

Introduction

Most growers choose to use High Intensity Discharge lighting in their Growrooms, HID lighting is the most efficient form of lighting for horticultural use, Sodium & Metal Halide lights are most commonly used and are of the HID Variety. HID lamps cause large amounts of current to flow when they are first turned on, the amount of power required to start the lamp will be up to twice the normal running power and will increase as the lamp gets older.

Most growers use a 24 Hour timer to set the day length in their growrooms. However most 24 Hour timers are not designed to allow high current switching and normally fail very quickly when used with HID lighting loads, due to this high power relays are normally used to pass the power to the lighting system so the timer is only used for control.

The large startup current is caused by a number of factors.

Firstly there is a very large initial inrush current drawn by the large power factor correction capacitor in the ballast unit, this is only present for a fraction of a second. Secondly a situation known as Lamp Rectification, rectification occurs when the two ends of the lamp heat up at different rates causing a DC current to flow in the lamp this DC current causes saturation of the ballast core which reduces the impedance of the ballast causing more current to flow through the lamp, this situation only lasts for a few seconds whilst the lamp is warming up and stops once lamp operating temperature is reached. This situation will always occur but tends to get worse as the lamp gets older, for this reason it is best to over rate contactor systems by about 30% to allow for lamp degradation.

Load Recommendations

Due to the reasons stated above it can be seen that starting currents are considerably higher than running currents typically as shown in the table below.

<u>START UP CURRENT IN AMPS</u>	<u>RUNNING CURRENT IN AMPS</u>
<u>250W Son-T +</u>	<u>2.3A</u> <u>1.5A</u>
<u>400W Son-T +</u>	<u>3.6A</u> <u>2.3A</u>
<u>600W Son-T +</u>	<u>4.5A</u> <u>3.2A</u>
<u>1000W Son-T+</u>	<u>7.0A</u> <u>5.0A</u>

Setup and use

The Ecotechnics PowerStar contactors have been specifically designed to allow the timed switching of horticultural lighting and appliances. In use the PowerStar contactor is very simple and should provide years of trouble free use

1. **Locate CONTACTOR in a suitable position in your growroom**
2. **Plug lights and appliances into 4-way power outlet.**
3. **Set TIMER in normal way.**
4. **Insert TIMER PLUG into a 24Hr TIMER.**
5. **Plug TIMER and POWER IN PLUG into power points and switch on.**

The lights and appliances plugged into your contactor will now be controlled by the timer. Digital or Analogue timers can be used and will last their full service life.

<u>RECOMMENDED MAXIMUM LOADS FOR 3Kw POWERSTAR CONTACTOR</u>		
<u>4</u>	<u>x</u>	<u>250w HID Lighting units</u>
<u>4</u>	<u>x</u>	<u>400w HID Lighting units</u>
<u>4</u>	<u>x</u>	<u>600w HID Lighting units</u>
<u>2</u>	<u>x</u>	<u>1000w HID Lighting unit</u>

Connection Diagram

