

# *LED Extender Kit Installation Instructions*

for

## *Model A Fords & Other Antique Vehicles*



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Manual 100-0004C

Thank you for purchasing a Logo Lites® LED Extender Kit!

## LED Extender Overview

- Works with 6V and 12V automotive electrical systems.
- Automatically works with Positive and Negative chassis ground polarities without wiring changes.
- Adds two additional Type 23 Signals to Logo Lites LED Turn Signals for additional visibility or for use on a towed trailer.
- Requires no permanent modifications to your vehicle.
- Will not discharge your vehicle battery when not in use (less than 0.000005 Amp current draw when off).
- Pulls less than 1/2 Amp when signaling for low generator strain.
- Control box has thermal and overload safeties.
- Complete kit for Model A Fords and can be used on other antique vehicles.

## Safety Information

- Read the instructions completely before starting the installation.
- Never attempt automobile wiring without first disconnecting the battery.
- Ensure you know where wiring, fuel, brake, and other critical systems are located in the vehicle.
- When using power tools such as a drill, be sure to use the proper safety equipment (eye protection, etc.). Always follow manufacturer's recommendations when using power and hand tools.
- **The installation discussed is for reference only and does not indicate that any particular configuration will be safe for all vehicles. A safe and secure installation is solely the responsibility of the installer!!**

## Tools & Supplies Needed

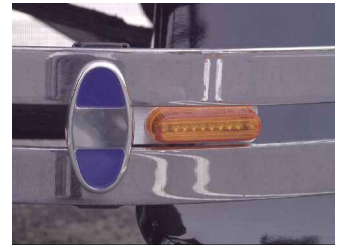
Logo Lites LED Extender installs with simple hand tools found in the average home mechanic's toolbox. Required tools are different for every installation, but a wire crimp tool is required unless you plan to solder your connectors. Some installations will need a drill and 9/64" drill bit. It may be useful to have tie wraps to suspend wires for a complete installation. A multimeter is helpful to locate power and chassis connections, and to troubleshoot any connection issues.

Note – This kit is complete for Model A Fords and many other antique vehicles, but you may need to purchase additional electrical connectors for your vehicle's power and chassis needs. Your local auto parts store should have taps, splices, ring terminals, or other electrical connectors if you need them.

## Operation

Since LEDs operate differently than conventional light bulbs, you cannot simply connect extra lights in parallel when additional lights are needed. LED Extender solves this problem by monitoring the power drive to a set of Type 23 signals and driving another pair of signals in sync with them. LED Extender operates automatically after properly wired into a vehicle. When turn signals or emergency flashers are turned on, the additional Type 23 signals connected to LED Extender will flash also. This allows extra signals to be added to the vehicle or a trailer.

The controller works on 6 or 12 Volt vehicles with positive or negative ground. The controller "senses" the polarity and voltage, so there is no wiring to reverse or switches to flip. The LED Extender control box connects to any Logo Lites LED Turn Signal controller and to any of the Amber Logo Lites Type 23 Signal Lights. The most popular design is the Model A bumper bracket signal which mounts between the bumpers under the bumper clamps. Universal mounts are also available which mount to custom brackets or to holes drilled in the vehicle. Bucket bracket mounts also work with LED Extender and mount behind a DuoLamp style brake light. The LED Extender controller cannot drive conventional bulbs.



## Prepare the Controller Connectors

Before proceeding to the instructions below, unscrew the small screws in the 2-pin and 3-pin connectors by turning them several turns counter clockwise. By doing this, there is enough room for stripped wires to be inserted into the small wire clamps. The 2-pin and 3-pin connector colors may vary from the one pictured to the right. We will need the connectors handy for connecting wires, so do NOT insert the connectors into the controller at this time.



## Installation

**NOTE: The following explanation assumes that the LED Extender is being added to Logo Lites LED Turn Signals that are already completely installed and working. If you are installing Logo Lites LED Turn Signals and LED Extender at the same time, then install the Turn Signal Kit first and leave a little extra wire at the Turn Signal Controller. Confirm the turn signals work first, then install the LED Extender, and finally dress all the wires for both products.**

LED Extender mounts directly to your vehicle or onto an A-Plate™, if available for your vehicle. Instructions for both Conventional and A-Plate installations are available below.

Tip – A wire that is too exact in length is difficult to connect. A wire that has too much slack looks sloppy and is easily caught in tools and other equipment. When cutting power wires, pull the wire tight between the two points the wire must span, and then add 1" to the length of the wire before cutting. Adjust this 1" general guideline for your needs using your own best judgment. Remember, it is easy to trim a wire shorter, but not so easy to make it longer.

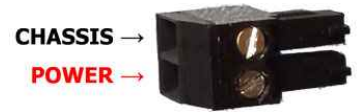
### Step 1 – Attach LED Extender Controller

#### Installation on a Logo Lites A-Plate™:

- Disconnect vehicle battery.**
- If the A-Plate is installed, remove the A-Plate from the vehicle.
- Use two #8-32 screws and nuts to mount LED Extender to an available location on your A-Plate with the connector label words right side up.
- Choose an available fuse terminal for LED Extender.
- Cut red wire to length to reach from fuse terminal to the 2-pin power connector.
- Cut black wire to length to reach from the chassis terminals of the fuse block to the 2-pin power connector.
- Strip 1/4" of insulation off of both ends of the red and black wires.
- Crimp non-insulated 1/4" female quick disconnect terminal onto black wire.
- Crimp insulated 1/4" female quick disconnect terminal onto red wire.
- Fully insert 2-pin power connector into LED Extender controller.



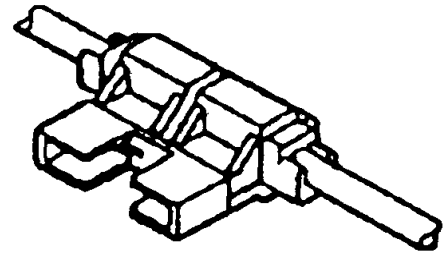
- The LED Extender label shows which wires go in which connector holes. Insert the stripped end of black wire into the CHASSIS (bottom) hole of the 2-pin power connector and tighten the screw to hold the wire snugly.
  - Repeat for the red wire into the POWER (top) hole of the 2-pin power connector.
  - Push uninsulated 1/4" quick disconnect terminal of black wire onto unused male chassis terminal on fuse block.
  - Push red 1/4" quick disconnect terminal of red wire onto the available fuse terminal you chose earlier.
  - Insert 1 Amp ATO fuse into the fuse slot for the terminal you chose earlier.
  - Install A-Plate into your vehicle.
  - Connect harnesses to other devices mounted to A-Plate if equipped.
  - Double check that installed wires are connected safely and correctly.
- Proceed to Step 2 – Attach Signal Lights.



### Conventional Installation (without a Logo Lites A-Plate™):

- Disconnect vehicle battery.**
- Choose a location to mount the LED Extender controller. The location should be in a dry area in the interior of your vehicle. Be sure that the way you mount your controller does not interfere with or damage your vehicle's fuel, electrical, or safety systems. The controller mounts with two #8 self threading screws (provided). Depending on your application, you might be able to use adhesive backed hook and loop tape to mount your LED Extender controller (not provided).
- Choose an available power source for the LED Extender controller. The power source should be an "always on" type that has voltage even when the vehicle engine is switched off. Antique cars may have a stud or screw available to connect to with a ring terminal. Some fuse panels have a quick connect terminal labeled BAT for this purpose.
- Choose an electrical connection location for the chassis wire. The chassis connection should be to a metal, wire, dash, frame, or body location that electrically connects back to the battery. A common chassis ground point may be available under the dash, or an existing screw may provide a chassis connection. Another option is to drill a hole and use an included #8 self tapping screw to provide the chassis connection. *We will call the connector you choose for this purpose the "Chassis Connector."*
- Drill any needed holes to mount the LED Extender controller. If mounting with the included #8 self tapping screws, the holes should be 9/64" in diameter.
- If necessary, drill a hole to connect the **Chassis Connector**.
- Mount the LED Extender controller using the hex key and #8 self tapping screws or other method of your choice.
- Cut black wire to length to reach from the **Chassis Connector** location you chose to the 2-pin power connector.
- Cut red wire to length to reach from the power source location you chose to the 2-pin power connector.
- Choose a location for the fuse holder. It may be installed anywhere in the red wire but should be located as close to the power source as possible (6" or less).
- Cut red wire into two pieces where you want to install the fuse holder.
- Crimp both pieces of red wire into the fuse holder, one on each side.

Installation on vehicles without an A-Plate™ requires the use of the included fuse holder. To install it, put the fuse holder in your hand with the two metal pieces at the top and facing you. The fuse holder is an insulation displacement type, which means you should not cut the installation off of the wire before you crimp the fuse holder to the wire. The wires go into the fuse holder at the bottom, through the holes from the left and from the right. Push one wire into the right side until it hits the middle stop. It may help to twist the wire to get it to go into the hole. Then take the piece on the top right (with the metal in it) and fold it toward the wire until it contacts the wire. Use pliers to squeeze it down until the latch catches. Repeat this for the wire on the other side. This creates an inline fuse holder.



- Strip 1/4" of insulation off of both ends of the red and black wires.
- Crimp the **Chassis Connector** onto the black wire. Your **Chassis Connector** may be a non-insulated #8 ring terminal, female quick disconnect terminal, or other connector you chose for your chassis ground connection earlier.
- Connect the **Chassis Connector** to the vehicle chassis ground point chosen earlier. If you use the #8 non-insulated ring terminal, insert the #8 screw through the #8 tooth washer and the ring terminal, and screw it into the hole you drilled earlier using the hex key.
- Crimp insulated #10 ring terminal, insulated female quick disconnect terminal, or other connector you chose to connect to your power source onto the red wire near the fuse holder.
- Connect the red wire to the power source.
- Fully insert 2-pin power connector into LED Extender controller.
- The LED Extender label shows which wires go in which connector holes. Run **Chassis Connector** and the power source to the 2-pin power connector. Trim the wire power connector end if necessary. Insert the stripped end of black wire into the **CHASSIS** → the 2-pin power connector and tighten the screw to hold the wire snugly.
- Repeat for the red wire into the **POWER** (top) hole of the 2-pin power connector.
- Double check that all wires are connected safely and correctly.



Tip – Use tie wraps or other means to support the wires to prevent them from damage or interference with vehicle moving parts or systems.

- Insert 1 Amp ATO fuse into the fuse holder.

## Step 2 – Attach Auxiliary Type 23 Signal Lights

- Attach two signal lights to the vehicle or trailer by following the separate instruction manual for the kind of Logo Lites Type 23 Signal Lights you are installing.
- If you are placing the auxiliary lights on a trailer, you will need to purchase a trailer connector for this purpose. It should have 3 or more pins. 1 for chassis, 1 for left signal, and 1 for right signal. The connector current rating is not important. Each Type 23 Signal Light only requires about 0.03 Amps.
- If mounting to the vehicle and if you have not already done so, crimp a male bullet connector onto the signal light's wire. It is okay to leave the wires hanging in an unfinished manner for now.

## Step 3 – Connect to Turn Signal Controller

To know when to turn on and off, LED Extender intercepts the power going to a signal light. One of the lights being driven by the Logo Lites LED Turn Signal Controller will now go "through" the LED Extender on its way to its Type 23 Signal Light. It does not matter if you intercept the front or rear signal, as long as you have one left and one right. We discuss intercepting the rear signals, but it is up to you.

- ❑ On the Logo Lites LED Turn Signal Controller, unscrew and remove the wire that goes to the right rear turn signal. Re-route that wire to go to the LED Extender. Trim and strip the wire if necessary. Insert the wire into the middle hole of one of the 3-pin connectors and tighten the screw.
- ❑ Cut a piece of wire to a suitable length to go from the LED Extender controller to the turn signal controller. Strip 1/4" of insulation from both ends. Insert one end of the wire into the turn signal controller connector where you removed the rear signal wire and tighten the screw. Insert the other end of the wire into the 3-pin LED Extender connector in the hole shown in the image on the right labeled "From TS Controller" and tighten the screw.
- ❑ Run a separate wire from 3-pin connector Extra LED Light hole out to the male bullet of the right signal light you mounted in Step 2 (or to your trailer connector, if applicable). Remember to leave enough extra wire at LED Extender connector end so it can be connected to the LED Extender controller when you are finished. On a Model A Ford, run the wires behind the cowl panel. Look closely for a hole where the floor, cowl, and firewall meet. This is where the harness for cowl light equipped cars transitions from the frame into the passenger compartment. It is a perfect place for the two signal light wires to exit the interior of the vehicle. An alternate method is to run the wires through the steering column grommet.
- ❑ At the connecting point of the auxiliary light strip 1/4" of insulation off the extra light wire you just ran. Crimp a female bullet connector to the wire and insert male bullet into female bullet to connect LED Extender wire to the signal light. You will connect to the LED Extender controller in a later step.
- ❑ REPEAT all of Step 3 for the left side using the other 3-pin LED Extender connector.

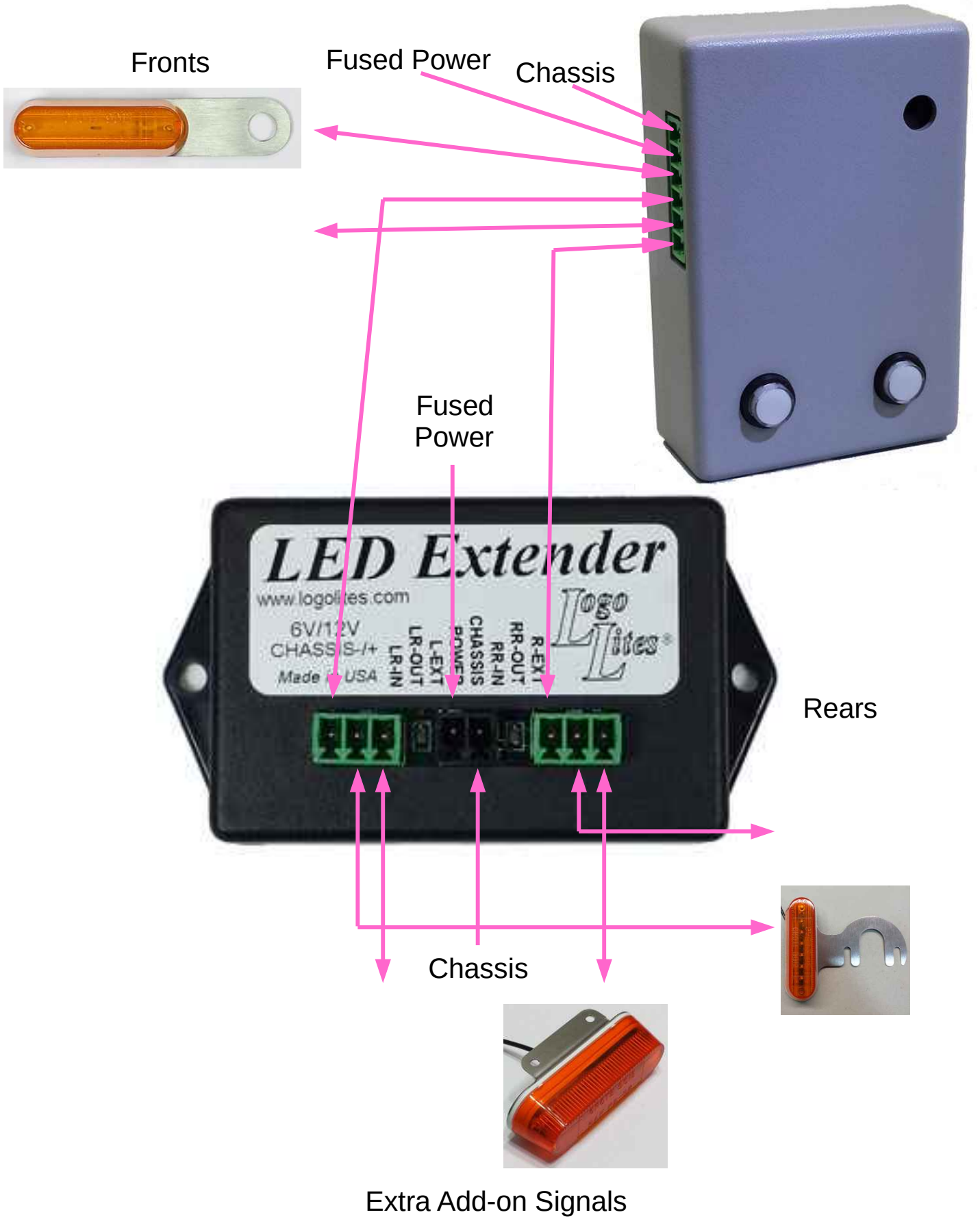


Tip – mark the wire for the right signal before running the left wire for when you hook up the connectors later.

#### Step 4 – Connect Signal Wires

- ❑ Working from each signal light you just installed back to the LED Extender controller, suspend wires from vehicle frame or existing harness. Secure with black tie wraps, a few layers of black tape, or your own preferred method, removing the slack as you go. Trim excess wire at the LED Extender connectors end as necessary.
- ❑ Strip 1/4" of insulation off of both black signal wires.
- ❑ Insert the stripped ends of the new signal light wires into the holes shown in the image on the right labeled "To Extra LED Light" and tighten the screw.
- ❑ Insert the connector with the left signal from the turn signal controller and the left extra LED signal into the LED Extender in the jack for the left signals.
- ❑ Repeat for the right connector into the right jack.
- ❑ Replace any panels you removed earlier for access.
- ❑ Re-connect vehicle battery.





## Troubleshooting

If the fuse is blown, e-mail or call Tech Support (see front of manual) *before* installing a replacement fuse. In this case, a blown fuse indicates a problem with the vehicle's electrical system. If the fuse is not blown, but the Logo Lites do not work as expected, here are some steps to help troubleshoot the unit.

Turn signals work but neither auxiliary displays work:

- Make sure the 2-pin power plug is fully inserted into controller jack.
- Make sure chassis and power fuse screws are tight on the 2-pin controller plug.
- Use a multimeter and touch the probes to the chassis and power fuse screws on the 2-pin controller plug and make sure there is voltage to the unit.
- Make sure the 1 Amp fuse is installed and not blown.
- Turn on 4-way lights. Look at the front of the controller (where the label is) and see if there are Red LEDs flashing. If they are flashing then the wiring to the 3-pin connector is wired wrong. Swap the two wires "From TS Controller" and "To Main LED Light". If wired properly, there will be no LEDs visible.
- Turn on 4-way lights. Strip both ends of a long scrap piece of electrical wire. Touch one end of the wire to the stainless steel bracket of the non-working light, and other end to a working light's stainless steel bracket. If the light now works, the problem is with the chassis connection to the signal light that did not work. Remember: *electrical circuits have two wires. The black wire going to the signal light is one, and the chassis is the other.*



One auxiliary signal works, but one does not:

- The power wiring to the controller is good! This means the problem is either in the wire going to the nonfunctional signal, or in the chassis-return from the signal. Remember: *electrical circuits have two wires. The black wire going to the signal light is one, and the chassis is the other.*
- Make sure the wire is fully inserted and the screw is tight in the 3-pin connector (To Extra Led Light).
- Make sure the wires are securely crimped in both the female and male bullet connectors.
- Make sure the male is fully inserted into the female bullet.
- Make sure there is not a break in the wire between the 3-pin connector and the turn signal light.
- Turn on 4-way lights. Look at front of the controller (where the label is) and see if there is a Red LED flashing. If there is one flashing then the wiring to the 3-pin connector is wired wrong. Exchange the two wires "From TS Controller" and "To Main LED Light" on the connector next to the flashing LED. If wired properly, there will be no LEDs visible.
- Turn on 4-way lights. Strip both ends of a long scrap piece of electrical wire. Touch one end of the wire to the stainless steel bracket of the non-working light, and other end to a working light's stainless steel bracket. If the light now works, the problem is with the chassis connection to the signal light that did not work.
- Swap the "To Extra LED Light" wire on one 3-pin connector with the "To Extra LED Light" wire on the other 3-pin connector. If light still does not come on, the wire going to the light is shorted to the chassis, there is a poor connection in the bullet connector, or the turn signal assembly has a poor connection to the chassis. If the problem swapped from one light to the other light, you either have a bad 3-pin connector or a bad controller. Contact Technical Support for help.

Left or right turn signal is not working but worked before connecting to LED Extender:

- Note: the original turn signal LED displays should work even if there is no power to the LED Extender.
- The problem is: one of the wires going to the 3-pin connector from the turn signal controller or one of the wires going to the original turn signal displays is not connected, or is connected to the wrong pin.
- Make sure all the screws in the 3-pin connectors are tight and the connectors are pressed into the jacks on the LED Extender.



## Parts List

Quantity	Description	Quantity	Description
1	Controller	35'	Black wire
1	Male 2-pin plug-in connector	5'	Red wire
2	Male 3-pin plug-in connector	1	#8 hook red insulated terminal
3	Screw #8 x 1/2" self tapping	1	Female quick disconnect non-insulated terminal
1	Tooth washer #8	2	Female quick disconnect red insulated terminal
1	#10 ring insulated terminal	2	Female bullet connectors
1	#8 ring non-insulated terminal	1	Blade fuse holder
1	Logo Lites screwdriver	2	1 Amp ATO fuse
1	Hex key (wrench)		

## Warranty

Creative Connections, Inc. (hereinafter "CCI") warrants to the Purchaser of this unit that this unit will be free of defects in workmanship and materials for a period of one (1) year from the date of purchase. "Defects" as used herein, refer only to those imperfections which impair the utility of the product. Defective units reported or returned to CCI within one (1) year from date of purchase will be exchanged or repaired without charge at the option of CCI.

This warranty is limited to the repair or exchange of the product and does not cover and CCI will not pay nor provide any other benefit or service including labor or materials which may be necessary to remove or replace a defective unit. CCI shall not be liable for any injury, loss or damage, direct or consequential, arising out of the use or failure of this product. It is the user's responsibility to determine the suitability of this product for its intended use. User assumes any and all risk or liability in connection with the installation and use of this product. This warranty does not apply to any defects resulting from abuse, negligence, intentional damage, modification, improper installation, unreasonable use, exposure to elements, or over-tightening of fasteners.

Defective units should be reported directly to CCI and not to your retailer. Contact CCI by telephone or write to the address shown in this manual. Identify the Logo Lites product purchased, the date and location of purchase, and the nature of the alleged defect. Do not ship your product back to CCI unless and until specifically directed to do so. Shipping instructions will be provided to you at the appropriate time. Shipping to CCI is the responsibility of the purchaser. All defective products returned must be accompanied by proof of purchase.

This warranty is not transferable and applies only to products sold within the United States of America, the District of Columbia, the Commonwealth of Puerto Rico, territories of the United States, and Canada.

This limited warranty is in lieu of all other express warranties. CCI shall not be liable to any special, incidental or consequential damages. Any implied warranty of fitness for a particular purpose, merchantability or otherwise, applicable to this product, shall be limited in duration to the duration of this limited warranty. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

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