A Guide To Even LED lighting

Weloveleds ♥

These examples below are here to guide on how to connect your LED modules together, giving even illumination and efficient power usage.

A 'How to' on safe and efficient wiring for LED Modules

LED Modules are simple to wire up. As long as the Positive (+) & Negative (-) wires connect to the corresponding wires on the Power Supply (PSU), and the PSU is suitably sized to cope with the total amount of LED you are trying to light up, then the LED will light up.
BUT........
Depending on the quantity of LED, you may find that some modules are brighter than others giving an uneven light.

Try to think of the LEDs 'asking' for their bit of power from the PSU, rather than the PSU forcing it's power out.
ie: If you have a 100w 12v PSU with 1x SG3 LED Module attached (0.3w), the LED will 'ask' for it's 0.3w of power from the PSU and that's what will be given out. The PSU won't force it's 100w capability into the individual module, meaning the LED will safely illuminate at it's set brightness without fear of being overloaded.
(Obviously this is an exaggerated example, and would recommend you used a smaller power supply)
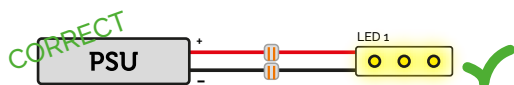

Thinking in the same way, if you have 100modules (0.3 w each - 30w total) in one long single row, fastened to a 100w 12v PSU, the PSU is more than capable of lighting up this quantity, but it wouldn't light up evenly.
The 100th module is 'asking' for it's bit of power, which the PSU will send down for it, but this bit of power has to pass through the 99 previous modules. It's the same for the 99th, 98th, 97th modules etc..., and this will give you brighter LEDs at the start and the end modules will appear dull.
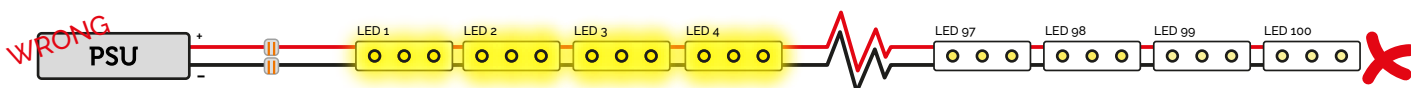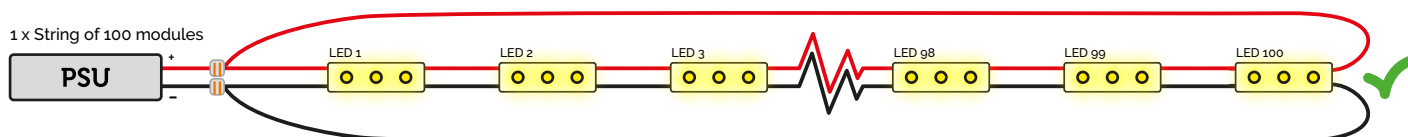

To completely solve this problem, there are a couple of simple rules to live by when wiring LED modules:

Rule 1: A Maximum of 40 modules on one string where there is a connection to the PSU at one end only. This will give you an even output for every module.
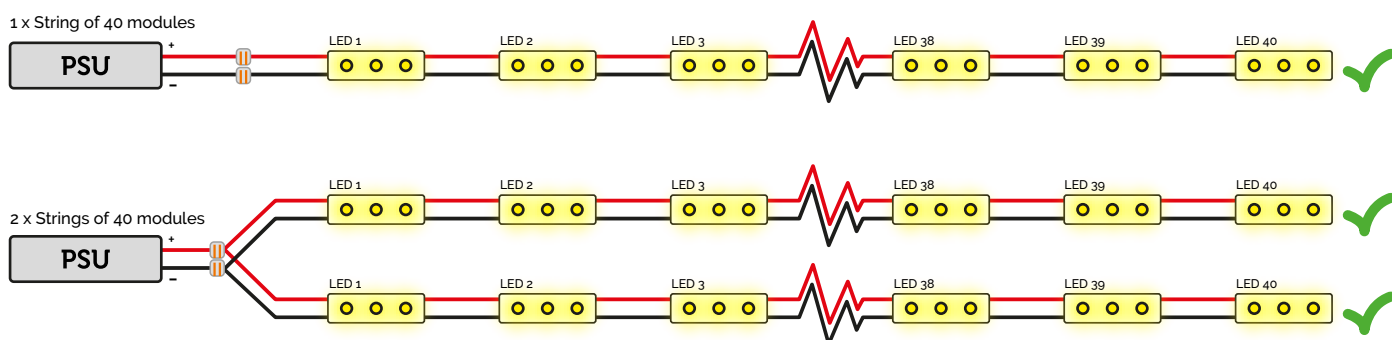
Rule 2: A Maximum of 100 modules on one string where there is a connection to the PSU at both ends of the string or the string is looped together. This will also give you an even output for every module.

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A wiring guide for - Built up illuminated letters

The common way many people wire together internally illuminated letters is to 'daisy chain' them together.
ie: From the PSU into the 1st letter, then a wire out from the 1st to the 2nd letter and so on.
This is only suitable if the whole sign has 40 or less LED modules with a connection from one side, or 40-100 modules where the chain is looped back together. (See Page 1)

There's a simple wiring method to use that's ideal for 99% of all your LED module wiring applications.
We call it 'The Master Wire System'.

You'll need a small stock of specialist connectors, and the advantages of these connectors in terms of time saving, consistancy and overall quality, far outways the small cost of buying them.

Twin Lever Clamp
Used to extend the output wires from the PSU.
This is what we refer to as the 'master wires'
(Suitable for 0.08mm - 4mm2 cable)
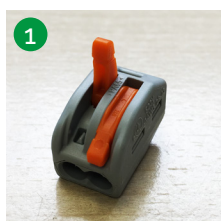
Dexgreen Gel Connector
Used to extend the wire attached to the LED with longer LED extension wire so it reaches the 'master wires'
(Suitable for 0.5mm - 2mm2 cable)

Splice Red Connector
Used to connect the led extension wire to the 'master wires'.
(Suitable for 0.65mm-1.5mm2 cables)

All the connectors mentioned can be bought from www.weloveleds.co.uk

The Master Wire System

This method of wiring is the quickest, easiest and best option for when you are connecting internally illuminated letters together.
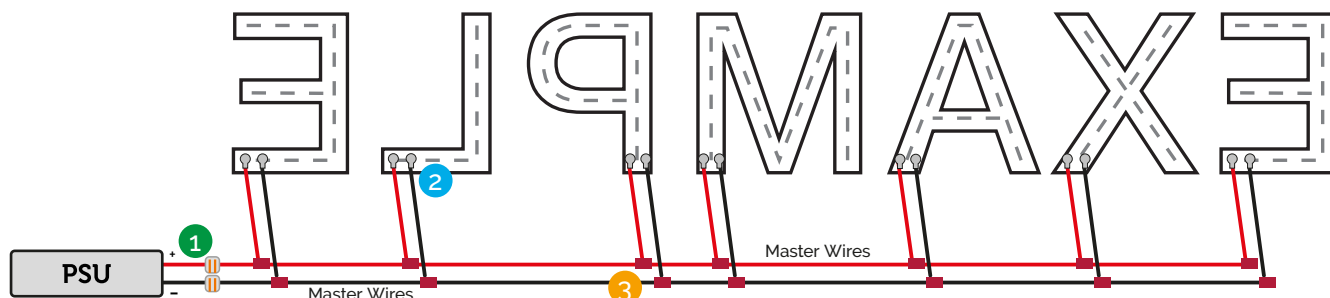
The idea for the using the system is in applications where you can get to the back of the letters once they have been positioned. ie: On an alumiminum/composite tray, or on a building facia/wall

Step 1:
Your built up internally illuminated letters need the LED wire extending long enough for it to reach either through a tray or behind the facia/wall with apx 300mm of spare wire. You would use the correct gauge of wire for the job (ring us with the spec of your sign and we can suggest the correct gauge) and the Dexgreen Gel Connector to extend both the positive (+) and negative (-) wires from the led modules within your letter.

Step 2:
On the inside of the tray/facia, you will see all the ends of the LED extension wire coming from your letters.
Now you need to extend the output wires coming from your PSU using the Twin Lever Clamps so that they run the full length of your sign. (These can be fit on place with sticky pads and cable ties).

Step 3:
Using the Splice Red Connectors take the positive wire from the 1st letter and attach it to the positive 'Master Wire', then the negative wire to the negative 'Master Wire', and repeat for every letter. See the diagram above

*Always check that the master wire cable is rated high enough for the total Amperage of your job. If unsure please get in touch and we will guide you.

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This sheet shows you how to wire up NeonPlus® lettering safely, with even illumination and efficient power usage.

A wiring guide for - NeonPlus®

What do you need?

To start with you will need a small stock of specialist connectors. The advantages of using these connectors in terms of time saving, consistancy and overall quality far outways the small cost of buying them.
(These are included FOC with every NeonPlus® order along with the wire & PSU)

All the connectors mentioned can be bought from www.weloveleds.co.uk

Twin Lever Clamp
Used to attached the wire extending from the output wires of the PSU. This is what we refer to as the 'master wires' (Suitable for 0.08mm - 4mm2 cable)

1.5mm Tri-Wire 'Master Wires'
The perfect wire used to extend the output wires of the PSU. It's rated upto 21A, and fits snuggly in the red splice connectors.
*Alternative colours and sizes are available.

Splice Red Connector
Used to connect the led extension wire to the 'master wires'. (Suitable for 0.65mm- 1.5mm2 cables)

The Master Wire System

This method of wiring is the quickest, easiest and best option for when you are connecting internally illuminated letters together. It will give you even illumination throughout the sign without overloading any part of the wiring.
Any warranty will be void if wired up in a different way not using pre-approved wiring or connectors
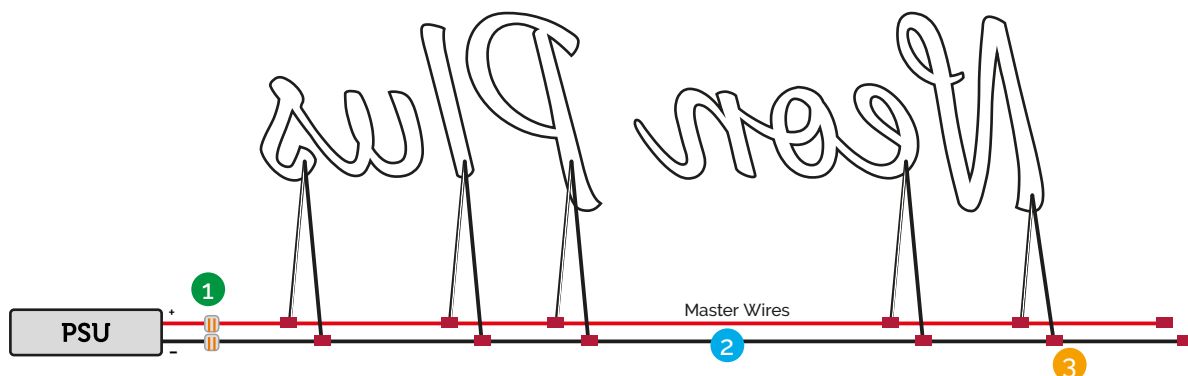
The idea for the using the system is in applications where you can get to the back of the letters once they have been positioned. ie: On an alumiminum/composite tray or on a building facia/wall

Step 1:
The NeonPlus® letters will be provided with enough wire to extend either through the tray or the facia/wall with a minimum of 300mm spare.

Step 2:
On the inside of the tray/facia, you will see all the ends of the LED wire coming from the NeonPlus®.
Now you need to extend the output wires coming from your PSU using the Twin Lever Clamps and the 1.5mm Tri-Wire so that they run the full length of your sign.
These can be fit on place with sticky pads and cable ties (Not provided).

Step 3:
Using the Splice Red Connectors take the positive wire from the 1st letter and attach it to the positive 'Master Wire', then the negative wire to the negative 'Master Wire', and repeat for every letter.

*Always check that the master wire cable is rated high enough for the total Amperage of your job. If unsure please get in touch and we will guide you.

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