

CDT Control Design Toolbox

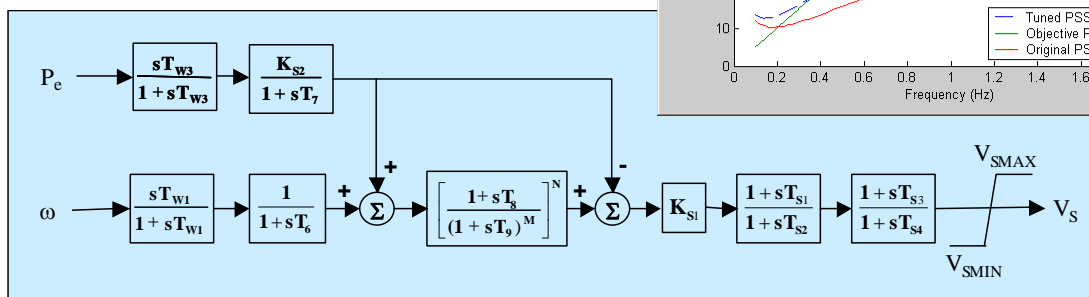
Power system stabilizers (PSS) have been extensively used in power systems as a very effective means to provide damping control for electro-mechanical oscillations. Successful application of power system stabilizers depends on the careful design of its functional structure and regular tuning of its parameters in order to accommodate the ever changing and evolving system characteristics and conditions. Traditionally, the tuning of power system stabilizers has been a challenging task involving the use of a variety of tools and techniques with extensive human expertise and interaction.

Control Design Toolbox™ (CDT) is a software tool that offers a systematic way to tune power system stabilizers (including the addition and tuning of new stabilizers) by taking advantage of the comprehensive modeling and computation options available in the DSATools™ software, developed by Powertech. The Control Design Toolbox™ provides a set of specially designed interfaces and options that guide you through a complete PSS tuning process. Most of the computations required are performed by automatic calls to the appropriate programs in the DSATools™ suite or MATLAB®.

PSS Tuning Options

Two PSS tuning *objectives* are available to suit different applications,

- Tuning for individual generators. This focuses on tuning PSS for specified generators for damping improvement of all modes associated with the generators.
- Tuning for inter-area modes. This computes all inter-area modes in a specified frequency range and then identifies the generators that have best controllability to the critical modes. PSS will be tuned on these generators to achieve the best possible damping to the modes.

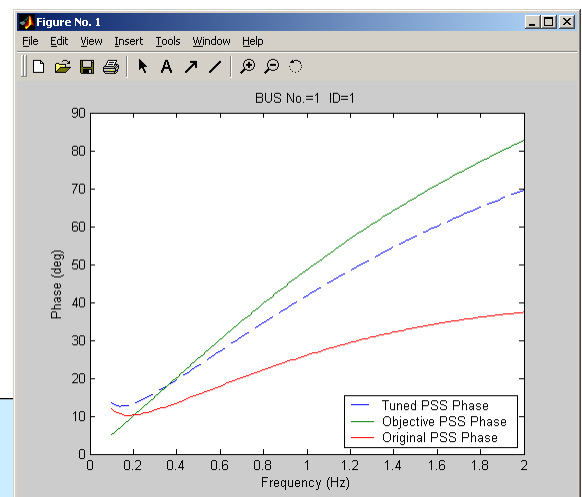


Product Features

- Easy-to-use GUI guides the user through complete power system stabilizer (PSS) tuning procedure
- Tuning can be done for individual generators or for specific inter-area modes
- Field-proven tuning method
- Support for common PSS models and input types
- Fully intergrated with Matlab® and Powertech's DSATools™

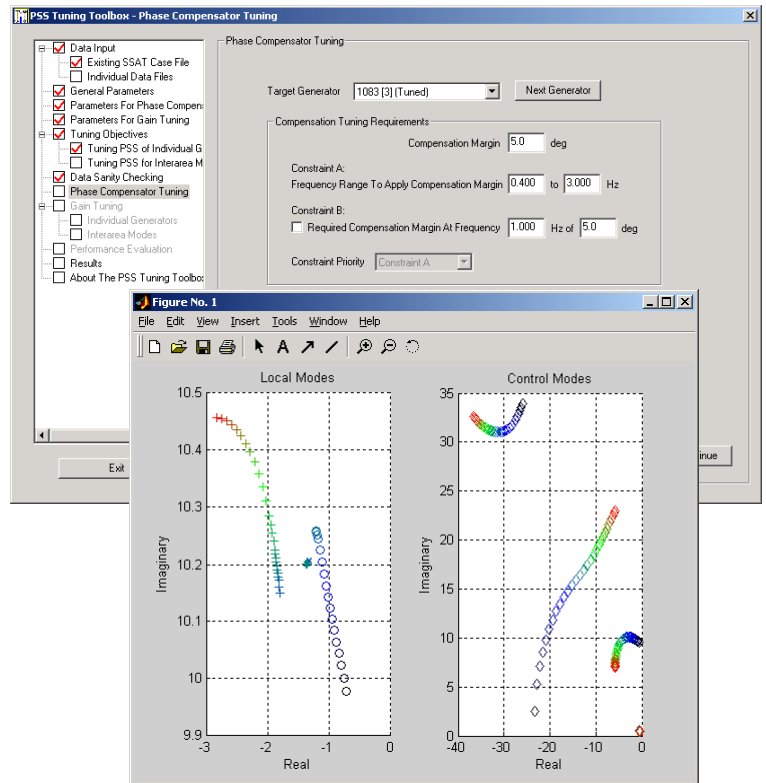
PSS can be tuned with one of two *methods*,

- Manual method which allows tuning individual stabilizers with customized parameters so as to achieve the desired results
- Automatic method which allows effectively tuning of a large number of PSS with a set of pre-specified parameters.



Main Features

- Uses the field-proven PSS tuning method.
- Customizable PSS parameters and tuning constraints.
- Supports a variety of common PSS models and input types.
- Handles very large power system models (up to 100,000 buses and 15,000 generators).
- Compatible model and data requirements with SSAT.
- Creates automatically Word and text report with PSS tuning details and results.
- Full wizard-type graphical interface to guide through a complete PSS tuning procedure.
- Requires SSAT, MATLAB and its Optimization Toolbox.
- Runs on Windows 2000/XP/Vista/7 platform.



Other Powertech Services

- Evaluation of transfer capability and security limits
 - Powerflow analysis
 - Transient Stability analysis
 - Small-Signal Stability analysis
 - Voltage Stability analysis
- Post-mortem analysis of system disturbances
- Frequency control assessment
 - Islanding studies
 - AGC & governor performance
 - Design and evaluation of under-frequency load-shedding schemes
- Increasing transfer capability
 - Control-tuning and design
 - Load shedding schemes
 - Reactive compensation planning
 - Special protection system design and verification
- Assessment of planning alternatives
- Custom modelling & dynamic model reduction
- Reliability Assessment of power systems
- Generator field testing, model development & validation
- Load characteristic measurement and model development
- Custom software and model development
- Training

In addition to extensive power system study capabilities, Powertech has a \$50 million lab and test facility which includes high voltage, high current, and high power labs, as well as capabilities in hydrogen technologies, chemistry, metallurgy, and materials engineering.

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