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Abstract

This thesis focuses on the two typical applications for the distributed generators, including the stand alone system application and the utility-connected system application. The former application consists of a push-pull stage and an inverter stage where a current controller is adopted to improve the transformer magnetic saturation problem for the push-pull converter, and a PIC18-F4320 based controller is used to implement the inverter stage. For the utility-connected system application, the islanding detection strategies are highlighted, and this thesis will propose some improved methods to traditional slip mode Frequency shift method (SMS). As the traditional SMS method still exists non-detection zone in islanding detection in the case when current outset angle plus load outset angle equals to zero. This thesis will propose some methods to overcome this drawback. The proposed idea is implemented by TI DSP-LF2407C based microprocessor, and experimental results are presented to confirm the proposed new methods.
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