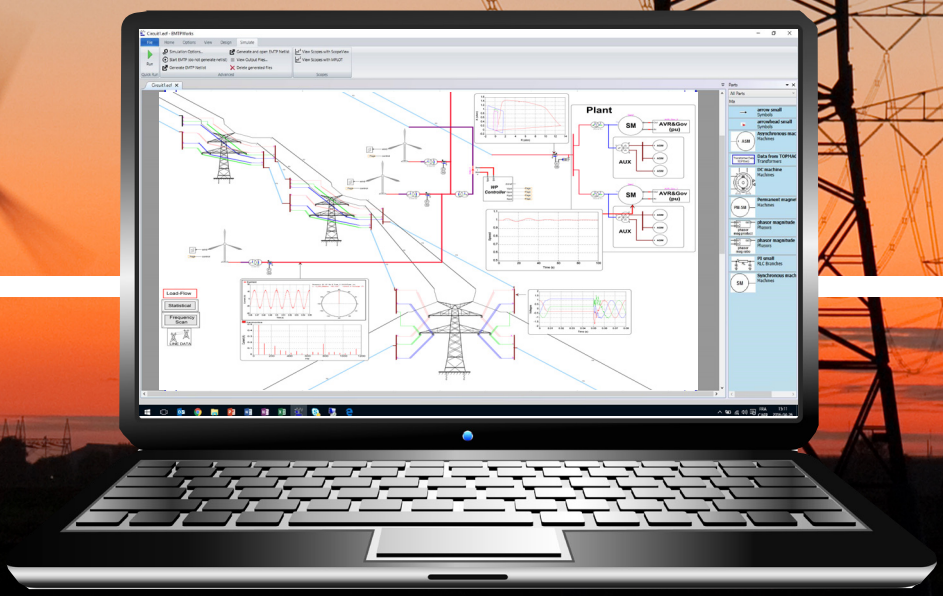
EMTP®

Load-Flow, Stability and Electromagnetic Transients in the same software!

- LIGHTNING AND SWITCHING TRANSIENTS
- RENEWABLE ENERGY SOURCES
- INSULATION COORDINATION
- POWER SYSTEM DESIGN
- HVDC
- MOTOR STARTING
- FERRORESONANCE
- POWER ELECTRONICS AND FACTS
- ADVANCED LINE AND CABLE MODELING



What is EMTP®?

EMTP® is the most complete and technically advanced software for simulation and analysis of power systems.

- EMTP® is the reference for the simulation of electromagnetic and electromechanical transients. It is known to be the fastest, the most accurate and the most numerically stable time-domain software in the industry.
- Control systems and protections can be modelled in detail using the complete libraries of components.
- EMTP® has a powerful unbalanced multi-phase load-flow capable of solving very large scale transmission and distribution grids, cases with more than 300 000 buses can be solved.
- EMTP® has the most user-friendly graphical interface and load-flow, steady-state and time-domain simulations using the same grid data and within the same environment.
- EMTP® is completely scriptable. EVERYTHING that can be done by hand can be automated by scripts!
- EMTP® uses dynamic memory allocation and can simulate arbitrary topology networks without any user intervention: what you draw is what you simulate!

It includes:

- Advanced machine models and their controls (Exciters, Governors, Stabilizers)
- Accurate line and cable models and parameter calculation routines reproducing travelling waves and frequency dependency
- Advanced transformer models which include magnetic core saturation and hysteresis
- Detailed PV, Wind park, FACTS and HVDC models
- The most detailed protection relay models in the market
- Extensive library of control devices and functions
- Frequency-scan analysis options

The simulation of power systems has never been so easy!

During the time-domain simulations of power systems, several challenges can be met. Here is how EMTP® answers them:

Speed: EMTP® uses sparse matrices and can solve very large grids very efficiently! Parallel solver is available.

Initialization: EMTP® offers a fast and automatic initialization method from load-flow solution. No need to waste your time with lengthy initialization process. The network is initialized right at the beginning of the simulation!

Numerical instabilities: EMTP® uses a combination of trapezoidal and Backward Euler integration methods to eliminate numerical oscillations that may occur at discontinuities.

Accuracy: Solving non-linearities of, for example, a surge arrester, the magnetization of a transformer, or power-electronics converter switches, is challenging. EMTP® is unique in this field since it uses a fully **iterative solver to solve nonlinear models**. It also offers an iterative solver for control systems with algebraic loops. We do not compromise with accuracy!

Missing data: EMTP® helps you with a **large database of typical parameters**. Our world-class technical support is also there to help. You are never alone!

Engineering challenges: Simulating transients with EMTP® is easy! Our technical support team is available to help and to guide you. You are never left alone!

Learn more at www.emtp.com

Who uses EMTP®?

The high modeling flexibility of EMTP® allows engineers to perform a very wide range of studies.

Our users are working in the following sectors: Research, Transmission & Distribution, Generation, Industry and Manufacturing.

Good news! Your university might qualify for a partnership program and benefit from many licenses for FREE.

	TRANSMISSION	GENERATION	DISTRIBUTION	INDUSTRY
Load-flow	✓	✓	✓	✓
Insulation coordination (switching, lightning, ferroresonance)	✓	✓	✓	✓
Renewable integrations	✓	✓	✓	✓
Transient Recovery Voltage (TRV)	✓	✓	✓	✓
Temporary overvoltages	✓	✓	✓	✓
Grid stabilities	✓	✓		✓
HVDC and FACTS	✓	✓		
Micro-grids	✓	✓	✓	✓
Power-quality, Harmonic analysis and voltage sag	✓	✓	✓	✓
Transformer energization	✓	✓	✓	✓
Capacitor bank, reactor switching	✓	✓	✓	✓
Sub-synchronous oscillations	✓	✓		
Frequency-scan	✓	✓	✓	✓
Line and machine protections	✓	✓	✓	✓
Series-compensated lines	✓			
Open-phase detection	✓	✓	✓	✓
RC snubber design		✓	✓	✓
Motor starting		✓		✓
Transformer and machine protections	✓	✓	✓	✓
Fault on DC systems	✓	✓		✓
Power electronics	✓	✓	✓	✓
Railway			✓	✓

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EMTP® package includes

EMTPWorks: The Graphical User Interface

An advanced, yet easy-to-use graphical user interface that maximizes the capabilities of the underlying EMTP® engine. EMTPWorks provides many customization options and is completely scriptable.

The computational engine

A powerful and super-fast computational engine that provides significantly improved solution methods for nonlinear models, control systems, and user-defined models.

Protection Toolbox: The next level for Protection studies has arrived!

This toolbox opens new doors for simulation and analysis of protection systems. Both steady-state and time-domain simulation options are available.

Renewables Toolbox: Renewable energy system models for every application

The Renewables toolbox provides detailed and customizable state-of-the-art inverter-based resource (IBR) models. These models are valid for load-flow, harmonic and EMT simulations.

ScopeView: Data display and analysis

Provides waveform visualization and advanced mathematical post-processing capabilities. ScopeView is a data acquisition and signal processing software very well adapted for visualization and analysis of EMTP® simulation results.

Exciter and Governor: Turn time-domain transient stability simulations into a child's play

This Exciters and Governors library contains more than 50 standard models for governors, exciters and power system stabilizers.

Simulink DLL: Import Simulink® models in two clicks

This toolbox allows to import Simulink® models, regardless of complexity, using two clicks.

PSS®E Import Tool: Automatic conversion of PSS®E models to EMTP®

An automatic conversion of PSS®E network models for various EMTP® studies such as the IBR interconnection, switching transient, insulation coordination, and transient stability.

EMTP® services:

Before and after sales support is very important to us. **EMTP**'s team will provide you with comprehensive assistance and technical support.

- Dynamic development roadmap
- Prompt and effective technical support
- Strong customer service culture
- Personal commercial follow-up
- Worldwide network of distributors
- Consulting services: we can perfom all types of studies for your organization

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A unique email address: info@emtp.com

Discover the power of EMTP®!

Try EMTP® and our comprehensive support services during 15 days:

If you have not already tried EMTP®, feel free to request your full professional trial license to explore the full capabilities of the software.

Technical support services:
During your evaluation, our technical support team will assist you in your use of the software.

Online support section:
In this section, you will find video tutorials, an exchange platform, FAQ, technical presentations and a forum.

The EMTP® User Community is becoming more and more active !
The EMTP® User Community is here to support User Groups and share technical presentations. The community is animated by involved and motivated academics and professionals from industry.

Events:
Regular events: trainings, user group meetings and courses.