

Abstract

The faulty performance of permanent-magnet (PM) brushless dc motor drives is studied under one and two simultaneous open-switches faults conditions. This DC motor is supplied with three phase two level six IGBT (Insulated-Gate Bipolar Transistor) voltage source inverter. The three phases currents mean, min and max values of the DC motor are used as diagnostic indices. A knowledge algorithm is based to get information on which IGBT is in open-switch fault condition. This algorithm testing shows that the system could not only detect the open-switch fault, but also identify the faulty switch. Presented simulation results confirm the effectiveness of the proposed methodology