

# Kelman TRANSPORT X\* portable DGA (Dissolved Gas Analysis) unit and moisture in oil

# fact sheet

## Product Overview

Accurate knowledge of the condition of transformers is essential for all electrical networks. This information allows valuable assets to be maximised and expensive failures to be avoided.

Dissolved Gas Analysis (DGA) is an established technique and is recognised as the most important test in monitoring power transformers. It is now being successfully extended to other oil filled equipment such as tap changers and circuit breakers.

The TRANSPORT X unit has been designed to be very rugged and user friendly with an emphasis placed on field operation. The unit is used by over 200 companies and utilities and has sold in excess of 600 units worldwide.

The TRANSPORT X test uses state of the art infrared measurement technology to give accurate, reliable results in a matter of minutes. The TRANSPORT X product represents an invaluable tool for Asset Management and will increase the power of any DGA program.

Extensive field and laboratory use worldwide has proven that the TRANSPORT X test gives highly reliable results and that it is genuinely suitable for field conditions.

The TRANSPORT X equipment minimises the risk of carry-over between tests. With the ability to go from high gassed samples (such as tap changers) to subsequent low gassed samples (such as main tanks) with no contamination of results the user can confidently test all types of oil filled equipment.

Internal diagnostic software helps to translate ppm data into valuable information by employing standard DGA interpretation rules e.g. Duval's triangle, key gas analysis etc.

These established algorithms assist the user to analyse the condition of the transformer. The accompanying TransportPro PC software allows the user to download records to a PC database for export to Kelman PERCEPTION\* software or Excel.



## Features & Benefits

### Accurate & Sensitive

The TRANSPORT X unit has a wide detection range with excellent accuracy for all seven fault gases (Typically 1-50,000 ppm)

### Moisture Analysis

The unit measures water content in oil. The water concentration can be expressed as parts per million or relative saturation.

### Simple

Easy step-by-step operation. No extensive calibration, set-up or interpretation of results required.

### Fast

On-site results in a matter of minutes.

### No Consumables

The TRANSPORT X unit requires no calibration or carrier gases.

### Portable & Rugged

11kg (24lbs) in a rugged convenient carry case.

### DGA Diagnostics

Includes DGA diagnostic algorithms - Rogers' Ratios, Duval's Triangle, Japanese ETRA and IEEE® Key gas. Also includes user settable "Caution and Warning" thresholds on all gases.

### Test Gas Samples

Ability to test gas samples taken from Buchholz Relays.

## PC Software

Includes TransportPro PC software package to allow storage and exporting of results.

## Kelman PERCEPTION

Complimentary Kelman **PERCEPTION** software with **TRANSPORT X** for trending & analysis of results.

## Technical Specifications

PARAMETER (compound)	VALUE/MEETS (measurement range)
Hydrogen (H <sub>2</sub> )	5 - 5,000 ppm
Carbon Monoxide (CO)	1 - 50,000 ppm
Carbon Dioxide (CO <sub>2</sub> )	2 - 50,000 ppm
Methane (CH <sub>4</sub> )	1 - 50,000 ppm
Acetylene (C <sub>2</sub> H <sub>2</sub> )	0.5 - 50,000 ppm
Ethane (C <sub>2</sub> H <sub>6</sub> )	1 - 50,000 ppm
Ethylene (C <sub>2</sub> H <sub>4</sub> )	1 - 50,000 ppm
Water (H <sub>2</sub> O)	± 3 ppm

(Note: Buchholz gas samples LDL is 100 ppm for all gases).

Accuracy	± 5% or ± 2 ppm (whichever is greater)
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## ENVIRONMENTAL

Temperature Range	5 - 40°C (41-104°F)
Power Supply	115/230 Vac; 50/60Hz; 40 W
Computer Interface	USB
Printout Hardcopy	2" Thermal Printer
Weight	11 KG (24 lbs) (unit only)
Size	170 X 340 X 460 mm
Oil Sample Volume	50 ml
Gas Sample Volume	5 ml

## Conforms to:

### EMC

Emissions and Immunity Testing Performed According to EN61326-1:2006.

EN 61326-1: 2006 Radiated Emissions (Class A).

EN 61326-1: 2006 Conducted Emissions (Class A).

EN 61000-3-2: 2000 Steady State and Fluctuating Harmonics.

EN 61000-3-3: 2001 Flicker Testing.

IEC61000-4-2<sup>®</sup>: 2001 Electrostatic Discharge Immunity Testing.

IEC61000-4-3: 2002 Radiated Immunity.

IEC61000-4-4: 2001 Electrical Fast Transient /Burst Immunity Testing.

IEC61000-4-5: 2001 Surge Immunity Testing.

IEC61000-4-6: 2001 Conducted RF Immunity.

IEC61000-4-8: 2001 Magnetic Field Immunity.

IEC61000-4-11: 2001 Voltage Dips and Interrupts.

### Safety

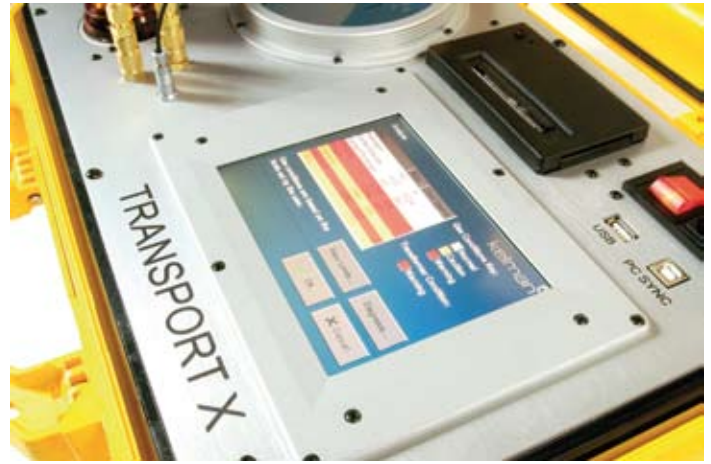
Safety requirements for electrical equipment for measurement, control and laboratory use.

IEC61010-1,

EN61010-1,

UL61010-1,

CAN/CSA-C22.2 No. 61010-1.



## Additional Features

- Records compatible with Kelman **PERCEPTION** software from GE Energy and Transformer Oil Analyst (TOA).
- Up to 20,000 records stored in internal memory.
- Embedded thermal printer gives hard copy of results on-site.
- Touch screen controls for easy operation.

## Additional Options

- 'System Check Kit' for verification of unit operation.
- Gas test kit allows analysis of Buchholz gas samples.
- Transit Case. Provides extra protection for air travel and transportation.
- Sample Cooler. Allows hot oil samples to be cooled for testing in minutes.



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