



EMTP-RV

The reference for power systems transients

The world's most full-featured simulation and analysis program for power system transients

APPLICATIONS

EMTP-RV is suited to a wide variety of power system studies, whether they relate to project design and engineering, or to solving problems and unexplained failures.

- ▶ **Power system design.**
- ▶ **General purpose circuit analysis:** wideband, from load-flow to steady-state initialization to time-domain.
- ▶ Simulation and analysis of power system transients; **lightning, switching, temporary conditions.**
- ▶ **Detailed simulation and analysis of large scale (unlimited size) electrical systems.**
- ▶ **Network analysis:** network **separation**, **power quality**, geomagnetic **storms**, **interaction** between compensation and control components, wind generation
- ▶ **Synchronous machines:** SSR, auto-excitation, control.
- ▶ Multiterminal HVDC systems.
- ▶ **Power electronics.**
- ▶ **Series compensation:** MOV energy absorption, short-circuit conditions, network interaction.
- ▶ **Transmission line systems:** insulation coordination, switching, design, wideband line and cable models.
- ▶ **Switchgear:** TRV, shunt compensation, current chopping, delayed-current zero conditions, arc interaction.
- ▶ **Protection:** power oscillations, saturation problems, surge arrester influences.
- ▶ **Detailed transient stability analysis.**
- ▶ **Unbalanced distribution networks.**

THE BENEFITS of EMTP-RV

- Easy to use interface
- Superior modeling flexibility
- Advanced simulation engine
- Scriptable and customizable GUI
- Large range of electrical machine
- **No more topological restrictions for non-linear elements**
 - > New analysis methods for:
 - > Resolution of non-linear elements
 - > Unbalanced triphased load-flow calculation
 - > Switching control
 - > Harmonic steady-state

Simulation options:

- Load-Flow
- Steady-state
- Steady-state initialization
- Time-domain
- Frequency scan

EMTP-RV offers a wide variety of modeling capabilities encompassing electromagnetic and electromechanical oscillations ranging in duration from microseconds to seconds.

EMTP-RV PACKAGE

EMTP-RV

A powerful and super-fast computational engine that provides significantly improved solution methods for nonlinear models, control systems, and user-defined models. The engine features a plug-in model interface, allowing users to add their own models.

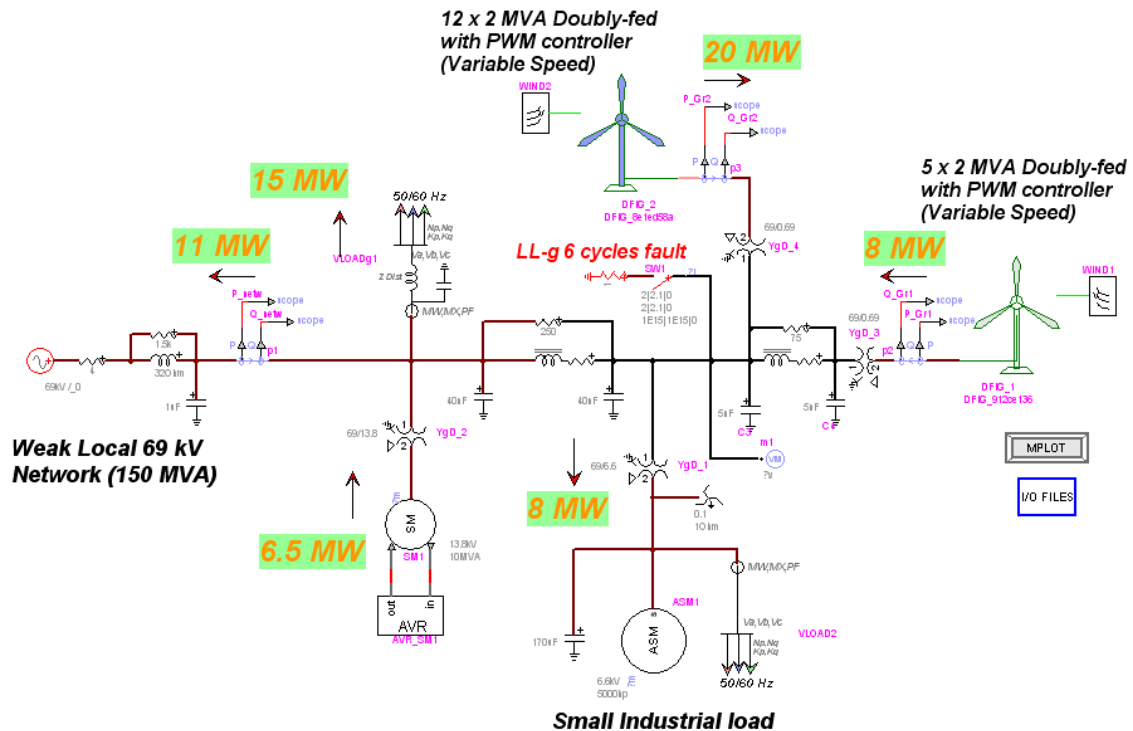
EMTPWorks

An advanced, yet easy-to-use graphical user interface that maximizes the capabilities of the underlying EMTP-RV engine. EMTPWorks offers drag-and-drop convenience that lets users quickly design, modify and simulate electric power systems. A drawing canvas and the ability to externally program device data allows users to fully customize simulations to their needs. EMTPWorks can be used for small systems or very large-scale systems.

ScopeView

Provides **waveform visualization** and advanced **mathematical post-processing** capabilities.

The EMTWorkS user interface and sample waveforms



Windmill Power Generation

EMTPWorkS: Simulation of power systems has never been so easy!

Drag-and-drop simplicity

Need to add a transformer to your simulation?
Just select it from the EMTWorkS device library.

The library contains a wealth of built-in elements, including:

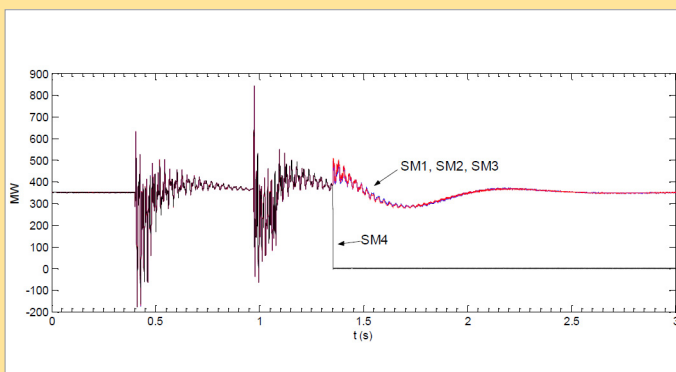
- rotating machines,
- power electronics components,
- compensators,
- phasors,
- switches,
- meters,
- and much more.

Superior modeling flexibility

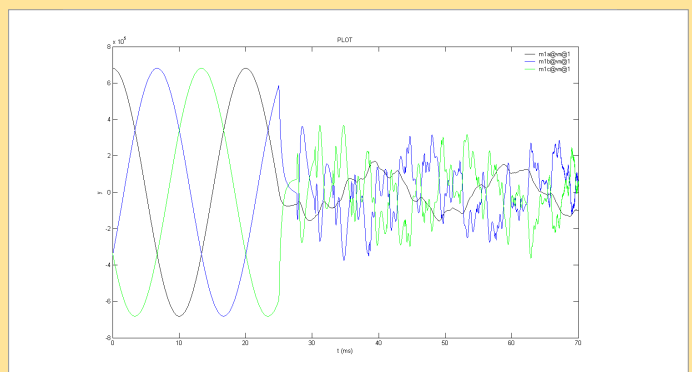
Can't find exactly what you're looking for in the device library?
Simply add your own user-defined device.

Scripting techniques provide the ability to externally program device data forms and generate the required Netlists. A **symbol editor** is used to modify and customize device drawings. Scripting techniques are also used for parametric studies.

EMTPWorkS also lets the user define any number of **subcircuits** to create **hierarchical designs**.



Synchronous Machines, 3-phases powers



Transformer Voltages