

# Illuminated sign professionals choose the LED Tube...

Here are a few reasons why:

## Flexible chain

The LED Tube consists of a chain of light emitting diodes. These LEDs are arranged on small circuit boards, which are connected by soldered copper wire to form a flexible chain. The entire chain is enclosed in a weatherproof transparent shrinkdown plastic tubing.

## Safe series connection

From an electrical point of view, the LED Tube is a number of LEDs connected in series. The required voltage is generated by small converters, which keep the current constant and protect the LEDs from overloading.

## Constant LED current

Converter and LED Tube form a "self-regulating" system making electrical overloading impossible.

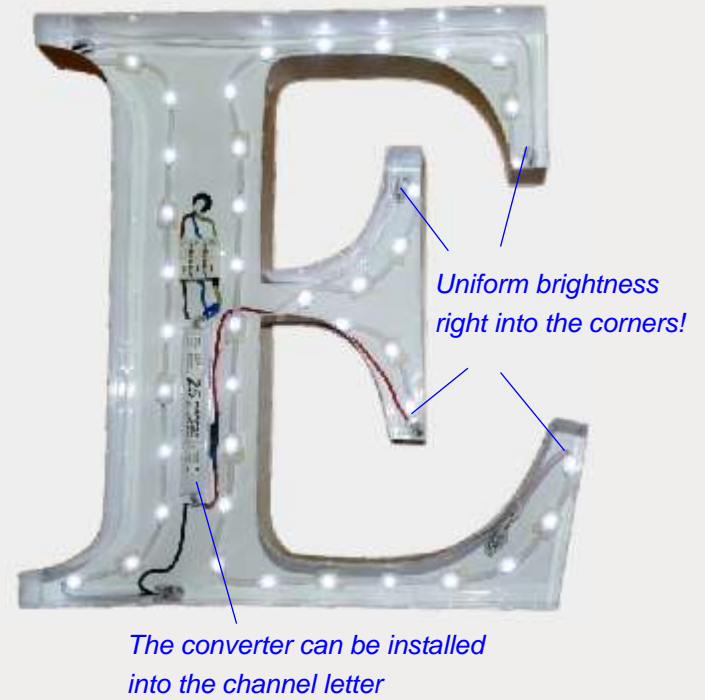
## Additional protective diode

Each circuit board also contains a Zener bridging the LED in case of a failure. This ensures that even if one LED fails the remaining LEDs continue to shine with the same brightness.

## Small converters

A range of converters is available to supply the right amount of power. These compact devices are completely sealed, suitable for outdoor use, and can usually be installed directly into the channel letters thanks to their small dimensions.

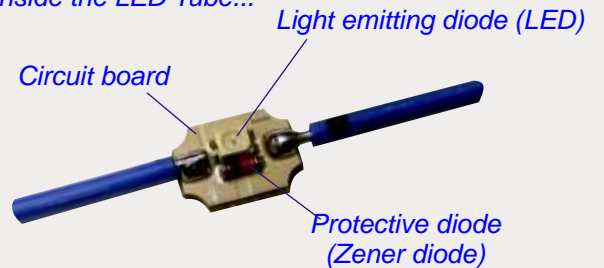
No problem for the LED Tube:  
channel letters with different widths and serifs.



The transparent shrinkdown tube protects the LEDs

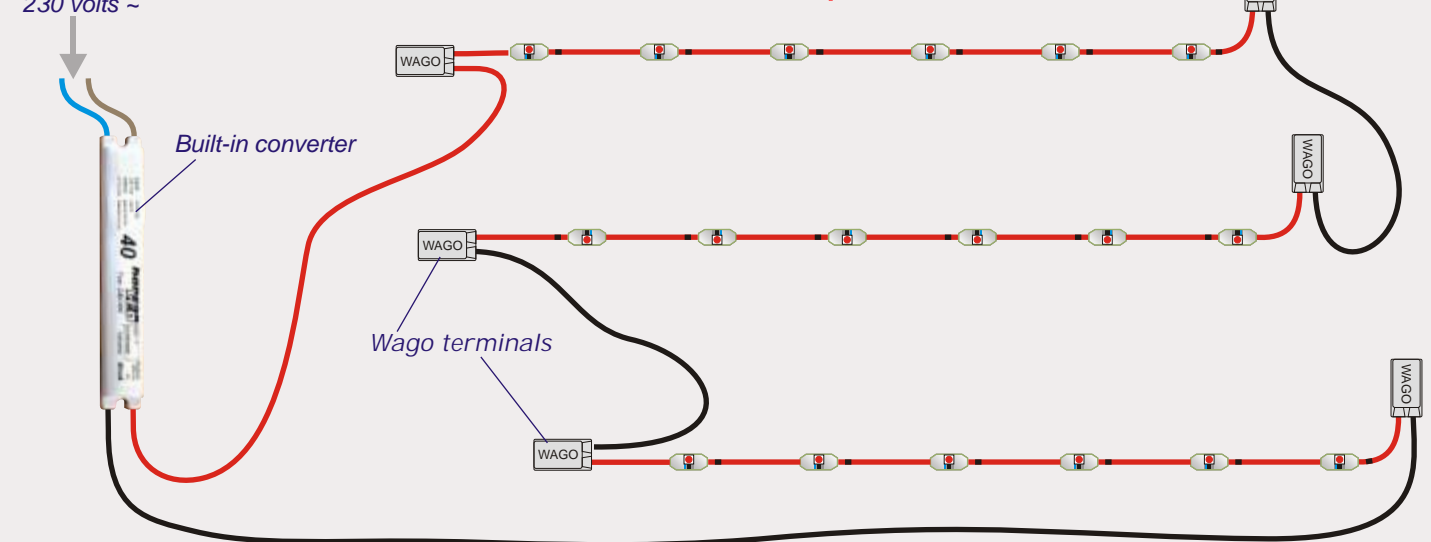


A look inside the LED Tube...



Power supply  
230 volts ~

## Installation example



**"Christa" - The LED Strip With a Width of Only 3 mm!**

"Christa" is a universal LED circuit board whose width of only 3 mm makes it particularly suitable for applications with restricted space.

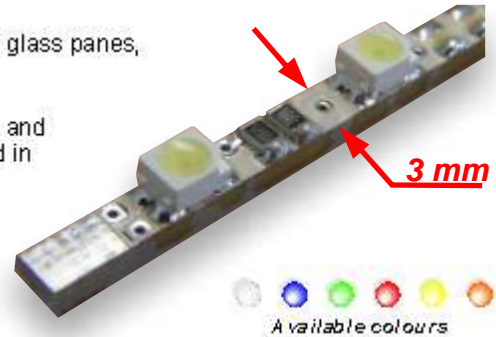
The LED strip is the favourite choice for illuminating engraved acrylic glass panes, as it allows the use of acrylic panes with a thickness of only 3 mm.

The circuit boards are available in lengths between 246 and 260 mm and can be split or extended as required. The maximum lengths are listed in the table below.

The shortest splittable length is 49.5 mm (4 LEDs).  
With white, blue and green LEDs this strip can be split in halves of approx. 25 mm (2 LEDs).

Electrical connection is via soldering pads located on the small end.

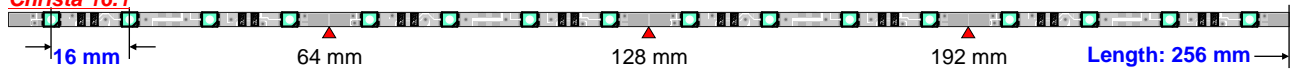
**Note: 12 V circuit boards**



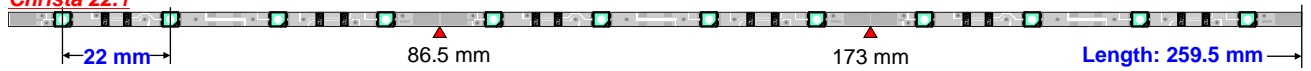
**Christa 12.1**



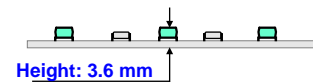
**Christa 16.1**



**Christa 22.1**



**Christa 31.1**

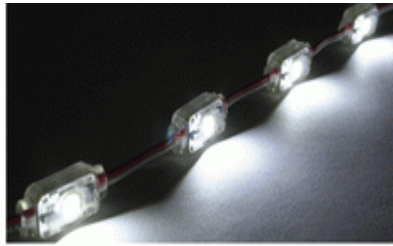


**Order numbers**

Type	White	Blue	Green	Red	Yellow	Amber
Christa 12.1	51124019	51124016	51124015	51124017	51124014	51124013
Christa 16.1	51164019	51164016	51164015	51164017	51164014	51164013
Christa 22.1	51224019	51224016	51224015	51224017	51224014	51224013
Christa 31.1	51314019	51314016	51314015	51314017	51314014	51314013

**Technical data - circuit board**

Type	Dimensions (mm)	LED distance (mm)	No. of LEDs	Splittable at	Power(W) white/blue/green	Power (W) red/yellow/amber	Max. connectable length per power supply
Christa 12.1	247.5 x 3	12	20	49.5 mm	3.0	2.5	1.25 m
Christa 16.1	256 x 3	26	16	64.0 mm	2.4	2.0	1.65 m
Christa 22.1	261 x 3	22	12	86.5 mm	1.8	1.5	2.25 m
Christa 31.1	246 x 3	31	8	123,0 mm	1.2	1.0	3.20 m



<i>Module Sizes</i>	<b>L</b> – 25mm	<b>W</b> – 11mm	<b>H</b> – 7.6mm
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### **Star C01**

These consist of the Ultra Bright 3 diode lamp manufactured by Samsung sealed in a protective resin shell. At present it is the smallest L.E.D module in the world covered with such a protective resin shell. Suitable for low profile letters from 50mm deep and for both internal and external use. Standard spacing approx 19 modules per meter. However maximum serial connection is 50 modules.



<i>Module Sizes</i>	<b>L</b> – 35mm	<b>W</b> – 20mm	<b>H</b> – 10.5mm
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### **Star C02**

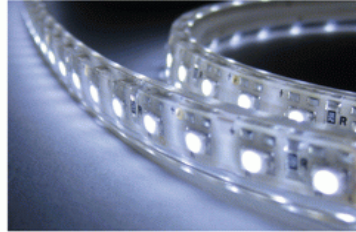
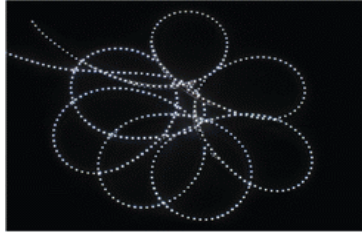
There are double L.E.D modules from Samsung in a protective shell. More suitable for illuminating letters with depths of more than 80mm. Standard spacing approx 8 modules per meter. Each module 0.6 watt i.e. 60 watt per power supply will run 100 modules. However maximum serial connection is 50 modules.



STAR FLEX S10100



STAR FLEX T10100



	<i>Depth</i>	<i>Width</i>	<i>Power Dissipation</i>
<b>Per length (1010mm)</b>	10mm	4mm	4.6watt

### **Star Flex**

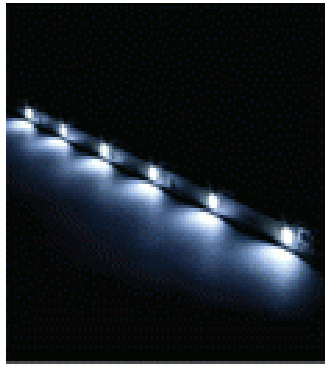
Star Flex is a flexible tube containing White L.E.D at 10mm centers. It can be used to illuminate relatively shallow letters, especially if a groove is routed in the letter backing and the Star Flex is then recessed. This product can also be used in display cabinets and for illuminating small covers etc. It is rated IP68. Maximum serial connection is 5 metres



<b><i>Module Sizes</i></b>	<b>L – 35mm</b>	<b>W – 35mm</b>	<b>H – 10.5mm</b>
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### **StarC04**

These are a 4 L.E.D module suitable to large scale application, available in white only. Each module is 1.14 watt; maximum serial connection is 50 modules.



STAR C0640

<i>Module Sizes</i>	<b>L</b> – 230mm	<b>W</b> – 10mm	<b>H</b> – 5.5mm
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**StarC0640**

Ultra thin bar-type L.E.D module, available in white only. Power consumption per module 1.4 watt, maximum serial connection is 25 modules.

**IP64 Power Supplies**

<i>IP64 Rated Supply</i>
30 watt
60 watt
100 watt



## ***LED Flexible Circuit Board***

Particularly useful for edge lighting acrylic panels, display lighting and small acrylic displays.

LED strip just 8mm wide and able to be cut every three LED.

Available in white, red, blue and R.G.B.

All operate at 12volt D.C.

- *White (Code W12) – LED at 17mm centres – 2100 mcd/LED – 4.8w*
- *Blue (Code B12) – LED at 17mm centres – 400 mcd/LED – 4.8w*
- *Red (Code R12) – LED at 17mm centres – 900 mcd/LED – 4.8w*

Comes on 5m continuous rolls with self adhesive backing, maximum serial connection 10m.

- *R.G.B (Code RGB12) – LED at 34mm centres 7.2 watts metre comes on 5m continuous roll. Also able to be cut every 3 LED.*

RGB controller (Can control 300 watts RGB)

Note a 12volt power supply is required with RGB controller.

Note circuit board is designed for internal use only.

