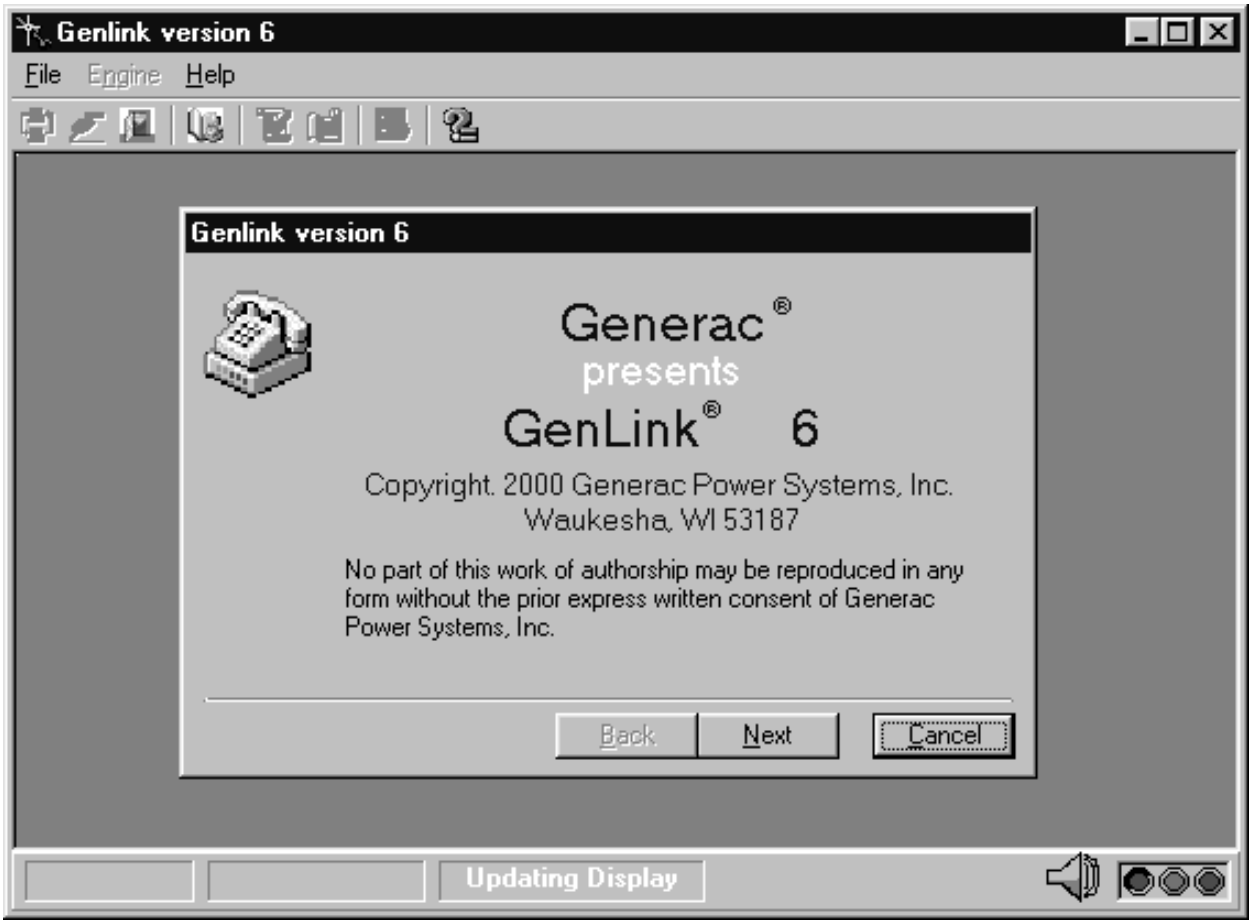
GENERAC®

POWER SYSTEMS, INC.

GenLink®
Operating Manual

Version 6

*** This Manual Should Remain With The Unit ***



SAVE THESE INSTRUCTIONS – The manufacturer suggests that these rules for safe operation be copied and posted in potential hazard areas. Safety should be stressed to all operators and potential operators of this equipment.

SAVE THESE INSTRUCTIONS – The manufacturer suggests that these rules for safe operation be copied and posted in potential hazard areas. Safety should be stressed to all operators and potential operators of this equipment.

INTRODUCTION

GenLink® is a remote generator monitoring and controlling software package that utilizes a Microsoft Windows compatible computer. The software connects via RS232 or modem communications to a Generac generator installed with a "D", "E", "F" and/or "Power Manager".

WHAT GENLINK WILL DO

1. Display a copy of the generator control panel with continuously updated information.
2. Remotely start/stop the generator.
3. Remotely load/unload the generator.
4. Operate relay(s) remotely.
5. Operate in standby mode (available only for “D” Option Control Panel) so that if an alarm condition occurs, the “D” Option Control Panel will call out to the remote computer and GenLink will answer and log the call.
6. Get the current status and current generator configuration setting.
7. Report alarm history and peak value history (peak value only available in “D” panel).
8. Print out history reports.
9. Manage multiple sites from one PC.
10. Communicate serially or via modem.
11. When connected to the Power Manger, the PC will display a mimic diagram of the utility and connected generator.

SYSTEM REQUIREMENTS

- Pentium 133MHz or higher, AMD 233MHz or higher
- 32MB RAM
- Windows 95/98, 2000, Millenium Edition or NT
- Internal or external modem
- CD ROM drive

INSTALLATION STEPS

1. If GenLink 2.0 is installed, uninstall it prior to installation of GenLink version 6.
2. Insert the GenLink (version 6) Installation Disk.
3. From Start or Explorer, run **Setup.exe** from the floppy disk.
4. If the computer is Windows 95 and Internet Explorer 4.0 or above hasn't been installed, run dcom95.exe then run **scr55en.exe**. (This is only for the "D" Panel with Pager Enable Feature). Both files are located in the support folder.
5. Follow the instruction on the screen to install GenLink®.

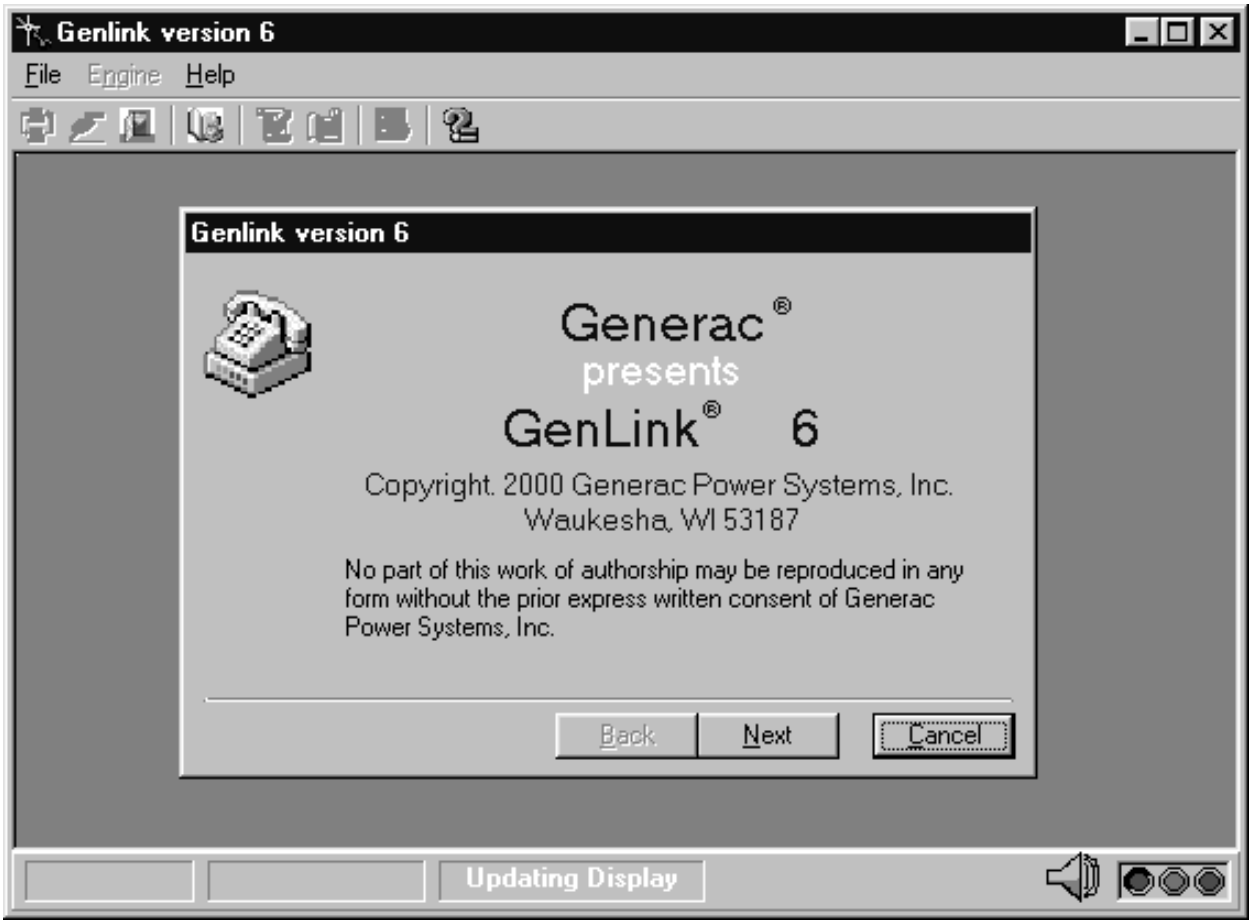
TO RUN GENLINK

For Win95/98 or WinNT, click on the desktop **GenLink** shortcut. Follow the connection wizard to connect to the generator via either the serial port or modem.

CONNECTION PROCEDURE

Click **NEXT** to start the connection process. See Figure 1.

Figure 1 — Connection to GenLink®



Choose the connection type by clicking on the appropriate button (modem, serial or standby).

- **Modem** selection, see page 3.
- **Serial** selection, see page 7.
- **Standby** selection, see page 8.

A MODEM TYPE CONNECTION

The site selection table will now be displayed (see Figure 2). Select the site you wish to dial and click **NEXT**.

Figure 2 — Choosing the Connection Type

Click the **PROPERTIES** button to add a new site or edit an existing site (Figure 3). The "Site Maintenance" screen will be displayed (Figure 4).

Fill in the site information screen as required. The only mandatory fields are:

1. **Site Name** — This is to identify the site.

Figure 3 — Add New or Edit Existing Site

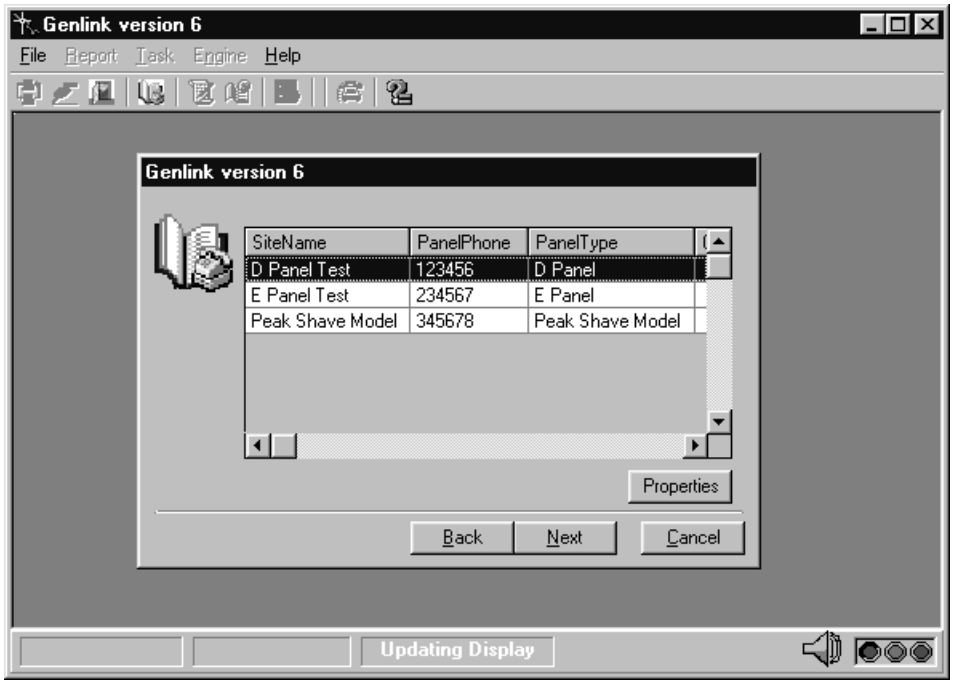
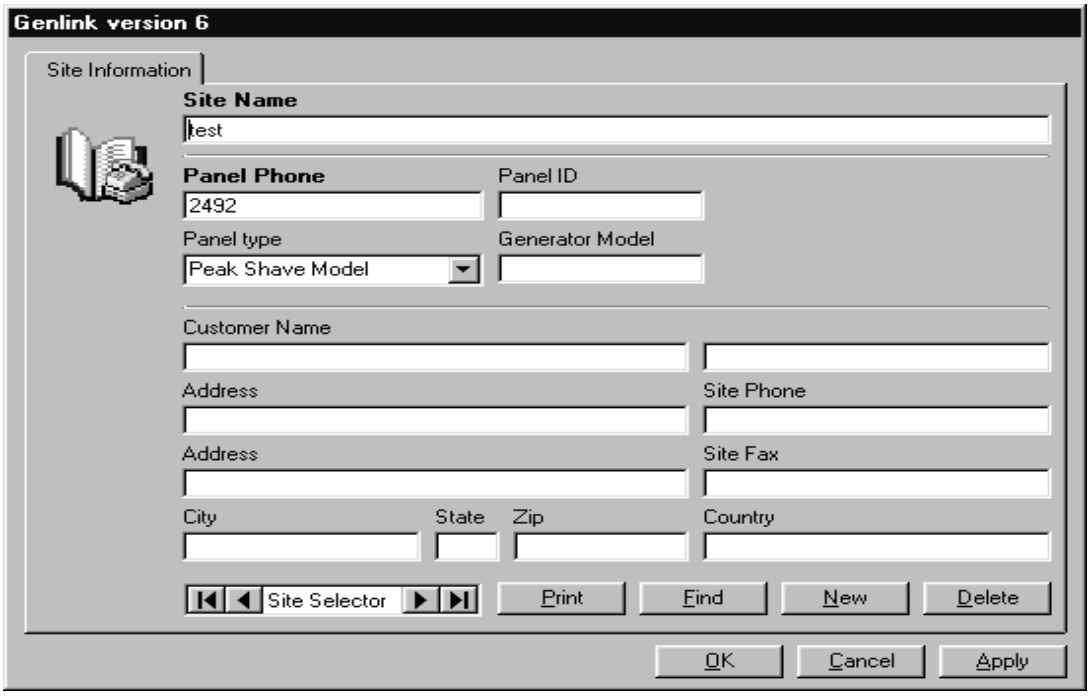


Figure 4 — Site Maintenance



NOTE:

If the Paging Feature is selected ("D" Panel only), refer to the section on Paging.

2. **Panel Phone** — This is to enter the phone number of the panel the connection is being made to. If an exchange is used, add a 9 to the number followed by a pause(s) (use a comma for the pause). Example: 9,,6792735.
3. **Panel Type** — This tells GenLink what type of panel will be used.
   - "D" Panel
   - "E" Panel
   - **"E" Panel and RAP** — (Remote Annunciator Models 004391-1 and 004392-1.) Special hardware is required to run GenLink on an "E" Panel with a remote annunciator fitted. Contact Generac for details.
   - **"F" Panel with GenLink Protocol** — For older "F" Panels. (Earlier than version 4.0 software.)
   - **"F" Panel with Modbus Protocol** — For newer "F" Panels. (Version 4.0 or later software.)
   - **Power Manager™**

The Screen shown in Figure 5 will be displayed:

- Click **CONNECT** to dial up the remote generator.
- Click **PROPERTIES** if changing the COM port, or modem setting strings.

If the screen displays "COM port error" when the **CONNECT** button is entered, click the Properties button and correct the COM port or modem settings (see next page).

If properties has been selected, there will be a list of modem types and COM ports. Select the modem and the port that it is connected to.

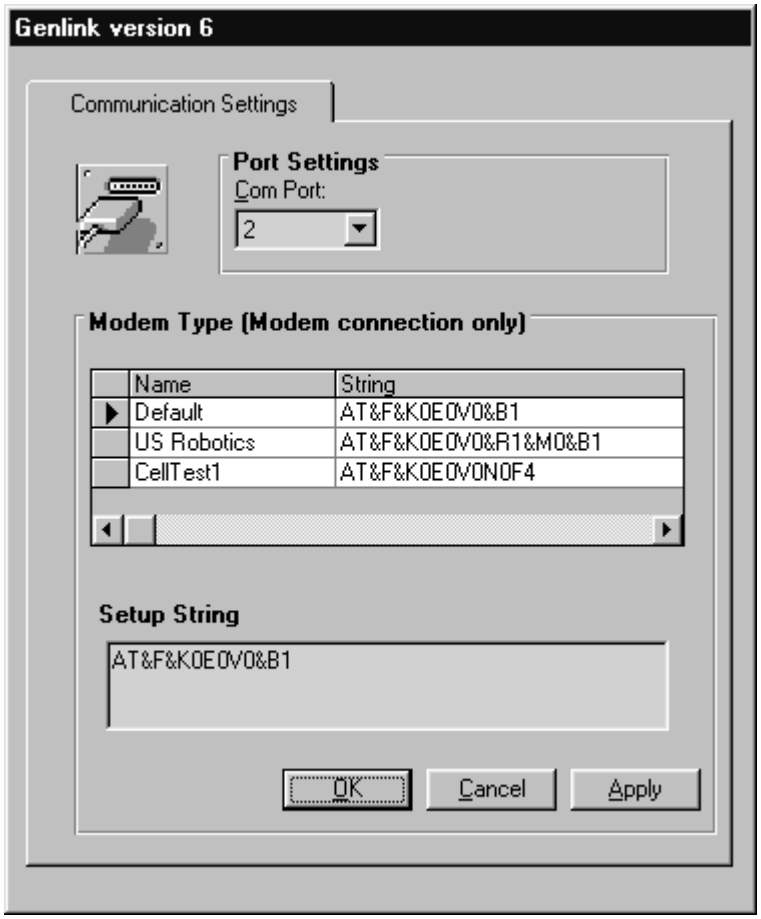
Click **OK** or **CANCEL** to go back to the connection screen.

After the connection establishes, GenLink will ask for the password, GenLink will verify the password and display the main monitoring screen.

Figure 5 — Dial Up the Remote Generator

- Change the COM port.
- Change the modem setting strings

Figure 6 — Communication Settings



Default	AT&F&K0E0V0&B1	Connect to “D”, “E” and “F” Panel with GenLink protocol
US Robotics	AT&F&K0E0V0&R1&M0&B1	US Robotics 56k V.90 Connect to modbus protocol “F” Panel and Power Manager™
Cell Test1	AT&F&K0E0V0N0F4	Connect to “D” panel with cellular phone.

SERIAL PORT CONNECTION

Select the type of control panel that a connection is being made to and click **Next** (Figure 7).

Click **CONNECT** to link to the generator in Figure 8.

Click **PROPERTIES** if a change in the COM port is necessary.

Figure 7 — Choosing the Serial Port

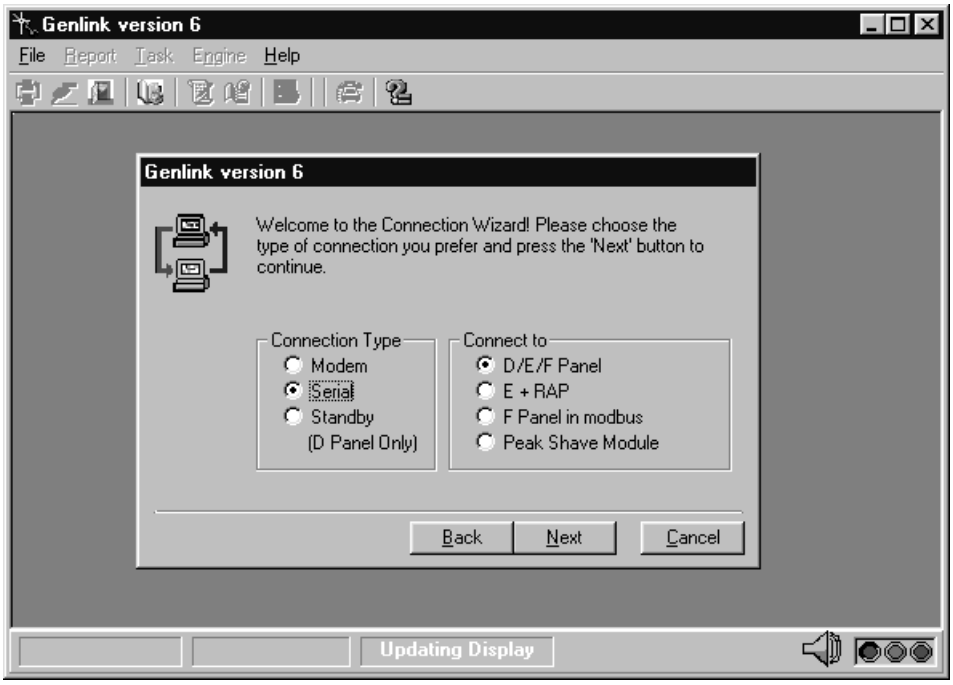


Figure 8 — Link to the Generator

STANDBY CONNECTION TYPE ("D" PANEL ONLY)

Click **INITIATE** to set the PC into wait mode (Figure 9). The PC will now sit waiting for a call from a remote generator.

On receipt of such a call, the PC will log the generator that called and the alarm message that it sent. The PC will then return to wait mode.

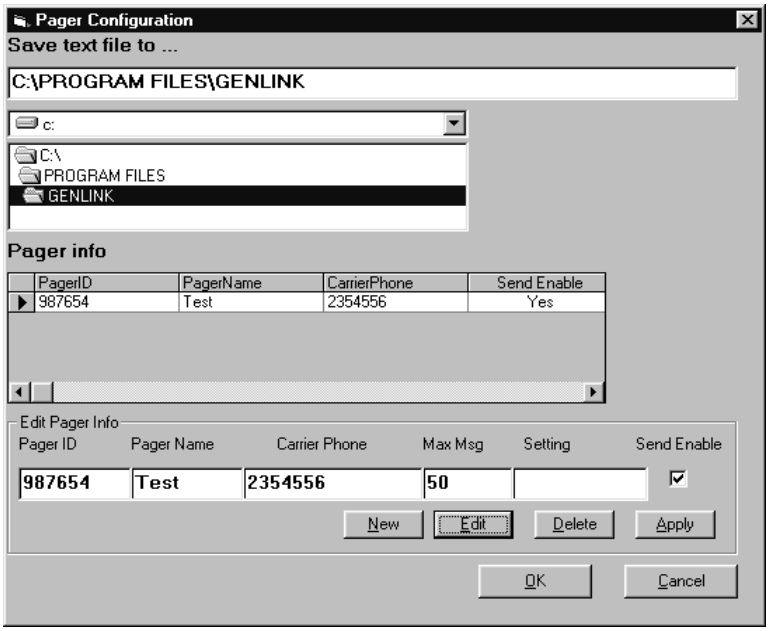
Click **PROPERTIES** if a change in the COM port or modem type is necessary.

If a pager is being used, check Pager Enable. The Pager Configuration screen will be displayed.

Figure 10 is the Pager Configuration. Please see the Paging section for details (page 19).

Figure 9 — Set PC in Wait Mode

Figure 10 — Pager Configuration



GENLINK® TOOLBAR AND PULLDOWN MENUS

Refer to the Toolbar shown in Figure 11. Click on a tool on the Toolbar to initiate the the actions detailed below.

1. Start connection process.
2. Disconnect.
3. Exit GenLink.
4. Edit site maintenance database.
5. Current status report — A printable report of the current generator status.
6. Current settings report — A printable report of the generators parameter settings.
7. Alarm history (“D”, “E”, and “F” Panel ONLY) — Shows the latest 50 alarms. “F” Panel shows last 20 alarms and voltages and currents when it fails.
8. Display current generator settings
9. Peak values report (“D” Panel only)
10. Dialout settings (“D” Panel only)
11. Help

MONITORING AND CONTROLLING THE REMOTE GENERATOR

If connection to a “D” panel is made, the monitoring screen will be displayed (Figure 11). All the displayed data will be continuously updated.

- Click the **START** button to start the remote generator. (Unit must be in Auto mode.)
- Click the **STOP** button to stop the remote generator.
- Click the **SETTINGS** (Figure 12 on page 10) button in the toolbar or select it in the pull down "task" menu to view the generator's settings. If the professional version of GenLink is installed, changes to these settings can be made by using the keyboard.
- Click the **ALARM HISTORY** or **PEAK VALUE** buttons on the toolbar (or select them from the pull down "report" menu) to view alarm history or peak values report.
- Click the **PHASE** button to display the Volts and Amps readings for the different phases.

Figure 11 — “D” Panel Monitoring Screen

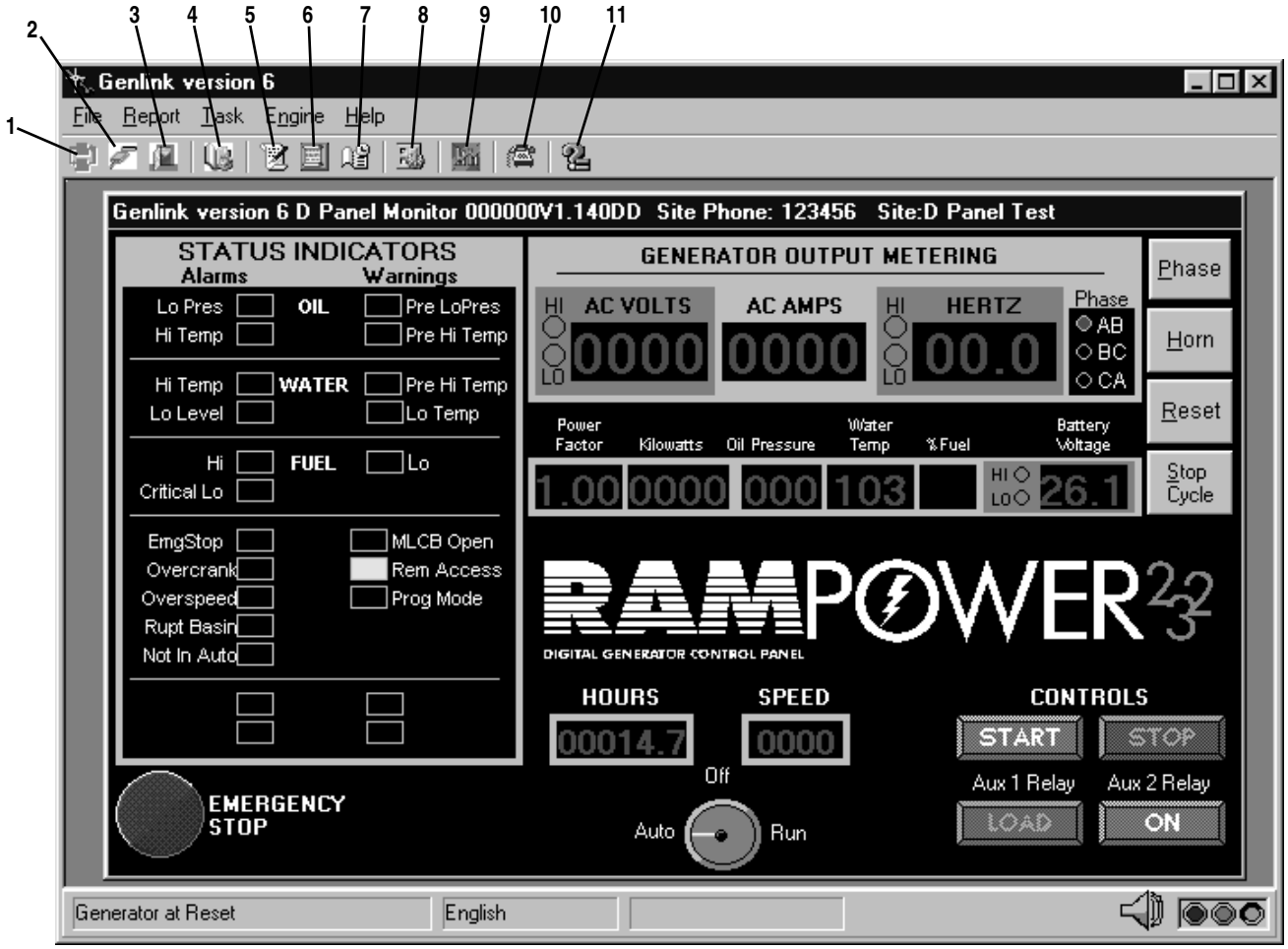
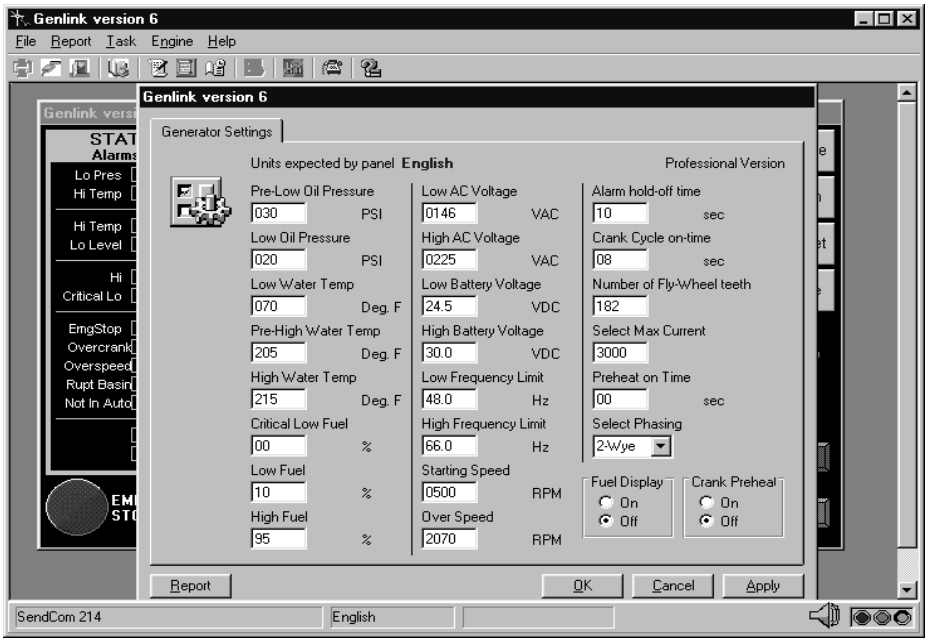


Figure 12 — Generator Settings



- Clicking the **RESET** or **HORN** buttons will clear any latched alarms and reset the common alarm (horn) relay.
- Click the **STOP CYCLE** button to freeze the data on the display. Re- click on the button to unfreeze the display. Use of the other buttons or use of the options on the toolbar when the data is frozen can be done.
- The **AUTO/OFF/RUN** button displays the state of the switch on the "D" panel itself.
- Click the **LOAD** button to transfer load to the generator, this will only work when the generator is up to speed. Re- click the button to drop the load.
- Click the **AUX 2 RELAY** button to toggle the spare relay 2 in the "D" panel.

For details of the parameter values, displays and other functions of the "D" panel, refer to the "D" panel Users manual (part number 0A3303).

REPORTS

GenLink can generate printable reports containing either Alarm History, Current Status or Generator Parameter Settings. Select the reports from either the toolbar or the pulldown menus. The reports will be shown on screen. Select **PRINT** to send them to the printer.

Reports can be generated for all panel types ("D", "E", "F", and Power Manager™). For the Power Manager™ the reports are selected via the **REPORT** button on the individual forms.

DIALOUT FEATURE (D PANEL ONLY)

To set up the Dialout Feature, select the Dialout tool from the toolbar.

1. Enter the phone number of the modem/phone connected to the PC. 9 (for an outside line) may be needed, followed by a pause (use a comma to create a pause or multiple pauses).
2. Assign the generator with a 6 figure ID number (mandatory for Paging - see GenLink Paging feature).
3. Enter a retry period (if the line is busy) of 1-10 minutes.
4. Enter a retry count (1-99). This is how many times it will try connecting before cancelling the call.
5. Finally, check the dialout enable box and click **O.K.**
6. Go back to the dialout page and check that the data has been accepted.

ALARM LOG (D, E AND F PANELS)

Select the Alarm Log from the toolbar or pulldown menu.

The Alarm Log for the "D" and "E" Panels will show a list of the 50 most recent alarms, their type, and the engine run hour at which they occurred. The "D" Panel allows you to reset the Alarm History.

The "F" Panel will show the 20 most recent alarms (the first one is the most recent) along with a log of the voltages, currents and frequency (utility and generator) at the time of the alarm.

HELP TOOL

Selecting the **HELP** tool will provide a HELP dialogue similar to Windows.

"E" PANEL MONITORING SCREEN

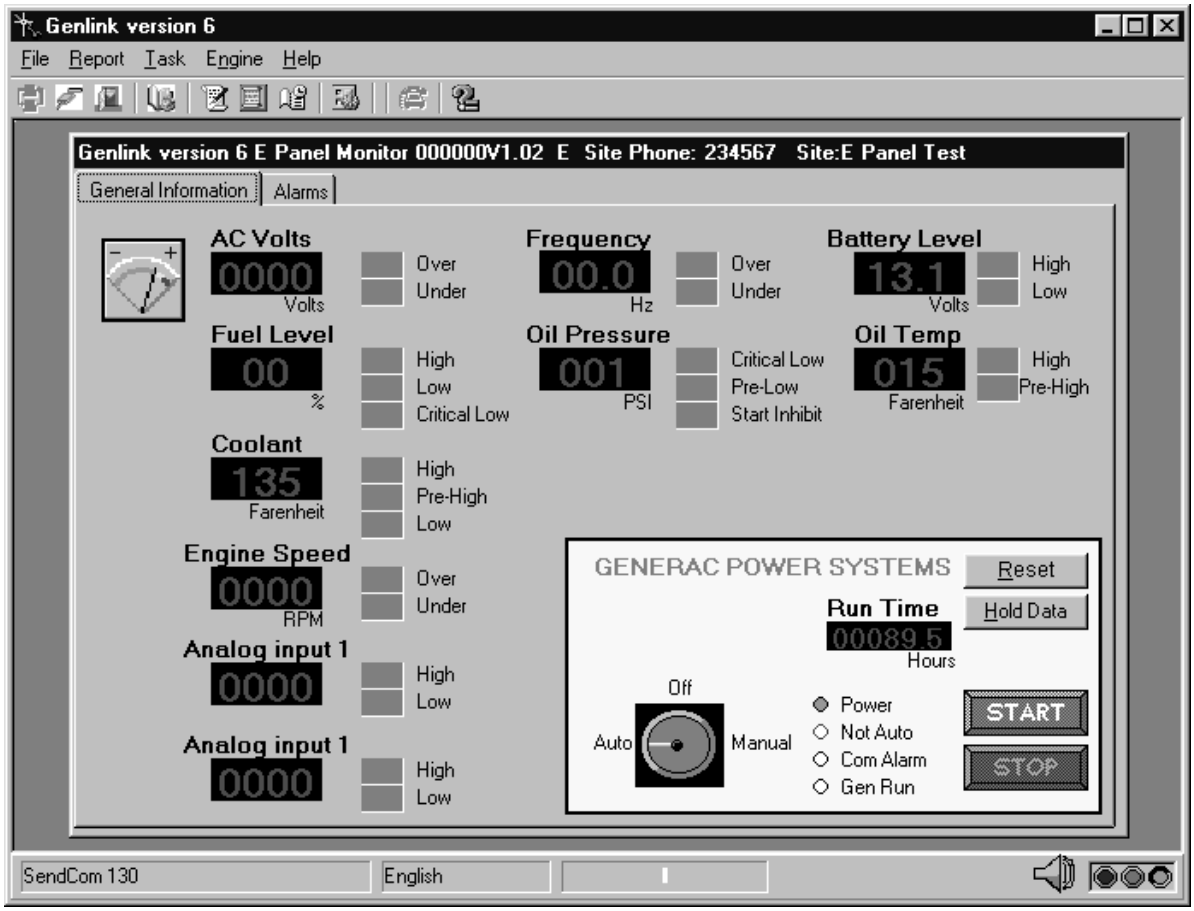
If connection to the **"E" Panel** is made, the monitoring screen in Figure 13 will be displayed.

The displayed data will be continuously updated unless the **HOLD DATA** button is pressed.

This button will freeze the data on the screen. Pressing the button again will un-freeze the data.

- Click the **START** button to start the remote generator. (Unit must be in Auto mode.)
- Click the **STOP** button to stop the remote generator.
- Click the **SETTINGS** button in the toolbar or click any display number or click "settings" in the pull down task menu to view the generator settings (Figure 12). With the professional version of GenLink installed changes can be made to these settings by using the keyboard.

Figure 13 — "E" Panel Monitoring Screen

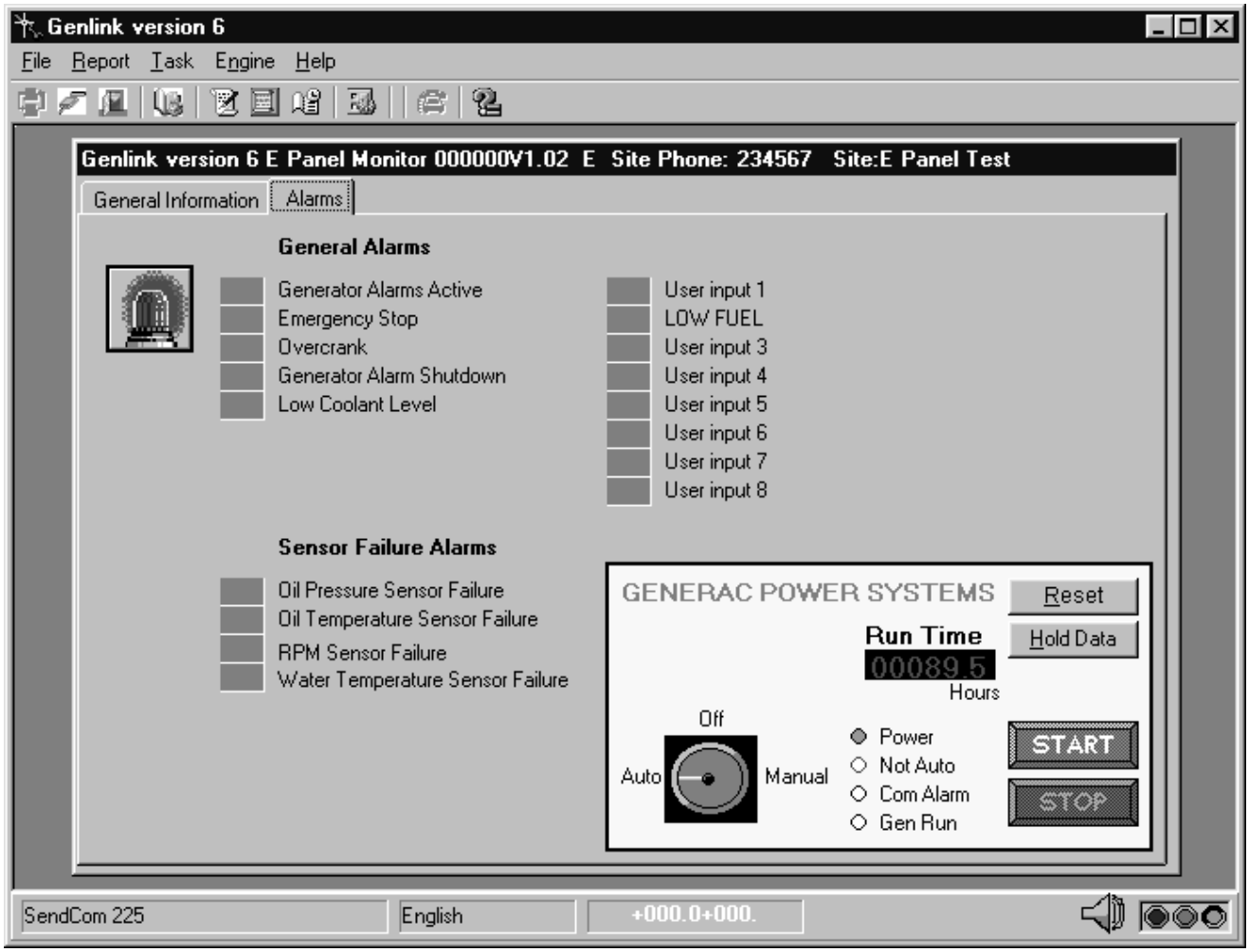


The screen shown in Figure 14 is the "E" panel status display screen. Any alarm conditions are latched by the "E" panel. Pressing the **RESET** button will clear the alarm condition.

The displayed data will be continuously updated every few seconds unless the **HOLD DATA** button is pressed. This button will freeze the data on the screen. Pressing the button again will un-freeze the data.

- The **USER INPUTS** are digital inputs that are available on the "E" panel for connection to the users equipment to indicate alarm conditions.

Figure 14 — "E" Panel Status



The screen shown in Figure 15 is the first of the three "settings" screens (standard alarm user configuration and engine configuration), which allows the user to view the alarm parameters. If the professional version of GenLink is installed, these alarm set points and their actions can be changed.

TYPE OPTION	FUNCTION
Latch	This alarm will be remain active even if the signal goes away.
Non Latch	This alarm will clear itself when the signal goes away.
Shutdown	This alarm will shutdown the engine.
Status	No alarm will be raised, but a status message will be displayed.

ACTIVE OPTION	FUNCTION
Hold Off	The alarm will not activate until the signal has been present for a preset period of time once the alarm occurs.
Always	The alarm is always enabled.
Disabled	The alarm is disabled.
Immediate	After the engine has started the alarm reacts immediately, with no delay.

Figure 15 — Settings Screen

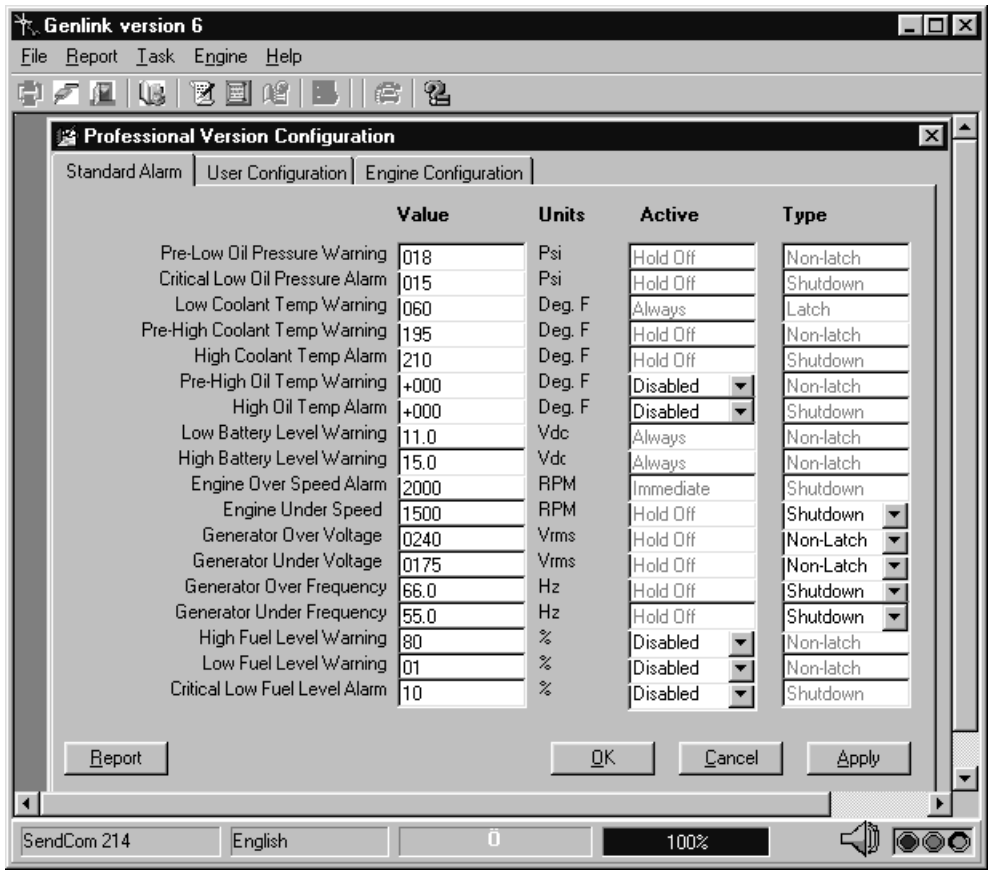


Figure 16 is the second of the three "settings" screens which allows the user to view the user parameters. If the professional version of GenLink is installed, changes to these alarm set points and their actions can be made.

The User has 8 uncommitted digital inputs and two analog inputs that can be connected to the users own equipment for monitoring (locally via the “E” panel or remotely via GenLink) (Refer to the “E” Panel manual part number 0A7605.).

The Digital inputs can be set to cause alarms or display status messages when they are either in the high or low state.

The analog channels are scaled by entering the lowest value displayed into the "lower scaling factor" slot, then, entering the highest displayable value into the "upper scaling factor". For example, a 0-5Vdc pressure transducer is being installed where 5V is 100 psi and 0V is 10 psi, then enter 10 as the lower scaling factor and 100 as the higher scaling factor.

The channels are compared to set point alarm values and can be configured in the same way as the digital channels. The readings coming from the two analog channels are displayed on the main screen.

Figure 16 — Settings Screen

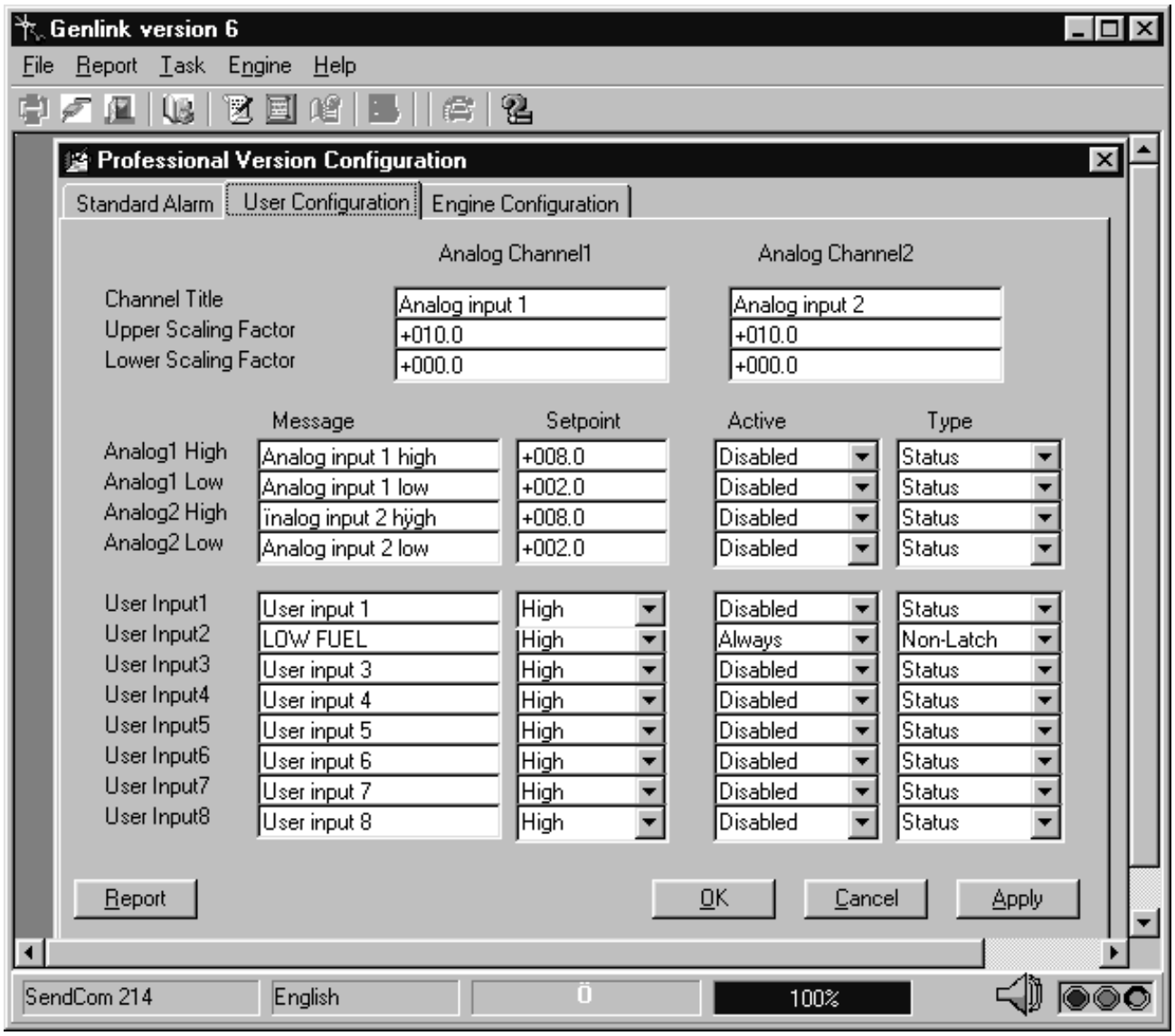
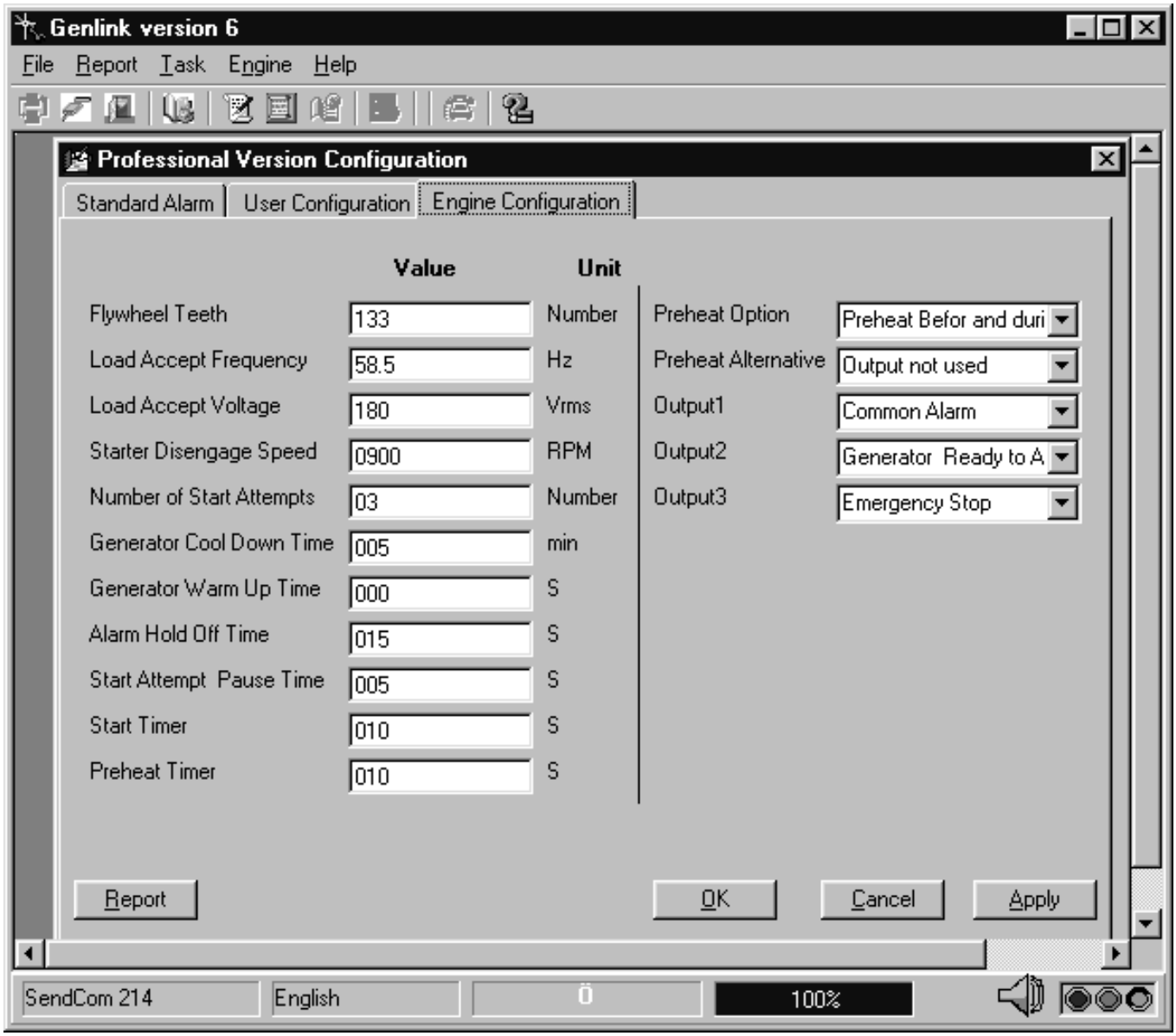


Figure 17 is the third of the three "settings" screens which displays the engine parameters. If the professional version of GenLink is installed, changes can be made to the alarm set points and their actions.

Figure 17 — Settings Screen



F PANEL MONITORING SCREEN

If connection with the **"F" Panel** is made, this monitoring screen will be displayed (Figure 18).

The displayed data will be continuously updated.

- Click the **START** button to start the remote generator (if the unit is in Auto mode).
- Click the **STOP** button to stop the remote generator.
- Click the **SETTINGS** button in the toolbar or click any display number or click "**settings**" in the pull down task menu to view the generator's settings. If the professional version of GenLink is installed, changes to these settings can be made.

Figure 18 — F Panel Monitoring Screen

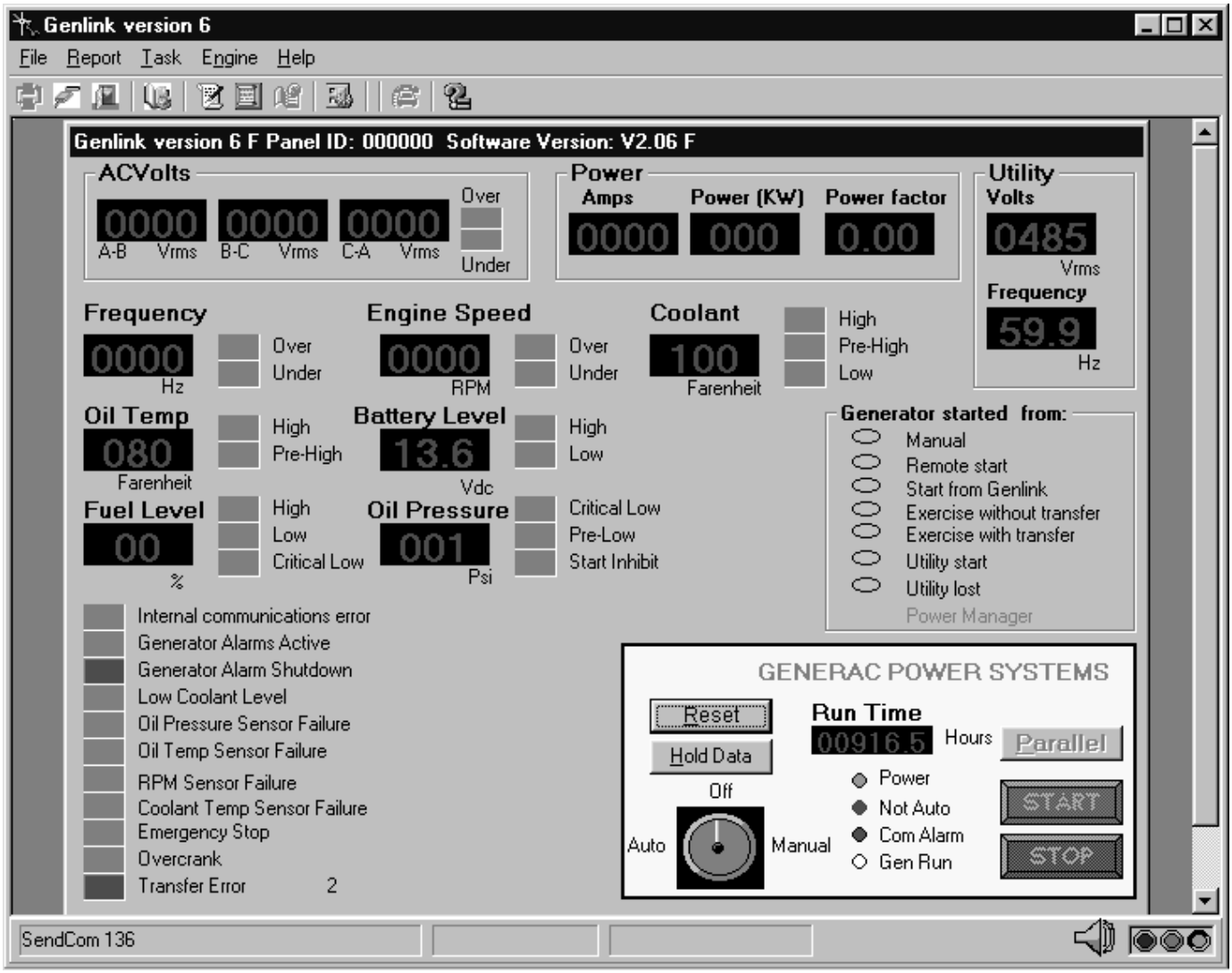


Figure 19 is the "**settings**" screen alarm parameter menu. With the professional version of GenLink changes to these alarm set points and their actions can be made.

If connected with the **Power Manager™**, the monitoring screen will be displayed. The displayed data will be continuously updated every few seconds. (See Power Manager™ manual part # 0D3020 for details.)

Figure 19 — Alarm Parameters

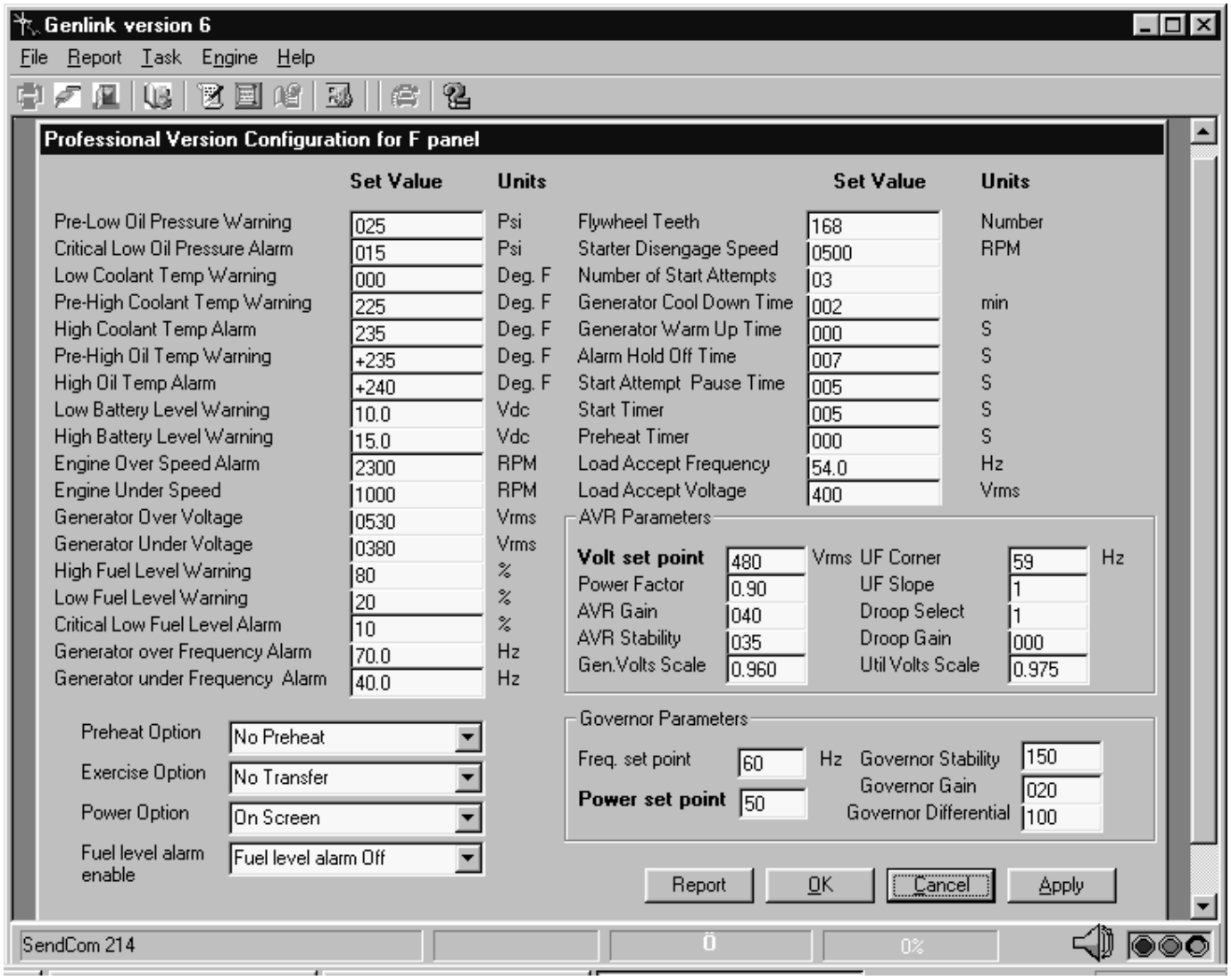
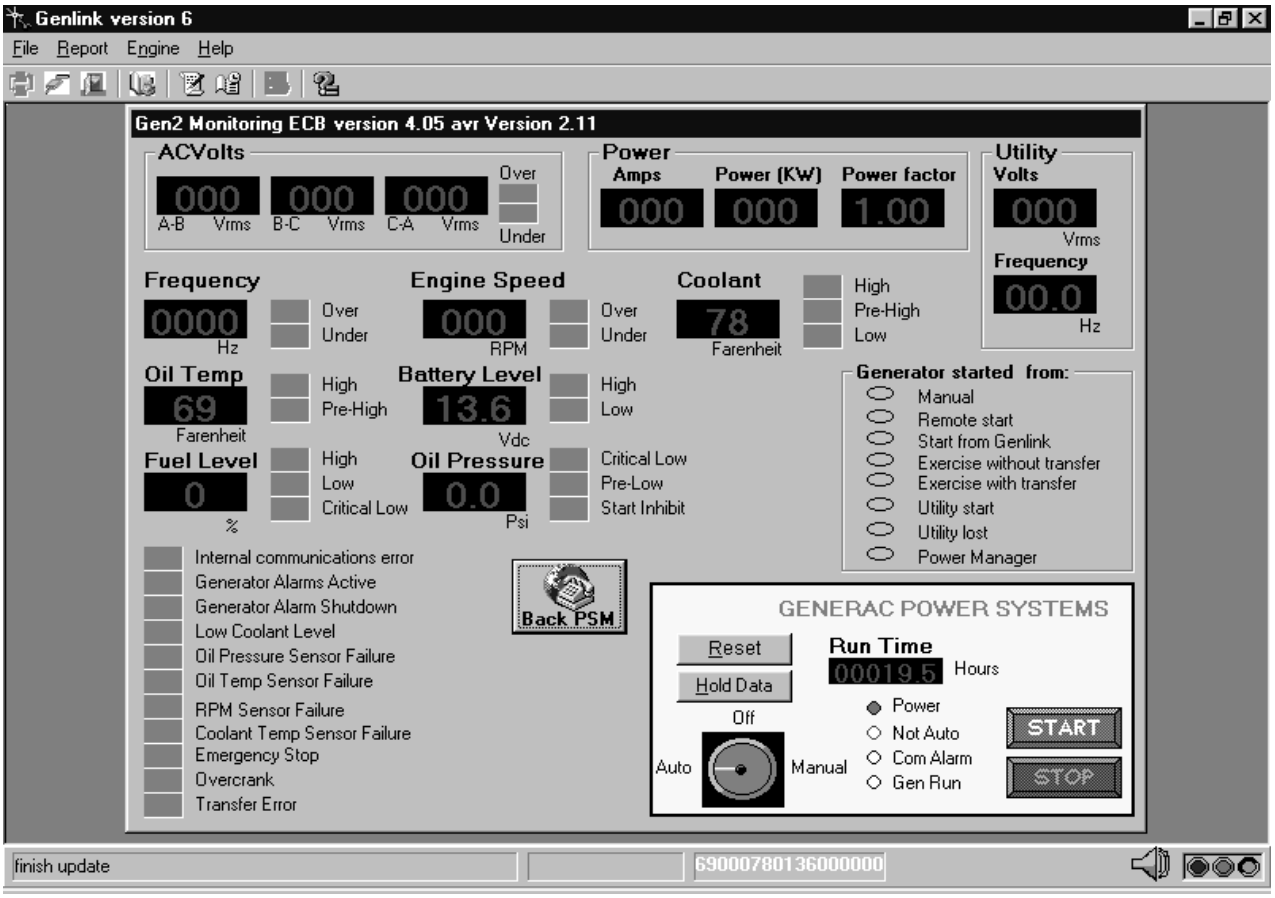


Figure 20 is the “F” Panel display screen. This screen is displayed when connection to any generator or the kW in **Power Manager™** main monitoring screen.

- Click "**Back PSM**" to go back to Power Manager™ main monitoring screen.

Figure 20 — “F” Panel Display



GENLINK PAGING FEATURE

GenLink has now been modified to allow it to dial up alphanumeric pagers when it receives alarm calls in standby mode from “D” panels. The pager and pager service provider must support SNPP (Simple Network Pager Protocol). This is an option which is selected within GenLink. It uses third party software from a company called Silverlake Communications, Inc. This software is called "Airsource Monitor" (NOT “Airsource Pro”) and can be purchased online at: www.silverlake2000.com/ productinfo/airsourcemonitor.htm.

A copy of this is necessary and needs to be installed on the C drive of the PC running GenLink.

SETTING UP THE AIRSOURCE PROGRAM

To set up Airsource Monitor, first run the Airsource program and select the "**management**" tab.

1. Select "**profiles**" and add a profile (any name).
2. Select the "**type**" tab and set the file type to "01".
3. Select the "**processing**" tab and set the directory to c:\programfiles\GenLink.
4. Set to scan "**only files with extension**" and put "**air**" in the extension box.
5. Select the "**cleanup**" tab and select "**delete file**".
6. Save this profile.
7. Now select "**management**" and then "**options**". Set the scan time to one minute. Save the configuration.
8. To set up the modem, choose the "**management**" tab and then the "**modem**" tab. Enter the COM port that the modem is connected to. Use the "**test modem commands**" button to ensure it is responding.
9. Under the "**dialing setup**" tab, a set up "**dial 9 for an outside line**" may be necessary.
10. Save the configuration.
11. Run the Airsource program. This program should remain running if it needs to send out a page. To leave it running, click on the "**activate**" button at the bottom left corner of the screen then minimize the application. Set up GenLink.

SETTING UP GENLINK FOR PAGING

Install a copy of GenLink version 6.0 or above. Paging can only be used with the “D” panel dialout feature.

1. Use GenLink to connect up to the generator by creating an entry in the database for the generator. Enter the site name and it's phone number. DO NOT enter the ID for the generator at this stage.
2. Select the generator from the database and connect to it.
3. Select the dialout parameters from the toolbar and enter the phone number of the modem in the PC, and the other dialout properties such as retries etc. Enter a unique ID number for that generator and apply the data. The ID number is now associated with the site name.
4. Disconnect GenLink and restart it in standby mode. Click "**next**" and then click on "**pager enable**". Click on "**new**" to set up a new pager recipient. Set up as many pagers as needed in the database. The page can be sent to one or any number of recipients.
5. Enter the data for the recipient.
   - The pager ID
   - The recipients name (this is only used so the user can see who the page is going to).
   - The carriers phone number (it must be a modem and not a voice service).
   - The maximum message length the carrier can handle. A default of 100 characters or less.
   - The carriers modem settings, if not known, leave the field blank and GenLink will default to 1200 baud.
   - Click "**send enable**" and it will be sent to the recipient. A database of recipients can be made, but only send the same page to one or two of them.
   - Click "**apply**" and "**ok**" to close the window.
6. Click on "**initiate**" to start GenLink up in standby mode.

When a “D” panel calls GenLink, it will answer the call and a pop up option will appear on the screen. This will allow a connection to the calling generator or just log the call to the database. If the popup is ignored, GenLink will automatically log the call to the database and send out a page to each of the selected recipients. The format of the message that GenLink sends is shown below:

987654 .....# PAGER ID

8777208398 .....# CARRIER PHONE NO

100.....# Max number of chars

1200,e,7,1 .....# MODEM SETTINGS

Alberta 1/30/01 11:56:50 AM .....# Site name, date, time

Spare Warning High Battery Voltage .....# FAULT MESSAGE

NOTE:

The site name is extracted by GenLink from it's customer database using the unit ID number sent to it from the “D” panel. In order for this to work, you must have entered this information into the database within GenLink as described.

D PANEL MODEM SETUP PROCEDURE

The modem at the "D" panel end is built into the circuit board as an option. The part number for the kit is 0A3557. There is no setup involved for this modem, just plug the telephone jack into the socket on the circuit board.

For the modem in the PC, use GenLink to select the proper setup string.

D PANEL RS232 CABLE

In order to talk directly from a PC to the "D" panel (without a modem), a special cable is required (part number 0A4042). This cable plugs into the socket on the FRONT of the "D" panel.

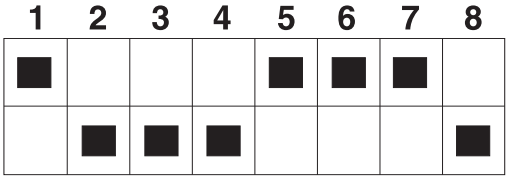
E PANEL MODEM SETUP PROCEDURE

NOTE:

Generac only supports the US Robotics 56k V90 Sportster modem for connection of the "E" Panel to the phone line. Other modems may work in this application, but have not been tested by Generac.

1. Set modem Dip switches as shown in Figure 21. Power cycle the modem (turn modem off, then on).
2. Connect the cable between the "E" panel and the modem (see Figure 23).
3. Set the "E" panel for "modem connection and setup". Power cycle the "E" panel (remove and relace front panel fuse).
4. In GenLink, select the proper setup string for the modem at the PC end (not the "E" panel).

Figure 21 — US Robotics 56k V90 Sportster Dip Switch Settings



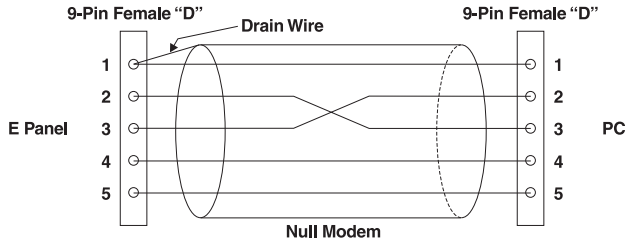
E PANEL RS232 CABLES

The "E" panel can communicate via its RS232 port to a remote PC. The connection is made either directly to the serial port on a PC, or via a modem and telephone line.

The "E" panel has a 9-pin male "D" type connector, and is configured as DTE (Data Terminal Equipment). The serial ports on most PCs also have a DTE configuration, and are usually 9-pin "D" type male connectors. Most modems have a DCE configuration (Data Communication Equipment) and a 25-pin female connector.

Connecting an "E" panel directly to a PC requires a "Null Modem" connection. This can be achieved with either a null modem cable, or a standard serial cable with a null modem adapter. Figure 22 shows the required pin connections between the two cables for a 9-pin serial connector on the PC.

Figure 22 — "E" Panel to PC Cable Configuration

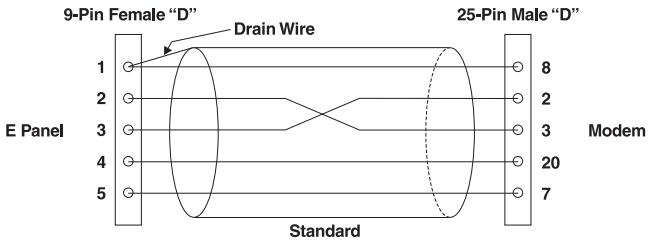


NOTE:

Use shielded cable, 30 feet maximum in length. Connect the shield drain wire to Pin 1 on the E panel end only.

Connecting the "E" panel to a modem requires a standard modem cable. The cable supplied with the modem should work. If a longer cable is required, the connectors should be wired as shown in Figure 23.

Figure 23 — "E" Panel to Modem Cable Configuration



NOTE:

The modem is not intended to be mounted inside the control panel. It should be mounted inside the enclosure (no vibration) or inside a nearby building or shelter if the generator does not have an enclosure.

NOTE:

Use shielded cable, 30 feet maximum in length. Connect the shield drain wire to Pin 1 on the E panel end only.

F PANEL MODEM SETUP PROCEDURE

NOTE:

Generac only supports the US Robotics 56k V90 Sportster modem. Other modems may work in this application but have not been tested by Generac.

1. Set the modem dip switches as shown if Figure 21, then power cycle the modem (switch it off, then on).
2. Connect the RS232 cable between the "F" panel and the modem (see section of "F" panel RE 232 cables).
3. Set the "F" panel for "Modem Connection".
4. Power cycle the "F" panel by removing the from panel fuse and replacing it. The modem "sd" and "rd" lights should momentarily flicker, if not, check the cable.
5. In GenLink, select the proper setup string for the modem connected to your PC (not the modem at the "F" panel end).

F PANEL RS232 CABLES

Figure 24 shows the connection cables needed for both serial and modem connections to the "F" panel.

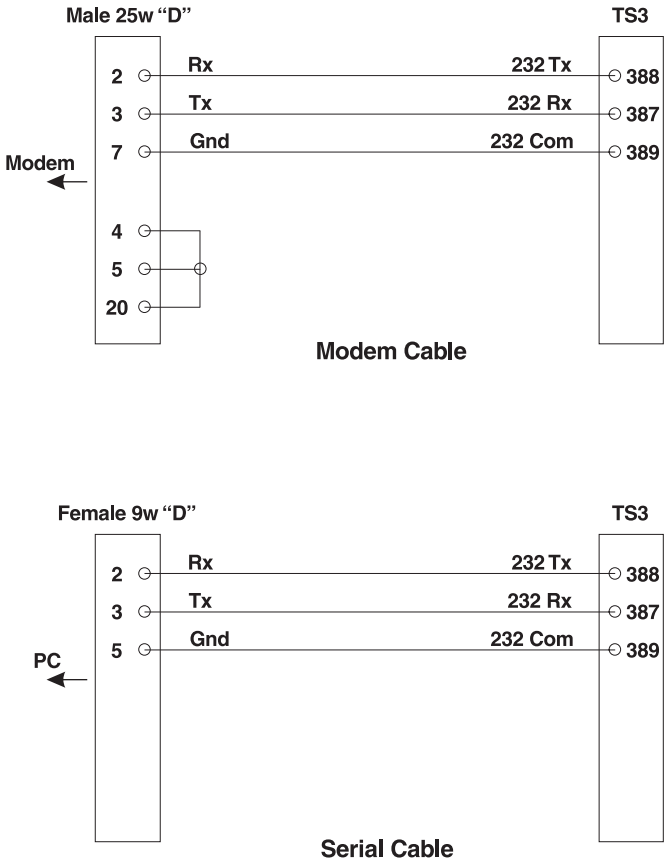
NOTE:

"F" panel user terminal strip located inside transfer switch box.

WARNING

WARNING! Live Utility may be present. Turn OFF utility.

Figure 24 — Modem and Serial Cables



GENERAC® POWER SYSTEMS, INC.
P.O. BOX 8
WAUKESHA, WI 53187

Part No. 0D3704 **Revision 2 (05/09/02)** **Printed in U.S.A.**