
State Of The Art In The Practical Implementation, Modeling Methods, And Control Approaches For Modular Multilevel Matrix Converters

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Abstract – The Modular Multilevel Matrix Converter (MMMC) is a novel power converter topology that is ideal for high-power AC applications. Studies have demonstrated that the converter offers various advantages, including modularity, power redundancy, and control flexibility. However, the topology and control system design can be challenging due to the large number of cells and floating capacitors. To maintain acceptable levels of capacitor voltage, multilayer nested control systems are required. There are no existing review papers that have discussed the MMMC's modelling, control systems, and applications. Thus, this paper seeks to provide a comprehensive review of the technology, focusing on the modelling and control strategies, to facilitate further research.

Keywords – Modular Multilevel Matrix Converter; AC-AC Conversion, Cells and Floating Capacitors
