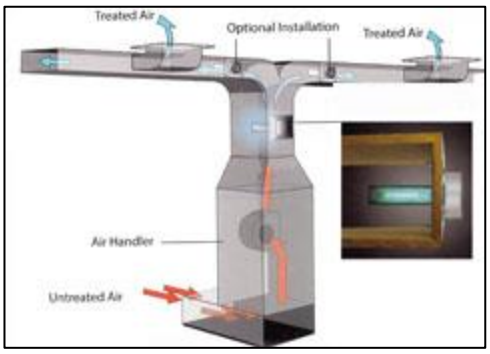
Electronic Ballast for HVAC Purification UV Germicidal Lamps – *Case Study*



Overview: One of our customers manufactures products for air and water purification via the use of germicidal lamps. We were asked to design a ballast that could be installed by the end user instead of by a licensed electrician, like previous ballasts required. The ballast would need to have a DC input.

Challenge: The customer wanted us to build a ballast that would be wired directly to an HVAC air handler. The ballast was to be installed by the consumer. The germicidal light bulb needed to survive 10,000 on/off cycles.

The system is designed to turn on and off with an air handler within a building's HVAC system. The difficulty with such a system is the harsh start up conditions that the germicidal bulb is subjected to.

An air handler within an HVAC system can go on and off 30 or more times per day. That means that the UV bulb, similar to a fluorescent bulb, needed to have a pre-heat and reach a strike voltage every time the bulb was lit. If this is done without considering the life of the bulb, the bulb could die after 1,000 starts.

In order for the customer to get a full replacement warrantee from the bulb manufacturer, the bulb manufacturer required the bulb to survive 10,000 on/off cycles.

Solution: ISL collaborated with the customer's bulb manufacturer to design this ballast, which allows the bulb to start up and last over the 10,000 cycles without bulb burnout. Once the design was complete and cycle testing was finished, ISL submitted the product through the safety agency for UL and cUL certification.