ISCM – Circuit Breaker Monitoring

A modular system designed to facilitate all measurements and optimally monitor performance

Answers for energy.
Circuit breaker performance monitoring

Circuit Breaker Monitoring 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. Thus, ISCM provides a major contribution to the 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.

In order to monitor the performance of the circuit breaker, key parameters, such as the contact separation speed and the operation time of the circuit breaker, are recorded. A range of transducers and transducer types provides the signal input to the specially designed signal conditioning modules. The signals are digitized at a frequency that provides sufficient sample points to allow accurate and early assessment of a developing problem.

Siemens circuit breakers offer the optimum technical and economical solution for every requirement. To ensure fault-free operation and efficient monitoring, we provide a Circuit Breaker Monitoring System. It can be applied to both air-insulated switchgear (AIS) and gas-insulated switchgear (GIS). The system is designed to facilitate all measurements associated with the operation of one bay of switchgear.

Automatic generation of alarms

The respective monitoring software has been designed to allow automatic generation of alarms, should any of the preset parameters exceed a user setting. The alarms can be user-set online to allow for a wide range of performance-related alarms to suit most circuit breakers.

Knowledge modules for specialized circuit breaker components diagnostics

Based on the input values, processor-based expert systems gather detailed information regarding operating times, operating speed, pole scatter, and, for example, switched currents during circuit breaker operation. The input values are measured, calculated, and stored to generate alarms. They are also evaluated and further processed, should some excessive variation in operational performance be detected. Arcing and prearcing times are also monitored and stored along with the effective arc energy for each phase to assist with assessment of contact wear.
Your benefits at a glance

- Reduction of unexpected outages
- Planable shutdown times in line with maintenance strategy
- Reduced repair costs as repair works become planable
- Securing operational reliability of the most important protection device in a power grid
- Implementation of condition-based maintenance based on real operational stress parameters