

Control Technique for Single Phase Bipolar H-Bridge Inverter Connected to the Grid

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Abstract : In photovoltaic system, connected to the grid, the main goal is to control the power that the inverter injects into the grid from the energy provided by the photovoltaic generator. This paper proposes a control technique for a photovoltaic system connected to the grid based on the digital pulse-width modulation (DSPWM) which can synchronise a sinusoidal current output with a grid voltage and generate power at unity power factor. This control is based on H-Bridge inverter controlled by bipolar PWM Switching. The electrical scheme of the system is presented. Simulations results of output voltage and current validate the impact of this method to determinate the appropriate control of the system. A digital design of a generator PWM using VHDL is proposed and implemented on a Xilinx FPGA.

Keywords : grid connected photovoltaic system, H-Bridge inverter, control, bipolar PWM

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