

Venture's Technical Information: IGNITORS



HID lamp ignitors provide a brief, high voltage pulse or pulse train to breakdown the gas between the electrodes of an arc lamp. Pulses can range from several hundred volts to 5KV. Typical durations are in the μ sec range. They are usually timed to coincide with the peak of OCV. If they are timed too early or too late, lamps may not start reliably.

There are three basic ignitor circuits in wide use. The simplest is a capacitor in series with a voltage sensitive switch that connects across the output of a lag ballast. It is used internationally to start traditional metal halide lamps on 220-230V 50 Hz mercury vapor ballasts. It generates 600V pulses and has the virtue of simplicity and low cost.

The second consists of a capacitor charging circuit and a voltage sensitive switch. It connects to a tap on the output inductive element of the ballast and uses it as a high frequency pulse transformer. This circuit works with lag, HX, CWA, or regulated lag circuits. It is the most common type of ignitor used in North America and growing in popularity internationally. It has the virtue of simplicity and low cost. It requires the ballast insulation system to withstand the pulse voltage; because it is tied to the ballast, the distance the lamp can be mounted from the ballast depends on pulse attenuation. Circuits that generate wide pulses permit greater distance. These circuits are generically referred to as "impulsers."

The third circuit is similar to the first except that it contains a pulse transformer. The virtues are that the ballast insulation is not exposed to pulse voltage. The ignitor can be mounted near the lamp while the ballast can be remote. It can be used with any ballast type. This is the most costly circuit to make, but allows the use of a less expensive ballast. It is the most commonly used circuit internationally. The ignitors are referred to as superimposed ignitors (SIP) because the pulse is superimposed on top of the ballast OCV.

There are HID lamps available internationally that incorporate internal ignitors. The pulse voltage appears on the ballast output terminals. These may not work with all ballast circuits, and could damage insulation. Request technical support for help with these.

Venture® ignitors and ballasts are capable of continuous pulsing at maximum rated case temperature.

Prolonged continuous operation (weeks to months) degrades ballast insulation and reduces ballast life. Best practice is the timely replacement of failed lamps to prolong ballast life. Ignitor case temperature limits must be observed. There is little safety margin, so expect short ignitor life if the limits are exceeded.

Most Venture pulse start ballasts have distance limitations of 2 to 15 ft with standard ignitors. Longer ballast-to-lamp (BTL) distances can be attained with higher energy ignitors. These should not be used for short range as they may damage ballast insulation and shorten ballast life. Contact Venture for availability and technical support.