SIEMENS

ELECTRIFICATION X

Network Fault Management

Feature: Overhead Line Fault Management

For fast and efficient fault localization of overhead lines

Modernization of distribution systems

A secure and reliable energy supply for utilities, industry and private customers is more in demand today than ever before. However, the existing distribution networks have so far been very limited in their ability to repair faults using automated and intelligent methods. When a fault occurs, the physical extent of these grids makes it difficult to isolate the exact location of the fault and usually requires significant time-consuming manual operations. Maintenance teams, have to check the status of the fault indicators along the overhead lines or substations one by one to locate and correct the fault - a not inconsiderable cost factor for distribution-network operators!

Fast and automatic fault localization

The Overhead Line (OHL) Fault Management automates the tasks of reporting and locating faults on overhead lines with the use of IoT-enabled devices coupled with Electrification X, our cloud platform. The platform ensures fast and universal access to all essential information from the overhead line network.

In our solution, the SICAM FCG (Fault Collector Gateway) and SICAM FSI (Fault Sensor Indicator) or SICAM FSI V2 (Master and sensors), which is designed for detecting fault currents in overhead line networks, communicates via a short-range wireless radio interface between the Master and the Sensors.

The SICAM FSI V2 (Master) sends measurements and events data to the cloud using mobile networks, leveraging LTE Cat 1 with 2G fallback for reliable communication. And SICAM FCG supports internally 2G (GPRS) communication for communication to Electrification X.

In case 4G communication is required, an external modem is needs to be connected. This seamless integration completes the circle for our Overhead Line Fault Management.

Your benefit

The OHL Fault Management is a Electrification X application for automatic fault detection and fault localization in overhead line networks.

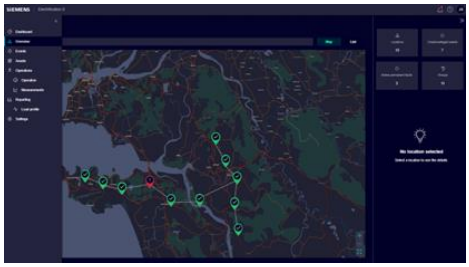
It supports you in reducing downtime and optimizing maintenance work. In a nutshell, OHL Fault Management is the basis for financial reduction for all distribution-network operators.

- Reduces costs through fast, efficient, and automatic fault location in your overhead line networks
- Easy to retrofit, even without enabling systems
- Excellent for impassable regions
- SICAM FCG for up to 9 SICAM FSIs or SICAM FSI V2 Master for up to 8 FSI sensors

Functions at a glance

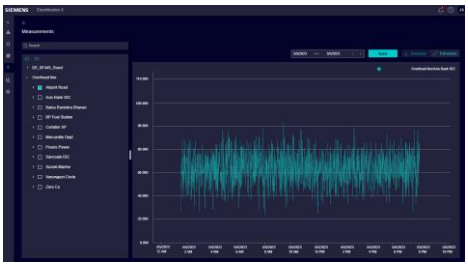
Overview

- SICAM FSI locations
- Fault locations
- Device-status updates
- Network-status updates



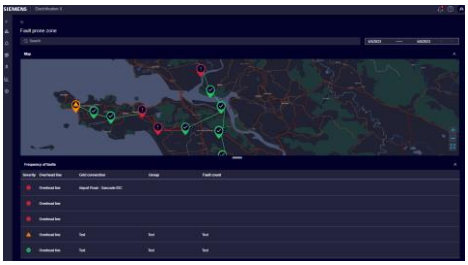
Measurement's view

- Analyze the performance of a feeder/(s) or a phase/(s) of the feeder
- Perform Load Analysis to assess utilization of grid sections using min, max and mean



Fault Prone Zone view

- Analyze temporary faults preemptively to prevent them turning into permanent ones

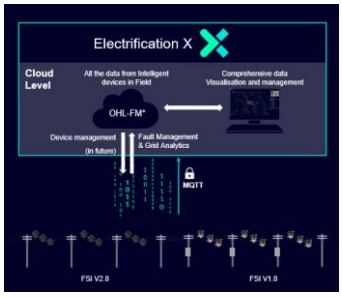


Analysis view

- Get transparency on fault logs history
- Enhanced grid reliability through improved maintenance planning strategies

Schematic diagram of the device placement

- SICAM FCG - mounted in a cabinet on the pole near to the SICAM FSI installation
- SICAM FSI - mounted on individual phases of the overhead line
- SICAM FSI V2.0 (M-Sensor) - mounted on one of the phases of the overhead line
- SICAM FSI V2.0 (C/D-Sensor) - mounted on the other phases of the overhead line
- Short range radio link between SICAM FCG and Sensors
- Mobile networks provide the connection to the cloud via MQTT (in Json format)
- OHL Fault Management – our product for the detection of fault currents in overhead line networks - can be used on desktop devices



Published by
Siemens AG

Smart Infrastructure
Electrification & Automation
Mozartstr. 31C
91052 Erlangen, Germany
For more information, please contact Customer Support:
siemens.com/energy-automation-support-contact

For the U.S. published by
Siemens Industry Inc.

3617 Parkway Lane
Peachtree Corners, GA 30092
United States