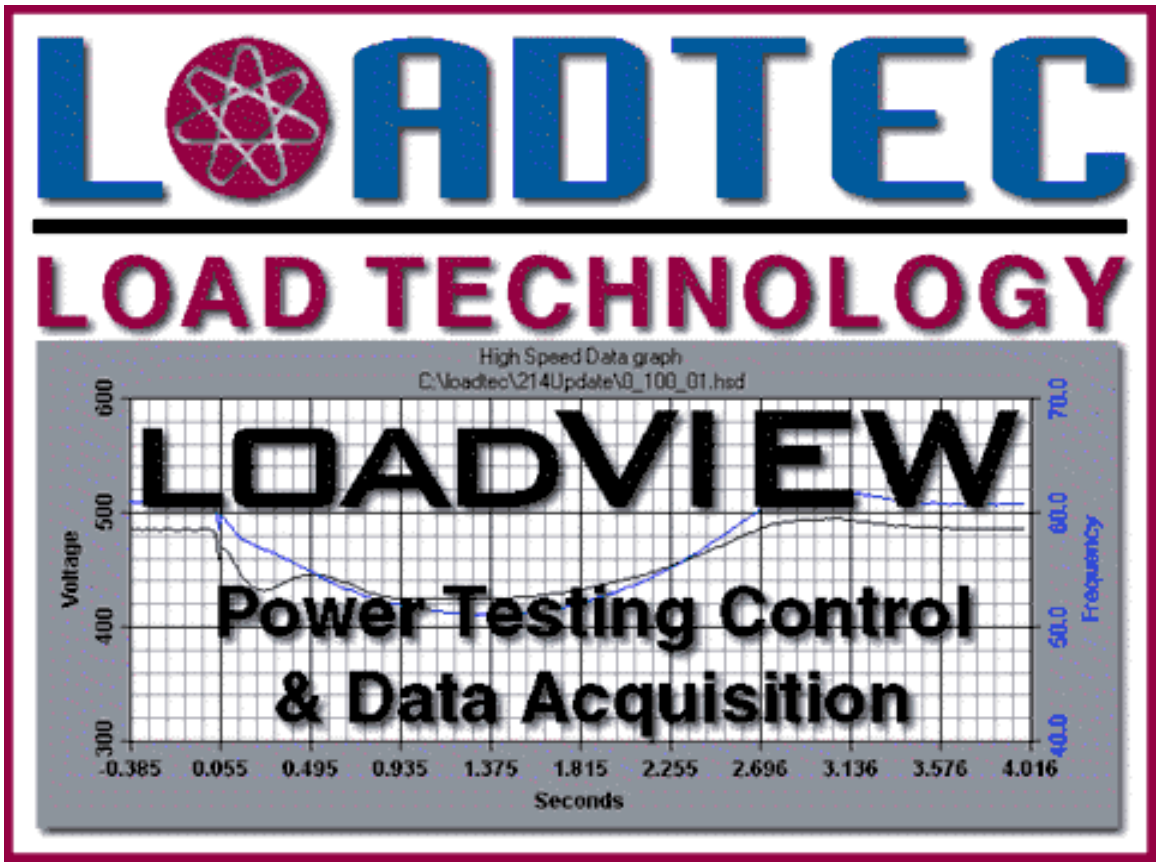

LOADVIEW VERSION3 OPERATOR'S MANUAL

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LOADTEC
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LoadView Version 3.0

2.0 Introduction

Welcome to LoadView version 3.0. The LoadView software turns your IBM compatible PC computer into a control center for Load Technology's load banks and load bank systems. LoadView provides easy access to all of the data and controls of these systems.

LoadView connects to the remote system via the computer's serial port. The remote system can be a single load bank, a resistive load bank with a connected inductive load bank, or a system of load banks connected to a Network Controller.

2.1 New features of LoadView version 3

Many new enhancements have been added to LoadView version 3. The following highlights the most significant of those changes.

- **Added Network Controller Interface**
  LoadView version 3 has been designed to operate with the Loadtec Network Controller. This allows a system to be made up of a combination of up to 8 different Resistive/Inductive load banks.

- **New File Pathing Scheme**
  All of LoadView's files are now maintained in a new user configured directory structure. This structure makes it easy for complete system definitions (i.e. data files, screen designs, test scripts, etc..) to be copied from one system to another by simply copying the root directory.

- **Added Sensor Calibration**
  Complete sensor calibration (voltage, current, and auto zeroing) can now be performed from within LoadView directly.

- **New And Improved Log Data Viewer**
  A completely new Log Data Viewer has been added to LoadView. This viewer fixes many of the deficiencies of the previous system and allows the Log to be viewed as data is being recorded. You can now scroll through the data in a large file without losing the column headings.

- **New Log Data Print Handler**
  Added to the new Log Viewer is a whole new set of print functions. You can control the headings, user description data, font size, and print

orientation. Multiple page prints will be handled properly with the appropriate headings on each new page.

- **Added System Messaging Window**
  A new system-messaging interface between LoadView and the connected system has been designed. This messaging system allows for the tracking of system messages in a special message window.

- **Added User Defined Data Channels**
  You can now record up to 8 user defined data channels into the Log Data file. You can setup the names and units for these channels and you will be prompted to enter the data as data lines are recorded to the log.

- **Added Bar Graph Display Screen**
  A new screen layout has been added that shows all data items on an easy to view bar graph display. You can selectively color the data in these bar graphs based on warning and alarm settings.

- **Added User Designed Screen Capabilities**
  A completely new User designed screen system has been added. This system allows you to design your own data and control screen(s). These screens can be made up of a variety of display items (Analog meters, Bar Graphs, Text panels, bitmaps, etc…). Additionally every control function that can be performed by LoadView is available via button controls that you can place anywhere in your custom designed screens. This makes it very easy to design a custom system that is tailored to your exact needs. These screens can provide user interfaces that are optimized for "touch screen" control.

- **Added Demo Mode Operation**
  Now virtually all of the functions and features of LoadView can be explored even without a Load Bank or Network Controller hooked up. With the new demo mode, the system will emulate from 1 to 8 load banks connected via a Network Controller. This makes it easy to simply give LoadView a "test drive", or allows custom designed screens and script files to be developed without having to be connected to a load bank or system.

- **New Instrument Panel Look and Feel**
  LoadView's data display screens have been given a newer "Instrument Panel" look. This new style has simplified the data presentation of LoadView.

2.2 Manual Conventions

There are several special conventions that will be followed throughout this text. These conventions should make it easier for you to get to the information you need quickly.

⚠ **Warning!** This indicator is used to highlight information that is critical to the operation or configuration of the system. Typically information of this type can have an adverse effect on the operation of the system if incorrect or inappropriate settings are entered.

Special note. This indicator will be used to highlight data that provides additional background information on the subject at hand.

This indicator will be used to identify information that is specific to operation of a networked system. LoadView is capable of being connect to a single load bank or a system of networked load banks that are controlled by the Network Controller.

Differing typefaces will also be used to further highlight different types of data.

Italics - this typeface will be used to indicate new terms that are being introduced or indexed keywords.

Boldface - this typeface will be used to indicate text that you must enter (i.e. in response to an on screen dialog).

[Optional] - text contained in brackets indicates optional data entry.

3.0 Installation

LoadView is distributed on CD-ROM, 3.5" floppy disks, or over the Internet via a single executable installation file. The LoadView system is made up of a few executable files and numerous configuration and setup files. Please insure that you have met the "Minimum System Requirements" (as specified below) before installing LoadView.

CD-ROM

1. Insert the distribution CD into your CD-ROM drive.
2. If "AutoRun" is enabled, the install program will start automatically.
3. If your CD dose not "AutoRun" then Click on Start, and Select Run.
4. Type in D:\SETUP.EXE (if your CD-ROM is not drive D, type the appropriate letter instead).
5. Click OK to install.
6. Follow the on screen instructions.

FLOPPY DISKS

1. Insert the installation diskette #1 into your floppy drive.
2. Click on Start, and select Run.
3. Type in A:\SETUP.EXE (if your floppy is not drive A, then type the appropriate letter instead).
4. Click OK to install.
5. Follow the on screen instructions.

Internet/e-mail (Single File Install)

1. Click on Start, and select Run.
2. Enter the single file name (either LDVIEW3.EXE or LV3DEMO.EXE) or browse to the file using the BROWSE button.
3. Once the file name has been entered or selected, Click OK to install.
4. Follow the on screen instructions.

The install software will install all of the required files on your computer's hard drive. Once the programs have been installed, LoadView can be started from your computer's Start menu -- Press the Start button, Programs and select the LoadView group. From within that group select LoadView.

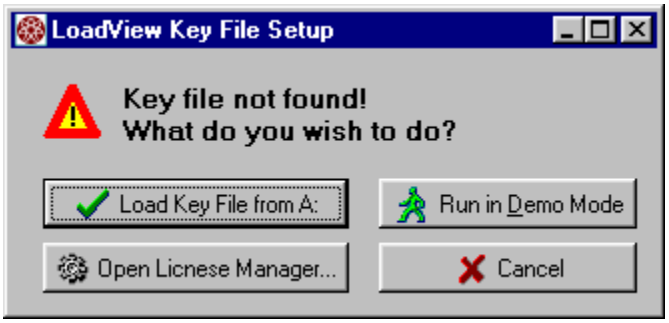
3.1 Registration/Licensing

The LoadView software and the optional High Speed Response system must be licensed for use. Previous versions of LoadView made use of a specialized "Key File". For compatibility sake, LoadView version 3 can also make use of this key file.

Due to the new networking capabilities a more sophisticated registration/licensing system had to be developed. In this new system, the registration and licensing is contained in the remote system (i.e. the Load Bank, Network Controller, etc…).

There are three types of information that is maintained in the remote system. These are the:

- ***System Registration*** - Each hardware system (i.e. Load Bank, Network Controller, etc…) must be registered for use. An unregistered system will not allow any data to be measured or load to be applied.
- ***LoadView License*** - This license is used to allow the remote system to be connected to LoadView.
- ***High Speed Response License*** - This license is used to enable the High Speed Response system.



When LoadView is started if no Key File is found or the LoadView license is not enabled in the remote system, then this dialog will be shown. From this dialog, you can select one of the following:

- Load a Key File
- Enter license numbers (via the License Manager)
- Run in the Demo mode
- Cancel, run unlicensed

3.2 Minimum System Requirements

LoadView will operate on virtually any IBM Compatible computer with enough Hard Drive space to contain its files, and memory to operate. There is a point at which a lesser computer begins to operate so slowly that the system becomes much less useful. The following is to be considered a "guide" to the minimum recommended system:

- IBM Compatible Computer
- 233 MHz Pentium or better Processor
- Operating System: Windows® 9x, 2000, or NT 4.0 or newer. LoadView will NOT operate on Windows 3.1x
- Memory: 32 MB
- Hard Drive: Recommend 100 MB of free hard drive space
- Video: LoadView main data screens have been designed for a 640 x 480 resolution display screen. This was done to accommodate the most readily available laptop screen sizes. Much more intricate and detailed screens can easily be designed using the Custom Screen capabilities of LoadView.
- Keyboard
- Mouse or trackball
- At least one serial port.

4.0 Quick Start Guide

LoadView has been design to maximize your testing efficiency. This section is meant to give you an overall view of the process of testing. The details of each of the input screens and controls of LoadView are covered in other sections of this manual. If you are new to LoadView, you should begin by studying the other sections of this manual in its entirety first. Then come back to this section.

The test process can be reduced to these simple steps:

1. Connect to the system under test.
2. Power up your system under test.
3. Power up the test system (Load Bank(s) or the Network Controller).
4. Enter the *Test Setup* data.
5. Turn on the cooling fan(s).
6. Begin Testing.

Note that steps 4, 5, and 6 can actually be performed from within a test script if you are using script files. Otherwise these steps must be performed manually. In essence load cannot be applied until the load bank(s) are on and the cooling fans running. If there are any system errors while the cooling fans are starting up, you will be informed via messages and will not be allowed to continue until the error is corrected.

4.1 Connect the System Under Test

Follow the documentation for your load bank(s), and or the Network Controller to connect your power source under test. Once the power source is connected and power up, you are ready to begin testing.

Power On the Load Bank(s)

The connected load bank system needs to be powered on.

Network System - If you are using a Networked system (via the Network Controller), the load banks can be turned on from the Main Data Screen. The Green LED on the "LB Power" button indicates the state of the networked load banks. If the LED is off, click the mouse on this button to turn on the load banks.

If you are not using a networked system, then the load bank must be turned on from its local control panel, or a connected *Remote User Interface*.

Once the load banks are turned on, and the power source is running, the voltage readings will indicate the current bus voltages.

4.2 Setup your Test Requirements

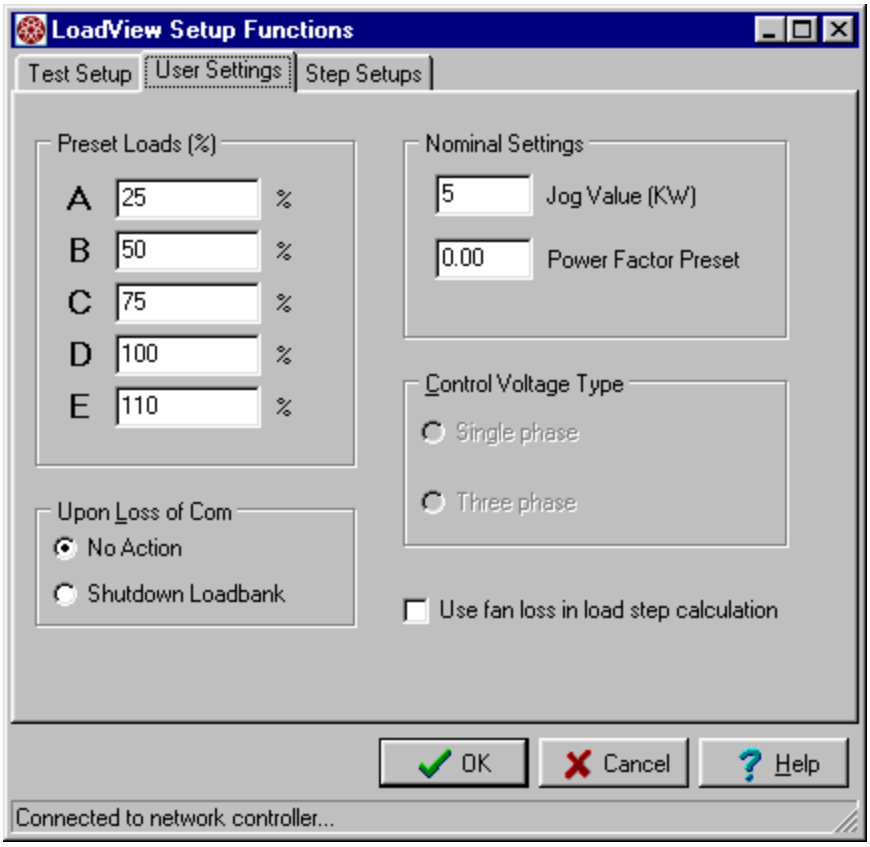
LoadView needs some information about the system that you are testing. This information is entered via the *Test Setup* screen. The *Test Setup* screen is accessed via Setup from the *File Menu*, pressing the Genset Size "Change" button, or pressing the Nominal Voltage "Change" button.

The *Genset Size* and *Nominal Voltage* buttons shown are visible on the Automatic Page of the *Control Section*. Clicking either of these buttons provides access to the *Test Setup* screen.

Note that the term *Genset Size* simply implies the capacity of your power source (the system under test). This may or may not be a generator or system of generators.

4.3 Setup User Settings

There are additional *User Settings* that can be made. These settings include the Preset Load values, Jog Value, and others. Modify/Enter any *User Settings* as required.



4.4 Turn on the Cooling Fan(s)

Before load can actually be applied, the cooling fan(s) in each load bank must be turned on. If you are testing via a pre-defined script file, the fan(s) can be controlled from the script itself. If you are not using a test script, then the cooling fans must be turned on manually. The *Fan Control Button* is used to control the cooling fan(s). If the fans are running, then this button will animate a rotating fan. If the fan(s) are off, then it will appear as shown. Click this button to toggle the fan(s) on and off.

Networked System - If the Network Controller is setup to operate with independent fan control, then pressing the Fan Control Button will open the *Fan Control Screen*. From this screen turn on/off the fans as required.

4.5 Setup High Speed Response Data

If your system includes the optional *High Speed Response* system (HSR), then it must be setup and enabled if it is to be used. The *High Speed Response* system is configured via the *Response* page of the *Control Section*. The *High Speed Response* system is enabled/disabled via the indicated button. The HSR system can also be configured from within a test script.

4.6 Setup Data Logging

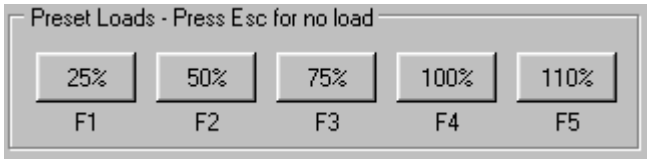
If you want to Log Data, then *Data Logging* must be setup. *Data Logging* is configured via the *Logging* page of the *Control Section*. Data can be logged based on time interval, change in load setting, or both. *Data Logging* is enabled/disabled via the Data Logging Button. Data Logging can also be configured from within a test script.

4.7 Adjust the Load

The main goal of the load bank system is to apply load to the system under test, and measure the results. Once the above steps have been performed, adding load is very simple. There are various ways in which you can manually set the load being applied. These are:

- **Direct Load Entry** - Whenever the *Automatic Page* of the *Control Section* is showing, simply typing in the desired load value followed by the Enter key enters that load. For instance, typing "**500**" and pressing the Enter key will place 500 KW of load on the system. Furthermore, if there are inductive load bank(s) in the system, the power factor can also be entered (i.e. entering "**500.85**" would place 500 KW of load at a 0.85 power factor). A power factor alone can be entered by pressing the decimal point key "." then entering the desired power factor. (ref. *5.4.1 The Automatic Page*).

- **Selecting a Preset Load Value** - Simply clicking one of the *Preset Loads* keys will place the appropriate load on the system. If a power factor command had been previously entered, then that power factor will be maintained when a *Preset Load* button is clicked.

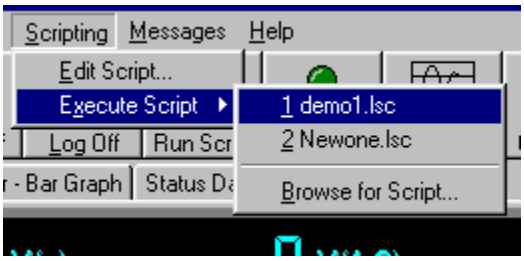


- **Toggling Load On/Off** - Once a load command has been entered by any of the above methods, then pressing the Load On/Off Button will toggle the load off and on.

4.8 Start a Test Script

If you are testing via a test script, then all that needs to be done before the test is started is to insure that the system is connected and powered on (*4.1 Connect the System Under Test*). The test script can be written to perform all other required setup as a part of the test.

Select **Scripting | Execute Script | …** from the *Main Menu* to select the script file to run. The *Run Script* quick button can also be used to execute the most recently used script file.



5.0 The Main Data Screen

When LoadView begins operating, the *Main Data Screen* is shown on the screen. This is the main interface to the LoadView system.

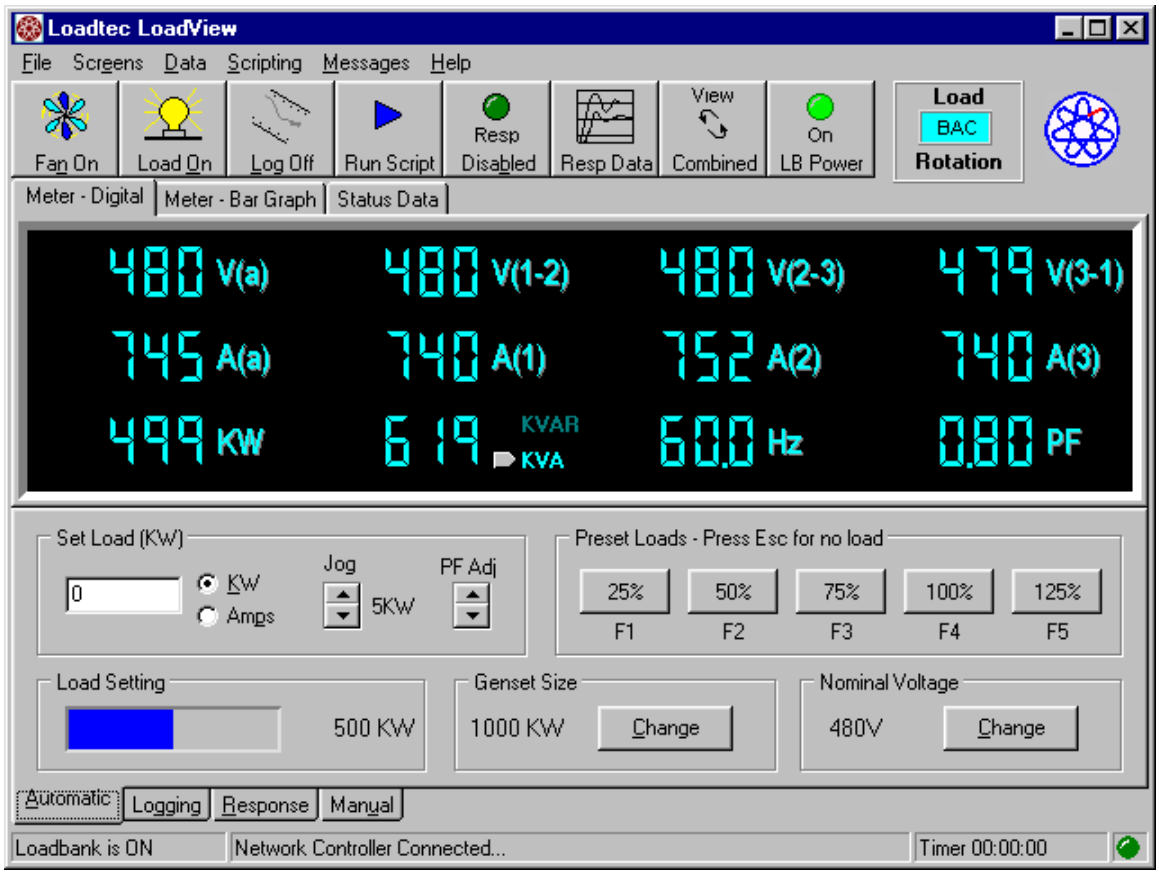


Figure 1 - The Main Data Screen

The Main Data Screen is divided into three sections. These are:

1. The Tool Bar.
2. The Data Section
3. The Control Section.

As with most Windows® programs, LoadView also contains a *Main Menu*. The *Main Menu* is the pull-down menu at the top line of the screen

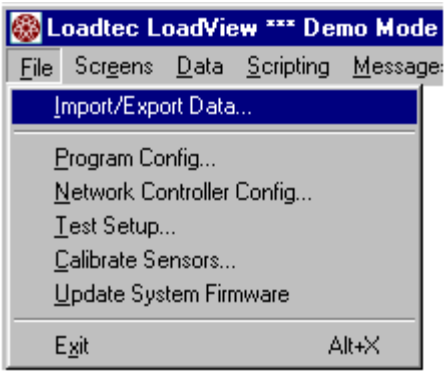
5.1 The Main Menu

The Main Menu bar is made up of six menus. These are the *File Menu*, *Screens Menu*, *Data Menu*, *Scripting Menu*, *Messages Menu*, and the *Help Menu*.

5.1.0 The File Menu

The *File Menu* provides access to the following functions:

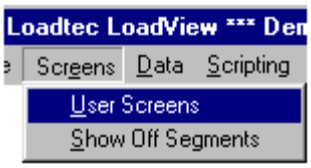
- Import/Export Data
- Program Config…
- Network Controller Config…
- Test Setup…
- Calibrate Sensors…
- Update System Firmware…
- Exit



5.1.1 The Screens Menu

The Screens Menu provides access to the following screen related functions:

- User Screens
- Show Off Segments

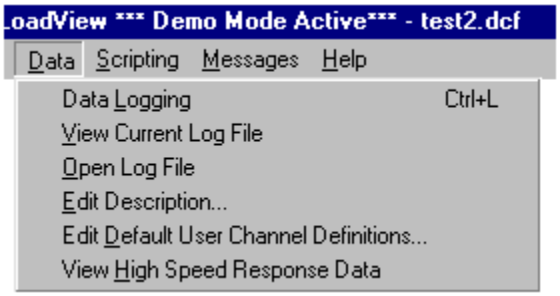


The "Show Off Segments" function allows changing of the Seven Segment data displays.

Off Segments Active (Checked)

Off Segments Inactive (Unchecked)

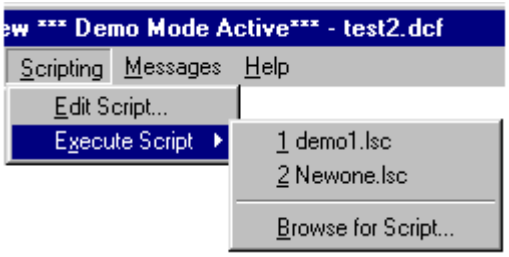
5.1.2 The Data Menu



The Data Menu provides access to numerous data related functions. These are:

- Data Logging
- View Current Log File
- Open Log File
- Edit Description
- Edit Default User Channel
- View High Speed Response Data

5.1.3 The Scripting Menu



The Scripting Menu provides access to script files and the script file editor.

- Edit Script…
- Execute Script > {Most recently Used File list}

5.1.4 The Messages Menu

There are no functions under the Messages Menu. Clicking on *Messages* opens the *System Message* window.

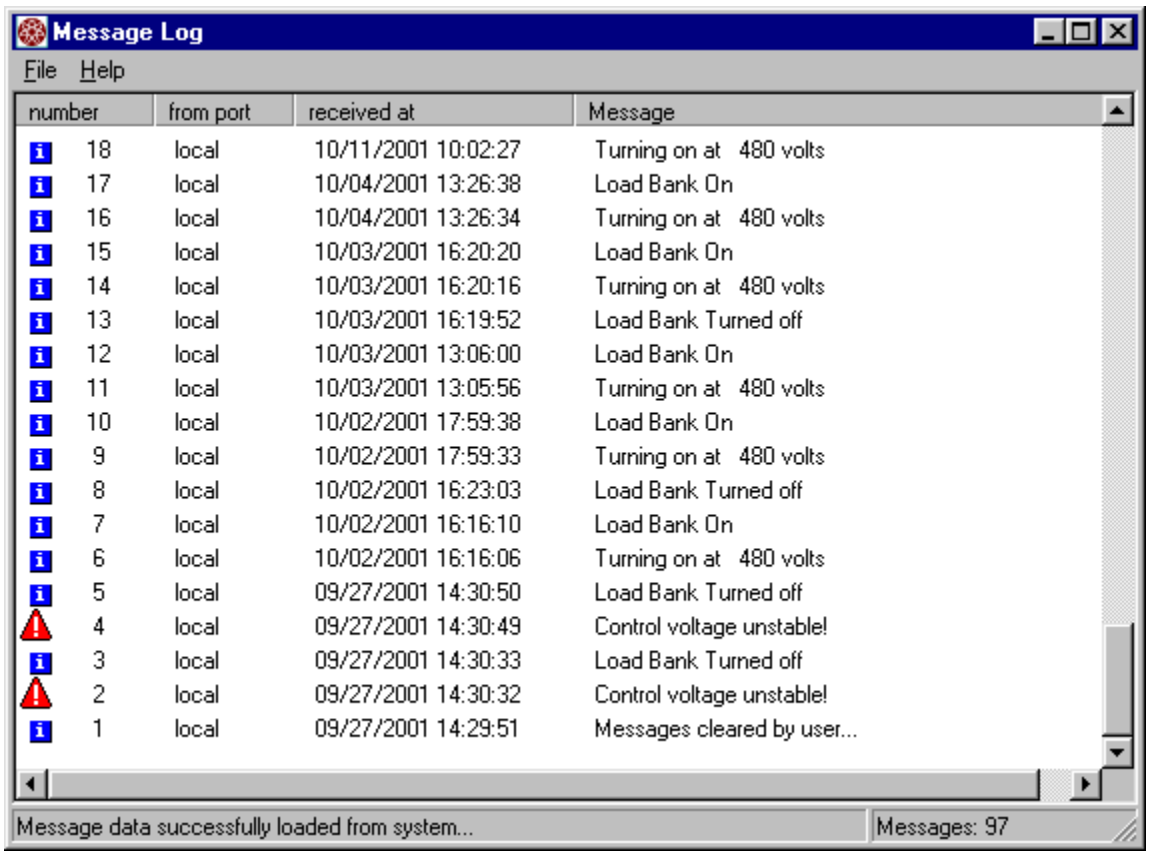


Figure 2 - The System Message Window

System Messages are created and stored in the remote system (i.e. Load Bank(s) or the Network Controller). There are two types of messages shown in the *System Message Window* - these are *Error Messages* and *Informational Messages*.

Error Messages are used to indicate the existence of an error condition in the remote system. Error Messages are indicated with a or icon. The yellow icon indicates that the message is new.

Informational Messages are used to note non-error events (i.e. load bank turned on, sensors calibrated, etc…). These messages are marked with a or icon. Again the yellow icon indicates a new message.

5.1.5 The Help Menu

The Help Menu provides access to LoadView's help system. The About function under the Help Menu provides access to the LoadView About window. This window provides information on the system type, version number, and enabled serial numbers.

The About Box indicates the Internal File version number, LoadView system version number and the enabled serial number list. Note that the Enabled serial numbers will only be shown for systems that make use of the *Key File*. Newer systems are enabled via the Licenses Manager (ref. *3.1 Registration/Licensing)*

5.2 The Quick Button Tool Bar

The Tool Bar shown at the top of the Load View Main Data Screen is made up of a variety of "Quick Buttons" as shown:

Figure 3 - The Quick Button Tool Bar

Each of these buttons provides a "Quick" interface to their selected functions.

5.2.1 The Fan Control Button

The Fan Control Button provides both an indication of the current state of the cooling fan(s), and a method to control the fan(s). Clicking this button toggles the Fan(s) On/Off. There is a process that must take place in the load banks when the fans are commanded on. This process can take many seconds.

Status messages are shown in the *Status Bar* of the Main Data Screen that indicates the state of this process.

Network System - If the Network Controller is configured for independent fan control, then clicking the Fan Control Button will open the *Fan Control Screen*. If the Network Controller is configured for fixed fan control, then the fan(s) at each module are commanded on or off when this button is clicked. Note that when fans are commanded on, they will be "sequenced" so that the generator system does not see the load of all fans starting at the same instant.

5.2.1.1 The Fan Control Screen

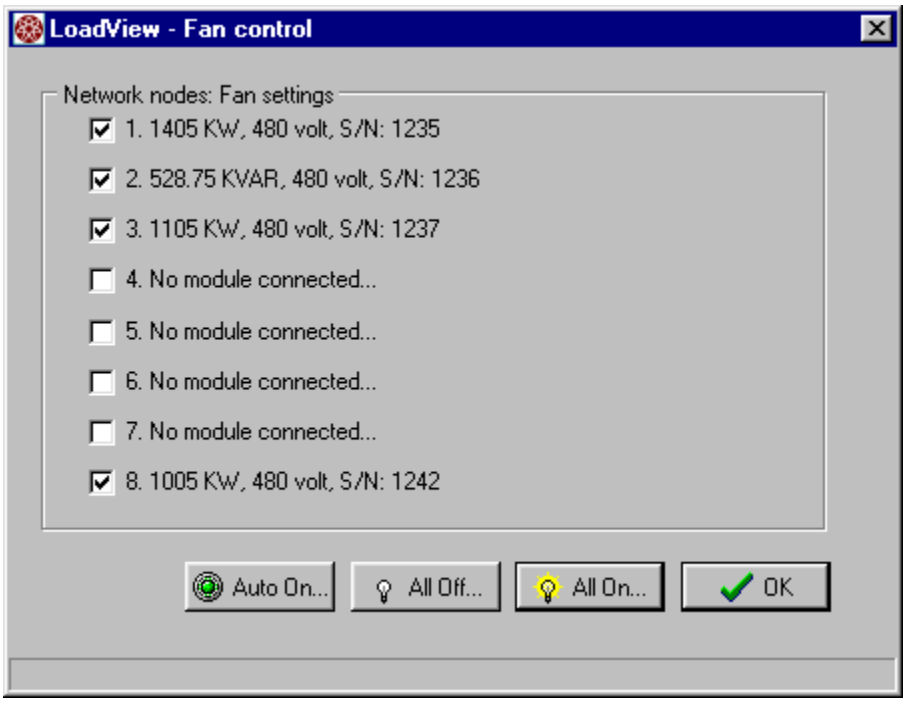


Figure 4 - The Fan Control Screen

The Fan Control Screen shows the current status of the fans of each of the load banks connected to the Network Controller. The check boxes indicate the status of the fans - a checked box indicates that the cooling fan at that node is turned on. Clicking a check box, or the text to the right of it, will cause the cooling fan of the load bank at that node to be toggled on/off.

The All Off Button 

Click the All Off Button to cause all fans to be turned off.

The All On Button 

Click the All On Button to cause the fans at each load bank connected to the Network Controller to be turned On. Again the fans will be "sequenced" on - one at a time.

The Auto On Button 

The Auto On Button causes the system to turn fans On/Off as required automatically. When this button is clicked, the system will insure that there is enough load capacity to achieve 125% of the Genset Capacity (as configured in the *Test Setup* screen) and a 0.80 power factor (if there is sufficient inductive load available).

If required, all of the fans in the connected load banks will be turned on. The maximum load the system can apply is the sum of each of these load banks. If more capacity is on than is needed, then the excess load bank(s) will be turned off. The design goal of the Auto On function is to minimize the number of load banks that are turned on, thus resulting in the lowest possible minimum load.

5.2.2 The Load On/Off Control Button

The Load On/Off Control Button provides an indication of the current load state and a method for controlling the load. Clicking this button toggles the load On/Off. When there is load on the system, and this button is pressed the system saves the current load settings then turns off all load steps (both resistive and inductive load). After the load has been turned off via this button, then clicking it again will restore all load settings to the previously saved values.

5.2.3 The Log Control Button

The Log Control Button is used to turn on and off the *Data Logging* functions and to show the current state of *Data Logging*. If *Data Logging* is off, then clicking this button will cause logging to be started. If the selected log file exists when this button is clicked, then the *Log File Dialog* is displayed.

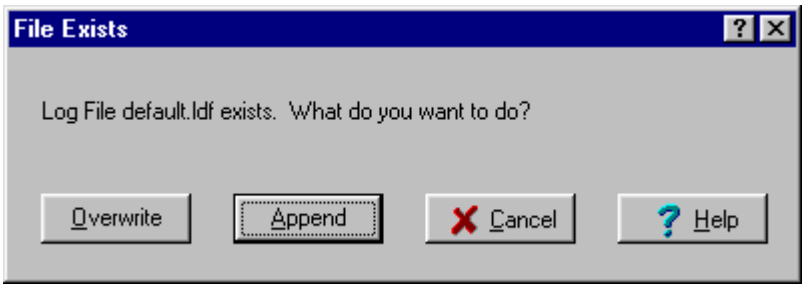


Figure 5 - Log File Dialog

This dialog is displayed because an attempt was made to start logging data to a log file that already exists. In this case you can either over-write the existing file, or append data lines to the end of the file.

5.2.4 The Script Button(s)

This button is used to start the last selected script file. When this button is clicked, the most recently used script file will be executed. If it cannot be determined what file to execute, you will be prompted to select the script file you wish to execute. When a test is running, the status of that test is shown in the Status Bar of the Main Data Screen. When a test is running, this button's function is changed to a *Stop* function and the Log Control Button is changed to a *Pause* function as shown.

Clicking on the Pause Button will cause the test script to be paused at its present position and the pause button will be changed to a *Resume* function. Clicking on *Resume* will cause the test to resume operation from point at which it was paused.

5.2.5 The High Speed Response Buttons

The *High Speed Response* data system (HSR) is an option to the load bank and Network Controller systems. If this system is enabled, then these buttons will be available. The Enable button is used to Enable/Disable *the High Speed Response* system's trigger mechanisms. It also provides an indication of whether the trigger is currently enabled. The *Resp Data* button is used to display a graph of either the current *High Speed Response* data (stored in the load bank system), or a stored HSD (High Speed Data) file.

5.2.6 The Network Controller Buttons

If LoadView is connected to a Network Controller, then there will be two additional Quick Buttons. These are the *Network Controller Buttons*. They are used to control and select the load banks that are connected to the Network Controller. The *View* button is used to open the *Node Selection Window*. The *LB Power* button is used to control the power at each of the connected load banks.

In a networked system the network controller is constantly receiving data from each of the load banks that are connected to it. The power measurements made at the load banks are complex -- that is that they are made up of both real and reactive power (KW, KVAR, and KVA). There is a complex relationship between these measurements.

Due to this complex relationship, data from each load bank cannot simply be summed together. The data must be combined mathematically. This is one of the primary functions of the Network Controller.

$$KVA = \sqrt{KW^2 + KVAR^2}$$

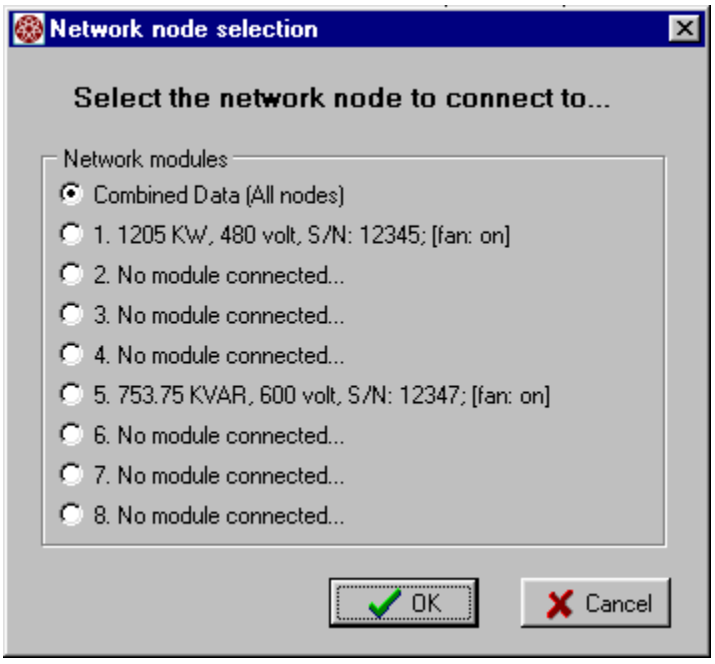


Figure 6 - The Node Selection Window

The Node Selection Window is used to select what data LoadView display. LoadView can show the *Combined Data* from all load banks, or show the data from a specific node. This form is also displayed when an attempt is made to show the *Manual Load Step* page when the system is in the *Combined Data* mode.

This window also provides information on the load banks that are connected to the Network Controller. The size of the load bank, its voltage rating, serial number, and the current state of its cooling fan is shown.

When a connection is made to a load bank node, the View button is changed to indicate what node is connected. In the example shown, the system is connected to the load bank at node 5. Clicking this button will again open the *Node Selection Window*. All measured and calculated data shown in the *Data Section* will be the data from the connected node, or the *Combined Data* when in the *Combined* mode.

5.3 The Data Section

The upper portion of the *Main Data Screen* is the *Data Section*. This is a multi-page control that is used to show the measured and calculated system data.

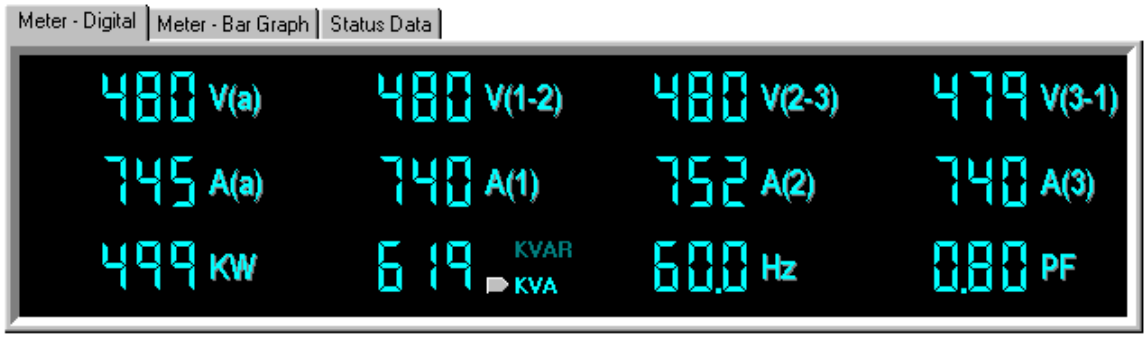


Figure 7 - The Data Section (Digital Meter Page)

The different pages of the Data Section are selected via the tabs along the top of the page. The *Digital Meter Page*, shown above, provides a digital indication of each of the measured and calculated data items.

KVA versus KVAR display is selected by clicking the desired mode in the Digital Meter display page.

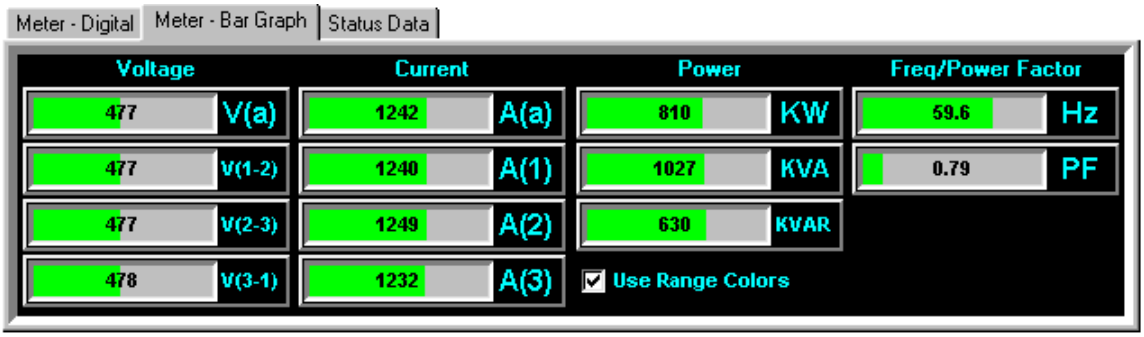


Figure 8 - The Data Section (Bar Graph Page)

The Bar Graph Meter Page is used to show each data item using a horizontal bar graph display item. These bar graphs are automatically scaled based on the data configured via the *Test Setup* screen.

The *Use Range Colors* check box is used to enable limit coloring of the bar graphs. If this box is checked, then the bar graphs are colored green for normal, Yellow as a warning, and Red for an alarm level. These levels are automatically computed based on the values entered in the *Test Setup* screen. Ranges applied to voltage, and frequency channels are:

- Warning State = Nominal Value ± 5%
- Alarm State = Nominal Value ±10%

Ranges applied to all other channels are:

- Warning State = Nominal Value + 5%
- Alarm State = Nominal Value + 10%

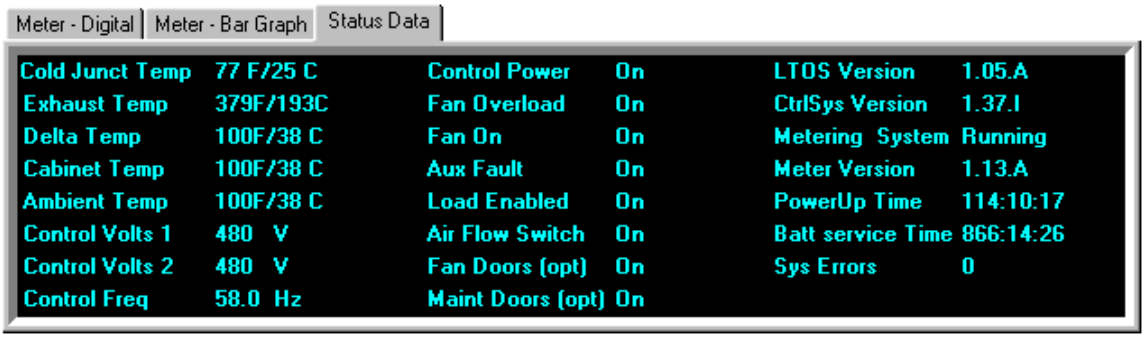


Figure 9 - The Data Section (Status Page)

The *Status Data Page* displays "status like" information from the remote system. This includes, temperatures, Control voltage and frequency, interlock/safety switch status, and firmware version numbers.

Network System - When LoadView is connected to a networked system (via the Network Controller) the status information shown on this page depends on what *Data Mode* is active. If viewing *Combined Data*, then the temperature data reflects the maximum temperature of all nodes. The remaining status data is zero (or off for switch states). When connected to a given node, then this data reflects the status information from that node. The node selection is made via the *Network Controller Buttons* (see section *5.2.6 The Network Controller Buttons*).

5.4 The Control Section

The bottom portion of the Main Data Screen is the *Control Section*. This is a multi-page control that provides access to most of the controls of the remote system. The active page being displayed is selected via a tab at the bottom of the section.

5.4.1 The Automatic Page

The *Automatic* page of the *Control Section* provides controls for adjusting the load placed on the system under test. The *Automatic* page is selected by clicking on the Automatic tab.

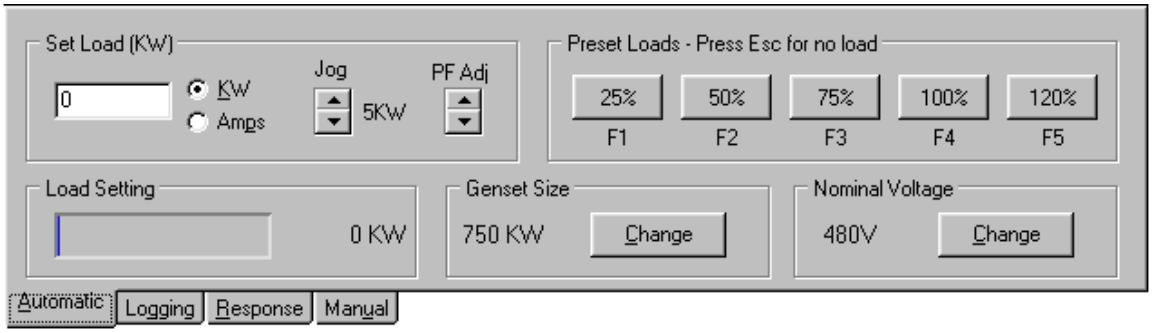
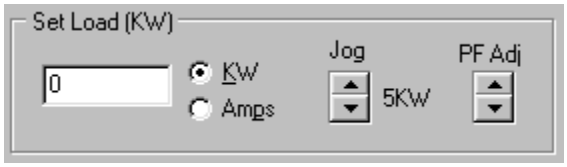


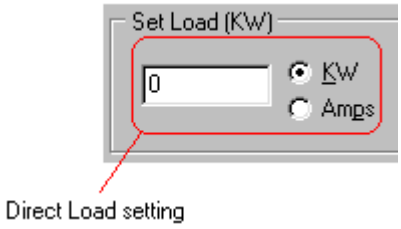
Figure 10 - The Control Section (Automatic Page)

This page is made up of a few panels. The *Set Load* panel is used to enter a load command, Jog the load command or adjust the power factor.



5.4.1.1 Direct Load Setting

Simply typing the numeric load value required, and then pressing the Enter key, enters direct Load commands. As soon as the first numeric key is pressed, the value is shown in the direct load field. The value entered will become the active command once the Enter key is pressed. If your system is capable of providing Inductive load, then the desired power factor can also be entered. For example, typing **500.8** then pressing the Enter key, will command 500 KW at a 0.80 power factor.



The direct load in current (amps) can also be entered. First insure that the "Amps" radio button is selected, and then enter the desire load in amps. Again the command is actually acted upon when you press the Enter key.

Once a *power factor command* has been entered, it will remain in effect until a new power factor command is entered. In the previous example, a command of 500.8 was entered. This will cause the system to place 500 KW of resistive load, and a sufficient inductive load (375 KVAR in this case) to achieve a 0.8 power factor. Entering a new load command without a power factor will cause a new load setting at the same power factor. For example if a load command of 700 is entered (with no decimal portion) then the load will be commanded to 700 KW and the system will adjust the inductive load to maintain the 0.80 power factor (525 KVAR in this case).

5.4.1.2 Entering the Power Factor

Pressing the decimal point key (.) while the Automatic Page is showing will allow a new power factor command to be entered. Pressing the decimal point key before pressing any numeric key activates the Power Factor Entry Screen. Enter the required power factor and press the Enter key, or click OK. Setting a new power factor command in this manner will change only the Inductive load being commanded, the resistive load (KW) will remain as previously commanded. Entering a power factor of .0 will remove all reactive load (KVAR). In effect setting the power facto to 1.00.

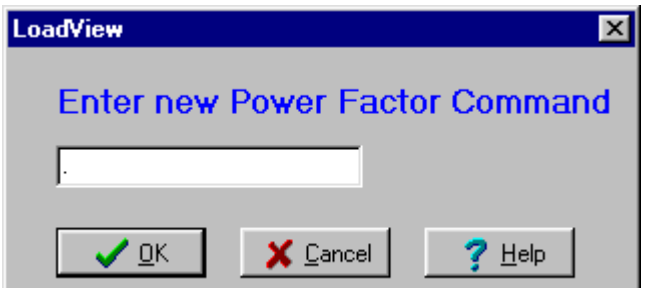
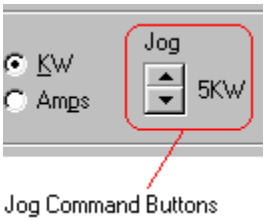


Figure 11 - Power Factor Entry Screen

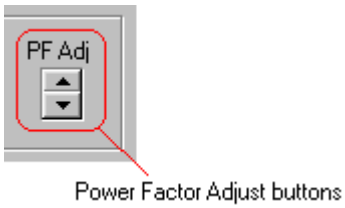
5.4.1.3 Jogging the Load Setting

The Jog buttons on the *Set Load* panel provide a mechanism for stepping the load up or down by a fixed increment. The value to the right of the buttons indicates the size of the Jog Increment. This value is configured via the *Test Setup* Screen.



5.4.1.4 Power Factor Adjustment

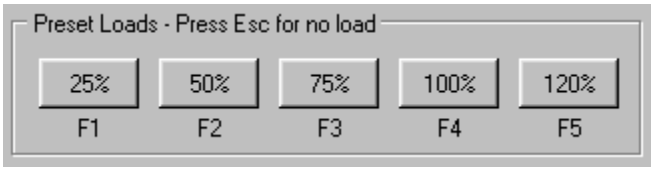
If you are operating a system with Inductive load capability, then there are two additional buttons on the *Set Load* Panel. Since the load elements of the load bank(s) are commanded in an "open loop" manner there can be slight errors in the actual load applied. For example the cooling fan(s) in each of the load banks and their associated wiring contribute to a background Inductive load. Additionally the load elements are not perfect they provide a given KVAR load ± the accuracy of the Inductors themselves. Many of these errors can be accounted for via numerous settings and configurations.



Given all of these issues, the *power factor adjust* buttons have been added to the system to allow the power factor to be "tweaked" in to exactly the commanded value. Once the load and power factor have been commanded, press the *PF Adj* up or down buttons to step the power factor up or down. When one of these buttons is pressed, the KVAR load will be adjusted up or down by the smallest KVAR load step available. The setting achieved by this method is persistent - that is it will remain in effect until the fans are turned off.

5.4.1.5 The Preset Load Panel

The *Preset Load Panel* provides 5 "preset" load buttons that allow for quickly setting the load to the preset values. These buttons represent load in terms of percentage of the *Genset Size*. The *Genset Size* and the percentage of each of the preset buttons are entered via the *Test Setup* screen. In the example shown, pressing the 100% key will place load equivalent to the configured *Genset Size* on the system. Again a previously entered power factor command will remain in effect when the *Preset Load* button is clicked. Note also that pressing the "F1" through "F5" keys is equivalent to clicking preset key #1 through #5.



5.4.1.6 The Load Setting Bar Graph

The Load Setting Bar Graph indicates the current load command (in KW). This bar graph is scaled by the configured *Genset Size* value. The actual command value is also indicated.

5.4.1.7 Test Setup "Change" Buttons

The *Genset Size* and *Nominal Voltage* values are also shown on the Automatic Page. Pressing either of the "Change" buttons provides quick access to the *Test Setup* Screen.

5.4.2 The Logging Page

The *Logging Page* of the *Control Section* provides access to the *Data Logging* functions.

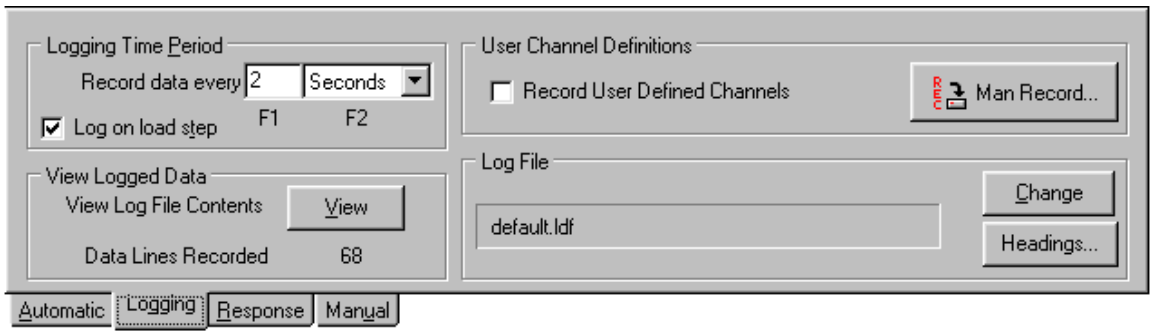
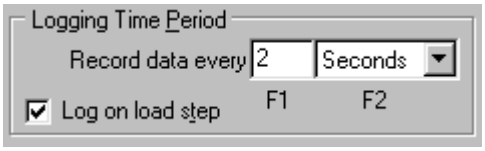


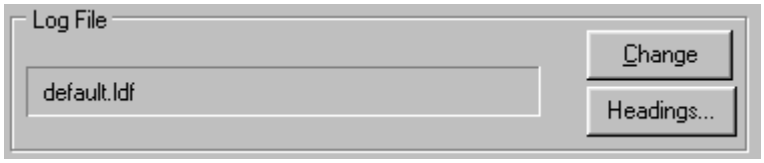
Figure 12 - The Control Section (Logging Page)



The Logging Time Period panel is used to configure the rate in which the Data Logger records data. Data is recorded to the log at a fixed time interval. That interval is setup via this panel. If the "Log on load step" box is checked, then data will also be recorded to the log each time a change in load is commanded.

The View Logged Data panel indicates the number of data lines that are currently recorded in the data log file, and provides access to the *Data Log Viewer*. Pressing the "View" button opens the currently defined log file.

The User Channel Definitions panel is used to configure the User Data Channel recording. If the "Record user data channels" box is checked, then you will be prompted for user-defined data as each line is recorded to the data log. The "Man Record" button is used to force recording of a new data line in the log (Manual Record).



The Log File panel is used to show and select the active log file. The "Headings…" button is used to edit the user heading information that is stored in the data log. The Log File indicates the currently active Log File name.

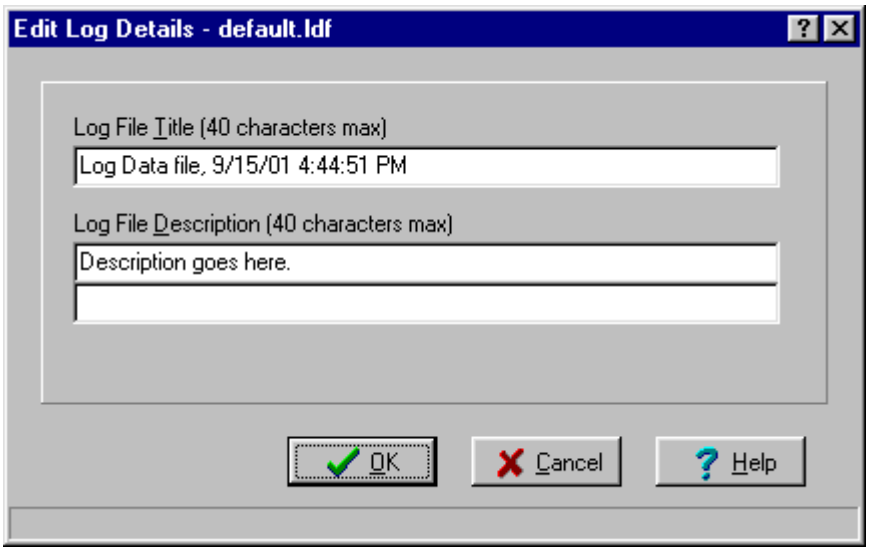


Figure 13 - Log Headings Editor

The Title and Description information that is stored in the log file is edited via the Log Headings Editor. These headings are stored into the log file and are printed with the log data when the log is printed.

5.4.3 The Response Page

The *Response Page* of the *Control Section* is used to configure and control the *High Speed Response* system (HSR) (ref 8.0 High Speed Response Data).

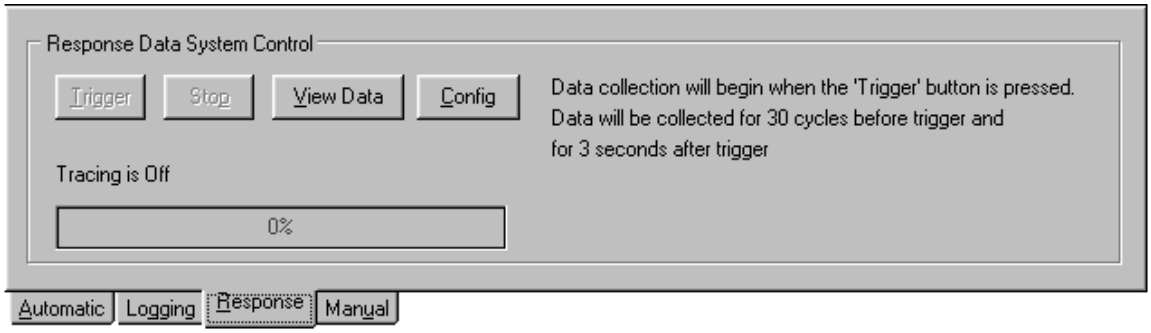


Figure 14 - The Control Section (Response Page)

The current status of HSR system is indicated on this page - in this example, tracing is off. If the HSR system is configured for a manual trigger, then the "Trigger Button" will be enabled. Clicking the Trigger button causes a command to be sent to the remote system that "triggers" the gathering of the *High Speed Response Data*.

Click *View Data* to view a plot of the HSR data. If LoadView is currently connected to a remote system, and there is HSR data recorded in that system, you will be given the option of downloading the data. You can also view a plot of a previously stored HSR data file.

Click *Config* to setup the current HSR system configuration (ref 8.1 HSR Configuration).

5.4.4 The Manual Page

The Manual Page is used to show the status of and control the setting of each load step in the system.

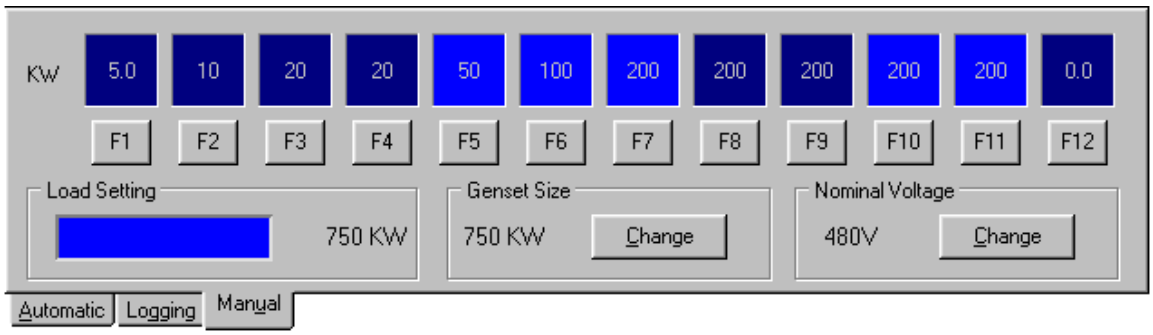


Figure 15 - The Control Section (Manual Page)

Each load step of the remote system is indicated as on or off (light blue indicates a load step that is on). Clicking the button under each of the load step indicators toggles that load step On/Off. Pressing an associated function key (F1 - F12) can also be used.

Network System - In a networked system, attempting to select the Manual Page (clicking the Manual Tab) when the system is in the *Combined Data* mode will cause the *Node Selection Window* to be displayed. A specific node must be selected before the Manual Page can be shown.

The Load Bar Graph, *Genset Size*, and *Nominal Voltage* settings are also shown on the Manual Page. These panels have the same function as those defined for the Automatic Page.

6.0 Program/System Configurations

This section guides you through the setup and configurations of various LoadView parameters. The major setup screens are:

1. Program Configuration
2. Test Setup
3. Calibrate Sensors
4. Network Controller Configuration

All of these configuration screens are available under the *File Menu* of the *Main Menu*. Some of the configurations are also available via "Quick Buttons".

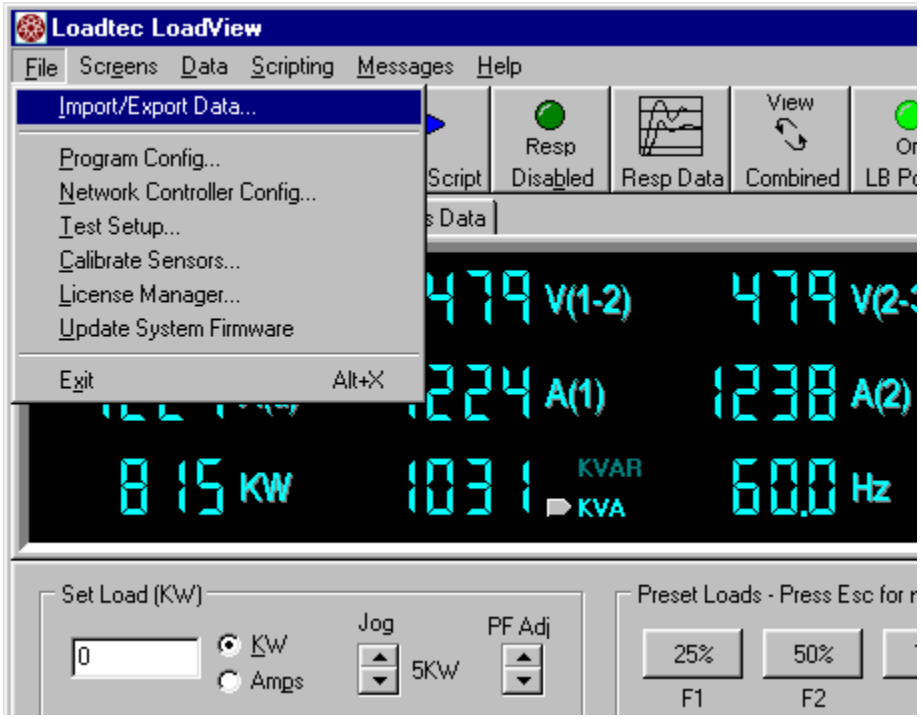


Figure 16 - The File Menu

6.1 Program Configuration

Select **File | Program Config…** from the Main Menu to open the *Program Configuration Screen*.

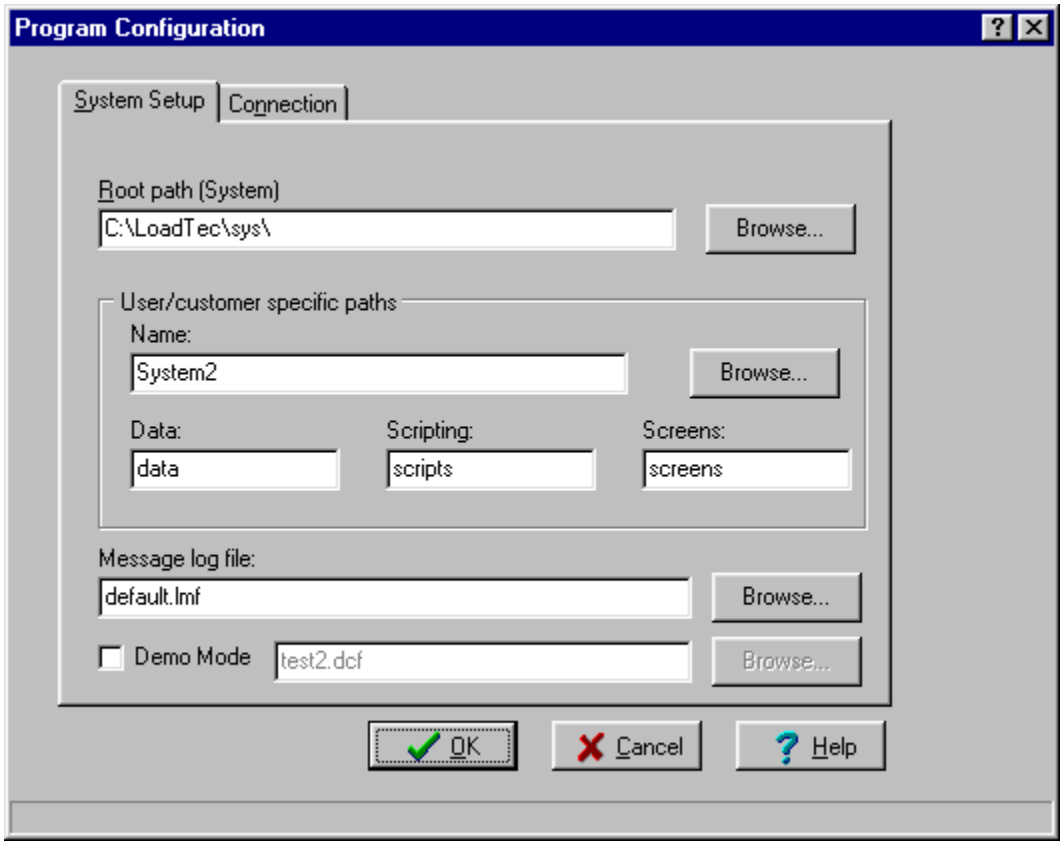


Figure 17 - Program Configuration (System Setup Page)

The Program Configuration screen has two pages. These are the *System Setup* Page and the *Connection* Page.

6.1.1 The System Setup Page

The *System Setup* Page is selected by clicking the System Setup tab. This page is used to configure the file system, select the message log file, and select the mode of operation. The Message Log File setting is simply the name of the file that will be used to log system messages.

6.1.1.1 Setting up the LoadView File Paths

LoadView is designed to use a specific file path system. This system provides a common root directory under which there are a series of sub-directories for each of the specific data types.

The layout of this path begins at the root. This root is simply a directory on you hard drive. Below the root are the Sounds and BMP directories. These sub-directories are intended to contain the sound and bitmap files used by your screen designs. In essence they make up a library of sounds and bitmaps that can be used by all of the underlying systems.

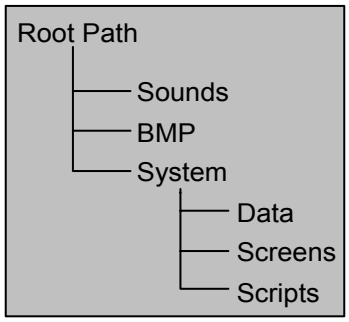
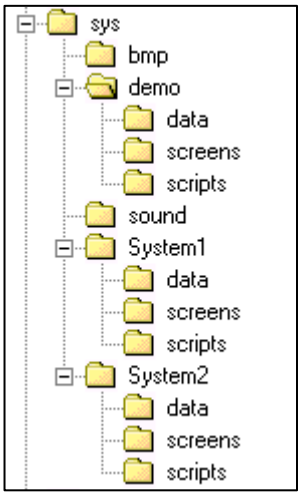


Figure 18 - File paths

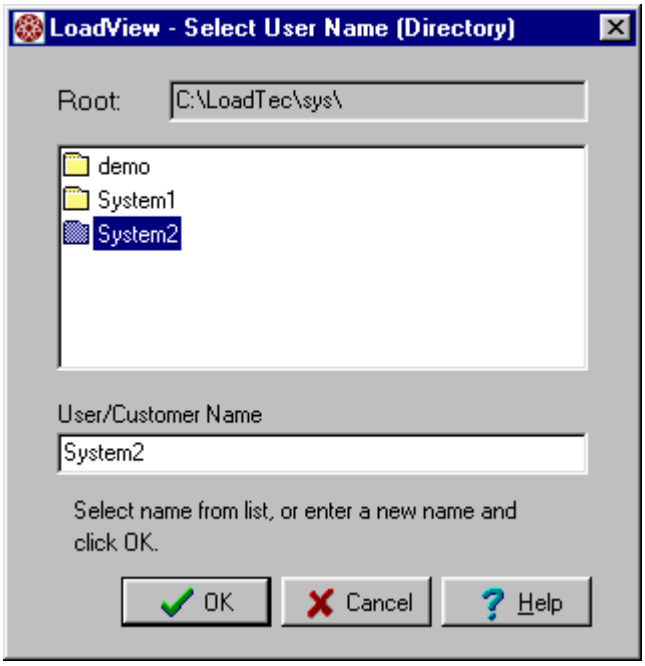
Also under the root, are the system sub-directories. There can, and often times will be, many "system" directories. The "System" level directory is meant to be the "root" of the various systems defined.



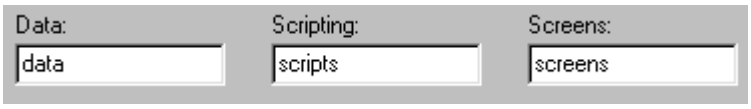
By employing this type of directory structure, many systems can exist under a given root directory. Each of these systems can then make use of a common library of sound and bitmap files. The entire system of files can be copied by simply copying the root directory.

In the example shown, there are three user/customer systems. These are demo, System1, and System2. Each of these systems can share the sound and graphic files that are stored in the sound and bmp directories.

The Root directory can be entered, or *Browsed* for via the "Browse" button from the Program Configuration Screen. The User/customer Name can be directly entered or browsed for by pressing the Browse… button.



Data, Scripting, and Screens must be entered as required.



When you exit from the Program Configuration Screen LoadView will check to insure that each of the directories specified exist on you hard drive. Any directories that do not exist will automatically be created.

6.1.1.2 Message Log File

The Message log file parameter is used to select the file that the system messages will be stored into. The "Browse…" button can be used to select an existing file, or a name for a new file can simply be entered. When the system messages are received, this file will automatically be created if it does not exist.

6.1.1.3 Demo Mode Setup

If the "Demo Mode" box is checked, then the system will operate in the Demo Mode. When in the *Demo Mode*, LoadView will emulate being connected to a Network Controller with one to eight load bank nodes. The configuration parameters for the *Demo Mode* are read from a Demo Configuration File (*.dcf). This file is produced by the *DemoCfg*

program. The dcf file is selected from this page of the Program Configuration screen. Whenever a change is made to the Demo system, LoadView will have to be stopped and restarted before the changes will take effect.

6.1.2 The Connection Page

The Connection Page is used for setting up the connection to the external load bank or Network Controller. The COM port (COM1 - COM4) will be selected as well as the baud rate.

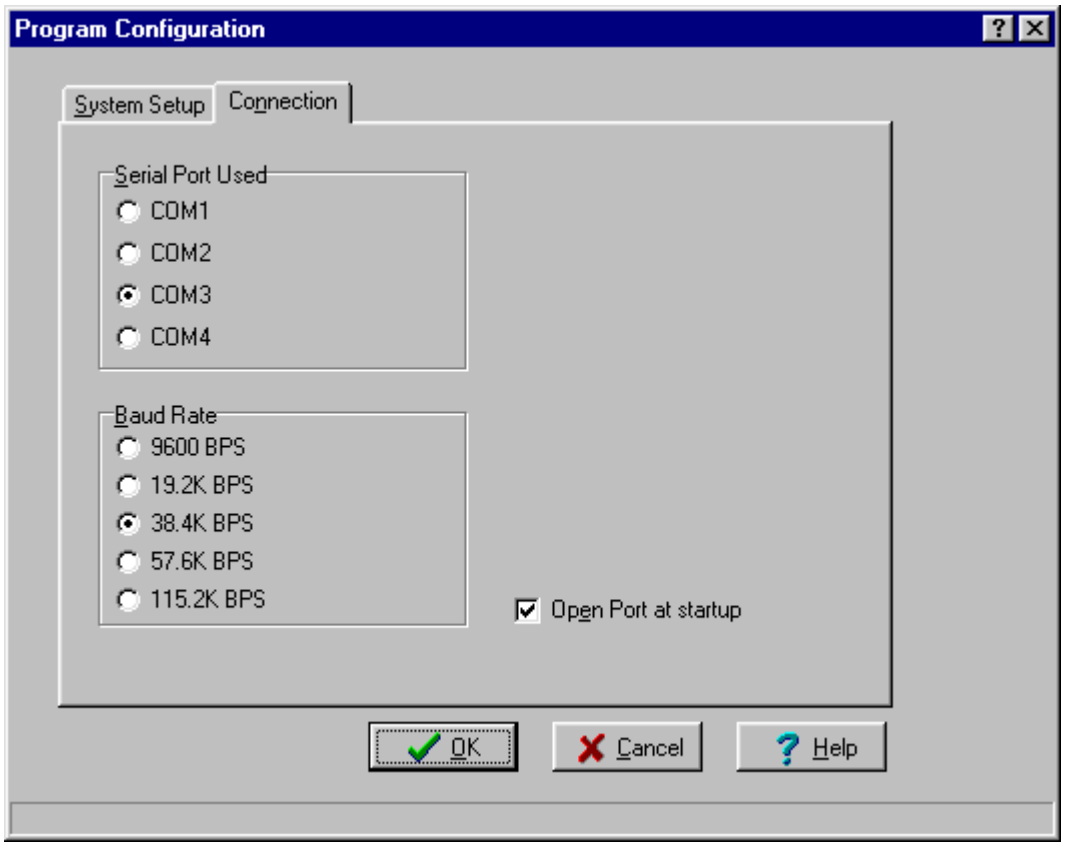


Figure 19 - The Connection Page

⚠ **Warning!** - The communications between LoadView and the external system must be setup correctly or the system will not operate. Insure that the COM port selected matches the port at which the cable is connected between the computer's serial port and the remote system. The baud rate must also be selected correctly. The Load Bank and Network Controller systems are normally configured to operate at 38.4 kBaud.

6.2 Network Controller Configuration

When LoadView is connected to a Network Controller, the Network Controller Configuration Screen will be available. This screen is used to configure the special parameters required by the Network Controller system.

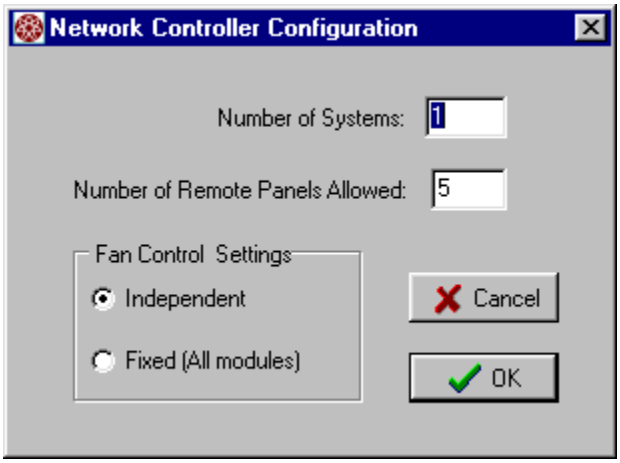


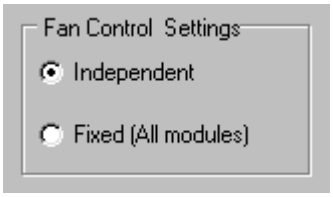
Figure 20 - Network Controller Configuration Screen

Number of Systems - The Number of Systems parameter is currently not implemented. At present, the Network Controller is designed to operate as one system with up to 8 load banks connected. Future designs may be able to connect the load bank nodes in a way that can form more than one system. This parameter has been made available in anticipation of this future system feature.

Number of Remote Panels Allowed - One or more remote User Interface panels can be connected to the Network Controller. The panel(s) are communicated to over a multi-drop RS-485 network. This configuration parameter is used to tell the Network controller how many remote panels to look for. This parameter should be set to the maximum number of panels that can be connected to the network. For example if you have three remote panels then this number should be set to 3 even if only one or two panels are currently connected.

⚠ **Warning!** - Setting the Number of Remote Panels Allowed to an amount that is lower than the actual number of panels connected will cause some panels to be inoperable. For example: if there are 5 user panels in the system and this parameter is set to 3, then panels 4 and 5 will not operate. It is also important to insure that the Node Address of each panel be set to a different value (i.e. 1, 2, 3, 4, and 5 in this case).

Fan Control Settings - The Fan Control Settings parameter is used to tell the Network Controller, LoadView, and any connected remote User Interface panels how the cooling fans should be controlled. When *Independent* is selected, the cooling fans are controlled independently (i.e. each load bank's cooling fan is controlled via the *Fan Control Screen*). If *Fixed* is selected, then all load bank cooling fans are turned on/off when the fan setting is toggled.



Large load bank systems can be assembled by placing multiple units in a container or on a trailer, etc.. The load buses of these units are then connected together to form a single large load bank. In these systems the separate load banks are combined via a Network Controller to look like one big load bank. Since the buses are connected together all load bank cooling fans should either be on or off, independent control is not sensible.

6.3 The Test Setup Screen

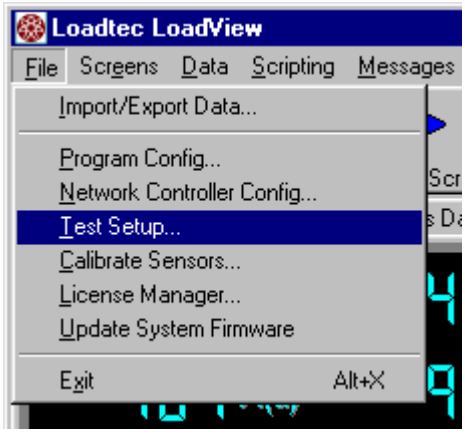
As described in the *Quick Start Guide*, the normal testing process will require you to enter some information about the system that you are testing. Most of this information is entered via the *Test Setup Screen*.

Figure 21 - The Test Setup Screen

Clicking "Test Setup" in the File Menu, or pressing the "Change" button in various places on the Main Data Screen selects the Test Setup Screen. The Test Setup Screen is a multi-page window. The pages are:

1. The Test Setup Page
2. The User Settings Page
3. The Step Setups Page

The required page is selected by clicking the appropriate tab at the top of the window.

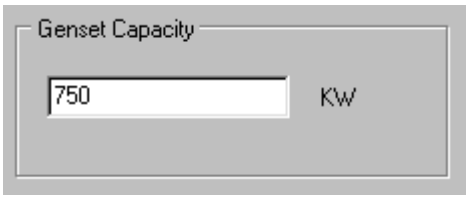


6.3.1 The Test Setup Page

As the name implies, this page is used to configure the system for the test that you are about to run. Generally your remote system will remain somewhat fixed, the exception to this can of course be networked systems in which load banks are being added or taken away. The *Test Setup Page* is used to configure the system under test.

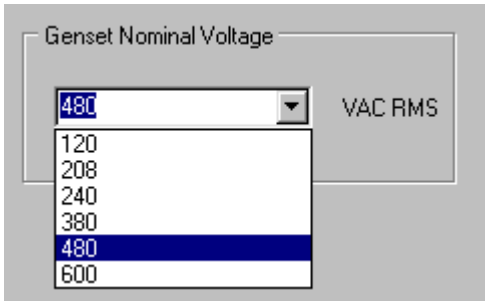
6.3.1.1 The Genset Capacity

The Genset Capacity or *Genset Size* is one of the more important settings. The bar graph displays and all user-defined meters that employ *Auto Scaling* make use of this value. The *Preset Buttons* on the *Automatic Page* of the *Control Section* (on the *Main Data Screen*) are setup based on this value. Preset steps from within test scripts will also make use of this value. In effect this parameter is used to "Scale" the displays and controls of LoadView. This parameter should be set to total size of the system under test.



6.3.1.2 Genset Nominal Voltage

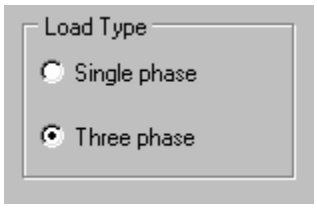
This parameter is used to inform LoadView and the remote system of the voltage of system under test. This parameter is used to make decisions about minimum and maximum voltages and how to scale the load steps. As shown this parameter is a pull down box that allows you to select one of the predefined system voltages.



⚠ **Warning!** - As stated this parameter is used to setup system safeties (i.e. over-voltage trips) fan controls, and high/low voltage controls. Setting this parameter incorrectly can have an adverse effect on your system.

6.3.1.3 Load Type

The Load Type parameter is used to inform the system of the type of system being tested -- Single-phase or three-phase. Certain calculations are performed differently for a Single-phase versus three-phase system.



6.3.2 The User Settings Page

The User Setting Page is used to configure the user specific parameters.

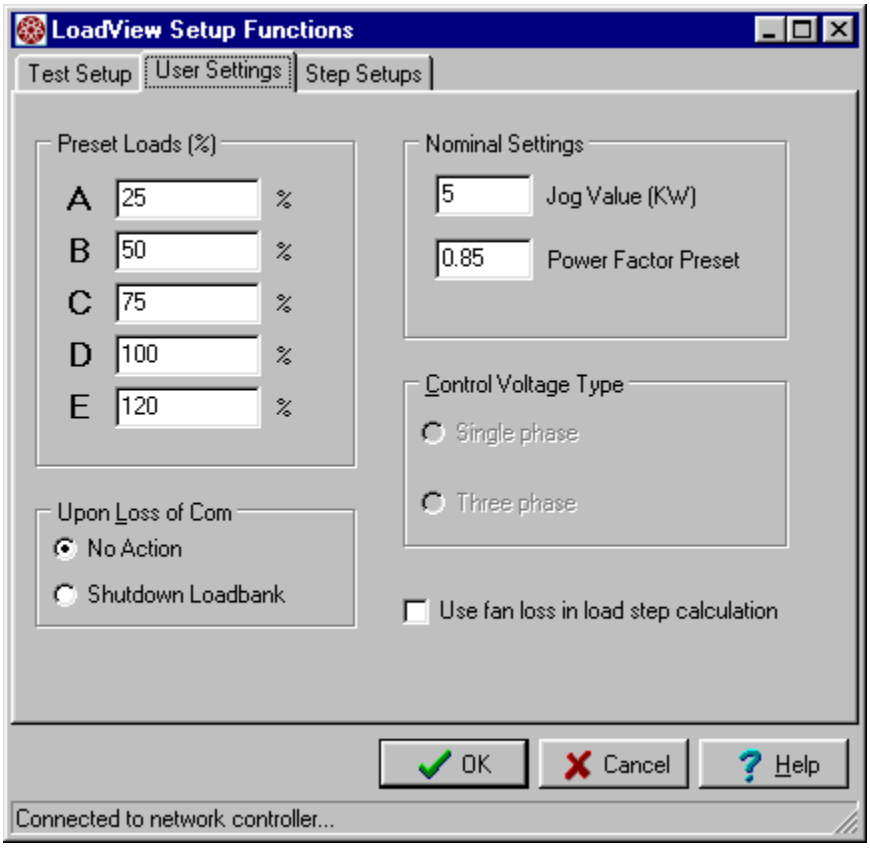
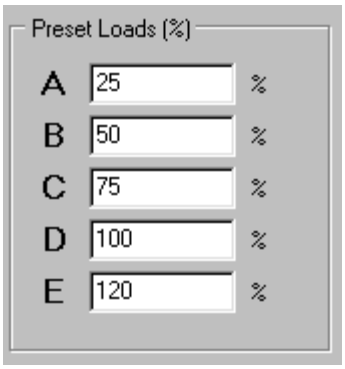


Figure 22 - User Settings Page

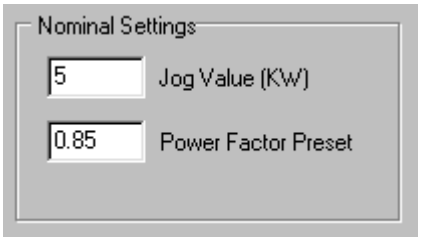
The "Use fan loss in load step calculation" check box is used to tell the system whether it is to compensate for fan loss in the load step calculations. If this box is checked, then the configured fan loss value will be removed from the commanded load value.

6.3.2.1 Preset Loads Setting

These five parameters are used to configure the size of each of the Preset Load buttons. The values entered are the percentage of full scale load that is place on the system when the respective button is clicked. The full-scale load is determined from the *Genset Size* value that is entered via the *Test Setup* Page. These settings are also used to scale the *Meter Soft Keys* of the remote system.



6.3.2.2 Nominal Settings

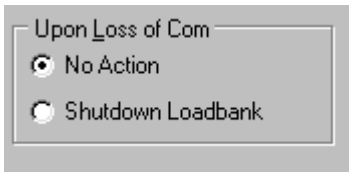


The Jog Value and Power Factor Preset values are entered via this panel. The **Jog Value** is used to scale the Jog function. This setting scales the Jog Step size at the load bank, any User Interface panels, and on the Automatic Page of the Control Section.

The **Power Factor Preset** value is used to scale the Jog Value when commanding an Inductive load bank.

6.3.2.3 Upon Loss of Com

This parameter defines what action the system will take on loss of com. If communications between LoadView and the remote system are disrupted, the remote system can either: (1) take no action, or (2) shutdown the load bank. If the shutdown option is selected, the remote system will drop all loads and turn off the cooling fans, upon loss of com. A *Loss of Computer Com!* message will be added to the message queue.



6.3.2.4 Control Voltage Type

The Control Voltage Type setting is used to inform the system of the expected control voltage type. This setting can be set to either three-phase or Single-phase.

Network System - This control is not required for a networked system.

6.3.3 Step Setups Page

If a load step element (either resistive or inductive) in a load bank has failed, these settings can be used to lockout the failed step until such time as it can be repaired. When a load step is locked out, the system can continue to operate although at a reduced capacity. The step correction factor can also be entered via this screen.

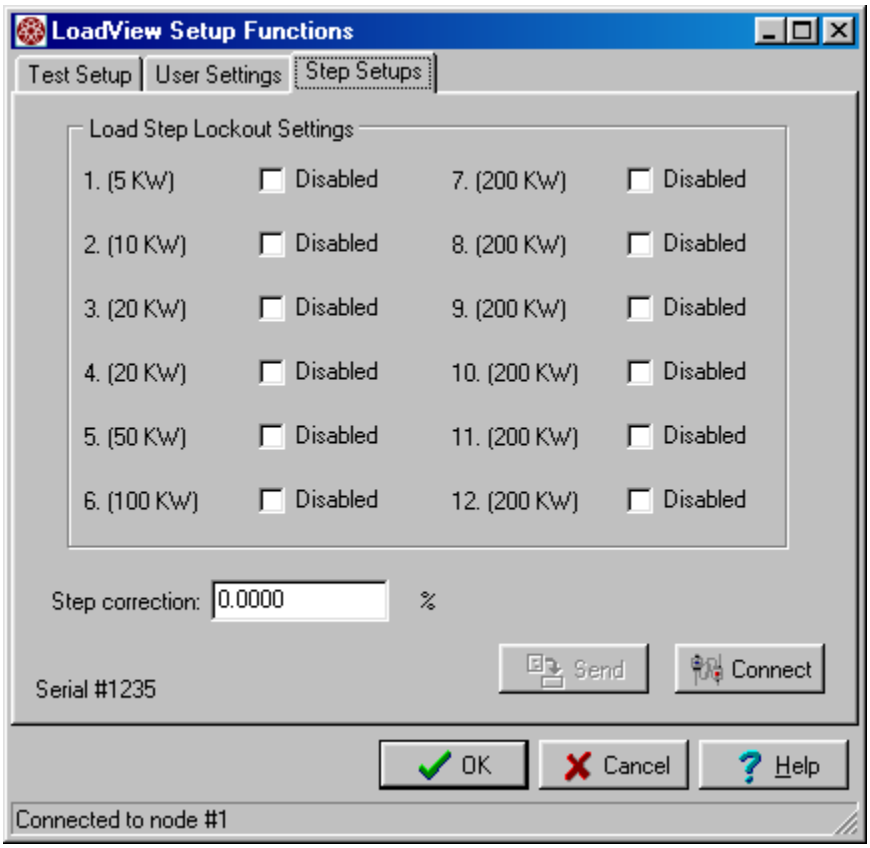


Figure 23 - Step Setups Page

Check the box next to the failed load step to lock it out from the system. The system will ignore any locked out load steps and thus will not attempt to use it when computing which steps to apply.

Network System - In a network system, the *Node Selection Window* will be activated when the Step Setups Page is selected if the system is in the Combined Data Mode. You must be connected to a given Node to modify its Step Setups. The connect button is used to activate the *Node Selection Window* to connect to a different load bank node.

6.4 Sensor Calibration

The system's voltage and current sensors can be calibrated and/or zeroed from within LoadView. Selecting **Calibrate Sensors…** from the *File Menu* opens the *Sensor Calibration Window*.

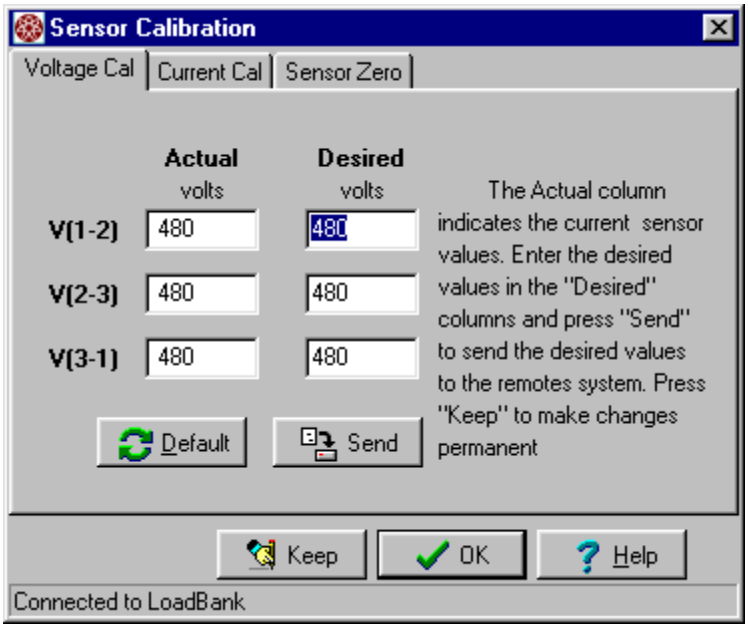


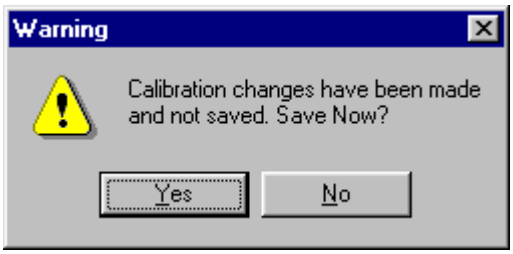
Figure 24 - Sensor Calibration Window

This window is a multi-page control - the pages are:

1. The Voltage Cal Page.
2. The Current Cal Page.
3. The Sensor Zero Page.

The page is selected by clicking the required tab.

Note - New calibration coefficients will be computed by the remote system(s) when the calibration data is sent to them, via the "Send" button. The coefficients are however temporary - they will remain in effect until the system is turned off. The Keep button is provided to request the remote system(s) to save the new calibration to non-volatile memory.



The normal process is to make all required calibration changes (i.e. default, voltage cal, current cal, etc..) then save or "Keep" these values when you exit the *Sensor Calibration Window*. If changes have been made and not saved, you will be informed when you exit the window.

6.4.1 Voltage Sensor Calibration

The voltage channels of each load bank can be calibrated from the *Voltage Cal Page* of the *Sensor Calibration Window*. This page indicates the current "Actual" voltage being read by the system and provides a place to enter the desired voltage (per phase). If the "Actual" readings are incorrect, then enter the desired values (for each phase) and click the Send Button. When the Send button is clicked, the calibration information is sent to the remote system. The Default button can be used to return the calibration values to their defaulted state.

Network System - If LoadView is connected to a networked system, via the Network Controller, then all voltage sensors, at each of the remote nodes, are calibrated when the "Send" button is clicked when in the *Combined Data* Mode. If connected to a given node, then the voltage will be calibrated at that node only.

6.4.2 Current Sensor Calibration

The current measurement channels of each load bank are calibrated from the *Current Cal Page* of the *Sensor Calibration Window.*

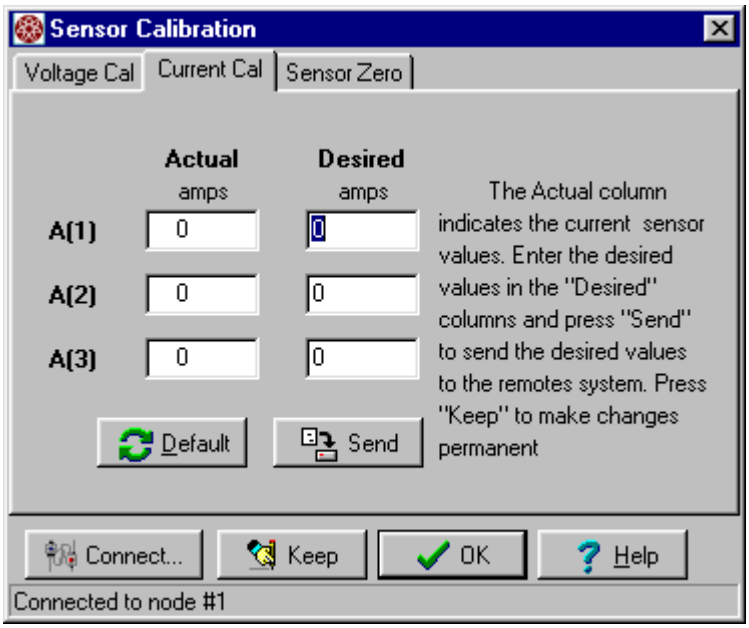


Figure 25 - Current Cal Page

Network System - If in the Combined Data Mode when the Current Cal tab is clicked, the *Node Selection Window* will be opened. The current measurement sensors must be calibrated independently - one node at a time. Note: The status bar of the Sensor Calibration Window indicates which node is connected.

Just as with the voltage calibration, this page shows the actual current readings (amps), and allows for the desired values to be entered. Enter the desired amp readings for each phase

and click the "Send" button to send them to the remote system. Clicking the "Default" button will return the amp calibrations to their default values.

6.4.3 Sensor Zero Page

The voltage and current measurement channels can be "zeroed". This zeroing function allows any offset errors in the channels to be calibrated out - "zeroed".

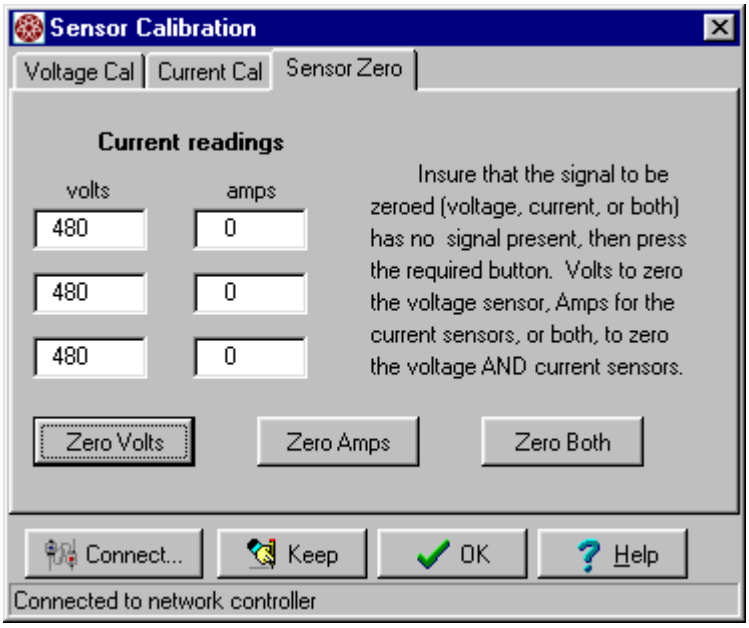


Figure 26 - Sensor Zero Page

Pressing the *Zero Volts*, *Zero Amps*, or *Zero Both* buttons zeros the voltage, current, or both at each load bank.

⚠ **Warning!** - The voltage and current channels should only be zeroed when there is no voltage or current applied. As stated, the purpose of this function is to "zero" the channel to account for any offset errors. Zeroing these channels with voltage or current applied will produce unpredictable results.

6.5 The License Manager

The system registration, LoadView, and High Speed Response data licensing are accessed via the *License Manager*.

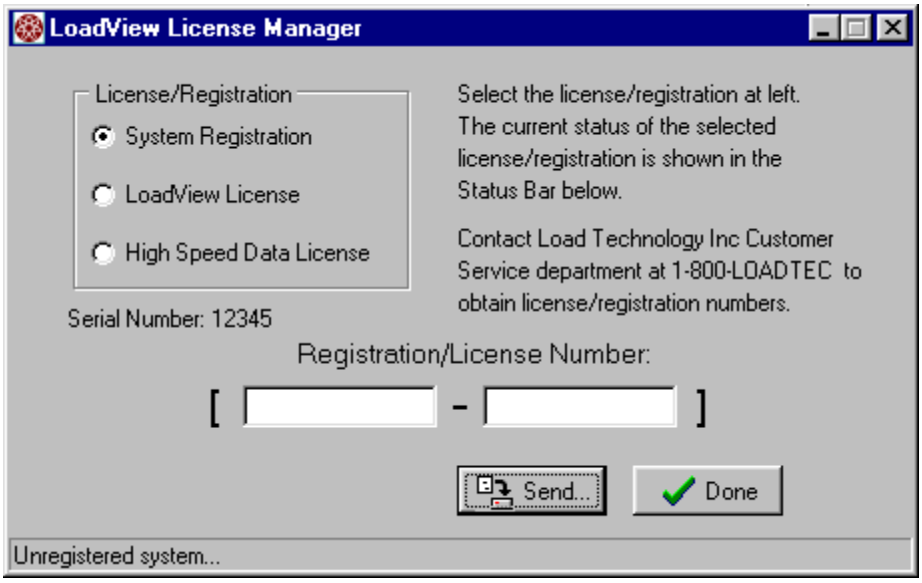


Figure 27 - License Manager

System registration, LoadView and High Speed Response system license number must be obtained from Load Technology. The system's serial number is shown in this dialog and will be required.

Load Technology Inc.
Customer Service Department
4225 Production Court
Las Vegas, Nv. 89115
1 - 800 - LOADTEC
service@loadtec.com

6.6 Update System Firmware

Selecting **File | Update System Firmware** from the *Main Menu* starts the Firmware Update program. This software provides a method in which the serial port of the computer can be used to download new firmware to each of the remote systems. This includes load bank(s), Network Controllers, and the User Interface Panels. The details of operating the **Firmware.exe** software are documented in the *Firmware* manual.

7.0 The Data Logging System

One of the sub-systems of the LoadView software is the *Data Logging* system. The *Data Logging* system provides:

- Data recording functions - Logging.
- Up to 8 channels of user defined data.
- A viewer for displaying and printing *Log Data Files*.

7.1 Recording Data (Logging)

Data is continuously communicated from the remote system (Load Bank or Network Controller) to LoadView. As each data frame is received it is processed by LoadView to update all data displays and user defined screens. The *Data Logger* operates behind the scenes to record data to the selected *Log Data File* at a given time interval and/or on a change in load command.

7.1.1 Data Logging Concepts

Most controls of the Data Logging System are provided for via the Logging Page of the Main Data Screen (ref 5.0.4.2 *The Logging Page*). One of the parameters setup via this page is the *Log File*. This parameter tells LoadView what file to use for logging. When logging is started, this is the file that new data lines will be recorded to. If the "View" log button is clicked, this is the file that will be opened in the viewer. In essence the Log File parameter defines the currently active file.

Data Log Files carry the "ldf" (Loadtec Data File) extension. Version 1.0 log files (created with previous versions of LoadView) used the "log" file extension. LoadView version 3 will convert old "log" files into the new "ldf" format in a semi-automatic manner.

In addition to the data lines themselves, a channel list, and optional user defined data channels are also be stored in the *Log File*.

7.1.1.1 User Defined Data Channels

Up to eight *User Defined Data Channels* can be defined and stored with the system's data in the log file. If User Defined Channels are enabled, then each time a data line is recorded to the log, the *Record User Data Window* will be displayed. Checking the "Record user defined channels" check box on the *Logging Page* of the *Main Data Screen* enables recording of the user defined data channels.

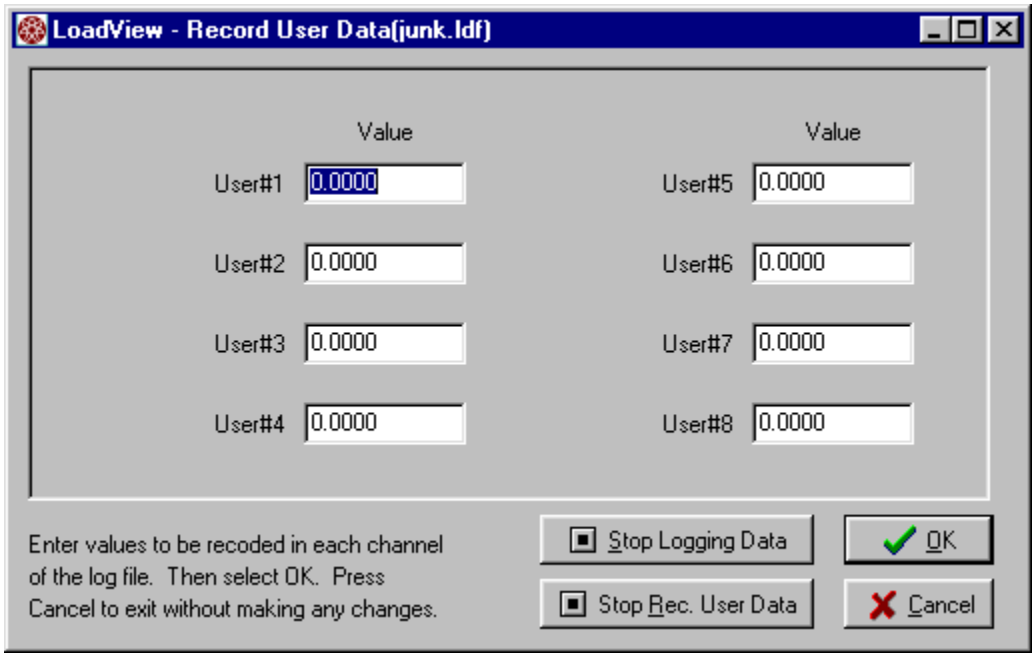


Figure 28 - Record User Data Window

Use this window to enter data values for each of the configured channels. Press the Ok button to store the entered values. Pressing the "Stop Logging Data" button cause the log to stop recording. Pressing the "Stop Rec. User Data" button causes recording of the user defined channels to stop. Data will continue to be logged as defined by the Data Logging parameters.

7.1.1.2 User Defined Channel Configuration

The configuration parameters for user-defined channels are actually stored in the Log Data File. When a new Log Data File is created, LoadView copies the default settings into the newly created log file. From that point on, changes to the user-defined data must be made in the log file. The

default parameters are configured via the User Channel Definition Window. This window is accessed by clicking **Data | Edit Default User Channel Definitions**… from the *Main Menu*. The Channel Check Boxes are used to enable/disable each of the channels. Enter the desired channel name and units values.

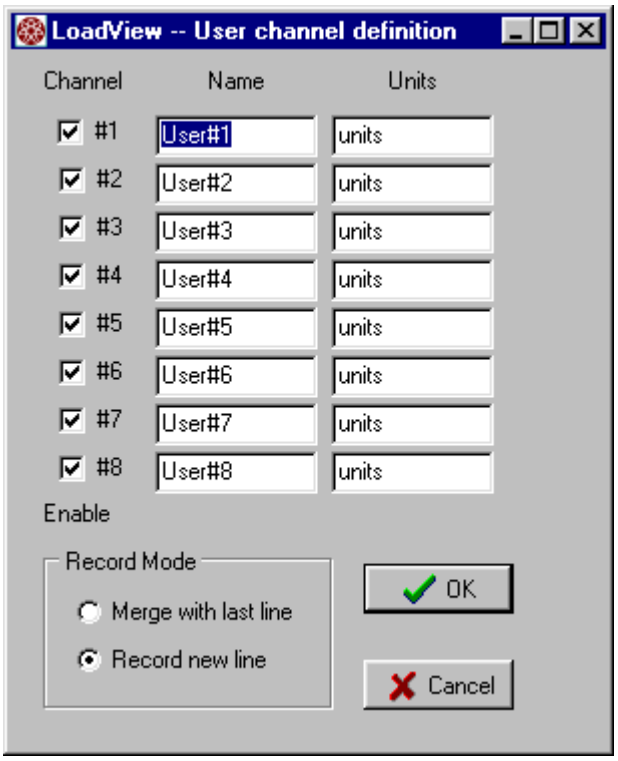


Figure 29 - User Defined Channel Setup Window

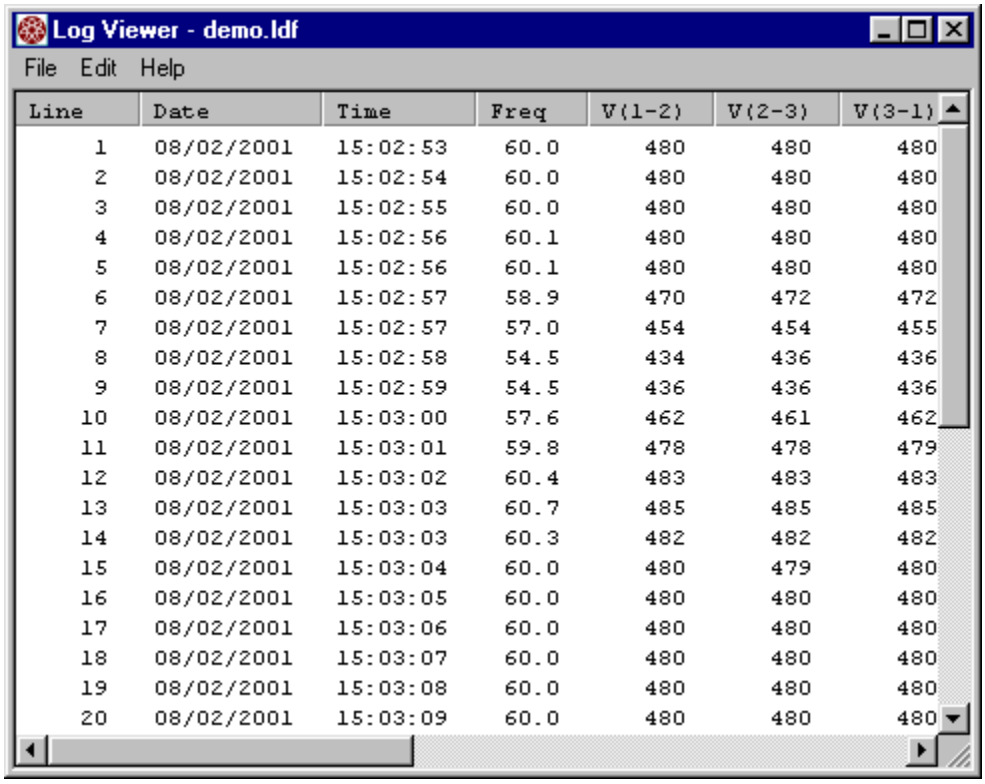
The *Record Mode* setting defines how the user data channels are merged into the log data. When *Merge with last line* is selected, then the entered user data values will be merged with the last line that was recorded in the log. Again if "Record user defined channels" is enabled, then the *Record User Data Window* will be displayed when a data line is recorded to the log. Once the OK button is pressed, your entered values will be recorded - merged into the last line recorded in this case.

When Record new line is selected, the values entered in the Record User Data Window will be merged with the current data. A new line will be recorded to the log that is made up of this merged data.

Note - It is important to understand that once a data log file has been created, these configuration parameters are then stored into the file. These settings can be changed from within the *Log File Viewer*.

7.2 The Log Viewer

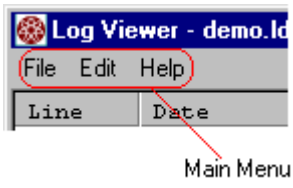
The *Log Viewer* is used to view the contents of a stored data log. Pressing the "View" button on the *Log Page* will cause a *Log Viewer* window to be opened showing the current *Log File*.



Line	Date	Time	Freq	V(1-2)	V(2-3)	V(3-1)
1	08/02/2001	15:02:53	60.0	480	480	480
2	08/02/2001	15:02:54	60.0	480	480	480
3	08/02/2001	15:02:55	60.0	480	480	480
4	08/02/2001	15:02:56	60.1	480	480	480
5	08/02/2001	15:02:56	60.1	480	480	480
6	08/02/2001	15:02:57	58.9	470	472	472
7	08/02/2001	15:02:57	57.0	454	454	455
8	08/02/2001	15:02:58	54.5	434	436	436
9	08/02/2001	15:02:59	54.5	436	436	436
10	08/02/2001	15:03:00	57.6	462	461	462
11	08/02/2001	15:03:01	59.8	478	478	479
12	08/02/2001	15:03:02	60.4	483	483	483
13	08/02/2001	15:03:03	60.7	485	485	485
14	08/02/2001	15:03:03	60.3	482	482	482
15	08/02/2001	15:03:04	60.0	480	479	480
16	08/02/2001	15:03:05	60.0	480	480	480
17	08/02/2001	15:03:06	60.0	480	480	480
18	08/02/2001	15:03:07	60.0	480	480	480
19	08/02/2001	15:03:08	60.0	480	480	480
20	08/02/2001	15:03:09	60.0	480	480	480

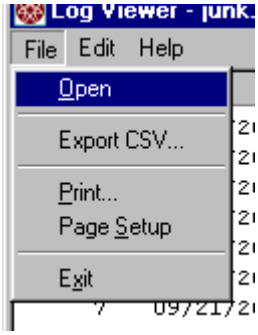
Figure 30 - Log File Viewer

As can be seen this window shows the data lines recorded in the selected file. If you are viewing the current log file, then data will continue to be added to this window if logging is active. The scroll bars can be used to move up and down or left to right.



The *Log Viewer* window also contains a Main Menu. Various functions are available from this menu. These functions are grouped in the File, Edit, and Help menus.

7.2.1 The File Menu



The File menu provides access to various file related functions. These are:

- Open - Open a selected Log Data File
- Export CSV - Export data to a comma separated variable file.
- Print - Print The Log File
- Page Setup - Setup the printed page.
- Exit - Exit the menu.

7.2.1.1 Opening a Log Data File

Selecting **File | Open** allows the selection of a Log Data File for viewing. Selecting **Data | Open Log File** from the *Main Menu* of the *Main Data Screen*, also allows the selection of a Log Data File for viewing. When the Open function is selected, the Open Log File dialog will be shown.

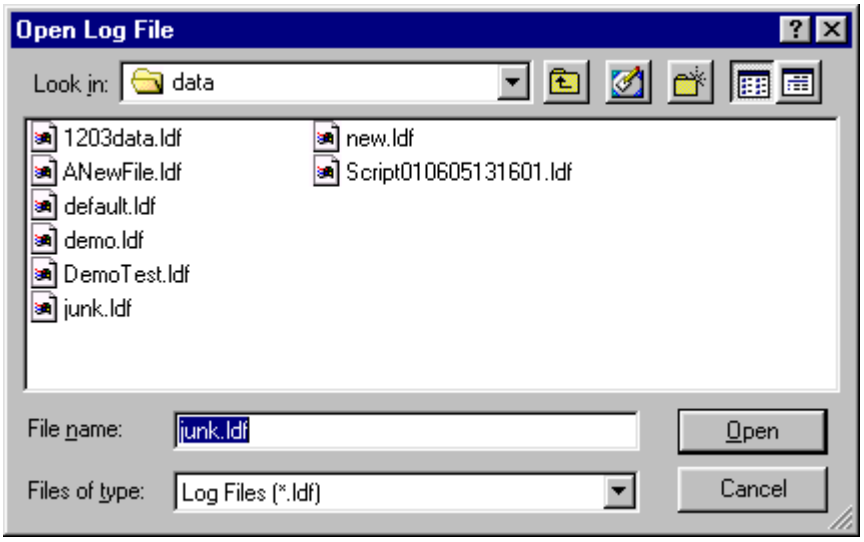
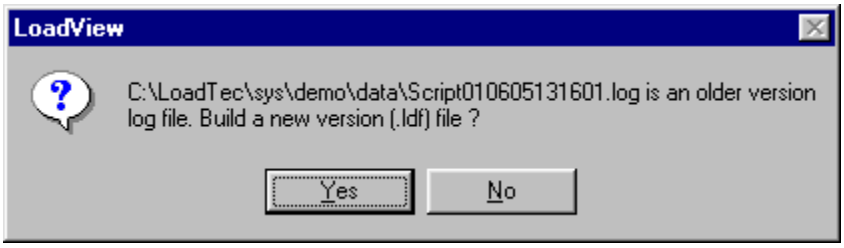


Figure 31 - Open Log File Dialog

Select the desired file and click Open to view the selected file. As with most standard Windows® based programs, the directories can be "navigated to" using the navigation tools. The default directory that is selected when this dialog is opened is defined by configured data path (ref. 6.0.1.1.1 Setting up the LoadView File Paths).

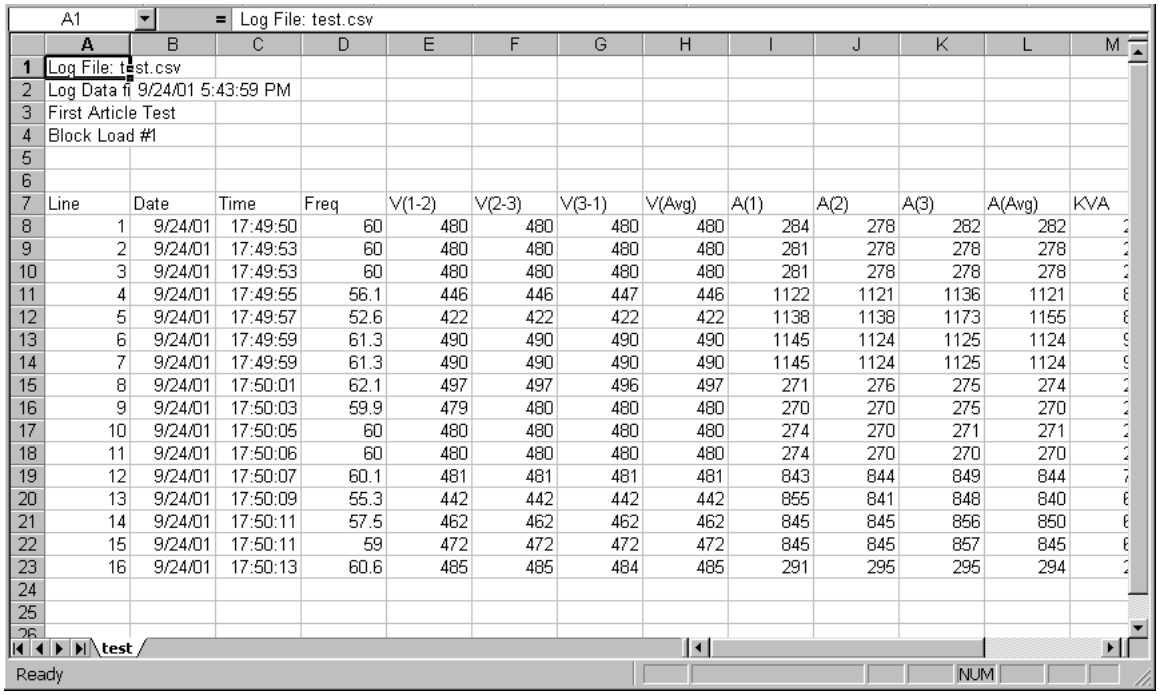
Note: - Clicking on the arrow button in the "File of Type:" control, and selecting *Version 1.0 Log Files* can be used to open a log file created with a previous version of LoadView. When an attempt is made to open an old version Log file it must be converted to a new style file before the Viewer can open it.



If you select *Yes* to create the file, then a new file with the ".ldf" file extension will be created. If that file is created without error, it will be opened in the Log Viewer window.

7.2.1.2 Exporting to CSV

A *Comma Separated Variable* file, also know as a *CSV* file, is a common method for exporting data to other programs. Programs such as Microsoft's Excel® is an example of just such a program. Excel® can directly import a CSV file. To export to a CSV file simply select **File | Export CSV…** from the Main Menu of the Log File Viewer. Then enter the name for the CSV file and Click "Save". A CSV file of the name you selected will be created.



A1 = Log File: test.csv

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Log File: test.csv												
2	Log Data fi	9/24/01 5:43:59 PM											
3	First Article Test												
4	Block Load #1												
5													
6													
7	Line	Date	Time	Freq	V(1-2)	V(2-3)	V(3-1)	V(Avg)	A(1)	A(2)	A(3)	A(Avg)	KVA
8	1	9/24/01	17:49:50	60	480	480	480	480	284	278	282	282	
9	2	9/24/01	17:49:53	60	480	480	480	480	281	278	278	278	
10	3	9/24/01	17:49:53	60	480	480	480	480	281	278	278	278	
11	4	9/24/01	17:49:55	56.1	446	446	447	446	1122	1121	1136	1121	
12	5	9/24/01	17:49:57	52.6	422	422	422	422	1138	1138	1173	1155	
13	6	9/24/01	17:49:59	61.3	490	490	490	490	1145	1124	1125	1124	
14	7	9/24/01	17:49:59	61.3	490	490	490	490	1145	1124	1125	1124	
15	8	9/24/01	17:50:01	62.1	497	497	496	497	271	276	275	274	
16	9	9/24/01	17:50:03	59.9	479	480	480	480	270	270	275	270	
17	10	9/24/01	17:50:05	60	480	480	480	480	274	270	271	271	
18	11	9/24/01	17:50:06	60	480	480	480	480	274	270	270	270	
19	12	9/24/01	17:50:07	60.1	481	481	481	481	843	844	849	844	
20	13	9/24/01	17:50:09	55.3	442	442	442	442	855	841	848	840	
21	14	9/24/01	17:50:11	57.5	462	462	462	462	845	845	856	850	
22	15	9/24/01	17:50:11	59	472	472	472	472	845	845	857	845	
23	16	9/24/01	17:50:13	60.6	485	485	484	485	291	295	295	294	
24													
25													
26													

test

Ready NUM

Figure 32 - CSV File Example

7.2.1.3 Printing Log Data Files

Printing *Log Data Files* is very simple once the file has been opened in the Log Viewer Window. Prior to printing a *Log Data File*, insure that the *Page Setup* is configured correctly. The *Page Setup* formats how the log file will appear on the printed page. These setting are persistent - that is they are saved in the computer's registry and will remain *in effect* until changed at a later date. Simply select **File | Page Setup** from the *Main Menu* of the Log Viewer Window.

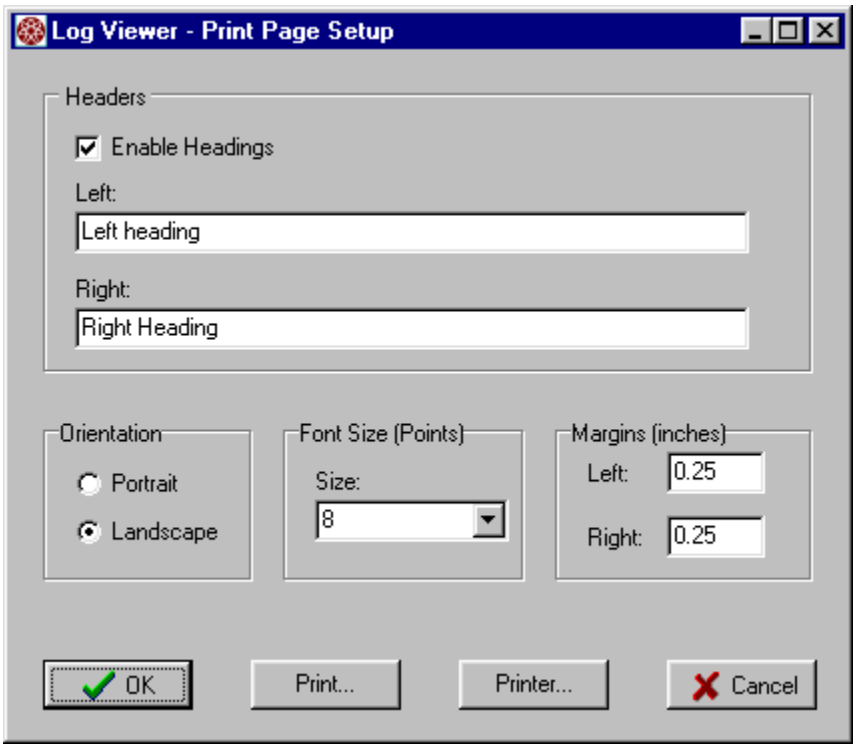
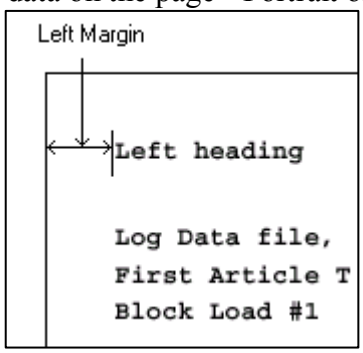
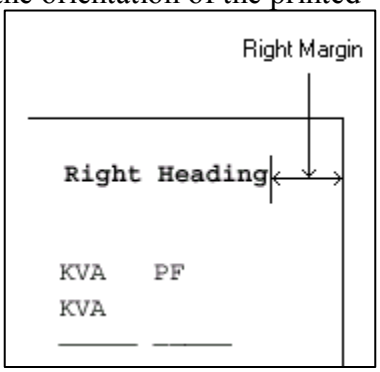


Figure 33 - Log Print Page Setup

From the Log Page Setup window (Figure 33) you can control how and what headings are printed on the page, the orientation of the page, the font size, and the margins. The left and right heading values are printed at the top left and top right of the printed page if the Enable Headings check box is checked. If it is not checked, then these headings will not be printed.

The Orientation setting is used to configure the orientation of the printed data on the page - Portrait or Landscape.





The right and left margin settings control the margins as shown. The font size is used to control the size of the text on the printed page. The font size can be set to 8,9,10,11, or 12.

Once all of the parameters have been entered, press one of the following buttons:

OK - Press the OK button to save all changes and exit the Page Setup Screen.

Print… - Press the Print… button to print the log. The log will be printed using all of the configured settings.

Printer… - Press this button to selected the desired printer and make and specific changes to the printer's properties.

Cancel - Press this button to exit without saving any changes.

Figure 34 - Log Print Example

Left heading **Right Heading**

Log Data file, 9/24/01 5:43:59 PM
First Article Test
Block Load #1

Line Number	Date mm/dd/yyyy	Time hh:mm:ss	Freq hertz	V(Avg) volts	A(Avg) amps	KW(Ttl) kW	KVA KVA	PF
1	09/24/2001	17:49:50	60.0	480	282	185	234	0.79
2	09/24/2001	17:49:53	60.0	480	278	185	231	0.80
3	09/24/2001	17:49:53	60.0	480	278	185	231	0.80
4	09/24/2001	17:49:55	56.1	446	1121	682	866	0.79
5	09/24/2001	17:49:57	52.6	422	1155	648	844	0.77
6	09/24/2001	17:49:59	61.3	490	1124	758	954	0.79
7	09/24/2001	17:49:59	61.3	490	1124	758	954	0.79
8	09/24/2001	17:50:01	62.1	497	274	187	235	0.80
9	09/24/2001	17:50:03	59.9	480	270	180	225	0.80
10	09/24/2001	17:50:05	60.0	480	271	180	225	0.80
11	09/24/2001	17:50:06	60.0	480	270	180	225	0.80
12	09/24/2001	17:50:07	60.1	481	844	562	703	0.80
13	09/24/2001	17:50:09	55.3	442	840	508	643	0.79
14	09/24/2001	17:50:11	57.5	462	850	541	680	0.79
15	09/24/2001	17:50:11	59.0	472	845	554	691	0.80
16	09/24/2001	17:50:13	60.6	485	294	196	247	0.79

File: test.ldf Page 1 Loadtec -- LoadView Data System

Press the Printer Button to select the printer and/or change any required printer properties. Once the *Page Setup* has been configured as required, simply select **File | Print…** from the *Main Menu* of the Log Viewer Window.

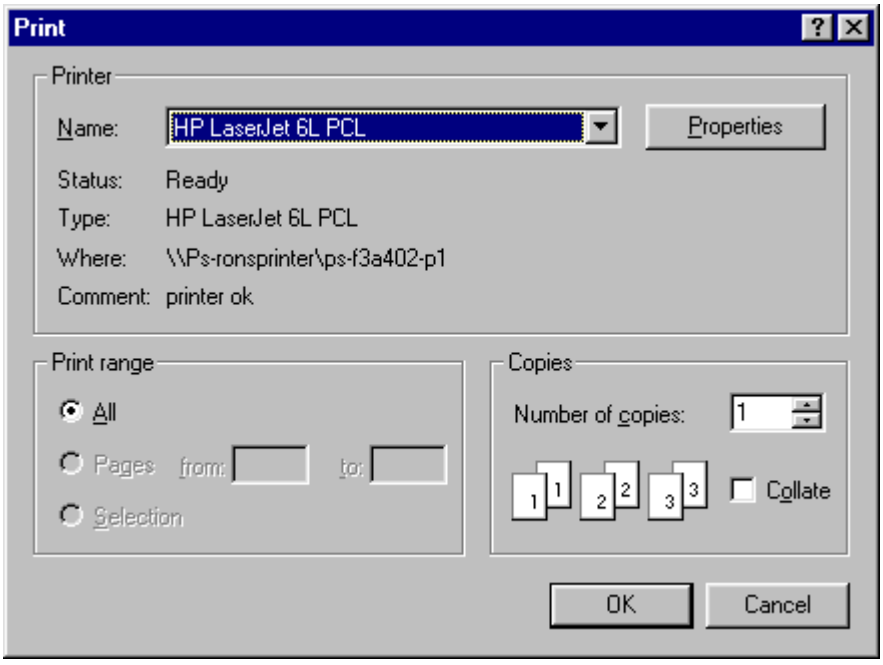


Figure 35 - Printer Setup Dialog

7.2.2 The Edit Menu

The *Edit Menu* provides access to the channel related functions. These are:

- Select Channels
- Record User Data

These functions are used for selecting which channels to display in the Log Viewer and allow for recording of user data into the log.

7.2.2.1 Selecting Data Channels to View

Press **Edit | Select Channels** from the *Main Menu* of the Log File Viewer to activate the *Channel Selection Window.*

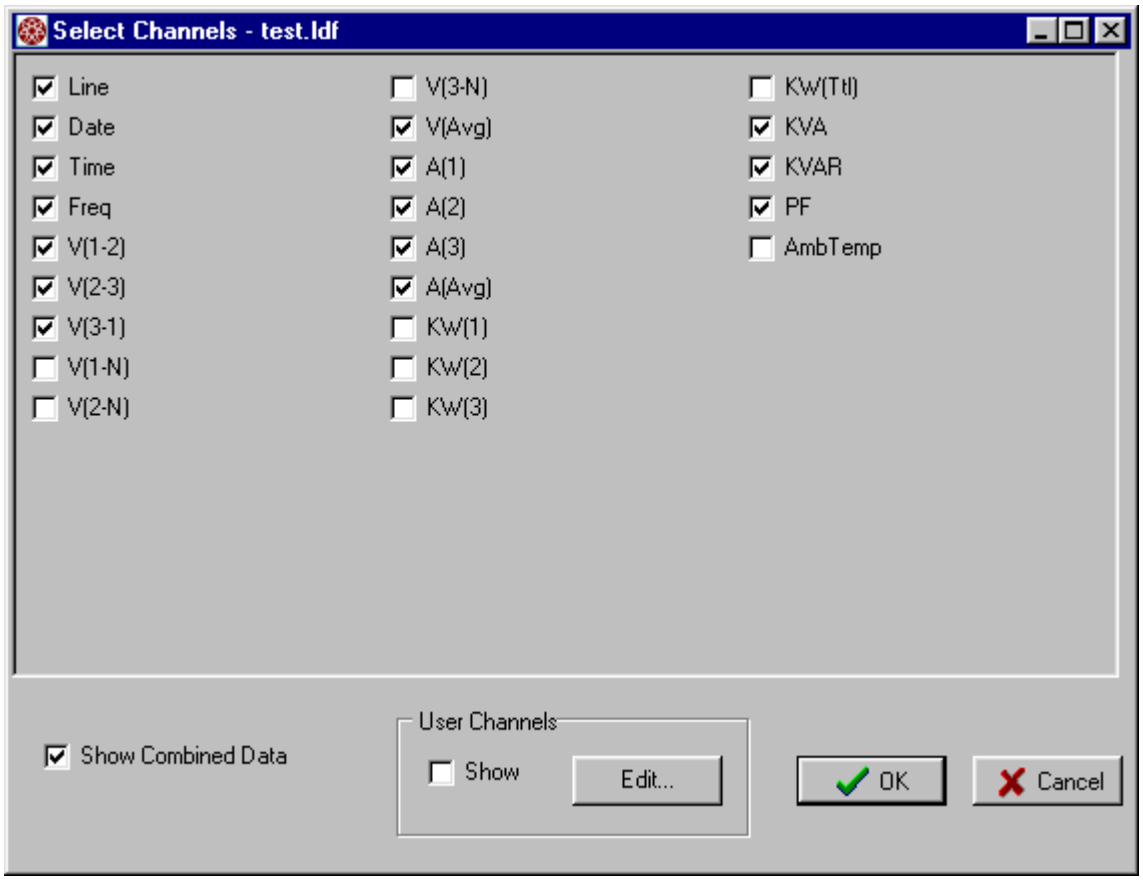
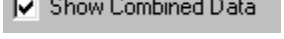


Figure 36 - Channel Selection Window

This window is used to select which data items are to be shown in the Log File Viewer. Click the desired channel, or the Check Box, to enable/disabled the channel. Each channel checked will be shown in the Log Viewer Window. The channels selected for the Viewer also determine the channels that will be printed.

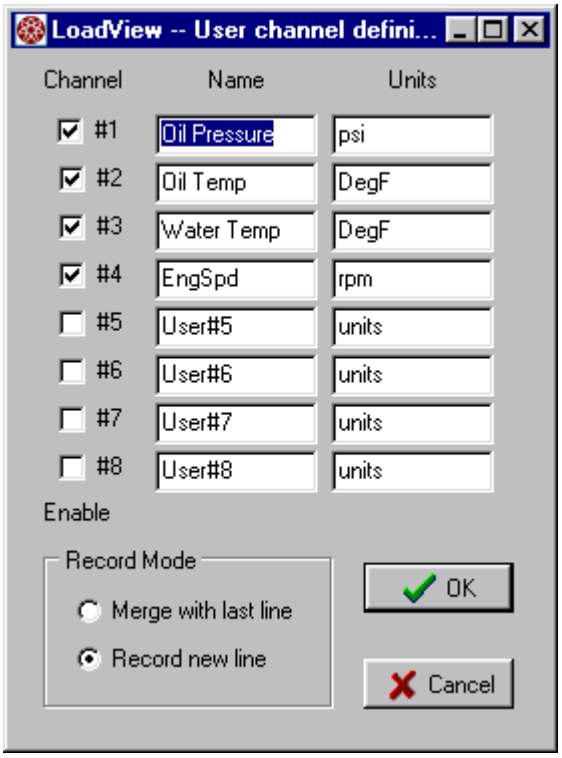
Note - The Show Combined Data check box is only used if LoadView is connected to a resistive load bank that has an Inductive load bank connected to it. If this box is checked, then the data shown will be the combined data from the Inductive and Resistive load banks.

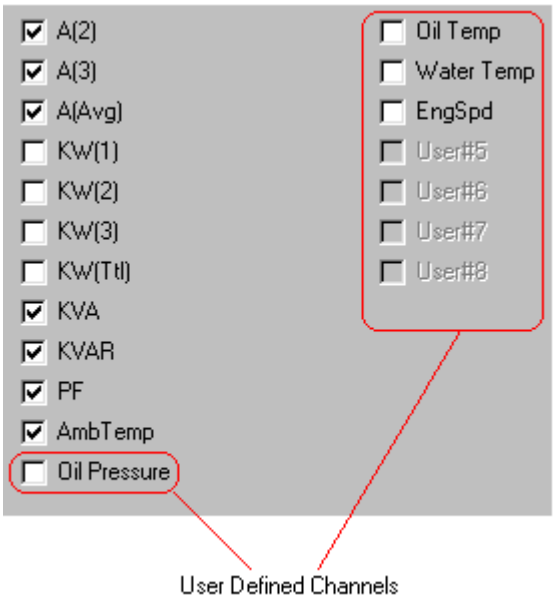


The User Channels control is used to enable/disable the user defined channels and to allow them to be configured. Press the Edit button to edit the User Defined Channel setups.

Checking the Show box enables/disables the user defined data channels. When Show is checked, the user defined data channels will be available in the *Channel Selection Window*.

When the "Edit…" button is pressed a *User Channel Setup Window* will be displayed. The parameters in this window reflect the settings of the User Defined Data channels that are stored in the Log Data File. Make any necessary changes and click OK.





This example shows the additional channels that are made available when the "Show" box is checked.

When the OK button is pressed in the *Channel Selection Window*, the channels selected will be shown. These settings are saved in the *Log Data File* so that the next time it is opened, the same channel selections will remain in place.

7.2.2.2 Recording User Data Channels

Select **Edit | Record User Data** from the *Main Menu* of the *Log Viewer* to record a new set of user defined data channel values. A *Record User Data* Window will be displayed.

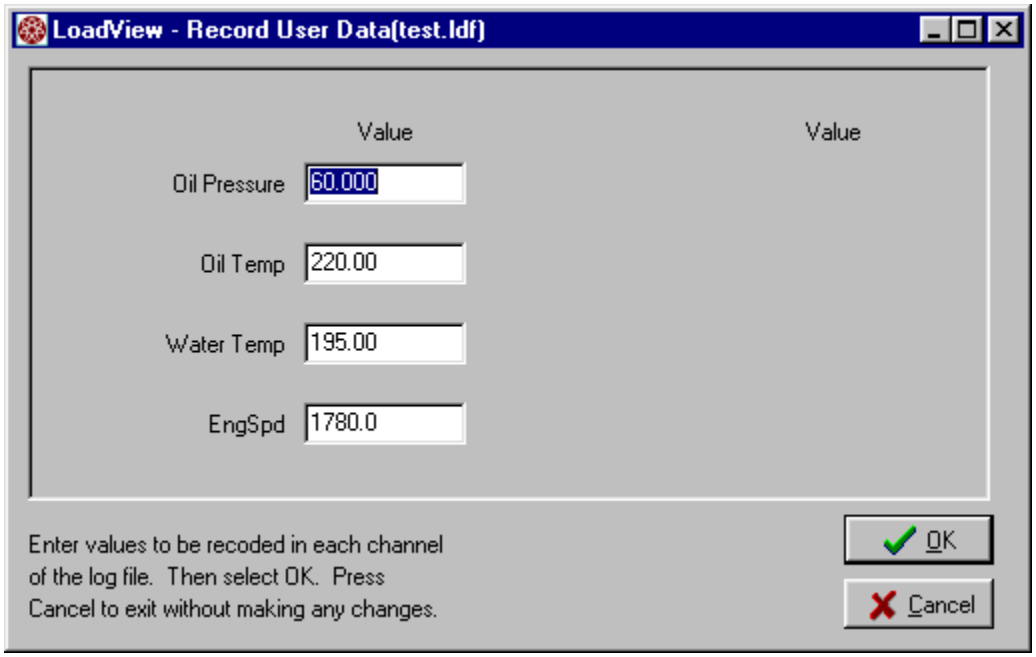


Figure 37 - Record User Defined Channel Dialog

Enter the required values and press the "OK" button to save the values in the log file. The data is saved by either integrating these values with the last data line stored to the log, or by recording a new line and adding the user data to that line. This is setting is configured via the *Record Mode* setting in the User Defined Channel Setup Screen (see Figure 29)

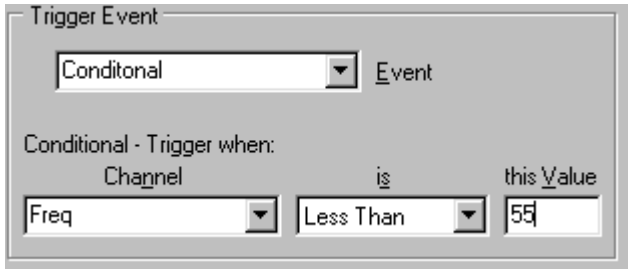
8.0 High Speed Response Data

The *High Speed Response* (HSR) system is similar in function to having an oscilloscope built into the *Power Meter* portion of the system. A dedicated processor system in the Load bank electronics makes up the *Power Meter* system. This system is constantly sampling data from each of the voltage and current sensors and performs the true ***RMS*** calculations. As each zero crossing of the "A" phase is detected, the computation for the cycle is completed for each phase of voltage and current.

The HSR system provides a method in which a sample of each cycle for each phase of voltage, power, and current can be recorded to a high-speed data buffer. This data can then be downloaded from the high-speed buffer to LoadView for plotting and review.

Like an oscilloscope, the HSR system provides triggering that allows pre-defined criteria to initiate the process. Once the trigger event occurs, the system will begin recording data to the high-speed data buffer. The *Record Length* parameter is used to determine how long data is recorded after the trigger event occurs. The pre-trigger parameter is used to select how many cycles before the trigger event are also captured to the data buffer. The following are the available trigger event choices:

- **Change in Load** - This setting causes a trigger to be generated when a change in load command is sensed by the system.
- **Trigger Button** - This setting is used to cause the trigger setting to operate in a manual manner. In this mode a trigger can be generated by the user clicking the "Trigger" button or from a Trigger step type in a test script.
- **Conditional** - In the Conditional mode, a pre-defined condition can be assigned to a given channel. When that condition is met, a trigger is generated. In the example shown, a trigger will be generated when the frequency drops below 55 Hz.



Once the trigger mode and parameters have been setup, the HSR system is ready to record data to the data-buffer. The HSR system must be enabled before an actual trigger can be generated. Once an event occurs and data is recorded to the buffer, HSR will be disabled thus preventing any further triggers. This allows you to download and view the data without the fear of a new trigger over-

writing the data. Once the HSR system is re-enabled, new triggers can once again be generated and processed.

8.1 HSR Configuration

The HSR system must be configured prior to use. The HSR configuration parameters are accessed via the HSR Configuration Screen. Click the Config button from the Response Page to access the HSR Configuration Screen.

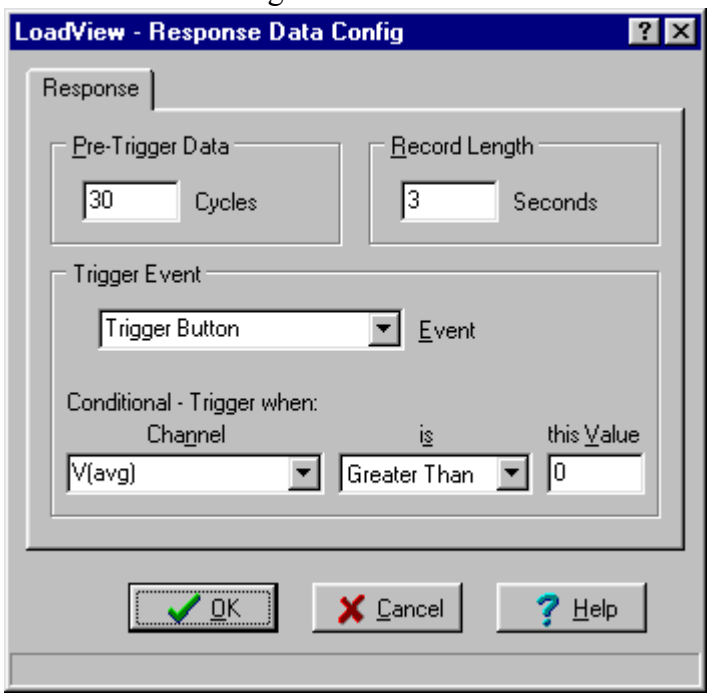


Figure 38 - HSR Configuration Screen

The Pre-Trigger setting is defines how many cycles of data are stored prior to the trigger event. Under normal conditions set this value to 20, this will insure that there is some data recorded prior to the load change event. Setting this parameter to a larger value could be useful for troubleshooting certain problems -- the larger this setting, the further "back" in time (prior to the block load). The maximum Pre-Trigger setting is 240 cycles.

The Record Length setting is used to set how long the HSR system records data after the trigger event. The system can store a maximum of 7712 data points (128.5 seconds @ 60 Hz). The larger this setting is, the more data points are recorded. This data must be sent from the remote system to LoadView over the serial cable. This download can take some time. Setting this value for a time that is significantly longer than the recovery time of the system under test provides no real benefit and will in fact slow things down as it takes longer to record and download the data (i.e. it makes no sense to record data for 120 seconds if your system recovers in 5 seconds).

This setting selects the type of trigger that will be used. The choices are:

Change in Load - in this mode; a trigger is generated whenever a change in load command is issued.

Trigger Button - A trigger is generated when the trigger button is clicked.

Conditional - A trigger is generated based on a defined condition of a data channel.

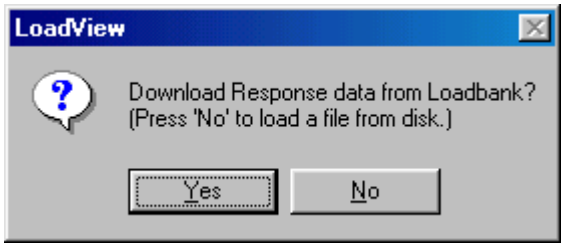
The Channel box allows selection of any of the measured/calculated data channels. The condition box allows selection of one of the four condition types:

1. Equal To
2. Not Equal To
3. Less Than
4. Greater Than

The Value parameter is used to set the conditional value. In the example shown, a trigger will be generated when the frequency drops below 58 Hz.

8.2 Plotting HSR Data

To access the HSR plotting functions click the *View Data* button from the *Response Page*. When the View Data button is clicked, if there HSR data is currently recorded in the remote system, you will be given the option to download the data. If you click *Yes*, then the HSR data will be downloaded from the remote system.



Once the response data has been downloaded, the *Response Plot Screen* will be opened. If you click *No*, then the *Response Plot Screen* will be opened and you can browse for a previously save HSR plot file.

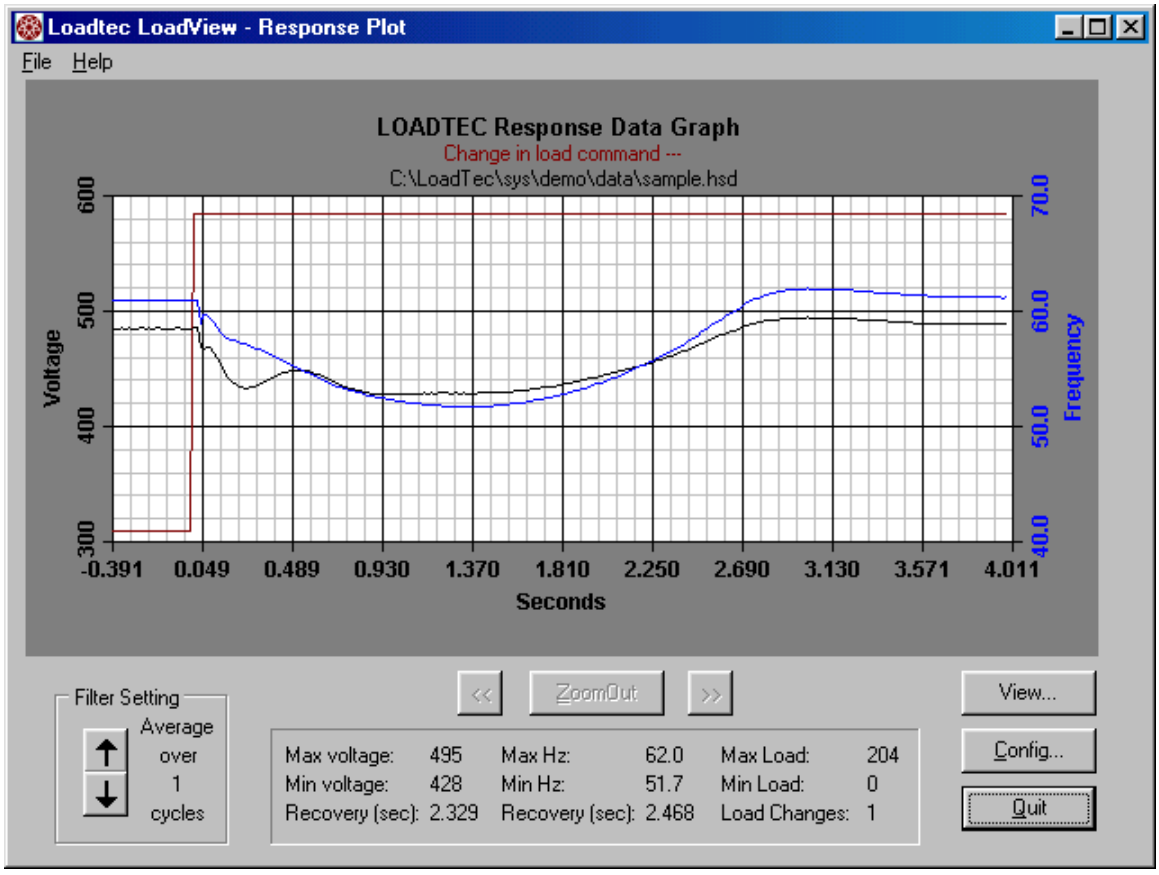


Figure 39 - Response (HSR) Plot Screen

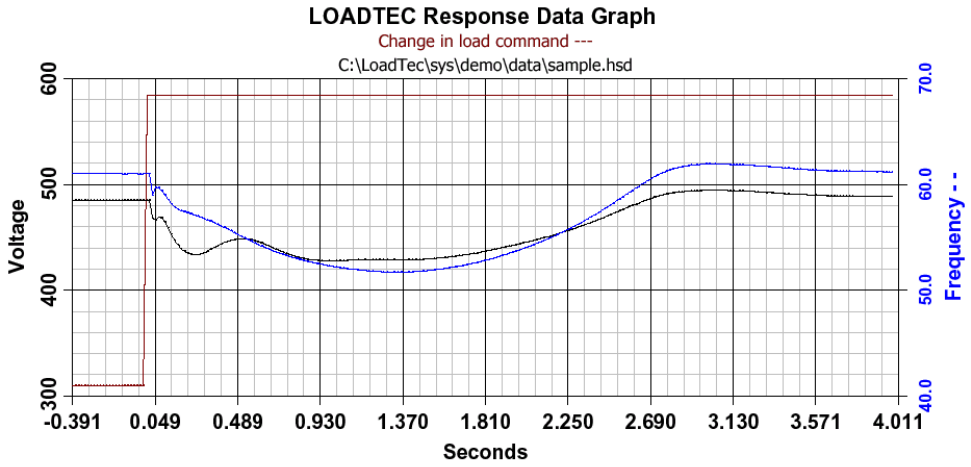
The Plot Screen can also be access by selecting **Data | View High Speed Response Data** from the *Main Menu*. The data file sub-title indicates the name of the current file being viewed, "sample.hsd" in this example. If the data viewed is the downloaded data from the remote system, then "Current System Data" will be shown.

The graphics portion of the plot can show up to three data items:

1. Change in load marker
2. Voltage
3. Frequency

The red line is used to mark the point at which the load change, if there are any, took place. The viewing of this marker is configurable and will not be shown if it is disabled. The blue line is used to plot the measured frequency. The black line is used to plot the voltage.

Click **File | Open** to select a different file to view. Click **File | Save** to save the current plot data to a data file. Click **File | Print** to print a hard copy of the plot.



Data Analysis:

Voltage Response (volts):
Minimum: 428 Maximum: 495
Recovery time: 2.468 seconds to 3.000%

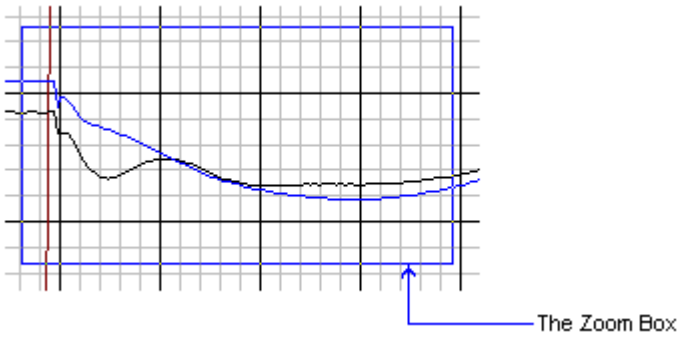
Frequency Response (Hz):
Minimum: 52 Maximum: 62
Recovery time: 2.570 seconds to 3.000%

Load Command Changes (KW):
Minimum: 0 Maximum: 204

Figure 40 - HSR Plot Printout

8.2.1 Plot Zoom Controls

The Plot Screen allows for "zooming in" on any part of the plot by simply dragging a box in the area that you want to zoom in on. Click an hold the left mouse button at the upper left corner of the are you want to zoom in on. While holding the left mouse button down, drag a box to the bottom left corner of the desired area. When the desired box is shown release the left mouse button and the plot will change to show the area in the zoom box.



You can zoom in further by repeating this process with a new zoom window. Whenever the plot is in the zoomed state, the zoom control buttons will be active. Press the "<<" button to pan the plot to the left, back in time. Press the ">>" button to pan the plot to the right; forward in time. Each time ZoomOut is pressed, the plot will return to the previous zoom level. Once the plot has reached the full view (not zoomed) then the Zoom control buttons will again be disabled.

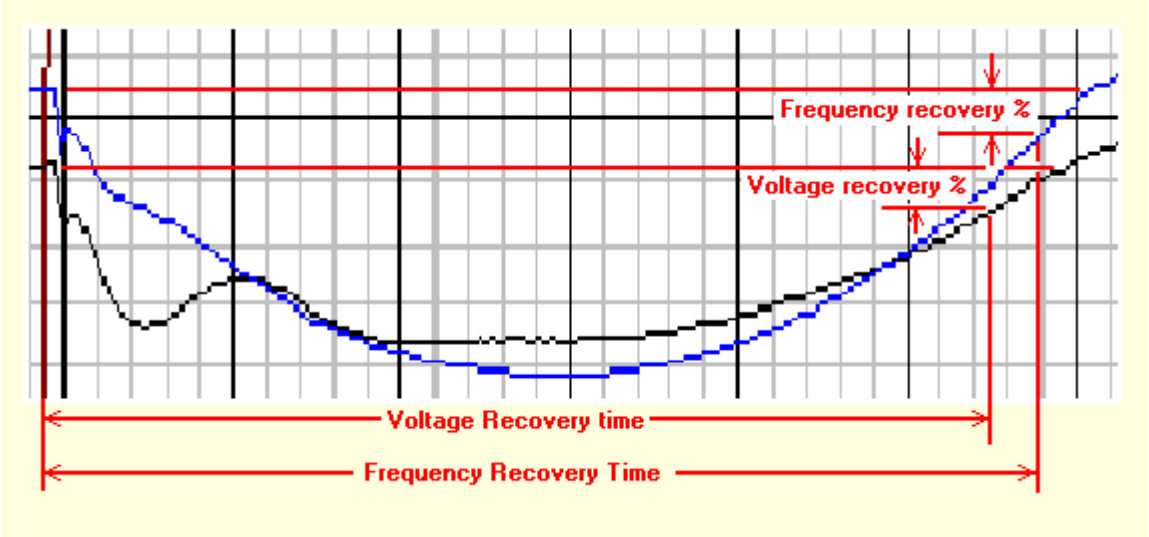
8.2.2 HSR Voltage and Frequency Recovery

The data analysis tools built into the HSR system are capable of computing the recovery time of the voltage and frequency. When the power source (the GenSet) is hit with a block load, the voltage and frequency will droop to some point, and then return to the original value (provided the system is working correctly).

There must be one and only one load change in the data set for the system to compute the recovery times. If there are no load changes, or more than one load change in the data set, then the recovery times will be shown as not available (N/A).

Max voltage:	495	Max Hz:	62.0	Max Load:	204
Min voltage:	428	Min Hz:	51.7	Min Load:	0
Rcv time: 2.468s to 3.00%		Rcv time: 2.570s to 3.00%		Load Changes:	1

Figure 41 - Voltage and Frequency Recovery Data



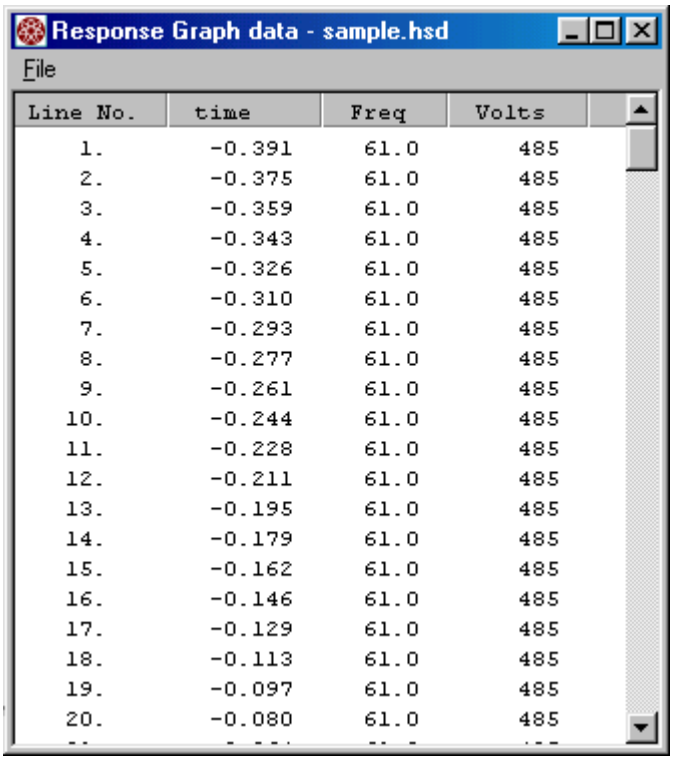
The recovery times are expressed as percent of nominal. Nominal is the value of the voltage and frequency channel at the moment the load change was made. The voltage and frequency channels must drop below their respective recovery % settings in order to be calculated. If not, their recovery time will be shown as zero.

8.2.3 Plot Filtering

The plotted data can be configured to show the data for every cycle, or data averaged of many cycles. Clicking the Filter up button increases the averaging. Clicking the Filter Down button decreases the applied filtering.

8.2.4 Viewing Plot Data (non-graphical)

Press the View Button to view the underlying HSR data in a tabular format. When this button is clicked, a data viewer showing each of the data points will be shown. This viewer will show the line number, time, frequency, and voltage. The time shown is the time relative to the trigger event. In the example shown, the first data point is 391 msec (0.391 seconds) ahead of the trigger. This is indicative of the Pre-Trigger setting when the trigger occurred.



Line No.	time	Freq	Volts
1.	-0.391	61.0	485
2.	-0.375	61.0	485
3.	-0.359	61.0	485
4.	-0.343	61.0	485
5.	-0.326	61.0	485
6.	-0.310	61.0	485
7.	-0.293	61.0	485
8.	-0.277	61.0	485
9.	-0.261	61.0	485
10.	-0.244	61.0	485
11.	-0.228	61.0	485
12.	-0.211	61.0	485
13.	-0.195	61.0	485
14.	-0.179	61.0	485
15.	-0.162	61.0	485
16.	-0.146	61.0	485
17.	-0.129	61.0	485
18.	-0.113	61.0	485
19.	-0.097	61.0	485
20.	-0.080	61.0	485

Figure 42 - HSR Tabular Data

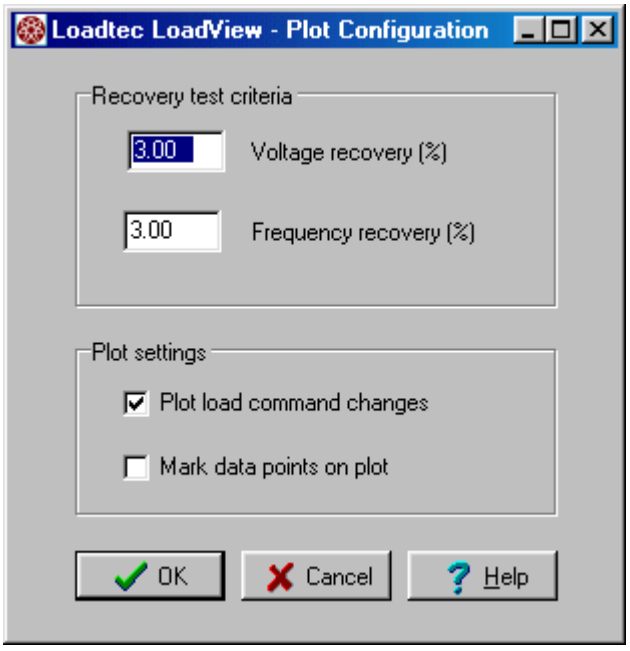
Select **File | Print** to print a hard copy of this data

.

8.2.5 Plot Configuration

The *Plot Configuration Screen* is used to configure the plot screen. Press the *Config* button to access the *Plot Configuration Screen*.

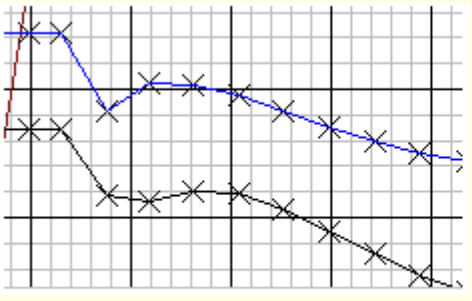
The voltage recovery value defines, in percent of nominal, the amount that the voltage channel must "recover" to in the calculation of the recovery time. The voltage value just prior to the trigger is the "nominal" value



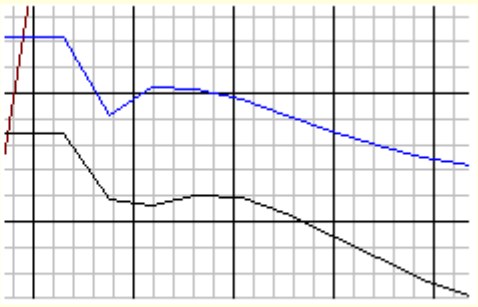
The frequency recovery value defines, in percent of nominal, the amount that the frequency channel must "recover" to in the calculation of the recovery time. The frequency value just prior to the trigger is the "nominal" value.

If "Plot load command changes" is checked, then a line will be added to the plot, the red line, which indicates all changes in load command. This box is normally checked. Uncheck it if you prefer the plot to be shown without the load change line.

If the "Mark data points on plot" box is checked, each data point on the plot is marked with an X.



Data points marked



Data points not marked

Marking data points is normally only used when zoomed into an area on the plot. If data points are marked when not zoomed, the lines will appear totally covered with Xs.

9.0 Test Scripting

Test Scripting is another sub-system of the LoadView software. Test scripts allow a test to be created via an easy to use script editor. This editor produces *script files* that can then be executed by the LoadView system. The following functions can be controlled via a test script file.

- Load Bank Controls
  - Set Operating Parameters (Test Setup)
  - Set Load command
  - Turn Cooling fan(s) On/Off
  - Timed wait
- Data Logging Controls
  - Record a single data line to the Log Data File
  - Control timed data recording
  - Stop Data Logging
- High Speed Response System Controls
  - Configure the High Speed Response System
  - Enable/Disable Triggers
  - Plot the resultant data
  - Save High Speed Response Data
- Record User Defined Data Channels

9.1 The Script File Editor

A script test file is a made up of list of steps that define the actions the system is to take. This collection of steps makes up the script file. Once a script file has been created, it can be *executed* at a later date. Test script files are created/edited via the Script File Editor.

Press **Scripting | Edit Script…** from the *Main Menu* of the *Main Data Screen* to activate the *Script File Editor*.

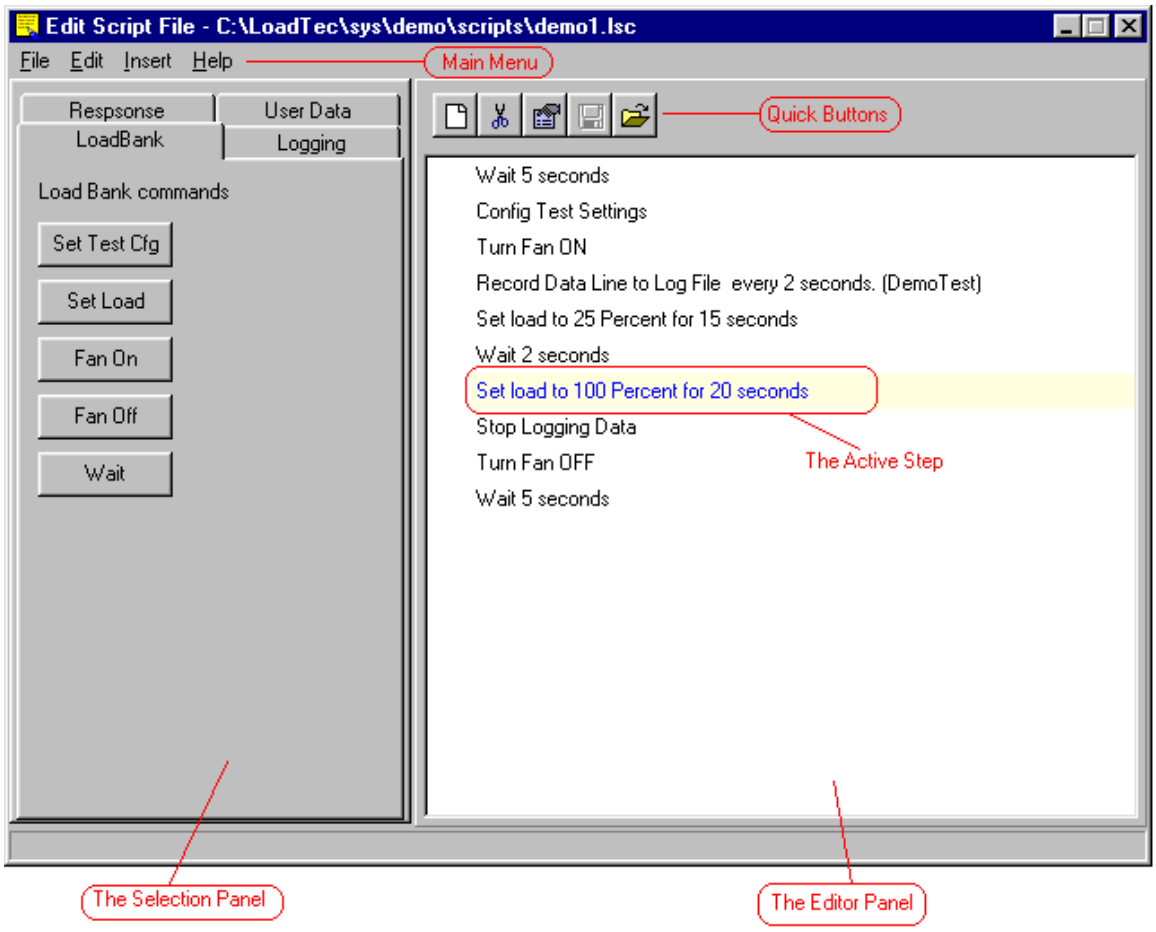
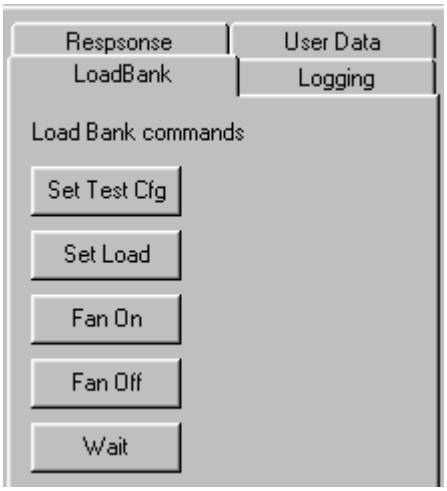


Figure 43 - The Script File Editor



The Script File Editor is divided into two main parts. These are the *Editor Panel* and the *Selection Panel*. The *Editor Panel* is used to show the test as it is being edited. As steps are inserted/deleted they will be shown in this panel.

The test step that is highlighted is the Active Step. Clicking a step selects it as the *Active Step*. - It will be indicated with a yellow highlight. Holding down the *Ctrl* key while clicking a step can be used to select multiple steps - each step clicked will become highlighted. Clicking a step, then holding the *Shift* key and clicking a step below the Active Step will allow a group of steps to be selected.

9.1.1 The Script Editor Quick Buttons

There is a tool bar located at the top of the Editor Panel that makes up a group of Quick buttons. These buttons provide quick access to selected editing functions.

Selecting **File | New** from the Main Menu or pressing the *New* quick button allows the creation of a new test script. If you've made changes to the current test and not saved them, you will be warned and given an opportunity to save your changes

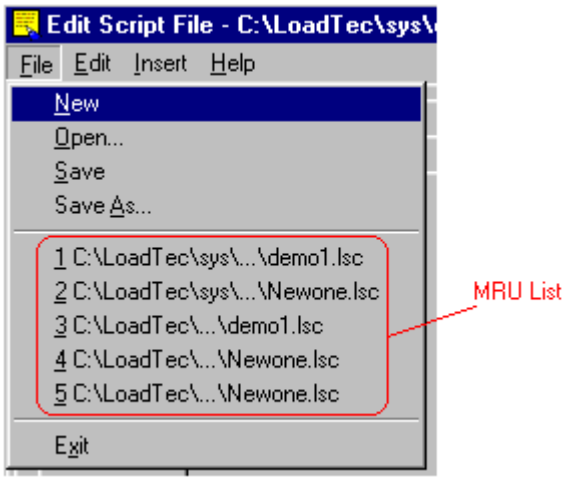
The delete button is used to delete the selected steps from the test. All selected steps will be deleted. Selecting **Edit | Delete Line** from the Main Menu can also be used to delete the selected lines (steps). Note that the Delete Key (Del) can also be used to delete the selected step.

Press the *Edit Line* quick button or select **Edit | Edit Line** from the Main Menu to edit the *Active Step*. If the selected test step

does not require any additional information, the *Edit Line* quick button will be disabled (grayed out). Double Clicking a test step can also be used to edit the test step.

The *Save* and *Open* quick buttons are used to save the current test or select a new test to open and edit. The save button is only enabled when changes have been made. As such it also serves as an indicator to show if the current test has been modified and not saved. These functions are also available via **File | Open, File | Save,** and **File | Save As…** of the Main Menu.

Note - The File Menu contains a *Most Recently Used* (MRU) list of files. The File Menu is selected by pressing **File** from the Main Menu. Simply click the desired file to quickly select that file for editing.



9.1.2 Test Step Types

There are various step types available for creating your test script. A collection of these steps is what makes up the Test Script file - the "Test". When a Script File is executed, each step is processed one after the other in turn until the end of the test is reached.

The time required to perform the actions of each step vary dramatically and in fact some step types cause the system to wait for a given period of time. Since there is this "real time" element to processing test steps, a step must complete its execution before the next step can begin.

The following list shows all of the available step types and how they are grouped.

- **Load Bank Group**
  - Configure Test Settings
  - Set Load
  - Fan On
  - Fan Off
  - Wait
- **Logging Group**
  - Record Line
  - Stop Logging
- **Response Group**
  - Configure Response System
  - Enable Response System
  - Disable Response System
  - Trigger Response System
  - Plot Response Data
  - Save Response Data
  - Stop Response System
- **User Data Group**
  - Record User Data Channels

9.1.2.1 The Load Bank Group

This group of steps allows for the configuration of and control over the Load Bank system.

Configure Test Settings (Set Test Cfg)

Press the *Set Test Cfg* button to insert a *Configure Test Settings* step into the test. When the test is executed, the parameters you have entered will be sent to the system.

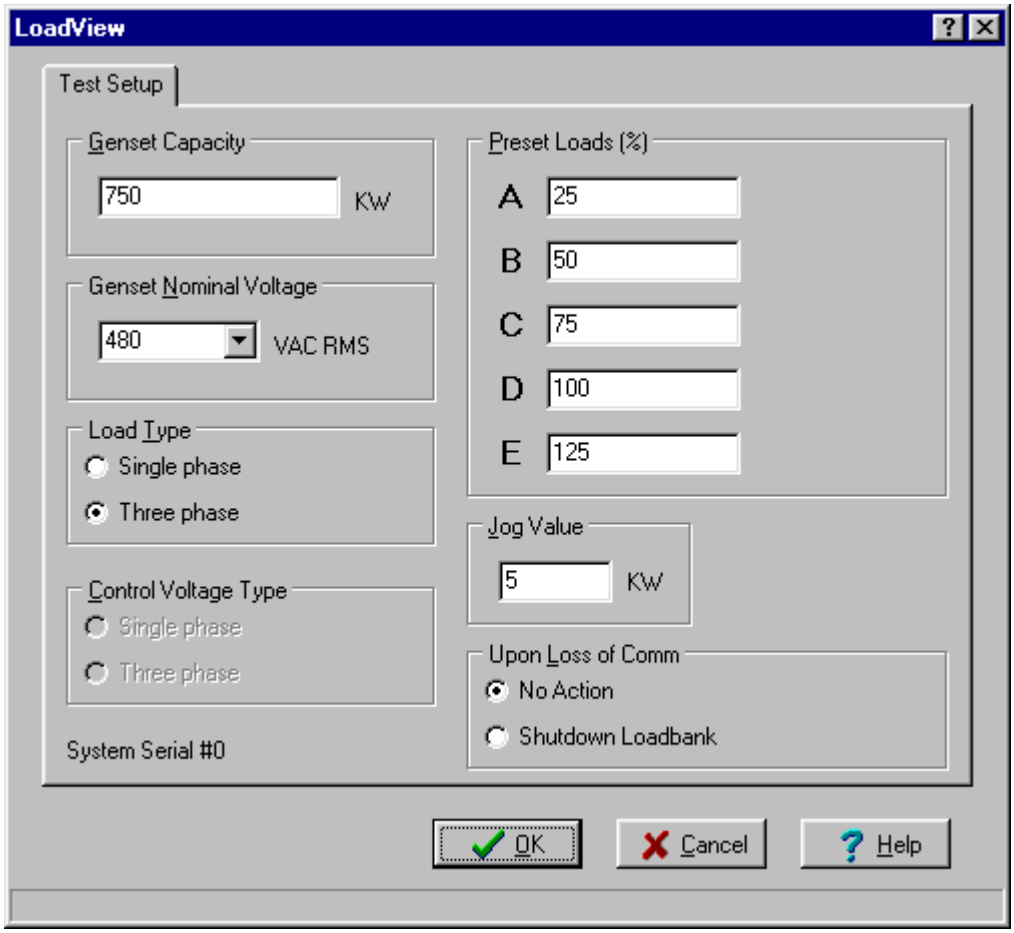


Figure 44 - The Script Test Setup Editor

The Script Test Setup Editor (Figure 44) is shown when an attempt is

made to edit a "Configure Test Settings" step type. Use this editor to enter all of the required values (ref *6.3.1 The Test Setup Page*)

Set Load

The *Set Load* step type is used to set the load applied to the unit under test as required. You can select the command mode (i.e. KW, Amps, or Percent of Capacity) and select duration. The Load Bank(s) must be on with the cooling fan operational when this step is executed. If not, the *Set Load* step will perform no real action.

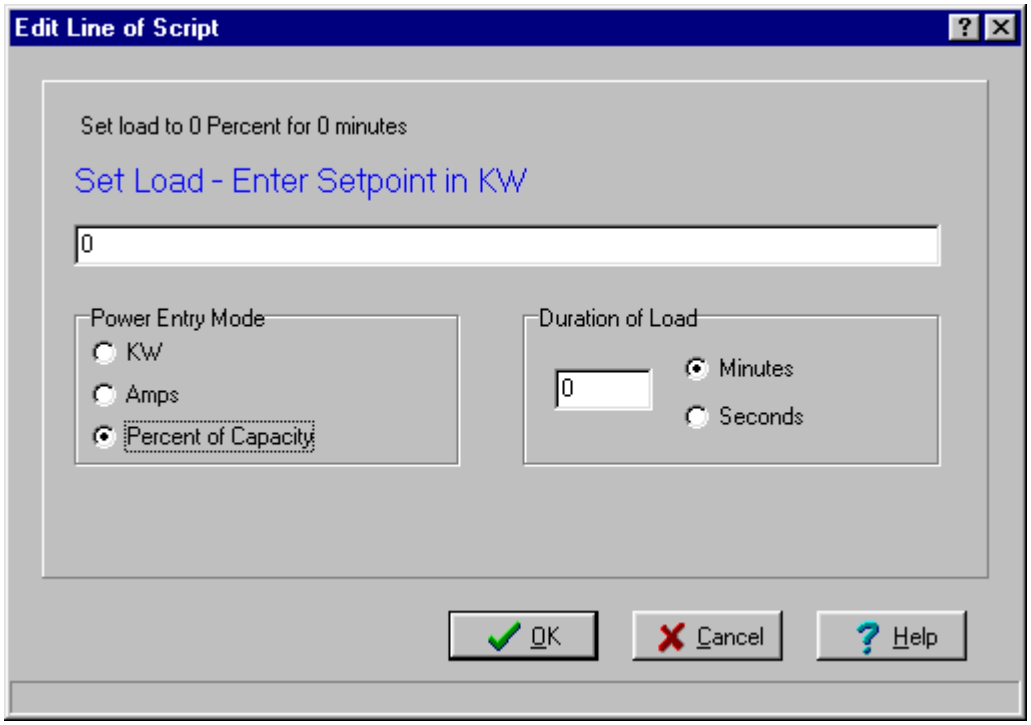


Figure 45 - Set Load Editor

Editing a Set Load step type causes the Set Load Editor to be displayed. Use the Power Entry Mode setting to select the load command mode:

- **KW** - The entered value is the desired power (KW) to be placed on the system via the Load Bank(s).
- **Amps** - The entered value is the desired Amps to be set at the Load Banks(s).
- **Percent of Capacity** - In this mode the entered command value is the percent of the configured *GenSet Size* to be applied to the system under test.

Note - If your system contains any Inductive Load Bank(s) then you can also command the desired power factor. The decimal portion of the command is the desired power factor (i.e. 500.8 would apply 500 KW at 0.80 power factor).

When this command is executed, the desired load command is formulated and placed on the system under test. Once the load setting has been made, this step can optionally wait for a defined amount of time. If the Duration of Load is set to a non-zero value, then the system will wait that number of minutes/seconds before executing the next step.

Fan On

This step is used to force the cooling fans on at the Load Bank(s). Since the starting up of cooling fan(s) takes some time, the system will not proceed to the next step until the fans have actually turned on in the load bank(s).

 **Networked System** - In a networked system the Fan On command will cause an Auto On fan command to be sent to the Network Controller. The Auto On command will turn on the required load bank(s) based on the *GenSet Size* setting (ref. 5.2.1.1 The Fan Control Screen).

Fan Off

This step is used to turn off the cooling fans in the load bank(s).

 **Networked System** - In a networked system, this step command the fans to be turned off at all load banks that are connected to the Network Controller.

Wait

This step simply suspends execution of any steps for a given amount of time. The duration of this suspension can be entered in minutes or seconds.

9.1.2.2 The Logging Group

These steps are those that pertain to the Data Logging System. There are currently only two step types in this group. These are the; (1) Record Line and (2) Stop Logging.

Record Data Line

This step type provides for recording of data to the data log. When this step type is edited, the *Record Data Line Editor* is shown.

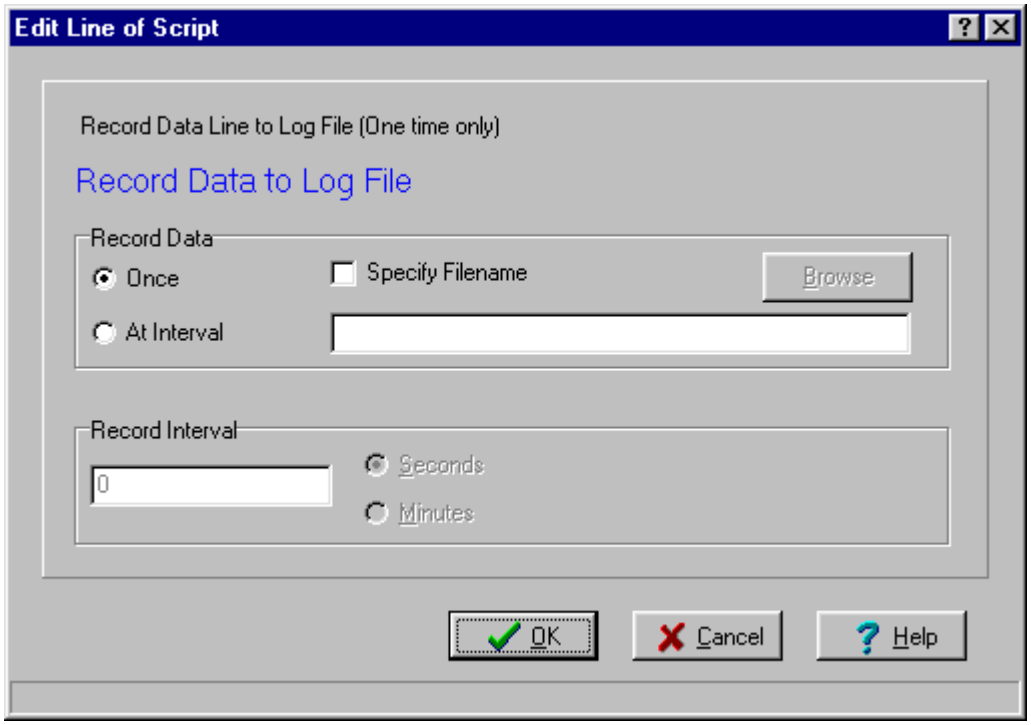


Figure 46 - Record Data Line Editor

If the Specify Filename box is left unchecked then data is recorded to the current *Log File* (see 7.1 Recording Data (Logging)). If this check box is checked, then the filename parameter is used to select a new current *Log File*. A single data line will be recorded if the Once mode is selected. If *At Interval* is selected, then the Record Interval parameter is used to set the time interval in which data lines are recorded. Once data recording is started with a given time interval, it will continue until data logging is turned off (via the *Stop Logging* step).

Stop Logging
This step type is used to stop the recording of data to the Log Data File. Again once Logging has been started with a given time interval, logging will continue until it is explicitly stopped.

9.1.2.3 The Response Group

As the name implies, this group of steps is used to configure and control the *High Speed Response* system (ref. 8.0 High Speed Response Data).

Configure Response System
This step type is used to setup the trigger parameters of the *High Speed Response* System. When this step type is edited, a *High Speed Response Configuration Screen* (8.1 HSR Configuration) is opened. From this screen you can enter each of the trigger parameters. When the script file is executing, these parameters will be sent to the HSR system.

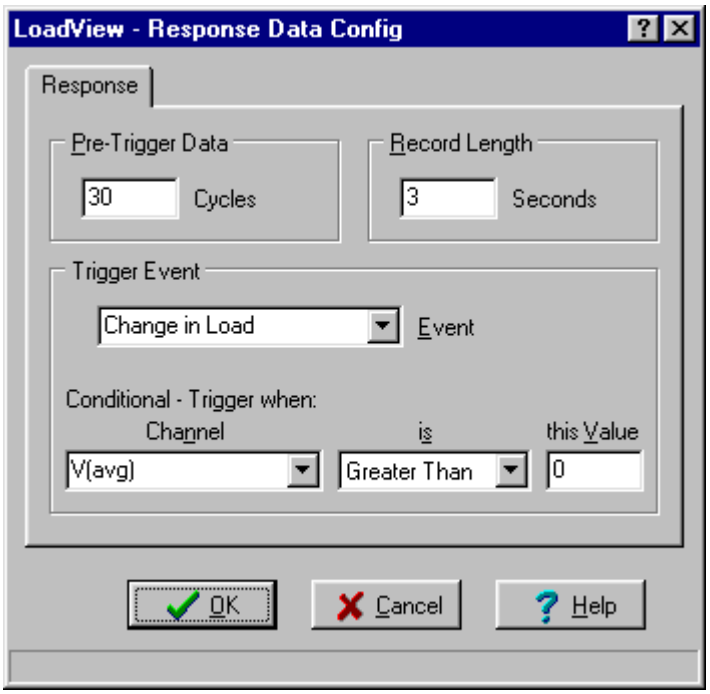


Figure 47 - HSR Configuration Screen

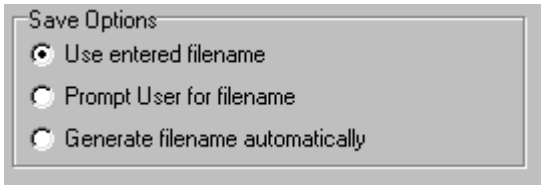
Enable Response System
This step is used to enable the High Speed Response system's trigger functions in preparation for a trigger event. Again once the HSR system is configured it still must be enabled before a trigger can occur.

Disable Response System
This step simply disables the High Speed Response system's triggers.

Trigger Response System
The Trigger step type is used top force a manual trigger.

Plot Response Data
This step is used to plot the data stored in the High Speed Response System's data buffer. When this step is encountered, HSR data will be downloaded from the system and a plot window will be opened showing the downloaded data. Note that data must first be recorded in the HSR system before it can be plotted. If this step is encountered, and there is no HSR data recorded, it will have no effect.

Save Response Data
This step type is used to store the HSR data to a data file. The Save Options are used to define the method in which the name of the file is determined. In the Use entered name mode, the desired file name is specified. In the "Prompt User for filename" mode, the user will be prompted for the name of the file when this step is executed. The "Generate filename automatically" will cause the system to generate a filename base on the number of files saved and the name of the script file. An automatically generated file name will have the following format: **HSD*yymmddhhnnss*.hsd**



Where: yy = the year
mm - the month
dd - day of the month
hh - hours
nn - minutes
ss - second

Stop Response System
This step type is used to stop the HSR system. If while data is being recorded to the data buffer this step type is encountered, then the buffering of data will be stopped.

9.1.2.4 The User Data Group

The only step type in this group is the *Record User Data Channels* type. This type is used to force the recording of User Defined Data Channels to the data log. When this step is encountered a *Record User Defined Channels* Dialog will be opened allowing you to enter the desired data values (ref. Figure 37).

10.0 User Screens (Custom Designed Screens)

One of the major new features added to LoadView version 3 are the Custom Screen Designs. This system gives you the ability to design completely custom data and control screens. Select **Screens | User Screens** from the *Main Menu* to select the *User Screens*.

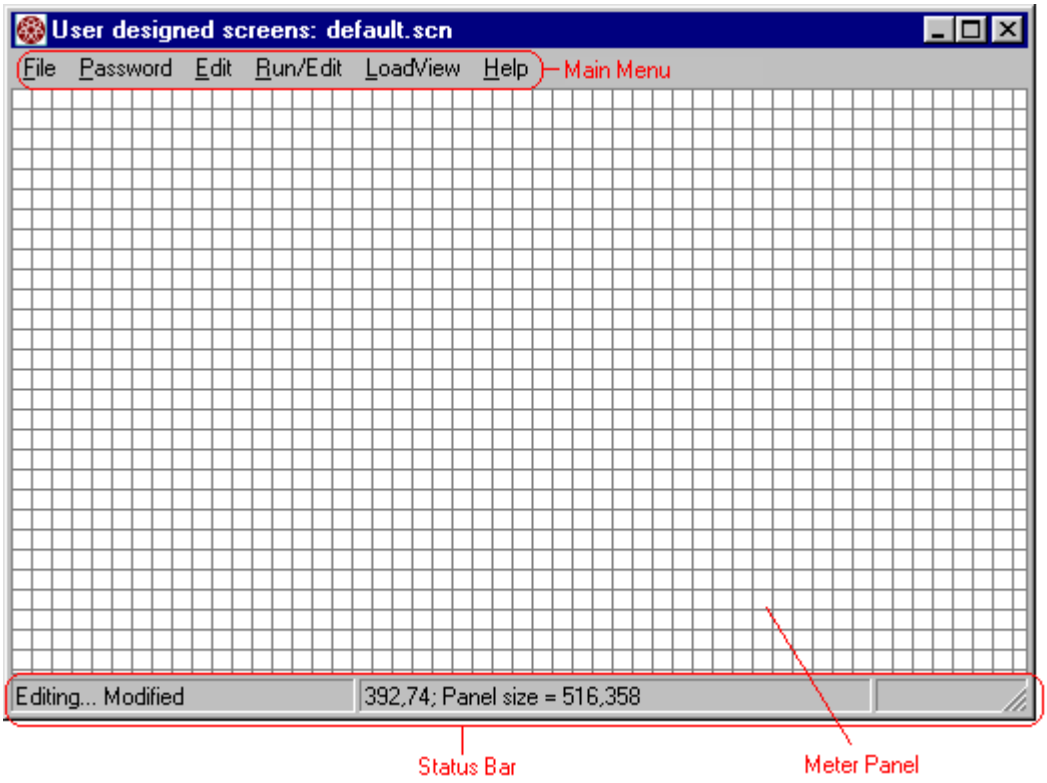
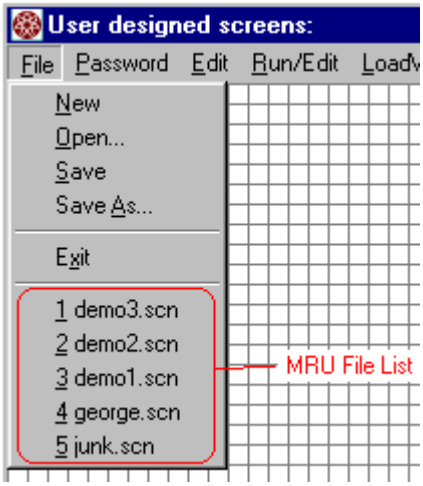


Figure 48 - User Designed Screen

The *Main Menu* provides access to all of the features and functions of the *User Screens* system.

The *File Menu* is used for file related functions. This menu also contains a Most Recently Used (MRU) file list that provides quick access to the most recently used files - Simply click the desired file to load it.



10.1 Working with User Screens

The *Meter Panel* portion of the user screen is the canvas on which *Meter Devices* are placed. User screens can be in one of two modes: the *Edit Mode*, or the *Run Mode*. *Meter Devices* can only be added, deleted, edited, or positioned when in the *Edit Mode*. The size of the screen can only be changed when in the *Edit Mode*. In the *Edit Mode* no meters are updated with new data values.

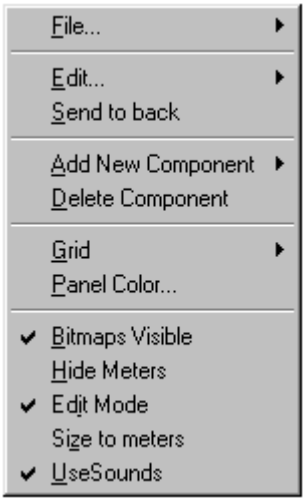
The *Run Mode* is used to make the screen *active*. When in the *Run Mode*, meter devices are updated with new data values (provided communication with the remote system is active), and buttons become active.

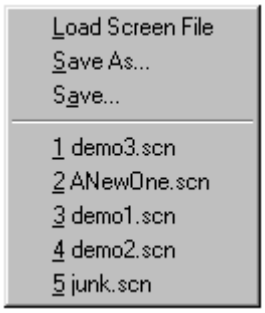
Edit Mode is used to modify the design, and the *Run Mode* allows a design to be used. When an existing screen design is opened, it is automatically placed in the *Run* mode.

Meter Device components are added to the *Meter Panel* then sized and placed as required. New *Meter Devices* are automatically placed in the upper left hand corner of the *Meter Panel*. Screen designs can be saved and loaded to/from a screen file.

10.1.1 The Pop Up Menu

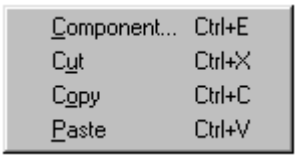
Right-clicking the mouse anywhere in the *Meter Panel* will bring up the Pop-Up Menu. This menu provides quick access to many of the functions of the screen design system.



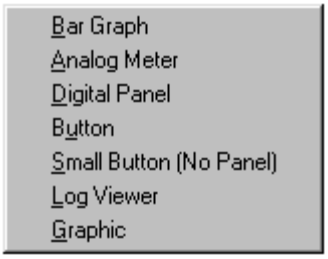


The File Menu is a sub-menu to the Pop-Up Menu. This menu allows loading and saving of your screen design files. It also contains a Most Recently Used (MRU) file list that provides quick access to your most recent screen designs.

The Edit Menu allows for editing the selected Meter Device (the Meter Component), deleting, and Cut and Paste functions. Note that these functions can also be accessed via the indicated shortcut keys.



The *Send to back* function is used to control the way in which overlapped meter devices are "stacked up". Selecting a meter device and clicking *Send to back* will cause the selected meter to be placed behind all overlapping devices.

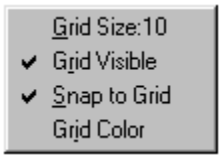


Use *Add New Component* to add a new meter to the screen design. The new device will be added at the top left corner of the screen. Note that a *Graphic* device will always be placed behind any meters. Therefore if you add a *Graphic* device to a screen and a meter device is positioned at the top left corner, the *Graphic* device will not be seen. You will have to move the meter to access the graphic behind it.

Use *Delete Component* to delete the selected meter device. Note that this is equivalent to the *Cut* function in the *Edit Menu*.

Use *Panel Color* to set the color of the *Meter Panel*.

10.1.1.1 The Meter Panel Grid



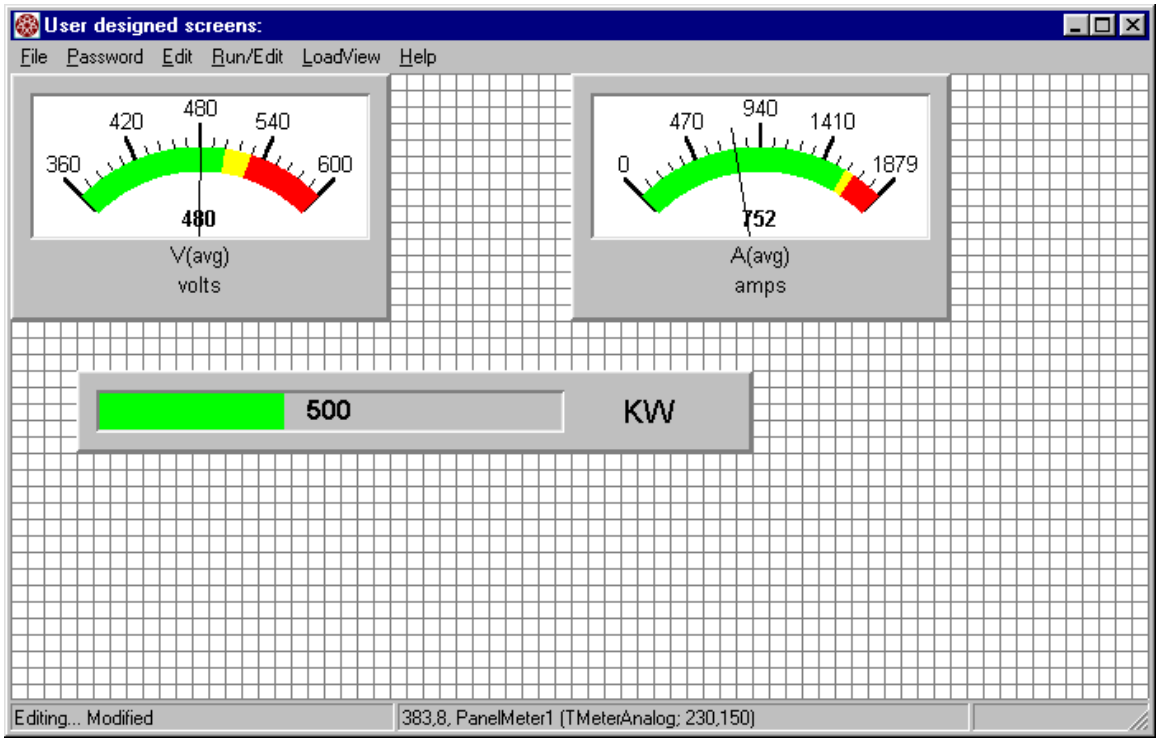
The working grid of the *Meter Panel* is setup via the *Grid Menu*. Click *Grid Size* to change the size of the grid. The default value is a 10 x 10 pixel grid. *Grid Visible* is used to control the visibility of the grid. The grid still exists and meter devices can still be "Snapped to Grid" even if the grid is not visible (un-checked). Clicking *Grid Visible* will toggle the grid on/off. *Snap to Grid* is used to cause all meter devices to be lined up and sized to the nearest grid points. Click *Snap to Grid* to toggle this setting on/off. Click Grid Color to change the color of the grid (when it is visible). The grid is only available when in the *Edit Mode*.

The *Bitmaps Visible* setting is used to hide background bitmaps. When Bitmaps Visible is checked all *Graphic Meter* components are shown, if this value is unchecked, then these components are hidden.

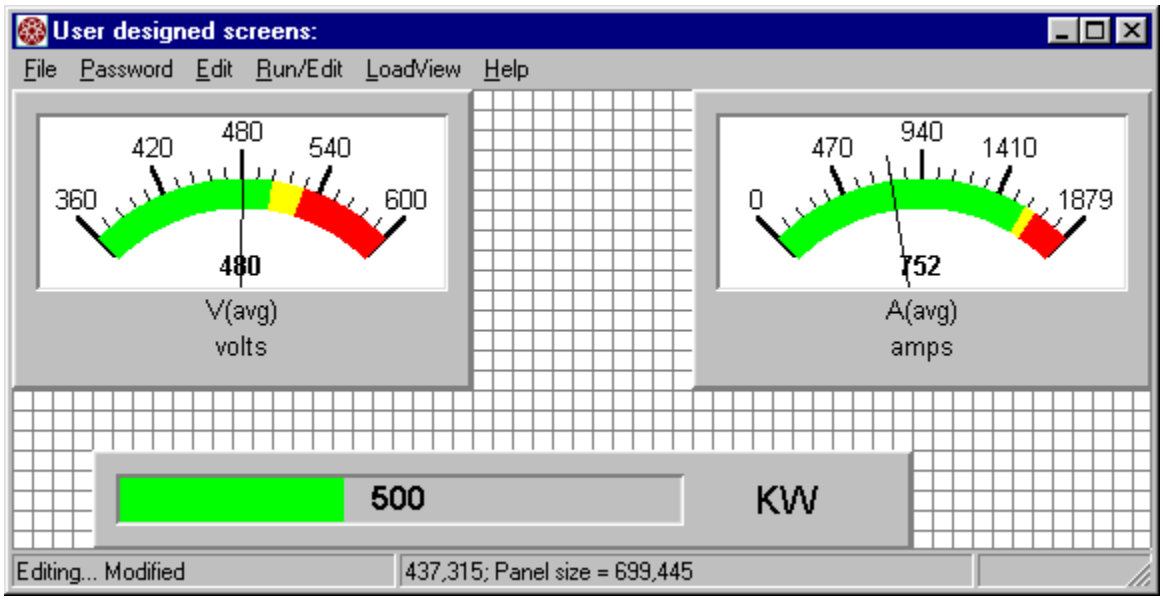
The *Hide Meters* setting is used to temporarily hide all non-graphic meter components. Since graphic meters are forced to always be behind non-graphic meters, it would be nearly impossible to edit the graphic meters

without this ability. If the meters are hidden when the screen is returned to the Run mode, they will be forced to the visible state.

The *Size to meters* function is used to size the screen to the minimum size that can contain the designed meter devices. In the following example, there are three meter devices placed on the screen.



When *Size to meters* is clicked, the screen is resized as shown below:



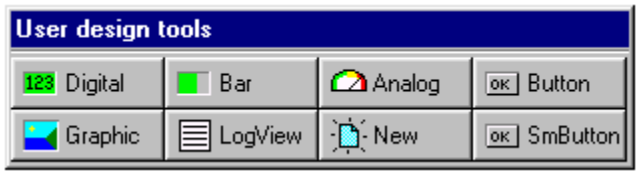
10.2 The Meter Devices

User designed screens are built by placing various *Meter Devices* on the *Meter Panel*. The main portion of the User Screen is the *Meter Panel*; it makes up what is in effect a work area upon which each of the *Meter Devices* are placed.

The available Meter Devices are:

- **Data Aware Meters**
  - Digital Meter
  - Bar Graph Meter
  - Analog Meter
- **Non-Data Aware Meters**
  - Graphic
  - Log Viewer Panel
  - Button

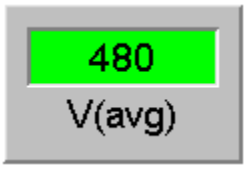
As shown there are Data Aware and Non-Data aware meter devices. Data aware devices are used to indicate the current value of a measured or calculated channel - they display data. Non-data aware devices provide other non-data functions.



Whenever the screen is in the *Edit Mode*, the *User Design Tool Bar* will be shown. Clicking the buttons of this tool bar will place a new meter device of the selected type in the upper left corner of the Meter Panel.

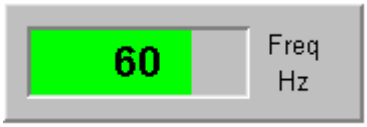
10.2.1 The Digital Meter

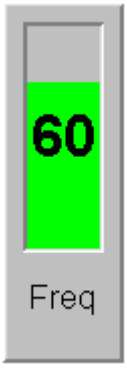
The Digital Meter provides a numerical representation of the selected channel. The sample shown indicates the average voltage. The size of the panel, colors, borders, titles, etc… can all be configured via the configuration tools. This is a Data Aware device.



10.2.2. The Bar Graph Meter

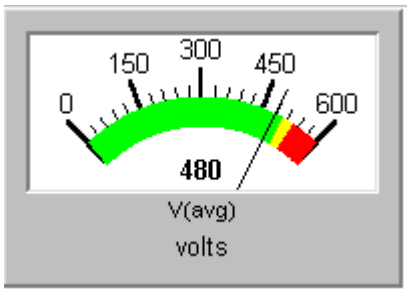
The Bar Graph Meter provides a visual indication of the value of the selected channel via a scaleable bar. The actual numerical data can optionally be shown. The Bar Graph can be configured for a horizontal or vertical orientation. This is a Data Aware device.

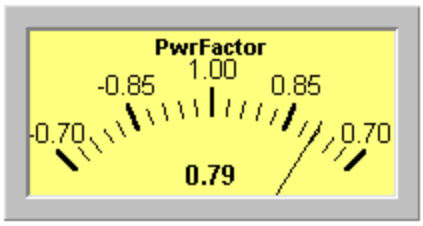




10.2.3 The Analog Meter

The Analog Meter device provides a panel meter indication of the channel's current value. The meter face, range colors, scaling, etc… can all be configured.

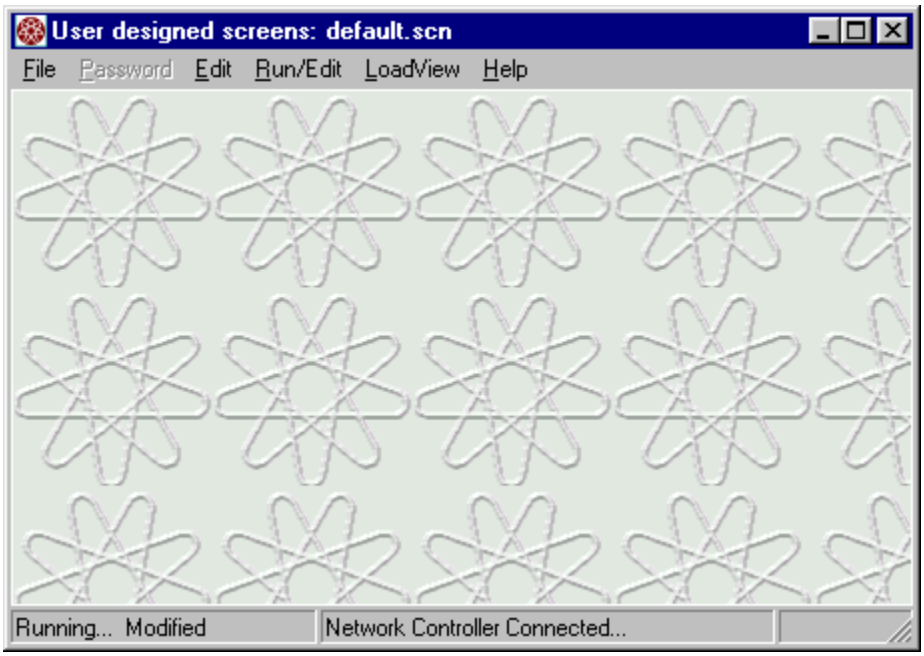




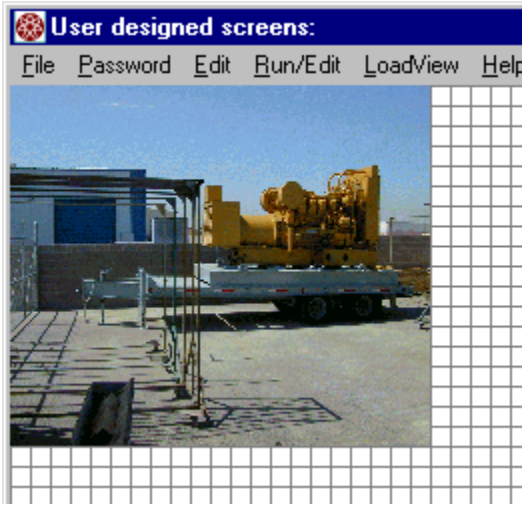
The Analog Meter device is a Data Aware device.

10.2.4 The Graphic Device

This device is used to place a graphic bitmap on the meter panel. It can be used to place a logo or other special graphic on the background of the Meter Panel. In the example shown, an embossed logo is tiled across the Meter Panel. This is a non-Data Aware device.



The graphic meter can also be used to show a non-full screen picture as shown. Multiple graphic meter devices can be placed on the Meter Panel to produce the desired effect.



10.2.5 The Log Viewer Panel

The *Log Viewer Panel* is used to view the current *Log File*. In essence this panel is made up of a mini *Log Viewer* (7.2 The Log Viewer) and some special buttons. These buttons provide quick access to the settings of the Data Logging System. There can be only one *Log Viewer Panel* on a given screen. This is a non-Data Aware device in the sense that it does not show the value of a single data channel.

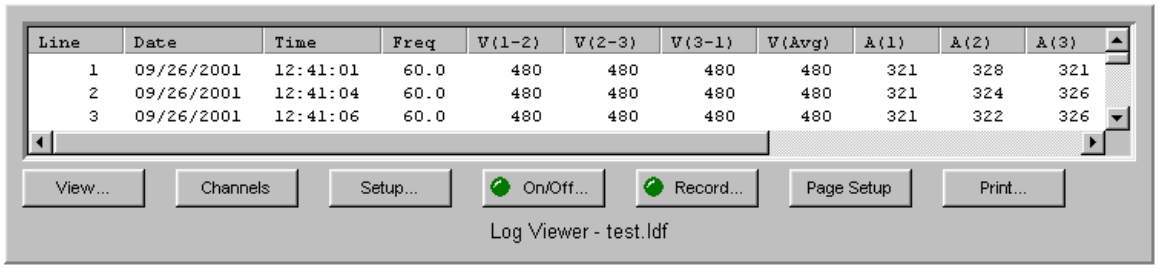


Figure 49 - The Log Viewer Panel

10.2.5.1 The Log Viewer Panel Buttons

The *Log Viewer Panel* contains seven special buttons that provide quick access to the controls of the *Data Logging System*. The following is a description of each of these buttons.

The View Button

This button is used to open a full Log Viewer of the current file. Each time this button is pressed, a new Log Viewer will be created. LoadView will allow up to 20 Log Viewers to be active at a given time. The Log Viewer Panel provides a "view" of the Log File, but can only show a limited number of lines based on the size of your panel. Opening a viewer allows a "bigger" view of the file. Furthermore, once a viewer has been opened, it can be changed to view a different file.

The Channels Button

This button is used to select which channels are shown in the Log Viewer Panel view port. When this button is pressed a *Channel Selection Window* (Figure 36) will be opened allowing you to select the desired channels (ref. 7.2.2.1 Selecting Data Channels to View).

The Setup Button

This button is used to setup the *Data Logging System*. When this button is pressed, a *Log Setup Dialog* will be shown. The active *Log File*, time interval, headings, and record options can be set from this dialog.

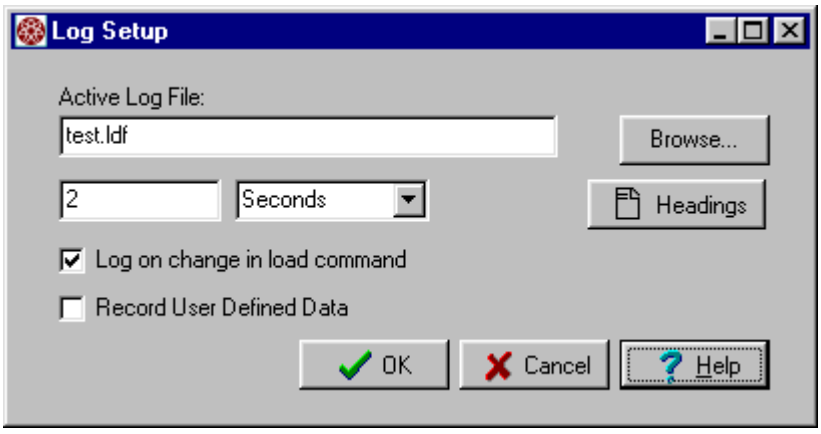
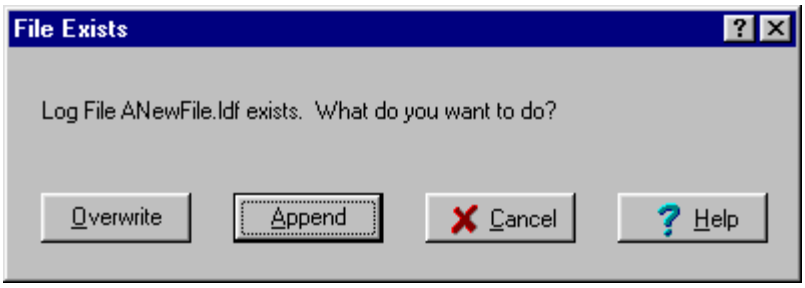


Figure 50 - Log Setup Dialog

The On/Off Button

This button is used to toggle On/Off the *Data Logging System*. The LED indicates the state of the logging system - if lit data logging is on. When logging is turned on, and the current *Log File* already contains data, you will be given the choice to over-write the file or append new data lines to it.



The Record Button

This button is used to manually record a line of data to the Log File. It is also used to provide feedback each time a data line is recorded. This button is only functional when logging is turned on.

The Page Setup Button

This button is used to setup how the log file will be formed on the printed page. When this button is pressed, a *Print Page Setup* dialog will be shown. This dialog is used to set the print parameters (ref. 7.2.1.3 Printing Log Data Files).

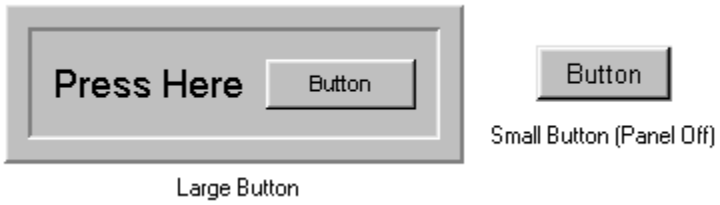
The Print Button

This button is used to print the log file. When the file is printed, the settings entered via the *Page Setup* will be used to format the printed page.

10.2.6 The Button Device

Button meter devices are used to provide access to the various features and controls of the LoadView system. The following is a list of the functions available via the button meter:

- Cooling fan control
- Load bank power control (via the Network Controller)
- Run test script
- Toggle load On/Off
- Set load to preset value(s)
- Calibrate sensors
- Set load command
- Jog load Up/Down
- Configure *Test Setup*
- Data logging control (On/Off)
- Load user designed screen
- Select remote node (via Network Controller)
- Set *Combined Data* mode (Network Controller)
- Emergency stop
- View *High Speed Response* (HSR) data
- Trigger HSR system
- Configure HSR system



You can select either a large or small button. The small button is the same meter device with the background panel turned off.

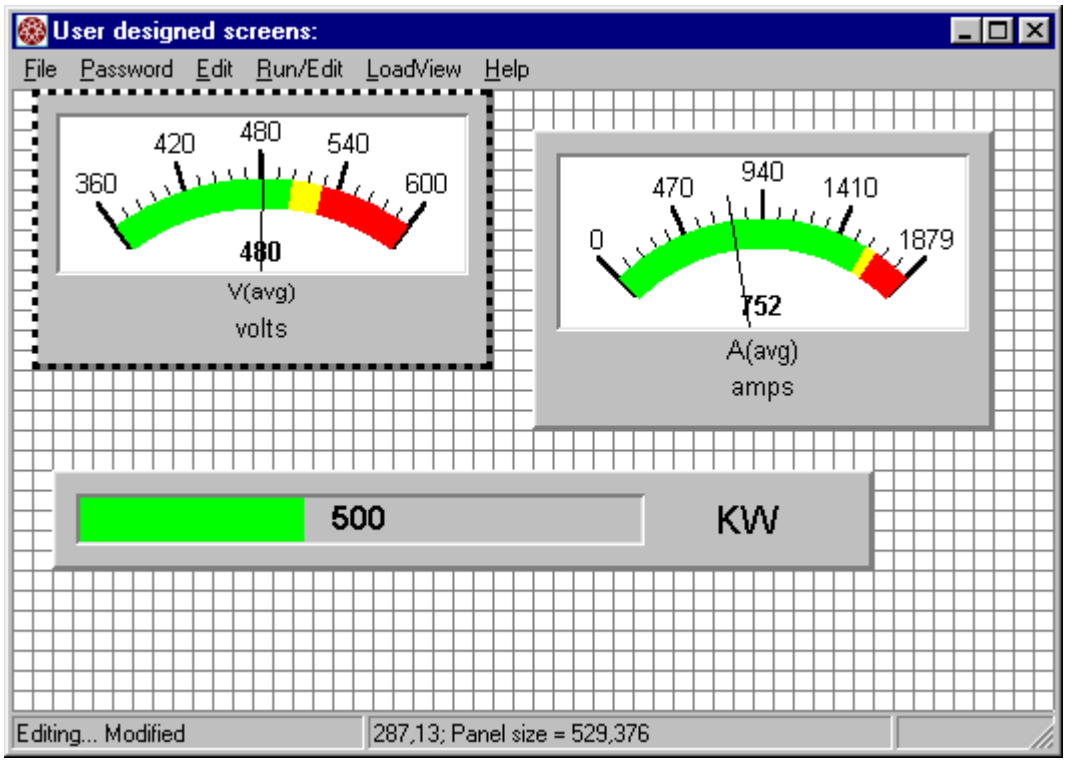
10.3 The Edit Mode

When the user screen is in the *Edit Mode*, meter devices can be edited and their size and position can be changed to suit your needs. Clicking *Run/Edit* on the Main Menu or clicking *Edit Mode* from the Pop-Up Menu selects the edit mode. The **"Editing…"** shown on the status bar indicates that the screen is in the *Edit Mode*.

Note - User designed screens can be password protected. If an attempt is made to edit a design that is protected, a password will be required before you will be allowed to enter the *Edit Mode*.

10.3.1 The Selected Meter

In order to move, re-size, or edit a meter it must first be selected. The selected meter device is indicated with a dashed outline. The Voltage meter (V(avg)) is the selected meter in the example shown.



Simply click a meter device with the left mouse button to select it. To reposition a meter click and hold the left mouse button inside the outline and drag the meter to the new desired location. Release the button to drop the meter at the new location. If *Snap to Grid* is turned on, the top left corner of the meter will be placed on the nearest grid point. The meter can be resized in a similar manner by dragging the corners, or the top, bottom, left, or right lines of the outline. Clicking and dragging the corners of the window can resize the entire window.

10.3.2 The Meter Editor

The various settings and configurations of the meter devices are entered using the *Meter Editor*.

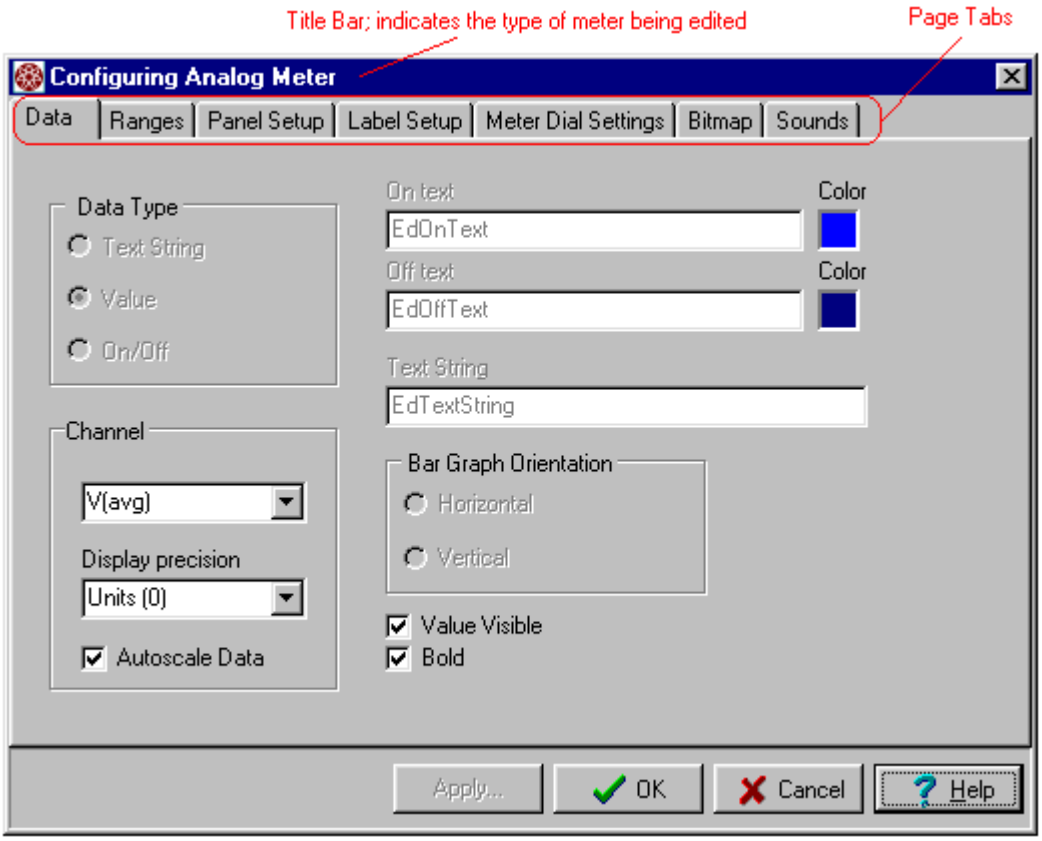


Figure 51 - Meter Editor

Once a meter device has been selected, selecting **Edit | Component…** from the Pop-Up Menu, or pressing **Ctrl-E** opens the editor. Double-Clicking a meter device with the mouse can also be used.

The Title Bar of the editor is used to indicate what type of meter device is being edited. This is a multi-page dialog. The pages are selected by clicking the appropriate tab. The pages available will vary based on the type of meter being edited.

10.3.2.1 The Data Page

Common to all *Data Aware* meter devices are the *Data Page* settings. This page contains the configurations that select the data to be shown by the device and how it is to be displayed. Not all of the configurations on this page are available for each meter device; those that are not applicable will be disabled (grayed out).

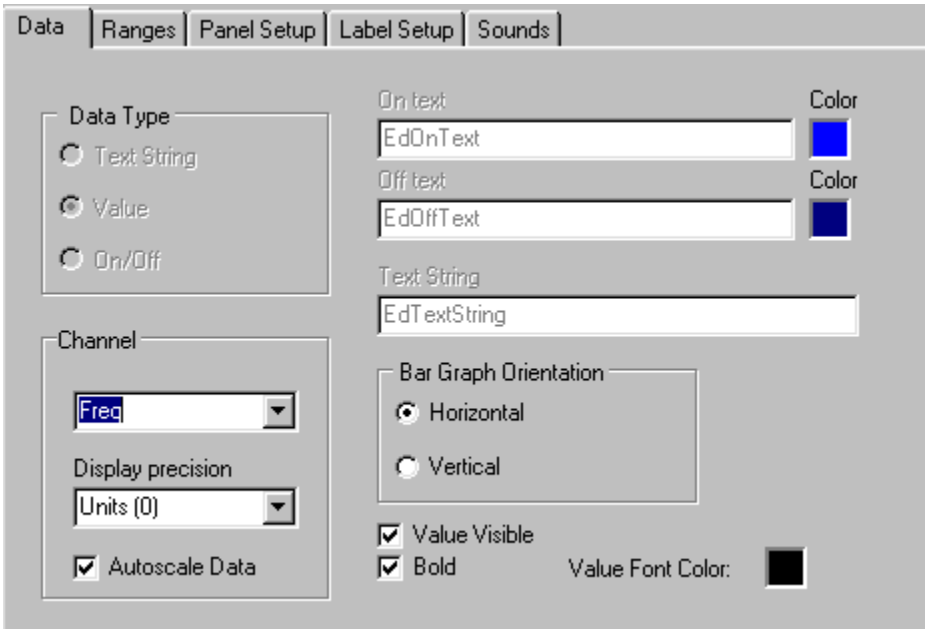


Figure 52 - The Data Page

10.3.2.1.3 The Data Type Setting

This setting will only be enabled for *Digital Meter* devices. There are three Data Types:

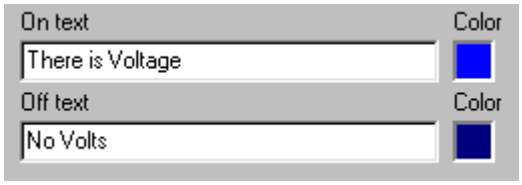
1. **Text String**
2. **Value**
3. **On/Off**

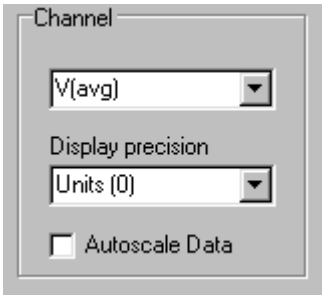
The *Text String* type is used to place a simple panel on the screen with a test message. When *Text String* is selected, the text is simply entered in "Text String" box. The text color is set via the *Value Font Color* - color panel. The background color is setup on the *Panel Setup Page*.

When the *Data Type* is set to *Value*, the *Digital Meter* shows the value of the selected data channel. The *Value Font Color* and *Panel Setup Page*

settings are also used to further define the display characteristics of the meter.

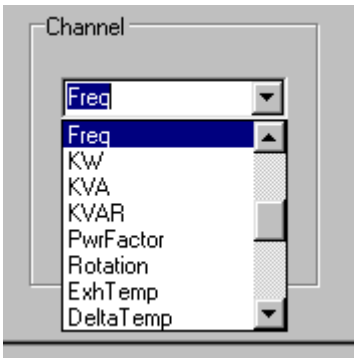
The *On/Off Data Type* setting is used to show the status of a digital input. Currently the only purely digital data channel in LoadView is the *Rotation* channel. Future systems may add additional digital inputs. When in the *On/Off* mode, the panel will show either the *On text* or the *Off text*, based on the value of the selected data channel. If the channel is zero, then the Off text will be shown. Any non-zero value will cause the On text to be shown. There are also independent color controls for each state. This *Data Type* was included specifically for the *Rotation* data channel as it has one of two values - ABC or BAC.





10.3.2.1.2 Data Channel Settings

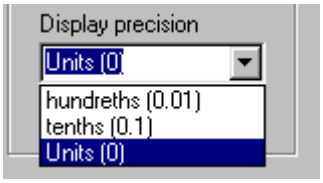
The Channel selection allows you to select which data channel is to be displayed by the meter device. Click the arrow to show the pull-down list of available channels. The available channels are:



- A(avg) - Average Current (amps)
- A(1) - Phase 1 current (amps)
- A(2) - Phase 2 current (amps)
- A(3) - Phase 3 current (amps)
- CtrlV(1) - Phase 1 Control Voltage (V_{rms})
- CtrlV(2) - Phase 2 Control Voltage (V_{rms})
- CtrlFreq - Control frequency (Hz)
- CtrlRot - Control power rotation (Hz)
- Freq - Load frequency (Hz)
- KW - Total power (kw)
- KVA - Total VA
- KVAR - Total KVA Reactive (kva)
- PwrFactor - Power Factor (cos θ).
- Rotation - Load voltage rotation
- Exh Temp - Exhaust Temperature (°F)
- Delta Temp - Temperature rise (°F)
- Cab Temp - Cabinet Temperature (°F)
- Amb Temp - Ambient Temperature (°F)

- V(avg) - Average Loaf Voltage (V_{rms})
- V(1) - Phase 1 voltage (V_{rms})
- V(2) - Phase 2 voltage (V_{rms})
- V(3) - Phase 3 voltage (V_{rms})
- VN(1) - Phase 1-nuetral volts (V_{rms})*
- VN(2) - Phase 2-nuetral volts (V_{rms})*
- VN(3) - Phase 3-nuetral volts (V_{rms})*
- GensetSize - Configured Genset Size from the *Test Setup* configuration.
- LoadCmd - The current commanded load (kw)

Display precision is used to select the precision that the data is displayed to. The available precisions are; Units (0), tenths (0.1), or hundredths (0.01).



10.3.2.1.2 Autoscale Data

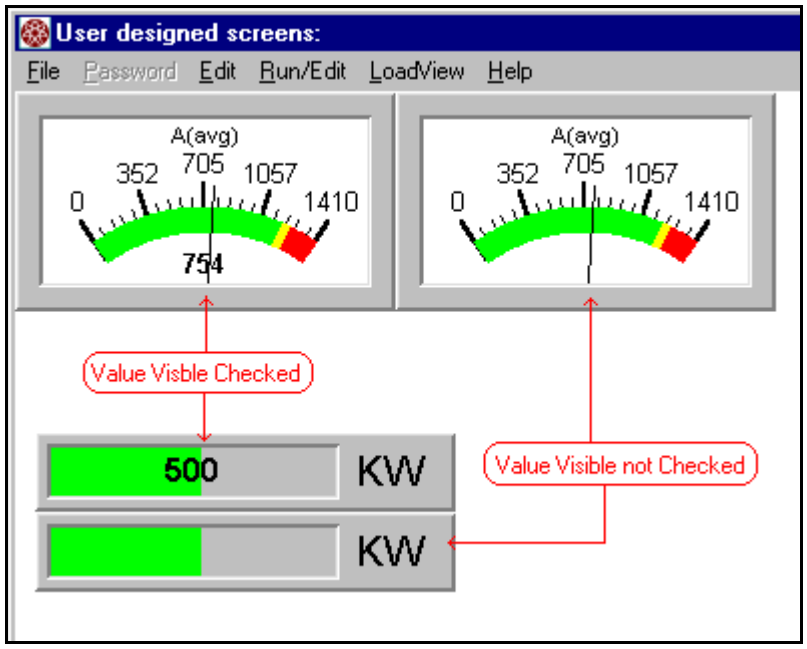
Auto Scaling of the data can be selected by checking the *Autoscale Data* box. Auto scaling dramatically simplifies the configuration of meter devices. Because the system may by used for a variety of tests, auto scaling provides a very convenient way to scale the meters via the *Test Setup* parameters. Auto scaling sets the meter device's settings as indicated below:

- Voltage channels
  - Min value = NomVolts * 0.75
  - Max value = NomVolts *1.25
- Frequency
  - Min value = 45 Hz
  - Max value = 65 Hz
- Current Channels
  - Nominal value = Current @ Genset Size (kw) and Nominal volts and a 0.8 power factor.
  - Min value = 0
  - Max value = Nominal Value * 1.25
- Power Channels
  - Min value = 0
  - Max value = Genset Size *1.25
- Power Factor
  - Min value = 0.75
  - Max Value = 1.1

All meters configured for auto scaling will be rescaled any time the Test Setup parameters are changed.

* Not available on "Delta" load connected (3 wire) systems

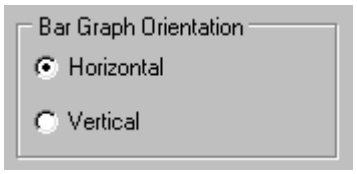
If the *Value Visible* box is checked, then the numerical value of the channel is also shown. This setting is only in effect for the Bar Graph and Analog Meter device types. This check box will be checked and cannot be changed for a Digital type meter device. The Bold check box is used to select whether the value is shown using a bold font or not.

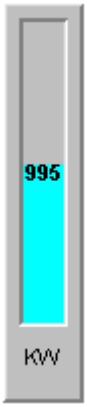


10.3.2.1.3 Bar Graph Orientation

The *Bar Graph Orientation* is used to select the orientation of the Bar Graph meter device. This setting is only enabled

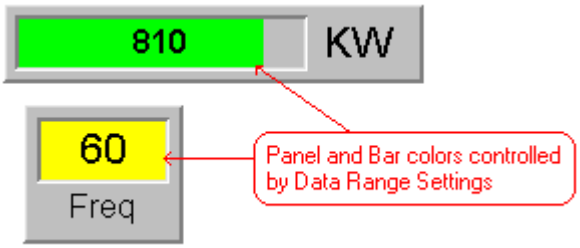
when editing a Bar Graph device.

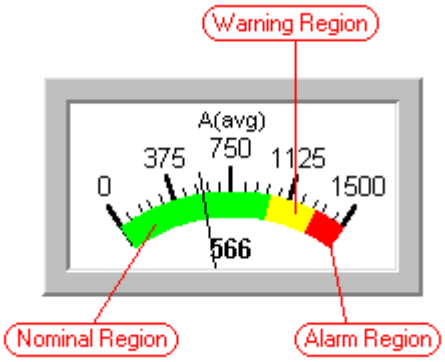




10.3.2.2 The Ranges Page

All *Data Aware* meter devices implement data range functions. Data ranges are used to define *Nominal*, *Warning*, and *Alarm* operating regions for the data channel. These regions can be used to color the meter accordingly.





A meter is said to be in the *Warning State* when it's data value lines within the Warning Region. A meter is in the *Alarm State*, when it's value lies within the Alarm Region. Optionally a sound file can be played when in the Warning or Alarm states.

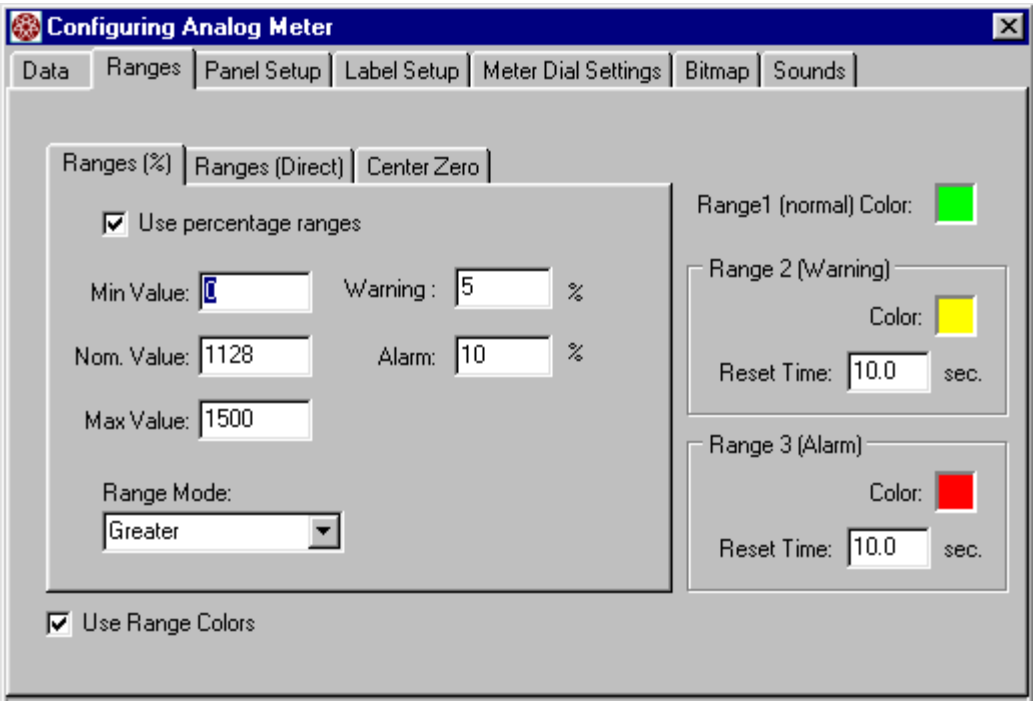
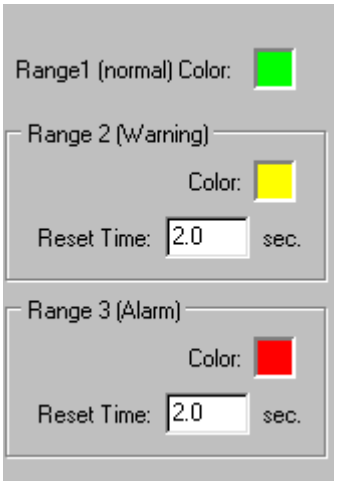


Figure 53 - The Ranges Page

All range settings are made through the Ranges Page. These settings are common to all Data Aware meter devices.

10.3.2.2.1 The Range Colors and Reset Times

Range colors used for the *Nominal*, *Warning*, and *Alarm* states are defined via the Color panels on the Ranges Page. Click the required color panel and a color dialog will be shown allowing the selection of the desired color.



The *Warning* and *Alarm Reset Times* are used to define the rate in which the defined sound file (.wav) is played when in the given state. In the example shown, the defined sound file will be played every 2 seconds while the data is in the *Alarm* or *Warning* states (if sounds are enabled). A sound file is selected from the *Sounds* page.

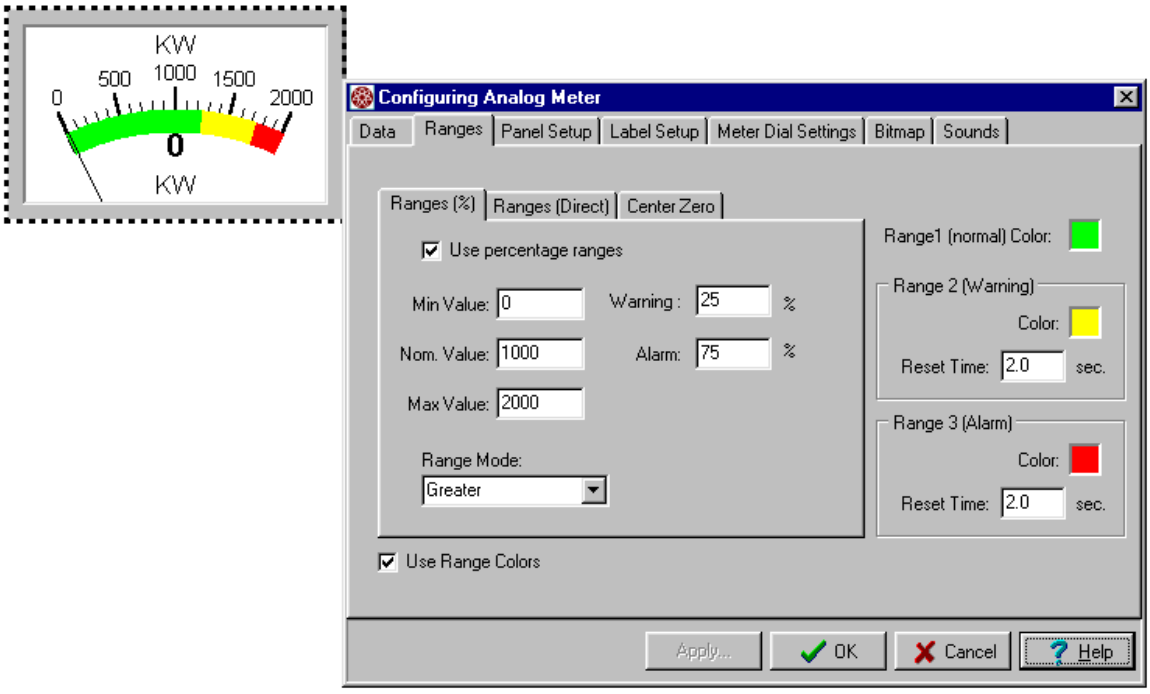
10.3.2.2.2 The Range Type Setting

The range setting parameters provide two major functions. One is to span the device. Bar Graph and Analog meter devices require this information to be scaled correctly. The second purpose of the range settings is to define the Nominal, Warning, and Alarm regions. These regions effectively place limits on the data shown by the meter.

There are three types of range settings that can be used. These are the Percent Range (%), the Direct Range, and the Center Zero Range. Clicking the appropriate tab in the Ranges Page and checking the use check box selects the range type.

10.3.2.2.2.3 Percent Range (%)

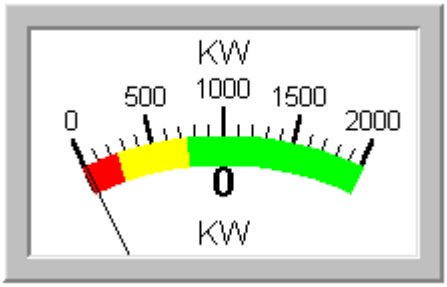
The Percent Range type is used to create *Warning* and *Alarm* regions that are a computed, as a percentage of the *Nominal* Value.

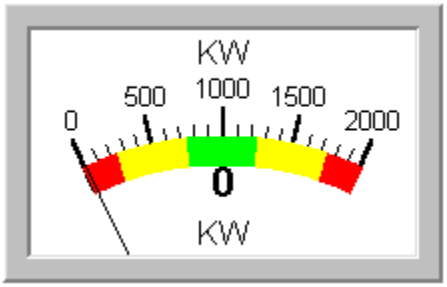


In the example shown above, the *Warning* and *Alarm* regions are defined at 25% and 75% of the nominal value. Since the *Range Mode* is set to *Greater* in this case, the *Warning* region starts at 1250 (25% greater than the nominal value) and the *Alarm* region starts at 1750 (75% greater than the nominal value).

Range Mode can be set to:

- None - No ranges used
- Greater
- Less
- Less or Greater

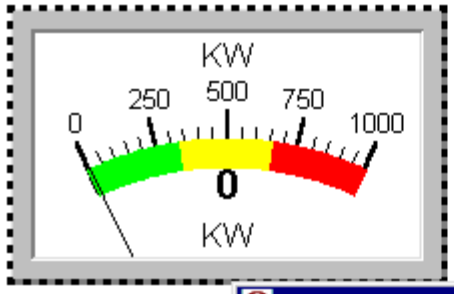


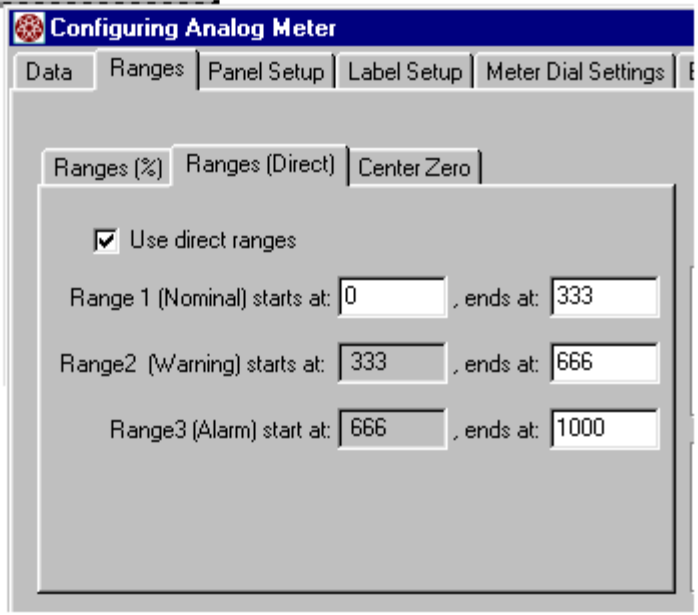


If *Auto Scaling* is enabled (on the Data Page), the *Min*, *Max*, and *Nominal* values will be automatically set as soon as the meter is placed in the *Run Mode*. They will also be updated whenever the *Test Setup* parameters are changed.

10.3.2.2.2.4 The Direct Range

As its name implies, the Direct Range settings are used to directly set the meter's operating ranges. The Direct Range settings are selected by clicking the "Ranges (Direct)" tab on the Data Page. Click the *Use direct ranges* box to make Direct Ranges active. In this mode, the Nominal, Warning, and Alarm ranges are set directly.

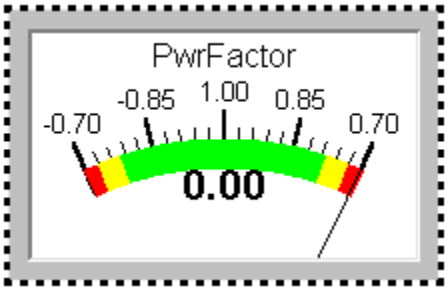




Note: Using the Direct Range settings when *Auto Scaling* is active can cause some unexpected results. This is because only the "Range 1 start" and "Range 3 end" values are set by the *Auto Scaling* functions - the remaining values are not changed.

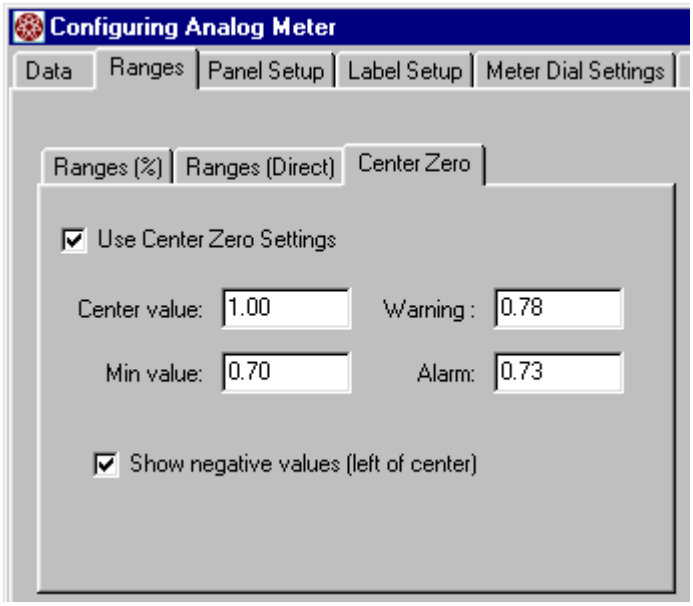
10.3.2.2.2.5 The Center Zero Range

The *Center Zero* range style is only available for *Analog Meter* devices. An Analog Panel Meter that is designed so that the meter needle returns to the "center" position at zero (with no signal applied) is called a "Center Zero" meter. This style was included specifically to allow for the creation of a power factor meter that can indicate both a lagging and leading power factor.



In the example shown, the needle will be in the center position if the Power Factor is 1.00 or -1.00. The negative value is used to indicate a leading power factor. The needle will move to the right as the value changes from 1.00 to 0.70 and move to the left of center as the value moves from -1.00 to -0.70. The meter can be thought of a two separate meters - one to the right of center and the other to the left. The sign of the data determines the direction of travel.

Again *Auto Scaling* should not be used with the *Center Zero* Range style.



10.3.2.3 The Panel Setup Page

The *Panel Setup Page* is used to configure the look and feel of the panel of the meter device. These settings are common to all meter devices.

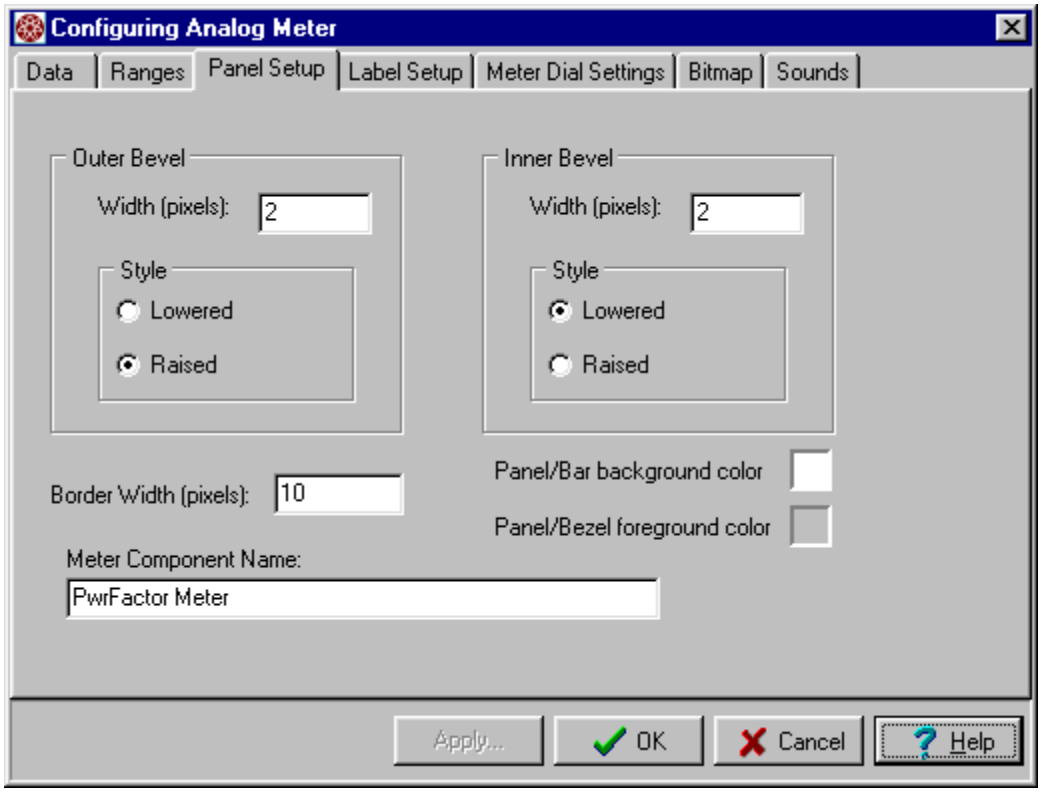
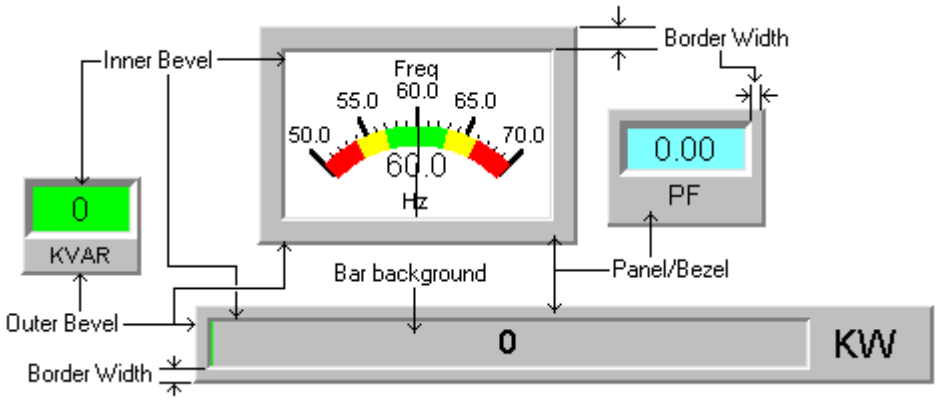


Figure 54 - The Panel Setup Page

The following identifies the *Outer Bevel*, *Inner Bevel*, *Border Width*, and the Panel and bar background colors.



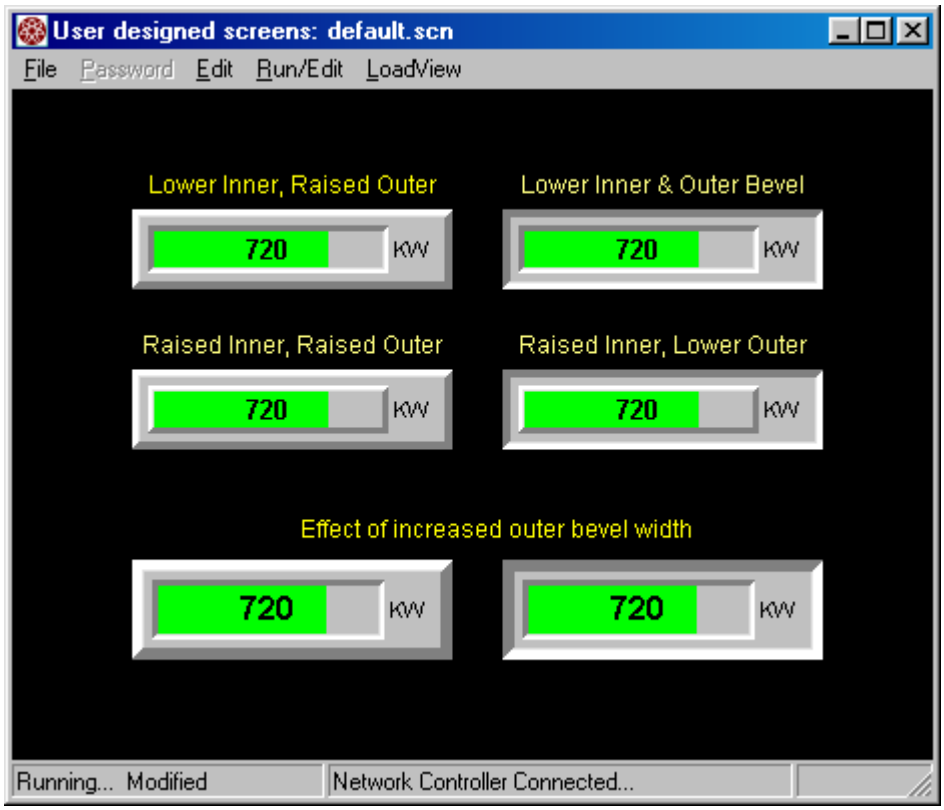


Figure 55 - Bevel Setting Examples

As can be seen from the examples, you can use the bevel settings to control the look of the meter devices. A raised bevel gives the appearance of sitting on top of. Where a lowered bevel will appear as if it is behind - you look into it. You can also see how changing the bevel width can control how tall or deep the meter appears. The examples shown are all bar graph devices, however the same controls are available for every meter device type.

The *Meter Component Name* is simply a name that you can attach to the meter component. This name will appear in the status bar when editing the meter device.

10.3.2.4 The Label Setup Page

The *Label Setup Page* is available for all meter device types except Buttons. These settings are used to configure the meter's title and units strings.

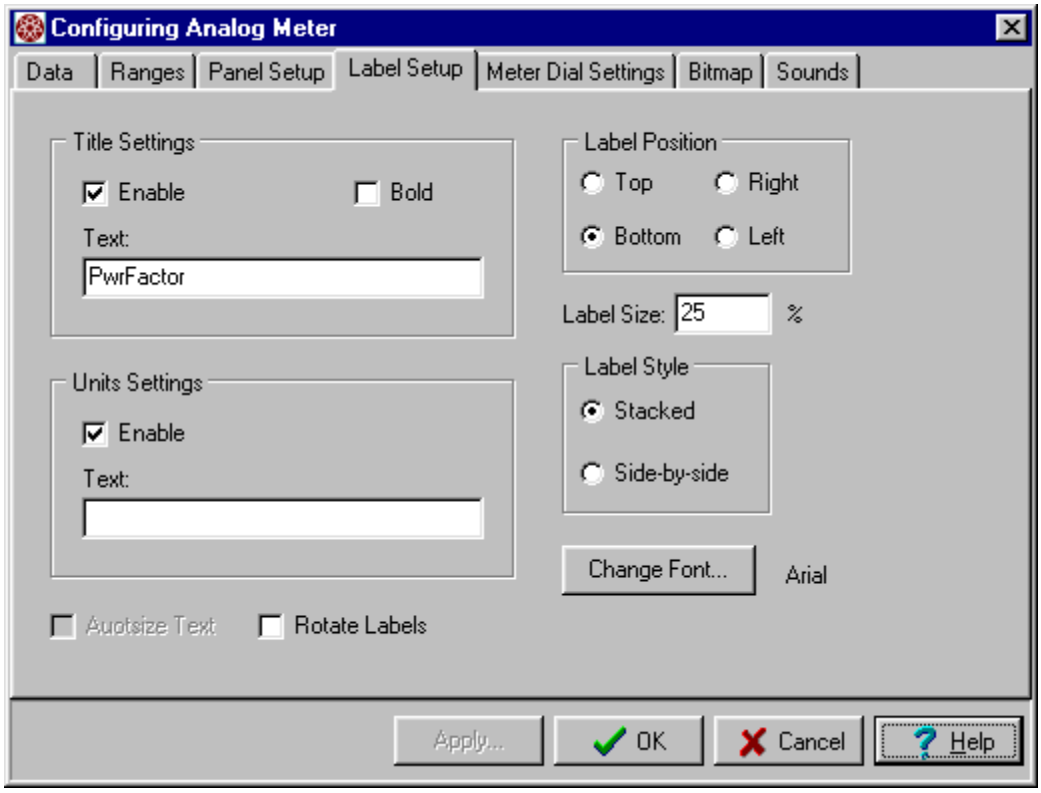
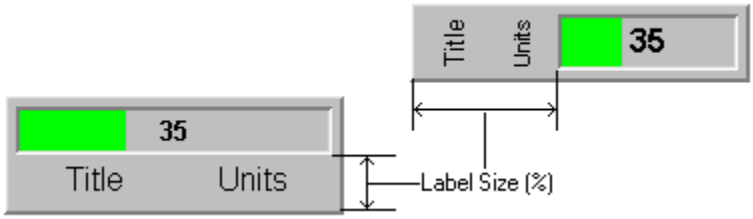


Figure 56 - The Label Setup Page

The *Label Size* setting is used to determine how much of the device's space should be allocated for the labels. This is expressed in percentage.



In these examples, the *Label Size* is set to 40%. This causes 40% of the meter to be used to show the labels. The larger the *Label Size* the smaller the meter device space (the Bar in this case).

Note: Size pertains to a percentage of the meter's height when the labels are on the top or bottom, and a percentage of the meter's width when the labels are on the left or right.

The *Title Settings* and *Units Settings* are used to enable/disable their respective headings. These strings are automatically set to the channel name and units when a channel is selected (via the Data Page). The *Label Position* settings are used to determine where the labels are located as shown:

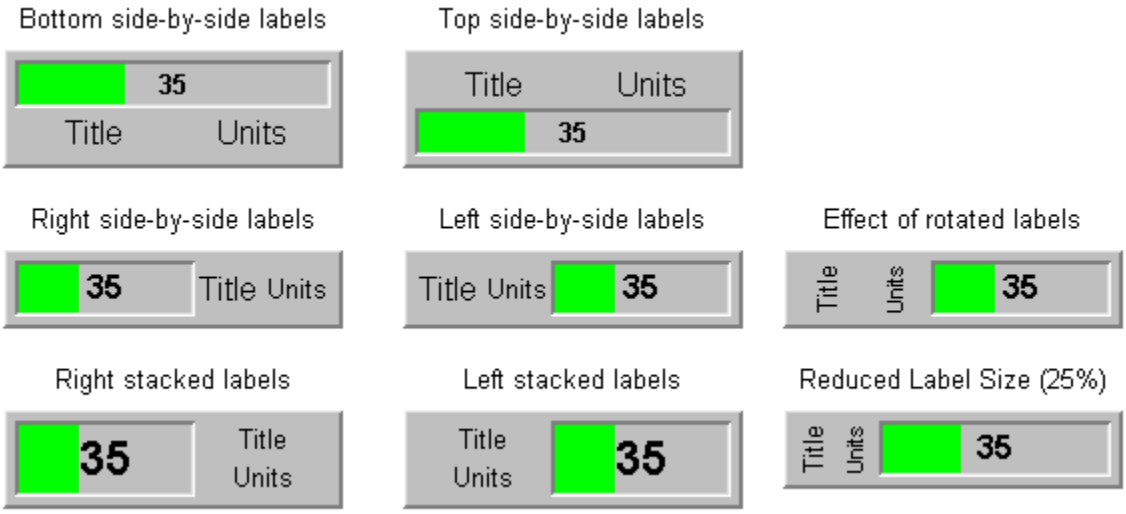


Figure 57 - Label Setting Examples

10.3.2.5 The Meter Dial Settings

The *Meter Dial Settings* are only available when editing an Analog Meter Device. These settings configure the "look and feel" of the meter face.

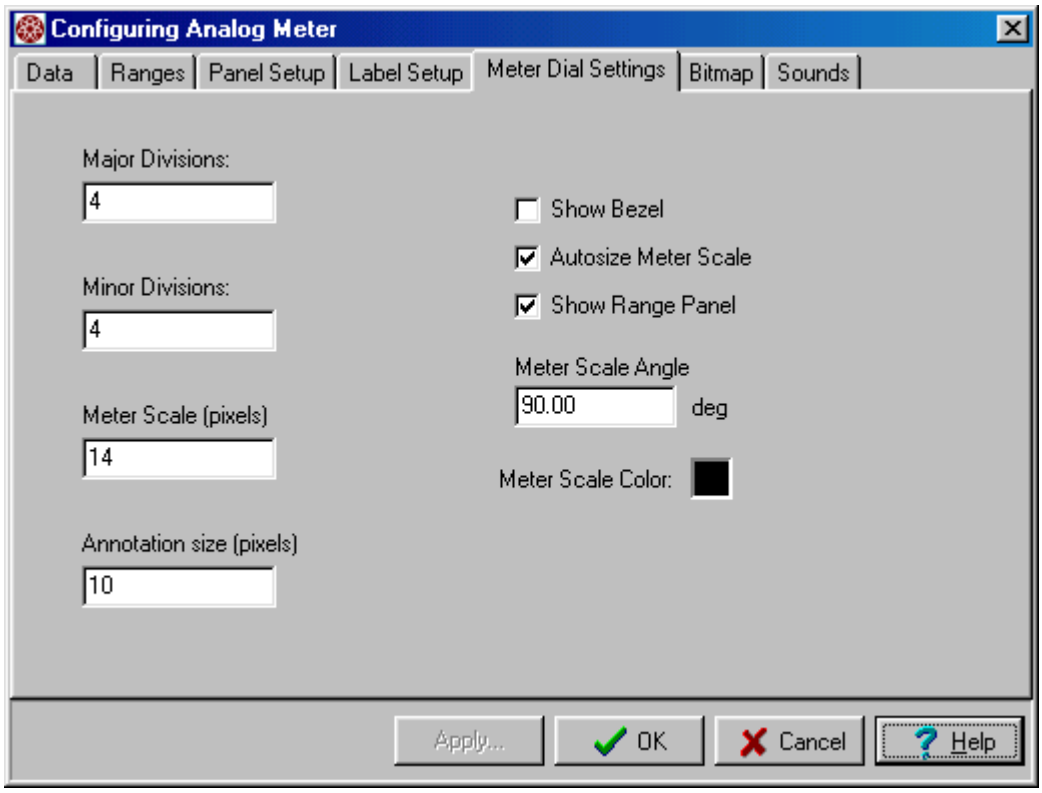


Figure 58 - The Meter Dial Settings Page

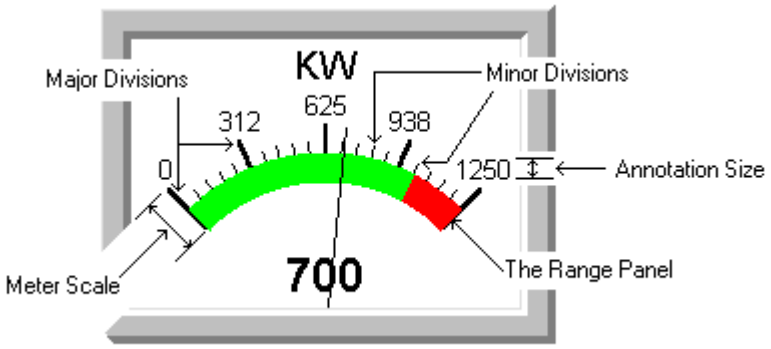
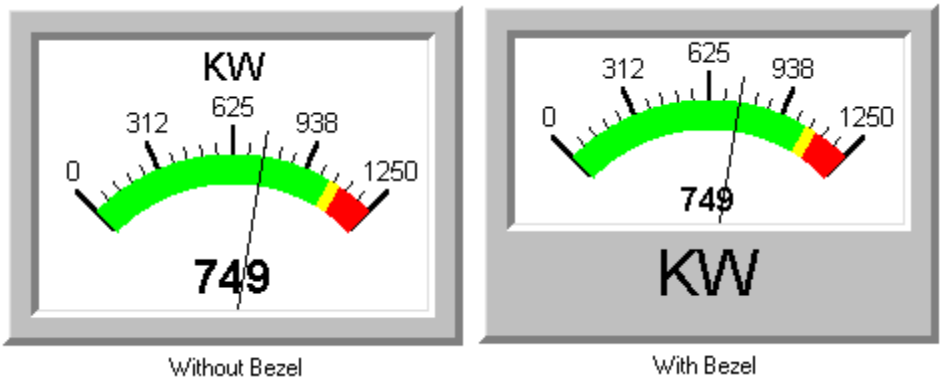


Figure 59 - Analog Meter Settings

The *Major Division* marks on the meter face are the longer bold tick marks as shown above. There is an implied *Major Division* at the start of the meter (the left hand side of the scale) so the actual number of *Major Divisions* is one more than the configured value. In the above example, there are a total of 5 Major Divisions - the one at the 0'th position and four more. Each Major Division is marked with an associated scale annotation. The *Annotation size* setting is used to control the size of the meter scales annotation text.

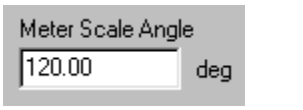
The *Minor Division* marks are the smaller tick marks that lie between the Major Division marks. The configured value sets the number of these marks that lie between each *Major Division* mark, four in this example.

The *Meter Scale* setting is used to set the height of the meter scale as show above. This setting affects the size of the Major and Minor Division tick marks as well as the size of the *Range Panel*.



The *Show Bezel* setting is used to turn on and off the meter bezel as shown.

The *Autosize Meter Scale* setting is used to automatically control the sizing of the meter scale. This setting is used in conjunction with the *Meter Scale Angle* setting. When this box is checked, the angle of the meter and its effective needle center point are automatically calculated to best fit the available space for the meter face. In the automatic mode, the *Meter Scale Angle* is used to define the maximum angle that will be used.



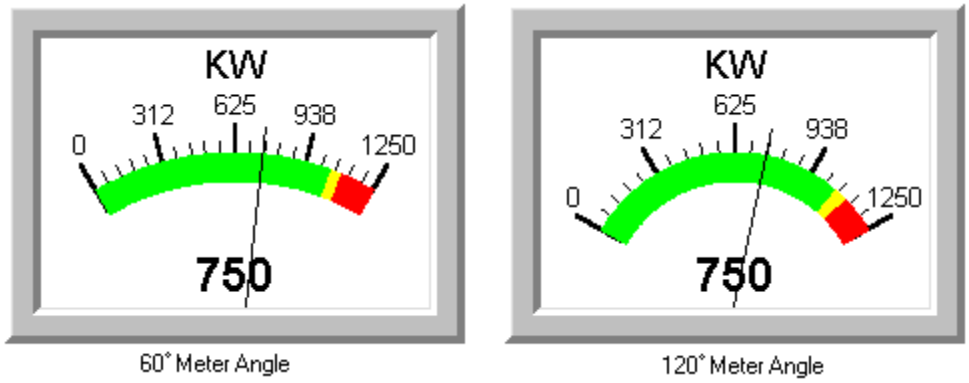
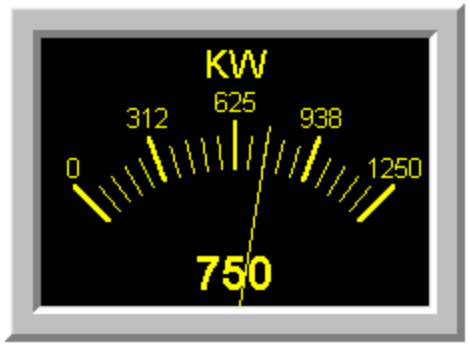


Figure 60 - Meter Angle Setting Examples

The *Meter Scale Color* is used to control the color applied to the Major and Minor Division ticks and the scale annotations. The background color of the meter face is controlled via the Panel/Bar background color setting on the *Panel Setup Page*.

The *Show Range Panel* check box is used to turn on/off the Range Panel.



This example shows an Analog Meter with the Range Panel turned off and a different color scheme.

10.3.2.6 The Bitmap Page

The Bitmap Page is used to control the bitmap of the meter device. This page is only available for Analog Meter and Graphic devices.

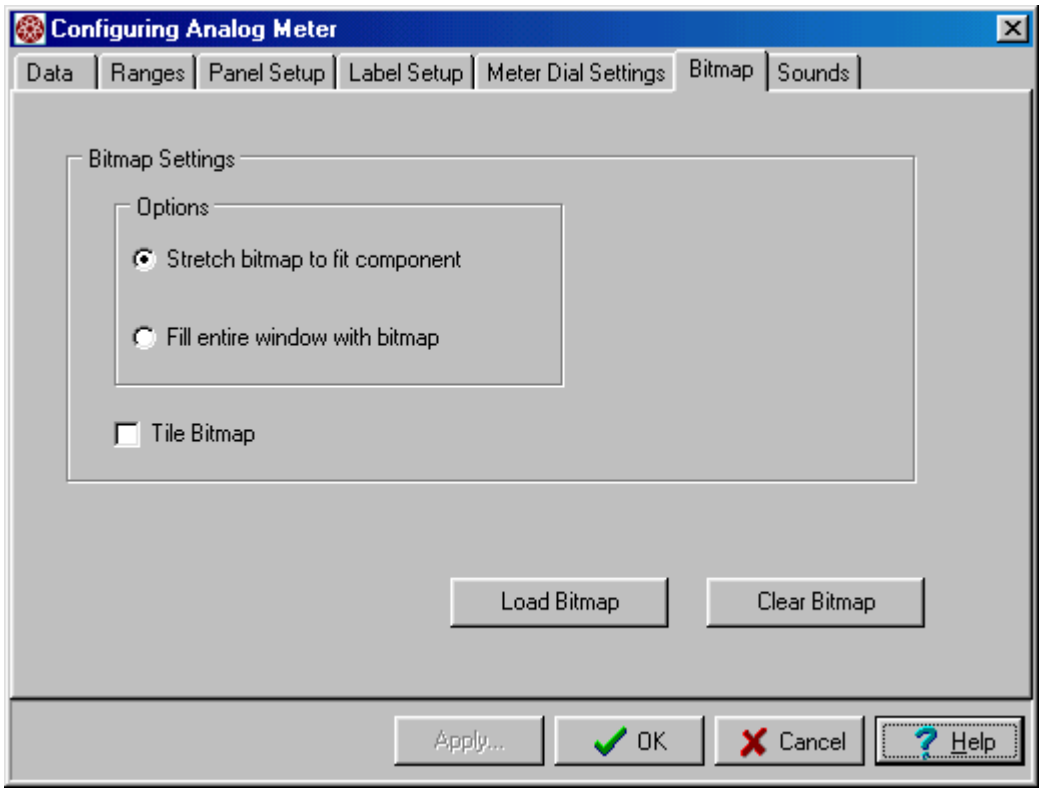


Figure 61 - The Bitmap Page

A Bitmap can be loaded into a Graphic device or the background of an analog meter panel. Click the Load Bitmap button to select the required bitmap file and load it into the component.

The Options settings allow for either "Stretch bitmap to fit component" or "Fill entire window with bitmap". *Stretch bitmap to fit component* is used to size the component - that is the bitmap is made to fit the component. When the *Fill entire window with bitmap* setting is used, the meter component is first stretched to the size of the entire window, then it is filled with the selected bitmap. The Tile Bitmap allows the bitmap to be sized by tiling it rather than stretching.

The *Clear Bitmap* button is used to remove the bitmap from the component.

10.3.2.6.1 The Glyph Page

When editing a button component, a Glyph setting page is available. This page is very similar to the Bitmap Page, except that it is used to load a bitmap glyph to a button face.

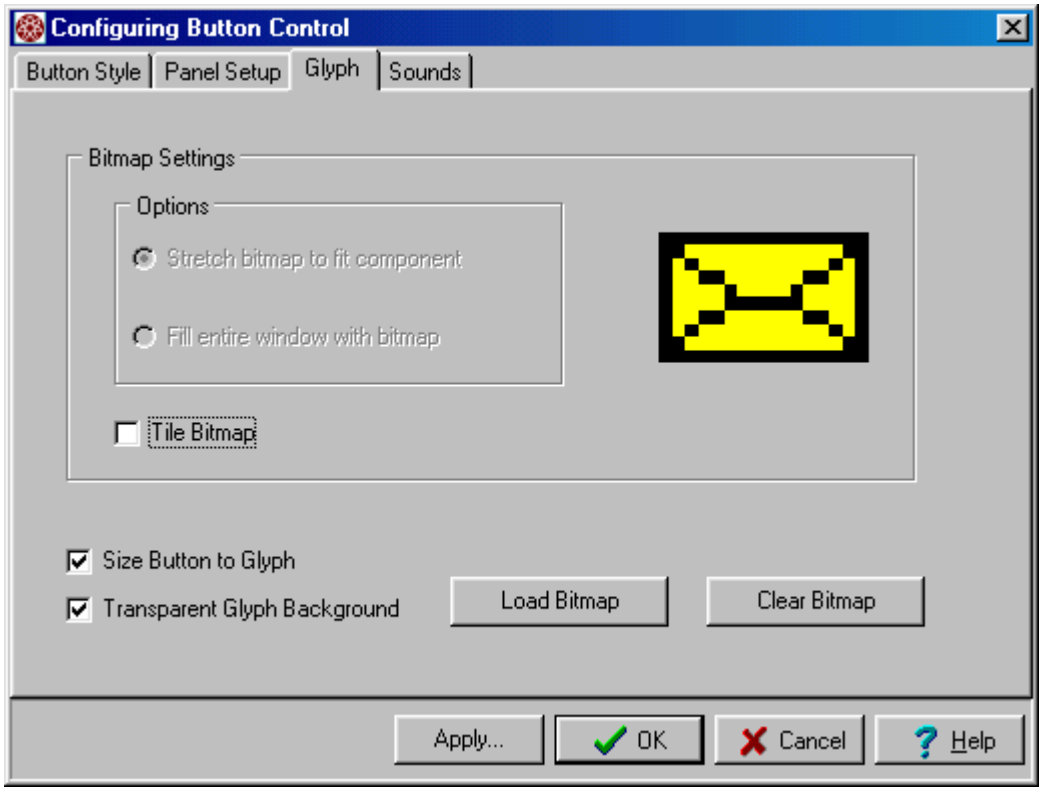


Figure 62 - The Glyph Page

In the example button shown, an envelope bitmap is loaded to a button face. A button cannot have both a glyph and an LED - the LED will be overwritten by the glyph.

10.3.2.7 The Sounds Page

This page is used to select/edit the sound file associated with the meter component.

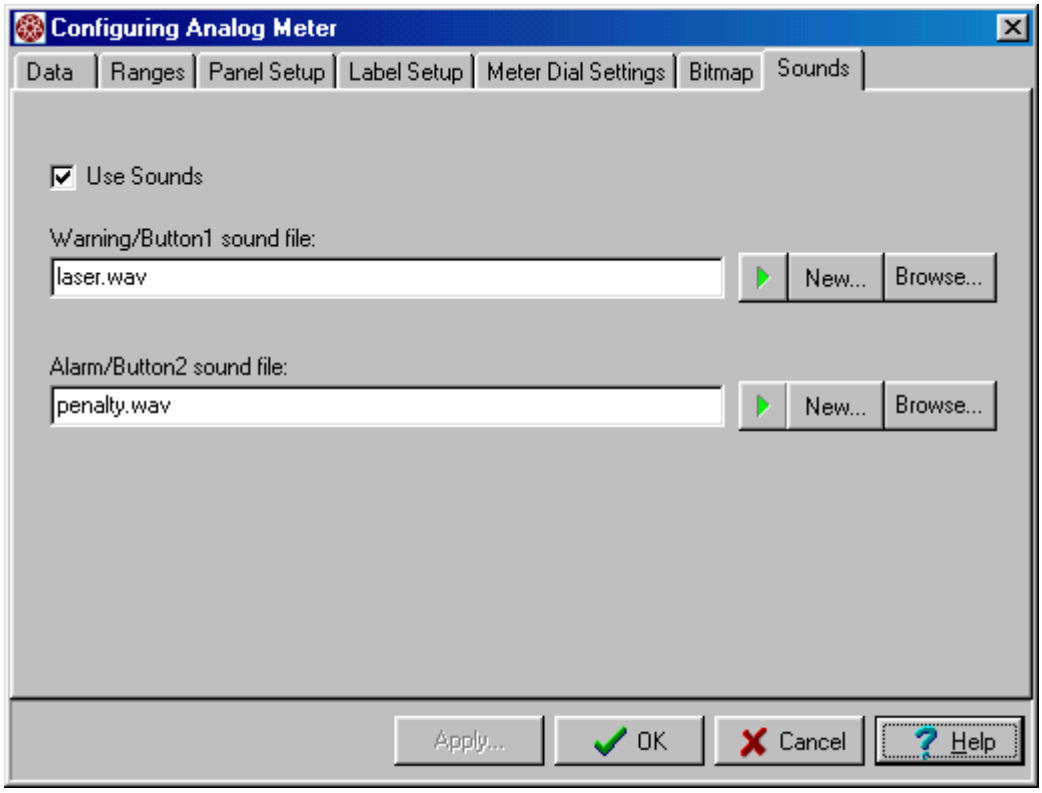


Figure 63 - The Sounds Page

Use the play buttons  to play the selected wave file. The New button can be used to record a sound file if your system has a microphone attached. When the "New…" button is pressed the LoadView sound recorder is shown. Click record to start the recording, speak into the mic, and then click stop, to stop the recording.

10.3.2.8 The Button Style Page

This page is used to configure a Button meter device.

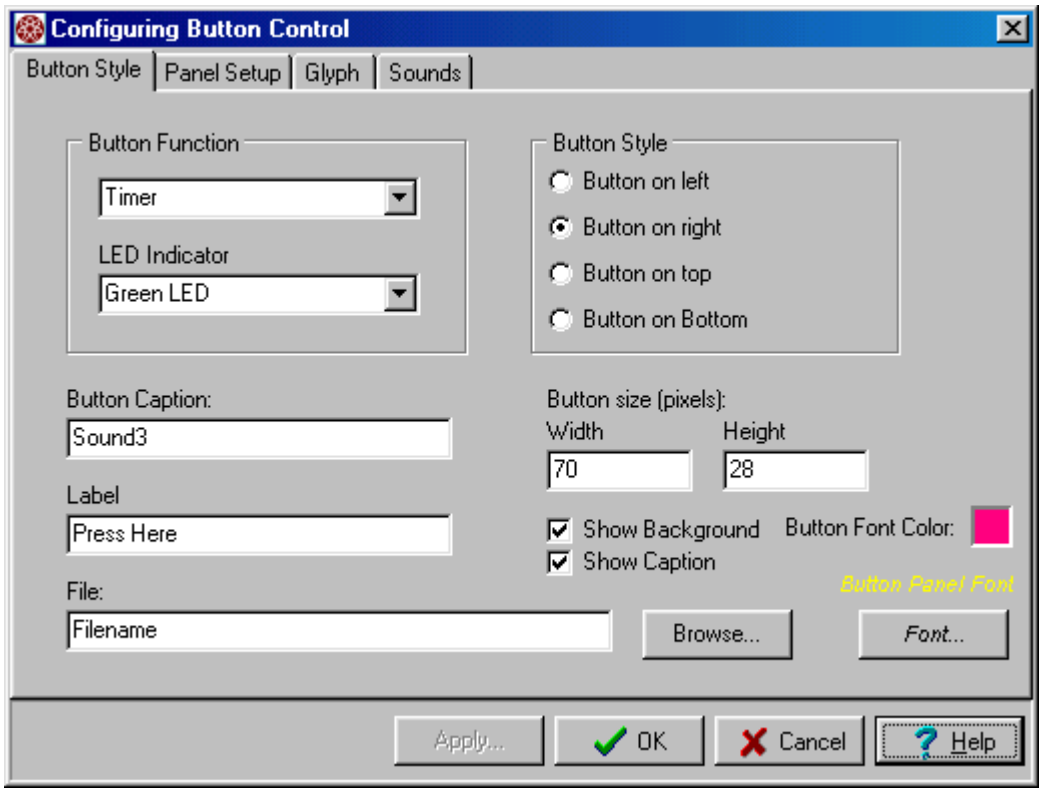


Figure 64 - The Button Style Page

The Button Function setting is used to select the function of the button (see 10.2.6 The Button Device). An LED can optionally be placed on the Button. The Button Style settings are used to select the button style as shown:

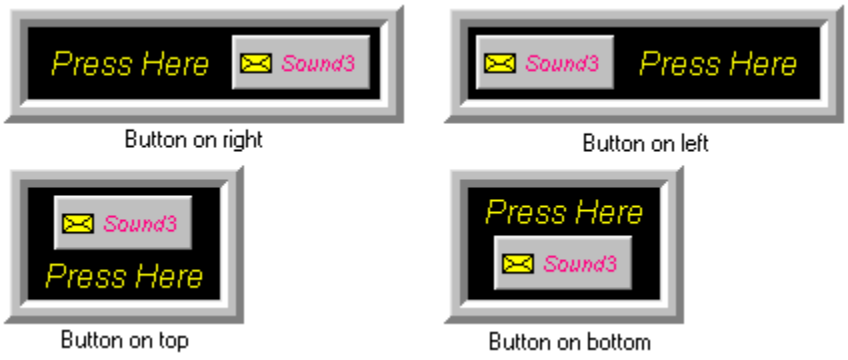
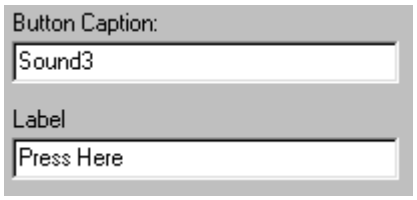
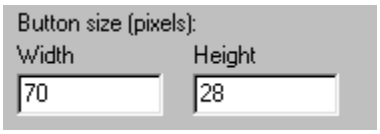


Figure 65 - Button Style Examples



The *Button Caption* and *Label* Settings are used to set the text used on the button and the panel respectively. The caption value is automatically preset with the appropriate text when a button function is selected. After the button function has been made, the caption can be changed as required.



Use the Button size parameters to size the button to meet your needs.

The "File" parameter is used to specify the name of the script file or screen file. This parameter is only used if the *Button Function* is set to either "Select Screen" or "Run Script". For *Select Screen*, this parameter is the name of the user designed screen file that will be loaded when the button is pressed. In the *Run Script* case, this is the name of the script file that is to be run.

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