PowerView *for the* *EnergyPro*
Data Analysis Software

User's Guide

CANDURA
instruments

PowerView User's Guide

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Introduction

PowerView is an analysis software for data loggers designed by Candura Instruments. It a simple, yet powerful set of tools for interpreting recorded surveys.

While data statistics such as RMS, Frequency, Power, and Energy can be viewed in real time from the logger's display, *PowerView* can enhance those statistics by presenting data in detailed graphical forms. It can also generate a complete report of hourly, daily, weekly and monthly survey summaries. Graphs can be printed out or copied to a word processor. It can also export data to Microsoft EXCEL for presentation in a report or custom post processing.

System Requirements:

- Pentium Processor, Windows 98/NT/2000/XP
- 32MB RAM, 20MB Hard Disk Space
- VGA Display, 16 bit High Color 800 x 600 pixels screen area
- Mouse, Keyboard
- PCMCIA Slot (*Optional*)
- Card Reader (*Optional*)

This manual describes *PowerView* features that are used with data collected by the *EnergyPro* Energy data logger.

Introduction

Software Installation
To run the installation file from the **PowerView CD**, follow the procedures:

1. Insert CD into the CD ROM. If the 'AutoStart' feature on you computer's CD ROM is enabled, then a launch screen will open up in a few seconds. If the 'AutoStart' feature is disabled, then skip to Step 3.
2. Click on 'Install PowerView application', and follow the steps of the installation procedures.
3. *(If 'AutoStart' is disabled)*Click 'Start' button on Windows, then click 'Run' and type in D:\pvinstall2215.exe

Note: The CD ROM drive letter may be different on your computer.

The **PowerView CD** also includes a copy of CANDURA instruments web site, which contains information about product specifications, application notes, and other general information about the company. These can be accessed either from the launch screen or directly from the root directory of the CD. This web site is meant for users without a convenient internet connection. For the most recent content, please visit the online web site at www.candura.com

Quick Start

Opening a file
EnergyPro records data to a memory card as a DataCard file (*.TSE), which is not viewable until the software processes it into an **EnergyPro** processed file (*.EPF). Once the file is processed, it provides the convenience of faster load up time when re-opening a survey, and recalls all the software-level setups that were previously used on that file.

Usually, a DataCard file will be read directly from a memory card, but, for demonstration purposes, the installation of **PowerView** places a sample DataCard file in the Surveys directory. To open this sample file for viewing, perform the following:
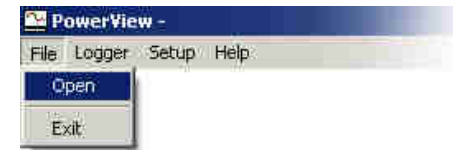
-   Go to 'File' in the menu bar and select 'Open'.

Fig. 1

-   Change *Files of Type* to 'EnergyPro Files', then open EPDemo.TSE under the directory C:\Program Files\ Candura\Survey
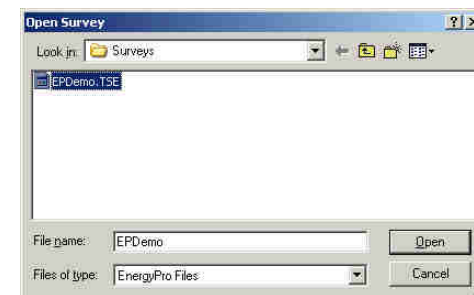

Fig.2

Continued....

Quick Start (Open an existing file from a drive) Continued

- The following Dialog Box (Fig. 3) will appear with default Title and Notes. They are not required but will be displayed in the Reports generated by *PowerView*. Enter any desired title and comments and notes then select 'OK'.
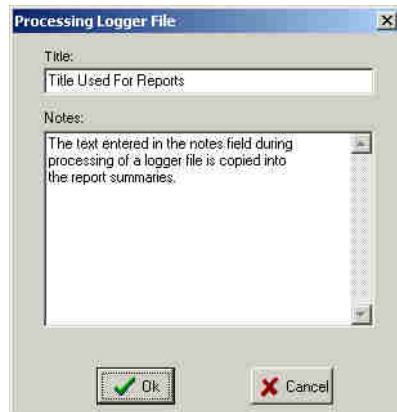

Fig. 3

- A 'Save As' dialog box will appear which prompts user to enter a file name for saving the processed file (*.EPF). The default file name is always the same as the DataCard file name. Click 'Save' to begin processing.
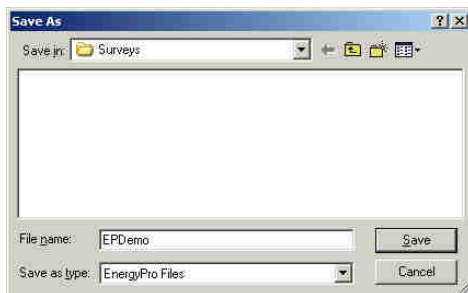

Fig. 4

Quick Start (Open an existing file from a drive)

A status bar will appear to indicate % of completion as the file is being processed.

Fig. 5

Quick Start

Quick Start

Accessing data directly from a Memory Card

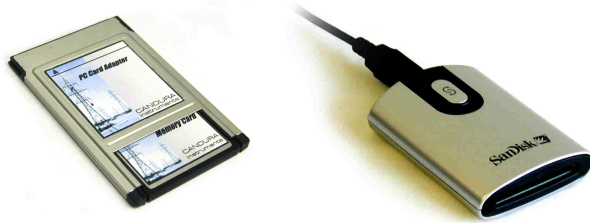To open a file from a memory card, the computer must have a PCMCIA slot or an external card reader.

Fig. 6

Follow the same procedures as described in previous pages to open the DataCard file from the PCMCIA or card reader drive.

> **Note: To avoid data corruption, remember to stop recording before removing the card from the logger.**

Shortcut for graph selection

Pre-defined graphs can be quickly plotted with this selection, or by using the speed bar icons along the top side of navigation menus. See section 'Speed Bar Icons' on pg. 8 for description of each type of graph.
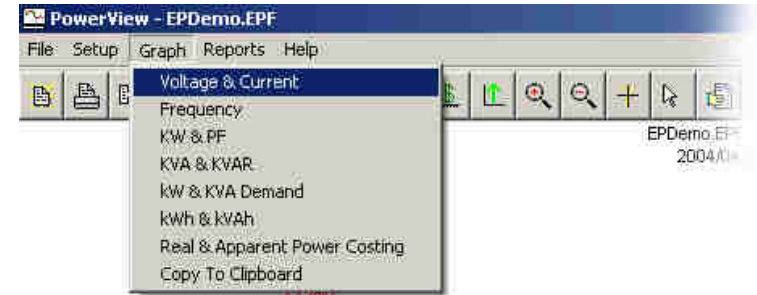

Fig. 7

Shortcut for Y-axis parameter

A graph can be plotted with any combination of up to two Y-axis parameters. The parameter of left or right y-axis can be quickly selected by opening a pop-up menu with the left or right mouse button respectively. For more detail setup control, refer to section 'Setup - Graphing' on pg. 15
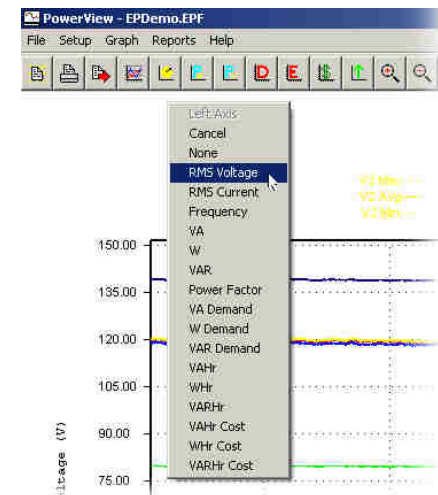

Fig. 8

Speed Bar Icons

File Open brings up the Open Survey Dialog Box. Used for opening a file for viewing.

Print Graph brings up the Print dialog box. Print a graph via the printer.

Export Data brings up the Export dialog box. Used for exporting data into an Excel file.

RMS Voltage and Current Graph displays the RMS Voltage plotted on the left axis with the RMS current plotted on the right axis.

Frequency Graph displays the frequency plotted on the left axis.

KW and PF Graph displays the real power plotted on the left axis with the power factor plotted on the right axis.

KVA and KVAR Graph displays the apparent power plotted on the left axis with the reactive power plotted on the right axis.

W Demand and VA Demand Graph displays the Real Demand plotted on the left axis with the Apparent Power Demand plotted on the right axis. See pg. 12 for integration type and period setup.

KWh & KVARh Graph displays the Real Energy plotted on the left axis with the Apparent Energy plotted on the right axis. See pg. 12 for integration type and period setup.

Real and Reactive Power Costing Graph displays the Real Energy Cost plotted on the left axis with the Apparent Energy Cost plotted on the right axis. The costing and tariff rates can be setup from the Demand setup dialog box.

Set Up Graph displays the Graph Setup dialog box.

Speed Bar Icons

Zoom In will enable zooming. The cursor will turn into a magnifying glass indicating that zoom is enabled.

Zoom Out will disable zooming and zoom out of the graph.

Data Box displays information on a specific record as the cursor moves across the graph. Information will be displayed according to the type of graph and channels that are activated. Use left or right arrow key on the keyboard to move the data box record by record.

Multiple data boxes can be pasted on to the graph by clicking the left mouse button.

Arrow disables the zoom and data box.

Reports launch the report generator

Note: Pressing 'Esc' on the keyboard will restore the displayed graph to its original unzoomed configuration with data boxes removed and the 'Arrow' tool selected.

Main Menu

File
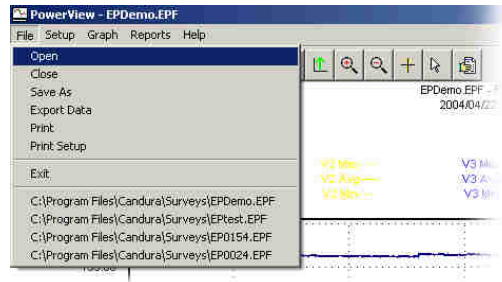Once a File is opened, the File Menu selections appear as follows:

Fig. 9

Open
Open a pre-processed file or a DataCard file directly from a memory card.

Close
Close an opened file.

Save As
Save the opened file, which also includes all the configurations that were made, such as PT/CT ratio, manual min/max axis limits, tariff rate, general color and line width for the graphs, etc.

Export Data
Export data to a comma delimited ASCII file (.CSV) which can be imported into an EXCEL spreadsheet for formatting and editing.

Print
Print the current graph on display.

Print Setup
Setup printer source and configurations.

Main Menu (File - Export Data)

Export Data
Select the type of data and parameter to export. The length of data is automatically set to the time scale of the graph on display, it can be changed to other starting and ending record numbers if desired.
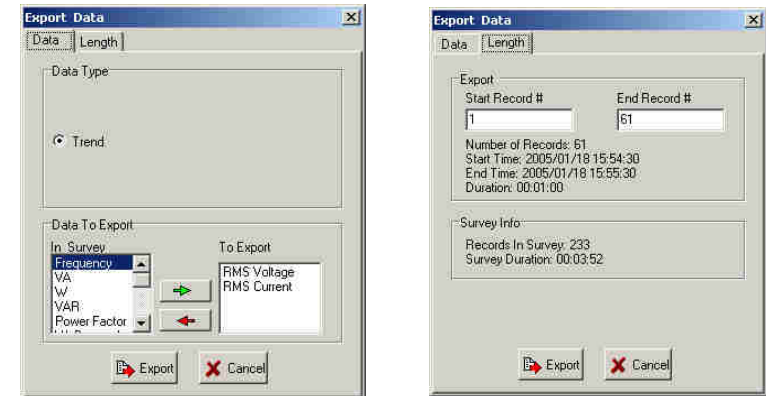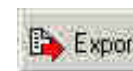

Fig. 10

	Adds data to export box.
	Removes data from export box.
	Starts the export process. This will bring up a save dialog box that will permit the user to specify the export filename. Specifying a filename and selecting 'OK' will generate a comma delimited ASCII file (*.CSV) for importing into EXCEL spreadsheet.
	Exits the dialog box.

Main Menu

Setup

The Setup menu selection appears as follows:

Fig. 11

PT/ CT Ratios

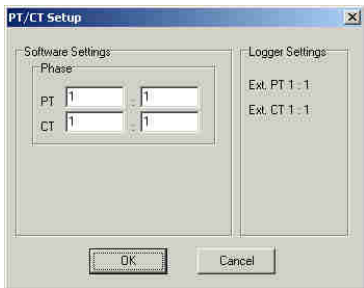Enter new PT and CT ratios to scale the data. The new settings are saved when exiting the file.

Fig. 12

Demand

The demand setup dialog box permits user to setup tariff times, costing and integration methods for the demand and costing graphs. This information is also used when generating peak demand, minimum demand and costing reports.
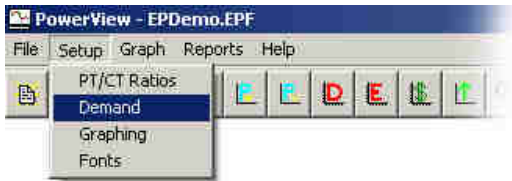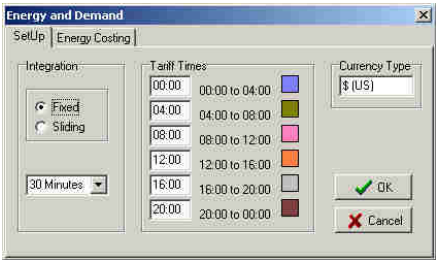

Fig. 13

Main Menu (Setup)

Fig. 14

Integration

- **Fixed** - Determines the trend by calculating the average demand using a fixed window.
- **Sliding** - Determines the trend by calculating the average demand using a sliding window.
- **Time Frame Selection** - Set up time interval of integration

Tariff Times

PowerView allows up to 6 different tariff times within a 24 hour day. Each tariff time can be identified by a user-defined color.

Currency

Input the type of currency in use.

Energy Costing
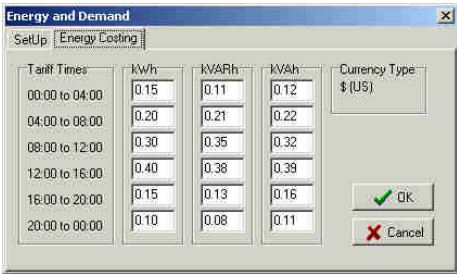
Enter the cost for each tariff time.

Fig. 15

Main Menu (Setup - Demand)

Demand, Energy and Costing graphs are plotted in bar chart form (Fig. 16) when only one channel is enabled. If more than one channel is enabled the graph is plotted in line form (Fig. 17).
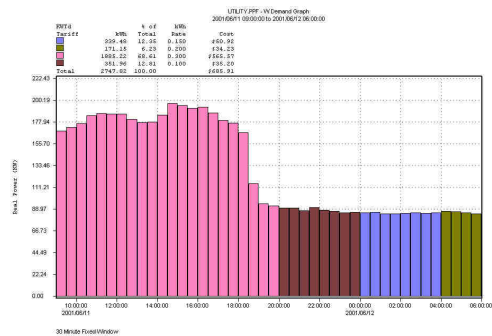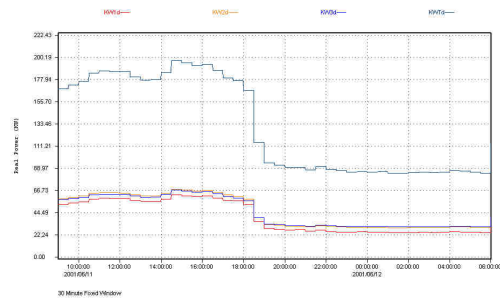

Fig. 16

Fig. 17

Note: Tariff time and costs settings are not saved to the individual *.EPF file like other software-level settings. Instead, it is saved to the software memory and used for all files. This is because most users only use one set of tariff time and costs based on the pricing and regulations of their local electric utilities.

Main Menu (Setup - Graphing)

Graphing

Fig. 18

Graphing setup controls graph types, axis parameters, channel selections and general graphic configurations. Most of the graph customizations are controlled from here. Note that some of the commonly used functions can also be accessed by the speed bar icons and the left/right click pop-up menu. See pg. 7 - 9 for those shortcut functions. Changes that are made in Graphing Setup will be saved when exiting the file.
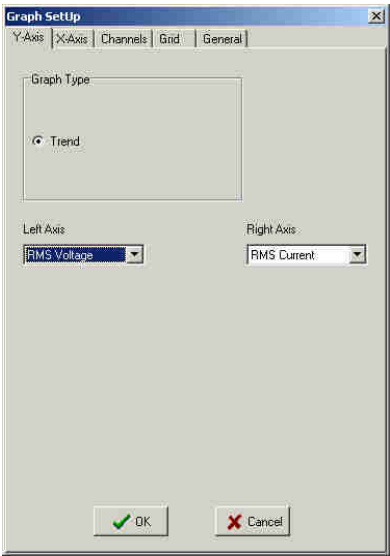
Y-Axis

Fig. 19

Select left/right Y-axis parameter from the pull-down menu.

Main Menu (Setup - Graphing)

X-Axis

Control the starting and ending time on the X-Axis of any trend graph. Type in date (YYYY/MM/DD) and time (HH:MM:SS), then press the 'Apply' button for any changes to take effect. The 'Apply' button must be clicked to ensure that the time entered in is in multiples of the survey's RMS sample rate, if not, **PowerView** will automatically round it up/down to scale. 'Reset' will change date and time back to the full survey settings.
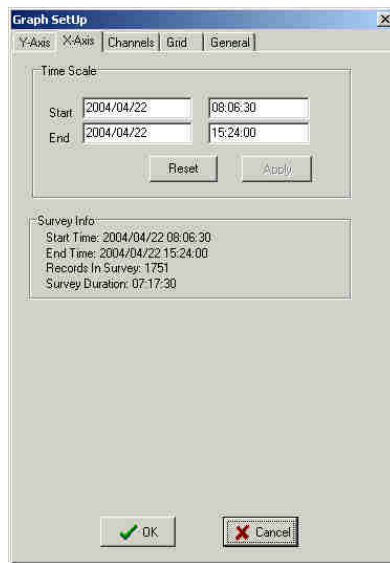

Fig. 20

Main Menu (Setup – Graphing)

Channels

Select channels and traces to be displayed on the graph. Available selections are different according to graph type. Each can be identified by a user-defined color.
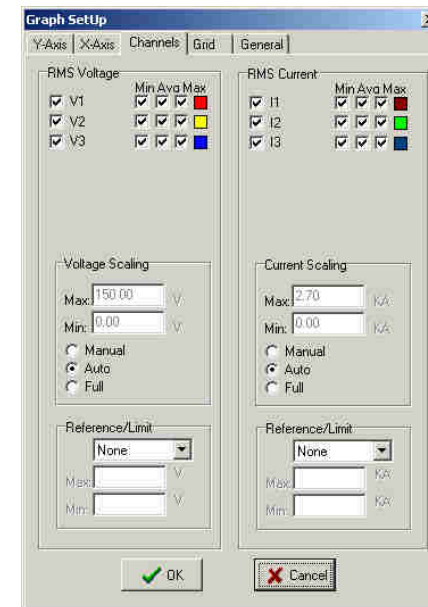

Fig. 21

Scaling

Min/Max scaling box enables user to select the scaling that is to be used on the Y-axis. There are three types of scaling for the Y-Axis:

- Auto Scale – Sets up Y-Axis scaling with 10% increment of max/min values obtained from the survey.

- Full Scale – Sets up Y-Axis scaling based on the maximum possible value.

- Manual Scale – User-defined min/max scale value.

Main Menu (Setup – graphing – channels)

Reference/Limit

Specifies a set of lines or a region to highlight a section of the graph that is of special interest. Use the pull-down menu to select the type, and set its min/max value. Below is a graph with Limits+ Region set at 270V minimum and 370V maximum.
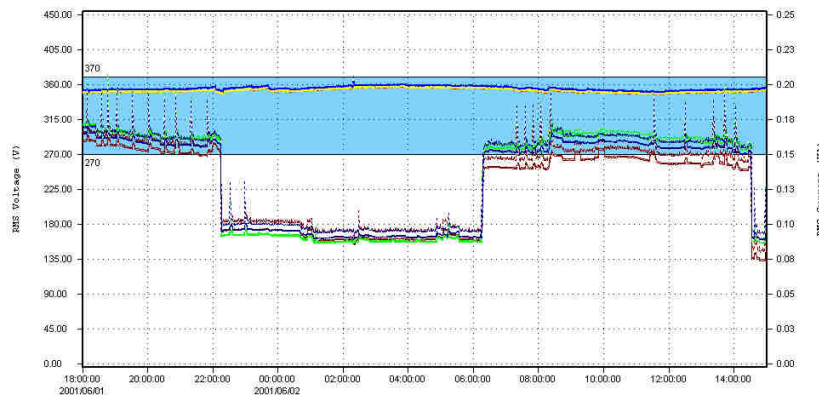

Fig. 22

A report can be generated which calculates the percentage of time when readings are within, above, and below the set boundary. See pg. 21 for selecting report types.

The reference line and reference boundary colour is set in the 'Graph Setup' dialogue box under the 'General' tab.

Main Menu (Setup)

Grid

Turn on/off the horizontal or vertical grid on the graphs.
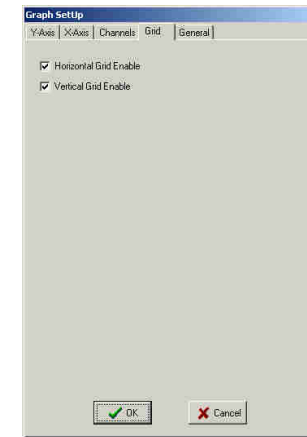

Fig. 23

General

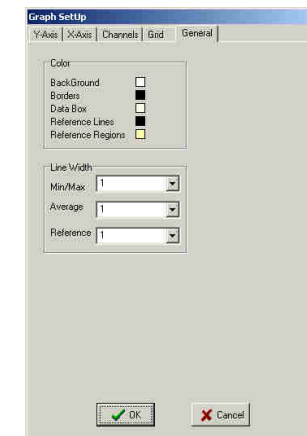Set up user-defined color and line values for various objects on the graph.

Fig. 24

Main Menu (Setup - Graphing)

Fonts

Fig. 25

Change font type to be use on the graph. Press 'Apply' button for changes to take effect.
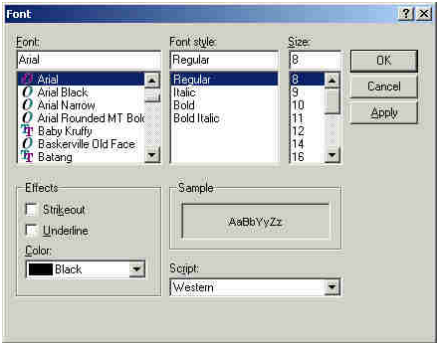

Fig. 26

Main Menu

Graph

This was discussed in previous section 'Quick Start - Shortcut for graph selection' on pg.8. For further description of each graph type, refer to section 'Speed Bar Icons' on pg. 8
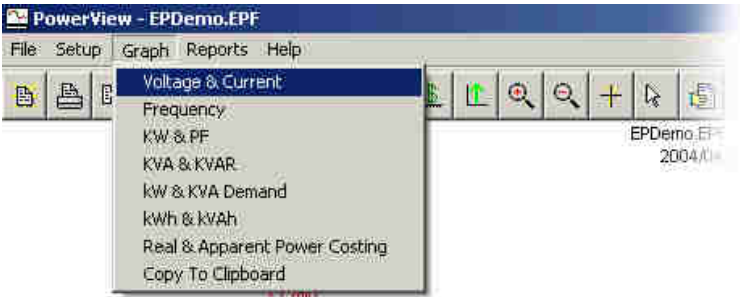

Fig. 27

Copy To Clipboard - use this to copy and paste a graph to other software.

Reports

Fig. 28

Generator
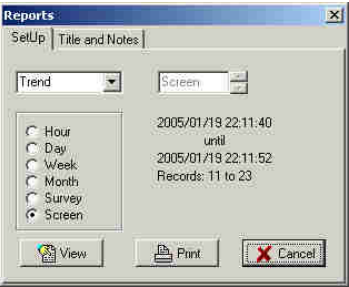Select the type of report and a segment of the survey to analyze.

Fig. 29

Main Menu (Reports - Generator)

Report Type

- ▪ **Trend** - reports min/max/averages of the trends and the time they occurred.

- ▪ **Daily Costing** - reports the cost of energy used on daily basis through out entire survey.

- ▪ **Hourly Costing** - reports the cost of energy used on hourly basis through out entire survey.

- ▪ **Energy** - reports energy used during the selected time length.

- ▪ **Pk Demand** - reports peak demand of energy during the selected time length.

- ▪ **Min Demand** - reports minimum demand of energy during the selected time length.

- ▪ **Limits** - reports the limit/reference values setup for each trend, and the percentage of time when readings are within, above, and below the set boundary.

Report Length

Hour	Specifies any hourly period for report viewing.
Day	Specifies any daily period for report viewing.
Week	Specifies any weekly period for report viewing.
Month	Specifies any monthly period for report viewing.
Survey	Report based on entire survey.
Screen	Report based on time length set for the graph currently on display.

Main Menu (Reports)

Title and Notes

Enter a title and any notes to the report. Changes are temporary and will not be saved in the file.

Fig. 30

View Reports
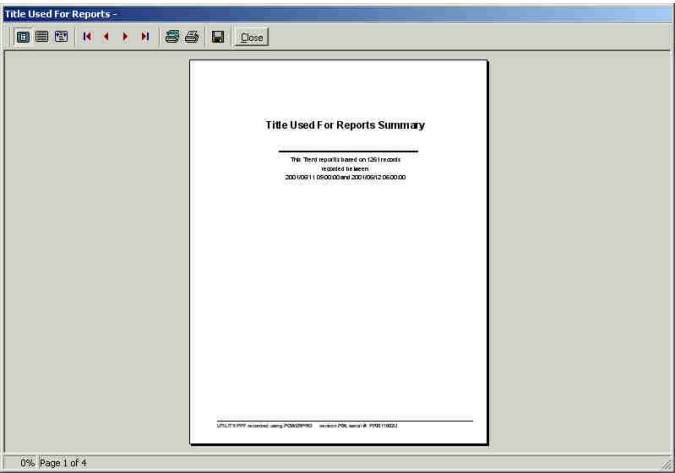
Press 'View' to preview the report.

Fig. 31

Main Menu (Reports - View Reports)

Notes

While previewing a report, user can print the document or save it as a rich text file for importing into Microsoft WORD. A navigation bar at the top controls the preview window.

'Zoom to fit', 'Zoom to 100%' and 'Zoom to width'.

'First Page', 'Previous', 'Next', and 'Last Page'.

'Printer Setup' and 'Print'

'Save' document as rich text file (*.RTF) which can be opened in Microsoft Word.

Close preview window.

ELCOMPONENT
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