Enabling the world’s industries to capture and analyze critical data to monitor transformers, detect impending failures and avoid outages

GE provides power utilities and industrial organizations with a wide range of transformer monitoring solutions. For more than 35 years, we have developed advanced technological hardware and user-friendly software to enable continuous monitoring, detect impending issues and provide accurate diagnostics to help maximize critical asset operational uptime.
We offer a broad range of asset monitoring and diagnostics solutions delivering increased operational availability

As the world’s leading provider of technology that predicts transformer failures, GE’s monitoring and diagnostics equipment empowers customers with real time information that leads to better decisions. With proactive and increased asset information, our customers can improve reliability, reduce maintenance expenses, proactively manage performance and delay or reduce capital expenditures.

Advanced Technology

Innovative highly repeatable and accurate on-line measurement techniques with no need for consumables or constant recalibration.

Domain Expertise

More than 50,000 transformer monitoring units installed over the world in the past 35 years gives us an edge in understanding and satisfying your needs.

Worldwide Resources

Dedicated knowledgeable local experts ready to answer questions and come on site to support our customers, as only a company like GE can.

We deliver solutions across multiple industries, to the Power Utility, Petrochemical, Metals and Transportation industries

Innovative Technology to Improve the Reliability of Our Customers Assets

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GE’s Hydran™ line of single gas DGA (Dissolved Gas Analysis) devices provides proven technology for essential on-line monitoring of oil filled transformers, where cost effective monitoring is required.

GE’s Kelman™ line of DGA devices enables precise on-line monitoring of transformers using multiple fault gas DGA and offers detailed diagnostics for pin-pointing issues and minimizing transformer outages.

With a variety of sensors being deployed to capture more and more data about transformers, GE provides solutions to not only capture this data but more importantly process it and turn it into usable information.

The aim is to enhance the coverage of transformers beyond on-line DGA of the main tank and address other modes of failure (like bushings) while continuing to help optimize transformer performance.

GE offers the same easy-to-use yet powerful software for customers to effectively access and manage the data from all their monitoring devices.

Together with monitoring and diagnostics, GE also provides remote or on-site technical expert services to assist our customers manage their fleet of critical assets.
Assisting customers to increase reliability and reduce frequency of unplanned outages

In the quest to improve reliability, reduce unplanned outages and avoid catastrophic failures, customers have been turning to transformer failure data to see what caused the failures and what monitoring equipment was required to protect the asset. Often that meant going to various vendors, sourcing individual equipment and trying to get them to communicate to a central system. GE offers a complete integrated solution to cover the major source of failure for transformers.

Complete Transformer Monitoring Solution

Enables continuous monitoring, detection of impending issues and provides accurate diagnostics to help maximize critical asset operational uptime.
Transformer Monitoring & Diagnostic Software

Using Perception software in a large geographically distributed company

1. Caution alarms triggered on device: Maintenance Engineer alerted via relay on device. Email sent to designated people. Global wallboard displays location of device.

2. Local wallboard displays the location of the device. Site Maintenance Engineer selects asset.

3. Device that triggered alarm identified.

Initial analysis with Perception software to identify the problem.

Perception diagnostic analysis using built-in international standards. Corrective action identified.

Corrective Action Implemented

Perception report generated with details of incident: fault found, corrective action taken & preventative action initiated to avoid similar situation.

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Our Technology

Photo-Acoustic Spectroscopy (PAS) enhance efficiency with up-to-date mapping

PAS was discovered over 100 years ago and has been successfully used for online analysis in many applications for 50 years.

PAS allows for the amount and type of gas in a mixture to be analyzed quickly and accurately in a single detector without any requirement for gas separation or carrier gases.

GE have deployed this established technique to the field of dissolved gas analysis. Utilizing well-established principles for gas extractions and measurement PAS provides market leading levels of accuracy and precision in some of the most demanding monitoring environments possible. Together with rugged oil sampling and gas extraction, and an ability to operate without consumables, PAS is the market leading technology for dissolved gas analysis.

The Photoacoustic cycle

PAS : Stability Without Recalibration

- Parabolic Mirror – Gold coated for a tarnish free lifetime.
- Radiation Source – Output dependent on temperature only, which is maintained at a constant 900°C, result in zero drift.
- Chopper Wheel – Rotational speed maintains a constant 29.5Hz radiation pulse.
- Filter Wheel – Sandwiched filter stacks allow a constant wavelength to be transmitted. Not subject to change with time.
- Analysis Chamber – Gold coated for long term, tarnish free operation.
- Microphones – Maximum drift in response <1% in 20 years.

No recalibration of PAS detector following original factory calibration
GE’s Kelman line of DGA devices enables precise on-line monitoring of transformers using multiple fault gas DGA and offers detailed diagnostics according to IEEE/IEC standards of any issue detected. This added on-line diagnostic capability benefits key transformers where the consequences of outage are significant and the probability of outage is increased due to age or operational conditions.

**Kelman TAPTRANS**
8-gas On-line Transformer and OLTC DGA Monitoring Unit
On-line DGA device monitoring all 7 fault gases plus oxygen and moisture. Features load sensor, inputs/outputs, configurable alarms and extensive communications and protocol options.

**Kelman TRANSFIX**
8-gas On-line Transformer DGA Monitoring Unit
On-line DGA device monitoring all 7 fault gases plus oxygen and moisture. Features load sensor, inputs/outputs, configurable alarms and extensive communications and protocol options.

**Kelman MULTITRANS**
8-gas On-line Bank of Three Single-phase Transformers DGA Monitoring Unit
On-line DGA monitoring device for 2 or 3 nearby individual transformer tanks. Discrete measurement of 7 fault gases plus oxygen and moisture with load sensor, inputs, outputs, alarms and extensive communication options.

**Kelman MINITRANS**
Low-cost On-line Discrete Multi-gas DGA Transformer Monitoring Unit
Cost-effective discrete DGA device monitoring 3 significant fault gases plus moisture. Includes load sensor, outputs, extensive communications and configurable alarms.
Single Gas Dissolved Gas Analysis (DGA)

Cost-effective monitoring for small and medium sized transformers

GE’s Hydran and Intellix lines of composite gas DGA (Dissolved Gas Analysis) devices provide proven technology for essential on-line monitoring of transformer oil. These products are ideally suited to small and medium size transformers where a cost effective monitoring solution is required to notify customers of developing fault conditions that could lead to unscheduled outages.

**Intellix GLA 100**
Small and Intuitive Transformer “Gas Level Alarm”
Small, intuitive and easy to install fault gas level alarm that provides a low cost warning solution to extend DGA monitoring to the smaller lower end transformers in your fleet.

**Hydran M2**
All-in-one On-line Transformer-monitoring Device
Compact, real-time fault gas and moisture monitor that provides alarms when pre-set limits are reached and communicates data back. Optional additional sensors and local transformer mathematical models.

**Hydran 201Ti**
Small Compact On-line Early Warning Transmitter
Basic transformer fault gas monitor with an optional separate controller (201Ci) with data communication and alarm capabilities.

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Enhanced Transformer Solutions

Coverage beyond DGA to enhance transformer knowledge and protection

With a variety of sensors being deployed to capture more and more data about transformers, GE provides solutions to capture this data and process it into usable information. The aim is to enhance the coverage of transformers beyond DGA and address other modes of failure like bushing failure. Bushings are today omnipresent in High Voltage (HV) substations, and technology exists that enables asset owners to detect impending failures and reduce their maintenance costs.

**Intellix BMT 300 with PD**
Bushing Monitoring & Partial Discharge System
GE’s Intellix BMT 300 is an intelligent, on-line system that continuously monitors not only the condition of transformer bushings but also the presence of Partial Discharge (PD) activity in the main tank. It will alert personnel of fault conditions at an early stage and provide vital health information on the bushings and the transformer.

**Kelman Transport X**
Compact Portable Dissolved Gas Analysis (DGA) System
Compact portable system that performs laboratory quality Dissolved Gas Analysis on manually taken transformer oil samples and renders a diagnostic on-site in 30 minutes.

**Intellix MO150**
Dynamic, Intelligent Transformer Monitoring System
Intelligent transformer monitoring system designed to collect real-time data obtained from an array of sensors and deliver information based on the results of IEEE/IEC standards transformer mathematical models.

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Software & Services

Transforming data into actionable information

Faced with data overload, customers need assistance in focusing their attention, interpreting the data and formulating responses to situations uncovered. GE offers an intuitive suite of software to assist customers with visualizing and evaluating asset data. It also offers expert services to supplement our customer’s often stretched resources to either remotely monitor or go on-site to investigate operational issues and provide recommendations.

Perception Software
Advanced Transformer Asset Management
GE’s Perception software allows users to download and store data from on-line monitors so the Asset Manager can monitor his entire fleet, set alarms, visualize the relevant data, analyze issues using IEEE/IEC diagnostics, and monitor critical situations.

Transformer Assessment Service
Complete Assessment Service for Large Power Transformers
GE’s team of highly experienced transformer design and testing specialists is available for on-site and in-service (no outage) condition assessment of large power transformers. Helps customers understand operational issues, obtain maintenance/repair recommendations and improve asset reliability.

Installation, Commissioning and Servicing
Value Added Services
GE’s has a global team of Field Service Engineers provide a full installation and commissioning service. We offer Maintenance & Service agreements to ensure our monitors are always performing at their best and giving our customers the peace of mind that we are there to support their monitoring asset base.