply (<1 Amp needed).

IMPORTANT

The LED Controller can only accept power voltage of 12 VDC.

Higher voltage may irreversibly damage the LED Controller.

THIS WILL VOID WARRANTY

1. Ensure that LED Controller's power switch is OFF.
2. Cut the 110V power cable (supplied) near the female plug, leaving 3 inches of slack. Strip the wire ends on both sides of cut.
3. Drill a 5/8" hole in NEMA Box near the 110VAC power input on power supply.
4. Install large cable strain relief fitting in that hole.
5. Route 110VAC cable through that strain-relief fitting.
6. Inside the Box, reconnect the 110VAC cable using wire nuts.
7. Install 12VDC adapter and LED Controller in the NEMA Box with double-sided tape.
8. Connect 12V power plug to LED Controller.

2-10. Confirm Wiring

- Take a moment to reconfirm all connections on the cables.
- Both sides of the power cable.
- Retrace the Signal Cables from the Truck-Restraint relay and the Door Limit Switch relay or Leveler Lip Switch. Ensure you are tied into the correct relays for this purpose. Ensure Commons (Ground) are well-connected.

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- Check the LED Supply Cables and LED strip(s) to ensure the wire colors correspond correctly to the colors printed on the LED Controller.
 - Ensure all wiring is well out of the way of moving parts, including pulleys and belts.
 - Make the wiring look neat and professional.

2-11. Turn On 110VAC Power

- Plug 110VAC power cable from the NEMA Box into a 110VAC outlet or power source and turn on the power.
- Immediately disconnect if you sense any problems.
- Ensure Truck-Restraint is in fully open (unlocked) position.
- Ensure Door is closed (Limit Switch disengaged).
- Restore power to Truck Restraint and Dock Leveler.

2-12. Turn LED Controller On

1. Move the LED Controller power switch to the “ON” position. The LED by the switch should immediately illuminate as solid amber.
2. If the amber LED doesn’t turn on, turn the switch off and re-check power connections. LED strips should turn red upon power-up. If not, turn off Controller and review wiring.

2-13. Ensure Correct LED Behaviors

1. Ensure truck-restraint is PARKED, dock door is CLOSED, Leveler is STORED. The inside LEDs are RED (dock is closed for business).
2. OPEN the dock door fully, EXTEND the Leveler Lip, and ENGAGE the truck-restraint mechanism. The inside LEDs are GREEN (it's safe to enter restrained truck).
3. DISENGAGE the truck-restraint (with door fully OPEN and Leveler Lip EXTENDED). The inside LEDs are Red (Unsafe Condition).
4. ENGAGE the truck-restraint with door fully-open and Leveler engaged. RETRACT the Leveler Lip or lower the door past its limit switch. The inside lights begin FLASHING RED (warning of door coming down prematurely causing a door-strike risk, or Leveler disengaged).
5. OVERRIDE the truck-restraint with door fully-open and Leveler engaged. The inside lights are FLASHING AMBER (manually chock wheels, use caution). RETRACT the Leveler Lip or lower the door past limit switch, and inside lights will FLASH RED (Unsafe Condition).
6. Perform these tests several times to ensure functionality.

2-13. Finalize

- Close and secure NEMA enclosure case.
- Apply BrinkAlert sticker to outside of case (upright).
- Clean your work space removing all wire cuttings or evidence that you were there.

3. TROUBLESHOOTING

Struggling? Call or email us. The LED Controller is extremely versatile, and can probably be configured to work for your unique situation. There are many subtle configuration settings that can be tweaked to get your project working. We want to help you! Email us at support@BrinkAlert.com or call!

No Lights On

Possible Issue: Power Supply Problems

- Check LED Controller. Is its amber LED on?
- Is the 12V power adapter's LED on? If no, check 110V power wiring at power source.
- Trace the 12VDC wire from the LED controller to power.
- Check the Press-on Headers on the LED Controller's LED header(s). Check Press-on Headers on the corner plate PCB. Are their wires well-secured? Are they pressed in horizontally all the way?
- Ensure all wire colors were correctly followed from LED Controller to Corner Plate PCBs and LED strips.