

Application note

Holistic Residual Current Monitoring for data centres



Background

Residual current monitoring is common in many data centres and is often integrated into distribution boards or rack PDUs. However, this does not allow for a comprehensive assessment of the installation's condition. Without continuous monitoring from the distribution boards right through to the final circuits, operating staff are forced to rely on manual insulation tests when the system is switched off. Creeping or sporadic insulation faults often go undetected and increase the risk of power supply faults.



Requirement

We are seeking a solution that reliably detects leakage currents – whether gradual or sporadic – from the feed-in point right through to the final circuit during operation, and automatically generates early warnings before faults or failures occur. The measurement technology should also be easy to integrate into busbar systems.

Solution

Continuous monitoring using compact residual current monitoring modules at every level of the power supply system detects fault currents and provides early warning in the event of deviations from normal values. The measurement data is made available via Modbus RTU or integrated into existing DCIM/building management systems via a gateway. This ensures a high level of system transparency.

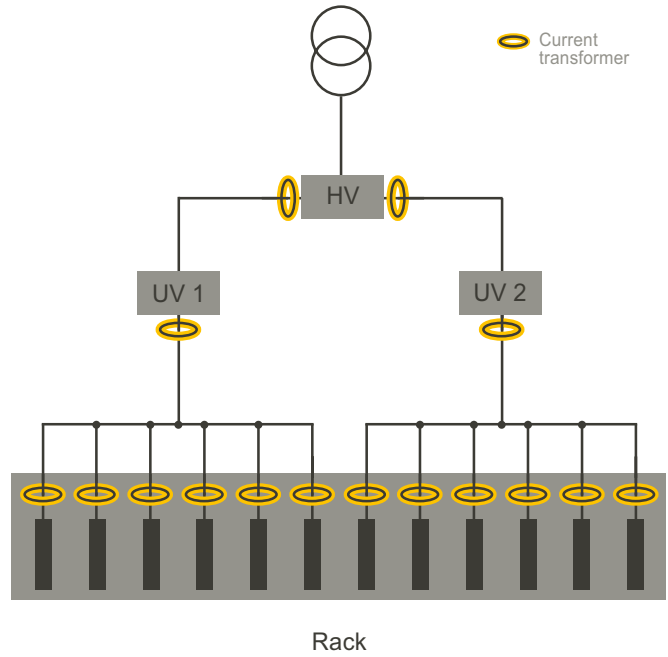


Objective

Ensuring 24/7/365 operation of data centres by detecting fault currents at an early stage at all levels of the power supply.

Result

- **Early fault detection:**
Problems caused by fault currents are detected during operation before they lead to malfunctions and failures.
- **Reduced probability of failure:**
Continuous monitoring and trend analysis reveal gradual changes in the condition of the installation.
- **Improved system transparency:**
Measuring at all levels of the power supply enables the fault to be pinpointed accurately.
- **Efficient maintenance:**
Early warnings and trend data reduce search times and enable targeted maintenance.
- **Easy integration:**
All measured values can be accessed centrally and are integrated into the existing monitoring infrastructure.



RCMB132



RCMB300 series



RCMS425



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