Realization of single phase to three phase matrix converter using SVPWM algorithm

ABSTRACT

The direct AC to AC conversion techniques adopted in the implementation of the single phase to three phase converters do not yield the best output results due to the complexity of the segregation process and bidirectional nature of the input signal. Number of initiatives has been reported adopting a mid DC Link path for creating more appropriate results. However, none of them provides convincing results in producing the standard three phase output signals that are equal in magnitude and 120 degrees away from each other. This paper reports a novel attempt in implementing the space vector pulse width modulation based Matrix Converter system for direct single phase to three phase conversion using IGBT based bi-directional switches that produce convincing three phase output signals from a single phase voltage source.

Keyword: Matrix converters; Segregation method; Single to three phase; Space vector algorithm