Paris Session 2022



Asset Performance Management Systems Requirements: High Voltage Circuit Breaker Monitoring features, hardware and architecture

B3: Substations and Electrical Installations
PS3: Integration of Intelligence on Substations
Q3. "What are the emerging requirements for asset performance management systems? What are the preferred hardware and software architectures? Are the planned benefits already recognizable regarding cost reduction for operation and maintenance and increase of reliability?"

Nicolas GADACZ, France



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1

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High Voltage Circuit Breaker Monitoring System for APM Minimum Required Features Example

- Computation of an accurate Health Index requires at least the standard versions of each of these features:
 - Gas monitoring
 - Operation Timings monitoring
 - Electrical Wear monitoring
 - Mechanical Drive monitoring
 - Control Circuit monitoring
- IEC61850 ed.2 compatibility
- Cybersecurity through hardware and software



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High Voltage Circuit Breaker Monitoring System for APM Specification example: local intelligence

- Sensors dedicated to the monitoring system are integrated in the Circuit Breaker during manufacturing
- Local intelligence collects sensor data and computes monitoring information to ensure quality, reliability, readability and security (gas thresholds for example) before sending to APM system



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High Voltage Circuit Breaker Monitoring System for APM Specification example: architecture

- Information can be accessed both locally and remotely (IEC61850), data is always accessible on the monitoring device
- **One single wire** connects to the Asset Performance Management system



Local Intelligence: -Optical fiber -1 single wire -Redundancy

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