



ISCM – GIS Monitoring

Making sure reliability and availability stay high while reducing operating costs

Answers for energy.

SIEMENS



ISCM – GIS Monitoring

Keeping availability high and reducing operating costs

Gas-insulated switchgear substations (GIS), perfectly fit for switchgear applications where compactness and low maintenance count also ensure a high level of availability and reliability. Nevertheless, maintenance and repair cannot be entirely disregarded. Fault-preventive diagnostics and online monitoring will definitely turn into an issue for over-age substations. For newly commissioned substations, monitoring will be the base for condition-based maintenance strategies and therefore for considerable cost reductions during operation.

Specific methods for live monitoring of devices that are difficult to reach

The characteristic metallic encapsulation of GIS makes live and on-line inspections and other typical measures of precaution a little more difficult than for open terminal substations. Further, the increasing compactness of GIS makes it difficult to reach every single device or compartment. This is why we offer specific devices and methods for monitoring GIS, which is one of the modules of ISCM, our integrated and flexible solution for energy networks. ISCM covers all relevant components of your electricity supply network – from transformers and switchgear to overhead lines and cables – all monitored, analyzed, and visualized with one system. It can be seamlessly integrated in the existing substation infrastructure. ISCM thus contributes substantially to reliable network operation and management. All relevant data is well documented and stored for further investigations and as reference for future surveys regarding similar conditions and events.

SF₆ pressure and density

All GIS substations are divided into individual gas compartments, each with its own SF₆ handling and monitoring unit. Density switches provide alarm and operational signals at preset SF₆ trigger levels. With additional SF₆ density sensors,

further processing in a digital control or monitoring system could provide remote indication of actual density or pressure at 20°C.

Partial discharge

With the Partial Discharge Monitoring System, partial discharge data can be collected, processed, recorded, and indicated online and from multiple points in the GIS system. Pre-warning on overstrained insulation materials during temporary overload conditions is thus made possible. Gradual or rapid degradation in insulation quality – not only within the GIS but also in cable-sealing ends or transformers – can also be detected.

Reliable diagnostics with advanced knowledge modules

A fast, high quality decision making process regarding further actions in case of alarm signals and warnings is supported by knowledge modules for GIS-specific input values and respective outcomes. Based on the input values, processor-based expert systems will group all related data and records for an event. They will generate tendency indications, help to decide whether an alarm needs immediate action or scheduled maintenance, and provide guidance to fault locations as well as adequate risk assessment.



Gas-insulated
switchgear
for primary
distribution systems

Your benefits at a glance

The metallic encapsulation of GIS provides proper sealing, but on the other hand it complicates live and on-line inspection as well as other typical precaution measures common with air-insulated switchgear. GIS monitoring offers the appropriate remedy along with additional benefits:

- even further improvement of GIS reliability by detection of pending failures
- avoidance of even short-time supply interruptions
- reduction of unexpected outages
- planable shutdown times in line with maintenance strategy
- reduced repair costs as repair works become planable
- shorter repair times, as delivery time for material often exceeds 12 months

Published by and copyright © 2009:
Siemens AG
Energy Sector
Freyeslebenstrasse 1
91058 Erlangen, Germany

For more information, please contact
our Customer Support Center.
Phone: +49 180 524 70 00
Fax: +49 180 524 24 71
(Charges depending on provider)
E-mail: support.energy@siemens.com

Power Distribution Division
Order No. E50001-G730-A132-X-7600
Printed in Germany
Dispo 19210, c4bs No. 7824
fb 1770 61/20160 480484 WS 04093.

Printed on elementary chlorine-free
bleached paper.

All rights reserved.
Trademarks mentioned in this document
are the property of Siemens AG, its affiliates,
or their respective owners.

Subject to change without prior notice.
The information in this document contains
general descriptions of the technical options
available, which may not apply in all cases.
The required technical options should therefore
be specified in the contract.