

ANALYSIS AND SIMULATION OF 12 PULSE RECTIFIER CIRCUITS

NURUL AKMAL BINTI MOHAMAD NOR

**FACULTY OF ELECTRICAL ENGINEERING
UNIVERSITY TEKNOLOGI MARA
MALAYSIA**

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Nurul Akmal Binti Mohamad Nor
Faculty of Electrical Engineering
Universiti Teknologi Mara (UiTM)
Shah Alam, Selangor Darul Ehsan

ABSTRACT

The title of this project is Analysis and Simulation of 12 Pulse Diode Rectifier Circuit. It is basically deals with 12 pulse diode rectifier systems employing autotransformer connection for aerospace applications. The autotransformer connection with reduced kVA capacities are presented for harmonic current reduction in power diode rectifier-type utility interface systems and also reducing in kVA rating compared to the convectional 12 pulse converter. Based on the concept of an autotransformer, a 12-pulse rectifier system is realized with resultant transformer kVA rating of $0.18P_o$ (pu). In this arrangement the 5, 7, 17, 19, etc. harmonics are absent from the utility input line current. Analytical design equations are presented to facilitate the design of the system components. Simulation is carried out to investigate the feasibility of each system and the results used to verify the proposed concept. The simulation tool that is used is MICROCAP and PSIM.

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