

On-Line Monitoring and Classification of Stator windings Faults in Induction Machine Using Fuzzy Logic and ANFIS Approach

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Abstract: the induction machines drives becomes more and more important used in many industrial applications. Their attractiveness is largely due to their simplicity, ruggedness and low cost manufacture, easy maintenance, high power efficiency and high reliability, are susceptible to various types of electrical and/or mechanical faults that can lead to unexpected motor failure and consequently impulsive downtime. This made necessary the monitoring function condition of these machines types for improved exploitation of the industrial processes. The aim of this task is the proposal of a monitoring strategy based on the fuzzy logic inference system (FIS) and the neuro-fuzzy inference system (ANFIS) for monitoring and classification of electrical faults types, especially the open phase and interturn short-circuit in the stator windings. The principle adopted for the strategy suggested is based on monitoring of the average root mean square value of stator current (RMS). Mathematical models and simulation results are presented to validate the efficiency of this approach.

Keywords : Monitoring, classification, Fis, INFIS, RMS