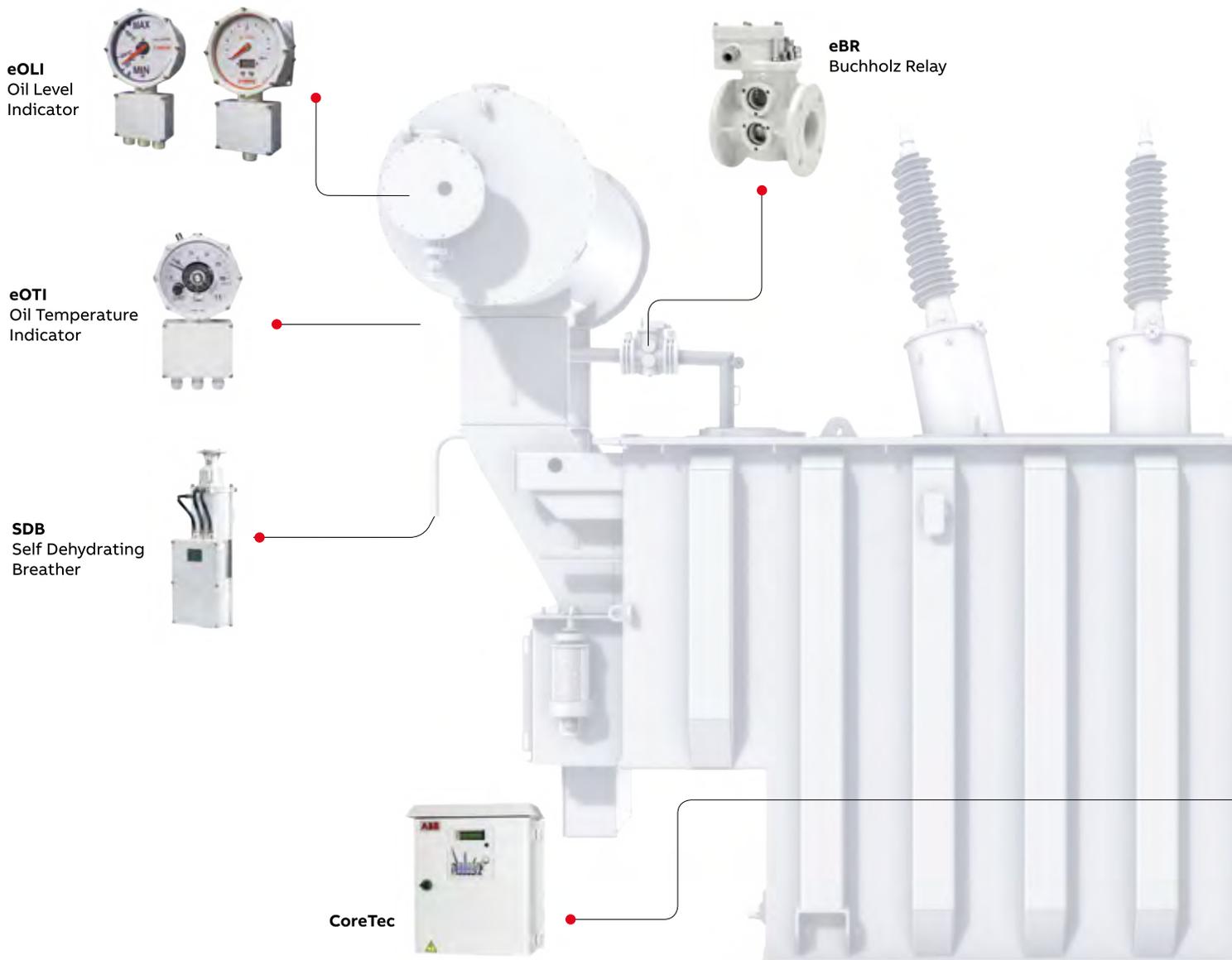


TRANSFORMERS

Enabling Transformer intelligence for smart operations

Sagnik Murthy, Sales & Marketing Manager UK & Ireland, for ABB's Transformer Components and Insulation product group explains how ABB enable condition-based maintenance through transformer intelligence sensor-based monitoring solutions, giving transformer operators the ability to carry out reliable asset monitoring while supporting the digital transformation of electricity networks.



It is testament to strong design, robust construction and good practice in operations and maintenance that a large proportion of the world's transformer population has been in operation for more than 50 years. However, an aging fleet of transformers represents a challenge to grid operators that are under pressure to make the most of their maintenance budgets.

A new generation of sensor and diagnostics technology is opening up potential for digital and analogue monitoring of transformer health including critical components such as bushings and on-load tap-changers. ABB's Transformer Intelligence devices are designed to give operators insight into the performance of individual transformers and entire fleets.

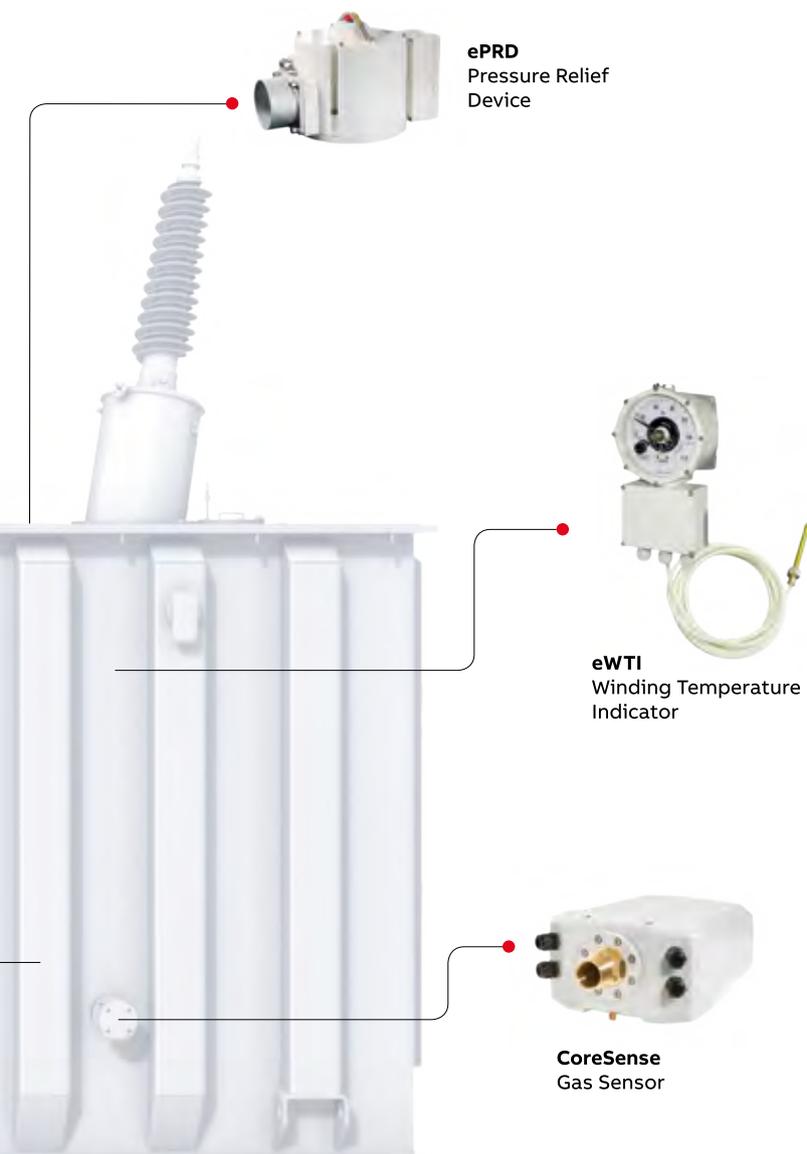
Transformer Intelligence combines Comem eDevices with CoreSense / CoreTec monitoring solution

ABB's Transformer Intelligence is based on two monitoring solutions: CoreSense® and CoreTec®. CoreSense® is a dissolved gas analysis (DGA) sensor, which continuously monitors hydrogen and moisture levels in transformer oil to act as an early warning system. CoreTec® is a complete transformer monitoring system, which includes bushing and tap-changer monitoring as well as cooling control. It integrates data from sensors and displays a large number of operational parameters through a web interface. Combining CoreTec with CoreSense and other sensors is designed to give operators of transformers a complete asset health monitoring solution and the confidence to schedule maintenance. ABB Comem eDevices are sensors with digital and analog output providing continuous monitoring of key transformer parameters, such as oil and winding temperature, air humidity, internal pressure, gas and moisture levels.

The result is more informed and better decision-making over maintenance, refurbishment and replacement. Knowledge of asset condition allows operators to prioritise maintenance, as well as predict and avoid asset failures.

For example, advanced cooling control of a transformer is possible by sensing the transformer oil temperature. ABB Comem eOTI, a liquid temperature indicator, provides a digital signal to CoreTec® about the rising oil temperature inside the transformer due to increasing electrical demand. In response, CoreTec® turns on the fans in the cooler banks fitted to the transformer radiators to cool the oil. These cooler banks are controlled in groups, so as load increases, more cooler groups are switched on. ABB's Transformer Intelligence® solution can be applied to power transformers from any manufacturer. It enables customers to implement reliable asset performance management, optimist their operations and maintenance budgets and enhance workforce productivity and safety.

ABB's Transformer Intelligence® is also compatible with ABB Ability™, a solution platform built from common technology components at the device, edge, control and cloud level. It combines software-enabled and connected devices to enable customers to centralise their data, securely share and integrate industry data, apply big data and predictive analytics, and generate insights that can help them drive performance and productivity improvements through increased uptime, speed and yield.



ePRD
Pressure Relief Device

eWTI
Winding Temperature Indicator

CoreSense
Gas Sensor