

fgggSingle Phase Inverter Fed through a Regulated SEPIC Converter

In power electronics, it is necessary to select the best converter circuit topology that has good performance among different converters. The Single-Ended Primary Inductor Converter (SEPIC) has good performance and is advantageous among different DC/DC converters. In this paper, a design of a SEPIC converter is made by selecting the values of its components according to the required output voltage and power. The design is made by an assumption that both of its inductors have the same value. The converter is tested by using MATLAB Simulink successfully. Later, its output voltage is regulated by using a Proportional Integral PI-Controller through tuning its proportional and integral gains. Finally, the SEPIC converter is connected to a single-phase full-bridge inverter to supply its required DC voltage. The role of the SEPIC converter is to regulate the dc-link voltage between its output side and the inverter. The results showed the success of this connection to supply AC loads with low Total Harmonic Distortion (THD).