TECHNICAL GUIDE.

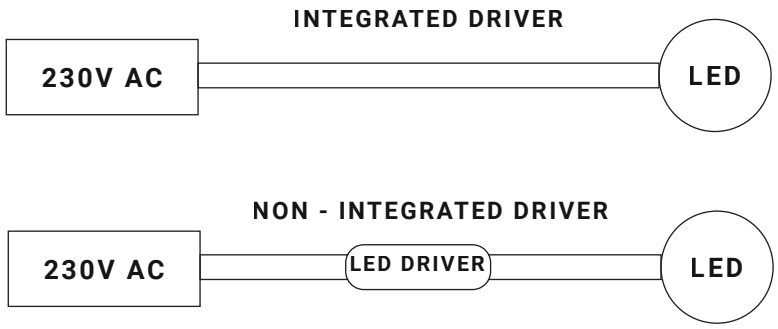
Do I Need A Driver.

Yes! All LED light fittings require a driver.

Some LED light fittings, including some of our product, already have the driver integrated into them by design. These products are our **Follow.Me.S**, our **Orb** range, our **Bloc.S**, our **Seek**, and our **Uno**.
If the driver is integrated, then a supply of 230V is all that is required.

In most circumstances, LED light fittings will need a driver to be placed between the incoming supply of 230V, and the first fitting in the circuit. **If no driver is installed then this will cause permanent damage to the LED**. This will then require replacement of the entire LED light fitting, which is ***NOT*** covered by our warranty

A compatible LED driver must be used between the switched main supply and the LED light.



What Driver To Use.

First we need an example.

Lets say we want to power **9 x Beam.M** light fittings. Before we start we need to work out some details.

1. The **overall voltage** of the circuit
2. The **overall load** the circuit will draw
3. The **current rating** of the fitting

- Beam.M requires 3V each, so **9 fittings x 3V each = 27V**
- Beam.M load is rated at 2.1W each, so **9 fittings x 2.1W each = 18.9W**
- Beam.M current is **700mA**

Now we have the information we need to find a suitable driver.

PowerBank700.L

- 25 - 42Vdc ✓
- 17.5W - 29.2W ✓
- 700mA ✓

PowerBank700.XL

- 43 - 70Vdc ✗
- 30W - 49W ✗
- 700mA ✓

PowerBank350.M

- 12 - 24Vdc ✗
- 4.2W - 8.4W ✗
- 350mA ✗

PowerBank350.L

- 25 - 42Vdc ✓
- 8.75W - 14.7W ✗
- 350mA ✗

Using the above information, it is clear a **PowerBank700.L** is needed

WARNING.

Always remember to never "overdrive" your fittings

If we only connect 3 Beam.M fittings to the PowerBank700.L, then **damage will occur**. The 3 Beam.Ms have an overall voltage damand of 9V, but the driver will be supplying the fittings with a minimum of 25Vdc. This is **over 3 times** the required voltage.

Types of Dimming.

1 - 10V or 0 - 10V: An analogue dimming method which requires both main power and control wire to carry the voltage to control the output of the driver i.e If the driver receives 3V then the lights will dim to 30%. This type of dimming doesn't lend itself to retro fit projects as a control cable need to be wired to all drivers on each circuit you want to control.

Phase: Phase dimming, leading/trailing edge, TRIAC, or mains dimming, is the most common and easiest dimming method to install. Trailing edge offers superior performance with smoother control and silent running when in operation.

DALI: **D**igital **A**ddressable **L**ighting **I**nterface is a digital programmable dimming method, usually used in commercial properties. It requires specialist installation and commissioning. DALI also requires both mains power and control or signal wires between switch and driver.

Constant Current.Constant Voltage

Constant current lighting requires the current in the circuit to remain at a constant value. Typically, one will see fittings require either 350mA or 700mA, and installers will need to use drivers that match. These circuits are always wired in series. Constant voltage is usually used when powering LED tape. The same voltage must be applied across each LED chip in order to operate correctly, with 12V or 24V being the typical value.

What is Forward Voltage.

Forward voltage refers to the voltage need to operate the light fitting correctly - too low the fitting won't work correctly, too high and the fitting will be damaged. If there are multiple LED light fittings together on the same circuit connected to one LED driver, one must add all the forward voltages of all the products together. This value must fall within the forward voltage of the LED driver.

Hot Swapping.Hot Wiring

Always turn off the power supply to any driver before disconnecting an LED fitting. Most drivers not connected to a load will produce random voltage output. If a fitting is connected whilst the driver is already switch on then damage will occur.