

Applying Continuous Monitoring & Diagnosis (M&D) to Critical Rotating Machines With no Additional Device to Install *by Mital Kanabar*

Abstract – Rotating machines are widely used in almost all industries as a critical component for process availability. Inadvertent failure of rotating machines causes high repair expenses and loss of revenue. Existing Monitoring and Diagnosis (M&D) techniques require either additional device(s) to be installed or scheduled shut-down for testing. This paper proposes continuous M&D of the rotating machines as a part of Machine Protection Relay (MPR), which is already installed in most critical machines. Proposed applications as a part of already installed MPR can proactively monitor Thermal, Electrical, and Mechanical failure modes; and take control actions. This paper further performs extensive testing of Stator M&D by monitoring evolution stator inter-turn fault, and also lesson's learned from the site installation as a part of advanced MPR. The test results are presented from actual field data of a damaged rotating machine as well as simulated stator-turn fault in a real time environment.