SERVERON® TM8™

On-Line DGA Monitor

Protect Transformer Assets

- **Avoid transformer failures**
- **Enable condition based maintenance**
- **Extend transformer life**
- **Defer capital expenditures**
- **The most comprehensive DGA assessment available**

Product Summary

Description: **Our industry leading on-line DGA monitors and TM VIEW™ software are monitoring generation, transmission and distribution power transformers worldwide. DGA (dissolved gas analysis) of transformer oil is the single best indicator of a transformer's overall condition. The Model TM8 offers the most comprehensive DGA assessment available. This assessment is provided through accurate and repeatable on-line measurements of the 8 critical fault gases plus nitrogen, moisture and other key parameters.**

Application: **Throughout your system are transformers that are vital to the reliability of your grid – GSU's, large transmission transformers, and critical substation transformers. Serveron DGA transformer monitors provide the important and timely information needed to maintain the reliability and safety of transformer fleets.**



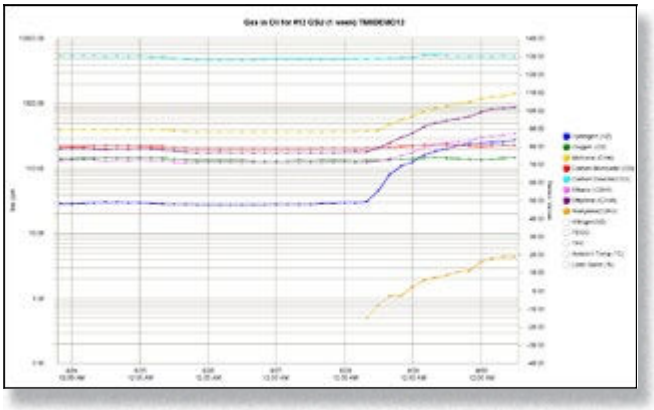
SERVERON®
A QUALITROL Company

Comprehensive Data Requires Powerful Tools

- Serveron TM View™ software and services offer simple yet powerful analytical tools for transformer monitor management, data visualization and analysis.
- Seamlessly move from single user software to enterprise capability for large deployments of monitors in your fleet with our SmartSUB solution.
- SmartSUB includes the DGA analysis features of TM View and adds the ability of combining data from additional transformer condition based monitoring devices (tank pressure, cooling bank current, winding current & temperature, bushing monitor, partial discharge and others).

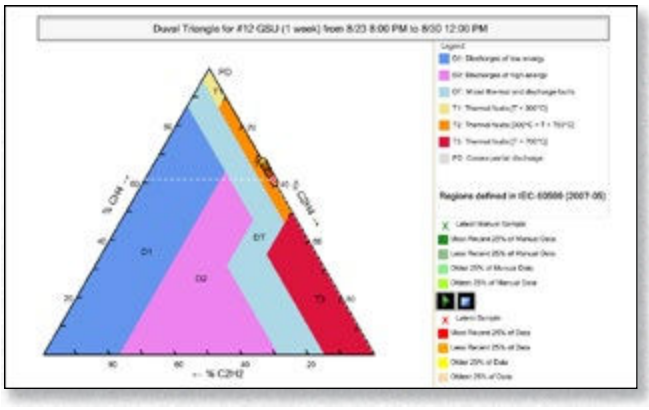
Gas-in-Oil Trend Chart

- On-line correlation of 8 fault gases for the most comprehensive DGA condition assessment available.



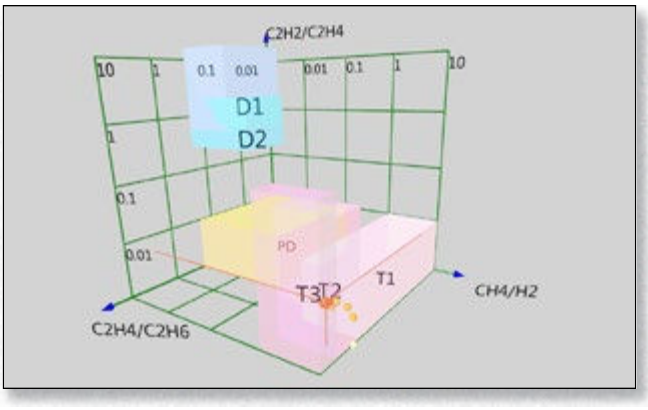
Duval Triangles

- Multiple Duval Triangles provide diagnostic outcomes for various combinations of the fault gases (IEC 60599-2007-05).



Rogers and Basic Gas Ratios

- Offer three dimensional views of diagnostic outcomes for various combinations of the fault gases (IEEE C57.104-2008 & IEC 60599-2007-05).



SERVERON® TM8™ On-Line DGA Monitor

Accuracy and Reliability

- The Model TM8 measures all fault gases using a single Gas Chromatography (GC) measurement system. Gas Chromatography is the accepted measurement science for DGA and is the only DGA measurement technology specified in IEEE, ASTM, CIGRE and IEC standards.
- Serveron has delivered more GC based DGA monitors with industry leading accuracy than any other vendor.
- On-board automated calibration verification ensures performance to specification throughout the entire operating life of the monitor.
- Performs accurate DGA measurements on mineral and ester-based insulating fluids.

Low Total Cost of Ownership (TCO)

- Field-proven reliability combined with low lifetime maintenance requirements offers superior value.
- Economical maintenance costs compared to other multi-gas monitors.
- All scheduled maintenance can be performed on-site for minimal disruption to monitor up-time.

Avoid transformer failures

- Continuous trending of key fault gases gives early and immediate notification of incipient faults that can lead to transformer failure.
- Many transformer failures can be prevented through the correlation of DGA data to real events.
- All 8 fault gases plus nitrogen, oil temperature, ambient temperature, transformer load and moisture-in-oil are correlated by the Model TM8.

Enable condition based maintenance

- Only comprehensive on-line monitoring can provide the information that enables continuous transformer condition assessment.
- Data from the Model TM8 supports all IEEE and IEC diagnostic tools for rapid warning and diagnosis of developing faults.

Extend transformer life and defer capital expenditures

- Comprehensive analysis of key fault gases, moisture and other key parameters enables intelligent management of transformers, extending their useful life and deferring capital expenditures.

TECHNICAL SPECIFICATIONS

DGA Method: Laboratory Grade Gas Chromatography

	Accuracy[1]	Repeatability[2]	Range[3]
Hydrogen (H2)	±5% or ±3 ppm	<2%	3-3,000 ppm
Oxygen (O2)	±5% or +30/-0 ppm	<1%	30-25,000 ppm
Methane (CH4)	±5% or ±5 ppm	<1%	5-7,000 ppm
Carbon Monoxide (CO)	±5% or ±5 ppm	<2%	5-10,000 ppm
Carbon Dioxide (CO2)	±5% or ±5 ppm	<1%	5-30,000 ppm
Ethylene (C2H4)	±5% or ±3 ppm	<1%	3-5,000 ppm
Ethane (C2H6)	±5% or ±5 ppm	<1%	5-5,000 ppm
Acetylene (C2H2)	±5% or ±1 ppm	<2%	1-3,000 ppm
Nitrogen (N2)	±10% or ±5,000 ppm	<20%	5,000-100,000 ppm

All specifications are independent of oil temperature and gas pressure levels.
1) Percent or PPM - whichever is greater
2) At the calibration level
3) Gas-in-Oil

Additional Monitoring Options

	Accuracy[4]	Range[5]
Moisture-in-Oil	±2%	0-100% RS
	< 10% of reading for oil temperature > 30°C	0 to 805 ppm
	< 18% of reading for oil temperature < 30°C	0 to 805 ppm
Oil Temperature	0.1°C (typically)	-40°C to +120°C

4) Includes non-linearity and repeatability
5) Upper range limited to saturation

Total Dissolved Gases

True Total Combustible Gas	True Total Dissolved Combustible Gas (TDCG) output is available reporting 100% of detected level in PPM for H2, C2H2, C2H4, CO, CH4, C2H6
Total Hydrocarbons	Total Hydrocarbons (THC) output is available reporting 100% of detected level in PPM for CH4, C2H2, C2H4, C2H6

Gas Analysis Parameters

Oil Sampling Rate	Oil sampling is continuous and gas analysis intervals are user-selectable from 2 hours to 12 hours (Default: 4 hours). Automatic schedule acceleration when rate of change alarm limit is exceeded (Default: 1 hr)
Data Management	All data is date and time stamped and up to two years of data is stored in memory
Automated Calibration Verification	System performs periodic automated calibration verification to National Institute of Standards and Technology (NIST) traceable gas standard

Alarms

Two individually programmable relays	50 VDC or 240 VAC @ 3 A max. (125 VDC @ 1 A max.); relay contacts operate as normally open or normally closed
Supported Alarms	Gas Caution & Alarm for Level (ppm), Rate-of-Change (ppm/day), Power and/or Service Event

External Sensor Inputs

Analog Inputs	Three (3) analog 4 to 20 mA inputs, ambient temperature sensor included. Optional sensors include transformer load guide and moisture-in-oil with temperature probe (uses 2 inputs)

SERVERON® TM8™ On-Line DGA Monitor

TECHNICAL SPECIFICATIONS

Communications	Standard Interfaces	RS-232, RS-485, Ethernet Fiber (100Base-FX), V.92 Internal POTS modem
	Optional Interfaces	Cellular modem, Ethernet Copper (10/100Base-TX)
	Supported Protocols	TCP/IP, DNP3, Modbus RTU, ASCII, OPC and IEC 61850

Environmental Specifications	Operating Temperature	-50°C to +55°C
	Cold Start Temperature	-20°C
	Operating Humidity	5% to 95% RH, non-condensing
	Oil Inlet Pressure	0 to 45 psi (0 to 3 bar)
	Storage Temperature	-40°C to +75°C
	Storage Humidity	5% to 95% RH, non-condensing

Physical Specifications	Product Dimensions	HxWxD: 22.0 in x 20 in x 11.2 in (55.9 cm x 50.8 cm x 28.4 cm)
	Packaging Dimensions	26.4 in x 26.4 in x 15.9 in (67 cm x 67 cm x 40.3 cm)
	Product Weight	65 lb (29.5 kg)
	Shipping Weight	70 lb (31.8 kg) (monitor package only)
	Enclosure Rating	NEMA 4X, IP66

Input Power Requirements	Voltage	110-240 Vac or 125-250 Vdc
	Frequency	50/60 Hz
	Current	6 A maximum

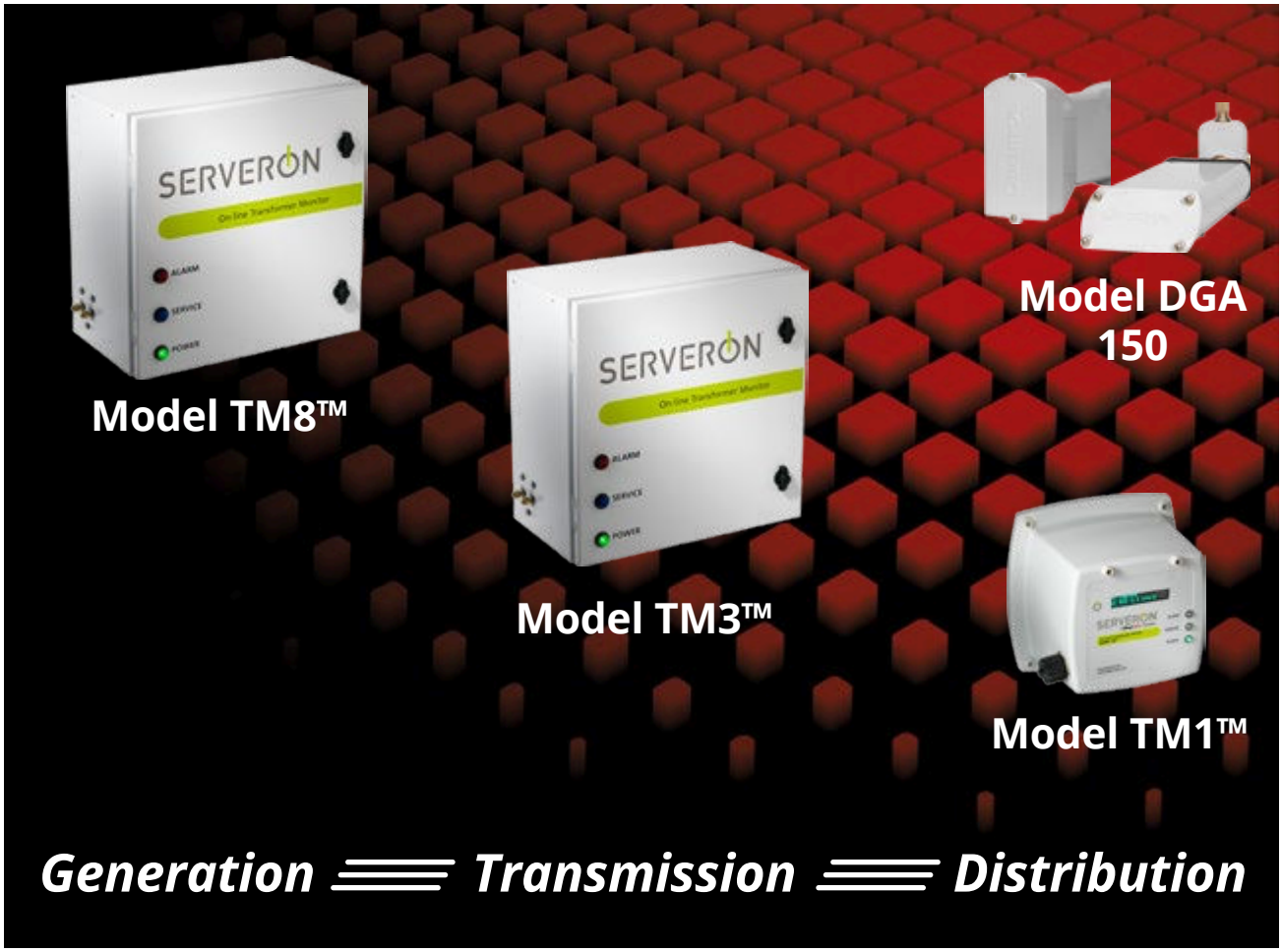
Radiated and Conducted Emissions		Specification	Test Method
	Radiated Emissions	EN 61326-1: 2006	CISPR 11:2009 A1:2010 Class A
	Conducted Emissions	EN 61326-1: 2006	CISPR 11:2009 A1:2010 Class A
	Current Harmonics	EN 61000-3-2:2006	EN 61000-3-2:2006 A1:2009 Class A
	Voltage Fluctuations	EN 61000-3-3:2008	EN 61000-3-3:2008 Class A

Radiated and Conducted Immunity		Specification	Test Method
	ESD	EN 61326-1:2006	IEC61000-4-2:2009
	Radiated Immunity	EN 61326-1:2006	IEC61000-4-3:2006 A2:2010
	EFT	EN 61326-1:2006	IEC61000-4-4:2004 A1:2010
	Surge	EN 61326-1:2006	IEC61000-4-5:2006
	Conducted RF Immunity	EN 61326-1:2006	IEC61000-4-6:2009
	Magnetic Field Immunity	EN 61326-1:2006	IEC61000-4-8:2010
	Voltage Dips & Interrupts	EN 61326-1:2006	IEC61000-4-11:2004

Safety		Specification
		EN 61010-1
		UL 61010-1 (North America)

On-line DGA Analysis Across Your Power Transformer Fleet

Leading utilities around the globe deploy the Serveron line of transformer monitors to provide superior asset protection for their transformer fleets across generation, transmission and distribution. With a low total cost of ownership, reliable field-proven performance and global customer service, Serveron transformer monitors set the standard for on-line DGA monitoring. Our transformer monitors can be deployed stand-alone or as part of the Qualitrol SmartSUB condition based monitoring system for transformers and other critical substation assets.



About Serveron®

Serveron transformer condition assessment and management tools are critical to utilities in improving grid reliability while optimizing the management and economics of their asset base. We are a leader in on-line DGA monitoring of power transformers with solutions across the entire power transformer fleet. Serveron is a QUALITROL Company.

© 2025 Serveron® Corporation. All rights reserved. Information subject to change without notice. QUALITROL is a registered trademark of Qualitrol Company LLC. SERVERON, LOADGUIDE, and TRUEGAS are registered trademarks and TM1, TM3 and TM8 are trademarks of Serveron® Corporation.

All trademarks are properties of their respective companies, as noted herein. AP-G35-02L-01E