

Power*Lines

The Newsletter for Power*Tools Software

December 2001

Reflecting back on the year 2001, we hope 2002 brings peace, good health, and happiness to all.

SKM Systems Analysis, Inc.

Announcing the Release of PTW Version 4.0 and Several New Study Modules . . .

Unbalanced Single Phase Studies

PTW Unbalanced Studies simulates systems with single-phase, two-phase and unbalanced three-phase load conditions. Phase and sequence currents can be displayed for different operating and load conditions including open-phase and simultaneous faults. Studies include demand load analysis, sizing, load flow/voltage drop and short circuit. Reports also include 3-phase and single-phase panel schedules. Modeling includes single-phase, two-phase and three-phase lines, transformers, loads, and capacitors as well as single-phase mid-tap transformers. These studies are compatible with existing PTW files.

Reliability Studies

PTW Reliability Program calculates reliability indices and cost effects for alternative system designs. Calculations include alternative supplies, alternative network configurations, spare equipment, time to repair, and cost impact of lost production. Libraries for time-adjusted component failure rates and costs are provided to save time and simplify system modeling.

Arc Flash Evaluation

The optional Arc Flash Evaluation program calculates the incident energy and arc flash boundary for each bus in the system. Trip times are automatically determined from the protective device settings and arcing fault

We're moving
December, 31 2001

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current values. Incident energy and arc flash boundaries are calculated based on bolted fault values. Clothing requirements are specified from a user-defined clothing library. Clearing times can be reduced based on current-limiting fuse capabilities. Complies with OSHA and NFPA 70E requirements.

SKM

SKM Systems Analysis, Inc.

New PTW Features

- PTW now reads default data from Components in a Default Project you can edit.
- PTW now adds a bus-node automatically when component connections are made between impedance components.
- A new input data evaluation reviews all component input data and highlights components with incomplete data, unusual values, or missing connections.
- The PTW libraries have been expanded.
- A new Component-Find feature has been added to the one-line diagram. The components can be selected from a list and PTW will identify and zoom-in on the component.
- Each project now has a frequency setting. Library impedance values are automatically adjusted to the project frequency.
- Many More

New TMS Features

- Motors can be started and switched as an entire group. This simplifies the setup for large re-acceleration studies.

New I*SIM Features

- A new graphical model builder allows entry of custom control block diagrams and values for Exciters and Governors.
- Support for Power Systems Stabilizers is now included.

New CAPTOR Features

- Each protection component can now store multiple library references and settings. This allows phase and ground setting for a single device and also allows tracking "As Found" versus "Recommended". Includes option to copy/paste between functions.
- You can now terminate device curves at any specified time and current. This clipping function is useful when two protective components work together such as Motor Overloads and Motor Circuit Protectors.
- The continuous setting for each device segment can now specify an increment value. In previous versions the continuous increment was automatically 0.01. Devices with increments other than 0.01 had to be entered as discrete settings.
- Many More

New Equipment Evaluation Features

- Equipment Evaluation has been expanded to include comparisons of continuous ratings to design loads and load flow currents. The continuous rating checks include cables, transformers, transmission lines, buses, generators, protective devices, panels, and protective devices on individual panel circuits.

New IEC Features

- Expanded capabilities for "Minimum Fault" calculation, excluding induction motors and adjusting cable impedance to 20 deg C temperature.
- Implementation of group source adjustments per section 2.4.3 of IEC 60909-1.

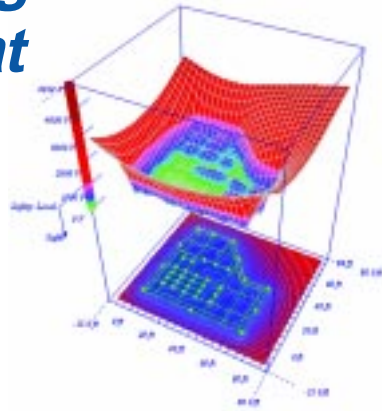
Congratulations to PTW-LT Winners 2001

SKM Systems Analysis would like to thank all who participated in the 2001 drawings for the chance to win a complimentary PTW-LT License.

Congratulations to Kevin Peterson and Cris Carlson.

Introducing GroundMat

Substation Ground Grid Design and Analysis



PTW GroundMat is a program for substation ground grid design and analysis. It is designed to help optimize grid design or reinforce existing grids of any shape. It uses a general-purpose finite element algorithm for potential analysis and graphical facilities to validate ground system efficiency.

Benefits

- Design safer and more cost effective ground grids.
- Save time with graphical entry and display.
- Communicate designs more easily with professional reports and graphs.
- Evaluate alternatives quickly and easily to establish an optimal design.
- Save time with design wizard capabilities.
- PTW GroundMat is an important tool every power system engineer should have.

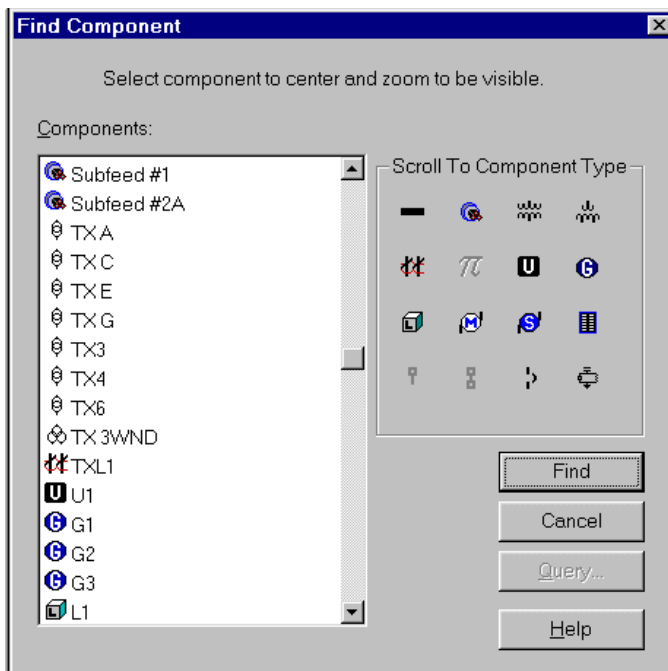
Solution Algorithms

- Finite element analysis of the ground conductors.
- Finite element analysis of the ground rods.
- Grid conductor current displacement using Matrix analysis.

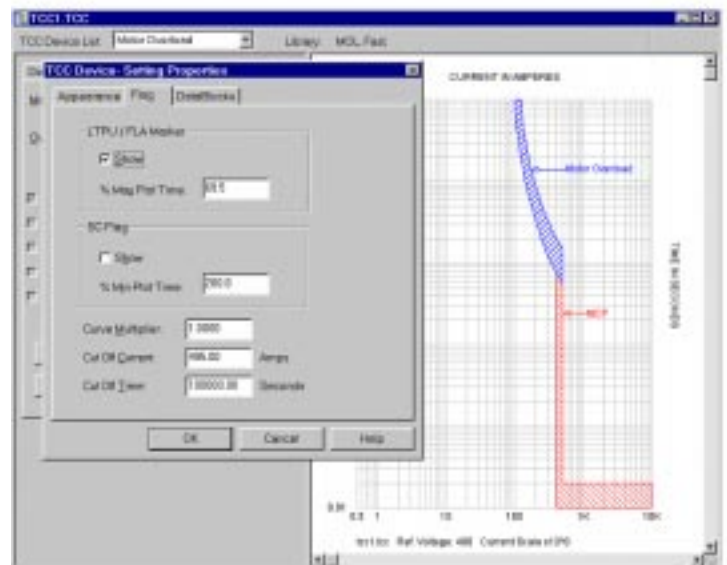
Power*Tools Software Tips

Finding components on the one-line is now easier with Version 4.0

To find a certain device on the one-line the user can click CTRL + F or Edit--Find drop-down menu. A find component window will appear which lists the items on the one-line.



Clip Device Curves



Eliminate unnecessary portions of a protective device's time-current curve with the time or current cut-off setting. For example, horizontally cut off the MCP's pickup by using the Time Cut-Off function and vertically cut off the portion of the overload curve that's to the right of the MCP's pickup by using the Current Cut-Off function.

2002 Training Course Schedule

3 Day Power*Tools Software Training

- Hands-on Training in Lab Environment
- Program Operation and Capabilities
- Running Studies and Interpreting Reports
- Discussion of Industry Applications
- Explanation of the Technical Data Used by the Programs
- Question and Answer Sessions

Cost:

\$750 per person plus travel and hotel

Dates - Redondo Beach, CA

February 4 - 6
April 29 - May 1
July 29 - 31
October 7 - 9

4¹/₂ Day Engineering Training

Discussion of fault, load flow, and motor starting calculation procedures. System component models are then reviewed. Protective device coordination schemes are presented with suggested tips for sizing and setting devices. The final three days are set aside for the class to develop system designs using the PTW software.

Cost:

\$1395 per person plus travel and hotel

Dates and Locations:

February 4 - 8 Houston, TX
April 22 - 26 Allentown, PA
June 24 - 28 Orlando, FL
August 19 - 23 Denver, CO
October 21 - 25 Houston, TX



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Power*Tools Software Customer Testimonials

*"The three-day SKM training course that I attended on the Power*Tools software was very helpful in developing my understanding of this powerful analysis tool. Prior to attending the course, my experience with the software could be categorized as somewhere between novice and intermediate. I had used Dapper in performing Load Flow Studies and Short Circuit Analysis and was able to model a system in the computer, run a system study, and produce a hard copy of the study for review. However, I was not familiar with the Datablock functionality and had never used Captor. The material covered in class was a practical introduction to these subjects. Also, I learned several "shortcuts" to create the system model more quickly. I would not hesitate to recommend the SKM training course to others."*

Douglas Earhart
Electrical Engineer
Burns & McDonnell Consulting Engineers
Kansas City, MO

"...we have been using SKM Software since 1989, from DOS to the latest version of PTW. We constantly test and verify the software for its accuracy, reliability, and for the devices typically used in the industry. The latest windows version is user friendly and efficient." "... we are extremely happy with the support SKM provides from assistance with the software application to the software upgrades..."

S.P. Reddy
Senior Staff Engineer
B E & K Engineering

Power*Tools Software Customer Testimonials

".....Parsons' Reading Office has been using SKM software since the late 1980's, i.e., the original DOS versions of DAPPER and A_FAULT.....we still use the DOS programs on a limited basis for "Continuing Service Work" at nuclear power plants. We have used competitor's programs and prefer SKM PTW software based on its analytical power, yet simplicity of use.....my personal favorite is CAPTOR, which has greatly simplified protective device coordination analysis.....SKM technical support is superb...we are looking forward to using the PTW 4.0 release to its greatest capabilities."

Norman E. Reifsnyder, P.E.
Supervising Electrical Engineer
Parsons Energy & Chemicals Group Inc.
Reading, PA

*"We are a small corporate electrical engineering group responsible for power system projects in our 200+ manufacturing facilities in North America. We have been using the software since July and the additional analysis we are able to perform using Power*Tools has saved enough money to pay for the software"*

Kevin Free, PE
General Engineering Department
Sonoco Products
Hartsville, SC