



# Improving Overhead Fault Detection

Most distribution faults and outages occur on overhead power lines. How can utilities locate faults quickly to restore power and reduce outage durations when these power interruptions occur? Strategic deployment of an intelligent line sensing solution on overhead lines enables improved fault detection and location for utilities. Granular, real-time data from line sensors provides enhanced views of distribution circuits and more precise location, reducing patrol and restoration times.

## Sentient Energy's Grid Analytics System™

Sentient Energy's MM3™ intelligent line sensors can be installed on overhead feeder lines with ZM1™ sensors for laterals and low load feeder segments. Both the MM3 and ZM1 sensors detect faults, send alerts, and capture fault waveforms at 130 samples per cycle. Fault notifications and data are sent from sensors to the Ample® Analytics Platform for visualization and analysis, and for integration into SCADA, OMS, or DMS systems.

### How It Works

Utilities can quickly narrow down fault location and direct crews to specific faulted segments with Sentient Energy's line sensors deployed throughout overhead distribution circuits. The following solution features allow for easy deployment so utilities can swiftly realize ROI:

#### 1. Integrated Communications –

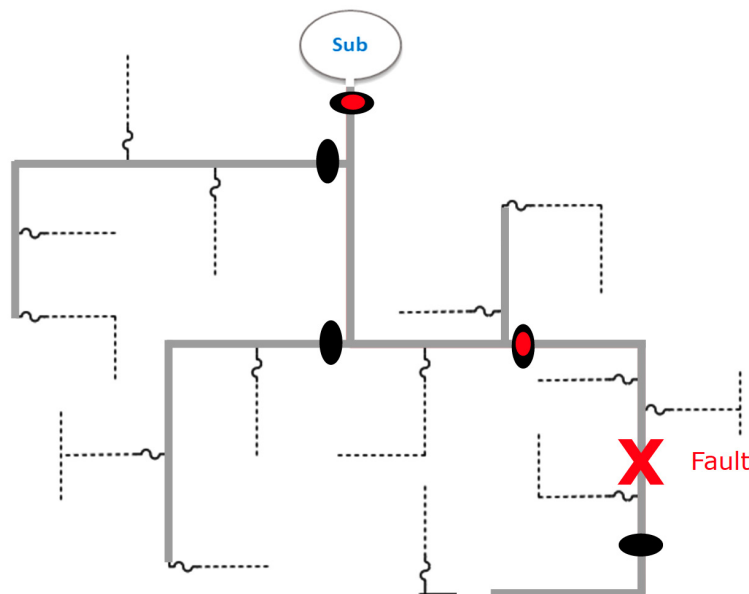
Sentient Energy's overhead sensors include built-in communications (cellular or RF Mesh). This simplifies deployment by eliminating the need for installation of communication gateways near each sensor location.

#### 2. Choice of sensor powering –

The MM3 sensor is line-powered and is deployed on feeder lines with 10A or more of continuous current. For laterals and low-load feeder segments, ZM1 line sensors are battery-powered.

#### 3. Support of dual DNP<sup>1</sup> Masters –

Sensors can immediately send fault information to both Ample software and directly to OT systems such as SCADA, OMS and DMS.



### Results

The Sentient Energy Grid Analytics System, comprising intelligent line sensors and the Ample Analytics software platform, is field-proven to enhance visibility of overhead lines, speed up fault location, and reduce outage durations by up to 20%.

<sup>1</sup>DNP/IEC 60870-5-104 through concentrator