



Recording & Monitoring Shaft Current & Voltage provides invaluable analytics for preventative maintenance.



## SHAFT GROUND MONITORING PREMIUM SYSTEM

The Cutsforth™ Shaft Ground Premium Monitoring measures shaft voltage and current; in addition, it offers high fidelity waveform capture and multi - feature alarm conditions. The system utilizes Cutsforth™ patented braided copper ropes for best in class grounding and data collection. The system design is straight forward:

- The Shaft Grounding Assembly (SGA) is mounted on the unit's drive end A
- Shaft Contact Assembly (SCA) is mounted near the collector
- The Monitoring System can be mounted in a convenient location
- The system passes all data to Nation Instruments InsightCM data platform
- Lengthens time between maintenance

The Premium system requires NI InsightCM®. It measures voltage and current that provides the following measurements: RMS (root mean squared), zero to peak, and peak counts. Wave forms are collected on a periodic basis as well as when fault conditions trigger an alarm. The waveforms are time synchronized for better analysis of operating conditions

Some Failure Modes identified through Shaft Voltage and Current Waveform Analysis:

- Poor Shaft Contact
- Bearing Failure
- Stator Insulation Failure
- Exciter Insulation Failure
- Ground Neutral Failure



Cutsforth™ Shaft Grounding Assembly (SGA) installs in one-day and pairs with the Premium Monitoring System

# TECHNICAL SPECIFICATIONS

## Shaft Ground Monitoring: Premium



- Continuously measures shaft voltage and grounding current at 1 Mega sample per second (1 MS/S) monitoring for any potential user or manufacturer defined threshold alarming condition.
- Data trend points are stored at user definable intervals which can be from seconds to hours in frequency.
- Every 6 hours this Shaft Ground Monitoring system acquires and stores a "high speed snapshot" at 20 mega samples per second with 14 - bit resolution for a minimum of one shaft rotation.
- Channel details:
  - » **Voltage Channels:** +/- 100 volt scale reporting DC, RMS, 0 - Peak and Peak Count sampled at up to 20 MS/s with a 10 MHz sensor bandwidth
  - » **Current Channel:** +/- 25 amp scale reporting DC, RMS, 0 - Peak, and Peak Count sampled at up to 20 MS/s with a 500 KHz sensor bandwidth
  - » **Wear Indicators:** +/- 100 - volt scale sampled at 100 kS/s with a 50 kHz bandwidth sensor
  - » **Isolation:** All channels provide 1500 volts isolation
- Time based and FFT Waveforms are collected and archived whenever one of the following customer definable alert levels are crossed:
  - » Shaft Voltage DC, RMS or 0 - Peak amplitudes are crossed
  - » Grounding Current DC, RMS or 0 - Peak amplitudes are crossed
  - » Peak Count is exceeded (defined number of peaks within timeframe that are also above threshold is exceeded)
- The system is fully managed and data is archived using NI InsightCM® Platform.
- Data can easily be passed to an Historian using an OPC connection

## INSTALLATION DIAGRAM

