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Getting Started

Congratulations on your purchase of OPTI-SAFE+. This quality software enhances the value of your UPS by providing many complimentary features to your UPS.

■ Protection

A UPS is primarily designed to protect the user from system damage and data loss caused by power failures. People use it because they need protection from power failures. Therefore, protection is the major function of the UPS.

But in fact, the protection provided by a UPS is not guaranteed. For example, when a power failure occurs, a UPS can supply backup power to a computer for only a limited period of time, and if the system is not shut down in time it will still crash. This is the same result as if there were no UPS present at all.

The OPTI-SAFE+ UPS communication software is the best solution for this problem. OPTI-SAFE+ software can save the computer's data

and shut down the system gracefully before the UPS batteries are exhausted. Therefore a quality UPS communication software package can guarantee that your computer data and hardware will be protected in the event of a power failure.

Many UPS software packages currently on the market provide protection for a local computer only. That is, the UPS software takes action based only on the power condition of the UPS connected to it. The following case demonstrates one possible problem with this type of software.

Assume that a power failure happens on a file server, average UPS software running on the server will alert the workstations and then shutdown the file server. Although this type of action protects the server, any users not present to save their own files will lose data once the server has been shut down.

OPTI-SAFE+ can handle every situation, providing protection for the entire network. When a power failure happens to a file server, OPTI-SAFE+ for Novell NetWare will notify OPTI-SAFE+ for DOS/Windows running on any workstations attached to the server via the network cable. OPTI-SAFE+ for DOS/Windows will start the shutdown procedure to protect the workstations. OPTI-SAFE+ for Novell NetWare will then shutdown the server gracefully. This achieves the goal of protecting the entire network.

■ Management

With the changing times, management plays an increasingly important role in the network environment. In addition to the fundamental protect function, OPTI-SAFE+ provides a management function to meet these needs. OPTI-SAFE+ displays a wealth of UPS information (such as input/output voltage, frequency, battery capacity...) on the screen to give the user a clear idea about the power condition.

Furthermore, OPTI-SAFE+ can configure and arrange the complete use of the UPS. For example, OPTI-SAFE+'s schedule shutdown/ startup function can be used to manage the computer's work schedule.

In addition to managing a single UPS on a stand-alone computer, OPTI-SAFE+ can also manage an entire network. In a network environment, OPTI-SAFE+ can manage any remote UPS from any workstation, whether the UPS is connected to a file server or workstation. Some of the possible operations include: viewing the information of a remote UPS, configuring and controlling the remote UPS (including shutdown, startup, and scheduled self testing), and analyzing the history data of the remote UPS.

Analysis

People learn from history. A system manager needs to receive valuable power history data information in order to increase the reliability of the network. For this reason, OPTI-SAFE+ provides two kinds of analysis tools to help optimize management of the network:

- Power event analysis tool. This tool sums up and analyzes the power events (power failures, battery low conditions...). You can use it to determine your most common power problems in order to plan network use in the most productive way.
- Power data analysis tool (OPTI-SCOPE). This tool plots the history power data (input voltage, output voltage...) on the screen to let you analyze the power quality.

■ Presentation

OPTI-SAFE+ is presented in an easy to use and read format. Other UPS software displays the UPS information using text and/or bar OPTI-SAFE+ uses a meter format to provide the most pleasant and easy to read display. In addition, OPTI-SAFE+ brings the UPS block diagram to you. With it, you can look inside the UPS to see its current status.

□ How OPTI-SAFE+ Works

It is a good idea to understand the way OPTI-SAFE+ works in order to make a suitable plan for your particular environment.

■OPTI-SAFE+ Program Structure

The structure of OPTI-SAFE+ consists of two programs: A monitoring program and a management program. The monitoring program runs as a background process and performs all the necessary functions except the user interface function. It communicates with the UPS to receive vital information and then communicates that information with the management program. It also receives commands sent from the management program and controls the UPS via the serial cable. In addition, it broadcasts event messages, logs events and data, shuts down the operating system and the UPS when necessary.

The management program is a bridge between the monitoring program and the user. It is therefore referred to as a user interface program. It displays the UPS information on the screen and provides an interface for you to change settings and control the UPS.

! Important Information About OPTI-SAFE+'s Safety Function

Your UPS can supply backup power to your computer for only a limited period of time. You must use this time to save the computer's data and shut it down. If you are not present, OPTI-SAFE+ will do that for you automatically. The action that OPTI-SAFE+ will take when a power failure occurs varies for the different platforms.

□OPTI-SAFE+ for DOS/Windows

When electrical power fails, the following series of events will occur:

- 1. The UPS detects a power failure and switches to battery power.
- 2. The UPS tells the OPTI-SAFE+ program of the power failure via the serial cable.
- OPTI-SAFE+ logs this event in the event log file, sends the E-Mail out and begins sounding an alarm to alert the user to save his or her work. At the same time, OPTI-SAFE+ begins a countdown process.
- When the countdown timer expires, OPTI-SAFE+ will start
 executing the shutdown sequence. The remaining events that
 take place depend on whether you are running Windows or just
 DOS.

In Windows, the shutdown sequence includes four steps:

- 1. OPTI-SAFE+ informs all the active Windows programs to save data and close programs.
- OPTI-SAFE+ exits Windows and returns to DOS.
- OPTI-SAFE+ tells the UPS that it can switch off battery power (i.e., turn off the UPS).
- 4. If there are DOS applications running under Windows, OPTI-SAFE+ will save and guit DOS applications using the method detailed below for DOS.

If you are running DOS, the following occurs:

- 1. OPTI-SAFE+ determines what application is in use (for example, Edit or AutoCAD), and gets the execution program name (EDIT.COM, or ACAD.EXE).
- 2. OPTI-SAFE+ determines how to save data and guit the executing program. The keystrokes required to save data and quit from applications are kept in a file called SHUTDOWN.KEY. (As part of the setup procedure for OPTI-SAFE+, you will need define the save-and-quit keystrokes for your

- applications. These keystrokes then recorded in are SHUTDOWN.KEY.)

- OPTI-SAFE+ inserts the save-and-quit keys for the application, one by one, into the keyboard buffer. The result is as if the user typed in the shutdown commands. In this way, OPTI-SAFE+ simulates the shutdown process for you when you are away from vour PC.
- 4. OPTI-SAFE+ tells the UPS that it can switch off battery power (i.e., turn off the UPS).

At any time during the above process, if the UPS determines that battery power is dangerously low, it will notify OPTI-SAFE+ of such an event via the serial cable. If OPTI-SAFE+ receives such a signal it will immediately execute the shutdown sequence, regardless of the status of the count down timer.

In addition to the above cases, OPTI-SAFE+ for DOS/Windows will execute the shutdown sequence when it receives the shutdown request from OPTI-SAFE+ for Novell NetWare.

■ OPTI-SAFE+ for Novell NetWare

When electrical power fails, the following series of events will occur:

- 1. The UPS detects a power failure and switches to battery power.
- 2. The UPS tells the OPTI-SAFE+ program of the power failure via the serial cable.
- OPTI-SAFE+ logs this event in the event log file and begins alerting users attached to the server to save their work. At the same time, OPTI-SAFE+ sends the E-Mail out, pages the system administrator and begins the count down process.

- 4. OPTI-SAFE+ informs OPTI-SAFE+ for DOS/Windows running on the workstations attached to the server to execute their shutdown sequence. Doing this protects all workstations from data loss. OPTI-SAFE+ will give the workstations a user specified period of time to complete their shutdown sequences (Shutdown WS Delay).
- 5. When the Shutdown WS Delay has expired, OPTI-SAFE+ will execute the shutdown command file specified by the user. It will then shut down the server (equivalent to executing a DOWN command at the system console) automatically.
- 6. Finally, OPTI-SAFE+ will shutdown the UPS to conserve the battery and send the next startup time (if specified) to the UPS.

At any time during the above process, if the UPS determines that battery power is dangerously low, it will notify OPTI-SAFE+ of such an event via the serial cable. If OPTI-SAFE+ receives such a signal it will immediately log the event and start the shutdown procedure (step 4 through step 6), regardless of the status of the countdown timer.

! Important Information About OPTI-SAFE+'s Management Function

Through the management function provided by OPTI-SAFE+, you can configure the UPS, configure OPTI-SAFE+ settings, arrange your shutdown/startup and testing schedule, and analyze the history data. OPTI-SAFE+ not only lets you manage the local UPS, but also lets you manage any remote UPS systems in the network. The detailed information about OPTI-SAFE+'s management function is described in Chapter 6, and the concept of remote management is described below. You must assign every UPS a unique UPS ID name when installing. From any workstation, when you start OPTI-SAFE+'s management program, it will give you a list of UPS ID names containing all the UPS's that you have network management rights to.

This list is determined by the following procedure:

- 1. OPTI-SAFE+ finds all file servers that you are logged on to.
- 2. It verifies your rights to these file servers and lists the file servers that you have supervisor (or equivalent) rights. These file server's are the ones you have management rights to.
- It checks the list of file servers from the preceding step to see if there are any UPS's running OPTI-SAFE+ connected to them. If so, it will add the UPS ID name of the UPS to the list.
- 4. It finds all workstations that are logged on to and attached to those servers from step 2. You also have management

- rights to these workstations since they are connected to the file servers that you have management rights to.
- It checks every one of the workstations from the preceding step to see if there are any UPS's running OPTI-SAFE+ connected. If so, it will add the UPS ID name of the UPS to the list.

After selecting a UPS ID name from the list, you will be prompted to key in the management password for the specified UPS. If the password you give is correct, the information of the remote UPS will be displayed, and you can manage it as if it was a local UPS.





Chapter 1

Installation - OPTI-SAFE+ DOS/Windows

■What's Inside

OPTI-SAFE+ contains the following:

- OPTI-SAFE+ Power Management Suite CD-ROM
- 9 pin OPTI-SAFE+ serial cable
- 9 pin male to 25 pin female adapter

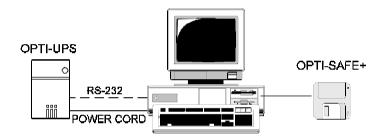
■ Hardware and Software Requirements

- IBM PC-AT or compatible PC with one free serial port
- MS-DOS 3.3 or later
- MS Windows 3.1 (optional, for controlling UPS operation under Windows)
- An OPTI-UPS "E" series UPS

■Installing OPTI-SAFE+ for DOS/Windows

To connect your UPS to your computer, you will need to use the special cable that came with OPTI-SAFE+. In addition, you will need to install the OPTI-SAFE+ programs and test your UPS with OPTI-SAFE+ to be sure that it works properly.

♦ Hardware Installation



Installation of OPTI-SAFE+ and UPS

- Refer to your UPS manual to install your UPS as the system power source.
- 2. Install the OPTI-SAFE+ cable.

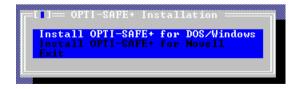
Along with the OPTI-SAFE+ diskette in your package should be a special OPTI-SAFE+ cable. The cable is marked at each end, indicating whether to connect it to the UPS or to the PC. Before using OPTI-SAFE+, you must install the cable as follows:

- a. Plug the end of the cable marked "UPS" into the 9-pin port of your UPS.
- b. Plug the other end of the cable into the COM port of your PC.

Software Installation

Installing OPTI-SAFE+ is easy. The installation program asks you a few simple questions and then copies the necessary files and programs onto your hard disk. If your PC is attached to a local area network, please refer to the "Using OPTI-SAFE+ with Networks" section of Appendix A for other important information.

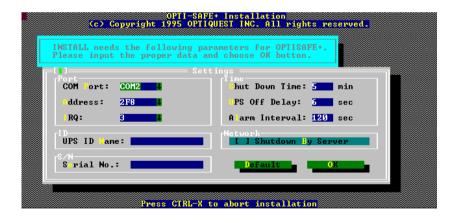
- 1. Before installing software, you must boot your computer:
 - a. Turn on the UPS.
 - b. Boot your PC.
- 2. Installing OPTI-SAFE+ software
 - a. Insert the Power Management CD into your CD drive and make it your current drive.
 - b. Move to the "OSP DWN" sub directory <cd OSP DWN>
 - c. Type INSTALL <Enter> at the DOS prompt.
 - d. When the following screen is displayed, select Install OPTI-SAFE+ for DOS/Windows.



e. You will be asked to enter the directory that the OPTI-SAFE+ programs will be installed to. The default directory is C:\OPTIPLUS.

```
Please input the installation directory.
[C:\OPTIPLUS_
```

f. The next screen is for setup of the installation parameters. After specifying the necessary settings, select the OK button to start installation. The installation program only needs you to set the most important settings during installation. OPTI-SAFE+ will set the other settings to the default values, and you can change them after OPTI-SAFE+ is started.



The description of each setting is described below:

Port	This parameter specifies which one of the computer's communications ports the UPS is connected to. Range: COM1 to COM2 Default: COM2
Address	This setting specifies the I/O port address of the COM port that is connected to the UPS. Range:3F8, 2F8, 3E8, 2E8 Default: 2F8
IRQ	This setting specifies the interrupt number of the COM port that is connected to the UPS. Range: 4 or 3 Default: 3
Shutdown time	This number specifies the length of time (in minutes) during which the user will be allowed to shut down applications manually after a power failure occurs. When the timer reaches zero, OPTI-SAFE+ shuts down all remaining applications automatically. Raising (or lowering) this parameter allows you more (or less) time to shut down applications manually. Range: 1 to 900 minutes Default: 5 minutes

UPS off delay	This setting tells OPTI-SAFE+ how long to wait (in seconds) after shutting down the system before turning off the UPS. Range: 1 to 99 seconds Default: 6 seconds
Alarm interval	When the UPS detects a power failure, OPTI-SAFE+ begins a "count-down" period during which the user can shut down applications. OPTI-SAFE+ sounds an alarm during this period to tell the user to shut down applications. The alarm interval is a parameter which specifies the number of seconds between each beep. Raising (or lowering) this parameter makes the beep sound less (or more) frequently. Range: 30 to 300 seconds Default: 120 seconds
UPS ID Name	This setting specifies the ID name of the UPS. You must specify a unique name for every UPS. This name can be up to 8 characters including numbers or alphanumeric characters. Default: None, you must specify an ID Name.
Shutdown By Server	This setting tells OPTI-SAFE+ for DOS/Windows whether to execute the shutdown sequence when it receives the command from the file server.
Serial No.	Specifies the serial number of the UPS. You can find the serial number on the back of your UPS.

f. After copying the necessary files to your file server, OPTI-SAFE+ will ask you whether to modify the autoexec.bat file to have OPTI-SAFE+ start automatically upon boot-up.

```
V Make the modification for you Let you make the modification later
```

Selecting the first choice will add the following command to the autoexec.bat file and OPTI-SAFE+ will be started whenever you boot your computer.

OPTIPLUS.EXE

Selecting the second choice will keep your autoexec.bat intact.

When the next dialog box is displayed, select the first option to install both the DOS and Windows portions of OPTI-SAFE+ to your computer, or select the second option if you only use DOS or your Windows version is not 3.1. If you have chosen to run OPTI-SAFE+ under Windows, the program will create a program group for OPTI-SAFE+ automatically the next time you enter Windows.

```
√ Run OPTI-SAFE+ in Windows 3.1/DOS
Run OPTI-SAFE+ under DOS only
```

g. The next dialog box is displayed informing you that the installation was completed. Press any key to exit the installation program.

Installation finished!
Press a key to continue.





Chapter 2

Starting OPTI-SAFE+ for DOS/Windows

■OPTI-SAFE+ Program Structure

The structure of OPTI-SAFE+ consists of two programs: A monitoring program and a management program. For DOS, the monitoring program is OPTIPLUS.EXE, and the management program is OPTION.EXE. For Windows, OPTI-SAFE+ provides only one program, OPTPLUSW.EXE, which contains both the monitoring program and the management program.

OPTIPLUS.EXE

This TSR program runs continuously under DOS to monitor the status of the UPS and to save data when required. This program must be running at all times.

OPTION.EXE

This program allows you to view the UPS status and change the OPTI-SAFE+ operating settings under DOS. It also allows you to analyze the history data, shutdown the system, test the UPS, and arrange the schedule chart for shutdown/startup, and test the UPS. In addition, you can use it to manage any remote UPS in the NetWare internetwork.

OPTPLUSW.EXE

This program runs under Windows to monitor the status of the UPS and to save data when required. This program must be running whenever Microsoft Windows is being used. Besides monitoring the UPS, this program provides the management function (including local management and remote management) described above under Windows. In order to operate, this program requires OPTIPLUS.EXE to be active at the same time.

■Starting OPTI-SAFE+

1. Starting the DOS system monitoring program.

If OPTIPLUS.EXE has been added to the AUTOEXEC.BAT file during the installation procedure, OPTI-SAFE+ will be started automatically whenever you start your system. Otherwise, you must do the following to start OPTI-SAFE+:

- 1. At the DOS prompt, type C:\OPTIPLUS\OPTIPLUS
- 2. Press <Enter>
- 2. Starting the DOS management program.

To run OPTION, do the following:

- 1. At the DOS prompt, type C:\OPTIPLUS\OPTION
- 2. Press <Enter>

Starting the Windows system monitoring program. 3.

If you install the Windows portion of OPTI-SAFE+ successfully, the Windows monitoring program will be started automatically whenever you start Windows (a minimized icon named "OPTI-SAFE+ for Windows" will display at the bottom of your Windows desktop). Otherwise, you must do the following when you wish to start it:

- 1. From the File menu, select Run...
- 2. For the Command line, specify C:\OPTIPLUS\OPTPLUSW.EXE
- 3. Press <Enter>

NOTE: DOS program OPTIPLUS.EXE must be running before you can start the Windows program OPTPLUSW.EXE.

■Testing the Operation of OPTI-SAFE+ for DOS/Windows

It is important to test the operation of OPTI-SAFE+ with your UPS before relying on it to protect your system. Otherwise, your investment in UPS hardware and software could be jeopardized. This section contains a testing procedure followed by an installation checklist to refer to in case the test fails.

Testing Procedure

Use the following steps to test the operation of OPTI-SAFE+:

- 1. Start the OPTI-SAFE+ program.
- Type the following command at the DOS prompt: EDIT TEST.TXT Then, type in some characters for testing.
- 3. Disconnect the main power to the UPS. You should see the following message on the top right corner of your screen:

Power Failed, XXXX

Note that XXXX indicates the amount of time left in the countdown timer. If this message does not appear, the hardware or software may have been installed or configured improperly. Restore power to the UPS and refer to the installation checklist to determine the problem.

4. Restore power to the UPS. You should see the following message on the top right corner of your screen:

Power Restored

If this message does not appear, the hardware or software may have been installed or configured improperly. Refer to the installation checklist to determine the problem.

5. Disconnect the main power to the UPS again. Wait for the countdown timer to reach zero. OPTI-SAFE+ should save your TEST.TXT file and then turn off the UPS. If so, your system is properly protected by OPTI-SAFE+. Otherwise, refer to the installation checklist to determine the problem.

■Installation Checklist

If the testing procedure fails, use this checklist to verify that OPTI-SAFE+ has been installed correctly. Check to be sure that:

- Your UPS is properly connected to your PC via the OPTI-SAFE+ cable.
- ♦ The OPTI-SAFE+ software is installed and loaded correctly.
- The COM port setting for OPTI-SAFE+ matches the serial port to which your OPTI-SAFE+ cable is connected.
- No other application uses or accesses the same serial port that OPTI-SAFE+ does.

If all of the above are correct, refer to Appendix B for more help in finding the problem.

Note: The keystrokes for exiting the EDIT program have already been defined with the Command Entry Function. You must make sure to define the keystrokes for every DOS application that you will be using (see Chapter 3).





Chapter 3

Special Setup for DOS Users

If you will be using any DOS applications that need protection against a power failure, you must take a special step to teach OPTI-SAFE+ how to shut them down. If you do not run DOS applications (you always run Windows) or if your DOS applications do not require saving data prior to shutting down, you can skip this part of the setup. For example, if the only DOS applications you run are games, and they do not require saving data when you shut them down, you can skip this part of the setup procedure.

Users who run only Windows applications need not complete this step because OPTI-SAFE+ already knows how to shut down almost all Windows applications. There is no need to enter the shutdown commands for Windows applications.

By completing the following steps you can teach OPTI-SAFE+ how to exit each DOS application in a way that maintains the integrity of your data. For example, you may sometimes use the DOS editor (EDIT.COM) to change text files. If a power failure occurs while you are editing a file, you will want to save your work and quit EDIT before the UPS turns off power to your PC. To save your current work in EDIT, you must:

- 1. Press ALT/F (to get the FILE menu)
- 2. Press S (for SAVE)
- 3. Press ALT/F (to get the FILE menu again)
- 4. Press X (for EXIT)

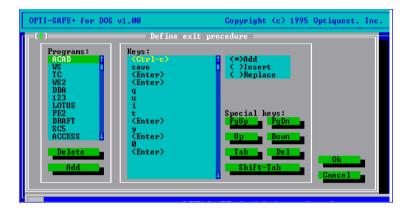
The preceding steps are the ones that OPTI-SAFE+ will need to execute if a power failure occurs while you are using EDIT. You must tell OPTI-SAFE+ these commands so it knows what to do when a power failure occurs.

OPTI-SAFE+ stores these commands in two files, SHUTDOWN.PRO and SHUTDOWN.KEY. SHUTDOWN.PRO is a text file that users can easily read and modify. SHUTDOWN.KEY is a binary file that contains the same information as SHUTDOWN.PRO, but is easier for OPTI-SAFE+ to read. SHUTDOWN.KEY must be re-created each time you modify SHUTDOWN.PRO.

The easiest way to enter the shutdown commands to OPTI-SAFE+ is to use the OPTI-SAFE+ Shutdown Command Entry Feature, which is explained next.

■Shutdown Command Entry Feature

You can tell OPTI-SAFE+ the shutdown commands for a program by using the Shutdown Command Entry Feature of OPTI-SAFE+.



After selecting the Define Keys button from the Change Settings screen, the Define Exit Procedure screen is displayed. This screen is divided into the following sections:

Programs

This section lists the programs for which exit procedures have been defined.

To select an existing program name in order to change its shutdown commands:

- 1. Be sure the Programs section is highlighted by clicking on "Programs".
- 2. Click on the program name. To delete a program from the list, select the program name and click on the "Delete" button. To add a new program, select the "Add" button and type in the program name.

Please note that the program name you enter may not include an extension (i.e., characters to the right of the dot). For example, if you want to define the exit procedure for Word Star, which is a program normally started by typing WS or WS.EXE, you would enter WS here.

The reason is that when OPTI-SAFE+ starts the shut down procedure, it determines what program is running by locating the program name in DOS memory. The program name in memory is simply the character string that was entered at the DOS prompt to start the program.

The program name listed in the Programs section must be the same as the program name that will be found in DOS memory.

Keys	This section allows you to enter or change the shutdown commands for a program. Be sure that the program name is highlighted in the Programs section. Then activate key editing by clicking anywhere in the Keys section. Then type in the keys that you would normally use to shutdown the application. In most cases, you can type a key exactly as if you were using the program; however, certain special keys must be entered separately, as detailed next.
Special keys	This section allows you to enter certain special shutdown keys that may not be typed in directly. For example, if the program requires using the Tab key to exit, you will not be able to type the shut-down sequence because your Tab key will be interpreted as a desire to skip to the next section of the screen. To specify the Tab key, just click on the Tab button. Then <tab> will appear in the Keys list, indicating that the Tab character was accepted in your shut-down commands.</tab>
Add, Insert, Replace	This section allows you to change the mode of entering keys. Use "Add" to enter keys to the end of the list. Use "Insert" to insert keys within the list. Use "Replace" to type over the currently selected key.
ОК	This button tells the program to save the commands you have entered. The program will place the commands into a command file for later use.
Cancel	This button tells the program to abort the key entry procedure and return to the Change Settings screen.

Alternatively, you can edit the SHUTDOWN.PRO file directly by using a text editor. In this case, the format of the file must exactly match the format that OPTI-SAFE+ expects. See Appendices C and D for the shutdown command file format and an example shutdown command file.

In addition, you will need to re-create SHUTDOWN.KEY after you edit SHUTDOWN.PRO, since OPTI-SAFE+ uses SHUTDOWN.KEY in its shut down procedure. Use program PARSE.EXE for this purpose.

Note that if you use the OPTI-SAFE+ Shut-Down command entry feature to define the shut down commands, it will re-create SHUTDOWN.KEY for you automatically.





Chapter 4

Installation - OPTI-SAFE+ for Novell NetWare

■What's Inside

OPTI-SAFE+ contains the following:

- ♦ OPTI-SAFE+ Power Management Suite CD-ROM
- ♦ 9 pin OPTI-SAFE+ serial cable
- 9 pin male to 25 pin female serial port adapter

■ Hardware and Software Requirements

- Novell NetWare v3.11, v3.12, or v4.xx
- A dedicated RS-232 serial port on your file server
- ♦ An OPTI-UPS "E" series UPS

■ Serial Port Overview

Novell NetWare uses a special method called AIO services to control the communications ports. Under Novell's AIO scheme, NetWare applications (NLM's) should not access the serial ports directly, instead, they should communicate with the AIO driver and let the AIO driver handle the detailed communications with the serial port hardware.

Therefore, you must load the appropriate AIO driver before loading NetWare applications that need to access the serial ports. Note that different hardware has its own hardware specific driver. For example, if you are using standard serial ports, you have to use AIOCOMX.NLM as the AIO driver.

This file should be found in the SYSTEM directory on your file server. Otherwise, if you are using a special hardware board (multi-port board), contact the manufacturer of the board to get an AIO driver for the board.

To ensure full compatibility with NetWare, OPTI-SAFE+ for Novell NetWare uses the AIO method also. Therefore, you have to setup AIO by performing the following steps prior to loading OPTI-SAFE+ for Novell NetWare:

- Load AIO.NLM
- 2. Load the hardware specific AIO driver (for example, AIOCOMX.NLM for standard serial ports).

During installation, you will be prompted to enter three numbers (Hardware Type, Board, and Port numbers) to identify the serial port. AIOCOMX is used as an example to describe the concept of Board and Port numbers.

The AIOCOMX driver is reentrant, you must load the AIOCOMX driver once for each COM port it will service. OPTI-SAFE+ requires a serial port to establish communications between the computer and the UPS. So you have to load AIOCOMX at least once.

It requires an additional serial port to communicate with the MODEM if you wish to use the paging function. In such a case, you have to load AIOCOMX twice. To load the AIOCOMX, just type the following command at the system console.

load aiocomx <enter>

On the first load, the following will be displayed to tell you that one serial port is set up, which is identified as Board # 0 and Port # 0, and the port address is 0x3F8, and the interrupt number is 4.

Installed I/O Address 0x3F8 (Interrupt Number 4) as Board 0, Port 0

On the second load, the following will be displayed to tell you that one serial port is set up, which is identified as Board # 1 and Port # 0, and the port address is 0x2F8, and the interrupt number is 3.

Installed I/O Address 0x2F8 (Interrupt Number 3) as Board 1, Port 0

After loading AIOCOMX twice, two serial ports are set up for AIO applications, one is identified as Board # 0 and Port # 0 and the other is identified as Board # 1 and Port # 0. Make note of these Boards and Port numbers on the screen in order to specify the correct settings to OPTI-SAFE+ during installation.

The default settings for AIOCOMX are listed as below:

Load	I/O Port Address	Interrupt	Default Name	Default Board #
First	0x3F8	4	COM 1	0
Second	0x2F8	3	COM 2	1
Third	0x3E8	4	COM 3	2
Fourth	0x2E8	3	COM 4	3

If you want to load AIOCOMX using settings other than the default settings, you may issue the following command to view the options that can be set when loading AIOCOMX:

load aiocomx?

If you are using a non-standard hardware board, load the AIO driver for the board according to the manual that came with the board. Asynchronous Input Output (AIO) Hardware types as of 02/13/95.

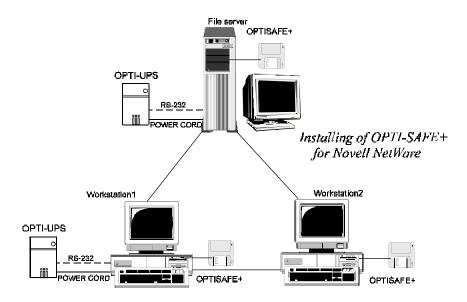
Novell Certific	ed AIO Hardware Types
Manufacturer	Hardware Name
	COMx (IBM ISA, EISA, MCA)
Arnet Corporation	COMStax Adapter
Comtrol Corporation	Hostess 186 Adapter
	RocketPort
CompuTone	Intelliport II
Cubix	Multiport Communications board 8
Digi International	C/X System
	Digi AccelPort
	Digiboard MC / 2e
	Digiboard PC / 2e
	Digiboard MC / 8i
	Digiboard PC / 8e
	XEM System
Equinox Systems	SuperSerial Host Controller
Fujitsu	COMx
Gateway Communications	WNIM+
Hayes Microcomputer	ESP Communication Accelerator
Products	
IBM	Artic
Microdyne Corporation	WNIM 3000 Adapter
Multi-Tech Systems	Multi-Tech ISI608
NEC	COMx
Newport Systems	ACI
Panasonic	COMx
Star Gate Technologies	One Slot
Technology Concepts	Superport-186
Toshiba	COMx

For an updated list contact Novell directly.

■Installing OPTI-SAFE+ for Novell NetWare

To connect the UPS to the server, you will need to use the special cable that came with OPTI-SAFE+. In addition, you will need to install the OPTI-SAFE+ programs. Finally, you will want to test your UPS with OPTI-SAFE+ to be sure that it works properly.

♦ Hardware Installation



 Refer to your UPS manual to install your UPS as the system power source.

2. Install the OPTI-SAFE+ cable.

Along with the OPTI-SAFE+ diskette in your package should be a special OPTI-SAFE+ cable. The cable is marked at each end, indicating whether to connect it to the UPS or to the PC. Before using OPTI-SAFE+, you must install the cable as follows:

- a. Plug the end of the cable marked "UPS" into the 9-pin port of your UPS.
- Plug the other end of the cable into the COM port of your file server.

■Software Installation

Installing OPTI-SAFE+ is easy. To install OPTI-SAFE+, you simply execute the installation program from a workstation. It will copy the necessary programs to your file server and add some commands to your autoexec.ncf file. if desired.

However, only the system manager should attempt the installation, as knowledge of your network's particular operating environment is required.

- 1. Before installing the software, you must boot your computers:
 - Turn on the UPS.
 - b. Boot the file server and a workstation.
- 2. Installing OPTI-SAFE+ software
 - a. At the workstation, log in to your file server as SUPERVISOR.
 - b. Insert the Power Management Suite CD into your CD drive and make it your current drive.
 - c. Move to the "OSP_DWN" sub-directory <cd OSP_DWN> and type INSTALL <Enter> at the DOS promp
 - d. When the following screen is displayed, choose "Install OPTI-SAFE+ for Novell".

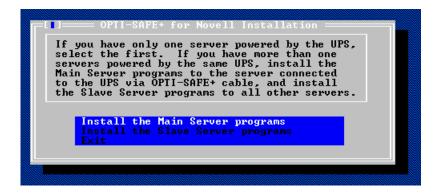
```
Install OPTI-SAFE+ Installation

Install OPTI-SAFE+ for DOS/Windows
Install OPTI-SAFE+ for Novell
Exit
```

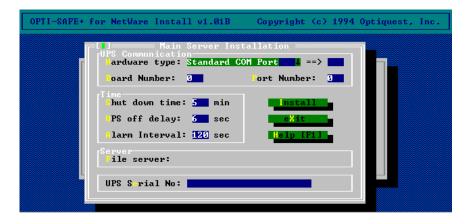
e. OPTI-SAFE+ supports a multi-server shutdown feature. Although one UPS may supply power to more than one file server, only one server can be connected with the OPTI-SAFE+ cable. That is, only the server connected with the UPS via the OPTI-SAFE+ cable can get the UPS status, and control the UPS. In order to protect all the servers powered by the same UPS, OPTI-SAFE+ provides two sets of programs, OPTI-SAFE+ for Main Server, and OPTI-SAFE+ for Slave Server.

OPTI-SAFE+ for the Main Server is used for the server that is connected with the OPTI-SAFE+ cable. OPTI-SAFE+ for Slave Server is used for all other servers that are powered by the same UPS. When a power failure or a low battery condition occurs, the monitoring program running on the main server will get the status from the UPS via the OPTI-SAFE+ cable, it will then notify the slave program running on the slave server of such event via the network cable. The slave program will then shut down the slave server safely.

f. When the next dialog box is displayed, if there is only one server powered by the UPS, choose the OPTI-SAFE+ for main server. If there is more than one server powered by the same UPS, first install OPTI-SAFE+ for Main Server to the server connected with the OPTI-SAFE+ cable, then install OPTI-SAFE+ for Slave Server to all other servers powered by the UPS.



- f1. Installing the Main Server Programs
- f1.1. After selecting Install the Main Server programs, the next screen prompts you to setup the installation parameters. After specifying the necessary settings, select the Install button to start installation. The Installation program only needs you to setup the most important settings during installation. All other settings will be set to the default values which can be changed after OPTI-SAFE+ is started.

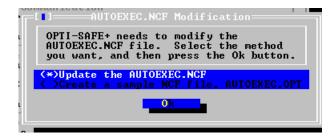


The description of each setting is described below:

Hardware Type	This setting specifies the AIO hardware type of your communications board that will be used to communicate with the UPS. Select the type which matches your hardware from the list box. Select "Other" and key in the Type number manually if you cannot find your hardware type in the list box. Contact Novell or the manufacturer of the board to get the AIO Type number for the communications board. Default: Standard COM Port
Board Number	This setting specifies the board number within the hardware type specified above. Refer to Serial Port Overview for detailed information on determining the board number. Default: 0
Port Number	This setting specifies the port number within the board number specified above. Refer to Serial Port Overview for detailed information on determining the port number. Default: 0

Shutdown time	This setting tells OPTI-SAFE+ how long to wait (in minutes) before shutting down the file server after a power failure occurs. Range: 1 to 900 minutes Default: 5 minutes
UPS off delay	This setting tells OPTI-SAFE+ how long to wait (in seconds) after shutting down the file server before turning off the UPS. Range: 1 to 99 seconds Default: 6 seconds
Alarm interval	This setting specifies the length of the interval (in seconds) between the warning messages broadcast to the users logged on to the server during a power failure. Range: 30 to 300 seconds Default: 120 seconds
File Server	Select the file server you want to install OPTI-SAFE+ on, and OPTI-SAFE+ will be installed onto the server's system directory (SYS:SYSTEM).
Serial No.	Specify the serial number of the UPS. You can find the serial number on the back of your UPS.

f1.2 After copying the necessary files to your file server, OPTI-SAFE+ will give you the option of having OPTI-SAFE+ modify the AUTOEXEC.NCF automatically or creating a sample AUTOEXEC file (AUTOEXEC.OPT). The AUTOEXEC.NCF file must be modified in order to have OPTI-SAFE+ start up automatically when the server is turned on.



 Selecting the first choice, OPTI-SAFE+ will check to see if you use a Standard COM Port. If so, it will insert the following lines to the autoexec.ncf file and copy the original autoexec.ncf to its backup autoexec.bak file. OPTI-SAFE+ will now be started whenever you start your server.

> load aio load aiocomx load optiplus

Otherwise, it will prompt you with a warning message telling you to modify autoexec.ncf manually making sure the correct AIO driver is loaded before loading optiplus.nlm.



Selecting the second choice, OPTI-SAFE+ will create a new file called autoexec.opt, and add the following lines to it:

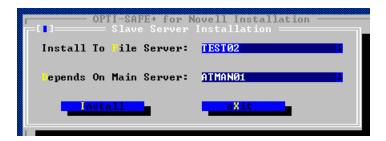
load aiocomx load optiplus

The second line of the previous three lines will be a remark line reminding you to load the proper AIO driver for your communications board.

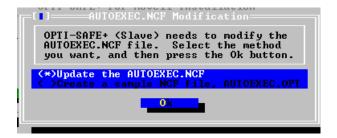
f1.3. The next dialog box is displayed informing you that the installation was completed. Select the OK button to exit the installation program.



- f2. Installing the Slave Server Programs
- f2.1 After selecting "Install the Slave Server programs", a dialog box prompts you to select the Main Server name, and the Slave Server name. Select the Install button to begin installation. In the following example, OPTI-SAFE+ will install the Slave program to file server TEST02 and it will shut down the server depending on the notification of the main server program running on file server ATMAN01.



f2.2. After selecting the Install button, the next dialog box is displayed.



Selecting the first option will add the following command to your AUTOEXEC.NCF file. This allows OPTISLVE.NLM to start automatically whenever your start the server.

load optislve MainServer Name

OPTISLVE.NLM is the slave program provided by OPTI-SAFE+.

MainServer Name is the name of the file server which is connected to the UPS via the OPTI-SAFE+ cable.

Selecting the second option will create a sample NCF file named AUTOEXEC.OPT, and keep the autoexec.ncf intact.

f2.3. After selecting the OK button from the above screen, a dialog box will be displayed to let you know the installation is complete. Select the OK button to exit the installation program.





Chapter 5

Starting OPTI-SAFE+ for Novell NetWare

To start OPTI-SAFE+, you need to execute the following commands:

load aio
load AIO driver (ex: the command is "load aiocomx" if a
standard port is used.)
load optiplus

If you are using a standard COM port and let the installation program modify the autoexec.ncf for you, the following lines will be added to the autoexec.ncf file during installation:

load aiocomx load optiplus

Therefore, OPTI-SAFE+ will be started automatically whenever you start your file server. You may shutdown the file server and reboot again to invoke OPTI-SAFE+.

If you are not using a standard COM port, you have to replace the second line "load aiocomx" with the correct AlO driver. For example, if you are using the IBM Artic board, you must use "load aioartic" instead. The aioartic.nlm is an AlO driver for the IBM Artic board. Contact the manufacturer or Novell to get the driver.

If you want to have OPTI-SAFE+ start automatically upon boot-up, modify the autoexec.ncf file to include the three necessary lines according to the above description. After modifying the autoexec.ncf file, you may shutdown the file server and reboot again to invoke OPTI-SAFE+.

Of course, you can type the necessary three lines at the system console without modifying the AUTOEXEC.NCF file if you do not want OPTI-SAFE+ to start automatically every time you start your file server

OPTI-SAFE+ for Novell NetWare has only one program (optiplus.nlm) which contains both a monitoring program and a management program. To test the operation of the monitoring program, refer to the next section. For detailed information on the management program, refer to Chapter 6.

■Testing the Operation of OPTI-SAFE+ for Novell NetWare

It is important to test the operation of OPTI-SAFE+ with your UPS before relying on it to protect your system. Otherwise, your investment in UPS hardware and software could be jeopardized. This section contains a testing procedure followed by an installation checklist to refer to in case the test fails.

Testing Procedure

Use the following steps to test the operation of OPTI-SAFE+:

- 1 Start the OPTI-SAFE+ program.
- 2. Disconnect the main power to the UPS. You should see the UPS status showing "On Battery", and see the following message on the system console screen:

OPTI-SAFE+: Power Failed, Server XXXX will be down in xx minutes!

If this message does not appear, the hardware or software may have been installed or configured improperly. Restore power to the UPS and refer to the installation checklist to find the problem.

3. Restore power to the UPS. You should see the UPS status showing "On Line", and see the following message on the system. console screen:

OPTI-SAFE+: Power Restored, Server XXXX is on commercial power.

If this message does not appear, the hardware or software may have been installed or configured improperly. Refer to the installation checklist to find the problem.

4. Disconnect the main power to the UPS again. Wait for the countdown timer to reach zero. OPTI-SAFE+ should shut down the file server and then turn off the UPS. If so, your system is properly protected by OPTI-SAFE+. Otherwise, refer to the installation checklist to determine the problem.

■Installation Checklist

If the testing procedure fails, use this checklist to verify that OPTI-SAFE+ has been installed correctly. Check to be sure that:

- Your UPS is properly connected to your file server PC via the OPTI-SAFE+ cable.
- The OPTI-SAFE+ software is installed and loaded correctly.
- The COM port setting for OPTI-SAFE+ matches the serial port to which your OPTI-SAFE+ cable is connected. Make sure that you have specified the correct AIO driver and it loaded correctly.
- No other application uses or accesses the same serial port that OPTI-SAFE+ does.

If all of the above are correct, refer to Appendix B for more help in finding the problem.

■Changing the Password

OPTI-SAFE+ is password protected in order to protect the security of the network. It is important that the password immediately be changed from the default value of **OPTIPLUS** to a unique password. The password can be changed from either the file server directly or from any workstation on the network. Please refer to Configuring the Operation Settings for Novell NetWare in Chapter 7 for more details on changing the password.





Chapter 6

OPTI-SAFE+ Management function

This chapter tells you how to manage both local and remote UPS's and describes each function of the management program.

Management In The NetWare Internetwork

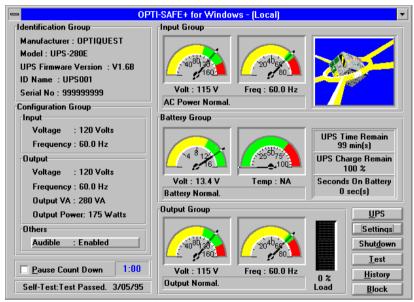
OPTI-SAFE+ allows you to manage the UPS (local UPS) connected to your computer and it also allows you to manage any remote UPS, whether it is connected to a file server or a workstation.

On a file server, after OPTI-SAFE+ is started, you are allowed to manage the UPS connected to the server from the server directly. On a workstation, when you start the management program (OPTION.EXE under DOS and OPTPLUSW.EXE under Windows), you can manage the local UPS if the monitoring program (OPTIPLUS.EXE) has been started.

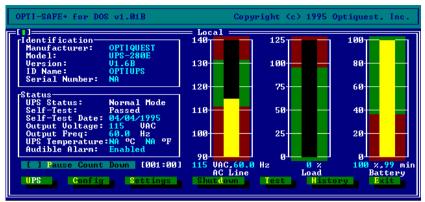
In addition, you can specify a remote UPS, and OPTI-SAFE+ will switch all management functions to the specified remote UPS. That is, you can manage it as if it is connected with your workstation.

In fact, during remote management, the management program is only a bridge, it accepts user's commands and passes them to the monitoring program that is started on the remote station via the network cable. The monitoring program controls the UPS according to the commands it receives.

Also, the management program receives the UPS information sent by the monitoring program which is started on the remote computer, and displays it on the screen. Therefore OPTI-SAFE+ will only work if the monitoring program (OPTIPLUS.EXE) is running on the computer which is connected to the UPS that you want to manage remotely.



Windows Management screen



DOS/Novell Management screen

■Guidelines to Using The Management Program

OPTI-SAFE+ has a very convenient and easy-to-use user interface. To "select" one of the buttons on the screen, first highlight it using the <Tab> key, then depress <Enter>. If your operating system supports a mouse, you can simply click on the button using the mouse to invoke it.

To change a setting, first use the <Tab> key to highlight it on the screen, then enter the desired value. If your operating system supports a mouse, you can simply click on the setting box, then enter the desired value.

■Viewing UPS Information

The UPS information that OPTI-SAFE+ can display is as follows:

Station Information	OPTI-SAFE+ displays the information of the station connected with the UPS that is being managed. If the managed UPS is connected with a file server, it will display Server and the server's internetwork address. If the managed UPS is connected with a workstation, it will display Workstation and the workstation's internetwork address. If the managed UPS is connected with your workstation (local management), it will display Local and the workstation's internetwork address. It will not display an internetwork address if your computer is not connected to any network.
Model	This indicates the UPS model designation.
Version	This indicates the UPS firmware version.
Manufacturer	This indicates the name of the UPS manufacturer
UPS ID Name	This indicates the identification name of the UPS. You must specify a unique name to every UPS during installation.
Serial Number	This indicates the serial number of the UPS.

UPS Status	This indicates the current status of the UPS. It could be any one of the following entries:					
	Normal Mode	Indicates that the UPS is supplying utility power.				
	On Battery	Indicates that the UPS is running on the battery power. It might happen when a power failure occurs or the UPS is performing a SELF-TEST.				
	Low Battery	Indicates the UPS has reached the low battery condition.				
	Bad Battery	The battery needs to be replaced.				
	Boost Mode	Indicates that the output is being boosted.				
	Buck Mode	Indicates that the output is being bucked.				
	Overload	The output load exceeds the UPS output capacity.				
	Comm Lost	The communication between the computer and the UPS has been lost.				
	No Remote	The communication between the management program and the remote monitoring program has been lost.				

Self-Test	This indicates the latest self-test result.					
Self-Test Date	This indicates the latest self-test date.					
Output Voltage	This indicates	the current output voltage.				
Frequency	This indicates	the current output frequency.				
UPS Temperature	This indicates the current temperature inside the UPS.					
Audible Alarm	This indicates the current audible alarm state, it will be one of the following: disabled, enabled, or muted.					
	Disabled Indicates that the UPS audible alarm has been disabled.					
	Enabled Indicates that the UPS audible alarm is enabled.					
	Muted Indicates that the UPS audible alarm will be temporarily silenced. The value will revert to Enabled after the UPS returns to normal status.					
Line Voltage	This indicates current input voltage.					
Load	This indicates the percentage of the UPS power capacity presently being used on the output line.					
Battery	This indicates the battery charge remaining and the time to battery charge depletion.					

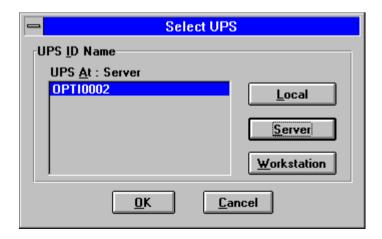
Pause Count Down

Check this option to temporarily halt the countdown timer. You can use this option to indefinitely extend the period of time allowed for shutting down applications manually.

The countdown timer is shown beside this option to indicate the amount of time (in minutes and seconds) remaining on the countdown timer. example, if the indicator shows 02:10, it means that the system will be shut down in 2 minutes and 10 seconds

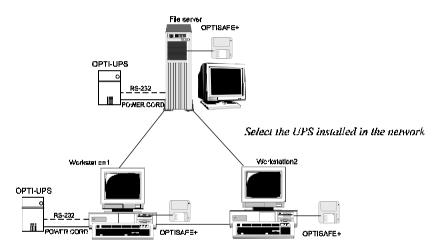
■Selecting the UPS

When you select the "UPS" button from the main screen, the Select UPS dialog box appears:



In this section, the management program will be referred to as OPTI-SAFE+.

If you want to manage the local UPS (i.e., the UPS which is connected to your workstation), select the Local button. OPTI-SAFE+ will check if the monitoring program is running on the workstation. If so, it will display the information of this local UPS and allow you to manage it. Otherwise, it will prompt you with an error message telling you that the monitoring program (OPTIPLUS.EXE) is not present.



If you want to manage a remote UPS which is connected to a file server, select the Server button. A list of manageable UPS ID names is displayed. The list is determined by the following procedure:

- OPTI-SAFE+ will check every one of the servers that you are logged in to or attached to.
- Every time it finds a file server which is running OPTIPLUS.NLM and is connected with a UPS it will add the UPS ID name of the remote UPS to the list. By default, the UPS ID name of the UPS connected with a file server is the same as the file server name.

You may change the UPS ID name by using the Configuring Operation Settings function (described in Chapter 7).

After selecting one of these remote UPS's from the list, you are prompted to enter a password for the UPS.



Enter the password and select the OK button. If the password is correct, OPTI-SAFE+ will display the information of the remote UPS and allow you to manage it entirely from your remote site.

If you want to manage a remote UPS which is connected with a workstation, select the Workstation button. A list of manageable UPS ID names is displayed. The list is determined by the following procedure:

- 1. OPTI-SAFE+ finds all the servers that you are logged in to or attached to with supervisory rights.
- 2. It finds all the workstations which are also connected to these file servers found above
- 3. From the workstations found above, every time it finds a workstation which is connected with a UPS and the monitoring program (OPTIPLUS.EXE) is running on the workstation, it will

add the UPS ID name of the remote UPS name to the list. There is no default name for the UPS connected with a workstation. It should be specified when installing. You may change it by using the Configuring Operation Settings function (described in Chapter 7).

After selecting a remote UPS from the list, you are prompted to enter a password for the UPS. Enter the password and select the OK button. If the password is correct, OPTI-SAFE+ displays the information of the remote UPS and allows you to manage it remotely.

Please note that the monitoring program (OPTIPLUS.EXE) must be started on the remote computer connected to the remote UPS that you want to manage. Otherwise OPTI-SAFE+ will not be able to locate or manage the remote UPS.



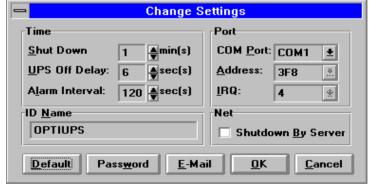


Chapter 7

Configuring OPTI-SAFE +

■ Configuring the Operation Settings for DOS/Windows

After selecting the Settings button from the main screen, the Change Settings screen is displayed to allow the user to configure the operation settings of OPTI-SAFE+. This screen varies depending on what platform the managed UPS is connected to, not on the platform your management program is running on.



Change Settings Screen for Windows

For example, if you use the Windows management program to manage a UPS that is connected to a file server, the Change Settings screen has the same settings as the NetWare management program.

But if you use the Windows management program to manage a UPS which is connected to a DOS or Windows workstation, the Change Settings screen is a little bit different. This section describes changing the settings for DOS/Windows first, then it describes changing the settings for a NetWare Server.



Change Settings Screen for DOS

Port	This parameter specifies which one of the computer's communications ports the UPS is connected to. Range: COM1 to COM2 Default: COM2
Address	This setting specifies the I/O port address of the COM port that is connected to the UPS. Range:3F8, 2F8, 3E8, 2E8 Default: 2F8

IRQ	This setting specifies the interrupt number of the COM port that is connected to the UPS.
	Range: 4 or 3
	Default: 3
Shutdown	This number specifies the length of time (in minutes)
time	during which the user will be allowed to shut down applications manually after a power failure occurs.
	When the timer reaches zero, OPTI-SAFE+ shuts down all remaining applications automatically. Raising (or lowering) this parameter allows you more (or less) time to shut down applications manually.
	Range: 1 to 900 minutes
	Default: 5 minutes
UPS off delay	This setting tells OPTI-SAFE+ how long to wait (in seconds) after shutting down the system before turning off the UPS.
	Range: 1 to 99 seconds
	Default: 6 seconds
ID Name	This setting specifies the ID name of the UPS. You must specify every UPS a unique name. This name can be up to 8 characters in length.
	Default: No default name, you must specify it.

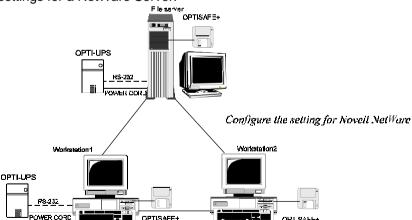
Alarm interval	When the UPS detects a power failure, OPTI-SAFE+ begins a "count-down" period during which the user can shut down applications. OPTI-SAFE+ sounds an alarm during this period to tell the user to shut down applications. The alarm interval is a parameter which specifies the number of seconds between each beep. Raising (or lowering) this parameter makes the beep sound less (or more) frequently. Range: 30 to 300 seconds Default: 120 seconds
Shutdown by	If you check this option, OPTI-SAFE+ for Novell
Shutdown by Server	NetWare will inform the DOS/Windows monitoring program to begin the shutdown sequence before shutting down the server. Unchecking it disables this feature. Default: Unchecked
Password	Selecting this button brings up a screen which allows you to change the password for the managed UPS. After entering the old password, the new password, and verifying the new one, select OK to have the new password take effect.
	Select the "Cancel" button to quit the this function and return to the Change Settings screen.
OK	Select this button to have your setting changes take effect.
Cancel	Push this button to quit the Change Settings screen without implementing any changes and return to the main screen.

Default				to	restore	the	settings	to	their
	defau	lt valı	ues.						

The total time of your specified time settings (Shut downtime + UPS off delay) plus the actual time of shutting down applications should be less than the battery backup time of your UPS to make sure the system can be shut down safely. Also you must make sure that when a battery low condition ocurrs, the battery can support the load for a time longer than the UPS off delay plus the actual time of shutting down your applications.

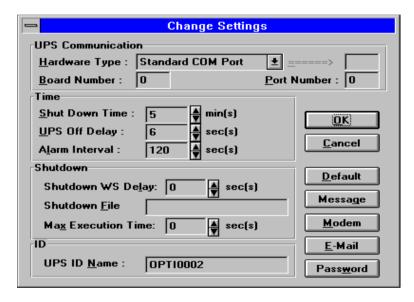
■ Configuring The Operation Settings for Novell NetWare

After selecting the Settings button from the main screen, the Change Settings screen is displayed to allow the user to configure the operation settings of OPTI-SAFE+. This section describes changing settings for a NetWare Server.



■ Change Settings Screen for NetWare File Server

If you are managing a UPS which is connected to a file server you will see the following Change Settings screen under Windows. The screen you would see under DOS, or NetWare has the same functions.



The following parameters are available from the settings screen to control the operation of OPTI-SAFE+. Please note that if you change any of the settings, you must select the OK button for the changes to take effect.

Hardware Type	This setting specifies the AIO hardware type of your communications board that will be used to communicate with the UPS. Select the type which matches your hardware from the list box. Select "Other" and key in the Type number manually if you cannot find your hardware type in the list box. Contact Novell or the manufacturer of the board to get the AIO Type number for the communications board.
	Default: Standard COM Port
Board Number	This setting specifies the board number within the hardware type specified above. Refer to "Serial Port Overview" in Chapter 4 for detailed information on determining the board number. Default: 0
Port Number	This setting specifies the port number within the board number specified above. Refer to Serial Port Overview for detailed information on determining the port number. Default: 0
Shutdown time	This setting tells OPTI-SAFE+ how long to wait (in minutes) before shutting down the file server after a power failure occurs. Range: 1 to 900 minutes Default: 5 minutes

UPS off delay	This setting tells OPTI-SAFE+ how long to wait (in seconds) after shutting down the file server before turning off the UPS. Range: 1 to 99 seconds Default: 6 seconds
Alarm interval	This setting specifies the length of the interval (in seconds) between the warning messages broadcast to the users logged in to the server during a power failure. Range: 30 to 300 seconds Default: 120 seconds
Shutdown WS Delay	This setting tells OPTI-SAFE+ for Novell how long to wait before proceeding to the next shutdown step after informing OPTI-SAFE+ for DOS/Windows running on the workstations attached to the server to execute their shutdown sequence. If this value is set to 0, the workstations will not be informed prior to shutting down the server. Range: 0 to 300 seconds Default: 10 seconds

Shutdown file	This setting specifies the shutdown command file that will be executed before shutting down the file server. When the count down timer expires or a low battery condition occurs, OPTI-SAFE+ will start the shutdown command file.
	OPTI-SAFE+ allows the shutdown command file to be executed during a limited time. When the shutdown command file has finished or the Shutdown WS Delay time expires, OPTI-SAFE+ will shutdown the file server and turn off the UPS.
	Default: none
Max Execution Time	This setting tells OPTI-SAFE+ how long to wait (in seconds) for the shutdown command file execution to complete. After this time has expired OPTI-SAFE+ will shut down the file server regardless of the status of the shutdown command file. The shutdown command file will not be executed if this setting is set to 0.
	Range: 0 to 300 seconds Default: 0 seconds
LIDC ID Now s	
UPS ID Name	This setting specifies the ID name of the UPS. You must specify a unique name for every UPS. This name can be up to 8 characters in length.
	Default: the file server's name

The total time of your specified time settings (Shut down time + Shutdown WS Delay + Max Execution Time + UPS off delay) plus the actual time of shutting down your file server must be less than the battery backup time to make sure the system can sht down safely.

Also you must make sure that when a battery low condition ocurrs, the battery can support the load for a time longer than your settings (Shutdown WS Delay + Max Execution Time + UPS off delay) plus the actual time of shutting down your server.

■Configuring the Message Settings

OPTI-SAFE+ for Novell NetWare provides you with flexible user changeable event messages. After selecting the Message button from the Change Settings screen, the Message Settings screen is displayed to allow the user to custom configure the event messages.



The message events include:

Power failure message	This message is broadcast when a power failure occurs.
	Default message: "Power failed, Server #HOST# will be down in #TIME# min!"

Battery Low message	This message is broadcast when a low battery condition occurs.
	Default message: "Battery low, Server #HOST# is being shut down now!"
Power Restored message	This message is broadcast when power is restored after a power failure.
	Default message: "Power restored, Server #HOST# is on commercial power."
Alarm message	This message is broadcast at every alarm interval during a power failure.
	Default message: "ALARM, Server #HOST# will be down in #TIME# min!"
Manual Shutdown	This message is broadcast when the file server is shut down by the supervisor manually.
	Default message: "Server #HOST# is downed by supervisor."

There are two keywords for the event message definition. #HOST# will be replaced with the actual host computer's name, and #TIME# will be replaced with the actual countdown timer.

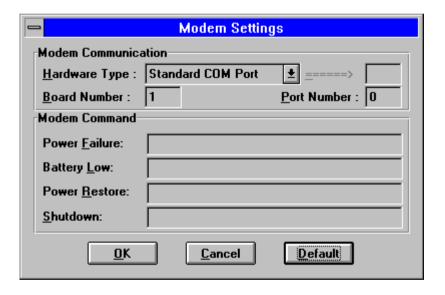
For example, if a power failure occurs on a file server whose server name is "network01", and there is two minutes left until shutdown the power failure message is "Power failed, Server #HOST# will be down in #TIME# min!". Since #HOST# will be replaced with the actual server name "network01", and the #TIME# will be replaced with the actual countdown timer, you will see "Power failed, Server NETWORK01 will be down in 2 min!" on the screen.

ОК	Select this button to have your setting changes take effect.
Cancel	Select this button to quit the Change Settings screen without implementing any changes and return to the main screen.
Default	Select this button to restore the settings to their default values.

■Configuring the Modem Settings

OPTI-SAFE+ for Novell NetWare provides you with a paging feature. When a power failure or a low battery condition occurs, it can notify the system administrator of said event via modem.

After selecting the Modem button from the Change Settings screen, the Modem Settings screen is displayed to allow the user to setup the paging function.



The following parameters are available:

Hardware Type	This setting specifies the AIO hardware type of the communications board that is connected to the modem. Select the type which matches your hardware from the list box. Select "Other" and key in the Type number manually if you cannot find your hardware type in the list box. Contact Novell or the manufacturer of the board to get the AIO Type number for the communications board. Default: Standard COM Port
Board Number	This setting specifies the board number within the hardware type specified above. Refer to Serial Port Overview for detailed information on determining the board number. Default: 1
Port Number	This setting specifies the port number within the board number specified above. Refer to Serial Port Overview for detailed information on determining the port number. Default: 0

Modem Command	This setting specifies the command that OPTI-SAFE+ will send to the modem before the server shutdown after a power failure occurs. You must specify a complete AT command line for this setting. The most useful commands are described below:	
	AT	AT must prefix the command line.
	D	Dial. This command instructs the modem to dial the numbers which follow it. This command can be followed by the following commands.
	P	Pulse Dial This command instructs the modem to dial the phone using pulse dialing.
	Т	Touch Tone Dial This command instructs the modem to dial the phone using touch tone dialing.
	w	Wait for Dial Tone This command instructs the modem to wait a specified period of time for a dial tone.
	,	Delay This command instructs the modem to pause for a specified period of time before it processes the next command.

For example, ATDT19091234567

This command will instruct modem to dial the phone number: 1-909-123-4567 using touch tone dialing

Default: None

□CONFIGURING E-MAIL

OPTI-SAFE+ provides you with an E-Mail function. This function can be used to send an E-Mail message to the system administrator when a power failure, low battery condition or shutdown occurs. In order to use the E-Mail function the user must have Novell MHS installed and properly configured.

After selecting the E-Mail button from the Change Settings screen, the E-Mail screen is displayed for you to configure the settings.



Enable E-Mail Function	Clicking this box enables the E-Mail function allowing OPTI-SAFE+ to send event messages to the specified user.
То	Enter the name of the person to receive the E-Mail.
From	Enter the name of the person sending the E-Mail.
Mail Path	Enter the E-Mail submission directory (send directory) of the MHS. The default directory is SYS:\MHS\MAIL\SND. This directory is specified and created when you install the MHS.
ок	Select this button to have your setting changes take effect.
Cancel	Select this button to quit the Change Settings screen without implementing any changes and return to the main screen.

■Changing The Password

Selecting this button from the Change Setting screen brings up the following screen which allows you to change the password for the managed UPS.



After entering the old password, new password and verifying the new password, select OK to have the new password take effect (default password is **OPTIPLUS**).

Select the "Cancel" button to quit this function and return to the Change Settings screen.

■Configuring the UPS

After selecting Audible from the main screen, the Configuration screen is displayed to allow you configure the UPS directly through OPTI-SAFE+. The configurable parameters may vary by UPS model. OPTI-SAFE+ displays all possible entries on the screen.

For the UPS-280E and UPS-420E the next dialog box showing Audible Alarm is the only setting available, other settings such as low voltage

transfer points must be configured by the use of dip switches on the UPS. See your UPS manual for more information.



The Audible Alarm can be set to either "Disabled", "Enabled" or "Muted". Setting it to Disabled will cause the audible alarm to never sound. Setting it to Muted will cause the audible alarm to silence temporarily while it is sounding, but it will revert back to the "Enabled" state automatically once the UPS returns to a normal mode. The "Muted" setting has no effect unless the audible alarm is sounding.





Chapter 8

Setting Your Schedule

■Configuring the UPS Scheduled Shutdown/Startup

After selecting the Shutdown button from the main screen, the Schedule Shutdown/Startup screen is displayed to allow you to immediately initiate a system shutdown or arrange your Shutdown/Startup schedule.



Select the Shutdown button and the following screen will appear. OPTI-SAFE+ can shutdown the output of the UPS only or the entire system. The shutdown sequence may vary on different platforms. See chapter 1 for more information.



In addition to the "Shutdown" button, there are fourteen buttons in the Schedule group. Each of these buttons represents a scheduled shutdown time or a scheduled startup time. You can select these buttons to setup your schedule table. OPTI-SAFE+ will shutdown or startup the UPS automatically according to the schedule table.

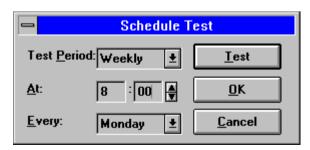
After selecting one of these fourteen buttons, a time setting screen is displayed to allow you to setup the schedule time for this day of week.

Setting the Disable option will disable the shutdown/startup feature for this day of week. To setup your schedule time for this day of week, enter the time that you want OPTI-SAFE+ to shutdown/startup the UPS (24 hour format).

After you have finished setting the shutdown/startup time for each day of week, select the Ok button from the Schedule Shutdown/Startup screen to have your schedule changes take effect, or select the Cancel button to quit the Schedule Shutdown/Startup screen without implementing any changes and return to the main screen.

■Scheduling UPS Self Testing

After selecting the Test button from the main screen, the Schedule Test screen is displayed as shown below. This allows the user to immediately initiate a self-test or arrange a testing schedule.



If you want to test the UPS immediately, simply select the "Test" button. If you want to arrange your testing schedule, you have to configure the settings in the Schedule group. The following parameters are available to arrange your testing schedule. Please note that if you change any of the settings, you must select the OK button for the changes to take effect.

Test Period	You can choose one of the following: Off, At turn on, Daily, and Weekly. "Off" tells OPTI-SAFE+ to ignore the schedule test function. "At turn on" tells OPTI-SAFE+ to initiate a self-test whenever the UPS is turned on.
	"Daily" tells OPTI-SAFE+ to initiate a self-test at a specified time (see below) every day. "Weekly" tells OPTI-SAFE+ to initiate a self-test at a specified time on a specified day of the week every week (see below).
At	This setting specifies the testing time (24-hour format). It is used when Test Period is set to "Daily" or "Weekly".
Every	This setting is used when Test Period is set to "Weekly". It tells OPTI-SAFE+ to initiate a self-test on a specified day of the week every week.
ОК	Select this button to have your schedule changes take effect.
Cancel	Select this button to quit the Schedule Test screen without implementing any changes and return to the OPTI-SAFE+ Screen.





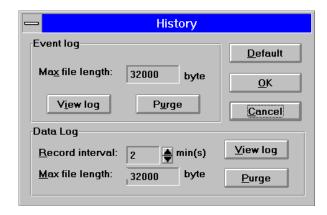
Chapter 9

Analysis

OPTI-SAFE+ maintains two log files: an event log file and a data log file. The event log file contains all UPS-related events, including power failures, shut downs, power recoveries, etc. The default filename for the event log file is optiplus.log.

The data log file is a collection of the UPS power quality, including input voltage, output voltage, battery voltage, temperature, etc. The default filename for the data log file is optiplus.dat. These two file are ASCII files, which can be viewed by any ASCII text editor such as DOS EDIT or Notepad for Windows, but using OPTI-SAFE+ to view the log files is recommended.

After selecting the History button from the main screen, the History screen appears:



In the "Event log" group, you can choose the following options to configure and analyze the event log file

Max file length	This setting specifies the maximum length (in bytes) of the event log file. OPTI-SAFE+ will cut the first half of the file whenever the file exceeds this maximum length. Range: 1 to 2000 KB Default: 32 K bytes
View	Select this button to get to the Event Log Viewer screen.
	general and a second general and a second and a second general and a second general and a second general and a
Purge	Selecting this button brings up a screen which allows you to delete UPS events from the event log file. Enter the range of dates for deletion, then select the OK button. Select the "Cancel" button to quit the purge function and return to the History screen.

In the "Data log" group, you can choose the following options to configure and analyze the data log file.

Record Interval	This setting specifies the number of minutes to wait between each recording.
	Range: 0 to 60 minutes (setting it to 0 will disable this function)
	Default: 2 minutes

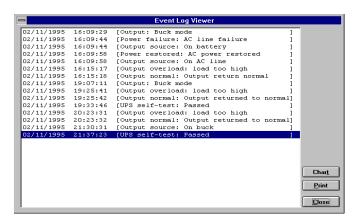
Max file length	This setting specifies the maximum length (in bytes) of the data log file. OPTI-SAFE+ will delete half of the file whenever the file exceeds this maximum length. Range: 1 to 2000 KB Default: 32 K bytes
View	Select this button to get to the Data Log Viewer screen.
Purge	Selecting this button brings up a screen which allows you to delete records from the data log file. Enter the range of dates for deletion, then select the OK button. Select the "Cancel" button to quit the purge function and return to the History screen.

In addition to the above groups, there are three buttons on the screen.

Default	Select this button to restore the settings to their default values.
ОК	Select this button to have your setting changes take effect.
Cancel	Select this button to quit the History screen without implementing any changes and return to the OPTI-SAFE+ screen.

■Event Log Viewer Screen

This screen, which you can initiate from the History screen, allows you to view the log of UPS events. After selecting the "View" button from the Event Log group, the Event Log Viewer screen displays all of the UPS events that are recorded in the log. You can press the PgUp, PgDn, Home, or End keys to view the older or newer data.



The following is a list of all possible UPS events that will be logged:

Power failure: AC Line Failure Battery low: UPS Battery low Shut down UPS: UPS shut down Power restored: AC power restored

Communication with UPS lost Communication with UPS normal Output overload: Load too high

Output normal: Output returned to normal

Battery bad: Replace battery

Battery normal: Battery returned to normal

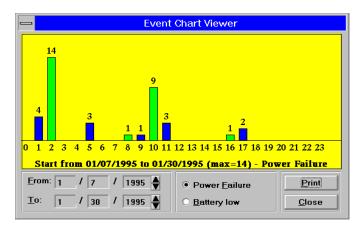
Output: Normal mode Output: Bypass mode Output: On battery Output: Boost mode
Output: Buck mode
UPS self-test: Passed
UPS self-test: Failed
UPS self-test: Error
UPS self-test: Aborted

At the bottom of the screen are the following buttons.

Close	This button closes the Event Log Viewer screen and returns you to the History screen.
Chart	This button allows you to start the Event Chart Viewer screen, which graphically displays the event log information in bar chart format
Print	This buttons allows you to print the events that are recorded in the event log file.

■Event Chart Viewer Screen

This screen, which you can initiate from the Event Log Viewer screen, allows you to see a graphical history of power failures and battery low conditions that have been recorded in the event log file.

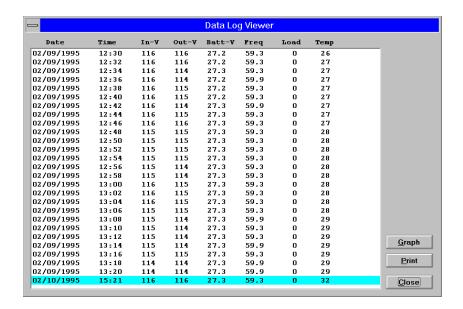


The following buttons are available on the screen.

Close	This button returns you to the Event Log Viewer screen.
Power Failure	Selecting this button changes the chart to show statistics for power failures (not battery low conditions).
Battery Low	Selecting this button changes the chart to show statistics for battery low conditions (not power failures).
Range (From, To)	Selecting this button brings up a screen which allows you to select the date range of events to be charted. Enter the range of dates, then select the OK button. Select the "Cancel" button to return to the Event Chart Viewer screen.
Print	This buttons allows you to print the graphical history of power failures or battery low conditions that have been recorded in the event log file.

■ Data Log Viewer Screen

This function, which you can initiate from the History screen, allows you to view the log of UPS power quality. After selecting the "View" button from the Data Log group, the Data Log Viewer screen displays all of the UPS power-related data that has been recorded in the log (e.g., input voltage, output voltage, temperature, etc.). You can press the PgUp, PgDn, Home, or End key to view the older or newer data.



The items shown on the screen include the following:

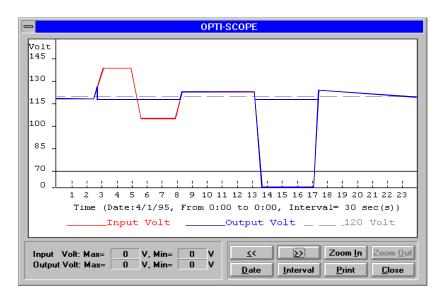
Date	The date of the data recorded. The date format is	
	month / day / year.	
Time	The time of the data recorded in 24 hour format.	
In-V	The input voltage in volts.	
Out-V	The output voltage of the UPS in volts.	
Batt-V	The battery voltage of the UPS in volts.	
Freq	The output frequency of the UPS in Hz.	
Load	The percentage of the UPS power capacity	
	presently being used.	
Temp	The UPS temperature in degree Celsius.	

At the bottom of the screen are the following buttons.

Close	This button closes the Data Log Viewer screen and returns you to the History screen.
Graph	This button allows you to start the OPTI-SCOPE screen, which graphically displays the power data information in bar chart format.
Print	This buttons allows you to print the power data that is recorded in the event log file.

■OPTI-SCOPE Screen

This screen, which you can initiate from the Data Log Viewer screen, allows you to see a graphical history of the power quality data that has been recorded in the data log file. Also, it will display the latest real-time latest power data on the screen.



The following buttons are available on the screen.

<<	Selecting this button causes the scope data to move backward one day (or hour depending on the zoom factor).
>>	Selecting this button causes the scope data to move forward one day (or hour depending on the zoom factor).
Zoom In	Selecting this button allows the user to zoom in on the OPTI-SCOPE data.
Zoom Out	Selecting this button allows the user to zoom out on the OPTI-SCOPE data.
Date	This setting specifies the date of the data to be viewed by the OPTI-SCOPE.
Interval	Selecting this button brings up a screen which allows you to specify the display interval. OPTI-SAFE+ will display the latest data every display interval. For example, if you set this setting to 30 seconds, it will update the data every 30 seconds.
Print	This buttons allows you to print the graphical history of power data that has been recorded in the data log file.
Close	This button returns you to the Data Log Viewer screen.

■Graphing Data with Database Programs

You can list and graph the data log using OPTI-SAFE+. Also, you can retrieve the data log into other software such as dBaseIII Plus, Excel, and Lotus 1-2-3. Some of them allow you to graph the data log.

The filename of the data file is optiplus.dat which is located in the same directory as the OPTI-SAFE+ programs. This file is an ASCII file which can be viewed by any ASCII text editor such as DOS EDIT or Windows In addition, OPTI-SAFE+ maintains the data file in commadelimited format in order to be readable for other software. The following is an example of the OPTI-SAFE+ data:

```
01/25/1995,10:09,108,107,27.1,59.3,0,30
01/25/1995,10:11,108,107,27.1,59.3,0,30
01/25/1995,10:13,108,107,27.1,59.3,0,30
01/25/1995,10:15,108,107,27.1,59.3,0,30
01/25/1995.10:17.107.107.27.1.59.9.0.30
```

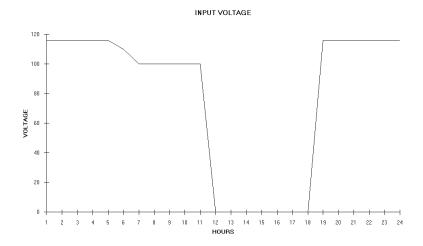
The data fields in the file include:

Date	The date of the data recorded. The date format is month/day/year.
Time	The time of the data recorded in 24 hour format.
In-V	The input voltage in volts.
Out-V	The output voltage of the UPS in volts.
Batt-V	The battery voltage of the UPS in volts.
Freq	The output frequency of the UPS in Hz.
Load	The percentage of the UPS power capacity presently
	being used.
Temp	The UPS temperature in degree Celsius.

This section uses Excel as an example to graph the data log, other software has a similar procedure. To graph the data log, first you should retrieve the data log file into Excel by doing the following:

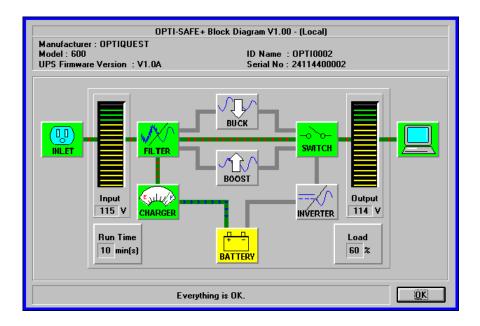
- 1. Start the Excel program.
- 2. From the file menu, select the Open option.
- 3. When the Open dialog box is displayed, enter c:\optiplus\optiplus.dat (your directory may vary), then select the Text... button and select the Comma option.
- 4. Select the OK button to have Excel retrieve the data log file.

After the data is on the screen, i.e., the data log has been imported successfully, use the Chart Wizard tool to graph the data log. The following graph shows input voltage over a 24 hour period.



■Block Diagram

After selecting the Block button from the main screen, the Block Diagram screen appears:



The block diagram allows you to view the operation of and power flow through the UPS.

This screen contains two areas.

1.1 ('C' - 4'	Displace the identification information of the UDO	
Identification	Displays the identification information of the UPS,	
Area	including Manufacturer, Model, UPS firmware version,	
	UPS ID name, and UPS serial number.	
Block	Displays an easy to understand block diagram of the	
Diagram	UPS at the station currently being viewed. A description	
	of each block is as follows:	
	Inlet - Represents the point at which AC line power	
	enters the UPS.	
	Input - Shows the input voltage in bar and digital readout.	
	Filter - Represents the EMI/RFI circuitry at work in the	
UPS, filtering unwanted line noise.		
	-	
	Buck/Boost - They represent the circuitry which provides	
stable voltage when the line fluctuates without us		
	battery power.	
	33	
	Switch - This represents the switching circuitry which, in	
	the event of a power failure, will insure a smooth	
transition from AC line to battery backup power.		
	and the man of the state of the	
	Charger - This represents the charging circuitry which	
	constantly maintains a fully charged battery.	
	Solicianity maintains a rany sharged battery.	
	Battery - This represents the DC battery internal to the	
	UPS which is the fuel of the backup process.	
	or o which is the fact of the backup process.	
	Inverter - This represents the circuitry which inverts the	
	DC battery voltage into regulated AC voltage.	
	Do ballery vollage into regulated AC vollage.	
	Output Shows the output voltage in her and digital	
	Output - Shows the output voltage in bar and digital readout.	
	readout.	

	Run time - Shows the typical runtime the UPS could provide the connected load in the event of a power failure.
	Load - Shows the percentage of UPS load capability currently being utilized.
	Computer - Represents the connected load.
ОК	Select the OK button to close this window and return to the main screen.



Appendix A

Special Tips on OPTI-SAFE+ for DOS/Windows

Overview

This section includes tips on using OPTI-SAFE+ for DOS/Windows in special situations. Regarding the shutdown procedure, there are several things you should note:

- You must define a standard set of save-and-quit keys for your DOS applications by using OPTION.EXE (Define Key button) if they do not exist in SHUTDOWN.PRO.
- If you use a text editor to edit SHUTDOWN.PRO, do not forget to use PARSE.EXE to re-create the corresponding SHUTDOWN.KEY file.
- The key set defined for an application must always save and quit the application no matter what state the application is in.
- You could lose data if a power failure occurs while you are editing a new file. This could happen, for example, if you are editing a new file using EDIT, and a power failure occurs before you have given the new file a name. When OPTI-SAFE+ starts the shutdown procedure, it will use Alt-F and Alt-S to save the file, but the operation will abort due to a lack of a filename.

■TSR program OPTIPLUS.EXE and High Memory.

Take note of the following when operating program OPTIPLUS.EXE. Check to see if OPTIPLUS.EXE is loaded in memory. You can use DOS command MEM/C to check to see if OPTIPLUS.EXE is loaded in memory. Even if you want to use OPTI-SAFE+ under Windows, OPTIPLUS.EXE must be loaded before you start Windows.

■Loading OPTIPLUS.EXE into high DOS memory.

OPTIPLUS.EXE can be loaded into the DOS Upper Memory Block (UMB) by using the DOS command LOADHIGH or QEMM386 LOADHI.COM or 386MAX386LOAD.COM.

NOTE: If you have problems when OPTIPLUS.EXE is loaded high, try loading it in conventional memory.

■Removing OPTIPLUS.EXE from memory.

You can remove OPTI-SAFE+ from memory by typing the following at the DOS prompt:

C:\OPTIPLUS\OPTIPLUS -r

Always remove TSRs in the reverse order that they have been loaded, or unpredictable behavior may result.

■Starting a shell program within AUTOEXEC.BAT.

If you start a shell program (e.g., DOSSHELL, MS Windows, PCSHELL, etc.) from your AUTOEXEC.BAT file, you must ensure that OPTIPLUS.EXE is started first. Check to ensure that AUTOEXEC.BAT executes the statement "OPTIPLUS.EXE" before starting the shell program.

■Using OPTI-SAFE+ with Windows.

This section contains information about using OPTI-SAFE+ with Windows.

1. WIN.INI

When you install OPTI-SAFE+ for use with Windows, the installation program will copy the original WIN.INI file to a new file named WIN.UPS. Then it will make the following changes:

1.1 In file WIN.INI, it will append the following command to the LOAD entry in the [windows] section:

C:\OPTIPLUS\OPTPLUSW.EXE

The directory name may be different, depending on the directory name you specify during installation.

a Windows shell **■**Using other than Program Manager.

The OPTI-SAFE+ installation program will create one Windows program group which contains the program OPTPLUSW.EXE.

If you have trouble installing OPTI-SAFE+ for DOS/Windows with a non-standard Windows shell (other than Program Manager), there are three possible solutions:

 Run UPSSETUP.EXE under Windows to install the Windows. portion of OPTI-SAFE+ for DOS/Windows. This program normally runs automatically the first time you start Windows after running the installation program. Add OPTPLUSW.EXE to your Windows shell yourself to make OPTPLUSW.EXE run automatically whenever you start Windows. If the above methods fail, run OPTPLUSW.EXE manually every time you start Windows.

■Installing MS-Windows after OPTI-SAFE+.

If you install OPTI-SAFE+ and later install Windows, you must then re-install OPTI-SAFE+.

■Running Version 3.0 or earlier of MS-Windows.

OPTI-SAFE+ does not work under MS-Windows 3.0 or earlier versions. Users with these operating environments can install OPTI-SAFE+ under DOS only, and must make the appropriate selection during the installation process.

■Using OPTI-SAFE+ with networks

This section contains information about installing OPTI-SAFE+ on networks.

Installation on File-server networks.

If you are installing OPTI-SAFE+ on a file server network such as Novell NetWare, take note of these special considerations.

OPTI-SAFE+ for DOS/Windows cannot be used on a file server machine. It can only work on workstation PC's which are using DOS or Windows. You should install OPTI-SAFE+ for Novell NetWare to your file server. Also, for every workstation which will use OPTI-SAFE+ for DOS/Windows, you must install a unique copy of the program. The program cannot be shared. There are two ways to install OPTI-SAFE+ for DOS/Windows on such a network. The first is to install OPTI-SAFE+ for DOS/Windows on a local hard drive at each workstation that will use it. The second method is to install OPTI-SAFE+ for DOS/Windows on the file server, in a different directory for

each workstation. For example, if five network workstations will use OPTI-SAFE+ for DOS/Windows, you create five directories on the file server, each with its own copy of OPTI-SAFE+ for DOS/Windows. Please remember that you will need access rights on the server to create the necessary files during installation

If you boot your workstation from a local drive, install OPTI-SAFE+ for DOS/Windows on your local hard drive and let the installation program modify the AUTOEXEC.BAT automatically. Alternatively, if your workstation is a diskless workstation and you don't boot from a local drive, select "Let you make the modification later" when the installation program asks whether to modify AUTOEXEC.BAT for you. You will then need to remember to run OPTIPLUS.EXE manually every time you boot your workstation.

2. Installation on peer-to-peer networks

If you are installing OPTI-SAFE+ for DOS/Windows on a DOSbased peer-to-peer network, please note the following:

- You can install OPTI-SAFE+ for DOS/Windows onto both the server machine and workstations which are using DOS or Windows.
- For every machine which will use OPTI-SAFE+ for DOS/Windows, you must install a unique copy of the program. OPTI-SAFE+ for DOS/Windows cannot be shared.

 Always run OPTIPLUS.EXE before you start the network, or your system may not run correctly. After installing the software, check to ensure that the sequence of commands in AUTOEXEC.BAT is correct. The command "OPTIPLUS.EXE" must come before all network commands (such as IPX, LOGON, etc.).

Removing OPTI-SAFE+ for DOS/Windows from your system.

To remove the DOS portion of OPTI-SAFE+ for DOS/Windows, delete the line "OPTIPLUS.EXE" from your AUTOEXEC.BAT file if it exists. For the Windows portion, restore file WIN.INI from its backup file WIN.UPS.





Appendix B

Troubleshooting

This chapter describes some problems that may be encountered in using this product. Before referring to this section, please be sure your system meets the hardware and software requirements listed at the beginning of this user guide, and that it has been installed according to the instructions presented earlier in this guide.

■OPTI-SAFE+ for DOS/Windows

You can find more information about using the product in Appendix A

Problem: You receive error messages during the installation process.

Solution: Follow the instructions on the screen and try again. Please

refer to Appendix A for additional tips.

Problem: The installation program fails to install the Windows portion of

OPTI-SAFE+ for DOS/Windows.

Solution: Please refer to the "Using OPTI-SAFE+ with Windows"

section of Appendix A.

Problem: WIN.INI becomes damaged.

Solution: Restore your WIN.INI file from its backup (WIN.UPS), and

install OPTI-SAFE+ for DOS/Windows again. Also refer to

Appendix A.

Problem: The message, "UPS DOS TSR is not loaded" appears on the

screen when you enter Windows.

Solution: Be sure that OPTIPLUS.EXE is loaded in memory before

you start Windows. Refer to Appendix A.

Problem: OPTIPLUS.EXE displays the message, "Cannot remove

OPTI-SAFE+ from memory" when you try to remove it.

Solution: Be sure that you are removing TSR's in the reverse order

that they were loaded.

Problem: OPTIPLUS.EXE does not save your file correctly when a

power failure or a battery low condition occurs.

Solution: Check to see if the exit procedure for the application is defined in SHUTDOWN.PRO. If you edit SHUTDOWN.PRO

by using a text editor, make sure that you have re-created SHUTDOWN.KEY with the parse program (see Appendix A).. Also, make sure that the exit procedure you have defined works in any situation for your application. If you are working on a file that has no filename, it will be difficult to avoid losing data. In this situation you will need to save the

file manually.

■OPTI-SAFE+ for Novell NetWare

Problem: You fail to start OPTI-SAFE+ for Novell NetWare and get the message "cannot find public symbol IsColorMonitor()".

Solution: Load PATCH311.NLM before loading OPTISAFE.NLM. You do the following:

- 1. At the system console prompt, type: load patch311 <enter> load optiplus <enter>
- You can add the "load patch311" before "load 2. optiplus" to your AUTOEXEC.NCF file to have OPTI-SAFE start whenever you start the NetWare server.





Appendix C

Shutdown command file format (SHUTDOWN.PRO)

Overview

OPTI-SAFF+ The shutdown command file used with DOS/Windows, named SHUTDOWN.PRO, contains the keyboard commands that tell programs to shutdown. The file contains shutdown commands for each application that you want to be automatically shut down. The file is divided into sections, one for each application. The execution file name of the application comes first, on a line by itself, followed by the keyboard commands. The line containing the application name must begin with the keyword "PROGRAM", followed by a space and the execution file name of the application. Next comes a line with the keyword "BeginKey" alone on the line. Next come the keyboard commands for the application, one to a line. To indicate an alternate character set, enclose the key in angle brackets. example, use <Alt-f> to mean, "holding down the alt key and pressing 'f' simultaneously". To indicate the escape key, use <Esc>. indicate the ENTER key, use <Enter>. After the keyboard commands comes a line with the keyword "EndKey" alone. The application sections are separated in the file by a single blank line. See Appendix D for an example shutdown command file.

Note that after editing file SHUTDOWN.PRO, you must re-create the parsed shutdown command file, SHUTDOWN.KEY. To do this, run the OPTI-SAFE+ PARSE program as follows:

- 1. At the DOS prompt, type C:\OPTIPLUS\PARSE
- 2. Press <Enter>

Using the Shutdown Command Entry Feature provided by OPTI-SAFE+ is recommended. You can ignore the command file format, and OPTI-SAFE+ will parse the file automatically.





Appendix D

Example shutdown command file

□ Overview

```
PROGRAM EDIT
BeginKey
<Alt-F>
x
y
EndKey
```

PROGRAM DOSSHELL
BeginKey
<Esc>
<Esc>
<Esc>
<Alt-F4>
EndKey

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