

# Power Log

PC Application Software

Users Manual

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**FLUKE Power Log Software**  
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# Table of Contents

Title	Page
Introduction.....	1
Logging Parainstruments.....	1
System Requirements.....	2
Installing Power Log.....	2
Installing from CD.....	2
Installing from Fluke Website.....	2
Available Language Support.....	2
Using Power Log.....	3
Starting Power Log.....	3
Main Menu Options.....	4
Opening a Data File.....	4
Download Measurements.....	4
Uninstalling Power Log.....	5
Connecting to a Power Quality Instrument.....	5
Connecting a 345.....	5
Connecting a 435.....	5
Connecting a 1735.....	5
Downloading and Using Data.....	6
Downloading Logged Data to a PC.....	6
Using Saved Measurement Data.....	6
Analyzing Data.....	7
Summary Tab.....	7
Spreadsheet Tab.....	8
RMS Tab.....	9
Statistics Tab.....	10
Harmonics Tab.....	10
Frequency/Unbalance Tab.....	12
Power Tab.....	12
Screens Tab.....	13
Energy Tab.....	14
Printing Reports and Exporting Data.....	15
Printing Reports.....	15
Exporting Data.....	16



# ***List of Tables***

<b>Table</b>	<b>Title</b>	<b>Page</b>
1.	System Requirements.....	2



# ***List of Figures***

<b>Figure</b>	<b>Title</b>	<b>Page</b>
1.	Power Log Welcome Screen .....	3
2.	Summary Display for User Input .....	7
3.	Spreadsheet for Saved Data.....	8
4.	RMS Time Plot with Selected Channels Visible.....	9
5.	Statistics with Channel A Selected.....	10
6.	Harmonics Time Plot with Selected Channels .....	11
7.	Histogram .....	11
8.	Frequency/Unbalance Time Plot–Frequency Displayed .....	12
9.	Power Time Plot with Active and Reactive Power Selected.....	13
10.	Screens Pane with Instrument Display Image .....	14
11.	Energy Time Plot for Selected Period.....	14
12.	Report Wtier Assistant Selection Options.....	15
13.	Export Dialog Screen .....	16





# ***Power Log***

## ***Introduction***

Power Log is the PC software for Fluke models 345, 435, and 1735. The Fluke 434 also uses Power Log if the 434 logger function is installed. These models are referred to throughout this manual as “the instrument”. Power Log accepts data downloaded from an instrument and is compatible with MS Windows<sup>®</sup> NT, 2000, and XP.

After transferring logged data to a PC for graphical and tabular evaluation, data may be exported to a spreadsheet for generating and printing reports.

With Power Log, you can:

- Download recorded logged data to a PC
- Generate data tables
- View, print, and export time plots of all channels
- Perform harmonic studies
- Print tables, graphs, and comprehensive, formatted reports
- Export data for manipulation in other programs (Excel, for example)

This manual provides instruction for installing and using the software, as well as limited instruction for connecting to Fluke power quality instruments. Brief introductions to opening, viewing, filtering, and exporting data guide users through most of the features of Power Log.

## ***Logging Parainstruments***

Log function parainstruments available for viewing and analyzing using Power Log depend on which instrument you are using. This manual uses examples generated by the Fluke 345, 435, and 1735 instruments.

## **System Requirements**

The minimum computer requirements are shown in Table 1.

**Table 1. System Requirements**

<b>Component</b>	<b>Necessary</b>	<b>Recommended</b>
Free hard disk space	10 MB	>50 MB
CD-ROM drive	✓	
Monitor	800 x 600 pixels	1024 x 768 pt
Serial interface, or a serial-to-USB interface adapter and the USB adapter manufacturer's driver software for the adapter	✓	
Windows <sup>®</sup> . NT, 2000, XP or later version	✓	
Color printer		✓

## **Installing Power Log**

### **Installing from CD**

Insert the CD-ROM for your instrument. The installation should start automatically. If not, run the "launch.exe" program on the CD-ROM. Follow the instructions on the screen to install Power Log in your choice of languages. The 434 and 435 use "autorun.exe" to install Power Log.

#### *Note*

*If you are missing the CD-ROM, install the Power Log software from the Fluke website.*

The manual and all application software installs in the application directory, with a shortcut in the programs menu. Power Log installs a quick launch shortcut if you make that selection during the installation process.

### **Installing from Fluke Website**

Installing from the website requires a short registration process before redirecting you to the product download page. Navigate to the Fluke website at [www.fluke.com](http://www.fluke.com) and install using the on-screen instructions available from the product page for your instrument.

### **Available Language Support**

Power Log installs site support in all available languages. Users can view the Fluke website in the language of their choice based on their computer's operating system (OS) settings. For example, a user with their OS setting fixed for Germany will automatically see the support website in German.

## Using Power Log

Power Log may be used with existing, saved recorded data, or with newly recorded data from an attached instrument.

### Starting Power Log

To use the software:

1. Start up your PC.
2. Start Power Log by selecting the **Power Log** program icon  from the menu:

**Start | Programs | Fluke | Power Log | Power Log**

Alternatively, double-click **Power Log** icon shortcut on your PC desktop.

3. If you are using a 1735, turn on the instrument before you connect the serial cable.

The Power Log software welcome screen shown in Figure 1 displays briefly during the launch sequence.



Figure 1. Power Log Welcome Screen

eto001.bmp

The welcome screen is replaced by the following menu bar with a blank pane. The Power Log main menu displays the communications port (COM1) and menu options.



eto002.bmp

### **Main Menu Options**

The initial menu presents options for the following:

- Download
- Open
- Print Setup

Once you have downloaded data into Power Log, more menu options become available to export and manage data.

If there is an active, powered-up instrument attached to the PC, you have the option to download data immediately.

If there is no instrument attached, selecting Download returns an error message that there was no instrument detected.

If you do not have saved data for viewing, connect an instrument and refer to the section “Download Measurements” for more information about using the data.

### **Opening a Data File**

Power Log allows you to open an existing data file with saved measurements so you can view, apply filters, print, or export the information.

To open a data file:

1. Choose a file from the **File | Open** menu.
2. Depending on which instrument you are using, the window opens a series of tabs:
  - Summary
  - Spreadsheet
  - RMS
  - Statistics
  - Frequency/Unbalance
  - Power
  - Screens
  - Energy

Additional tabs become available, and some, if not relevant, are unavailable, depending on the measured or saved data.

### **Download Measurements**

This menu option allows you to download currently saved measurements from an instrument. Refer to the section “Establishing Connections” for help with connecting an instrument to the PC that is running the Power Log software.

### **Uninstalling Power Log**

Uninstall Power Log from a PC using the uninstall feature included with the software.

To uninstall Power Log, follow this path from the Windows Start button.

**Start | Programs | Fluke | PowerLog | Uninstall**

The uninstall wizard completes the removal of Power Log from the PC; however, your data files remain untouched.

## **Connecting to a Power Quality Instrument**

### **⚠⚠ Warning**

**To avoid electrical shock or damage to the equipment, and before making any connections to the instrument, read and follow the safety warnings and cautions included in the instrument Users Manual.**

Regardless of the instrument used, install the Power Log software before connecting to the instrument. The 345, 435 and 1735 instruments use either the RS232 serial or USB interface to connect directly to a PC.

Connect the instrument to a power source and turn it on before starting the Power Log software.

Refer to the manual provided with your instrument for any questions not answered in this manual.

### **Connecting a 345**

Connect a 345 to the PC using a standard USB cable supplied with the instrument. The USB port is located on the right side of the instrument.

### **Connecting a 435**

Use the optical RS232 interface for connecting the 435 to a PC or printer.

Use the optical interface cable (model OC4USB) provided with the 435 to make the connection with the USB.

The interface connection located at the right side of the 435 can be accessed by folding out the tilt stand.

### **Connecting a 1735**

#### *Note*

*Turn the power on before you connect the serial cable to the instrument.*

Using the serial cable provided with your 1735, connect the instrument to an available serial port on your PC.

## Downloading and Using Data

### Downloading Logged Data to a PC

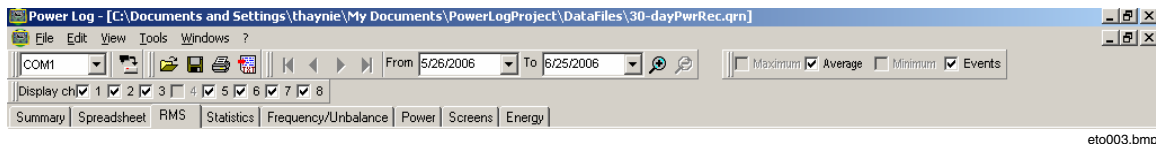
You can transfer data stored in the instrument to a PC.

#### Note

*Do not download data while the instrument is still logging; wait until logging is finished before downloading.*

1. Connect the instrument to the serial or USB port of the PC.

Note that the menu buttons now available include those for printing and exporting, Views, and Tools. The Options menu allows filtering the data using the checkboxes for any available variables (in this example, only Average and Events appear with check marks in the selection box). The menu options in the following screen shot become available only after downloading data.



2. Select from the menu **File | Download**:
3. The data transfer can take seconds or minutes, depending on the baud rate and the amount of data, and the progress bar (shown here in gray, fills in with blue before displaying).

Once the downloaded is complete, a timeplot of the data appears.

4. You are prompted for a file name to assign to your downloaded data for most instruments. The 434 and 435 require that you select **Save Data**.

#### Note

*The window that opens on the PC desktop depends upon the mode the instrument was in when the information was recorded.*

### Using Saved Measurement Data

Open a saved data set using Power Log with the following steps.

1. First, start **Power Log** if it is not already running.  
After the welcome screen and reminders have displayed, the menu offers limited options.
2. Select **File | Open**, and navigate to the DataFiles folder in the *Fluke > Power Log* folder. Or, if your data files are at another location on the PC, browse to the location.
3. Select a file to use and click **Open**.

The window that opens defaults to the mode last used, or the mode the instrument was in when the data was recorded and saved.

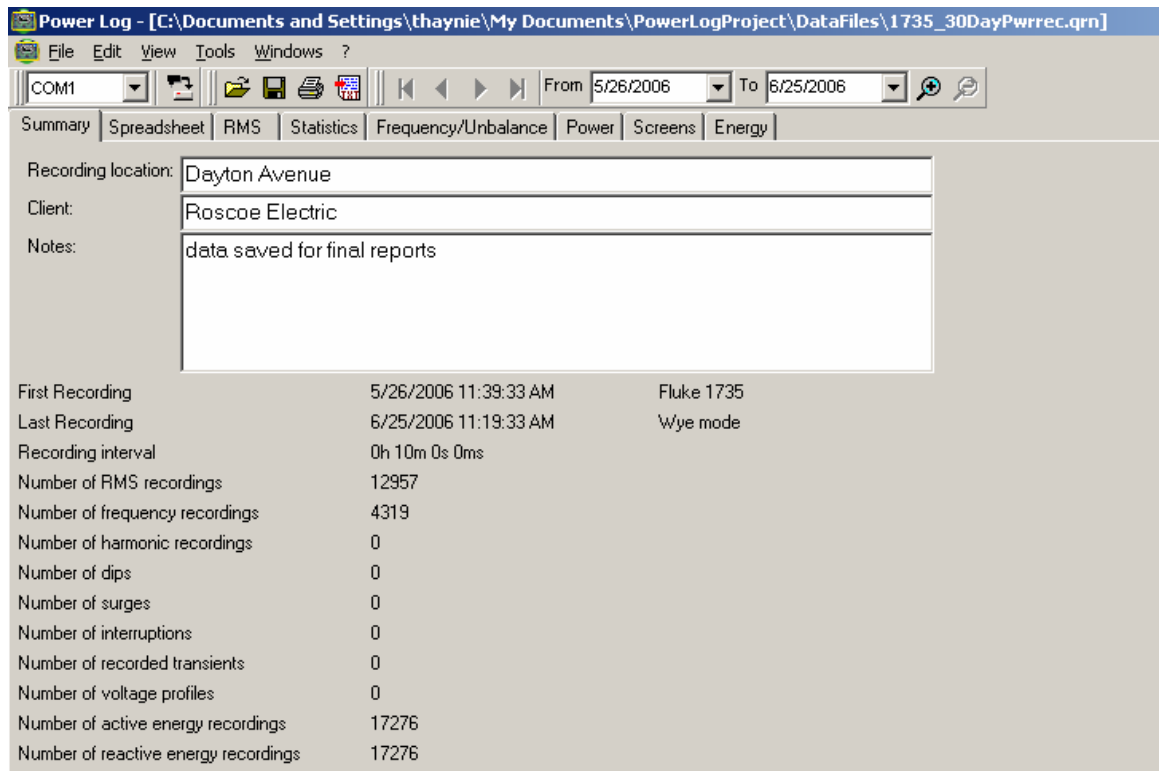
## Analyzing Data

Data can be viewed and printed, or exported for use in other software, such as MS Excel and database programs. Whether downloaded from a connected instrument, or opened from files, the same tabs and window options are visible.

- Summary
- Spreadsheet
- RMS
- Statistics
- Harmonics
- Frequency/Unbalance
- Power
- Screens
- Energy

### Summary Tab

The Summary tab shown in Figure 2 allows you to enter information about the session, the client, and any notes that may be useful.



eto004.bmp

Figure 2. Summary Display for User Input

**Spreadsheet Tab**

The Spreadsheet tab allows you to view the recorded dates and time, and additionally allows you to filter the data by de-selecting the checkboxes in the top line. Figure 3 shows the Duration checkbox unselected, and only the selected channels and options are visible.

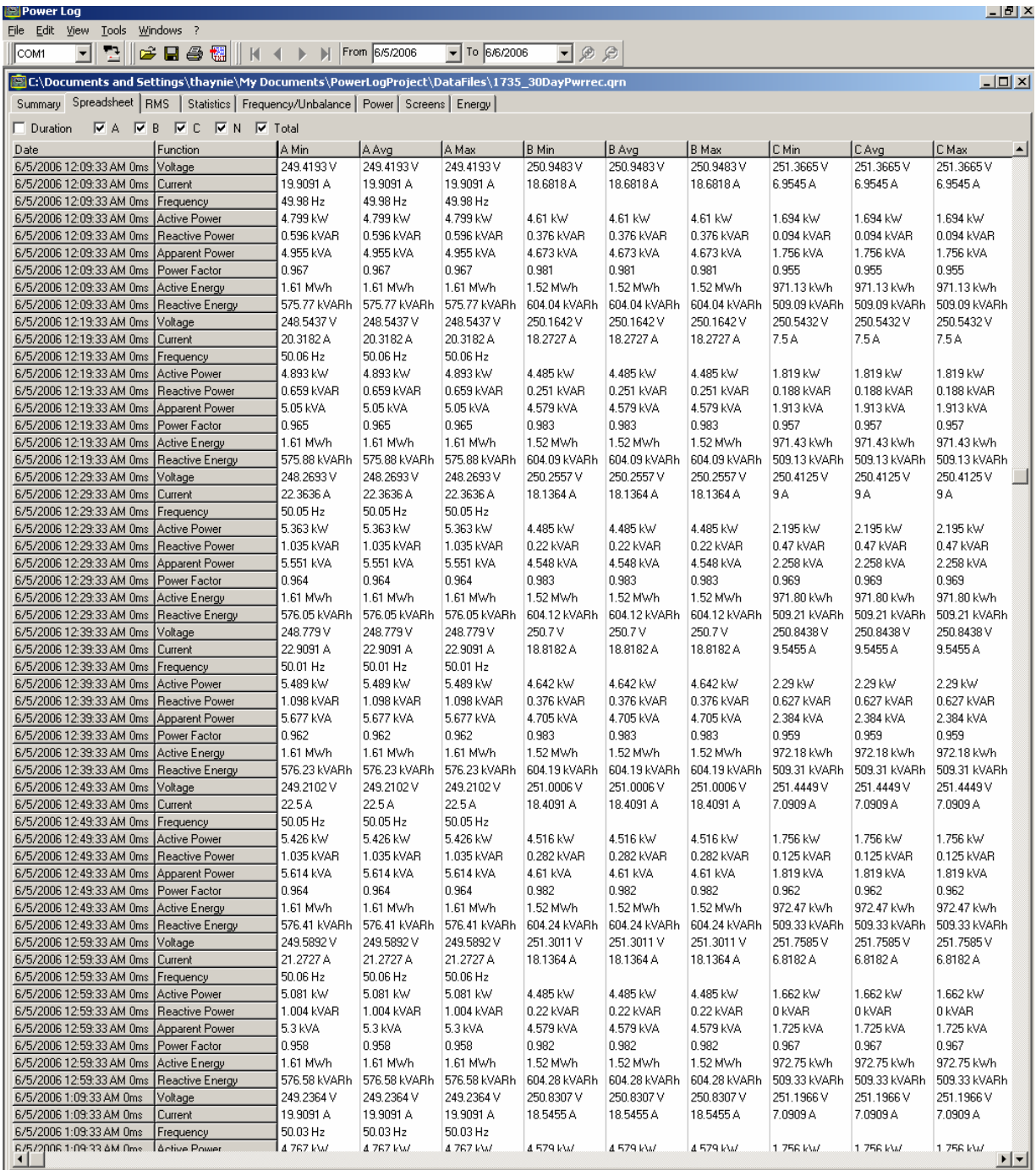


Figure 3. Spreadsheet for Saved Data



### RMS Tab

The RMS tab displays a timeplot showing the recorded voltages for the selected channels shown in the in Figure 4.

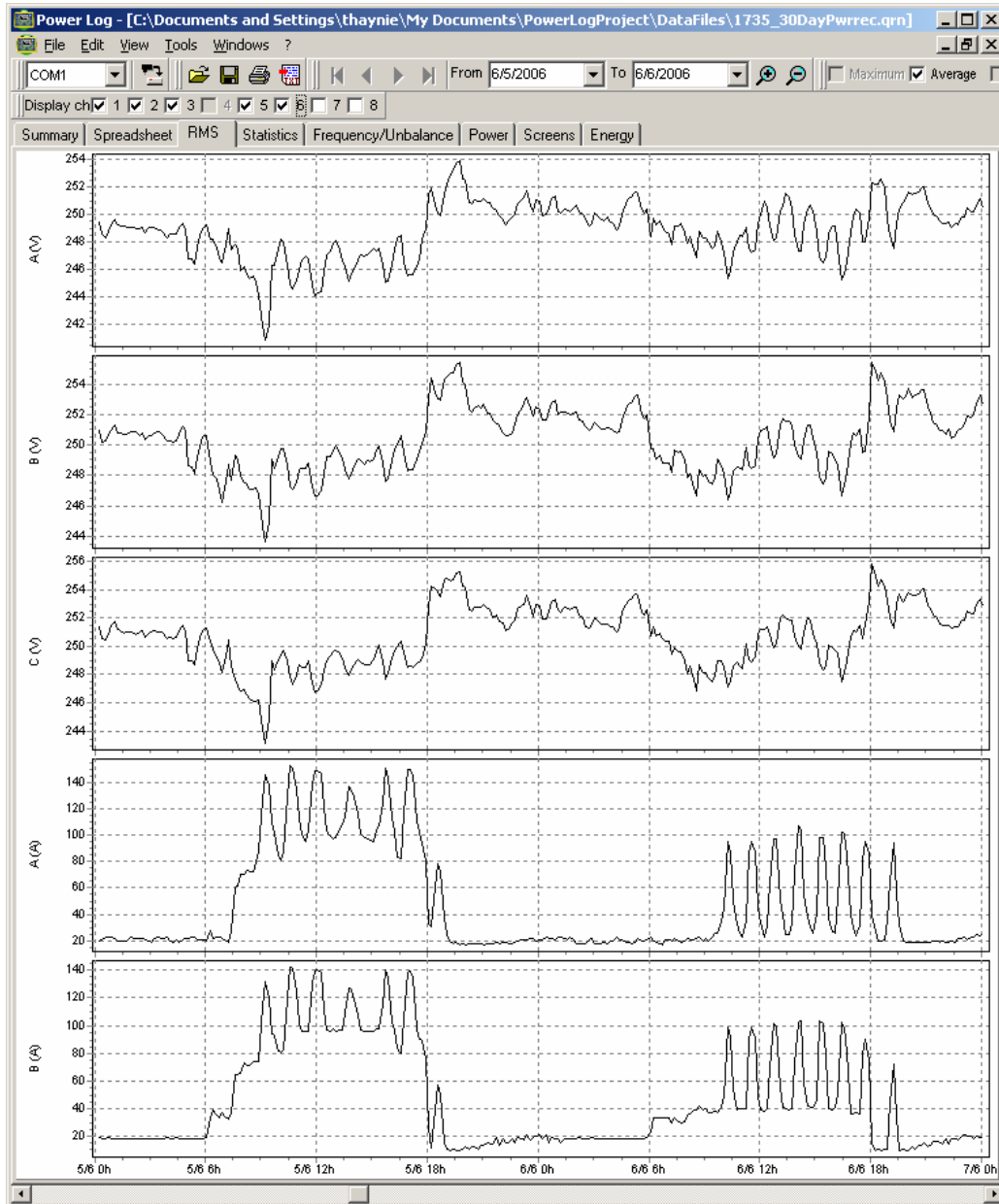


Figure 4. RMS Time Plot with Selected Channels Visible

eto006.bmp

### Statistics Tab

Selecting the statistics tab allows you to filter by Maximum, Average, and Minimum values, as well as Selected Channel for the recorded or saved data.

Statistical information to support the image is provided in addition to the graphic display of the recorded data (see Figure 5).

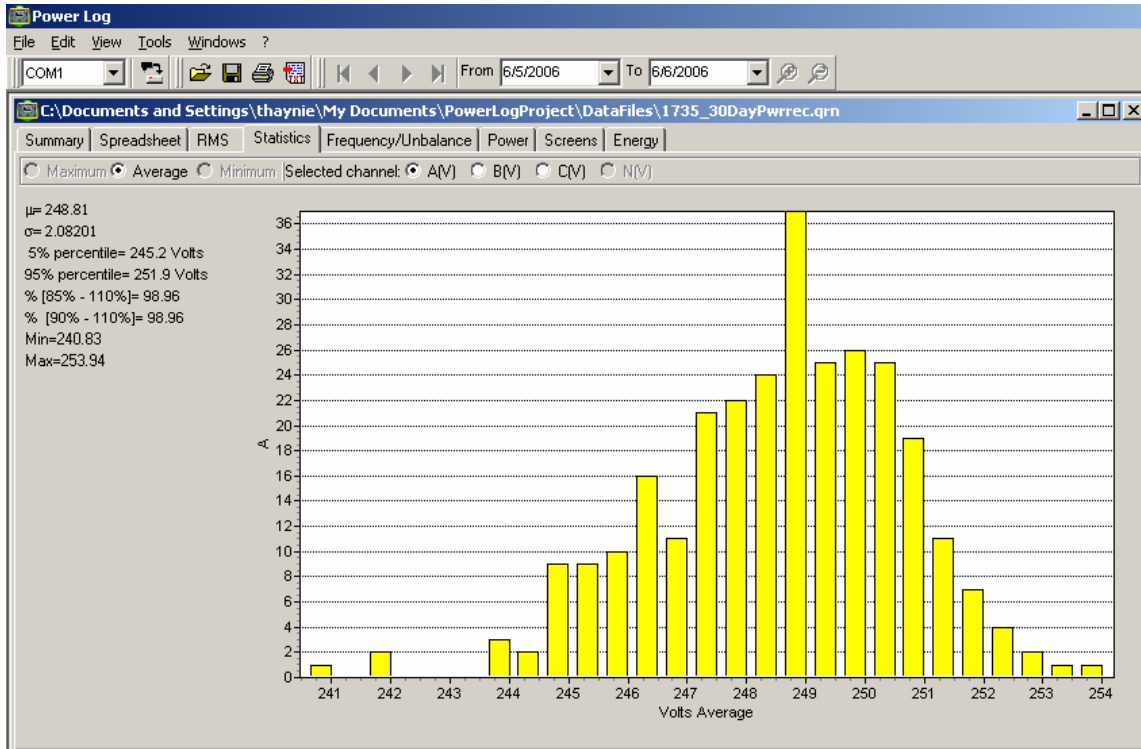


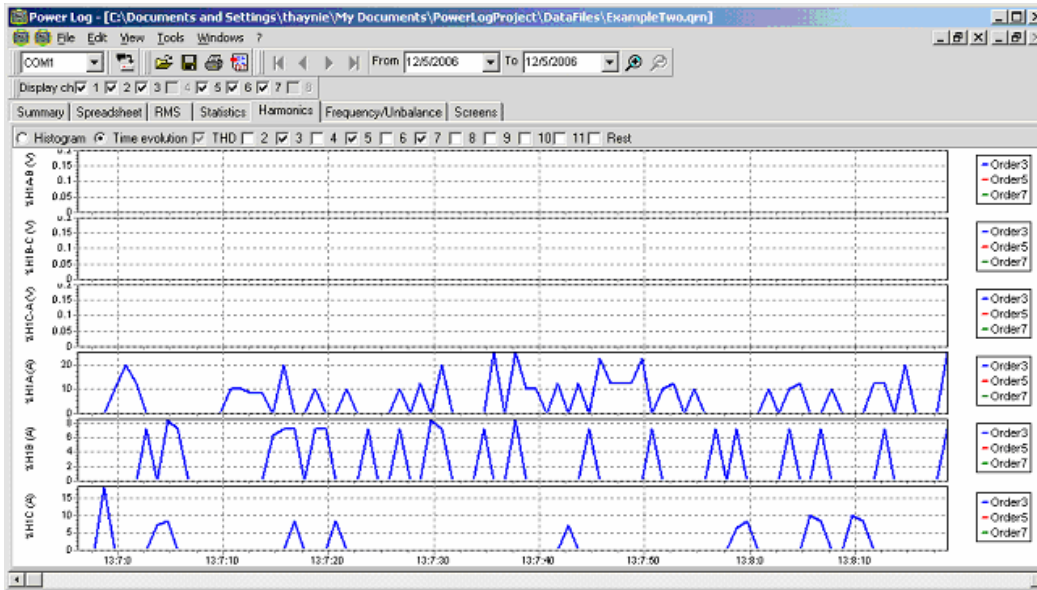
Figure 5. Statistics with Channel A Selected

### Harmonics Tab

Harmonics are periodic distortions of voltage, current, or power sine waves. Each waveform can be considered as a combination of various sine waves with different frequencies and magnitudes.

Harmonics are often caused by non-linear loads such as DC power supplies in computers and other adjustable motor drives, resulting in overheating transformers and conductors.

The harmonics timeplot offers two options for the display. The histogram displays the data in a bar graph, with the % of the fundamental (50 or 60 Hz) on the left side (vertical, or Y axis) and harmonic order on the X axis (horizontal), as shown in Figure 6.

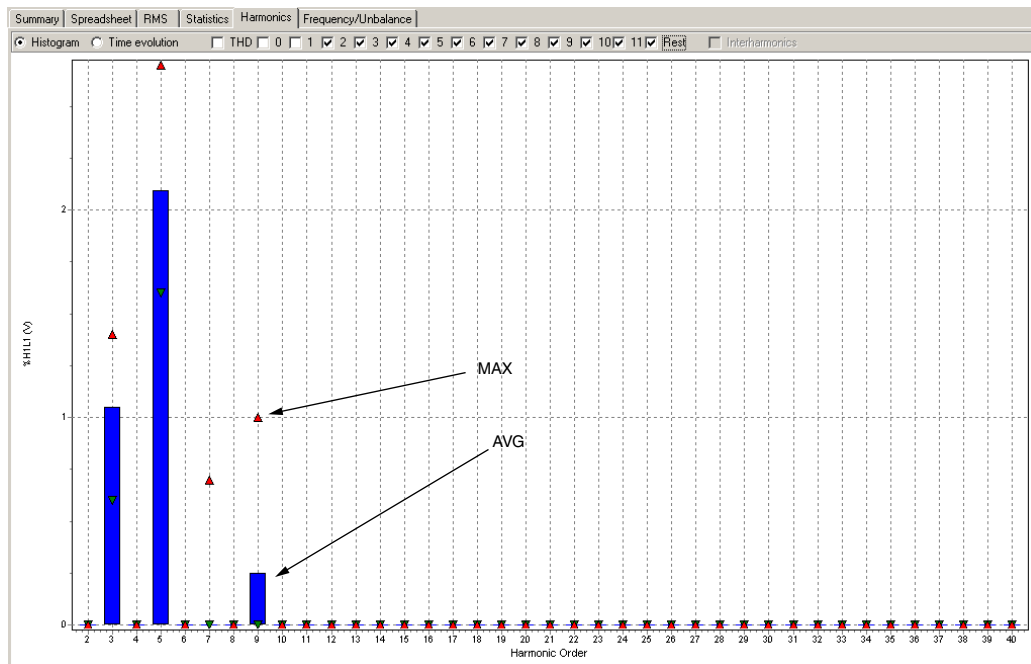


eto008.bmp

Figure 6. Harmonics Time Plot with Selected Channels

This tab is visible only if you captured relevant harmonics data.

Figure 7 shows another way of looking at harmonics data.



powerloghisto.eps

Figure 7. Histogram

*Note*

*With either the histogram or Time evolution display, filters may be selected and un-selected as needed using the radio buttons at the top of the display window.*

Select the **Time evolution** radio button to change the display to a graph displaying the time along the X (vertical) axis, as shown in the example data in Figure 6.

### Frequency/Unbalance Tab

Unbalance displays the voltage unbalance (%) in a system. This is an important measurement in the case of electric motors, which will run hotter when voltage is not balanced. The method of calculation used is the ratio of positive-sequence symmetrical components divided by negative sequence components. This is the measurement method defined by the international standard IEC 61000-4-30.

Figure 8 shows the display indicating both the time plot and legend for the recorded information.

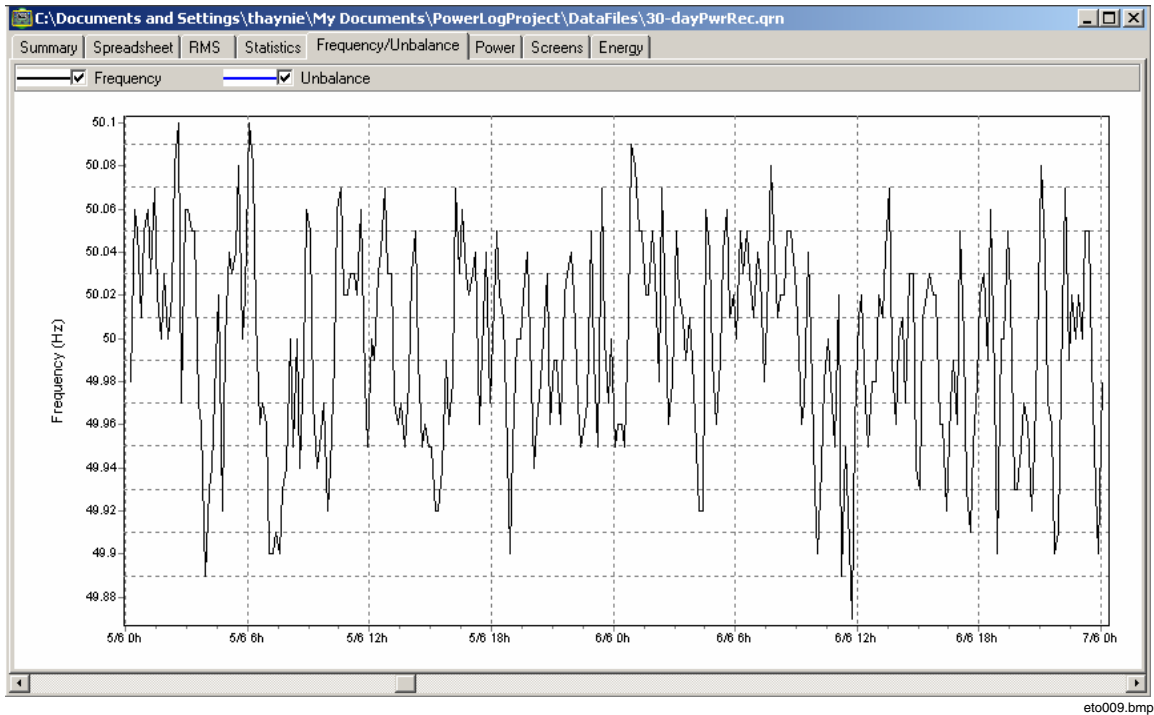


Figure 8. Frequency/Unbalance Time Plot–Frequency Displayed

### Power Tab

The Power tab allows the user to filter the information using the checkboxes at the top of the display window. In the example below, the Y axis shows the Total power (kW, KVAR, and three phases). The X or horizontal axis shows the time data. Visible in Figure 9, a legend explains the colors used in the graph to distinguish between Active and Reactive power.

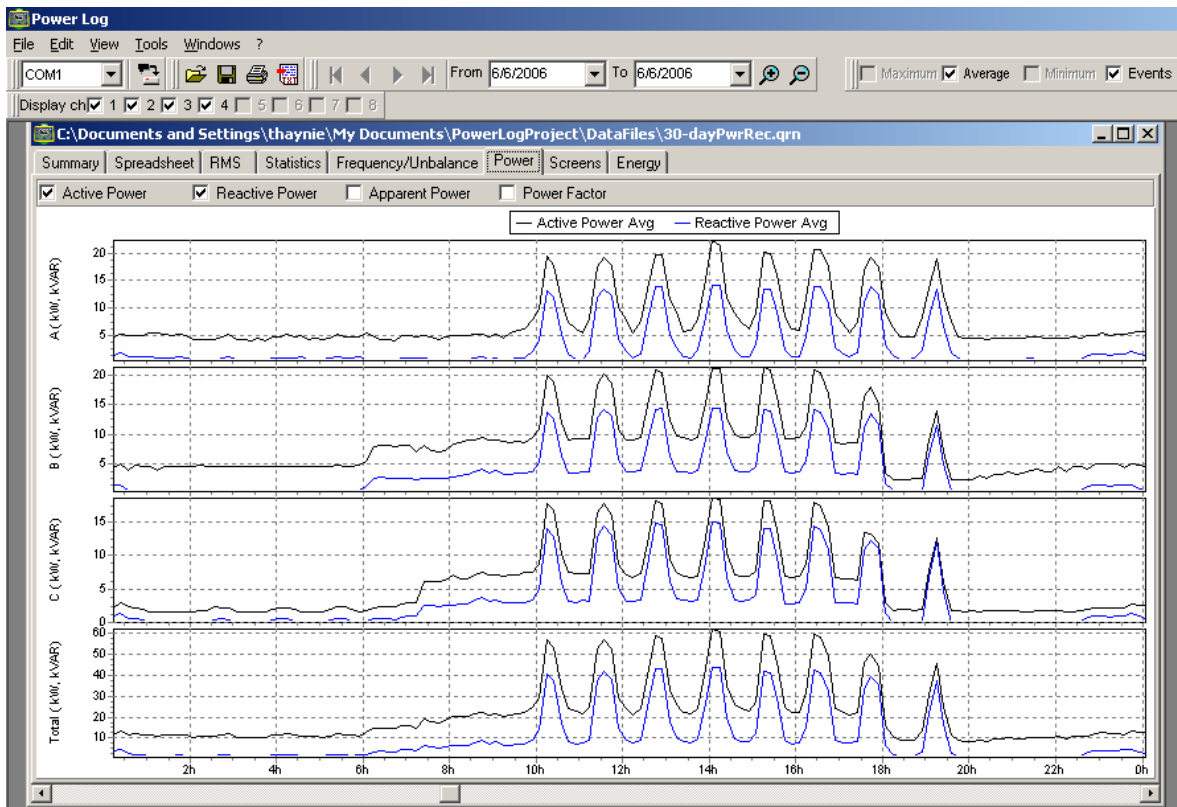
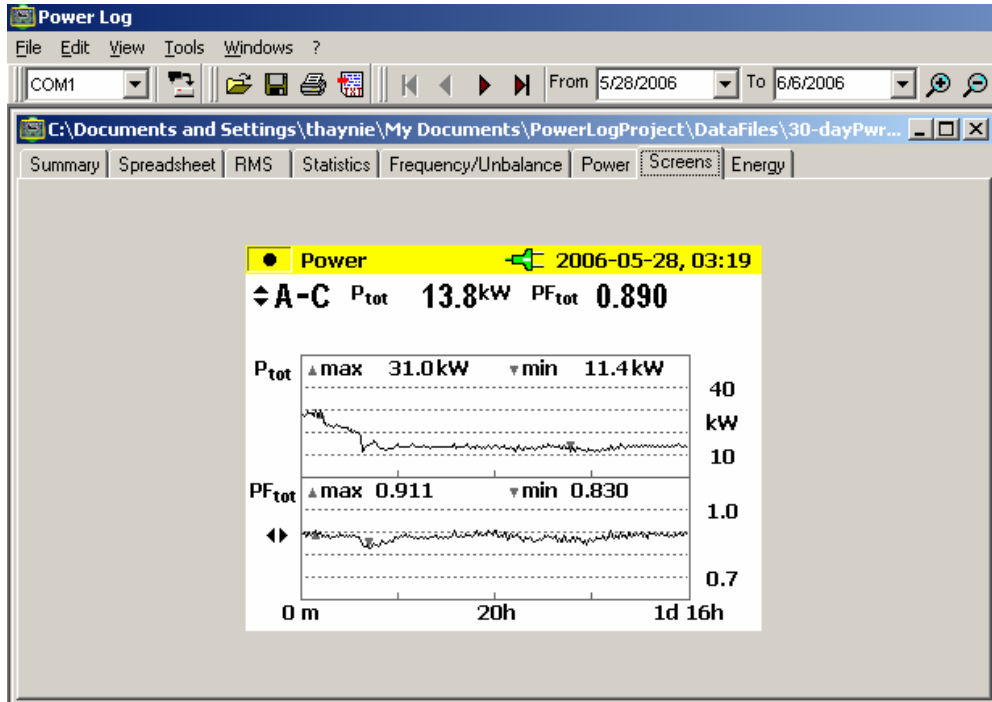


Figure 9. Power Time Plot with Active and Reactive Power Selected

### Screens Tab

The Screens tab illustrates the screen mode in use by the logger or instrument with which the data was recorded, or screens saved by pressing the **SAVE** button on the Instrument. In the example in Figure 10, the power logger in use was the Fluke 1735, and the recording mode set to Harmonics. Use the right and left arrowhead buttons on the top toolbar to display additional screens.



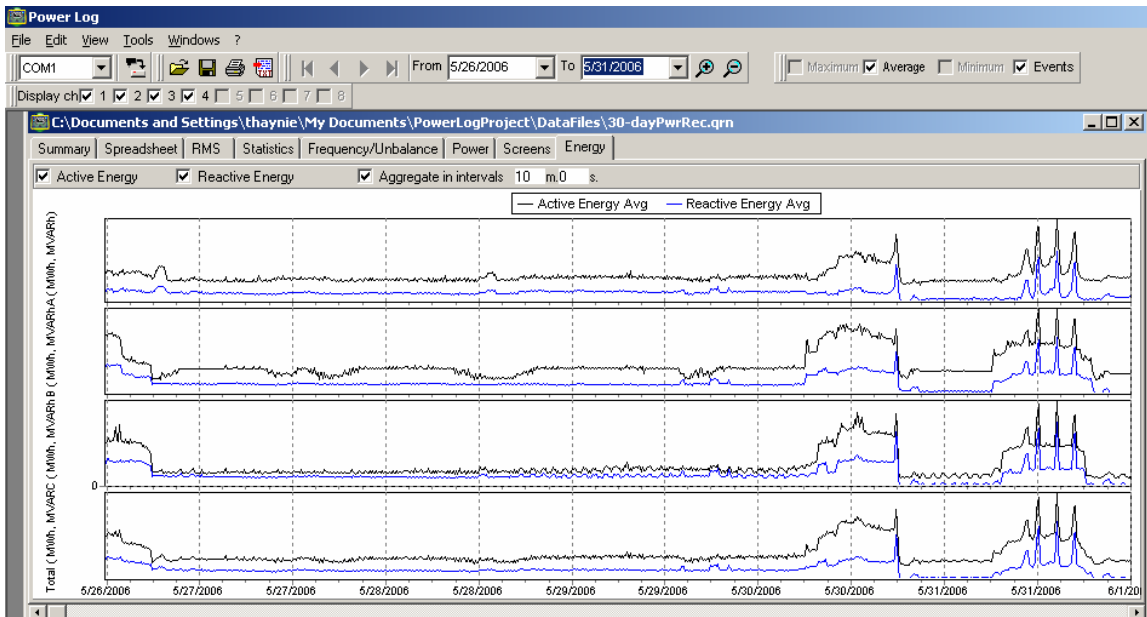
eto011.bmp

Figure 10. Screens Pane with Instrument Display Image

### Energy Tab

This mode displays energy cumulatively or in running averages. For example, the Y axis in Figure 11 displays Total energy and energy by phase. The X axis displays the time.

The checkboxes allow you to select Active energy (in kWh), Reactive Energy (in kVAh), and to view cumulative energy. When you select Aggregate, you can further break out the data into time intervals, illustrated with 10 minute intervals.



eto012.bmp

Figure 11. Energy Time Plot for Selected Period

## Printing Reports and Exporting Data

In addition to viewing recorded and saved data, users have the option of printing reports for review, and exporting data for use in other software programs.

### Printing Reports

Print a report of saved data with these steps:

1. Select **File | Print Report**

The Report Writer Assistant window opens (see Figure 12).

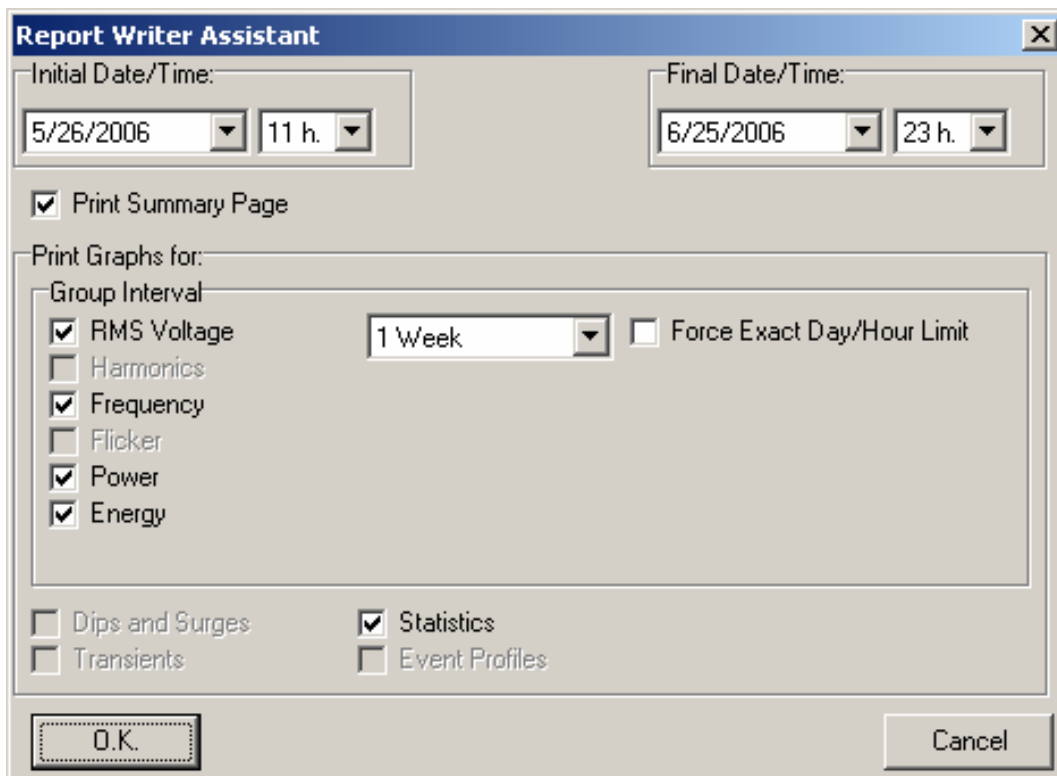


Figure 12. Report Writer Assistant Selection Options

eto013.bmp

2. Select **Initial Date/Time** using the selection box in the upper left of the dialog box.
3. Select **Final Date/Time** using the selection box in the upper right of the dialog box.
4. Deselect any of the selected options in the “Print Graphs for” section to further limit the printed data.
5. Limit the time interval using the **Group Interval** selection box, with **1 Week** as the default.
6. Click **O.K.**

This sends the file to your selected printer. The Print dialog box allows you to configure your printer settings (copies, landscape or portrait layout, and other Properties).

## Exporting Data

Set up data for export from the Spreadsheet window. For interval data, select the measurement rows to be exported, as well as the month, date, and year intervals. If items are invisible, no related measurement data exists. Figure 13 shows the Export Dialog screen.

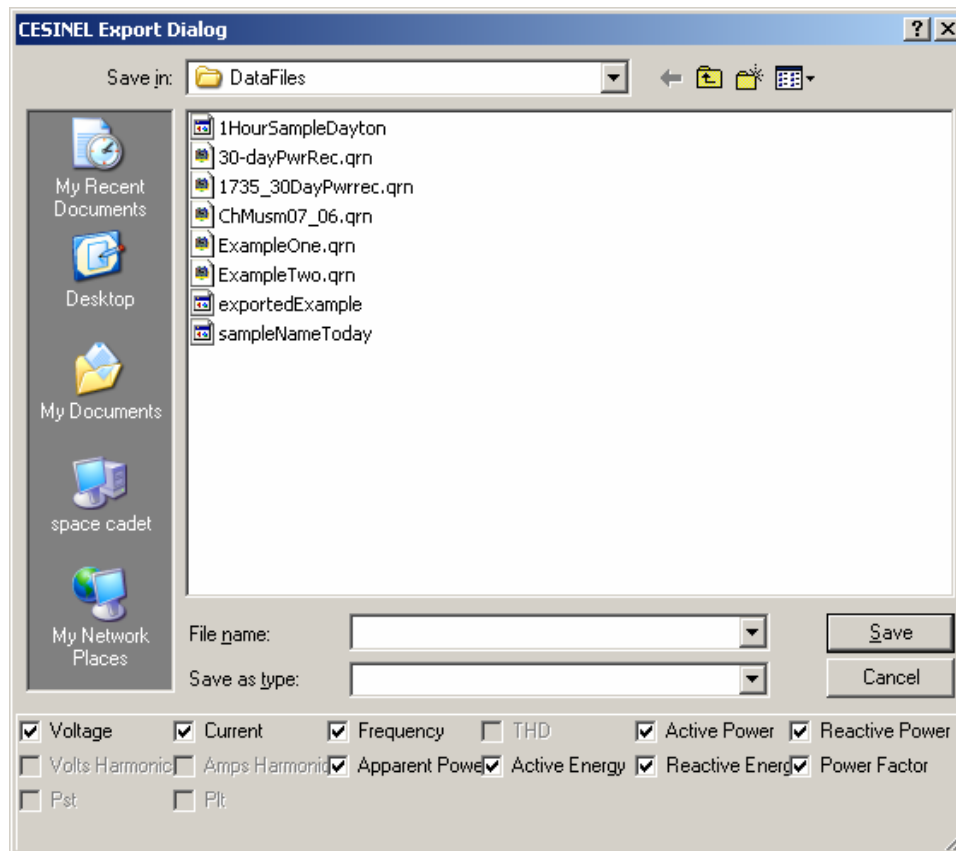


Figure 13. Export Dialog Screen

eto014.bmp

To export data files:

1. Open a measurement data file, **File | Export**.

Note that you can deselect any of the fields using the checkboxes at the bottom of this dialog box, in addition to creating a file name for the exported data. The “Save as type” field remains empty, with no selections available.

The default format works for data processed with MS Excel®.

2. Click **Save** to export data.
3. Open the exported data from within your preferred spreadsheet or database management software.

### Note

*Microsoft Excel limits the amount of data that can be opened in a spreadsheet. Avoid errors in data exporting by limiting the date intervals if you have large amounts of data to manage.*



Each exported file can be opened in other software programs, for example, Microsoft Excel<sup>®</sup> or Word<sup>®</sup>. Each file can contain measurement data from only one of the export types. If you wish to export measurement data of all types, you have to create different files.

