Ballast Types

Preheat Start (PH)

With the preheat start ballast the cathodes of the lamp are preheated electrically for a few seconds before a high voltage is applied across the lamp to start it. The preheating is accomplished by applying current to the cathodes for sufficient time to heat them. This lamp type results in a slight delay in lamp starting. Pre-heat ballasts tend to be more expensive. They are required for high current lamps (>300W). They are required in applications with multiple lamp starts per day. With relatively gentle heating of the cathode on ignition this type of ballast is very good for cathode life with loss of emission material being low.

Instant Start (IS)

The instant start circuit requires a high starting voltage, which is supplied by the ballast. Since there is no preheating of the cathodes, there is no starter circuit which reduces system cost. Electrode heating is provided by the arc once it has been established. Due to the rapid rise of cathode temperature on ignition this type of ballast is the hardest on the cathode causing the most loss of emission material.

Rapid Start (RS)

The rapid start ballast supplies current to heat the cathodes through internal transformer windings. The current is reduced once the lamp lights. The high voltage is applied to the lamp simultaneously with the cathode heat, so the lamp may light before the cathodes are properly heated causing some loss of emission material. This type of ballast is easier on the lamp than the instant start ballast, but not as easy as the preheat ballast.

Programmed Start

The programmed start ballast incorporates a starting method which is gentler on the lamp than either the rapid or instant start ballasts.

Program start ballasts incorporate a precise starting scenario which breaks the process into well defined steps that eliminate the pitfalls of the other starting methods.

The first step in the series is the application of cathode voltage to heat the cathodes. While this s being applied (preheat interval), voltage across the lamp is reduced to a level that reduces damaging glow current. The duration of this step is pre-programmed into the ballast circuitry. Since the lamp voltage is kept very low, the lamps cannot ignite until the cathodes are heated to optimal temperature and the ballast program moves to the second step.

The second step of the starting process is the application of lamp voltage. After the programmed time of step one has been reached, a voltage is applied across the lamps, igniting them with minimal loss of the emissive material. Minimal loss of the emissive material equates to gentle treatment of and prolonged life for the lamp. Note: All of the above depends on the manufacturers programming of the ballast. Some programmed start ballasts are no better than rapid start ballasts igniting the lamp very soon after applying heat to the cathodes.