## PCAMS for Windows NT

Trend Program Documentation

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## **Trend Overview**

The power to generate graphical information is built right into PCAMS. Simply tell it what you want to know, and it delivers graphs that show the peaks and valleys of opacity, power consumption, or other measurements over any time period you set.

PCAMS lets you spot trends in precipitator performance without manual record-keeping. You can use this information to better manage your boilers and your power supplies. For example, if you know what fuel the boilers were using during a given period, you can analyze its effect on precipitator performance.

What's more, you can get the information in graphic or table form, on screen or printed out.

Unlike V/I curve, Trend curves are plotted over a period of time that you specify. You can see system behavior on an hour-to-hour, day-to-day, even month-to-month basis.

## Starting Trend

Trend can be launched directly from PCAMS.



Just click on the Trend icon, the bottom-left icon on the toolbar on the main screen.

#### Time entry

Trend plots can be set up for virtually any time period you wish.

To select the time period, select "Time Range" from the "Select" pulldown menu. The Plot Time Entry window appears.

Plot Time Entry Screen	×
Start Time	OK
Year Month Day Hour Minute	Cancel
1998 - 5 - 6 - 17 - 15 -	1 Month
Stop Time	1 Week
Year Month Day Hour Minute	1 Day
1998 - 5 - 6 - 18 - 15 -	1 Hour
Maintain curr	ent stop time

You can select from several preset time ranges by clicking on the buttons on the right of the window. Select from: 1 month, 1 week, 1 day or 1 hour.

To set a specific time, other than the preset ranges, choose the start and stop points by typing over the values in the box or using the arrows attached to the box to increment or decriment the value.

The X axis on the plot will automatically adjust so that the period you have selected will occupy its full left-to-right scale.

#### Line color

You can change the color of the lines by selecting "Line Color" from the "Select" pulldown menu. The Line Color window will appear.

Color Change	×
Axis Colors Axis 1 Axis 2 Axis 3 Axis 4	OK Cancel

Next to each button is the current color for each axis. To change this color, click on the button of the axis you wish to change.



You can select one of the primary colors displayed in this window or click on "Define Custom Colors" to create exactly what color you want.



You can choose from any color in this extended list and then click "Add to Custom Colors" to bring that color over to the origional window.

Once you have selected your color, click OK, or Cancel to ignore your changes.

### Printing

You can make a printout of the current screen of plotted curves by selecting "Print" from the "File" pulldown menu or by clicking on the print button on the toolbar.

You can preview this printout before you send it to the printer by selecting "Print Preview" from the "<u>F</u>ile" pulldown menu or by clicking on the print preview button on the toolbar. The Print Preview window displays.



You can select "Print" from the Print Preview window to send this to the printer. Select "Close" to end the preview and return to V/I curve.

#### Making adjustments to your printer setup

To change any of your printer settings, click on "Print Setup..." from the "File" pulldown menu.

### **Graph functions**

You can change the apperance of the graph in many ways through the toolbar or the options on the "View" pulldown menu.

#### Toggling the grid

You can turn the grid on and off by clicking on the grid button on the toolbar or selecting "Grid Lines" from the "View" pulldown menu. The grid button will appear depressed on the toolbar and the the grid label will be checked in the pulldown menu if the grid is enabled.

#### Toggling control points

Control points mark the actual values of sampled data. The lines plotted connect these points, however you can choose to view or hide these control points. Turn them on or off by clicking on the control points button on the toolbar or selecting "Control points" from the "View" pulldown menu.

#### Key position

When one or more T/Rs or T/R fields have been plotted, you can change the key position to horizontal or vertical, or turn the key off completely. Use the key buttons on the toolbar to toggle between horizontal or vertical key position, or click the current key position to turn it off. You can also do this from the "View" pulldown menu.

## **Plotting data**

### Precipitator plot setup

To access the Precipitator plot setup window, select "Precipitator" from the "Select" pulldown menu. The Precipitator Plot Setup window will appear.

hecipitator: P1	-		
'1 Axis	Y2 Avis	Y3 Axis	Y4 Asis
Opacity	Boiler Load		
Avg. Secondary Current Avg. Secondary Voltage Boller Load	Avg. Secondary Current Avg. Secondary Voltage Boller Load	Avg. Secondary Current Avg. Secondary Voltage Boler Load	Avg. Secondary Current Avg. Secondary Voltage Boiler Load
Opacity	Opacity	Opacity	Opacity
Total Secondary Current	Total Secondary Current	Total Secondary Current	Total Secondary Current

Select the precipitator you wish to use from the combo-box at the top of the window. Next, select, from the list boxes, the data you wish to trend. You may have up to 4 Y axis. To remove an axis, clear the edit box on top of the list box of the axis you wish to remove.

#### T/R plot setup

To access the T/R plot setup window, select "T/R" from the "Select" pulldown menu. The T/R Plot Setup window will appear.



Select the precipitator you wish to use from the combo-box at the top of the window. Next, select the T/Rs you wish to plot in the T/Rs list box. From the axis list boxes, select the data you wish to trend. You may have up to 4 Y axis. To remove an axis, clear the edit box on top of the list box of the axis you wish to remove.

### T/R fields plot setup

To access the T/R Fields window, select "T/R Fields" from the "Select" pulldown menu. The T/R Fields Setup window will appear.

7R Fields			
Precipitator: P1	-		
T/R Fields: Field 1 Field 2 Field 3 Field 4 Field 5 Field 6 Field 6 Field 7			
/1 Axis	Y2 Axis	Y3 Axis	Y4 Axis
Avg. Firmary Voltage Avg. Arc Rate Avg. Conduction Angle Avg. Power Avg. Primary Current Avg. Sciondary Current Avg. Sciondary Voltage Avg. Sciondary Voltage Avg. Spark Rate Total Power	Avg. Finnary Cuttent Avg. Acc Rate Avg. Conduction Angle Avg. Power Avg. Primary Cuttent Avg. Primary Voltage Avg. Secondary Voltage Avg. Spark Rate Total Power	Avg. Arc Rate Avg. Conduction Angle Avg. Power Avg. Primary Current Avg. Primary Voltage Avg. Secondary Cutrent Avg. Secondary Voltage Avg. Spark Rate Total Power	Avg. Arc Rate Avg. Conduction Angle Avg. Power Avg. Primary Current Avg. Primary Voltage Avg. Secondary Current Avg. Secondary Current Avg. Spark Rate Total Power

Select the precipitator you wish to use from the combo-box at the top of the window. Next, select the T/R fields you wish to plot in the T/R Fields list box. From the axis list boxes, select the data you wish to trend. You may have up to 4 Y axis. To remove an axis, clear the edit box on top of the list box of the axis you wish to remove.