

# **Large-Disturbance Stability of Grid-Integrated Photovoltaic Generator with MPPT**

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## **Abstract**

Large-disturbance stability analysis of Photovoltaic (PV) generator with high penetration interfaced to the grid via two identical transmission lines is investigated. The Maximum Power Point Tracking (MPPT) technique is the fractional open-circuit voltage performed by adjusting the duty ratio of the DC-DC buck-boost switch mode converter placed between the terminals of the PV generator and a three-phase inverter. To suppress the unwelcome inherent harmonics generated by the PWM-controlled switch-mode inverter, LC filter is designed and placed across the inverter terminals. The study comprises the system response after symmetrical three-phase to ground fault at the middle of the second transmission line at two different solar irradiance levels where the faulted line is isolated in very short time duration. The dynamics of the PV generator is included by taking into account its high nonlinear output characteristics. At normal running conditions of the power system, the response after successive step changes in the solar irradiance levels has been presented.