CASE STUDY

37.1 MVA Turbogenerator Shaft Voltage Monitoring

Quartzteq commissioned and tested the shaft-voltage monitoring system on PreZero's Siemens turbogenerator, validating the complete acquisition chain and ensuring reliable data through the LIFEVIEW® PDAIII.

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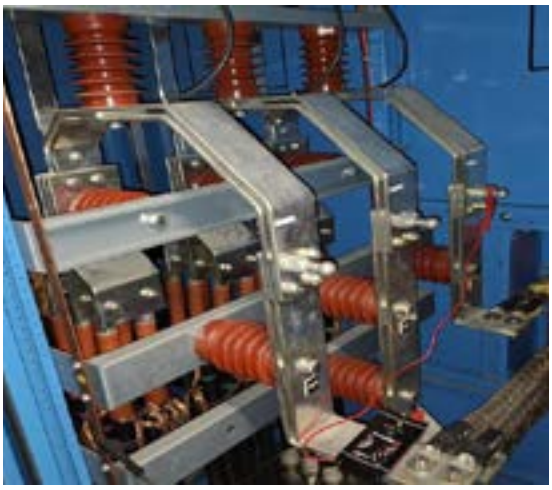
Our Customer's **Challenge**

Shaft voltage can pose a hidden threat to generator reliability. If electrical discharge occurs through the bearings, it can lead to pitting, fluting and progressive bearing damage. Because the effects may only become apparent once mechanical damage has developed, reliable shaft-voltage monitoring provides an important early indication of abnormal electrical conditions.

PreZero's 37.1 MVA Siemens turbogenerator was equipped with dedicated shaft-voltage sensing brushes at the non-drive end and earthing brushes at the drive end. To maximise the value of the installed LIFEVIEW® PDAIII monitoring system, the customer required confirmation that shaft-voltage signals were being accurately detected, transmitted and acquired, providing reliable data for ongoing condition monitoring and asset assessment.

The Quartzteq **Solution**

Quartzteq carried out detailed on-site testing of the complete shaft-voltage monitoring system, assessing the performance of the acquisition chain from the installed sensing brushes through to the LIFEVIEW® PDA III monitoring platform. The team validated signal transmission, checked acquisition performance and confirmed that shaft-voltage measurements generated at the machine were being accurately received and processed by the system.



With the monitoring chain validated, the LIFEVIEW PDA III provides a reliable basis for continuous monitoring and trending of shaft voltage and grounding current. Changes in absolute levels, signal behaviour and harmonic content can be evaluated over time, providing insight into deviations from normal operating conditions and the condition of the shaft-grounding arrangement. This helps maintenance teams identify developing abnormalities earlier and supports informed, condition-based maintenance decisions.

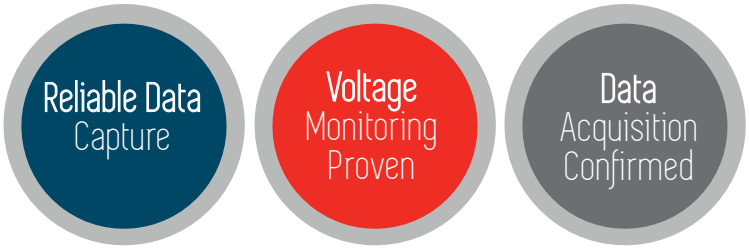
Key **Benefits**

- Reliable Shaft-Voltage Monitoring: Verified the complete measurement chain from the shaft sensing brushes through to PDAIII acquisition.
- Confidence in Monitoring Data: Confirmed that shaft-voltage signals are correctly transmitted and acquired, providing a dependable basis for condition assessment.
- Earlier Awareness of Abnormal Conditions: Continuous monitoring and trending can highlight changes in shaft-voltage behaviour before associated problems progress further.
- Condition-Based Maintenance: Long-term trending provides additional information for assessing the shaft and bearing system and supporting informed maintenance decisions.





> ***The testing gave us confidence that the complete shaft-voltage monitoring chain was operating correctly and that we can rely on the data from the LIFEVIEW® PDAIII for ongoing condition monitoring.***
>
> ***SUGGESTED -*** *Name / Title*



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