

SIMPOW[®]

Simulation of Power Systems

www.simpow.com

**Comprehensive and unique
Power System Simulations,
for:**

- **Power Generation**
- **Transmission**
- **Industrial Processes**

**More information and
contact:**

- www.simpow.com
- simpow@solvina.se

Free demo online at www.simpow.com

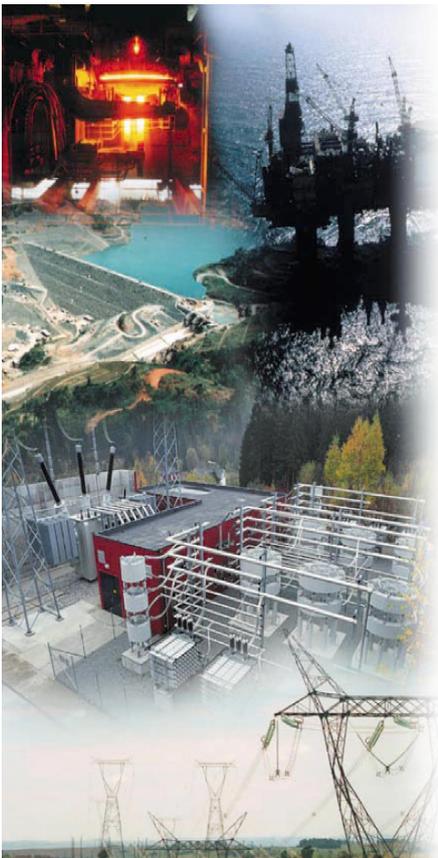
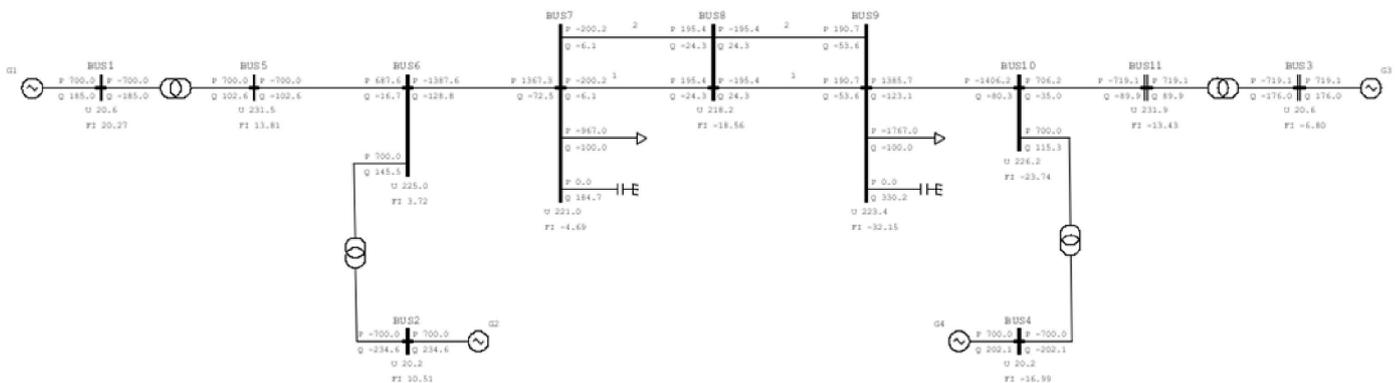
Solvina
International

— *Energy Excellence - Our Goal, Your Benefit* —



SIMPOW[®] is a highly integrated software for simulation of power systems. It covers a wide field of functionality, from basic features to highly advanced calculations. The applications includes renewable power generation, real-time simulations and distributed generation.

SIMPOW[®] was developed by the Power Systems Analysis Department of ABB Sweden. It is used by power utilities and consultant engineers and is also very suitable for research within universities and research institutes.



SIMPOW[®] can be used wherever an electric network needs to be analysed.

HIGHLIGHTS IN VERSION 11.0

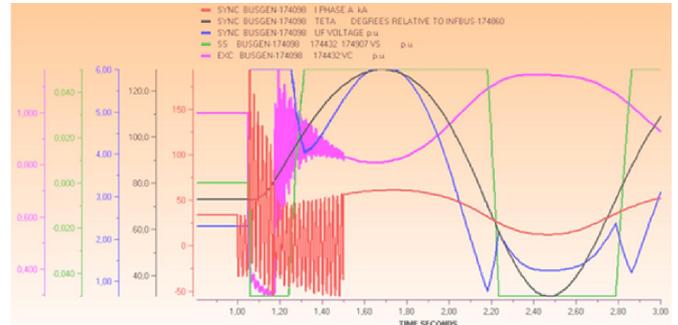
- New window-based RunTime GUI.
- New diagram plotting.
- New single line diagram.
- More models, including surge arrester, full power converter for wind turbines and HVDC Light Open Model Version 1.1.6.
- Improved numerical accuracy at linear analysis.
- Improved ordering for system matrix factorization.
- More accurate treatment of singular system.

Calculations performed with SIMPOW®

Power-flow for calculation of power-flow balance, transformer tap settings, initial state for dynamic runs, etc.

Short Circuits for determining the fault level of e.g. industrial networks in order to check the thermal and electromechanical strength of switchgears, cables, and for setting of protective relays.

Transient Stability (TRANSTA mode) by employing phasor models for feasibility check and tuning of regulators in order to increase the power transmission capability and improve transient stability.



Machine Stability (MASTA mode) for simulation of the detailed dynamic performance of induction and synchronous machines during start and load switching conditions, e.g. in industrial power plants with different types, sizes and design of diesel generator and gasturbine sets.

Linear analysis for determining eigenvalues for resonance analysis, sensitivity analysis, and modal analysis for displaying the eigenvectors. The linear analysis functions also comprise harmonic distribution calculations and frequency scanning. The latter can be applied over a selected range of frequencies.



Validation of models

Validation of the existing models has been done in various ways. The simplest models such as: transformers, lines, nodes, faults, etc have been validated in accordance with; text books, plausibility of results and comparison with theory.

Advanced SVC and HVDC components and regulators as well as associated synchronous machines, have been validated against analogue simulator and also against test results from existing SVC plants and HVDC links, e.g. the Gotland Link.

The validation has also been done by comparison of results from other computer programs similar to SIMPOW®.



Purchase the software

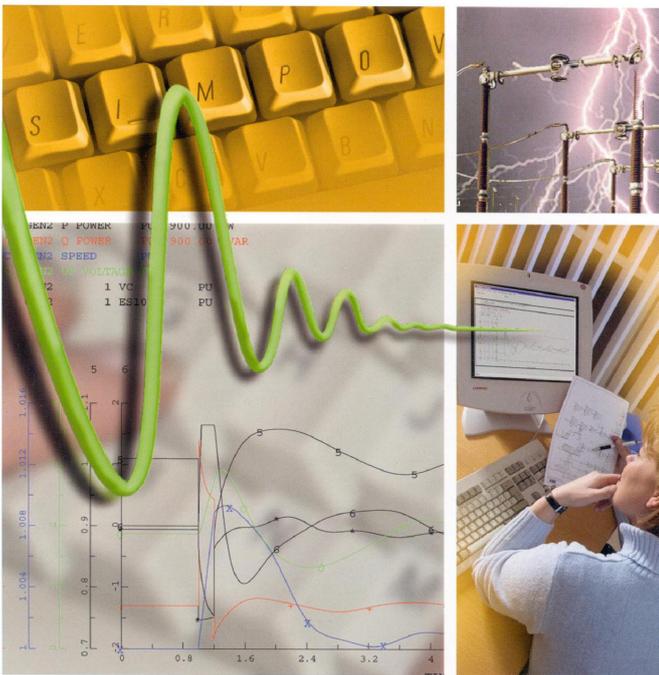
When purchasing Simpow® you can choose between SIMPOW® Basic or Advanced, according to your needs. Read more about the packages, fees and support services at www.simpow.com.

Get started with SIMPOW®

Try out all functions in SIMPOW® with the **SIMPOW® Demo** available on the web-page, www.simpow.com.

Solvina can also help out with training courses in using the software, as well as support and model build-up. All according to the needs of the customer.

Please visit our homepage or contact Solvina for further information and guidance.



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SIMPOW® features and benefits

- Flexibility for unlimited inputs into the system details.
- A robust numerical technique characterized by high accuracy, efficient event handling, variable and/or fixed time step.
- Multi Load Flow calculations can be executed using the "execution command file".
- Ability to execute in interactive and in background mode (semi batch).
- A programming language, DSL, for user defined modeling of network elements, regulators, FACTS etc.
- Graphical modeling capability with the tool DSL Code Generator.
- Result presentation graphics comprising ASCII tables; time diagrams, variable versus variable diagrams, frequency diagrams. All graphics are furnished with menu buttons for selection of scaling factors, grids, time scales, result saving, paper printing, etc.
- Calculation of Fast Fourier Transform, FFT.
- Capability to switch between phasor- and instantaneous value models.
- Capability to employ instantaneous value models for minor parts of a network, e.g. series compensators, and phasor models for the major part of the network.
- Capability to conduct simulations of both electromechanical and electromagnetic transients.
- A model library comprising standard and most utilised networks elements.
- Input data editable in free field format. The data defines the model types and parameter values.
- A conversion routine is available that transcripts input data from the network simulation software PSS/E™ to SIMPOW® data format.
- Transformer tap changer, continuous regulator with steps and the function to control the voltage on the nearest as well as on the more remote bus.
- Two and three winding transformers with phase shift for control of the load flow.
- Shunt impedances, e.g. reactors and capacitors.
- SVC, STATCOM, UPFC, CSC etc.
- SVC Light.
- Series compensation.
- HVDC, two terminal and multi-terminal with latest technology on the controllers.
- HVDC Light model.
- Region Area Control.
- Tie line control.
- The requested node types; slack bus, PQ and PV are modelled.