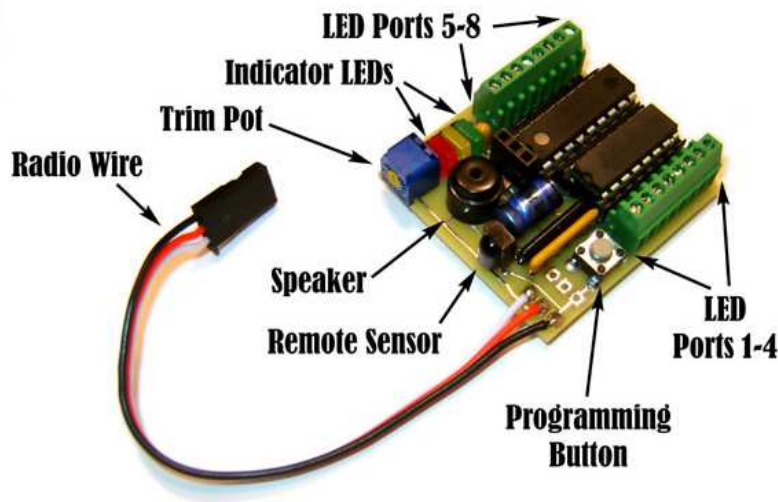


Your Punk RC Mini Light Controller 03/10/2009



Included Hardware

- Punk RC Mini Light Controller
- Heat-shrink – Clear Battery pack variety

Programming Hardware Needed

- Universal TV Remote - It needs to be programmed to Sony Devices. Many Sony brand universal remotes come pre-programmed to Sony Devices.

Installation Hardware Needed

- LED Lights - No resistors needed. Avoid loose LEDs sold as “5V LEDs” etc. ANY LED rated with a “Forward Current” of at least 20mA will work!
- Wire - 20-24 Gauge insulated wire works best. I prefer taken apart Telephone Cable (solid conductor) or Enamel Wire (for smaller places).

Tools Needed

- Small Flat head screw driver - This is used to tighten down the screw headers.
- Small Phillips screw driver - This is used to adjust the Trim Potentiometer.
- Heat Gun – For Installing Heat Shrink. Hair Driers work.
- Soldering Iron and Solder – If making own LED wires, you will need a soldering iron/gun and rosin core solder. I prefer a 15watt iron for small electronics.
- Wire clippers, wire strippers, and razor knife for installation.

Installation

Before you get started with your install, watch the videos on www.punkrc.com

Light Controller Installation Process

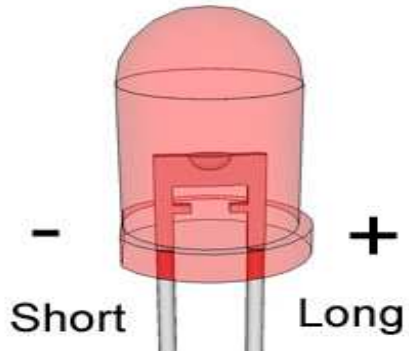
We recommend users follow these basic steps for a Mini Light Controller Install.

1. Plan Ahead. Have an idea of what light is going to hook into what channel. Also plan the basic light function.
2. Install LED Lights and Wires. Use two colors of wires and take note of LED polarity. LED will not light if reverse polarity is applied. If a few LEDs are not lit, check their polarity.
3. Use Plugs. Making the unit easy to remove is a good idea to keeping things strait. Deans makes some excellent multi-conductor plugs that can make wing or body removal as snap. These plugs can be inline on the wires, or use Dean's two conductor plugs, with 0.1" spacing, that will hook directly into a channel, making unplugging of lights easy.
4. Plan for Vehicle Disassembly. By grouping wires coming off different parts of the vehicle, t will be easier to remove those parts of the vehicle. Example, make all lights for an airplanes wing hook into the first three ports. Add a multi conductor plug
5. Hookup and Test. Before you finalize an install, make sure the unit works as intended.
6. Heat-shrink the Unit. Use the supplied clear "battery pack" heat shrink to cover the unit. Keep in mind you will need access to the pushbutton and will have to keep the IR sensor visible. You will need a heat gun or hair drier.

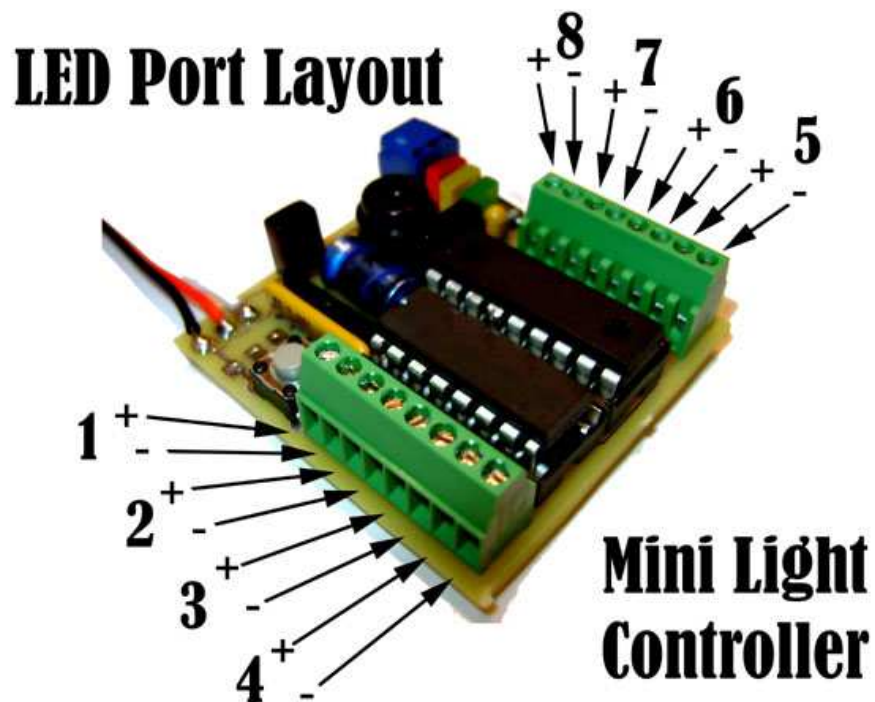
LED Installation Process

Refer to the LED Tutorial which can be downloaded on www.punkrc.com

1. Choose your LEDs.
 - a. Check Ratings.
 - i. Typical Forward Current of 20mA with at least 20mA max rating.
 - ii. Forward Voltage is typically 1.5-4.0V. (This needs to be considered more if running multiple LEDs on one port, see below)
 - iii. Proper Beam Angle and Brightness. Beam widths of 30° or greater are better. Brightness, in mcd, will appear higher for narrower beam LEDs. Example: A 500mcd 50° LED puts out much more light than a 750mcd 10° LED.
 - b. Avoid "5V" and "12V" LEDs. These have build in resistors of a higher value than needed. These will not perform well.
 - c. LED lights designed for RC Vehicles are often expensive and have limiting resistors already. These work, but they are often the more expensive route with less results. These kits work best for lights that are "Always On" like Head Lights and Tail Lights



2. Wire the LEDs
 - a. Most installs will require you to run custom lengths of wire and hook them to the LED.
 - b. It is easiest to use solid conductor and color coded wires.
 - c. Remember Polarity on the LED. The Long Pin is positive and the Short Pin (on the flat side) is negative.
 - d. Strip the wires and solder them to the LED pins.
 - e. Use small heat shrink or electrical tape. Make sure the LED wires will not "short"
 - f. Strip the wires and solder them to the LED pins.
 - g. Leave lots of extra length for running the wires.
3. Run the Wires to the Controller
 - a. Using a razor, you can tuck wires into the surface of most foam or wood bodies.
 - b. Keep wire pairs twisted to keep them as a pair.
 - c. Use Plugs (like Deans 2, 4, 6... pin plugs) to make easy RC craft disassembly.



Programming

Choosing a TV Remote

You will need the following buttons (these are basic to most):

Channel Up, Channel Down, Volume Up, Volume Down, Mute, 0 – 9 and Enter



Note: I personally like to find a 2 device remote without a VCR option. Remember, “The simpler the better.” Sony’s Model RM-EZ4 for \$11.00 (bought mine at Target). Its buttons work well, feel good in the hand, not over complicated and comes “coded” right out of the package.

Setting up your TV Remote Control

The Mini Light Controllers are programmed to read Sony TV Codes from any universal remote. Check the remote manual for the Sony codes and try one. Use the included remote manual.

Another common and cheap remote is a \$5.00 GE Universal remote available at most Wal-Mart checkouts. The code for these is 0128. These are cheap, but I it seems that I have to press the buttons hard to multiple times. But, they work and they cost less than lunch.

Programming the Light Controller

1. Hookup some LED lights. Make sure they turn on. You can do this before you install the lights.
2. Hook up the Light Controller to a Powered Receiver. Make sure the Indicator lights turn on.
3. Turn on the Transmitter. The unit WILL IGNORE the programming commands unless it is receiving a signal from the receiver.
4. You will see the Indicator LEDs show your TX switch position. Yellow = Centered, Red/Green = Up/Down or Left/Right.
5. **(Optional)** Reset the Unit by holding the Programming Button for 5+ seconds until all the lights turn off. This will reset all LEDs to be default ON. THIS WILL ERASE ANY CURRENT PROGRAMMING

6. Put the unit into Programming Mode. This is done by pressing the program button and holding it for 3 seconds as explained in the programming section. The Red LED will blink with the Yellow LED On. Also, the beeping will be faster.
7. A single LED on Channel 1 will turn on. (Unless programmed “off” or “blinking”)
8. Test your remote’s Channel Up button to make sure they change what LED is lit up. Channel Up goes 1,2,3,etc (CCW) and Channel Down goes 8,7,6, etc (CW)
9. Using the Button Function Legend (Table 1) program each LED
10. Remember, each LED can be programmed with has three of the ten functions. Each LED has one of the ten functions per TX Toggle position.
Example: Toggle Up = LED On, Toggle Middle = LED Blinking and Toggle Down = LED Strobe.
11. When finished programming, return to normal mode by pressing remote “power” button or light controller button. The unit will restart.

Watch the Programming Video on www.punkrc.com

Table 1 - Button Functions Legend

BUTTON	FUNCTION
Power	Exit Programming Mode.
Chan Up	Change LED Port Up.
Chan Down	Change LED Port Down.
Volume Up	n/a
Volume Down	n/a
Mute	Turn On All Lights.
0	Function – Off.
1	Function – On.
2	Function – Blink Left.
3	Function – Blink Right.
4	Function – Strobe Left
5	Function – Strobe Both
6	Function – Strobe Right
7	Function – Triple Left
8	Function – Triple Both
9	Function – Triple Right
.	n/a
Enter	n/a