

Abstract

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PMSG fault diagnosis in marine application

This paper presents a fault diagnosis (FD) method for on line monitoring of stator winding partial inter-turn fault and severe faults, in permanent magnet synchronous generator (PMSG) used in shaft generator system in marine applications. The faulty machine is represented in state space model based on the dq-frame transformation. The Extended Kalman Filter (EKF) parameters estimation technique is used to estimate the value of stator winding short-circuit parameters of the machine. The proposed technique has been simulated for different fault scenarios using Matlab®/Simulink®. Simulation results show that the proposed technique is robust and effective. Moreover it can be applied at different operating conditions to prevent development of complete failure