

Application: Generator load reduction

Kemo Filter used:
DR PRT

Example of how the machinery which is part of the application can cause signal noise in the measured data which in turn affects the efficiency management of the machine.



Application:

The electrical insulation system for wires used in generators, electric motors, transformers, and other wire-wound electrical components is divided into different classes by temperature and temperature rise. The electrical insulation system is sometimes referred to as insulation class or thermal classification. The different classes are defined by NEMA, Underwriters Laboratories (UL) and IEC standards.

For complete electrically operated appliances, the "insulation system" is the overall design of electrical insulation of the energized components to ensure correct function of the device and protection of the user from electric shock.

It has been found that issues exist in some classes of generators which have integral PRT temperature sensors in their generating coils, these can be subject to a strong magnetic field as the machinery rotates. This powerful varying field can cause a spurious reading on the PRT sensors, which in turn can cause aliasing problems with SCADA systems. Accurate measurement of the relevant class temperature is an important factor in machinery monitoring and operation, filtering of spurious signals means a more accurate measurement of temperature, which in turn can reduce generator load.

The DR PRT product was specifically developed in association with an energy supplier within the wind energy sector to provide the PRT signal conditioning whilst also providing accurate filtering of the PRT signal to remove the spurious aliasing signal.

It was found the filtering and reduction in noise led to a measurable reduction in the load on the generator.

This is a great example of Kemo's capability to design and integrate existing Kemo technology with some customisation to a very high standard.