insideview
DGA Diagnostics

FEATURES AND SPECIFICATIONS SUMMARY

Software Version 3.0

+ Introduction

Inside View is a comprehensive evaluation system for monitoring the condition of valuable assets, such as transformers. Continuous data monitoring, detailed analysis, and change-of-status notices ensure users are fully informed with results from the diagnostic process, and thus equipped to make more precise condition assessments. Inside View integrates more than 100 data types related to oil testing that are gathered from different sources (on-line monitor, laboratory, or field tests). Analysis is performed on centralized data according to DGA, oil quality and paper degradation formulas. Inside View uses complex diagnostic methods to display results in ways that are easy to interpret and compare. The criteria for analysis are selected automatically according to transformer characteristics, such as oil type, transformer type and voltage class. The system employs robust graphics to display trends for each oil test attribute, and has the capacity to combine data from different sources. The software is installed on a Windows-based server within a company. From their workstations, users only require a web browser to access Inside View.

+ Centralized and Integrated Data

Inside View integrates data from different sources, making it accessible to users from a centralized location. It provides efficient data drilling capabilities for comprehensive data management and analysis. Whether the data is from lab analysis, mobile units or online monitoring, Inside View tracks the source and adapts its calculations according to the data's origin. Inside View can also correlate data and flag measurement discrepancies. Inside View stores, manages and monitors more than 100 fluid analysis parameters in the following areas:

- Dissolved Gas Analysis (DGA)
- Moisture Analysis
- Dielectric Strength
- Interfacial Tension (IFT)
- Acid Number
- Furans Analysis
- Oxidation Inhibitor
- Oil Power Factor
- PCB Analysis
- Metals and Trace Elements
- Gas Ratios

+ Data Management and Analysis Tools

Inside View's powerful features allows users to find interesting data quickly and extract essential information from large data sets acquired from different sources. It includes a range of graphical tools to visualize and analyze information. Every parameter, from either the online monitor or lab analysis, can be plotted and compared. Inside View provides several ways to display data:

- Asset Status report with detailed information
- Flexible data grid display for average or maximum values of date selection
- Side-by-side display of trends for any parameter, with alarm levels and customizable scale
- Stacked graph view
- Dynamic interaction with equipment-specific Duval triangles, including Low Temperature Fault triangles

+ Data Source Support

Inside View is the ideal way to store fluid test data in a centralized place, enabling data to be available to every user as needed. Inside View is able to acquire and manage data from the following sources:

- Oil test data imported from any Excel or CSV files
- OSIsoft® PI Historian
- Native Calisto Series
- Myrkos mobile DGA analyzer

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+ Notifications and Alarm Management

Inside View has a sophisticated notification mechanism that continuously monitors each asset and updates the status whenever new data is introduced. For each data type, the system can monitor four types of alarms: High, Low, Rate of change, and Step change. The system is designed to provide essential alerts without overwhelming the user. A notification includes detailed information of the event, historical data, and a condition assessment based on the latest oil analysis. Inside View includes:

- User-defined alarm levels and management
- Notification only on status change
- Single notification for multiple alarms
- Notification details: alarm, historical values, condition assessment

+ Diagnostic Methods

Inside View includes several methods for assessing equipment condition, performing complex calculations and verifying each requirement to ensure proper use of each method. The system uses equipment characteristics such as transformer type, oil type, voltage rating, and paper type to perform the proper verification. The implementation of the Duval triangle method integrates the triangles for different types of oils and transformers, including LTC Type II transformers. Inside View integrates a unique evaluation algorithm to assess DGA, oil quality and paper degradation according to the following diagnostic methods:

- Duval triangles (15 Duval triangles that consider 9 oil types and 7 different equipment types)
- Rogers ratios
- IEC 60599 ratios
- Doernenburg ratios
- Key Gas analysis
- IEEE C57-104 IEEE Guide for the Interpretation of Gases Generated in Oil-Immersed Transformers
- IEEE C57-106 IEEE Guide for Acceptance and Maintenance of Insulating Oil in Equipment
- IEEE C57-147 IEEE Guide for Acceptance and Maintenance of Natural Ester Fluids in Transformers
- IEEE C57-139 IEEE Guide for Dissolved Gas Analysis in Transformer Load Tap Changers
- Estimation of degree of polymerization

+ Installation Requirements

Inside View is installed on a web server, located on the client's existing intranet infrastructure (IIS server is available with every Windows platform). Users access Inside View with a web browser – no add-on installations required. Access rights and privileges can be managed by an in-house IT department using Windows security features.

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