Arc Flash Hazard Analysis

Improve electrical safety by assessing arc flash hazard risk level and recommending safety measures

Risk management and prevention have always been important aspects of safety programs within the electric industry. The proper assessment of arc flash risk level can help minimize operational downtime and ensure a safer work environment.

The Arc Flash Hazard Analysis module computes the necessary parameters required to assess the risk level and help you adopt the appropriate safety procedures in order to minimize the risks of burns and injuries to those working on or near electrical equipment.

As a module integrated in the CYME Power Engineering Software, it allows you to evaluate the risk of arc flash hazards on any part of your network. It calculates the short-circuit fault current using its robust short-circuit calculation algorithm, finds the clearing time from time-current curves of our extensive device library, and calculates the resulting incident energy and risk level.

The module is compliant with industry recognized standards and methods to perform arc flash hazard calculations for industrial, distribution and transmission systems. These standards are:

- NFPA-70E 2015©, Electrical Safety Requirements for Employee Workplaces

- CSA Z462, Workplace Electrical Safety Standard

- IEEE-1584™ 2011, Guide for Performing Arc-Flash Hazard Calculations

For the arc flash analysis in distribution and transmission systems, algorithms are available to cater for line-to-ground faults, which represent about 80% of the faults occurring on a distribution system. This added functionality facilitates the evaluation of arc flash hazards on any part of any network.

The algorithms are based on:

- NESC© 2012

- OSHA; to be used with single-phase arc in open air

- Lee Method

- Wilkins Method

- Heat Transfer Model, based on Heat Flux Calculations (Model published in Electrical Safety Handbook, by John Cadick, Mary Capelli-Schellpfeffer, Dennis K. Neitzel, published by McGraw-Hill Professional, 2001, Chapter 3.52)

The bus data of any network created with our software can be supplemented with Arc Flash related information such as working distance, bus gap, connected equipment and exposed circuit enclosed in a box or in open air. In addition, the Arc Flash module calculates the maximum bolted short-circuit levels at the desired work place (bus) for Arc Flash Hazard calculations.

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Arc Flash
Hazard Analysis

Model and include substations, sub-networks and secondary networks in your simulations.

Capabilities

- One-line diagram and user-friendly GUI for all systems

- Batch mode simulation that will allow the analysis for every bus in the network in one single simulation

- Short-circuit current can be calculated using ANSI® or conventional fault calculation methods. Using ANSI®, the reduced fault contribution of motors and generators are taken into consideration

- Machine and inverter-based DG contribution, and duration of contribution

- Multiple contribution calculation

- Calculation using default values depicted by standards, or using user-defined values

- Accurate opening time is obtained from the protective device time-current curve library

- The module is equipped with the automatic detection and validation of protection schemes in the network

- Option to select the fastest protective device according to the time-current curves of the devices available at a given simulation

- The display of results in a tabular report

- Possibility to generate required results in a chart

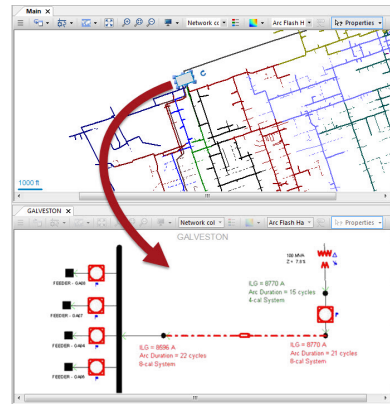- Result box for the visualization of results of selected points on the network
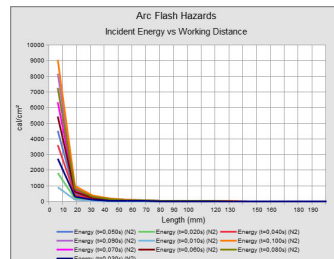
Warning Labels

The program generates warning labels that are ready to be printed and affixed to the electrical equipment. Different label templates are available, and it is also possible to create custom warning labels.

These warning labels include all the necessary information such as:

- Arc Flash Hazard boundary

- Incident energy

- Hazard/Risk category class

- Personal Protective Equipment (PPE)

- Potential shock hazard

- Limited, restricted and prohibited approach boundaries

- Equipment, node ID or downstream equipment identification

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