



ROTOR FLUX MONITORING

Variations in the magnetic flux within a generator indicate deterioration of winding insulation. Whether a result of thermal wear, large variation on load, contamination, or other causes, the impact to efficient generation is significant. Imbalances within the rotor damage insulation, which in turn degrades the generator's output capacity and increases vibrations, further damaging the insulation, which ultimately leads to a forced outage.

THE POWER OF INNOVATION

- Plants own their own data
- Eliminates annual outsource expenses
 - » One less vendor onsite, saving costs
- Real time information
- Real time status alarms
 - » Multiple parameter alarms



CUTSFORTH™ ROTOR FLUX MONITORING SYSTEM:

AUTOMATED CYCLE FINDING (TWO POLE MACHINES)

ANALYSES PERFORMED:

- High-speed samples identify shorted turns and flux density zero cross (FDZC)
- Flux waveforms and generator loads are archived for historical trend analysis
- Waveforms are collected periodically
- Data sets are collected using three dimensions: Time (periodically), Alarms, and when FDZC crosses a coil

USER DEFINED THRESHOLDS FOR ALARM LEVELS:

- Alarms can be associated with multiple features
- Full data sets are collected on alarms
- Operating states can be configured using National Instruments InsightCM

REQUIRES A NATIONAL INSTRUMENTS INSIGHTCM LICENSE

SYSTEM CALCULATES:

- Maximum Flux Deviation
- The percent deviation associated with an FDZC
- A table calculates deviation and number of shorted turns per coil on FDZC
 - » These values are trended over time
- System plots FDZC for each coil over time

SYSTEM APPROXIMATES SHORTED TURNS ON INACCESSIBLE COILS

CREATES A GENERATOR HEALTH TREND:

- Critical for identification of worsening shorts indexed against time and changing load conditions
- Featured trends provide early indication conditions leading to rotor ground faults
- Manage the Maintenance Cycle through real-time measurements

EASY TO INSTALL AND DOES NOT REQUIRE AN OUTAGE

FEATURES ARE TRENDED IN INSIGHTCM:

- Analytics
- Maintenance Planning
- Set of Features include:
 - » Maximum Coil Deviation
 - » FDZC Time Delta from nearest coil
 - » Coil nearest FDZC
 - » FCZC time from nearest coil
 - » Flux RMS in volts
 - » Coil Deviation at FDZC
 - » Coil Deviation Lag
 - » Coil Deviation Lead

- » Amplitude Lead-A
- » Amplitude Lead-B
- » Amplitude Lag-B
- » Max magnitude FDZC percent Deviation (absolute value of all positive and negative percentages)

USER DEFINED GENERATOR SETTINGS:

- Start Angle
- End Angle
- Number of Coils
- Turns per individual coil
- FDZC tolerance angle in degrees
- Number of inaccessible coils