Product Overview
Accurate knowledge of the condition of transformers is essential for all electrical networks and on-line monitoring of critical transformers is increasingly vital. This information allows valuable asset capabilities to be maximised and expensive failures to be avoided.

Dissolved Gas Analysis (DGA) and moisture measurement of the insulation oil are recognised as the most important tests for condition assessment of transformers.

Features & Benefits
The MINITRANS is a Cost-Effective On-Line DGA Unit giving essential insight into the condition of transformers.

The MINITRANS provides reliable information and represents an invaluable tool for Asset Management: along with essential moisture content, the measured gases provide information on critical arcing, cellulose degradation and general fault activity.

- Avoid costly unplanned outages.
- Transformer faults detected in their infancy.
- Transformer output optimized safely.
- Transformer ageing can be calculated.
- Type of fault can be classified from results.

DGA & Water
Three key fault gases plus moisture.

No Consumables
No carrier gases or calibration gases required.

Minimal Maintenance
Reduces running costs and site visits.

Comms Options
Extensive local and remote communications options.

Reliable Gas Extraction
Internal modified head space gas extraction.

Sampling Rate
Sampling rates are configurable from daily to hourly. User configurable Caution and Alarm Modes can be used to automatically increase the sampling rate.

Kelman PERCEPTION*
Advanced asset management software providing sophisticated graphical trending & diagnostic analysis of results.

Load Monitoring
Allows results to be analysed against the loading of the transformer.

Easy Installation
No outages required; reduces expense and inconvenience for user.

Local Display
LCD Display provides up to date information on site.

Alarm Settings
Sophisticated programmable alarm system.
<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>VALUE/MEETS (measurement range)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrogen (H₂)</td>
<td>5 - 5,000 ppm</td>
</tr>
<tr>
<td>Carbon Monoxide (CO)</td>
<td>10 - 50,000 ppm</td>
</tr>
<tr>
<td>Acetylene (C₂H₂)</td>
<td>3 - 50,000 ppm</td>
</tr>
<tr>
<td>Water</td>
<td>0-100% RS (given in ppm)</td>
</tr>
<tr>
<td>Accuracy</td>
<td>± 10% or ± LDL (whichever is greater)</td>
</tr>
</tbody>
</table>

**ENVIRONMENTAL**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature Range</td>
<td>-35 to 55°C (-31 to 131°F)</td>
</tr>
<tr>
<td>Oil Temperature Range</td>
<td>-10 to 100°C (-14 to 212°F)</td>
</tr>
<tr>
<td>Power Supply</td>
<td>90 – 264 Vac; 47 - 63Hz; 150W; 6A max</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>10 - 95% RH non-condensing</td>
</tr>
<tr>
<td>Enclosure</td>
<td>IP55</td>
</tr>
<tr>
<td>Weight</td>
<td>Less than 35 Kg (80 lbs)</td>
</tr>
</tbody>
</table>

**Single Phase Alarm Relays**

- NO and NC provided, 250 VAC 1A, 1A 30 VDC

**Measurement Frequency**

- Variable - 1 per hour to every 4 weeks

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**Technical Features**

- Uses photo-acoustic spectroscopy to give highly reliable results. Field proven in over ninety countries worldwide.
- Three target gases plus moisture measured.
- Full embedded processor – over two years of data at a default sampling rate of six-hourly, stored internally.
- Non-volatile memory storage to prevent loss of data.
- Discrete sampling gives more rapid response to gas rises. No ‘averaging’ of DGA results.

**Alarms**

- Two Sunlight Visible front panel LED Arrays (Red and Green) and a user configurable Relay contact.
- All alarms can be set or changed locally or remotely using Kelman PERCEPTION PC Software.
- Six alarm setting screens or scenarios are available, which can set alarms based on the level of the three gases/ moisture, and rates of change for each gas.
- Each alarm setting screen can activate the Alarm relays or send a SMS message if equipped with the optional cellular GSM or CDMA modem.
- Single phase Alarm Relays: NO and NC provided, 250 VAC 1A, 30 VDC 1A.
- Caution mode and alarm mode can be used to increase sampling frequency.
- The alarm results of each screen are independent of the other circuits and alarm setting screens.

**Communications**

- Two separate channels for remote communications, plus local USB connection and Ethernet connection.
- Communications protocols supported include MODBUS®, MODBUS/TCP, DNP3.0, IEC61850®.
- Modules available for connection via RS232, RS485, Ethernet, PSTN modem and GSM or CDMA wireless modems.

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