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Abstract
This thesis presents the implement and design of FPGA based three-phase six-step inverter to drive the Cold Cathode Fluorescent Lamp (CCFL), including phase control, dimming control, safe control and RS-232 baseband control. The multiple-phase control can be effectively to improve the input current of the single-phase control in the drive of CCFL. The design of the dimming control can be divided into output frequency control, periodic control and low frequency pulse control. When lamps was broken, the protect controller is designed to prevent transformer second side isolation destruction. The phase-shifted three-phase full-bridge resonant inverter is employed in the presented CCFL inverter. The part of lamps uses the Y connections. When the CCFL is driven in balance situation, the neutral current is close to zero, and it could be causing current balance in each lamp. The balance lamp current can homogenize the brightness of each lamp. Finally, the experimental results prove the practicability for this topologies.
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