

TOA4 Online™

Product Sheet



Advanced diagnostic software for insulating fluid test data, including DGA, for high-voltage apparatus.

TOA4 Online is the market leading tool used by high-voltage equipment experts to manage and interpret insulating fluid test data, including dissolved gas analysis.

Manage
Risk

Improve
Reliability

Optimize
Yield

Reliable and safe operation of an electricity system during peak periods requires confidence in the state of vital grid assets. With a scientifically sound foundation developed from over 20 years of research, **TOA4 Online** automatically interprets insulating fluid test data to deliver accurate and timely condition assessments directly to the field and to key enterprise asset management systems. With high-quality intelligence, operators are equipped with the knowledge to provide reliable service and make the necessary hard decisions when circumstances change.

Maintaining high-voltage electrical apparatus is more challenging as assets age, experienced staff retire and operating budgets are constrained. An effective maintenance plan requires accurate apparatus condition

assessments. Equipment problems must be flagged and correctly diagnosed, and disruptive false alarms must be avoided. **TOA4 Online** provides condition assessments based on over two decades of applied research so maintenance crews can be assured they are attending to the most critical incidents and are equipped with the right tools to address the problems.

Growing expectations of consumers and regulators are exercising the cliché “do more with less”. With accurate condition assessments from **TOA4 Online**, enterprise asset investment planning systems have the information required to make sound equipment replacement and upgrade decisions that optimize capital budgets. Furthermore, **TOA4 Online** maintains the essential equipment test and assessment history that supports compliance requirements for regulators and insurers.

With TOA4 Online, utilities and heavy industry are better equipped to manage risk, reduce system losses, improve reliability and maximize return on investment of their high-value assets.

Intelligence for Asset Optimization

TOA4 Online™

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The Delta-X Advantage

Scientifically Sound

Utilities have shared their test data and experiences with us for over 20 years, allowing us to research and develop the most advanced statistical and computational techniques for interpreting insulating fluid test data for transformers and other high-voltage electrical equipment. Built on the combination of experience and sound scientific principles, TOA4 Online is the most effective tool available to help high-voltage equipment experts assess and track apparatus condition.

On Watch 24 x 7

As soon as new test data is available, TOA4 Online gets to work. Apparatus condition is assessed automatically and records are updated ready for review. Abnormal results are flagged, and with diagnostic alerts, key personnel are automatically notified of equipment requiring urgent attention. You can stay focused on your operations and maintenance plan knowing that TOA4 Online will alert you to new critical events.

Flexible

With user configurable equipment lists, analysis criteria and alerting functions, high-voltage apparatus experts have the right diagnostic tool geared for their operating environment. And when unique situations arise, your equipment and test data can be easily downloaded for spreadsheet analysis or other offline work. TOA4 Online supports your maintenance philosophy as you see fit.

Anytime, Anywhere

TOA4 Online is at work 24 x 365 and available through any web browser, be it on your desktop, tablet or smart phone. Whether you are in the office reviewing a maintenance plan or at a remote substation servicing a critical transformer, TOA4 Online is with you to provide the best insights into your apparatus.

Freedom to Move

With open interfaces, any laboratory, online monitor or data historian can feed TOA4 Online to provide you the freedom to use the services and products that best fit your needs. With secure authorization, TOA4 Online provides safe and unfettered access to your test data and equipment history, so you are not impeded by proprietary lock-ins when you need to move your data.

IT Friendly

Using an online service standardized on CSS-compliant web browsers for user access means there is: no additional server licensing; no on-premise server administration; and no software installed on user computers. For the IT department, there is no muss, no fuss. Plus when TOA4 Online is upgraded, there is zero installation effort and all users automatically receive the latest version at the same time.

Market Leadership

With over half of the largest utilities in the USA as TOA4 Online subscribers, you join a large community whose combined experience over two decades has been applied to create the most effective and recognized diagnostic tool for assessing and tracking the condition of high-voltage electrical apparatus. With TOA4 Online, you are in good company.

Intelligence for Asset Optimization

Advanced diagnostic software for insulating fluid test data, including DGA, for high-voltage apparatus.

- **Processes Laboratory and Online Monitor Data**
- **Applies to all Liquid Filled, High-Voltage Apparatus**
- **Automatically Alerts Key Personnel of Equipment Anomalies**
- **Integrates Easily via Open and Secure Interfaces**
- **Provides 24x7 Access in the Office and the Field**

Features

- **Stores and manages test data, including**
 - Laboratory and online monitor data (optional)
 - Raw test data, fluid sample tracking, and equipment nameplates
- **Interprets insulating fluid test data for:**
 - Dissolved gas analysis (DGA)
 - Oil quality analysis
 - Moisture in oil
 - Furans (including all 5 commonly measured furans)
 - Particle counts and particle statistics
 - Metals and trace elements in oil
 - PCBs in oil
- **Automatically processes new test data to generate condition assessment reports ready for review**
- **Assesses power transformers, load tap changers and other liquid-filled electrical apparatus**
- **Supports popular alternative insulating fluids**
- **Applies state-of-the-art statistical and computational techniques**
 - Provides example analysis norms based on applicable industry standards
 - Includes Duval triangle diagnosis for transformers and load tap changers
 - Supports new diagnostic methods for tap changers, voltage regulators, and oil circuit breakers
 - Advanced interpretation of online monitor data
- **User can modify or create analysis norms/criteria**
- **Diagnostic alerts automatically notify users according to user-configured rules (optional)**
- **Scales for large & small apparatus fleets**
- **Various and flexible reporting**
 - Supports basic testing, condition assessment, and maintenance tasks
 - Fleet equipment comparisons & prioritization
 - Indicates newly-received and unreviewed test data
 - Identifies equipment requiring further attention or testing
 - Preconfigured graphs to visualize data and results
 - User may add write-protected expert comments and recommendations
 - PDF exports for easy distribution
- **Open & published interfaces**
 - Easy, unrestricted data transfers to and from TOA4 Online
 - Easy data extraction to other tools (e.g. MS-Excel)
 - Easy integration with enterprise systems
 - Established interfaces for:
 - . Cascade™ asset management system
 - . MSC-LIMs laboratory information management system
- **User interface**
 - 24 x 365 access via any CSS-compliant web browser
 - Very responsive on office and mobile platforms
 - Multiple pre-defined user roles with tiered access & use privileges
- **Web-based service**
 - Annual & multi-year subscription terms
 - Base configuration plus optional features

Intelligence for Asset Optimization

Delta-X provides advanced diagnostic software to assess and track the condition of electrical apparatus used by utilities and heavy industry. Delta-X's Transformer Oil Analyst™ (TOA) is the market leading tool used by high-voltage equipment experts to manage and interpret insulating fluid test data, including dissolved gas analysis. Generation, transmission and distribution utilities as well as leading industrial operations around the world rely on Delta-X to provide accurate and timely insights into the condition of their high value assets.



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