用於並聯三相主動前端轉換器之多載波脈波寬度調變器

侯中權,臧錫智,陳昆宏
電機工程學系
工學院
bird@chu.edu.tw

摘要

The use of parallel three-phase active front-end converters has become more popular due to simplicity, low cost and expandability. However, the pulse width modulation (PWM) switching of parallel three-phase active front-end converters causes circulating current. The circulating current is mainly affected by the zero vectors of each PWM cycle. This study proposed a multi-carrier PWM for parallel three-phase active front-end converters. The multi-carrier PWM can synthesize the desired output voltage without using zero vectors. Therefore, the circulating current between parallel three-phase active front-end converters will be suppressed by the multi-carrier PWM scheme. Furthermore, the common mode voltage of three-phase active front-end converter is reduced by the multi-carrier PWM scheme. Simulation and test results are presented to validate the performances of the proposed multi-carrier PWM for parallel three-phase active front-end converters.

關鍵字：Active Front-end Converter, Circulating Current, Multi-carrier PWM.