

Vaisala's Optimus DGA Monitor OPT100 Guards Against Impact of Solar Flares

Elimpus Ltd has installed several of Vaisala's online transformer monitoring solutions on behalf of Scottish Power, a leading British energy provider, to provide real-time condition updates at key sites. In one particular case the Optimus DGA Monitor OPT100 will give continuous updates on Scottish Power's 1000MVA auto transformer and monitor for the impact of geomagnetically induced currents on the asset.

Scottish Power is a British energy provider and distribution network operator for central and southern Scotland, parts of northern England and Wales. It is also the transmission grid owner for the south of Scotland.

At a key site in Scotland's central belt, it wanted to protect a 1000MVA autotransformer from the effects of solar flares: periods when intense high-energy radiation is emitted from the sun's surface, causing radio and magnetic disturbances on Earth. Coupled with local geology, these have the potential to disrupt a power transformers' magnetic circuit, leading to inefficient power transmission and significant damage to the transformers.

Accurate Transformer Monitoring with the Optimus DGA Monitor OPT100

Scottish Power commissioned the installation of an Optimus DGA Monitor OPT100 by Elimpus Ltd. in order to accurately and continuously monitor the condition of its transformer, detect the effects of geomagnetically induced currents, and take proactive maintenance if required.

The OPT100 is Vaisala's most advanced monitoring solution, and assesses a transformer's condition by measuring for the presence of moisture and seven different fault gases in transformer oil.

"Scottish Power has a number of strategic transformers on the transmission network that require advanced condition monitoring, and we have been increasingly wary of the effects of solar flares and geomagnetically induced currents to disrupt their efficient performance."

Keith Black,
*System Performance Senior Engineer,
Scottish Power.*

"The Vaisala unit was installed as it met our current specification of online DGA devices with the addition of being maintenance free."



The Vaisala Optimus DGA installed in power transformer.

Employing Advanced Technology for the Best Outcomes

The OPT100 draws on Vaisala's long heritage in industrial measurement technology. The highest engineering quality is maintained by manufacturing all of the unit's components in-house, including the innovative tuneable non-dispersive infrared (NDIR) filters, which ensure optimal condition monitoring performance regardless of operational conditions.



The Vaisala Optimus DGA monitor doesn't require frequent maintenance and is designed to be safe and reliable – even in harsh and demanding operating environments.



The tuneable NDIR filter provides confidence to the monitoring team that their measurements are stable over the long term. The tuneable NDIR filter prevents drift and ensures all dissolved gas concentrations are accurately measured.

An additional and key benefit of Vaisala's OPT100 over other transformer monitoring offerings is its simple installation process, which enabled Elimpus and Scottish Power to quickly and independently bring the unit online. And, with no consumables, the unit requires no regular maintenance of its own.

Scottish Power has been using the OPT100 since November 2017, and has benefited from greater oversight of its asset's condition.

Challenge

- How to protect an autotransformer from the effects of solar flares?

Solution

- Vaisala Optimus™ DGA Monitor OPT100 for Critical Power Transformers Online Monitoring.

Benefits

- Maintenance free: no consumables to service or replace.
- No More False Alarms: The monitor's IR sensor is based on Vaisala core measurement technology and critical sensor components manufactured in Vaisala cleanrooms.
- Vacuum gas extraction means no data fluctuation due to oil temperature, pressure, or type.
- The hermetically sealed and protected optics prevent sensor contamination.
- The result? A monitor that completely eliminates false alarms.

“The OPT100 gives us the ability to track any disturbance that may occur and extend the lifetime of our transformer, as well as reducing the possibility of any unplanned outages,” added Keith Black.

With online transformer monitoring set to become increasingly important, Scottish Power are installing more OPT100 units across their fleet of power transformers.

VAISALA

www.vaisala.com

Please contact us at
www.vaisala.com/requestinfo



Scan the code for more information

Ref. B211737EN-A ©Vaisala 2018

This material is subject to copyright protection, with all copyrights retained by Vaisala and its individual partners. All rights reserved. Any logos and/or product names are trademarks of Vaisala or its individual partners. The reproduction, transfer, distribution or storage of information contained in this brochure in any form without the prior written consent of Vaisala is strictly prohibited. All specifications – technical included – are subject to change without notice.