

Gunwant A. Dhomane, Hiralal M. Suryawanshi

Power Quality, in terms of power factor and harmonics, is greatly hampered by a three-phase rectifier used as a front-end ac-to-dc converter in many systems including a UPS. This paper presents the high power factor operation of the converter with reduced total harmonic distortion up to 4%. The power quality up gradation is due to high-frequency current injection at the input of the front-end rectifier. A small filter is required at the output for filtering the high-frequency content.

Sinusoidal PWM technique is used for controlling the output voltage. DSP is used for generating the desired gate pulses. The converter has high efficiency, low EMI emissions, high power packing density and is suitable for UPS systems. A simulation and experimentation are carried out on a 3 kW converter and the experimental results agree well with the simulation results.



[Download full text](#)