How to Design a Costume Using Cool Neon EL Wire

This guide will take you through the steps for turning your great idea for a costume into reality. Many of your questions will be answered if you go through this guide step by step and follow the links. Please email us or give us a call if you still have questions: we're here to help.

To Solder or Not to Solder

Your first decision will be whether you're going to solder Cool Neon wire yourself or ask us to do the soldering. The advantage of doing it yourself is that you'll save money and have more flexibility as you put your costume together. It takes about half an hour to set up and do your first solder joint following the thorough print and video instructions; soon you'll be doing solder joints in a few minutes each. There's a Learn to Solder Kit that includes all of the soldering supplies that you'll need and an assortment of wire and drivers that you can use for your costume. In addition to the time, soldering requires nothing more than a steady hand and attention to detail. If you have the time and inclination, we think you'll find it pretty rewarding.

If you'd like to get your Cool Neon pre-soldered, you have two choices: 1) you can order Plug & Play Units and Harnesses for High Bright 2.6mm and Hella Phat 5.0mm wire in standard lengths of 5-, 10-, and 20- feet or 2) you can order Raw Wire of any type and length (in feet) plus a Custom Solder Joint. Each strand of Cool Neon or lead wire needs a solder joint; some strands, depending on your design, may need one at each end. Please note that custom soldering is never more than a one-week turnaround.

Cool Neon Basics:

So you've decided who's going to do the soldering but your costume idea is still a little too abstract to know what you'll need. To make your vision concrete, your next step is to get a better sense of how Cool Neon fits together. Throughout this process, assume that there are no limits on your design.

First, browse through the Connectors and Extensions category. This will give you an idea of some of your options. For example,

- · you can attach any number of strands of Cool Neon wire to one driver with Y and Quad Connectors
- · you can also use Y and Quad connectors to have one strand of wire lead into several
- · you can use Extensions to connect parts of your costume with wire that doesn't light up

Also, please take a look at this video Online Ordering Guide, which will answer some basic questions.

Designing Your Costume:

Now you're ready to design your costume. Start with a diagram that shows measurements and how everything will connect to each other. Here are a few principles to keep in mind:

Measuring Wire: Measuring tape, string, or rope is the best way to measure lengths. If your fabric stretches, allow for that if you're tracing the design on the costume.

Connecting Wire: You can solder Cool Neon directly to other strands of Cool Neon or to lead wire without plug & play connectors, but if something goes wrong with one of the strands or solder joints, it's much more difficult to figure out where the repair is needed.

Repeated Flexing: Areas like elbows, knees, and shoulders that get repeatedly flexed can damage wire. Go around these areas, allow slack, or preferably use an Extension or Lead Wire, which aren't as susceptible to damage, to cross these joints. The eye tends to create continuous lines of color even when there's a gap. If you're wrapping wire across a movable joint, wrap it in the direction that results in less flexing.

Hiding Wire: There are times when you want the wire to continue even though it's going to remain unlit. Choose whichever method works best for your design:

1) mask the wire with electrical tape or electrical paint (available at hardware stores)
2) use Plug & Play Extensions to cover distances between strands of Cool Neon
3) use Lead Wire (24-gauge speaker wire) to cover distances between strands of Cool Neon
4) run the wire behind the surface of the costume (wire doesn't heat up)

Locating Drivers: Figure out how many feet of wire you want to light as one unit (e.g. they all blink at the same time, or they all turn on and off at the same time). These strands should all connect to the same driver if possible. If it's awkward to connect everything to one driver, consider using two drivers instead.

Thinking Ahead: Think about how you're going to get in and out of the costume.

Your costume is going to look great in the dark: Don't worry about how it looks in the daylight.

Making a list:

Your diagram should now tell you everything you need to know to come up with a shopping list. Here are some things to keep in mind when placing your order:

Cool Neon wire ([raw wire](#) or [soldered](#))

Choosing Length: You can easily shorten Cool Neon or lead wire by cutting the end with wire cutters or a good pair of scissors and sealing the end with a dab of hot glue or heat shrink. When you can, add a little to your measurements to allow for underestimates or repairs. If you're ordering custom solder joints, please give us detailed instructions in the Notes field during checkout or in a separate email.

Choosing Type of Wire: We usually recommend Phat 3.2mm wire or Standard 2.3mm wire for costumes because they're more resilient to movement. For more rigid surfaces, brighter wire, or aesthetic reasons (e.g. hats, backs of jackets, Tron costumes), you can choose the stiffer High Bright 2.6mm or Hella Phat 5.0mm wire. If you'd like to sew wire at the seams, our [Tail Wire](#) is ideal. Angel Hair makes beautiful detail but is fragile and should be used only indoors.

[Drivers:](#)

Choosing by Length: Every driver has a minimum and maximum length of Cool Neon that it should power. Going above the maximum will make the wire glow more dimly and decrease battery run time. Going below the minimum may damage the driver, especially if you're using one of the Sound Activated drivers. Count the total feet of Cool Neon (excluding extensions and lead wire) of all the strands that will be connected to the driver to determine the range you need.

Powering: We highly recommend using an [8AA battery cage](#) with drivers that have a 9v snap. Powering your driver with 12v instead of 9v will make your wire glow brighter and for more hours on the same batteries. *Please note that an 8AA battery cage can't be used with the 9V Variable Speed Driver.*

Adding an On/Off switch: If the driver that you'd like to use doesn't have an on/off switch, you can add that feature with a [Toggle Switch](#) (soldering required).

Soldering Yourself?

· This is a good [soldering iron](#).
· Get some [Driver-Side connectors](#) just in case:
· This [Heat Shrink](#) is the best.

If you'd like to run your design and shopping list by us before you place your order, please give us a call or send us an email.

Finally Putting It All Together

Congratulations. You've designed a costume, drawn up a list, and placed your order. Now you're ready to make your costume:

· When you attach the wire to your costume, work with the wire lit. If anything you do damages the wire, you'll know immediately.

· Clear Thread is generally good for sewing your wire onto fabric, either continuously looped over the wire or sewn and tied off in spots (e.g. across moving joints). Our Tail Wire is great for sewing Cool Neon into seams or stapling it.

· To glue Cool Neon onto rigid surfaces, we like to use a cyanoacrylate (e.g. Crazy Glue) with an accelerant like Zip Kicker, available in hardware stores. This combination takes a little practice to do well.

We love seeing our customers' creations: please share your pictures and experience with all of us by posting to our Facebook page or sending us an email. Good luck, enjoy your costume, and send us pictures!

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