**CYME**
Power Engineering Software and Solutions

# CYMGRD 7.0 New Features

## Efficient and robust substation grounding analysis

CYMGRD 7.0 combines industry-led features and engineering know-how to deliver a solution for the safe and optimal design of new grids and the reinforcement of existing grids.

CYMGRD 7.0 offers a wide range of enhanced capabilities, featuring new modules, new functionalities and advanced computations:

- New Safety Assessment Module.
- Enhanced Soil modelling capabilities.
- Updated Reporting Options

**Safety Assessment Module**

In addition to being compliant to the updated IEEE-80™ 2013 standard, CYMGRD 7.0 now offers safety assessment estimation methods that are more compliant with the recommendations and practices of other national and international standards.

These standards provide empirical formulae for the calculation of the tolerable touch and step voltages and are as follows:

- BS™ 7354 (1990), British Standard Code of Practice for Design of high-voltage open-terminal stations.
- EA-TS™ 41-24 (1992), British Electricity Association Technical Specification Guidelines for the Design, Installation, Testing and Maintenance of Main Earthing Systems in Substations.
- CENELEC™ HD 637 S1 (1999), European Committee for Electro-technical Standardization of Power Installations exceeding 1 kV a.c.
- IEC Std. 60479©, as it relates to the Effects of current passing through the human body, General Aspects, Technical Specification IEC/TS 60479-1© Edition 4 (2005) and Touch voltage threshold values for physiological effects, Technical Report IEC/TR 60479-5©, Edition 1 (2007).

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### Soil Analysis

Enhancements to the Soil Analysis module of the software include:

- Data entry based on the unequally spaced or Schlumburger-Palmer Measurement method. This offers the flexibility of selecting between this and the equally spaced Wenner method.
- Both resistance and resistivity values are now displayed when entering the soil measurement data. If resistance is selected as the preferred data entry method, then the resistivity column will be grayed out yet the numerical value is updated accordingly.
- Capability to enter and batch run the analysis for up to six soil measurement axes for the two layer soil model resistivity estimation. This will allow the user to select the most appropriate soil model that can provide the most conservative safety design criteria.

### Enhanced Reporting Capabilities

- Export all reports to Excel® spreadsheets with one click of the mouse.
- Generate a hard copy of all analysis results in one complete report. This report will include the Station Layout, Soil Analysis, Safety Criteria, Ground Resistance and Potential Rise along with all the contour plots relating to the study.

### Additional Features

- New asymmetrical hollow conductor data entry tab to facilitate the modelling of underground pipes as distinct electrodes that are in the vicinity of the substation.
- The Surface Layer Materials now include the Canadian Electrical Code Table 52 values for covering materials such as wet, moist, dry soil and crushed rock.
- Conductor database augmented with kcmil sizes.

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