Application Description
AG/PS103-EN

Infrared Temperature Monitoring System in Medium Voltage Switchgear

Power/Steam Generation

Instrumentation Solutions

- Infrared temperature monitoring with infrared sensors
- Fast detection of the presence of a hot spot in an early stage
- Increasing of plant safety
- Decreasing of costs by routine checks of the contact points

ABB Instrumentation

1 The Problem

In busbar and circuit breakers faulty connections will lead to increased contact resistances at points of contact.

This entails strong heating up of the contacts and can even up to the explosion of the switchgear cabinet lead. From this the necessity for an economic temperature monitoring in the critical places mentioned results.

2 The Solution

By the employment of the central device SensyCal FCU400-IR in connection with infrared sensors to the contactless temperature monitoring a fast and reliable recognition of inadmissible rises in temperature is possible.

The immediate disconnection with shortest response times (< 1 second) is made possible thereby. An increase of the plant safety is the result.

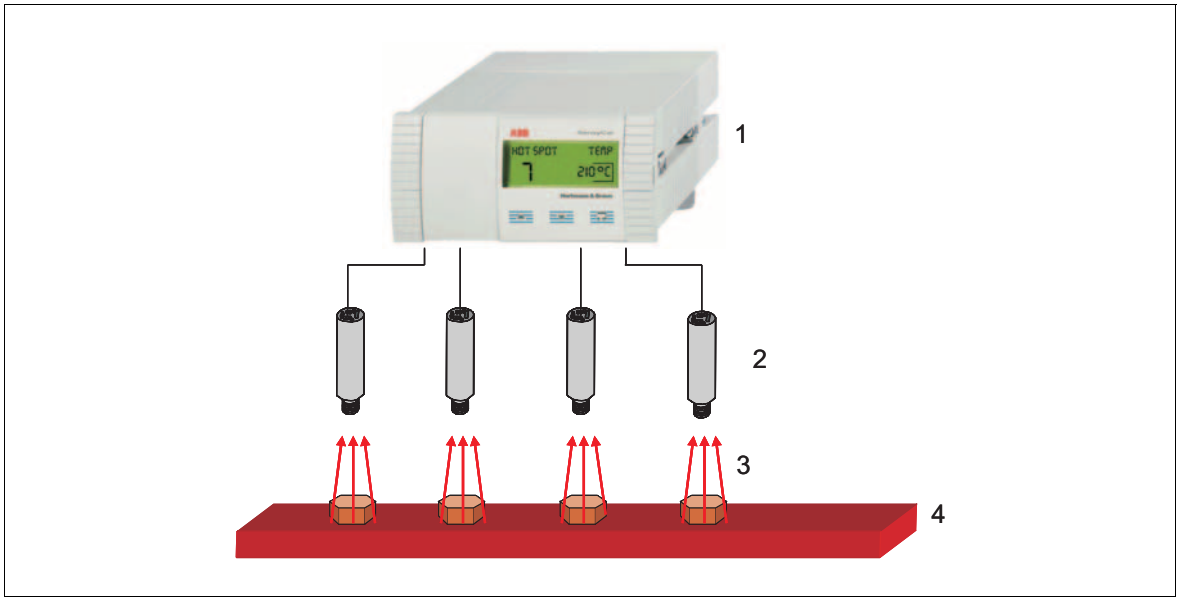

Bild 2-1: Operation diagram for infrared temperature monitoring

1 Central device
2 Infrared sensors
3 Point of contact
4 Busbar/circuit breakers

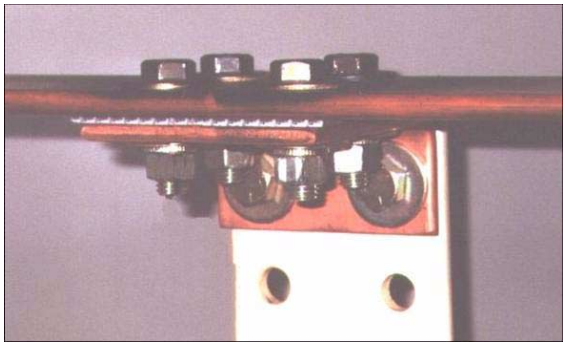

Bild 2-1: Points of contact in switchgear

The central device SensyCal FCU400-IR is completely provided with a metal housing and thus in its entirety protected from EMV interfering radiation. The execution as instrument panel housings permits the assembly in the switchgear cabinet door, whereby also an additional equipment is possible into already existing cabinets.

Bild 2-2: Installation the central device as panel mounting in switchgear

In a switchgear cabinet the monitoring of maximally 12 contact points is possible by infrared sensors with a central device. During limit value excesses of the temperature an alarm signal at the control or service centers is set off.

3 Advantages

By the described instrumenting in medium-voltage switchgears no additional routine examinations of the contact points are necessary. Thus a reduction of the costs is attainable in the maintenance range.

4 Features of the Components Utilized

Instrumentation	
	**Central device SensyCal FCU400-IR** • Installation into control panel • Metal housings with comprehensive EMV protection • 3 binary outputs for alarm, pre alarm and error signal • On site display for: – All current temperatures of the IR sensors with measuring point – Maximum temperature with measuring point designation – Equipment parameter (general parameters, communication parameter, hardware parameter) – MODBUS communication with RS485

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