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ABSTRACT

The invention provides a method for operating electronic ballasts for High Intensity Discharge (HID) lamps, the electronic ballasts having a driver, two power switches connected in a half-bridge arrangement, an LC series circuit, a driver controller for controlling the operation of the driver, a current sensor in the lamp circuit, and a power sensor in the power switch circuit, the method including (a) generating pulses of frequency f_1 for a duration of time t_1 being equal to n/f_1 , where n is a positive number, and f_1 equals the resonance frequency of the ballast's LC series circuit; (b) monitoring the existence of current in the lamp circuit after the duration of time t_1 has elapsed, and in the event that there is no current in the lamp circuit, proceeding to step (h); (c) monitoring the current in the lamp circuit, and proceeding to step (h) upon determining that the current in the lamp circuit has ceased to flow; (d) continuing the generation of pulses of frequency f_1 for a predetermined duration of time t_2 counting from the start of the generation of pulses according to step (a); (e) switching the frequency f_1 of the pulses to an operating frequency f_2 , at which a set power for the lamp is reached; (f) monitoring the power on the lamp and stabilizing this power at the level of the power set for the lamp, by gradually modifying the frequency f_2 , and proceeding to step (h) in the event that the power in the lamp circuit exceeds the power set for the lamp by a given margin; (g) monitoring the current in, and power of, the lamp circuit according to steps (c) and (f); (h) inhibiting the generation of pulses for a predetermined duration of time approximately equal to t_2/k , where k is a positive number; (i) proceeding to step (a) until the predetermined duration of time t_2 , counting from the start of the generation of pulses according to step (a), has elapsed; and (j) inhibiting the generation of pulses until the power to the ballast is first switched off and then on. The invention also provides a device for operating electronic ballasts for High Intensity Discharge (HID) lamps.



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