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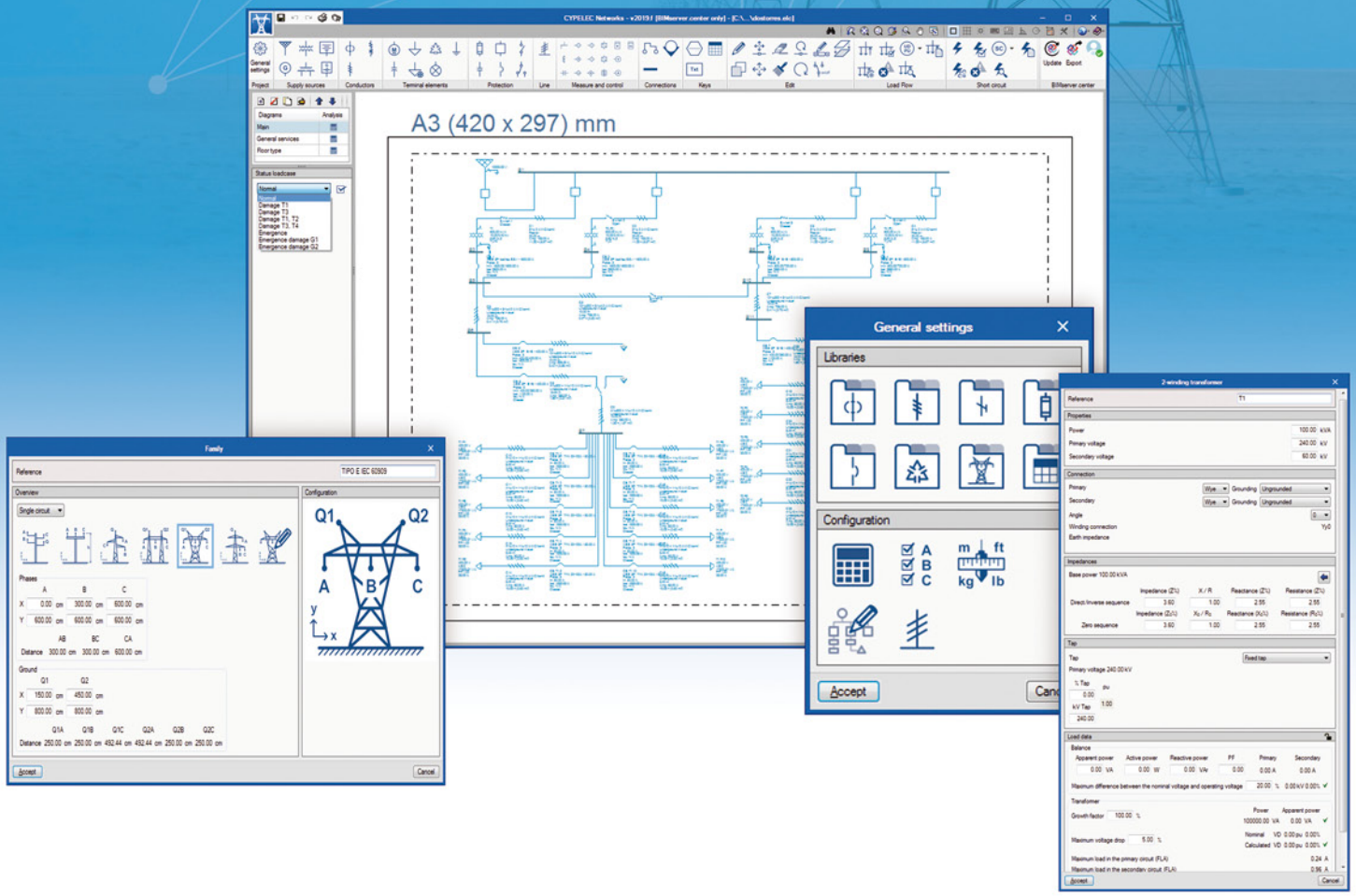
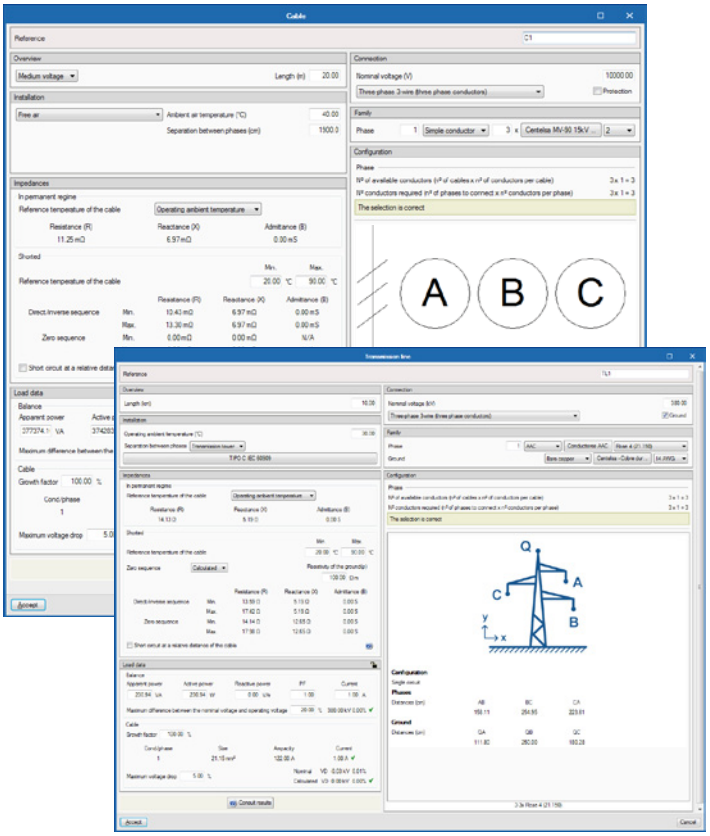
CYPELEC Networks



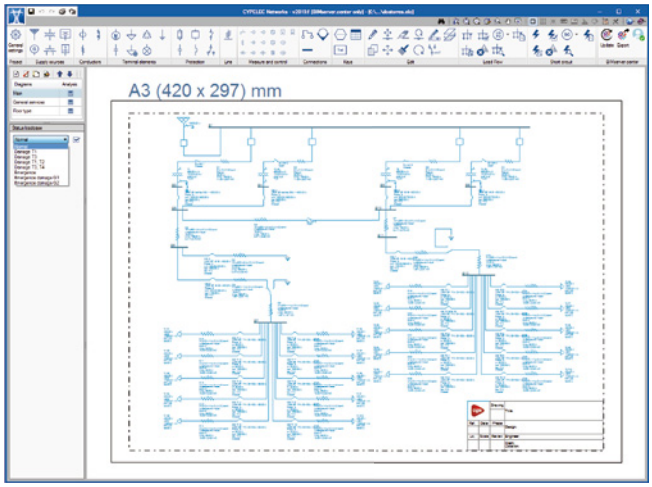
CYPELEC Networks

CYPELEC Networks is a program for the analysis of power systems in electrical networks, created to assist designers with the design and calculation of high and low voltage installations. CYPELEC Networks calculates according to the normative specifications of the NFPA 70 National Electrical Code (NEC) and IEC (International Electrotechnical Commission). The program is integrated in the Open **BIM** work flow.



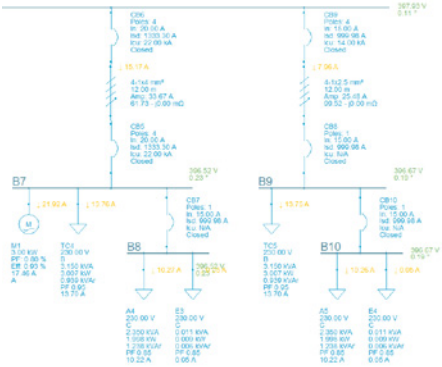
Accessible user interface

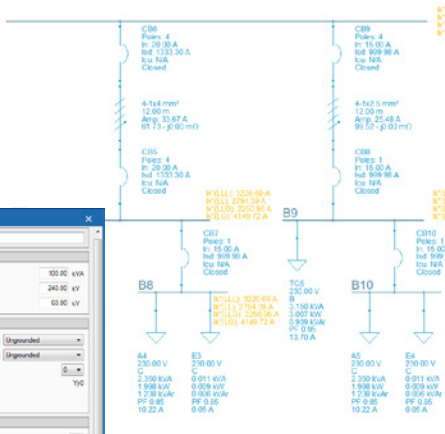
The graphical interface of the program allows the easy creation and editing of power diagrams and single-line diagrams.



LOAD FLOW AND SHORT CIRCUIT

CYPELEC Networks obtains the load flow and consequently, the calculation of voltages and phase shifts in bars or buses, the intensities in the lines and branches and the active and reactive power flows of the electrical system.

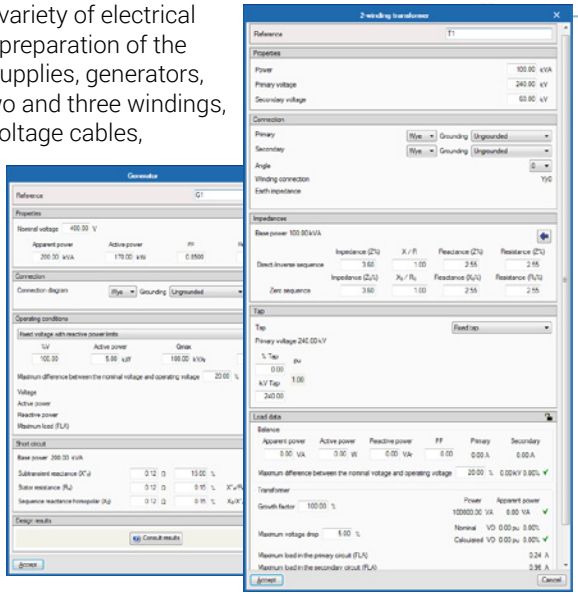




Also, the program calculates the short circuit currents according to the international standard IEC 60909.

Selection of electrical equipment

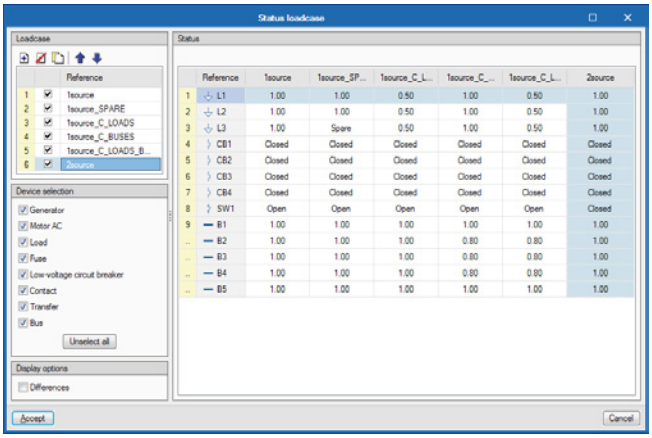
It provides a large variety of electrical equipment for the preparation of the diagrams: power supplies, generators, transformers of two and three windings, low and medium voltage cables, high voltage transmission lines, capacitor banks, loads and electrical motors, etc., as well as protection devices and other electrical switchgear.



State hypothesis

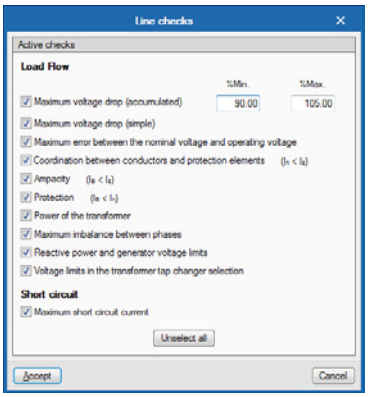
The program allows managing the states of operation of elements by defining the state hypotheses. These hypotheses will define the state conditions of:

- Simple contacts and switching contacts
- Regimens of motor function
- Regimens of generator operation



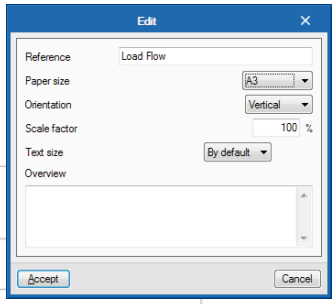
Checks

The program completes a series of calculation checks selected by the user. Through this option they can define the application limits of the global checks, and activate or deactivate them according to the criteria of the user.



Editing plans

The program allows the generation of plans to define the schemes that make up the installation. In every one of them it is possible to configure the appearance to ensure the scheme fits the format selected by the user and the size of the text is adequately visible. It is possible to introduce tables of text, legends and boxes completely configurable by the user.



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Ref.	Date	Phase	Design:
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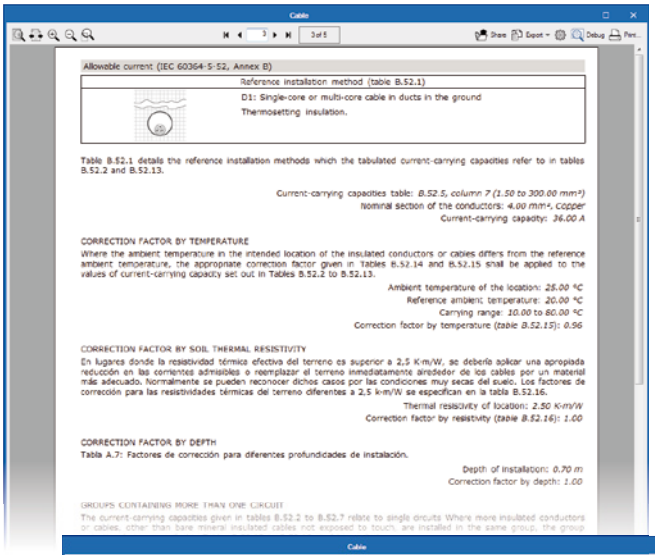
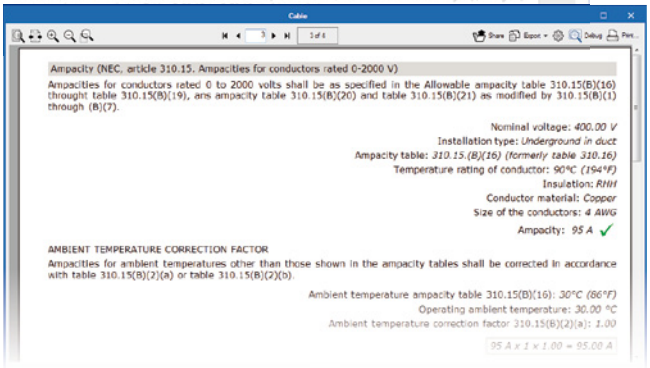
NEC and IEC Standards

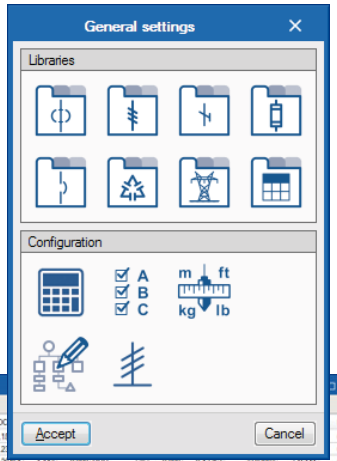
The calculations and checks completed by the program are based on the principal international norms. It incorporates the tables described in the NFPA 70 for the calculation of the ampacity of the AWG gauge cables, and the tables described in the IEC 60634-5-52 for the calculation of the maximum admissible intensity of the mm2 gauge cables.

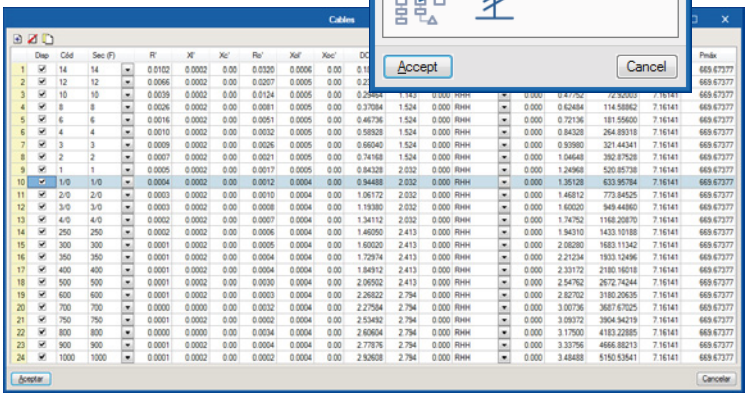




LIBRARIES

The program offers a selection of devices whose characteristics are stored in different libraries 8cbales, transmission lines, earth cables, fuses, circuit breakers, transmission line towers...). The properties of each element are defined to separate the catalogues of the principal manufacturers of the sector, nevertheless, these libraries are totally editable by the user, who can modify parameters or add new elements as they desire.

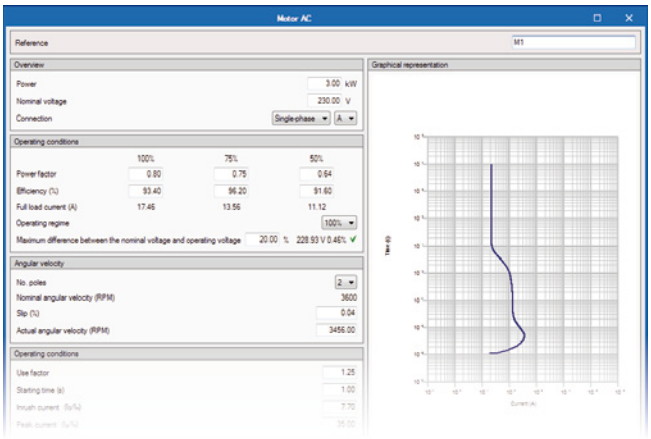




Motors

Introducing motors allows the definition of their operating characteristics to obtain the curve of intensity consumed after the start up, the angular speed and the different conditions depending on the operating regimes that the equipment uses.

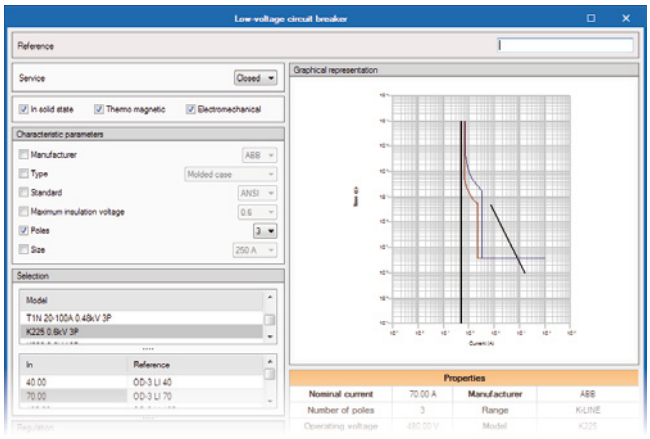
The motor start-up graph will be transferred to the protection graph to make the selection of the protection device correct and guarantee the non-triggering of the protection in the initial moments of the start.



PROTECTIONS

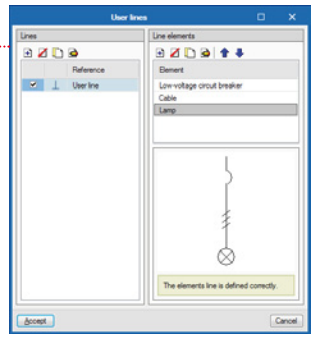
Thermo-magentic and fuses

The program includes a selection of thermo-magentic switches and fuses whose references are stored in editable and user-configurable libraries. The selection of equipment is made from the elements stored in the library. For this, a filter is available that reduces the list of elements to those that match the desired requirements. The regulation of the equipment allows a visual check of the limits of coordination and selectivity with cables and loads of motors, whose behaviour curves can be visualized on the same graphical window.



Lines of elements

Through this tool, it's possible to configure different blocks of elements for their joint introduction on the plane. The selector includes the lines previously defined in the configuration options, however, it is possible to add more elements to each line, or generate a grouping of elements starting from zero.



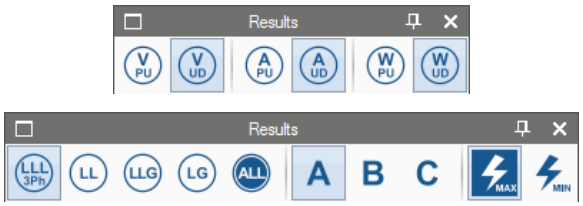
Measure and control elements

This block includes a series of drawing elements used to complete the scheme without the need to define their electrical properties. The program provides the following options:

- Autotransformers
- Current transformers
- Potential transformers
- Overcurrent, motor, differential, thermal, magnetic, and multi-function relays
- Inverters
- Rectifiers
- Harmonic filters
- Multi-meters
- Voltimeters
- Ammeters
- Watthour meter

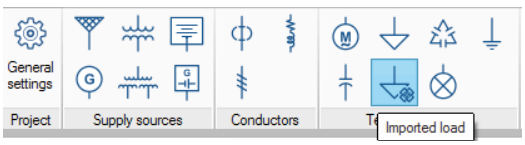
Displaying results

Through a specific palette of results it is possible to change the visualization of the results represented on the scheme, both in the calculation of the load flow and in the calculation of the short-circuit currents.



CYPELEC Networks integrated within the Open **BIM** workflow

The program allows connection with other programs through the IFC standard and the BIMserver.center platform. Among these programs, it is worth mentioning the connection with the other programs of the CYPELEC Suite (www.cypelec-suite.cype.es), such as CYPELEC REBT, CORE and NF that allow the calculation of the low voltage electrical installation and whose final loads can be imported into CYPELEC Networks.



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