Horti-Control LF Series Ballast Flip-Flop

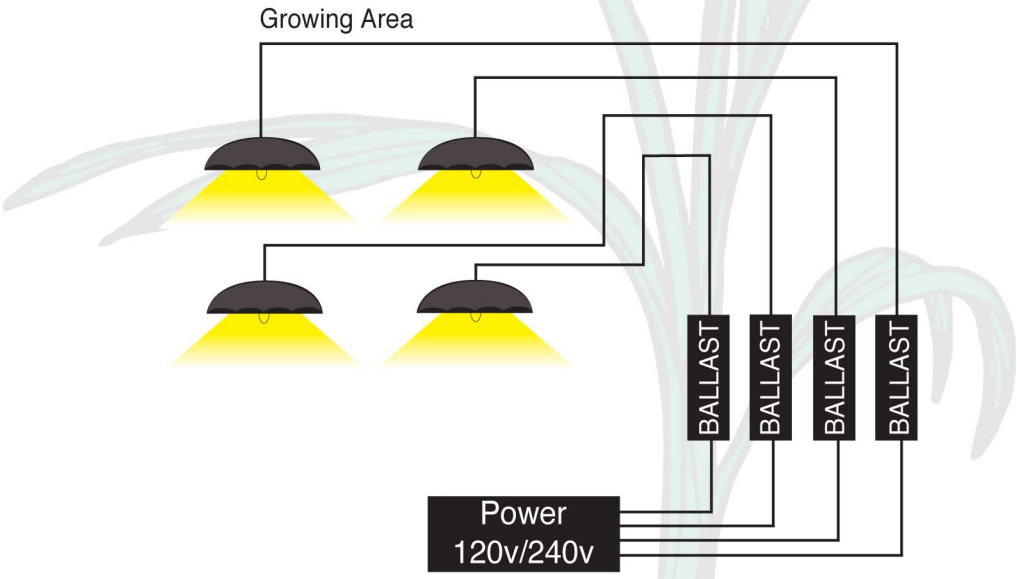
www.horticontrol.com

Indoor growers are limited by electrical capacity. The amount of HID lights they can run is limited due to sharing the service panel with the buildings other electrical devices. In addition, lights are typically only used for 12 hours a day. In order to utilize the other 12 hours of the day, previously required extra allasts and power circuits. Flip Flopping the ballasts you already have allows you to **double your growing area and increase yields** while taking advantage of all 24 hours in a day. This is done by rerouting the output of the ballast by implementing the LF series flip flop. The unit is connected to the ballasts output and gives 2 outputs per ballast to connect lamps to. The output is switched between the 2 lamps by a trigger cable that is connected to an appliance timer or lighting controller.

For the past four years, the founders of Horti-Control have experimented with different methods of building flip flop systems. They decided to do this after purchasing other products that claimed to work, but proved unreliable. What these products have in common is the way they were designed, using printed circuit boards (PCB's) and solid state relays. PCB's and solid state relays have a major achilles heel. They are prone to failure when used with high voltages. The voltage generated by HID ballasts can and will destroy solid state relays and PCB's. They are also sensitive to high temperatures and humidity. We found that heavy duty relays are the most reliable way to flip flop HID lights. **Horti-Control's LF series is purely mechanical and designed to be simple, versatile, and above all, reliable.**

The following illustrations show a few of the ways to implement Horti-Control's flip flop systems.

This diagram shows your typical indoor gardening area. The lights are only on 12 hours a day. The other 12 hours are essentially wasted. Horti-Control allows you to maximize your potential by not wasting any hours in the day.



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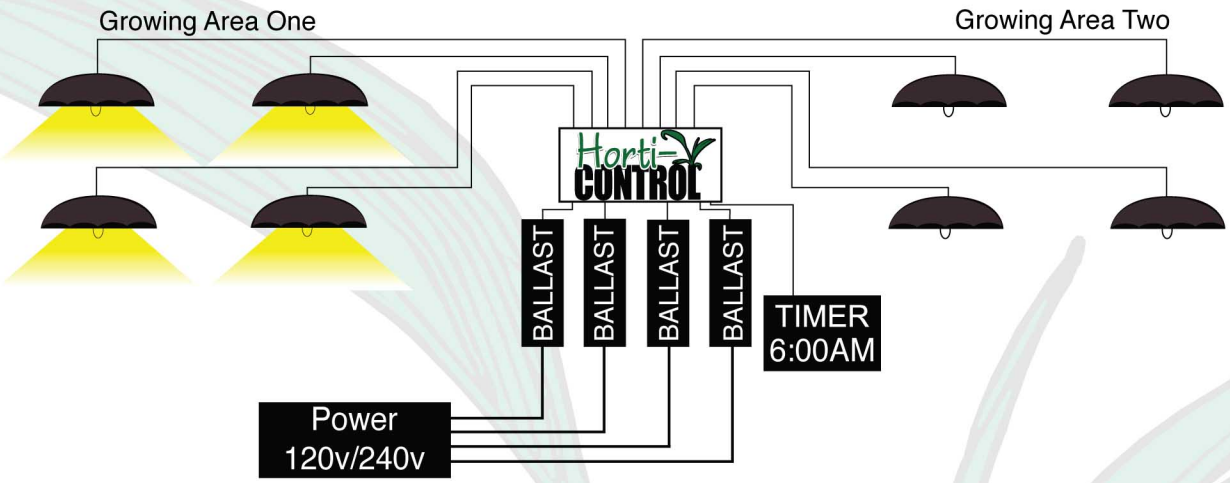
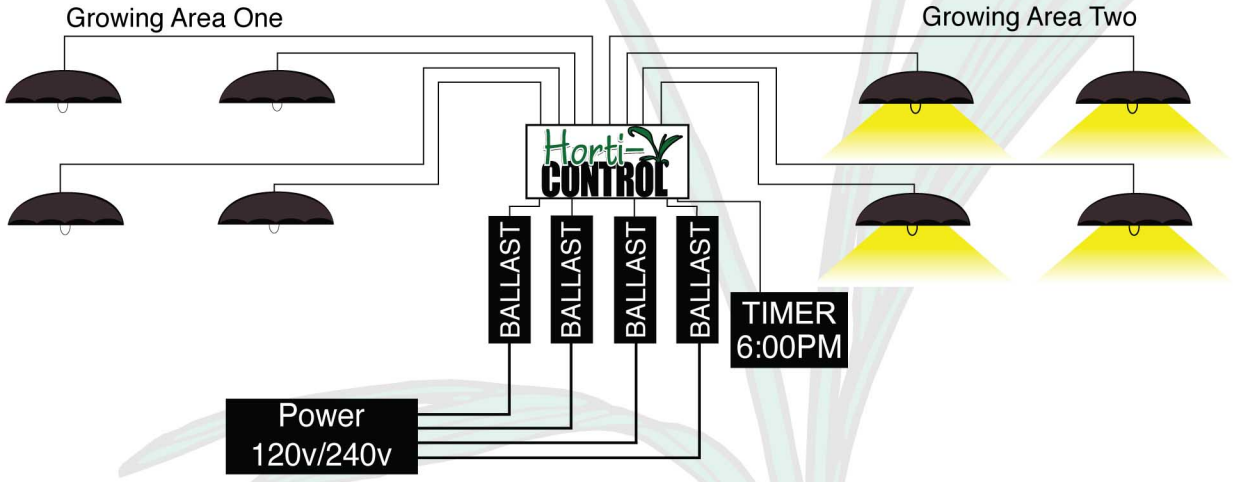
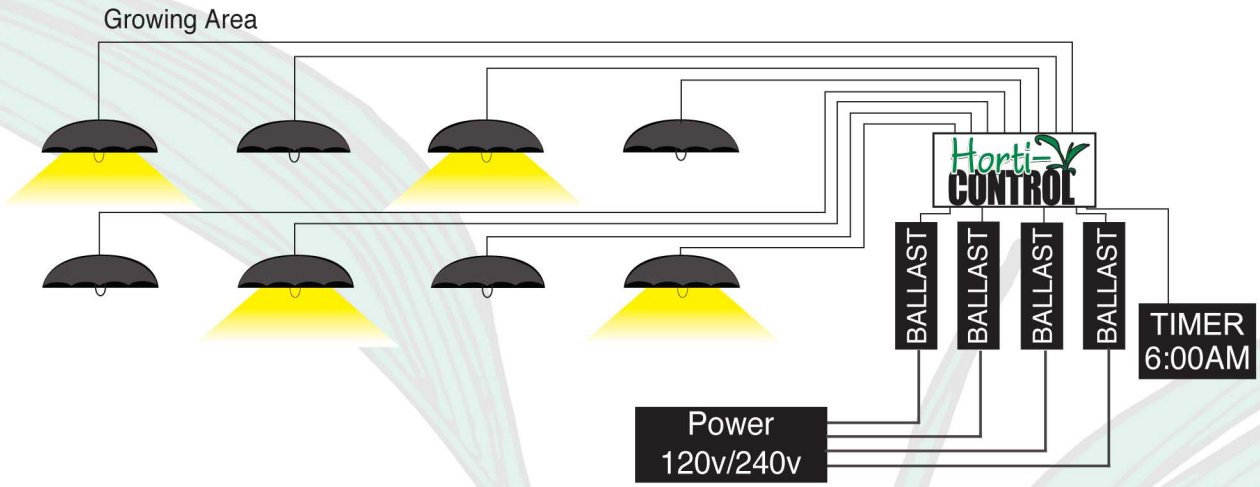
Example One:
By adding the Horti-Control LF Series Flip-Flop you can switch the ballasts over to a secondary set of lights when the first area's 12 hour cycle ends. After an additional 12 hours the second area will turn off and the first area will turn back on (flip flopping). All of this happens without turning off the ballasts! **Horti-Control allows you to utilize all 24 hours of the day.**



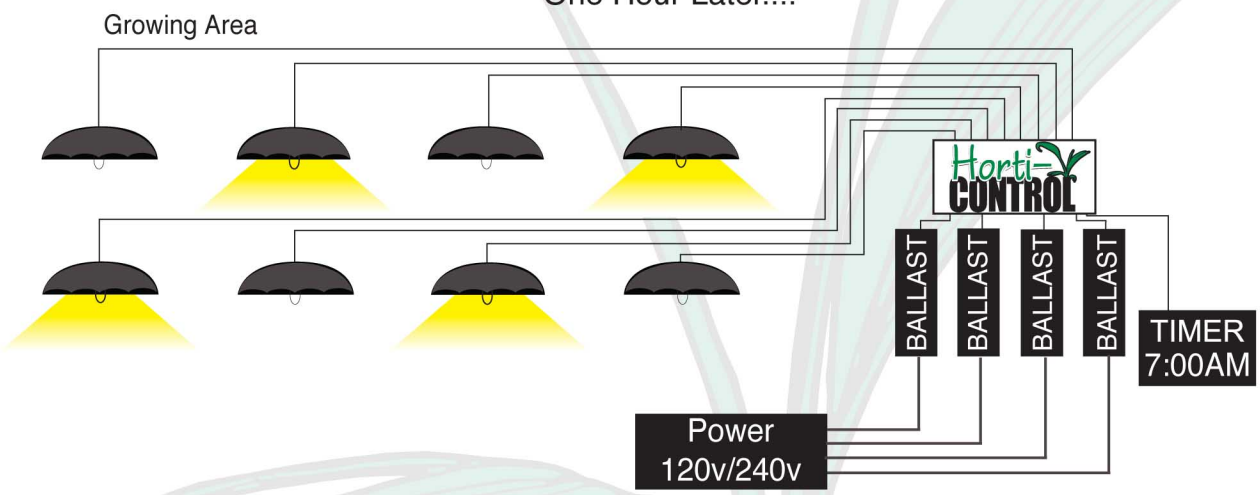
12 Hours Later....



Example Two:
In this example 8 lights are hung in the growing area. The lights are connected to the Horti-Control unit in a ‘staggered’ or 'zig-zag' pattern. The timer is set to turn on and then off at user defined intervals, such as every hour. This repeats for the entire light cycle. The staggered lighting pattern replicates light movers, without the hassle. **Horti-Control saves energy and doubles the illuminated area with half the ballasts**.



One Hour Later....



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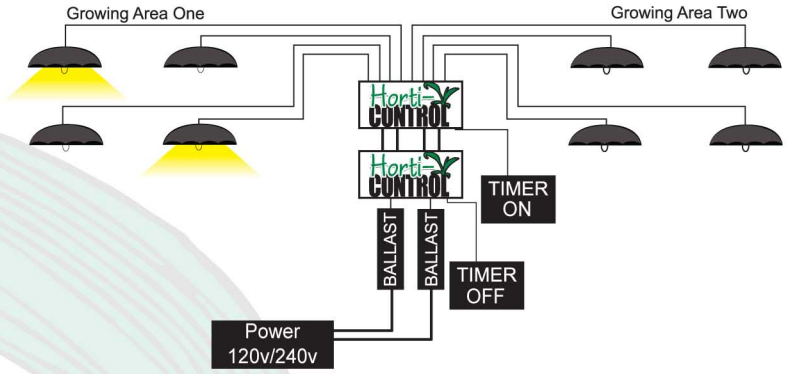
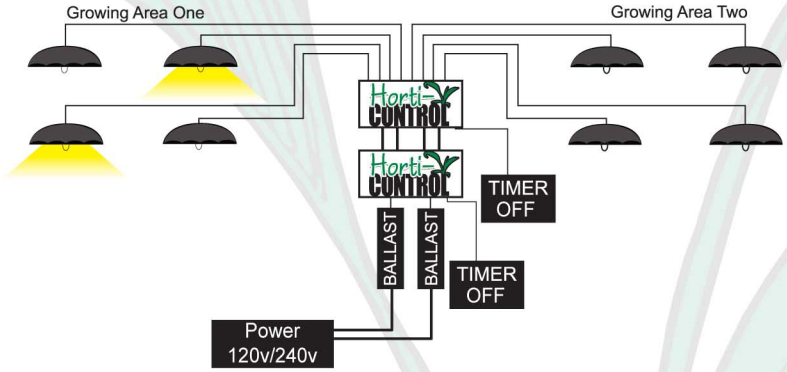
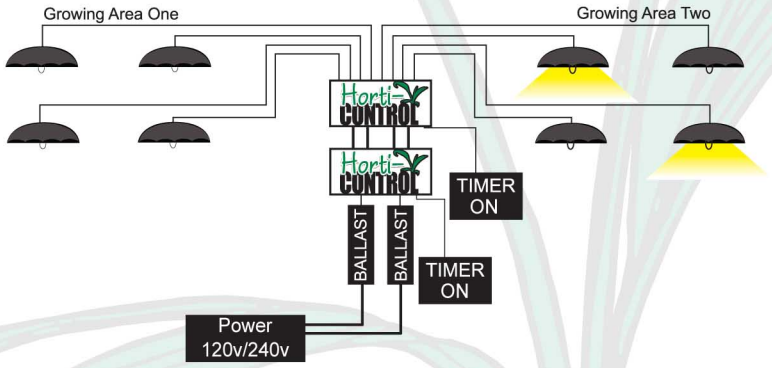
Example Three:
This example shows the benefits of combining both examples above for the ultimate in efficiency! We have 2 ballasts connected to a Horti-Control LF-2. the 4 outputs of the LF-2 are connected to the inputs of a LF-4. This gives us 8 lights on only 2 ballasts! The trigger cable of the LF-4 is connected to a timer set on for 1 hour / off for 1 hour, 24 hours a day. The trigger cable of the LF-2 is connected to a timer set on for 12 hours / off for 12 hours. **Horti-Control saves energy and utilizes all 24 hours of the day doubling yields with half the energy consumption!**



1 Hour Later....



12 Hours Later....



1 Hour Later....