

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

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### 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 (3<sup>rd</sup>, 5<sup>th</sup>, 7<sup>th</sup>, 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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