



ChemTech

International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555

Vol.11 No.04, pp 16-26, 2018

Embedded Control of Z Source and Quasi-Z Source Based Multilevel Inverter

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Abstract : In this paper an embedded based Z source and Quasi Z-source based multilevel inverter is proposed. The proposed system has the Z-source network that is used to couples the inverter main circuit to the power source. The presence of Z-source network can able to buck and boost the given voltage. Quasi Z-source inverter has advantages over the classical Z-source inverter that it has continuous input current drawn from the source and reduces the voltage stress across the capacitors. Limitations of voltage source inverter (VSI) and current source inverter (CSI) can overcome by Z-source inverter (ZSI). Switching strategy of multilevel inverter is controlled by embedded controller. In this controller coding is developed using switching table. Simulation model of Z-source and Quasi Z-source based multilevel inverter with embedded controller is developed using MATLAB/Simulink. The performance parameters such as RMS, THD, DC component and output result of the inverter with R load have been analyzed for various inductance (L) and capacitance (C) values.

Keywords : Z-source Inverter; Quasi Z-Source Inverter; Multilevel Inverter; Embedded Controller; THD; RMS.

International Journal of ChemTech Research, 2018,11(04): 16-26.

DOI : <http://dx.doi.org/10.20902/IJCTR.2018.110402>
