

MULTI-LEVEL INVERTER WITH REVERSING VOLTAGE TOPOLOGY USING PWM TECHNIQUES

A. HEMA SEKHAR¹ & K. JYOTSHNA DEVI²

¹Associate Professor & HOD Department of EEE, Sri Venkatesa Perumal College of Engineering & Technology, Puttur,
Andhra Pradesh, India

²M.Tech(PE&ED), Department of EEE, Sri Venkatesa Perumal College of Engineering & Technology, Puttur,
Andhra Pradesh, India

ABSTRACT

This paper proposes single phase and three phase Nine Level Cascaded H-Bridge Multilevel Inverter and reversing voltage topology by methods based on Sinusoidal PWM control techniques with resistive inductive and induction motor loads. There are 3 types of multilevel inverters named as diode clamped multilevel inverter, flying capacitor multilevel inverter and cascaded multilevel inverter. Compared to diode clamped & flying capacitor type multilevel inverters cascaded H-bridge multilevel inverter has more advantages, but it requires isolated DC sources which is a main drawback of this topology. A new topology with a reversing voltage component requires fewer number of components, switches and carrier signals when compared to other existing topologies. Performance analysis is based on the results of simulation study conducted on the operation of the multilevel inverters using MATLAB/ SIMULINK. The performance parameters chosen the work included fundamental output voltage and total harmonic distortion.

KEYWORDS: Multilevel Concept, Cascaded Multi Level Inverters, Reversing Voltage Topology, Total Harmonic Distortion (THD)