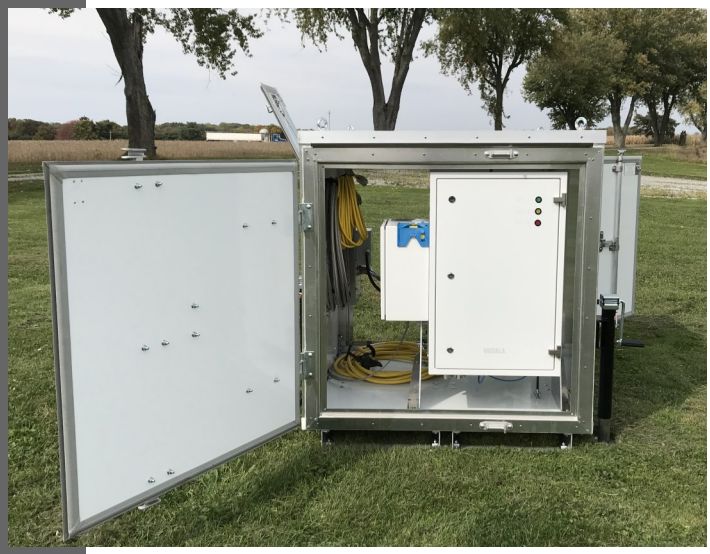
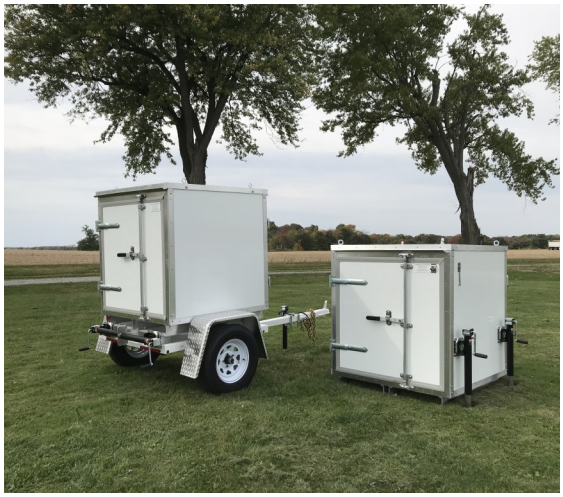
OPT100 Mobile DGA

Mobile Dissolved Gas Analyzer Systems
for use with Transformer Oil
Designed for use on ENERGIZED Equipment





Maximize transformer lifespans with real-time, mobile DGA

Deploy Dissolved Gas Analysis **where** you need it, **when** you need it

Transformer lead times are extending, are you prepared to make your assets last until new ones are available? Built on the Vaisala Optimus™ platform, the mobile OPT100 safeguards transformers in the toughest environments with no consumables and has the lowest total cost of ownership of any multi-gas DGA on the market. The drift-free measurement of seven fault gases is combined with a unique total gas pressure monitoring system that detects ambient air leaks in sealed transformers, eliminating false alarms for peace of mind.

KRIN usa

13211 State Route 226
Big Prairie, OH 44611

419-827-6061

www.krinusa.com

KRIN usa

built with VAISALA Inside

OPT100 Mobile DGA

When an entire grid is at stake, these features matter:

Maintenance and consumable-free	• **No calibration gases required** • **No internal column or measurement components to replace** • **No fixed filters, filter wheels, membranes or capillary tubes to repair or replace** • Intelligent and intuitive web client to remotely access data from anywhere • **Auto-calibration ensures long-term stable online measurement** • Runs on all ester liquids and mineral oils
Hermetically sealed, IP66-rated enclosure	• Spill containment integrated with the base - includes spill detection switch • Forklift slots in base as well as lifting eyes for moving the enclosure with an overhead crane • Excess space for hoses, fittings, and accessories storage • Extensive grounding of components to the frame with an equipment ground connection • G-Bond panels construct the enclosure envelope • Heavy-duty structural panels • Galvanized steel on both the interior and exterior, coated with white gelcoat • HDPE core • Sea-Lock sealed door openings with heavy duty cam-action latches • Tamper resistant to both humans and wildlife • Optional enclosure items include • Casters • Trailer with a variety of hitch and wiring options • Colors other than White
Hose connections	• 1/2” INLET and OUTLET hoses • Up to 30ft length • Drip-Less ISO Quick Connect Fittings (Other connection fittings available)
Electrical	• 120 or 240 VAC Single Phase • Optional 110 to 220 DC • Maximum power consumption 500 watts (4.2 amps at 120 VAC) • Entire system can operate on basic extension cord from a 15 or 20 amp outlet
Data transmission	• Optional feature that allows remote monitoring of the system. Includes cellular modem and antenna for remote access of data and condition of system.

KRIN usa

13211 State Route 226
Big Prairie, OH 44611

419-827-6061

www.krinusa.com

KRIN usa

OPT100 Mobile DGA

Measurement specification

Parameter [1]	Range	Accuracy [2] [3]	Repeatability [3]
Methane (CH_4)	0 … 10 000 ppm_v	±4 ppm or ±5 % of reading	10 ppm or 5 % of reading
Ethane (C_2H_6)	0 … 10 000 ppm_v	±10 ppm or ±5 % of reading	10 ppm or 5 % of reading [4]
Ethylene (C_2H_4)	0 … 10 000 ppm_v	±4 ppm or ±5 % of reading	10 ppm or 5 % of reading
Acetylene (C_2H_2)	0 … 5000 ppm_v	±0.5 ppm or ±5 % of reading	1 ppm or 5 % of reading
Carbon monoxide (CO)	0 … 10 000 ppm_v	±4 ppm or ±5 % of reading	10 ppm or 5 % of reading
Carbon dioxide (CO_2)	0 … 10 000 ppm_v	±4 ppm or ±5 % of reading	10 ppm or 5 % of reading
Hydrogen (H_2)	0 … 5000 ppm_v	±15 ppm or ±10 % of reading	15 ppm or 10 % of reading
Moisture [5] (H_2O)	0 … 100 ppm_w [6]	±2 ppm [7] or ±10 % of reading	Included in accuracy
Total gas pressure	0 … 2000 hPa	±10 hPa or ±2 % of reading	10 hPa or 5 % of reading

1) ppm values are defined as µl/l according to IEC 60567 standard conditions
2) Accuracy specified is the accuracy of the sensors during calibration gas measurements.
3) Whichever is greater.
4) Repeatability of ethane measurement is specified with averaging of five measurements.
5) Measured as relative saturation (%RS).
6) Upper range limited to saturation.
7) Calculated ppm value is based on average solubility of mineral oils.

Measurement operation

Measurement cycle duration	1 … 1.5 h (typical)
Response time (T63)	One measurement cycle [1]
Warm-up time until first measurement data available	Two measurement cycles
Initialization time to full accuracy	Two days
Data storage	At least 10 years
Expected operating life	> 15 years

1) Three cycles for ethane and hydrogen.

Field performance

Parameter	Typical variance to laboratory DGA [1] [2]
Acetylene (C_2H_2)	±1 ppm or ±10 % of reading
Hydrogen (H_2)	±15 ppm or ±15 % of reading
Other measured gases	±10 ppm or ±10 % of reading
Moisture [5] (H_2O)	±2 ppm or ±10 % of reading

1) Compared with gas chromatography result from an oil sample considering also laboratory uncertainty. Performance of the gas-in-oil measurement may also be affected by oil properties and other chemical compounds dissolved in oil.
2) ppm values are defined as µl/l according to IEC 60567 standard conditions

OPT100 Mobile DGA

Calculated parameters

Total dissolved combustible gases (TDCG)	Combined total of H_2, CO, CH_4, C_2H_6, C_2H_4, and C_2H_2
24 h average	Available for single gases, moisture, TDCG, and total gas pressure
Rate of change (ROC)	Available for single gases and TDCG for 24 h, 7 d, and 30 d periods
Gas ratios [1)]	Available ratios: CH_4/H_2 C_2H_2/C_2H_4 C_2H_2/CH_4 C_2H_6/C_2H_2 C_2H_4/C_2H_6 CO_2/CO

1) Calculated from 24 h average values. See standard IEC 60599.

Field performance

RS-485 interface	
Supported protocols	Modbus RTU, DNP3 (optional feature)
Galvanic isolation	2 kV RMS, 1 min
Ethernet interface	
Supported protocols	Modbus TCP, HTTP, HTTPS, DNP3 (optional feature), IEC 61850 (optional feature)
Galvanic isolation	4 kV AC (50 Hz, 1 min)
Relay outputs	
Number of relays	3 pcs, normally open (NO) or normally closed (NC), user selectable
Trigger type	Gas alert with user selectable limits
Max. switching current	6 A (at 250 V AC) 2 A (at 24 V DC) 0.2 A (at 250 V DC)
Auxiliary device interface	
Maximum power	48 W
Voltage output	24 V DC
User interface	
Interface type	Web based user interface, can be operated with standard web browsers

KRIN usa

13211 State Route 226
Big Prairie, OH 44611

419-827-6061

www.krinusa.com

KRIN usa

built with VAISALA Inside