

The good knowledge and information about the fault mode behavior of the PWM voltage source inverter is important to improve system design, protection and fault tolerant control. This paper develops a real-time condition-monitoring algorithm for 3-phase pulse width modulation (PWM) inverter. It is designed to detect and identify the transistor open-circuit fault and simultaneous two transistors open-circuit fault, which commonly occurs in the inverter drive system. The condition monitoring mechanism is based on phases currents mean, maximum and minimum values as fault indicators. The developed system has been rigorously assessed theoretically and it has been shown that the system is robust and reliable. Simulation results are presented. © 2007 JD

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