

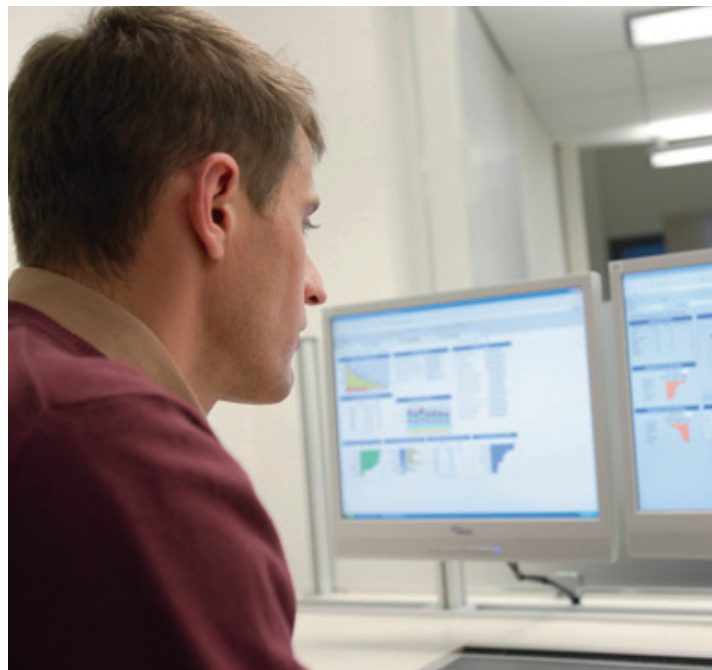
Integrated Substation Condition Monitoring, ISCM

A wealth of information and recommended actions for reliable decision-making



Answers for energy.

SIEMENS



Integrated Substation Condition Monitoring

For reliable energy supply and entrepreneurial success

Reliable energy supply is the key to success for each enterprise in a globalized industrial world. Grid owners and utilities today face a number of unique challenges: expenditure is being cut, and knowledge and expertise is lost when people retire or through downsizing. Furthermore, operating aging equipment at higher levels affects lifespan and reliability. Yet, utilities are expected to maintain the same level of performance.

Condition Monitoring provides the answer. It is an important element of asset management and operation support – beneficial for both the environment and the business.

Condition monitoring is indispensable if you want to optimize the efficiency of your existing network. Managers and operators need access to reliable condition data to know which network components have to be manufactured, repaired, or even replaced. Monitoring allows you to make well-founded decisions, and thus to optimally manage your assets and support your operations. The lifetime of your existing infrastructure is extended, which is beneficial to your business as well as to the environment.

ISCM provides a highly reliable solution, based on expert knowledge and advanced technology. With its unique proficiency and experience along the entire energy conversion chain, Siemens is ideally positioned to supply a sophisticated comprehensive monitoring concept that covers all equipment present within the power supply network – from the substation to the cables and overhead lines.

Siemens is both a leader in energy technology, manufacturing almost all network assets, and the world's leading supplier of automation equipment. Due to its vast experience, Siemens has a unique expertise in consistent and reliable analysis, monitoring, and control of grid assets.

With ISCM Siemens provides asset condition information through a comprehensive range of innovative tools for diagnostic analysis. Through prediction and prevention of equipment failures, ISCM protects your company's image as well as your investment. The integrated monitoring system guarantees minimum downtime, maximum asset performance, and reduced life cycle costs. ISCM is a fundamental prerequisite for securing your required performance level and with it long-term entrepreneurial success.

The modules of Integrated Substation Condition Monitoring, ISCM

Transformer Monitoring

Improved transformer operation and maintenance through comprehensive status data.

GIS Monitoring

Innovative analysis algorithms make possible the precise insight into equipment which is difficult to inspect.

Circuit Breaker Monitoring

Preventive fault detection within one of the core elements of a network system.

Isolator- and Earthing-Switch Monitoring

Performance monitoring for safe operation.

Overhead Line Monitoring

Increased transmission capability through optimized rating.

Cable Monitoring

Sophisticated diagnostics for prolonged service life to prevent expensive repairs.

Surge Arrester Monitoring

Assessing the condition of usually underestimated devices to prevent expensive maintenance.

Current Transformer and Voltage Transformer Monitoring

Online-monitoring of sensitive current and voltage transformers in order to prevent costly repairs.

Balance of Plant Monitoring

Reasonable added value through monitoring of supplementary BoP equipment, especially batteries and diesel engines.

Secondary Equipment Monitoring

Monitoring of Control and Protection relays is easy to implement and complements ISCM to an all-in-one solution.



Maximized

investment utilization with Integrated
Substation Condition Monitoring

Highlights that convince:

- **Reduced life cycle costs**
through lower maintenance costs, reduced expenditure for spare parts, and extended component life
- **Maximized component life**
through consistent prevention of conditions that reduce the life expectancy of the equipment
- **Optimized performance**
through loading above 'book' rating
- **Minimized downtime**
through proactive repair planning based on information gained from asset monitoring
- **Reduction of insurance costs**
by demonstrating responsible custodianship over grid assets
- **Avoidance of penalties**
through effective prediction and prevention of equipment failures
- **Environmental benefits**
through prevention of environmentally hazardous conditions
- **Easy implementation**
in your existing substation infrastructure through modular design



Reliable decision-making based on integrated monitoring

From valuable information to well-founded decisions

Decisions concerning network configurations and structure, preventive maintenance, or reinvestments have a significant effect on the operating performance of the network components and on the operating costs of the network.

In order to facilitate decision-making, Siemens supplies the highly efficient Integrated Substation Condition Monitoring system. It provides both operators and asset managers with valuable data on the condition of selected substation components. These data are then diagnosed through innovative algorithms – knowledge modules, which allow for accurate evaluation of condition information and for predictive diagnosis.

Innovative modeling techniques enable the system to make effective recommendations, thus supporting optimal equipment performance and a considerable reduction in costs.

An integrated and flexible solution for each network

The Siemens ISCM solution customized to the individual requirements of your substation monitors all relevant components of your electricity supply network – from transformers and switchgear to overhead lines and cables. It can be seamlessly integrated in the existing substation communication and visualization infrastructure, from simple bay controllers to high-end control center applications. Siemens offers one integral solution for all network assets: 11 innovative monitoring systems survey every single element in your energy supply chain.

ISCM comes with sophisticated modeling techniques for all considered primary asset types, and each module focuses on improving performance and reliability of the equipment as well as on the reduction of unscheduled downtime by monitoring and predicting equipment health. The ISCM systems are implemented in such a way that complete asset-related condition information is available to the operator and the asset manager in a consistent format. Thus, ISCM provides a major contribution to the optimal use of resources.

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