

# Kelman Perception Commander\* Transformer Management Software

# fact sheet

## What is Perception Commander?

Perception Commander is an advanced software platform designed for Engineers/Asset managers to monitor their power transformer fleet. With a fully integrated approach Perception Commander collects measurement data and assists the user to **make decisions based on reliable information**.

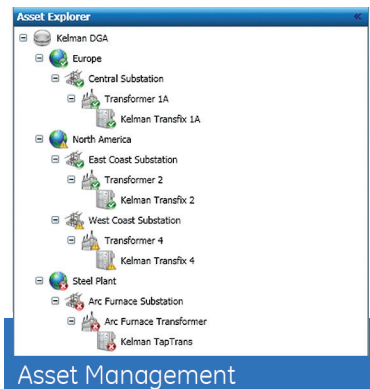
### Key features:

- Fully automated DGA data download
- Alarm notification system
- Simplified trending to advanced diagnostics
- Intuitive/configurable interface

With a simple user interface, sophisticated diagnostic tools and flexible tree structure for viewing the network, Perception Commander allows the user to **manage individual transformers up to complete power systems**.

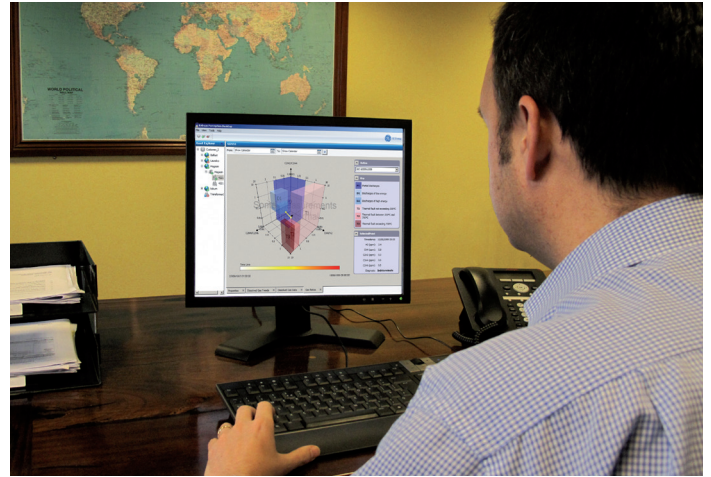
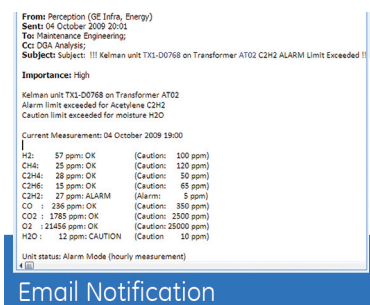
## Asset Management

Create your network and quickly view its status.



## Alarm Management, Email & SMS Alerts

Emails and SMS alerts outline the current state of the transformer, indicating the nature of the event – Alarm, Caution or a return to the OK state providing numerical details of the gas levels and historical measurements.

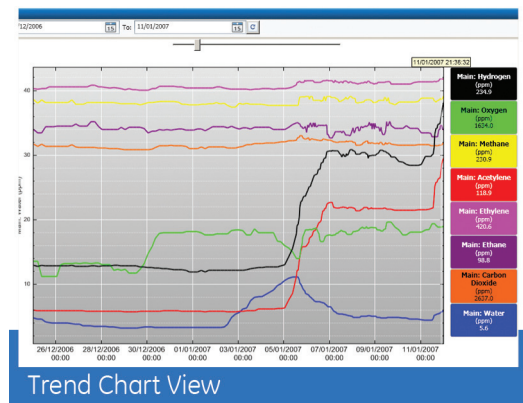


## Data Acquisition

Perception Commander's built in scheduling automatically downloads results, populating a centralised database allowing instant user access.

## Data Display

Using the Asset Tree, the user can select a transformer and view the data in various formats to identify trends.



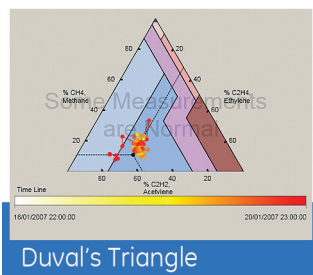
Plot gas levels against load and other sensor readings.

Timestamp	Mainc Hydrogen (ppm)	Mainc Oxygen (ppm)	Mainc Methane (ppm)	Mainc Acetylene (ppm)	Mainc Ethylene (ppm)	Mainc Ethane (ppm)	Mainc Total Dissolved Combustible Gas (ppm)	Mainc Carbon Monoxide (ppm)	Mainc Carbon Dioxide (ppm)	Mainc Water (ppm)
5/13/2009 5:00 PM	372.0	29999.5	91.0	48.8	94.6	62.2	708.7	80.1	269.5	26.1
5/13/2009 4:00 PM	373.1	30002.2	90.1	49.1	94.3	62.3	709.0	80.1	269.9	26.1
5/13/2009 3:00 PM	375.4	29991.7	91.8	49.3	95.1	62.0	712.5	80.8	277.9	26.1
5/13/2009 2:00 PM	368.7	30035.2	92.4	49.1	93.3	61.6	703.3	80.1	270.8	26.2
5/13/2009 1:00 PM	368.6	30010.4	90.7	49.0	93.7	63.0	705.3	80.2	276.4	26.2
5/13/2009 12:00 PM	371.1	30022.8	91.0	49.2	95.3	63.6	710.3	80.2	282.4	26.3
5/13/2009 11:00 AM	366.9	29998.4	91.0	49.2	95.6	64.1	707.0	80.2	289.6	26.3
5/13/2009 10:00 AM	365.5	29956.8	91.6	49.6	96.0	62.7	705.5	80.2	280.1	26.6
5/13/2009 9:00 AM	363.9	29940.0	91.0	49.4	95.7	61.1	701.1	80.1	285.9	26.7
5/13/2009 8:00 AM	363.9	29899.3	91.4	49.5	95.9	60.7	701.6	80.3	283.2	26.8
5/13/2009 7:00 AM	361.9	29816.9	90.8	49.7	95.7	62.2	700.3	80.1	285.8	26.9
5/13/2009 6:00 AM	366.9	29783.3	91.2	49.4	96.2	62.4	695.7	79.6	285.4	27.1
5/13/2009 5:00 AM	368.5	29805.1	90.6	49.4	96.8	66.6	701.9	79.9	284.2	27.0
5/13/2009 4:00 AM	368.8	29763.9	91.1	49.6	96.5	66.3	702.3	79.8	281.2	26.5
5/13/2009 3:00 AM	361.5	29765.3	91.2	49.7	97.0	65.2	704.6	80.0	281.5	26.8
5/13/2009 2:00 AM	360.8	29792.3	92.3	49.7	96.8	61.6	701.0	79.7	282.4	26.7
5/13/2009 1:00 AM	365.0	29780.7	91.2	49.9	96.7	65.8	708.7	80.1	284.8	26.6
5/13/2009 12:00 AM	365.1	29717.7	91.2	50.0	96.3	62.8	706.6	80.2	284.4	26.5
5/12/2009 11:00 PM	364.1	29791.8	91.8	49.7	97.0	65.5	708.1	80.0	284.4	26.4
5/12/2009 10:00 PM	366.6	29779.0	91.7	50.0	97.1	67.0	712.8	80.4	286.9	26.3
5/12/2009 9:00 PM	368.5	29815.8	91.6	50.1	97.0	64.7	713.4	80.4	288.5	26.2
5/12/2009 8:00 PM	368.3	29830.7	92.7	50.1	97.1	64.9	713.8	80.7	286.9	26.2
5/12/2009 7:00 PM	367.2	29882.2	91.9	50.2	96.3	65.3	711.6	80.7	282.2	26.2
5/12/2009 6:00 PM	369.9	29936.5	93.1	50.5	97.5	63.0	715.0	81.0	286.4	26.2
5/12/2009 5:00 PM	371.8	29960.7	92.5	51.0	94.8	66.6	721.8	81.7	286.6	26.3
5/12/2009 4:00 PM	372.5	29997.4	94.6	51.0	97.2	63.9	720.7	81.6	288.0	26.4
5/12/2009 3:00 PM	368.1	30001.1	92.1	50.5	96.8	63.7	711.6	80.5	286.2	26.5
5/12/2009 2:00 PM	367.9	29999.7	92.7	50.6	95.6	60.9	708.5	80.9	286.0	26.6

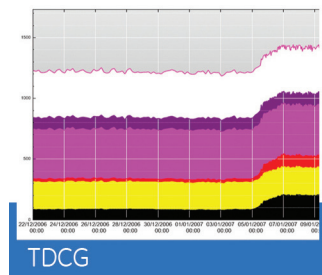


When Caution and Alarm limits have been exceeded, Perception highlights these using a predefined colour coding system.

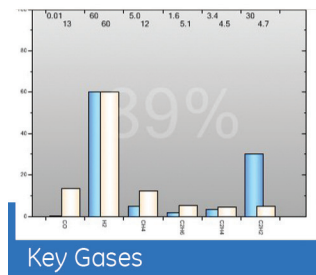
# Analysis/Diagnostics - Transformer diagnostics; using IEEE® C57.104 and IEC® 60599



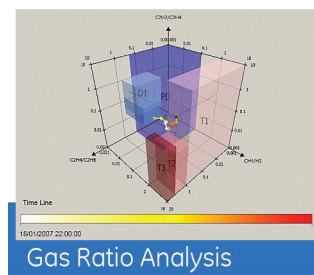
Duval's Triangle showing fault development.



Visual analysis of critical combustible gases over time.

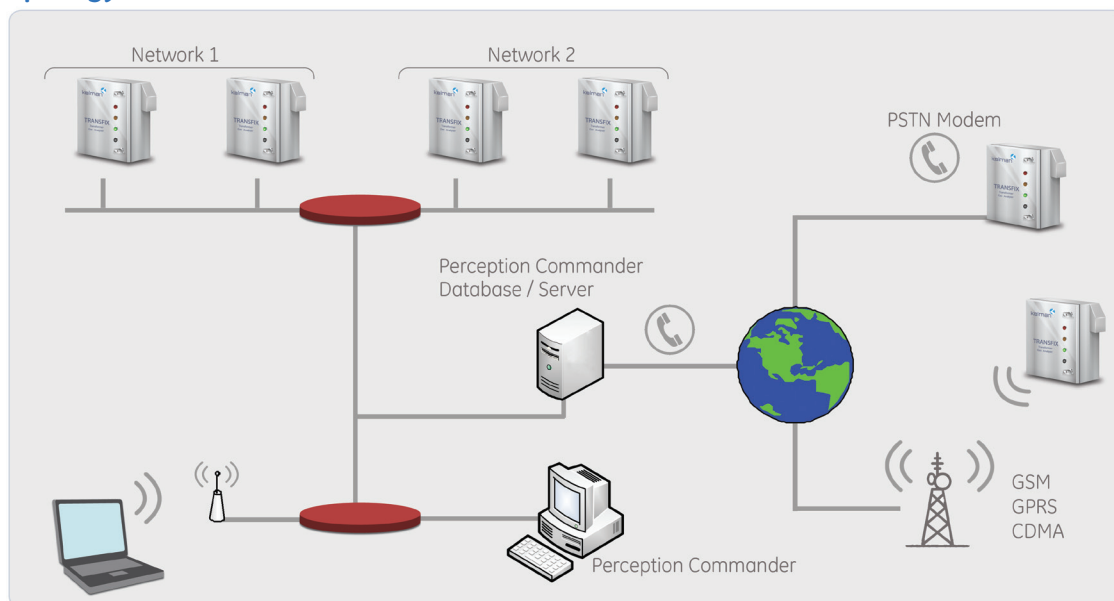


Plot data on industry standard Key Gas diagrams.



Built in IEC and IEEE standards.

## Network Topology



Supports SQLite and SQL Server® 2005 and 2008. Extensive local and remote communications options – all major protocols and carriers supported.

## Perception Express

Supplied with each unit, Perception Express has a reduced feature set and is designed for the individual user with a small number of online monitoring units. Perception Express provides all the important features required for the management of your transformer assets.

## Available Languages

Perception Commander is available in the following languages:

- English
- French
- Spanish
- German
- Chinese
- Russian

## Computer Specifications

### Client:

- 1 GHz 32-bit (x86) or 64-bit x64 processor
- 512 MB of system memory
- 20 GB hard drive with at least 15 GB of available space
- Microsoft® .NET Framework 3.5 - Service Pack 1

### Server:

- 3GHz 32 bit Core 2 Duo processor
- 4GB Ram
- 300GB HDD

Feature Program	Express	Commander
Asset Management	Yes	Yes
CSV Import/Export	Yes	Yes
Trending	Yes	Yes
Diagnostics/Analysis	Yes	Yes
Alarm Limit Sync	Yes	Yes
Alarm Notifications	No	PPM/ROC†
Multiple Language	Yes	Yes
Multiple Protocol	Yes	Yes
Data Download	Manual	Automatic
Database	Local	Server

† parts per million / rate of change

Kelman Perception is designed for use with GE Energy Kelman Products: TRANSFIX\*, MULTITRANS\*, TAPTRANS\*, MINITRANS\* and TRANSPORT X\* with support for GE Energy Hydran\* & Intellix MO150\*.

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