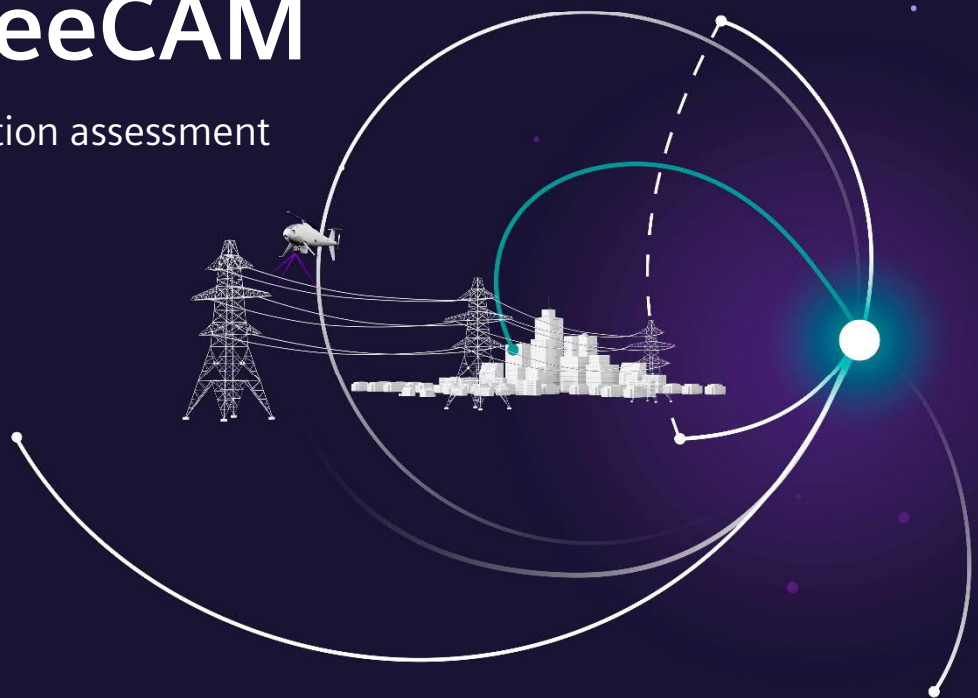


# SITRAM FreeCAM

Your free of charge condition assessment management system



[siemens-energy.com/t-service](https://siemens-energy.com/t-service)



## Introduction

Transformer oil, like the blood for the human body, can be a key source of information, when assessing the condition and health of a transformer. Through regular or condition-based Dissolved Gas Analysis (DGA) of the transformer oil, its operators and owners get insights on the health status of a transformer and the development of it. That is why DGA of transformer oil are at the center of regular diagnostic activities for transformers.

However, the DGA results are often hard to interpret, to track, and to compare. International standards, like IEEE or IEC, help to set transformer DGA results into perspective. But still the interpretation of DGA results is influenced by the knowledge and experience of the transformer operator or owner, or the laboratory providing transformer oil DGAs.

SITRAM FreeCAM provides a free of charge solutions for recording, managing and interpreting DGA results. It offers not only a user-friendly possibility to map your transformer fleet with key details and visualize them via Google Maps. It also provides automatized interpretation of DGA results based on IEEE and IEC standards and gives recommendation for service activities.

Up and above SITRAM FreeCAM serves a platform to manage and analyze sound recording of transformers in order to identify Direct Current (DC) bias at the transformer. Together with the Direct Current Detector (DCD) app,

FreeCAM provides an indication, if a transformer suffers from DC bias or not, outlines the diagnosis and gives recommendations.

## Features

SITRAM FreeCAM offers a unique bundle of features tailored for transformer asset operators and owners to cope with basic transformer conditions assessment needs. Its features include:

### Transformer information database

Registration of multiple substations and transformers with various details, like

- Label,
- Year of manufacturing,
- Application,
- Design,
- Rated power,
- Rated voltage (MV, LV),
- Manufacturer, and

listing of all substations and transformers with key details.

### Tracking and recording of oil analysis

Recording of multiple oil analysis for each transformer with a vast variety of specifics grouped under various chapters, like

- Oil sample information,
- Process information,
- DGA,
- Furane/ DP, and
- Oil parameter.

Over and above, the standards and the test methods out of the SITRAM FreeCAM database can be selected for each DGA value.

### DGA status evaluation

- Out of the entered DGA results SITRAM FreeCAM evaluates the DGA condition status considering public domain knowledge, like IEC or IEEE standards.
- The DGA status is indicated via a simple and transparent color signal in the transformer overview list.
- When the signal is yellow or red further service recommendations are given.

### Oil trend visualization

- The entered DGA values can be visualized with multiple charts, like Duval Triangle or trend graphs.
- Tailored trend charts can be created or selected from pre-defined profiles.

### DC sound analysis

- Multiple sound spectrum analysis for each transformer can be recorded using the Direct Current Detector (DCD) app.
- SITRAM FreeCAM analyses each recording provides detailed diagnosis on DC bias and gives service recommendations.

### Google Maps overviews

- All transformers are plotted on Google Maps with color indications for DGA status and DC bias.
- Easy navigation to transformer details with a dynamic link-up to the transformer overview grid.

### Export your fleet data

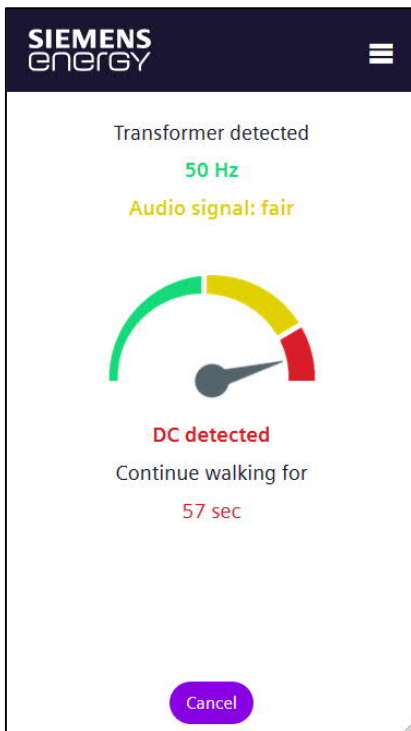
- Tailored transformer fleet overviews can be created and export via CSV files.
- The CSV files may then be used in multiple ways, like company presentations, MS-Excel overviews, or as upload to other data management systems.

### A strong team

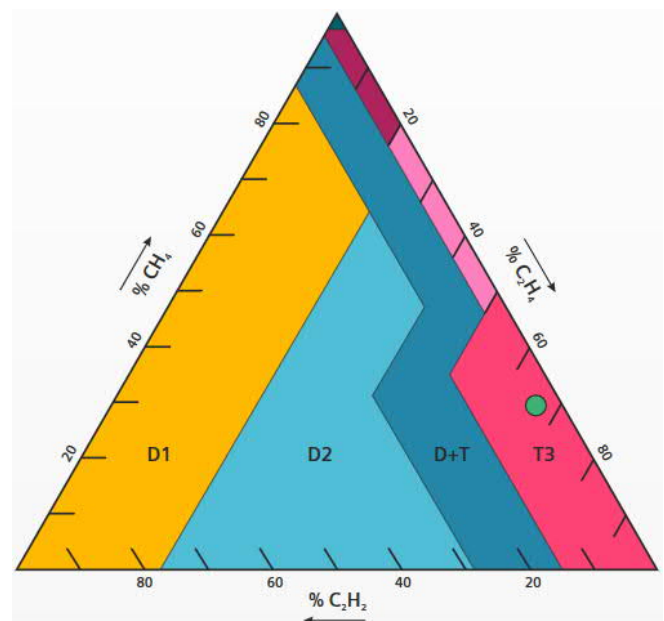
SITRAM FreeCAM and the DCD app are one of many pillars of the Siemens Energy Transmission Service condition assessment portfolio for transmission assets. Our diagnostic experts and our global service network provide transmission asset operators and owners the best available assessment of their fleet. Out diagnostic service SITRAM DIAG provides services, like:

- Visual inspection and thermography,
- Expert DC audio analysis,
- Electrical and mechanical stresses analysis,
- X-Ray diagnostics, or
- Site Acceptance Tests (SAT).

Get in contact now to benefit from more than 100-year experience of a leading transmission asset OEM.



Direct Current Detector – app and link (open with a mobile device - Google Chrome or Safari preferred)



SITRAM FreeCAM – DGA result visualization with Duval Triangle

## Fleet overview

DGA status map   DGA status bar chart   DC bias map   DC bias bar chart

The DGA status evaluation is based on public domain knowledge (IEC and IEEE). It is automatically created without any expert consultation.



SITRAM FreeCAM fleet overview – DGA status map

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