

Single stage string inverter for grid connected Photovoltaic system with Modified Perturb and Observe (P&O) Fuzzy Logic Control (FLC)-based MPPT technique

ABSTRACT

This paper presents an implementation of Single-phase Single stage String inverter for Grid connected Photovoltaic (PV) system. The proposed system uses Modified Perturb and Observe (P&O) algorithm implemented using Fuzzy Logic Control (FLC) as Maximum Power Point Tracking (MPPT). The inverter is designed for 340W system using two series of STP170s-24/Ac PV modules. The MPPT unit keeps tracking the maximum power from the PV array by changing the modulation index and the phase angle of inverter's output voltage. The simulation model is developed using Matlab/Simulink to evaluate the performance of the converter. Selected experimental results are also presented in this paper.

Keyword: Fuzzy Logic Control (FLC); Perturb and Observe (P&O); Photovoltaic (PV); Maximum Power Point Tracking (MPPT); Inverter