Apros® Datasheet
Electrical Systems Modelling

Apros® provides fully dynamic models for calculating the electrical power consumption in the network. The network model is based on the Norton equivalent circuit model complemented by the Kirchoff's current law. The complex node voltages are solved from complex equivalent currents associated with the nodes. The sparse matrix technique is used to solve the matrix equation. The voltages, currents and active and reactive powers are calculated only at locations associated with defined measurements. The frequency is calculated for the separate parts of the network.

Process components like pumps, motors and valves can be connected to the electrical bus bar (node). The connection can be either on/off type for small devices or a fully dynamic one, resulting in changing load and speed according to motor torque specification. A generic shaft component can be used to provide a fully dynamic connection between turbine sections, motors and generators.

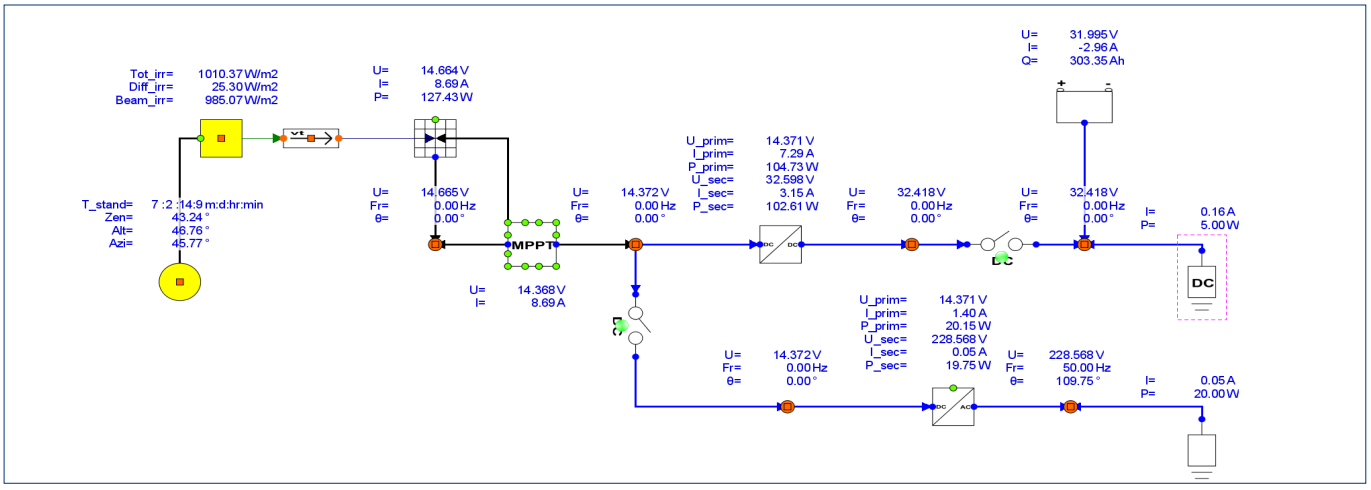
Generator can be connected to the network automatically or by using standard phasing out procedures. Phenomena such as paralleling of multiple sources and loads, transformer feedback from lower to higher voltage, multiple generators and external source can be simulated.

The electrical components of Apros® include the following:

- busbar/node
- breaker/switch
- generator
- transformer
- line
- load (static and dynamic)
- motor (usually included in the process component)
- AC/DC converter
- DC/DC converter
- inverter
- battery
- maximum power point tracker
- solar panel

Electric library is included in the following products:

- *Apros® Combustion*
- *Apros® Nuclear*



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