

# SIEMENS

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## Assetguard GDM



### Gas Density Monitoring for Gas Insulated Switchgear

#### Introduction

The recent European and North American legislation has focused on greenhouse gases such as SF<sub>6</sub>, with the target of reducing emissions to 0,5% per annum.

As a result, gas density monitoring is essential to improve leakage visibility, notwithstanding the superior performance of modern GAS Insulated Switchgear (GIS).

Siemens Assetguard GDM takes care of the actual SF<sub>6</sub> gas condition and support managing a more dynamic and extensive network where conventional routine inspections are not viable such as offshore installations.

#### Features

- With its state-of-the-art web based user interface it provides Single Line Diagram view (SLD) for easy localization.
- Gas Density Measurement with high accuracy, recognition of trends and prediction of intervention dates.
- Overall SF<sub>6</sub> gas inventory
- Data storage for expert analysis
- Alarm forwarding to Siemens Customer Support Center
- Easy navigation to investigate actual condition or an alarm status.
- Simultaneous access of different users, even on mobile devices without disturbing other systems for control, protection and automation.

- Reuse of graphical web elements in other applications
- Multilanguage and user based permissions

#### Benefits

- Early warning in case of SF<sub>6</sub> gas leakage
- Support of maintenance planning
- Gas inventory for asset managers
- Facilitate the integrability ( e.g. in SCADA Systems or Asset Management Platforms) and usability in current utilities networks
- Easy involvement of Siemens Customer Support

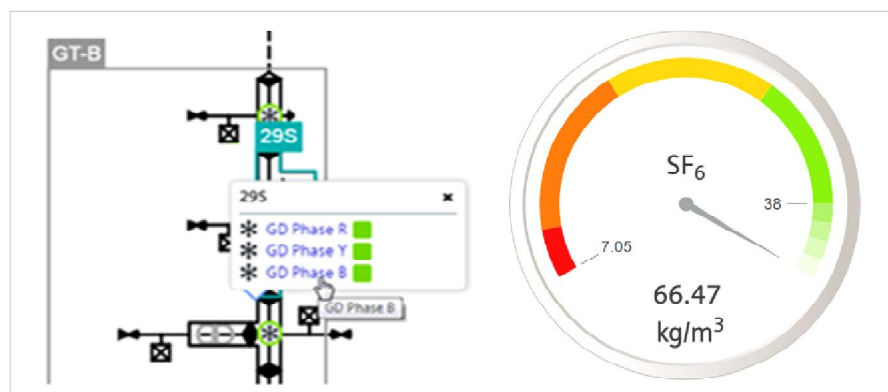
#### Scope of Work / Deliverable

Assetguard GDM has been specifically designed for Gas Density Monitoring in harsh substation environments. Besides complying to superior EMC and

environmental standards, the sensors operate with a 4 to 20 mA current loop technology for high noise immunity.

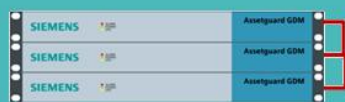
A single Assetguard GDM field device can connect up to 48 sensors providing a cost efficient channel per device ratio. Multiple field services can be seamlessly combined resulting in a full SF<sub>6</sub> inventory management system capable of providing:

- Near real time data visualization
- Alarming based on actual measurements
- Advanced warning of SF<sub>6</sub> leaks (predictions)
- SF<sub>6</sub> Gas inventory
- SF<sub>6</sub> trending and inventory data
- Metric and Imperial unit conversion
- Network Time Protocol (NTP) server time synchronization
- Communication Protocols (Slave DNP3)

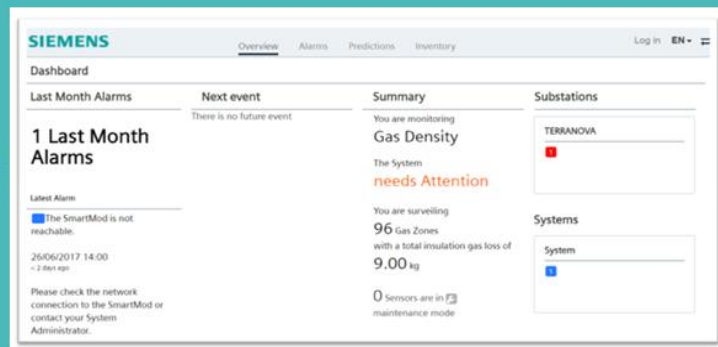
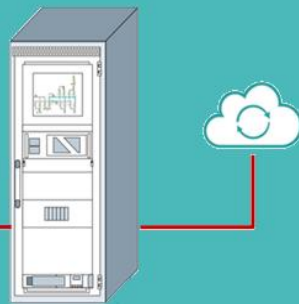


Easy localization and assessment of Gas Density values.

All the collected data is stored and displayed in a single web based user interface



Assetguard Field Devices



Integrated Substation Condition Monitoring (ISCM)

## Technical Details

### Near Real Time Data Visualization

Real time Gas Density data is gathered and visualized in a classic gauge view, including the different allowed limits for the Gas Density and its predicted dates. The gas pressure is included as well as additional measurement.

### Alarming based on actual measurements

Pre-set thresholds defined by the user, can automatically trigger different types of alarms. Operators can easily identify the location of the generated alarms, either by scrolling over the new hierarchical navigation view, or by taking a look on the usual Single Line Diagram.

Additionally the Users can manage the produced alarms in a list format with all the relevant alarm information.

Users with the proper permissions are allowed to 'Acknowledge' a specific alarm. If it is desired all users are able to download the alarm list for a specific monitored gas compartment or for the complete substation, getting an Excel or PDF file.

### Alarm forwarding

The Alarms can be forwarded to Siemens Customer Support Center for expert review using an existing internet connection and email client. Alternatively an automatically generated QR-Code can be used to send the alarm via any mobile device.

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### Advance Warning of SF6 leaks

A key aspect of the Assetguard GDM system is its capability to determine when the critical gas levels are going to be achieved in the future. The predictions for the complete substation are easily managed employing a common Calendar visualization.

### SF6 Gas Inventory

SF6 Gas losses reports can be easily delivered, thanks to the automatically generated SF6 Reports function.

Depending on the selection of the Hierarchical Navigation View, the Customer could get a report in a substation level or per single gas zone. The Gas Inventory can be exported as an Excel or PDF file.

### SF6 Gas Historical Data

Selecting a user-defined time period, trends can be identified for each one of the measurements (i.e. Gas Density and Gas Pressure) in the Historical Data view.

Users with the proper permissions are able to download the data that is displayed in the chart as an Excel or PDF file.

### Metric / Imperial Unit Conversion

The Measurements are going to be displayed either in Metric (e.g. kg/m3) or Imperial (lb/ft3) Units. All the stored data is stored in both Units, so that the user can get historical data based on the unit selection.

### Internal System Alarms

When there is no sensor connection, or if the gathered data is not valid, the Assetguard GDM will inform the user in a form of system alarm.

### Maintenance Mode

In order to avoid false alarms during services activities on the GIS, sensors can be easily set to maintenance mode.

### Environmental Standards

-25°C to 55°C (operating)  
-40°C to 70°C (non-operating)  
-95% RH, 55°C

### EMC Compliance

IEC 61000-6-5  
IEC 61000-4-2  
IEC 61000-4-3  
IEC 61000-4-4  
IEC 61000-4-5  
IEC 61000-4-6  
IEC 61000-4-18  
BS EN 55022 CISPR 22



Siemens AG  
Energy Management  
Humboldtstr. 59  
90459 Nuremberg  
Germany

Customer Support Center  
Phone: +49 (911) 433 78 78  
E-mail: support.energy@siemens.com

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