URN etd-0407109-183724-1996
Author Chung-Ying Chan
Author's Email Address No Public.
Statistics This thesis had been viewed 53 times. Download 0 times.
Department
Year 2007
Semester 1
Degree Master
Type of Document Master's Thesis
Language zh-TW.Big5 Chinese
Title A Hysteresis Controller of Capacitor Current Applied at Single-Phase Two-Port Network Buck-Boost Inverter
Date of Defense 0000-00-00
Page Count 113
Keyword
Single-phase two-port network buck-boost inverter
hysteresis controller of capacitor

Abstract
This study proposed a hysteresis controller of capacitor current for the single-phase two-port network buck-boost inverter. The two-port network circuit is comprised of two inductors and two capacitors. The DC bus voltage is improved by controlling the short and non-short mode of power stage circuit for implementing the buck-boost Inverter. The feedback of capacitor current has better signal resolution and lower cost for current detection. The hysteresis controller has three hysteresis commands, which are constant, sinusoid and trapezoid. The constant hysteresis level is switched in a constant band for error signal. The switching frequency of switches has less variation. The output voltage has zero cross distortion because the zero cross is low frequency. To improve the output voltage zero cross distortion by a bipolar PWM in the zero cross of sinusoid hysteresis level, the switching loss is increased. The constant and sinusoid hysteresis level is combined to a trapezoid hysteresis level. In order to reach the upper and lower limits quickly after the zero cross, the interval of bipolar PWM is decreased. To solve output voltage zero cross distortion and reduce the switching loss at the same time. Finally, a single-phase 110 V, 1 kVA two-port network buck-boost inverter circuit is built and operated at four different loads: resistor, inductor, capacitor, rectifier load. The system efficiency of full load is 88.26%. The operating principles, control methods, and characteristics of the system are verified by experimental results.
Advisory Committee Ching-Lung Chu - advisor

Files No Any Full Text File.
Date of Submission 2008-08-06