

HARMONIC REDUCTION IN TWO-LEVEL AND THREE-LEVEL VSC USING SHE-PWM AND RIPPLE REPOSITIONING TECHNIQUE

V. SURYA MANOJ¹, N. VENKATA RAMANA² & D. MAMATHA³

¹Assistant Professor, Department of EEE, Vishnu Institute of Technology Bhimavaram, Andhra Pradesh, India

²Assistant Professor, Department of EEE, Shri Vishnu Engineering College for Women, Bhimavaram, Andhra Pradesh, India

³Assistant Professor, Department of EEE Vishnu Institute of Technology Bhimavaram, Andhra Pradesh, India

ABSTRACT

In this paper, two-level and three-level voltage-source-converter (VSC) using two techniques namely Selective Harmonic Elimination - Pulse Width Modulation (SHE-PWM) and Ripple Repositioning technique are proposed. Here ripple repositioning technique is nothing but SHE-PWM with variable modulation index. In this, lower order harmonics (3rd, 5th, 7th, etc.) are suppressed by using SHE-PWM technique. The proposed converter consists of ripple repositioning technique in addition to SHE-PWM. The application focuses on the three-level converter when its dc-link voltage contains a mix of low-frequency harmonic components. SHE-PWM offers the lowest possible number of switching transitions. The performance of the proposed techniques is investigated by using MATLAB/SIMULINK software and results are presented.

KEYWORDS: Voltage Source Converter (VSC), Selective Harmonic Elimination - Pulse Width Modulation (SHE-PWM), Ripple Repositioning Technique

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