

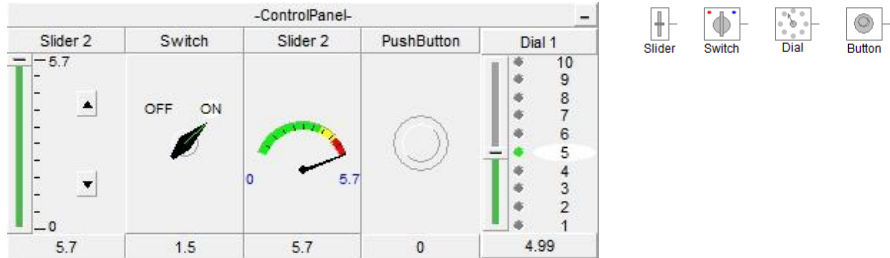
PSCAD RUNTIME CONTROLS



THIS DOCUMENT DESCRIBES THE RUNTIME CONTROLS AND DATA ANALYSIS FEATURES THAT ARE FOUND IN PSCAD V4.2.1. FOR A COMPLETE FUNCTIONAL DESCRIPTION OF THESE CONTROLS, PLEASE SEE THE ONLINE HELP WITHIN THE PSCAD ENVIRONMENT, OR VIEW THE PDF DOCUMENTS CONTAINED IN THE HELP DIRECTORY OF THE PSCAD CD-ROM.

SLIDERS, SWITCHES, DIALS, AND SELECTORS

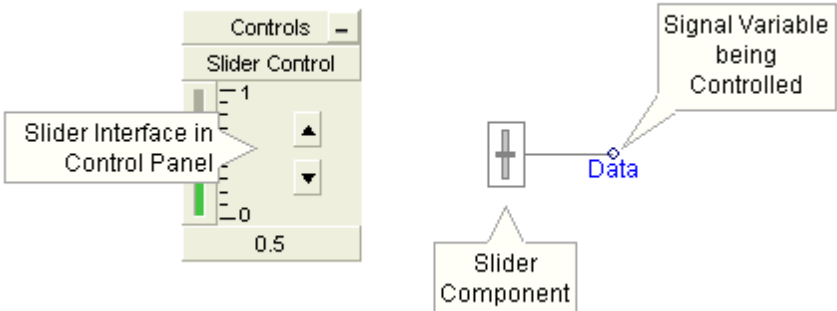
PSCAD® offers complete interactive input during simulation operations so that parameters may be varied in time, “what if” analysis can be performed, and visualization of how power systems behave with new input.



SPECIAL COMPONENTS (SHOWN BELOW) ARE PROVIDED TO ALLOW USERS TO PROVIDE DIRECT AND TACTILE INPUT INTO THE SIMULATION.

CONTROL INTERFACES

A Control Interface is just as its name describes: A user interface object, which allows manual adjustment of an EMTDC data input variable by the user. A Control Interface must first be linked with one of the I/O Devices available in the Master Library (i.e. Variable Real/Integer Input Slider, Two State Switch, Rotary Switch (Dial), and Push Button). The Control Interface will then control the output of the linked control component. For example, the following image shows a Slider component linked to a control interface in a control panel.



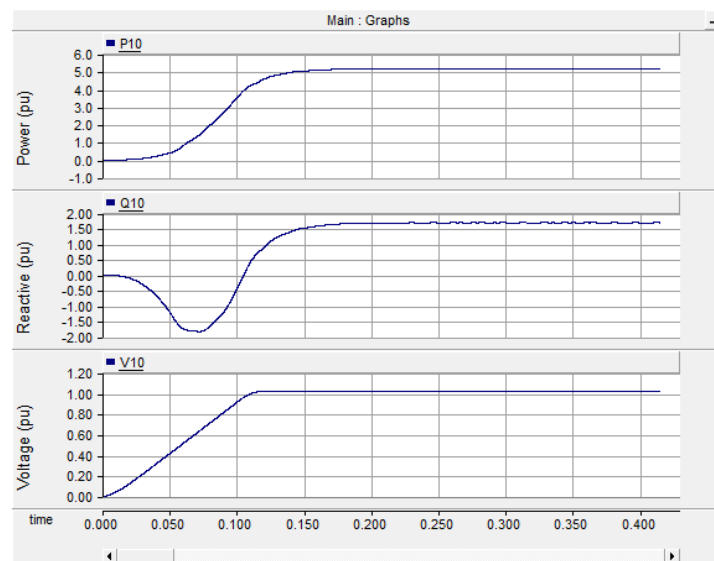
PSCAD OUTPUT VISUALIZATION TOOLS



OVERLAY GRAPHS

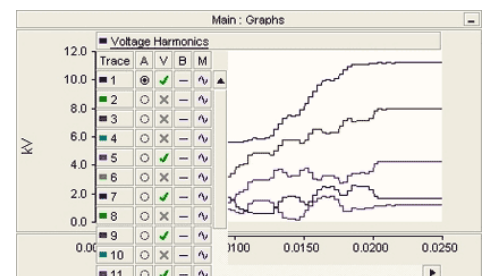
Here is an example of Overlay Advanced Graph. The Graph frame contains several interactive features that will allow users to easily analyze output data. The graph frame employs auto scaling with Smart Axis developed by Z Systems. The frames are performance optimized to manage the massive amounts of data that EMTDC generates as an electro-magnetics transient program. The time axis allows scrolling in time and also employs a dynamic aperture to give a window of scope desired in the view. Conventional zoom and cross hairs are also available, and a set of markers to give the differential between two points is readily accessible.

Users can customize the look and feel of the plots with dialog controls, and data from the plots can be copied to the clipboard to be analyzed in any other 3rd party data analysis program.

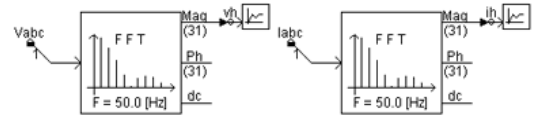


ARRAY TRACE RECORDING

To enhance the flexibility of PSCAD and reduce errors, the PSCAD development team coded the ability to accept arrays of signals in the output channel recording devices. This eliminates the need to tap arrays into scalars and record each one. All traces in the arrays are synchronized to a single storage device.



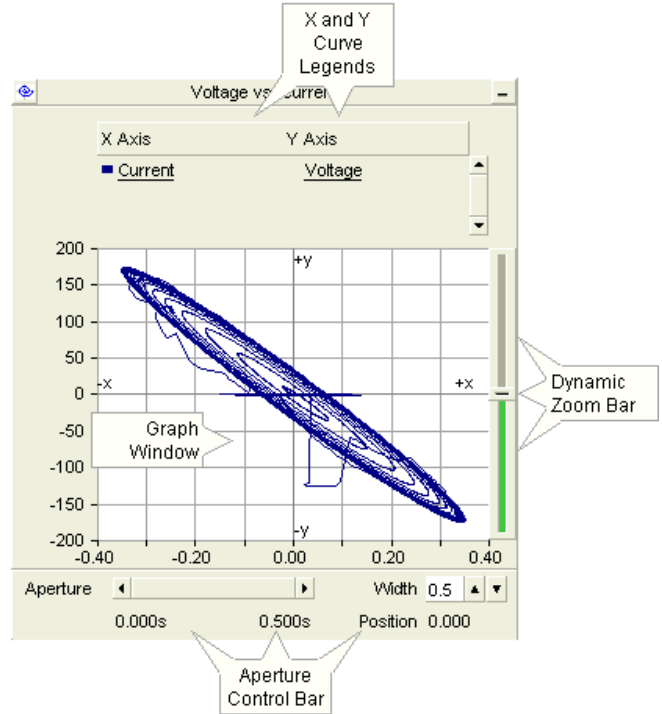
Array trace recordings are supported by enhanced curve objects that will plot any and all traces of an array on a single graph.



XY PLOTS

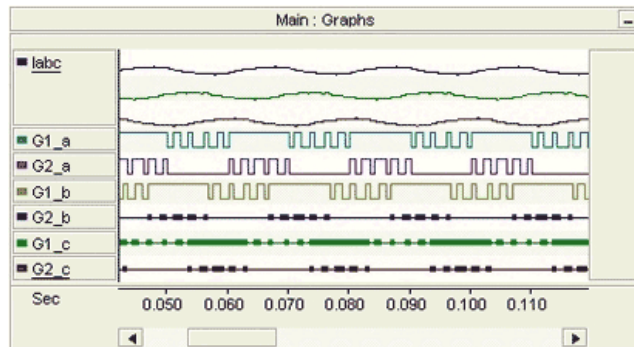
PSCAD has XY plot feature that is useful for some types of data analysis, particularly impedance trajectory plots for the study of relay protection systems.

The XY Plot is a special type of Runtime object, which is composed of both a Graph Frame and a single, specialized Graph window for the purpose of plotting one Curve versus another. An XY Plot can accommodate multiple Curves on each of the X and Y-axes, and includes Dynamic Zoom and Polar Grid features.



POLYGRAPHS

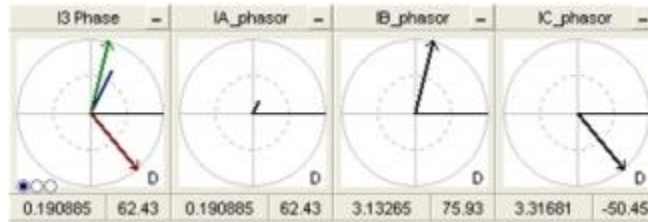
PSCAD offers a stacked graph similar to many digital fault recorders. This device accepts curves and stacks each trace as either a digital or analog signal.



PHASOR METER DEVICES

A PhasorMeter is a special Runtime object that can be used to display up to six, separate phasor quantities. The PhasorMeter displays phasors in a polar graph, where the magnitude and phase of each phasor responds dynamically during a simulation run. This device is perfect for visually representing phasor quantities, such as output from the On-Line Frequency Scanner (FFT) component.

A display method for sequence components (positive, negative, and zero) in a time domain environment give excellent visual perspectives on power system behaviours.



POLYMETERS

This display type can be used to view instantaneous data array magnitudes online. This is of particular convenience when viewing harmonic spectrums.

