

HIGH SPEED 8/6 SWITCH RELUCTANCE MOTOR POWERED BY SOLAR PHOTOVOLTAICS ALONG WITH THE FREQUENCY VARIATION

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ABSTRACT

This paper gives a solar photovoltaic (SPV) array, water pumping machine using a High speed 8/6 switched reluctance motor drive. The virtual commutation of High speed 8/6 switched reluctance motor drive (SRM) power at critical frequency gives decreased switching losses in a mid-factor converter and drastically Increases the efficiency of proposed system. The velocity of High speed 8/6 switched reluctance motor drive (SRM) is controlled by using numerous DC- Bus voltage of the mid-point converter. A DC - DC Boost converter running in continuous conduction mode (CCM) is used for DC-Bus voltage manipulates. The continuous conduction mode (CCM) operation of inductors helps to reduce the ringing impact and decreases the losses of DC-DC converter. Present day and voltage stresses on devices which consist of switching pressure of Boost converter are also reduced in continuous conduction mode (CCM). The Boost converter facilitates the non-stop and clean input/output currents to High speed 8/6 switched reluctance motor drive (SRM) force with boundless place for maximum power point tracking (MPPT) operation. The adjustment in step length of an incremental conductance (InC) maximum power point tracking (MPPT) set of policies helps the smooth starting of High speed 8/6 switched reluctance motor drive (SRM) force. The proposed system, subjected to dynamically atmospheric situations is designed, Modeled and simulated the usage of Matlab / Simulink environment. A prototype of proposed configuration is likewise superior and its performance is established with test results for manipulate of pace over various insolation ranges.

KEYWORDS: Solar Photovoltaic (SPV), High Speed 8/6 Switched Reluctance Motor Drive (SRM), Continuous Conduction Mode (CCM), Maximum Power Point Tracking (MPPT)