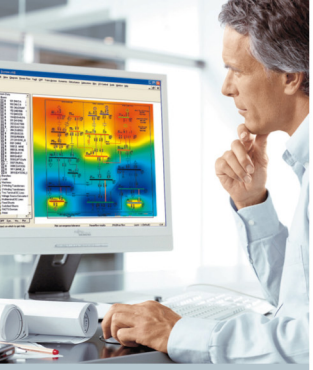

PSS®NETOMAC

Professional software for dynamic system analyses

At a glance

PSS®NETOMAC is a professional network planning tool. It was designed to facilitate access to and manage any kind of information on the dynamic performance of a power system. Numerous program modules allow for this program to be adjusted to the individual requirements of each user.

Our PSS®NETOMAC network planning software offers:

- A variety of configurations, which can be selected according to individual requirements
- A modular structure
- Real-time testing and simulation of a wide range of phenomena
- User Support in trainings, seminars and via hotline

The challenge

The deregulation of the energy market is creating new demands on system planning engineers in power utilities and industrial companies. Traditional areas of activity have to be rethought and new ones acquired. In order to succeed in the open competitive markets of today, it is extremely important to have all the information you need available at the right time and in the right place.

Our solution

PSS®NETOMAC, a worldwide unique planning system, links up the most important methods for the analysis of the dynamics of electrical networks in the time and frequency domains. You can choose from a variety of program configurations – from “Light” to “Professional”.

PSS®NETOMAC Light

Studies of dynamic phenomena in electrical power supply systems are becoming an ever more important part of the daily work of electrical engineers. The PSS®NETOMAC Light interactive system has been developed to facilitate dynamic simulation.

PSS®NETOMAC Light offers:

- Ease of use when performing dynamic studies thanks to an intuitive user interface
- Automatic and interactive creation of PSS®NETOMAC input files and standard COMTRADE result files
- Library of predefined model networks so that the dynamic performance of networks can be handled quickly
- Libraries of standard network elements, e.g. machines, transformers, cables, overhead lines, machine and network controllers
- Testing of protection equipment and control devices under real conditions with different network configurations in real-time
- Help in the design of networks in form of expert knowledge
- Training, seminars and hotline

PSS®NETOMAC Calculation Modes

- Load Flow Mode
- Short Circuit Mode (IEC / ANSI)
- Stability Mode (system stability)
- Transient Mode (equipment design and stress)
- Frequency Mode (design of controllers)
- Eigenvalue Mode (system oscillations)
- Additional Tools:
  - Training
  - Filter
  - Optimization
  - Identification
  - Reduction

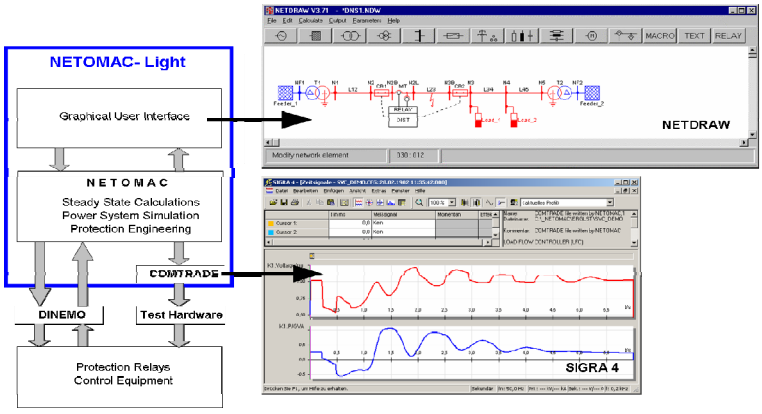

Figure 1: PSS®NETOMAC Light overview

PSS®NETOMAC Professional

PSS®NETOMAC Professional offers a wide range of options for simulating all kinds of electromagnetic and electromechanical phenomena in electrical power supply systems.

Frequency analyses are a sensible supplement to the working options. Eigenvalue analysis offers many more methods, such as the creation of dynamic, reduced network models through harmonic reduction. A variety of preprocessing options are provided, such as the parameterizing of overhead lines, cables, or motors and the identification of model parameters. The system analysis facilities are supplemented by user-defined methods of optimization.

As a result, PSS®NETOMAC offers a great variety of possibilities:

- Simulation of electromagnetic and electromechanical transient phenomena in the time domain
- Steady-state load-flow and short-circuit current calculations
- Frequency range analysis
- Eigenvalue analysis
- Simulation of torsional vibration systems
- Parameter identification
- Reduction of passive / active networks
- Optimization
- Interactive network training simulator
- Real-time simulation
- Extended user interface for the graphical input of network and controllers structures and results documentation
- Data import from other planning packages, e.g. PSS®E, PSS®SINCAL, etc.
- Additional formats for data export
- Training, seminars and hotline

PSS®NETOMAC Advantages

- One program for all tasks associated with the dynamic phenomena of electrical networks
- Uncomplicated, intuitive operation
- Modular structure for an easy approach to the software
- Add-on modules for efficiency of application
- Predefined model networks
- Standard model libraries and user-defined model enlargement
- Real-time capability for protection testing, network security calculations
- Training and support
- Fast response to network problems

Application example

In the following graphics you can see a comparison of measurement and simulation results. The example shows the power and frequencies of a 300 MW power station trip in Spain (source: E.ON - RWE Net - Siemens 11/2002), displayed with PSS®NETOMAC.

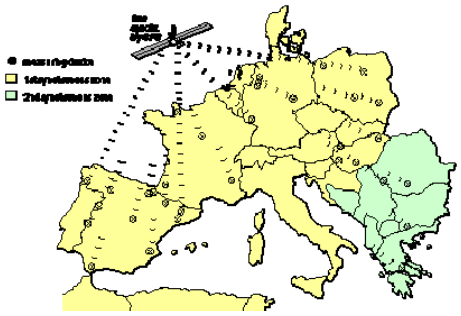

Figure 2: Synchronous zones

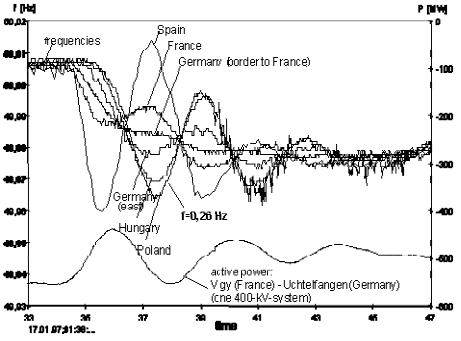

Figure 3: Measured frequencies and power

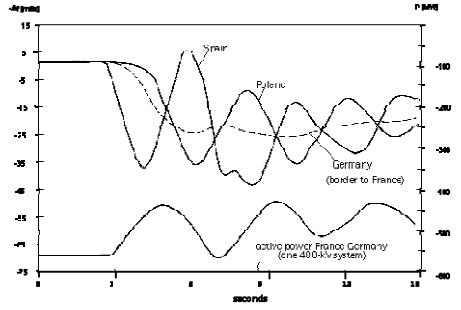

Figure 4: Simulated frequencies and power

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