



SIEMENS
Ingenuity for life

Ensuring high switchboard availability

SIVACON S8 – temperature monitoring

Thermal monitoring

Faults and failures in low-voltage switchboards may be caused by poor contacts at busbar connections and cable connections. These are characterised in part by significant temperature rises that can result in destruction of the materials used, fire in the switchboard, and breakdown of the power supply. To detect this impermissible temperature rise, there are several possibilities. Periodical records of the switchboard using an infrared camera have been the easiest and most established method over the last decades. In the thermal image, possible local temperature rise can be easily recognised, but with ever higher demands for switchboard availability, this periodic inspection must be supplemented by permanent monitoring, e.g. via thermal sensors.

Flexible and cost-efficient solution

The feature package SIVACON S8^{plus} for the SIVACON S8 low-voltage switchboard includes different temperature monitoring sensors that can be installed directly at the point to be monitored, thus enabling permanent thermal monitoring.

Due to the integration of sensors in the SIMARIS control diagnostics station, problems can be detected long before a fault occurs in the switchboard.

Your benefit

- Thermal monitoring of electrical conductors and connections within the switchboard
- High flexibility thanks to a variety of sensor systems for every requirement
- Permanent monitoring to detect faults long before they occur



Installation example for IR temperature sensors for contact-free detection of the temperature development at the busbars

Safety as the primary objective

The SIVACON S8 low-voltage switchboard is a design verified power switchgear and controlgear assembly in accordance with IEC 61439-2. Design verifications – including temperature rise verification – are provided for SIVACON S8 by means of testing. The physical and electrical properties of the switchboard are verified during the development for both operation and failure situations.

The busbar screw joints implemented at the factory are maintenance-free. Faults are ruled out thanks to consistent quality checks during production, and routine testing of every switchboard before shipping. Busbar connections and cable connections established on site, however, require special attention. For busbar screw joints between transport units, for cable connection bars, or for individual requirements, SIVACON S8 offers economic and flexible solutions for temperature monitoring.

Intelligent technology

With flexible temperature monitoring solutions, the SIVACON S8^{plus} feature package adapts perfectly to specific requirements. The integration of rugged and cost-efficient sensors into the communication system of the switchboard allows for continuous data acquisition. Forwarding to the control system (SCADA) or the SIMARIS control diagnostics station enables the operating or service personnel to respond quickly to faults.

Your advantages

Simple and cost-efficient solution

The points to be monitored are often inside the switchboard. With today's compact design providing a high degree of internal separation, external inspection of many connection points from outside is no longer possible without having to remove covers and enclosure parts. From the personnel safety perspective, this is only possible when the switchboard is de-energised. Temperature monitoring with thermal sensors thus offers a decisive advantage. It can be done around the clock without the need to shut down the switchboard for inspection purposes.

High switchboard availability by preventive maintenance

Furthermore, the data is available continuously for display, analysis, and further processing in the control system or maintenance system. In this way, temperature monitoring creates a basis for condition-based and predictive maintenance to meet increasing demands for high availability of the switchboard.

Option from the feature package SIVACON S8^{plus}

Wired temperature sensors PT100 or PT1000

- Platinum temperature sensor in accordance with DIN EN 60751
- Design as ring cable lug or pin cable lug
- Simple mounting directly at the measuring point
- Rugged, simple sensor
- Cost-efficient, tested solution
- Connection to different device systems with PT100/PT1000 interface possible
- Low space requirements

Contact-free infrared temperature sensors

- Temperature sensor for contact-free temperature acquisition
- No voltage supply required for the sensor
- Maintenance-free sensor with life-long calibration
- Data cards for several sensors with communication interface

Subject to changes and errors.

The information given in this document only contains general descriptions and/or performance features which may not always specifically reflect those described, or which may undergo modification in the course of further development of the products. The requested performance features are binding only when they are expressly agreed upon in the concluded contract.

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