

## **WARNING**

Before use please remove the LED Tape from its bag and allow the odour to dissipate in an unused room or outdoor building for a day or so. Wash Hands after handling.

This product uses High Brightness LEDs. Direct viewing of the SMD LEDs at close range should be avoided.

Keep product away from children.

Do not use anything other than warm water to clean the LED Tape.

Litewave LTD. Will not accept responsibility for any other issues arising from improper use or fitting of this product where such matters are beyond our control.

Having highlighted a number of safety issues and warnings in this installation guide Litewave LTD. will accept NO responsibility for issues arising from any failure to comply with these instructions and recommendations.

## **Installation**

Although the product is tested during manufacturing, it is highly advisable to perform a final test on the Flexible LED Tape before it's stuck in place to make sure it has not been damaged in transit. Connect the red (+) wire to the positive wire of a 12 Volt DC switchmode power supply (a 9v pp3 will also work), then connect the black wire to the negative (-) wire of the power supply (or battery). Ensure that all of the LEDs are fully lit, but **AVOID VIEWING THE LEDS DIRECTLY.**

The LED Tape has two wires at the both ends (only 1 end needs to be connected to the power). **One way of connecting the wires together is to use a terminal block, or bullet connectors. Whatever the connection method it should be located in the dry.**

Next identify the location where the Tape is to be fixed. Do not fix the Tape where it will be permanently wet. With suitable insulation covering any exposed wired connections the tape will not be damaged by moderate amounts of atmospheric moisture or the occasional water spray. If the tape is powered-up while submerged in water there is a risk of short-circuit and possibly even fire in the long term. Equally, do not affix the tape directly to a metal surface as there is a risk of creating a short-circuit on the back of the tape if accidentally perforated.

Once the location for the Tape has been decided upon simply remove the 3M Adhesive backing strip and carefully lay the Tape in place working from one end to the other ensuring there are no raised sections. Using a lint-free cloth gently press between the LEDs on the tape to remove any air bubbles and activate the adhesive, however, make sure you do not press directly on the LEDs themselves as this could damage them.

## **Wiring**

The 2 wires from the LED Tape can be extended if necessary by using any low-voltage 2-Core cable with a current rating of 3 Amps or greater. With long cable runs the use of a cable with a higher current rating will ensure minimal voltage-drop in the wiring which could otherwise affect the brightness. **6M of LED Tape is the maximum recommended length** for a continuous run (spur) otherwise brightness may not appear uniform along the entire length and the Tape may be overloaded. If longer runs are required, and the power supply has adequate capacity, additional lengths should be wired back directly to the supply forming separate spurs. The tape itself is unsuited to carrying more than 3 Amps so do not extend it with excess lengths or other types of current load.

If a power supply having a significantly greater current capacity than the current requirement for the LED Tape is to be used then a safety fuse will be required. This is to prevent excess current flowing in the supply wiring or the LED Tape under fault conditions such as accidental damage. Such a fuse must be located as near to the supply or driver to protect the installation wiring and shall have a current rating just higher than the load anticipated in the spur. Each additional Spur will require its own separate fuse.

If a power supply having a significantly greater current capacity than the current requirement of the LED product(s) is to be used then a safety fuse will be required along the positive input wire to the product. This is to prevent excess current flowing through the supply wiring and LED product(s) under fault conditions such as accidental damage. Such a fuse must be located as near to the supply or driver to protect the installation wiring and shall have a current rating just higher than the total load anticipated under normal operating conditions.

We do not advise using the product in a vehicle, you fit to a vehicle at your own risk. **PLEASE NOTE:** If using in a vehicle or on a vehicle battery **it is essential** to use an in-line fuse along the + input to the LED Tape, if unsure consult a qualified vehicle electrician. Follow the cable ratings on page 4 for the appropriate amperage fuse.

**Note** that a fuse may only be omitted from the low voltage side if the power supply provides its own overload protection and is unable to significantly exceed the maximum rating of the wiring and LED product before it trips.

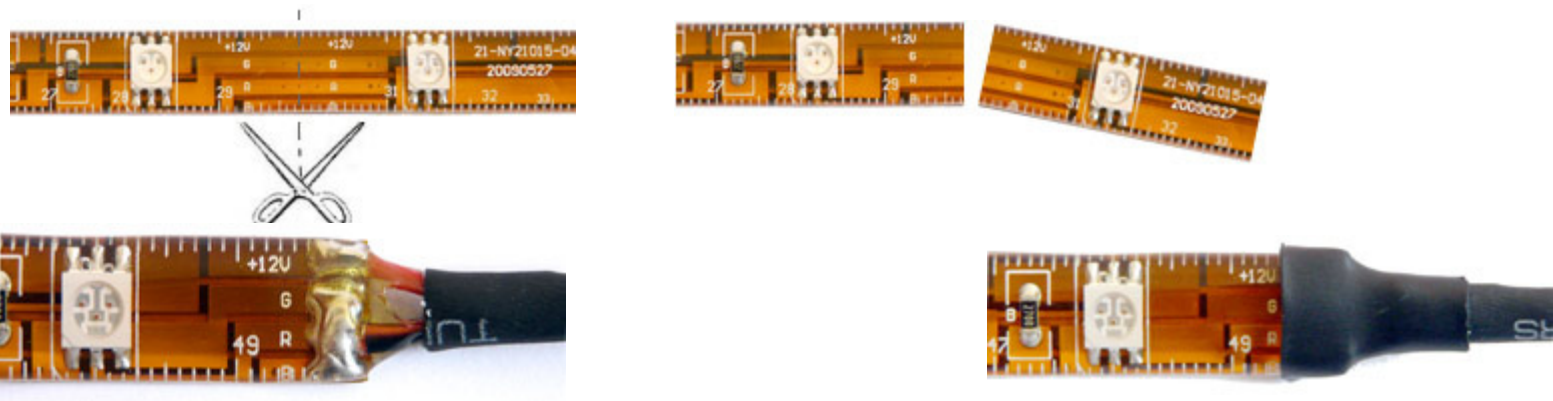
**If hard-wiring the input of the Power Supply to the AC mains it is essential to use a fused wall switch or outlet. The fuse on the mains side should be 3A or less. Only a qualified electrician should hard-wire the Mains PSU.**

**Power Supplies should be installed in a dry location.**

## Cutting and joining the Tape

Although we advise against cutting the LED Tape because this will affect your warranty, we have provided a brief guide of how to cut and join the tape below. **NOTE: When soldering always do so in a well ventilated area or wear a mask.**

You need to cut the tape along the line between the 4 letters . Carefully remove 5-8mm of the resin, this can be done with a sharp stanley knife (always use sharp tools carefully), gently heat the LED Tape to make the resin easier to slice through being careful not to damage the tracks underneath. If the pcb is covered with a white coating you will need to remove this from the tracks near the letters so that the wires can be soldered to them.



Then solder a red wire to the positive, and solder a black wire to the negative pads as shown. Bridge the R, G, and B with the solder, making sure the solder does not go onto the +12v pad. Some LED Tape has 2 Copper pads, connect wires accordingly.

Be careful when soldering that you do not overheat the pads as this heat can damage the pad and the LEDs, a small dab of flux paste helps with a fast solder connection. **Make sure the wire you use is rated for load.**

The soldered joints **must** be insulated to prevent accidental short-circuits and moisture ingress. Liberal application of Silicone Sealant or Hot-Melt Glue are recommended as is adhesive-lined Heat-Shrink Sleeving if available. On tape with an overall protective coating, the applied insulation should seal all the way up to and around the coating.

## Warranty

This product is warranted from manufacturing defect only. This warranty is valid for 1 year from the date of purchase. This warranty does not apply to damage caused by user installation or normal wear and tear. Cutting the tape will automatically void your warranty, so do so carefully. If a segment becomes faulty only that part can be replaced under warranty once cut. Litewave LTD. gives no warranty against damage to any surface due to applying or removing this product. Please follow instructions and heed all warnings carefully.

## Specifications

Nominal supply voltage:	12 Volts DC
Viewing Angle:	120 Degrees
Maximum current drain:	Approx. 0.500 Amps (500ma) per Meter
LED Type:	SMD
Light Output:	200 Lumens/m
Durability:	Splashproof (unless cut)



## Cable and fuse rating: (round up if necessary):

500mm = 250mA
1M = 500mA
2M = 1Amp
4M = 2Amp
6M = 3Amp

## Resources

To see the full Litewave product range visit <http://www.litewave.co.uk>

## Important: If unsure

### Safety Information:

- Keep away from children
- The LED Tape itself and all its components should not be mechanically stressed.
- Assembly must not damage or destroy conducting paths on the circuit board.
- Installation of LED Tape (with power supplies) needs to be made with regard to all applicable electrical and safety standards. Only qualified personnel should be allowed to perform installations.
- Correct electrical polarity needs to be observed. Wrong polarity may destroy the LED Tape.
- Parallel connection is highly recommended as safe electrical operation mode.
- Serial connection is not recommended. Unbalanced voltage drop can cause hazardous overload and damage the strip.
- Please ensure that the power supply is of sufficient power to operate the total load.
- Only power the LED Tape with Switchmode Power Supplies (constant voltage). Do not use a constant current Power Supply.
- Fixing to conductive or metal surfaces is not recommended. If fixing on metallic or otherwise conductive surfaces, there should be an electrical insulator between strip and the mounting surface.
- All LEDs are static sensitive.
- Damaged by corrosion will not be honored as a materials defect claim. It is the user's responsibility to provide suitable protection against corrosive agents such as moisture and condensation and other harmful elements.
- Identify Positive (+) and negative (-) outputs of the Power Supply by using a multimeter.
- Electrical Connections should be in a dry area unless adequately sealed.

LITEWAVE LTD. MAKES NO WARRANTY, EITHER EXPRESSED OR IMPLIED, INCLUDING BUT NOT LIMITED TO ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, REGARDING THESE LITEWAVE LTD. MAKES PRODUCTS AVAILABLE SOLELY ON AN "AS-IS" BASIS. IN NO EVENT SHALL LITEWAVE LTD. BE LIABLE TO ANYONE FOR SPECIAL, COLLATERAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH OR ARISING OUT OF PURCHASE OR USE OF LITEWAVE PRODUCTS. THE SOLE AND EXCLUSIVE LIABILITY TO LITEWAVE LTD, REGARDLESS OF THE FORM OF ACTION, SHALL NOT EXCEED THE PURCHASE PRICE OF THE LITEWAVE PRODUCT DESCRIBED HERE IN.

## Environmental Information



At the end of this product's usable life it should be disposed of according to WEEE regulations, which means it should be taken to your local municipal site for safe disposal/recycling.