

## **Sliding Mode Control of Dc/Dc Switching Converters for Photovoltaic Applications**

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### **Abstract**

Maintaining good voltage regulation at output and having fast dynamic response under sudden load fluctuation are extremely important in distributed generation (DG) as well as uninterrupted power supply (UPS) systems. This paper presents a fixed frequency hysteresis current (FFHC) controller, which is implemented on the basis of sliding mode control (SMC) technique and fixed frequency current controller with a hysteresis band. The controller has the benefit of hysteretic current control having fast dynamic responses and reduces the disadvantages of the variable switching frequency. To overcome elliptical sliding surface was taken. These has been verified and compared with the carrier based pulse width modulated (PWM) voltage controller under the same load fluctuation. The proposed method is then applied to islanded single phase voltage source inverter (VSI) system. The results show that the dynamic response is quite faster than that of widely used PWM-controlled inverter systems. The DC voltage that is required for the inverter input is supposed to be given from the output of PV panel with buck converter. In PV system, sliding mode control is used to track the maximum power point .Here inverter and buck converter connected to PV array are taken separately.

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