

User Manual

iStwinkle™ LED Strings

LED String User Manual

1.0 Introduction

The Innovation Solutions iStwinkle™ LED's are strings of 8 PCB mounted LED's for use as single or multiple circuits within star cloths or set pieces. They are used in conjunction with wiring kits and iStwinkle controllers which drive these common positive 30Volt strings.

2.0 Concept of LED Twinkle Drapes

Twinkle Drapes are generally provided in three sizes although can be made to any size and led count required, the standard sizes are

Size	Width	Drop	LED's	Circuits
Medium	3m (10ft)	4.8m (16ft)	96	4
Large	3m (10ft)	7.2m (24ft)	128	4
XL	4m	12m	256	4

When Hung vertically, from the viewing side each drape has a 6pin Male XLR connector at the top left for power in and a 6pin Female XLR connector at the top right for power out to directly power the next drape. If the drapes are hung in alternate configurations, extension cables may be required to connect the drapes to each other.

The kit of parts used for the connection across the kit is called a header kit; from this a drop kit is used to provide the power-rails that the LED strings are connected between.

Chaining

Twinkle Drapes can be chained up to the maximum capacity of the controller used. Do not exceed the capacity of the controller. All Innovation Solutions controllers have resettable thermal fuses and power limiting power supplies which will either cut off an overloaded channel or the complete unit and reset once the overload or fault has cleared.

Example

You have 20 large drapes and 5 controllers.

Distribute the drapes evenly giving 4 drapes per controller.

4 drapes x 256 LED's per Drape = 1024 LED's total – this is within the maximum capacity of the controller.

Connecting the Controller

The controller can either be hung on a hook clamp and the start of chain plugged in directly, or a 6pin XLR extension cable can be used and the controller placed on the floor or mounted out of the way. Dependant of the model the controller may have two output connectors for cabling option flexibility. Please see the instruction manual for details on controller operation.

LED String User Manual

3.0 LED Layout

Each twinkle drape has 4 separate circuits made up from LED strings of 8 White LED's that are current limited with a resistor to limit to a maximum current dependant if the string is a low or high power version.

From the cloth sizes mentioned on page 2 the LED configuration of each would be as follows:

96 LED twinkle drapes contain 4 channels, 3 strings per channel, 8 LED's per string
128 LED twinkle drapes contain 4 channels, 4 strings per channel, 8 LED's per string
256 LED twinkle drapes contain 4 channels, 8 strings per channel, 8 LED's per string

Once the number of strings per channel is established the area to be covered can be divided into this number of sections. Then using 4 strings, one from each channel the LEDS can be placed intermingled in this zone. This will allow for random layout across the cloth without all of one channel ending up in the same place. There are instances however where you may wish a regular pattern such as:

- In set pieces that you wish to chase in order
- Where you are arranging a channel to highlight an area
- Where the LED's are being laid out as text or a logo

4.0 LED drapes construction

LED Strings

For ease of wiring we can supply the LED strings with different colour coded cable, making the identification of the circuit to which it belongs simple. This helps with layout of cloths as well as troubleshooting.

Colour coded strings are Red, Yellow, Green and Blue, all strings have a white wire at one end to identify the common positive connection. Either end of the strings have spade crimps for easy connection to the power rails. A clip on spade receptacle is supplied for each end of the string which clips onto the power rail of the drop kit.

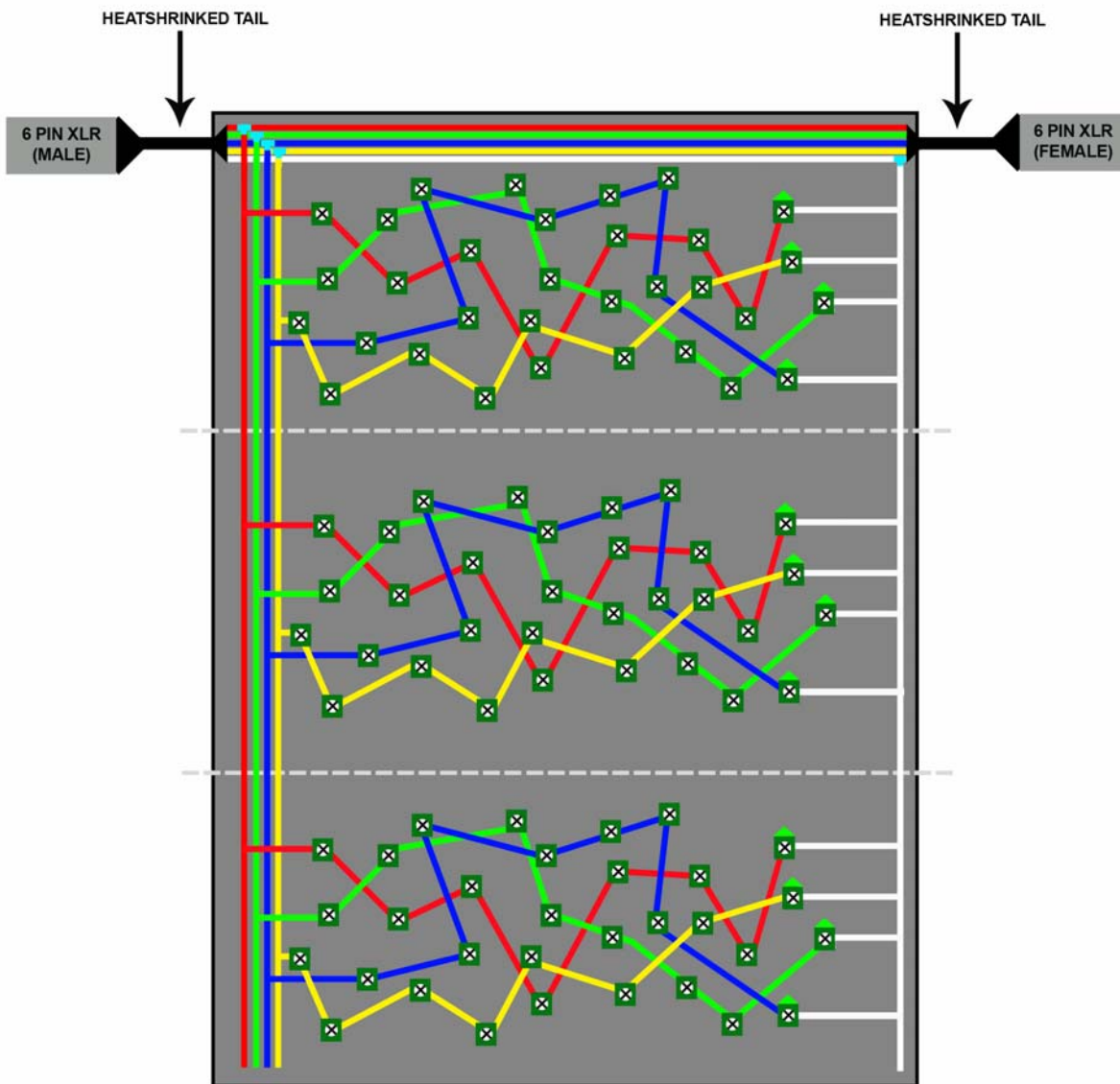
Drop Kit

Is essentially a white 1.5mm cable down the back right of the cloth and a cable of each of the circuit colours down the rear left of the cloth, for large cloth layouts you may wish to put intermediate drops in. The drop kits connect to the header kits using tap splices. For large cloth configurations and experienced users you may find it cheaper and easier to have rolls of cable supplied instead of kits.

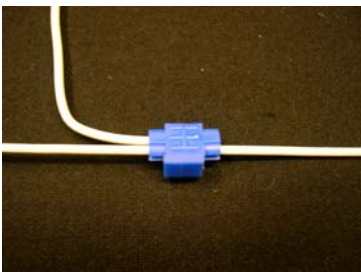
Header Kit

A header kit is used to provide the power to a cloth as well as link out into the next cloth, it is a cable set that comes from the 6 pin XLR used wish usually hangs a foot out of the top left of a cloth and then runs the power cables across the top of the cloth and out to a 6 pin female XLR at the other end. From the header kit, drop kits are connected using tap splices that allow LED strings to be connected.

LED String User Manual



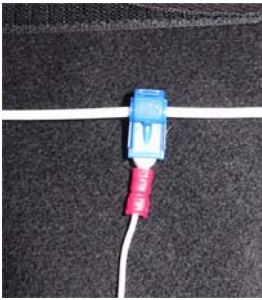
Wiring example for Header to Drop wires



The drop kit wires are connected to the header wires using a junction splice, the wires are positioned in the tap splice and then the splice is clipped firmly closed using pliers.

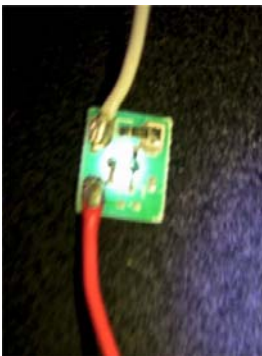
LED String User Manual

Wiring example for a Red String



Start of String

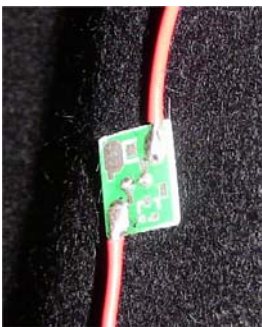
The string starts at the common power rail. A blue tap splice is crimped onto the white power rail. A red spade connector is crimped onto the white wire of the string. This is then plugged into the splice.



First LED with resistor

The first LED is fitted with a resistor to limit the current of the string; this resistor value is different between high and low power string types. It is very important that the first LED is fitted with a resistor to prevent damage to the LED string. Failure to fit a resistor could lead to overheating and string failure

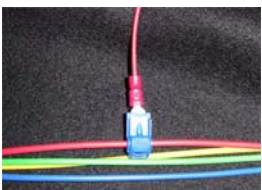
The white wire is soldered to the top left pad (positive with resistor) and the red wire (for red circuit) is soldered to the bottom left pad (negative) that goes to the next LED.



Next 7 LED's

The Remaining 7 LED's in the string are all connected together. The red wire (for red circuit) from the previous LED is connected to the top right pad (positive without resistor).

Another red wire is connected to the bottom left pad (negative). That goes to the next LED or Channel Power rail (from 8th LED)



End of String

The red wire from the last (8th) LED is connected to the red channel power rail (negative)

LED String User Manual

5.0 Maintenance

Kit Contains

4 complete strings, one of each colour (red, blue, yellow and green).
6 spare LED boards with White (+ve) and Black (-ve) wire
2 spare LED boards with resistor with White (+ve) with red tape and Black (-ve) wire
Selection of fixing grommets
AA battery holder with 2 x AA batteries to test LED's
Red Split Splices
Blue Tap Slices
Spade Connectors

If there is a whole string that will not light, then visually inspect the string and see if any connections have become loose or broken. If the problem is obvious then fix.

If all appears to be connected correctly but the string is still not working then use the battery pack to test each LED, note that the LED will only light one way round.

If one of the LED's will not light then either replace that LED by soldering in a new one or using the red splices, splice one of the spare LED's with tails across the faulty LED wires.