

Design of an Adaptive Preheating Time Electronic Starter for Dimmable Magnetic Ballast System

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Abstract

Based on the environmental consideration, a novel central dimming system with magnetic ballast driven lighting system, called Dimmable Magnetic Ballast System (DMBS), was presented to replace the electronic ballast driven lighting system. To make the DMBS work in a wide range input voltage for dimming, a cost competitive circuit of an adaptive preheating time fluorescent lamp electronic starter is proposed in this paper. In order to analyze the proposed electronic starter, circuit topologies in each working state are derived. A prototype for 20W fluorescent lamps is also designed and implemented to assess the performance. Experimental results show that features of a single-pulse ignition, adaptive preheating time, fast reset and lower voltage working ability can be achieved to meet the requirements of DMBS.

Key words : Fluorescent Lamps;Electronic Starter;Dimming