

Symmetra[®] LX

200/208/230 V, 4–16 kVA

Operations Manual

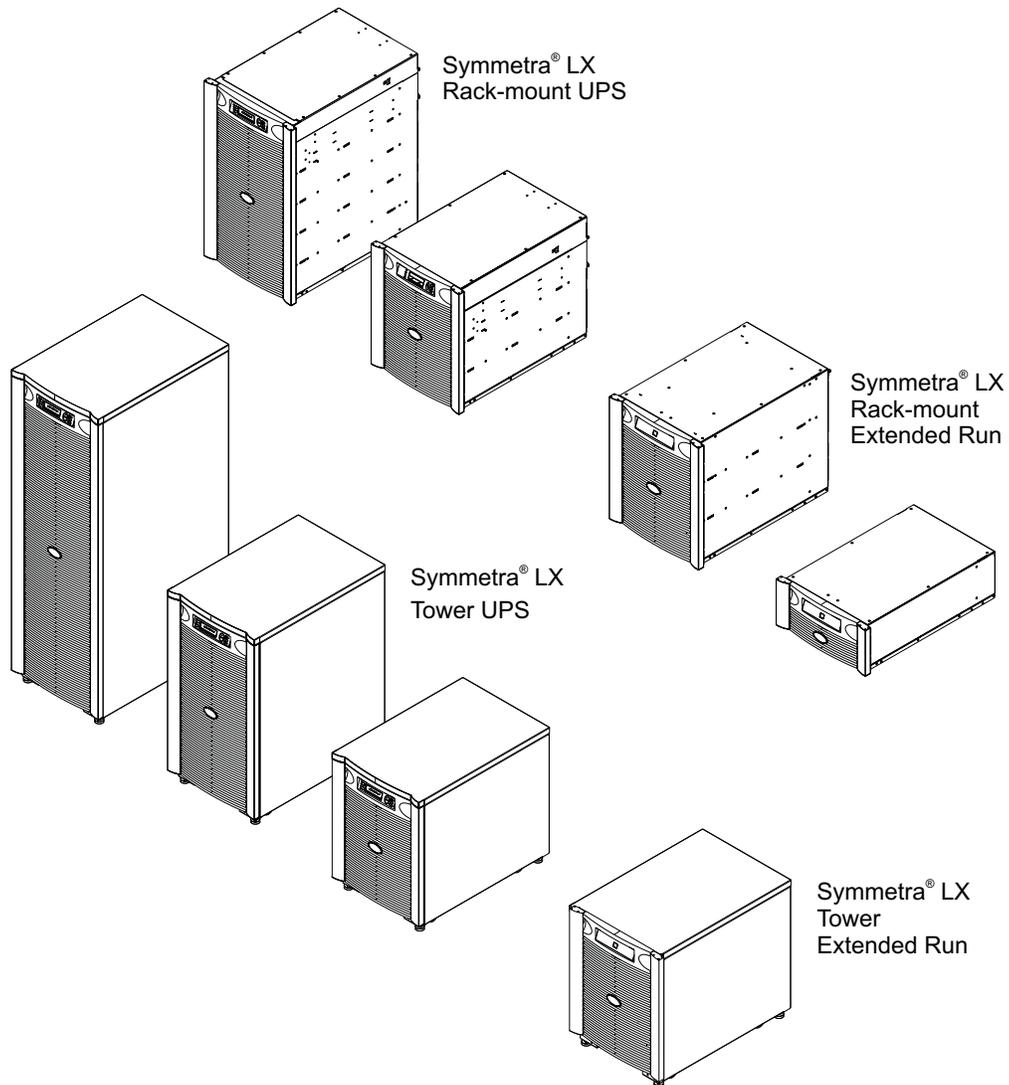


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PowerView

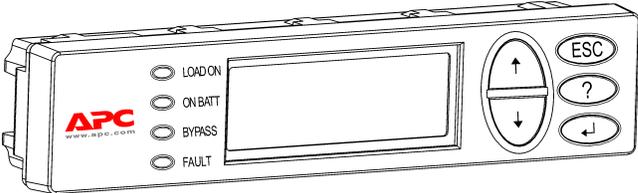


Figure 1: Typical PowerView Display

This manual contains information on how to operate the UPS using the PowerView user interface.

PowerView provides the ability to control, configure, and monitor the UPS.

Navigation

Eight (8) PowerView Display menus allow you to perform functions and commands.

Menu	Description
Control	Provides power control commands, such as Load ON and Load OFF.
Status	Displays information regarding load, battery and power modules, voltage and electrical current.
Setup	Allows the user to customize the UPS functionality.
Accessories	Allows monitoring of installed APC accessories, if they are present.
Logging	Provides ability to log system events.
Display	Allows configuration of PowerView display settings.
Diagnostics	Provides detailed information useful in troubleshooting the system.
Help	Provides access to help information.

CHAPTER 1: OVERVIEW

Functions



Figure 2: Display Panel

PowerView includes an alphanumeric display, navigation keys, status indicators, and an audible alarm.

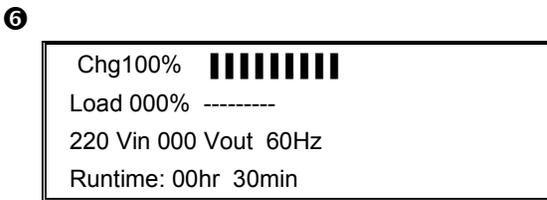
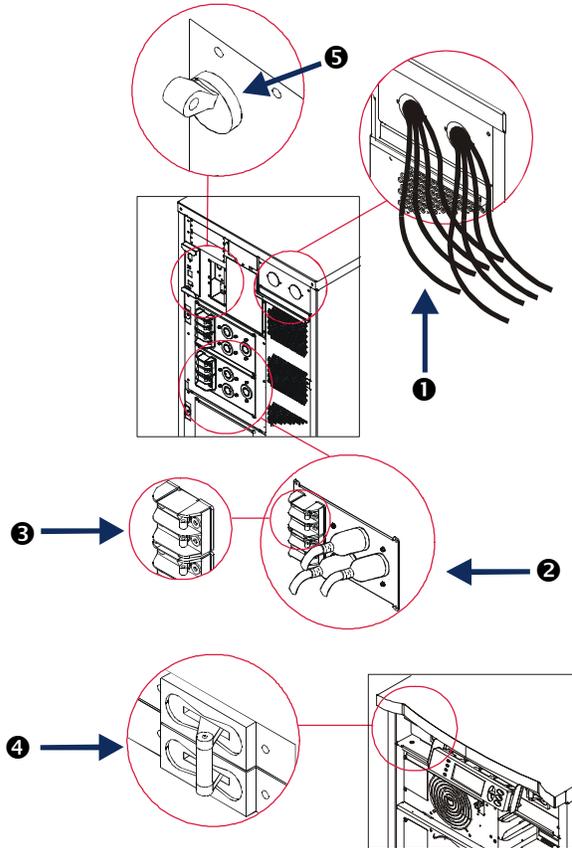
The tables below describe the status indicators and how to navigate between PowerView menus.

Status Indicator	Color	Status
LOAD ON	Green	The UPS is supplying power to the load. It may be operating in any one of the following modes: On-Line, On-Battery, Command-Bypass, or Maintenance.
ON BATT	Yellow	A mains power failure has occurred, and the battery modules are supplying power to the load equipment.
BYPASS	Yellow	Power to the load is being supplied directly by the mains power source. The UPS is removed from the circuit.
FAULT	Red	The UPS has detected an internal fault condition. An alarm message will appear on the PowerView display.

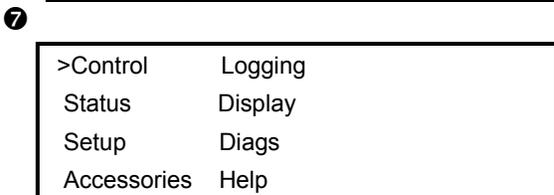
Navigation Keys	Name	Sound	Function
↑	Up	Short beep	Moves the selection arrow upward.
↓	Down	Short beep	Moves the selection arrow downward.
ESC	Escape	Short beep	Exits the current screen and returns to the previous screen. Programming mode only: when pressed until a short beep (up to one second) occurs, it exits the programming mode.
?	Help	Short beep	Opens context-sensitive help.
↵	Enter	Short beep	Opens the selected menu item or setting.
ESC + ? + ↵	Escape + Help + Enter	Two short beeps	When pressed simultaneously for about 1 second, resets the PowerView RM interface.
		One long beep	When pressed simultaneously for about 3 seconds, puts the interface in programming mode for installing new language program files.

Turning on the UPS

Follow the steps below to turn ON the UPS.



	<ul style="list-style-type: none"> The factory default Monitoring screen is shown. Your actual screen may vary. After the PowerView has been inactive for 10 minutes (user settable), the display will revert to the Monitoring screen.
--	---



1. Turn ON AC utility power to the UPS.
2. Perform this step if your configuration has loads.
 - a) If load(s) are hardwired ❶, ensure that each output circuit breaker in distribution panels are turned ON.
 - or
 - b) If load(s) are plugged into the UPS ❷, ensure that each UPS PDU output circuit breaker ❸ is turned ON.
3. Turn ON the UPS input circuit breaker ❹.
4. Turn ON the UPS System Enable switch ❺.
5. After initialization, the Monitoring Screen ❻ appears, providing a concise view of key operating parameters.

Chg	Percentage of battery capacity available
Load	Percentage of power capacity used
Vin	Input voltage
Vout	Output Voltage
Hz	Output Frequency
Runtime	Runtime expected based on battery capacity and connected load

6. At the Monitoring screen, press any navigation key to open the Main Menu ❼. This menu provides access to various submenus.
7. To open a submenu, move the selection arrow to its item and press the ENTER key.

CHAPTER 3: MENU COMMANDS

Powering Up the Load Equipment

Follow the steps below to turn ON the output of the UPS and power the load equipment.

❶

```
>Control   Logging
Status     Display
Setup      Diags
Accessories Help
```

❷

```
Graceful Turn Off
Start Runtime Cal
>Turn UPS Output On
```

❸

```
Confirm:
  Turn UPS ON
  CANCEL
> YES, Turn UPS ON
```

❹

```
UPS HAS BEEN
  COMMANDED TO TURN
  LOAD POWER ON
```

❺

```
UPS LOAD IS ON

Press any key...
```

1. Use 'ESC' to view to Main Menu ❶, and then select **CONTROL**.
2. Scroll down and select the TURN UPS OUTPUT ON ❷ command.
3. Confirm choice by selecting YES ❸.
4. You will hear some clicking sounds and see message ❹. In approximately 90 seconds, you will see message ❺, and the green LOAD ON status indicator will be ON.

Powering Down the Load Equipment

Follow the steps below to turn OFF the output of the UPS and power down the load equipment.

❶

```
>Control   Logging
Status     Display
Setup      Diags
Accessories Help
```

❷

```
Graceful Turn Off
Start Runtime Cal
>Turn UPS Output Off
```

❸

```
Confirm:
  Turn UPS OFF
  NO, ABORT
  > YES, Turn UPS OFF
```

❹

```
UPS HAS BEEN
  COMMANDED TO TURN
  LOAD POWER OFF
```

❺

```
UPS LOAD IS OFF

Press any key...
```

1. Use 'ESC' to view to Main Menu ❶, and then select CONTROL.
2. Scroll down and select the TURN UPS OUTPUT OFF ❷ command.
3. Confirm choice by selecting YES ❸.
4. You will hear some clicking sounds and see message ❹.
5. In approximately 90 seconds, you will see message ❺, and the green LOAD ON status indicator will be OFF. The output is now OFF.
6. To fully power down the UPS, turn OFF the System Enable switch, and open the input circuit breaker.

CHAPTER 3: MENU COMMANDS

Bypass Operation

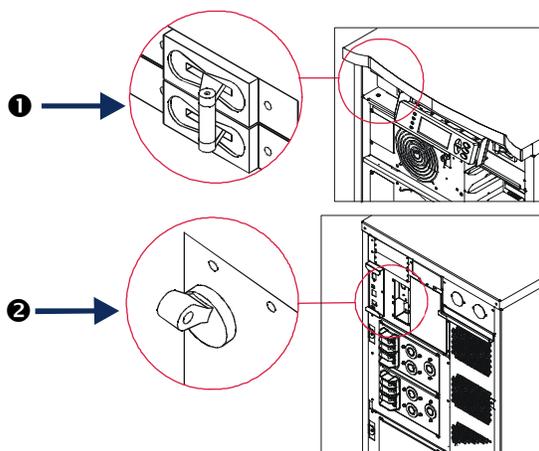
The bypass operation can be performed manually using the Maintenance Bypass Switch, or automatically using the PowerView to issue Commands.

Command Bypass Procedure:

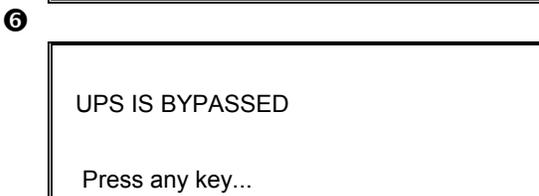
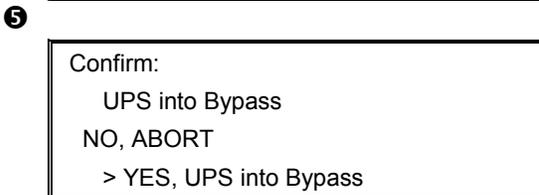
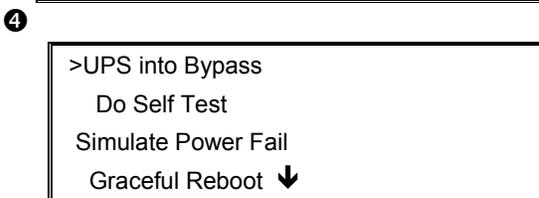
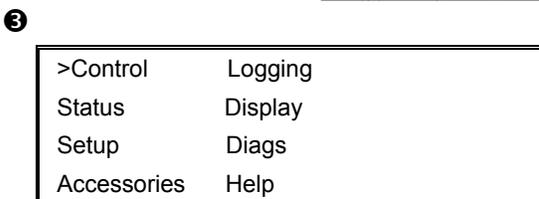
The Command Bypass operation is done using commands on the PowerView display.

This procedure is done when you want to bypass the UPS to directly supply power to the load while the UPS and input circuit breaker are turned ON.

Follow the steps below to directly connect the output of the UPS to the branch circuit (mains) using the command bypass operation.



1. Ensure that the input circuit breaker **1** is turned ON.
2. Ensure that the System Enable switch **2** is turned ON.
3. Use 'ESC' to view to Main Menu **3**, and then select CONTROL.
4. Scroll down and select the UPS INTO BYPASS **4** command.
5. Confirm choice by selecting YES **5**.
6. You will see message **6**. In addition, the green LOAD ON and yellow BYPASS status indicators will be ON.



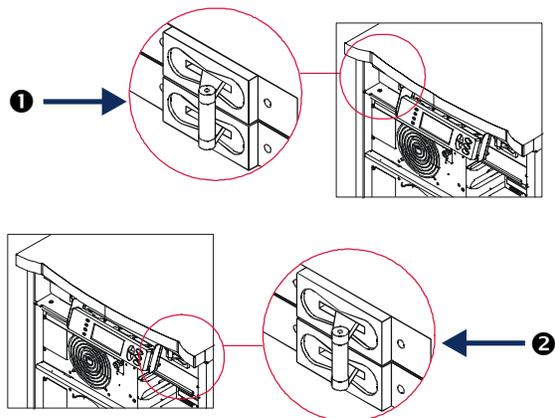
Bypass Operation (continued)

Maintenance Bypass Procedure:

The UPS Maintenance Bypass switch is also used to supply power to the load.

This procedure is done when you want to manually bypass the UPS to directly supply power to the load while the input circuit breaker is turned ON

Follow the steps below to directly connect the output of the UPS to the branch circuit (mains) using the maintenance bypass operation.



1. Ensure that the input circuit breaker ❶ is turned ON.
2. Turn ON the maintenance bypass switch ❷.

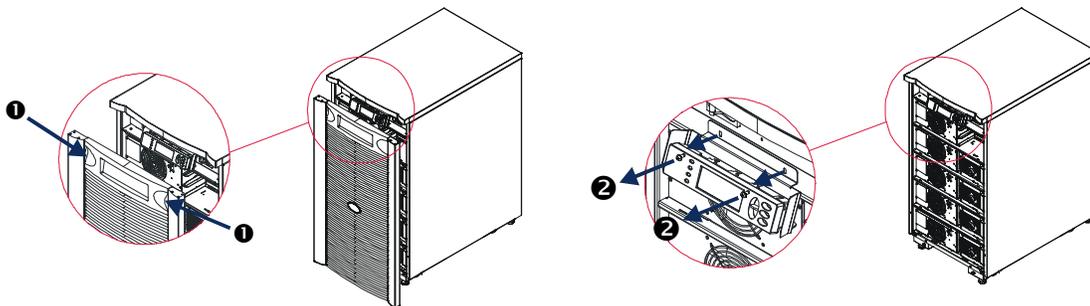
Language Setting

The factory default language of the user interface is English. You can change the language by downloading new firmware into the PowerView. French, German, Italian, and Spanish are available on the enclosed CD. Visit the APC web site at <http://www.apc.com> for multilingual product documentation and firmware language support.

Illustrations are representative. Your configuration may be different from the models shown in this procedure.

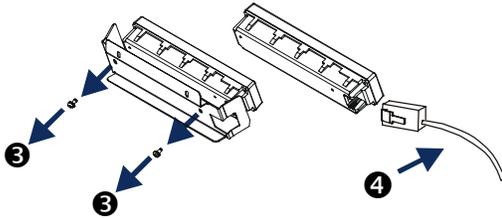
To change the user interface language, perform the following steps.

1. Grab onto the door tabs ❶ and gently pull forward and then up to remove the door.
2. To remove the PowerView display; remove the screws ❷ and display from the frame.

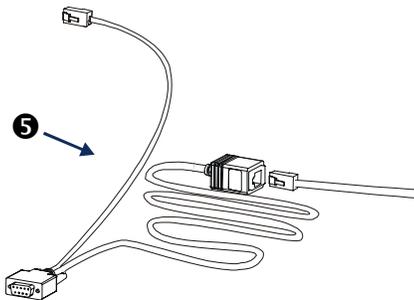


CHAPTER 3: MENU COMMANDS

3. Remove the screws **3** securing the display bracket to the PowerView.
4. Disconnect the UPS cable **4** from the RJ-45 port on the PowerView.



5. Connect the programming cable **5** (included) between the PowerView and the UPS cable.
 - Attach the RJ-45 connector to the port on the rear of the PowerView.
 - Connect the female DB-9 connector of the programming cable to a serial port on the computer.
 - The downloading computer must have access to the files on the firmware CD provided either with the UPS or visit the APC Web site at <http://www.apc.com/support/> for the latest firmware downloads.
 - Attach the UPS cable to the female RJ-45 connector on the programming cable.



6. Locate the language program file to be downloaded into the UPS.

Each language program file appears on the CD under the folder of its language (françois, español, etc.) with a .bin extension. Program files for additional language support or code updates may be available on the APC Web site.
7. Place the PowerView in programming mode by pressing simultaneously the three keys on the right (ESCAPE, HELP, and ENTER) for about three seconds, until the PowerView emits a long beep.
 - The LCD will display the Programming screen.
 - To leave the Programming screen before starting a file transfer (step 6), press ESC until it beeps (about one second).
8. Start HyperTerminal or another terminal emulation program on the computer.
 - Set the communication parameters to 8 bits, no parity, no flow control, 1 stop bit, and 19,200 bps.
 - After establishing a connection, use the Xmodem protocol to transfer the language program file from the CD or your download folder to PowerView.
 - When the file transfer is complete, the PowerView will reset itself and display the Startup screen in the new language.
9. If the file transfer fails, PowerView will reset itself. Retry the file transfer by repeating steps 6 and 7.
10. Quit the terminal session.
11. Disconnect the programming cable on the RJ-45 port on the PowerView.
12. Connect the UPS cable to the RJ-45 port on the PowerView
13. Install the display bracket to the rear of the PowerView by securing the two screws to the display.
14. With two hands, grip the display and gently snap the tabs onto the frame.
15. .Secure the PowerView display by tightening the two screws to the UPS frame.

Command Reference

The following sections describe the details of each command. Commands are organized according to the menu hierarchy in the PowerView.

Accessories Menu

The Accessories menu allows you to monitor APC accessories if they are installed. Note that the PowerView must be connected to the computer interface port at the back of the UPS frame in order to monitor internal accessories.

Control Menu

Use the Control menu and its submenus to control how power flows to and from the UPS.

Menu Item	Function
Turn UPS Output On/Off	Controls the delivery of output power to connected equipment.
Do Self Test	Initiates a system of self-testing and diagnostics. An error message is displayed when a problem is detected.
Simulate Power Fail(ure)	Simulates a power failure/return to test server's recognition of failure event.
Graceful Reboot	Initiates a signal for the server to shutdown. After user-defined "Low-Battery Duration" plus "Shutdown Delay," the output power is switched off for the duration of the user-defined "Return Delay." Then the output power is switched on again. See Setup-Shutdown to set these time delays. PowerChute software must be used on the server for it to be properly shutdown.
Graceful Turn Off	Initiates a signal for the server to shut down. After the user-defined "Low-Battery Duration" plus "Shutdown Delay," the output power is switched off. Use the Setup-Shutdown menu to set these times. PowerChute software must be used on the server for it to be properly shutdown.
Start/Stop Runtime Cal(ibration)	Calculates an accurate battery runtime measurement. Delivers load output power from battery source. Discharges battery to 25% of capacity. Battery capacity must be at 100% to execute this test.
UPS into/out of Bypass	Controls the bypass function. When in the bypass mode, power is delivered directly from utility source to load equipment.

CHAPTER 3: MENU COMMANDS

Display Menu

The Display menu lets the user customize the PowerView display.

Display		Function	Options
Date/Time		Sets the correct date and time.	Date: dd-mmm-yyyy EX:11-Aug-2003 Time: hh:mm:ss EX: 21:36:10
Password		Protects against unauthorized configuration changes.	
	Password	Sets a password.	Valid characters include: A–Z, or 0–9; type ‘_’ to complete.
	Timeout	Sets the inactivity timer.	1, 2, 5, 10(default); 30 minutes; 1, 2, or 4 Hours; or Forever
	Invalidate	Puts password into effect. Prevents unauthorized changes to the UPS configuration.	
Information		Displays PowerView model number, serial number, date of manufacture, and revision information.	
Beeper		Sets audible alarm (beeper) criteria.	
	At UPS	Not used with the UPS.	
	At Display	Sets parameters for the audible alarm in the PowerView.	Power Failure, Power Failure +30 seconds, Low Battery, or Never
	Volume	Sets audible alarm volume.	Off, Low(default), Medium, or High
	Click	Sets sound when pressing display buttons.	On(default), Off
Contrast		Sets LCD screen contrast.	0,1,2,3,4,5,6, or 7
Config		Customizes the information displayed on the Startup screen.	Use factory defaults when possible.

Diagnostics Menu

The Diagnostics menu provides information for use in troubleshooting.

Menu Item	Function
Fault and Diagnostics	Displays current system fault and diagnostic information of that fault.
(Main) Intelligence Module	Displays detailed intelligence module status and information.
Redundant Intelligence Module	Displays detailed redundant intelligence module status and information.
Power Modules	Displays detailed power module status and information.
Batteries	Displays detailed battery module status and information.

Help Menu

To access PowerView online help screens, press the SCROLL UP and SCROLL DOWN keys simultaneously to access context sensitive help.

Logging Menu

The Logging menu lets you customize the UPS log.

Menu Item	Function
View Log	Logs the most recent 64 events. Point to an entry and press the ENTER key for more information on that event.
View Statistics	Records the total number of transfers to battery, low battery, faults, and on-battery runtime events.
Configure Logging	Allows different types of events to be included or excluded from the log. Event types include Power Events, UPS Controls, UPS Faults, and User Activity.
Power Events	On (default), Off
UPS Control	
UPS Faults	
User Activity	
Measure UPS Events	

CHAPTER 3: MENU COMMANDS

Logging Menu (continued)

Menu Item		Function
List Event Groups		Lists the specific events in each group.
	Power Events	
	UPS Control Events	
	User Activities	
	UPS Fault Events	
	Measure UPS Events	
Clear Log		Clears the view log. Does not clear the active event lists.

Status Menu

The Status menu displays information regarding load, battery and power modules, voltage, and electrical current.

Menu Item	Function
Ø Vin Vout Iout	Displays input voltage(s), output voltage(s), and output current information.
% load assuming no redundancy	Compares the current load to the total capacity of all power modules.
% load allowing for n+ redundancy	Compares the current load to the total capacity of all power modules except the power modules that are set aside by the "Fault Tolerance" alarm threshold. For example, if there are four power modules installed, and the fault tolerance alarm threshold is set to "1," this percentage of load uses only 3 power modules for the calculation. See Setup-Alarms to set the redundancy level.
Frequencies	Displays the measured input and output frequencies.
Battery Status Screen	Displays battery module capacity, runtime, and status information.
Power Module Status Screen	Displays power module capacity, fault tolerance, and status information.
Alarm Thresholds Status Screen	Displays the user-defined alarm settings. See Setup-Alarms to set these alarm thresholds.
Miscellaneous Status Screen	Displays the summary result Self Test, Last System Transfer, Operating Mode, and status of Intelligence and redundant intelligence modules.

Setup Menu

The Setup menu lets the user customize the UPS functionality.

Menu Item	Function	Options
Shutdown	Sets the shutdown parameters in the event of a utility power failure.	None
Low Batt(ery) Dur(ation)	Sets the number of minutes an audible alarm sounds before the UPS shuts down due to battery exhaustion.	2(default), 5, 7, 10, 12, 15, 18, or 20 minutes
Shutdown Delay	Sets the additional runtime for computer issuing shutdown command if it needs additional time to shut itself down.	0, 20(default), 60, 120, 240, 480, 720, or 960 seconds
Return Delay	Sets the delay interval that allows utility power to stabilize before the system goes back online after a utility power failure.	0(default), 20, 60, 120, 240, 480, 720, or 960 seconds
Return Battery Capacity	Sets the minimum battery capacity necessary before repowering the load when returning from an extended utility power failure.	0(default), 15, 25, 35, 50, 60, 75, or 90 seconds
Defaults	Sets all settings to factory defaults.	
Output Freq(ueency)	The UPS output will phase lock to the input within this range.	50 ±3 Hz, 50 ± 0.1 Hz, 60 ± 3 Hz, 60 ± 0.1 Hz, Full range tracking

CHAPTER 3: MENU COMMANDS

Setup Menu (continued)

Menu Item		Function	Options
Alarms		Sets the alarm thresholds.	None
	Redundancy	An audible alarm sounds if the redundancy falls below this level.	0(default), 1, or 2
	Load	An audible alarm sounds when the load exceeds this limit. (Upper value is limited by the maximum power of the UPS.)	Never(default), 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, or 12 kVA
	Runtime	An audible alarm sounds if the available runtime falls below this level (Hours:min).	0:0(default), 5m, 10m, 15m, 30m, 45m, 1h, 2h, 3h, 4h, 5h, 6h, 7h, or 8h
Bypass		In the unlikely event that both the UPS fails and the input voltage or line frequency is outside of normal range, this option lets you choose to go into Bypass mode or drop the load.	Go to Bypass or Drop Load
Copy		Select the configuration that you wish to move UPS data into or out of, and then select the direction that you wish to move the data. Note: Copying data between different voltage versions may not yield optimum results; in particular, the output voltage selection should be reviewed by the user. Copying between different product lines may leave some parameters in the target UPS set to factory defaults, especially when copying from a product with less capability to one with more capability.	Options include: Configuration Number, from UPS to Display, and from Display to UPS. Copy command definition found in Powerview manual, 990-0142, page 11.
Other		Remaining user-defined settings.	
	Self Test	The UPS can automatically test itself at this user-specified interval.	At Power On, 7 days, 14 days(default) , or Disabled
	UPS ID	Assigns an eight-character text string to a system.	
	Output	Sets output voltage. Selection depends upon system configuration.	US/JAPAN: 200V, 208V, 240V INTERNATIONAL: 220V, 230V, 240V
	Vout Reporting	Reports the most significant output voltage.	Auto

Troubleshooting

The PowerView reports various messages on the display, including alarm status and changes in system configuration. This section lists all the PowerView display messages, what each means, and an appropriate corrective action.

Contact APC Technical Support Staff for assistance with complex UPS problems. Refer to the APC Web site at <http://www.apc.com/support> for a location near you.

More than one of these messages may occur at one time. If this happens, be sure to review all of the messages for a better understanding of the system condition.

	PowerView Message	Meaning	Corrective Action
Start-Up	#Pwr modules changed since last ON.	At least one power module has been added or removed from the UPS since the last time the Pwr ON command was issued.	No corrective action necessary. Proceed with the startup.
	#Batteries changed since last ON.	At least one battery module has been added or removed from the UPS since the last time the Pwr ON command was issued.	
	No Redundant Intelligence Module (IM).	There is no redundant intelligence module installed and working.	Proceed with the startup or abort the startup and install anew IM. Note: Without two functioning IMs, there is no redundancy in the event of an IM failure.
	Batt capacity less than Return Batt Cap.	The battery capacity of the UPS is less than the user specified minimum battery capacity required to turn on the load.	Option 1: Abort the startup and allow batteries to recharge. Option 2: Continue startup, with less than minimum battery capacity.
	Input Freq outside configured range.	The input frequency to the UPS is outside the configured range. The output frequency will not synchronize with the input frequency. Normal bypass is not available. The system will start on-battery.	Option 1: Improve the frequency of the incoming voltage. Option 2: Widen the range of the acceptable incoming frequency with the PowerView. (Startup>Setup>OuputFreq) Option 3: Proceed with startup. Normal bypass is not available and system may start on battery power.

CHAPTER 4: MESSAGES

	PowerView Message	Meaning	Corrective Action
Start-Up (continued)	AC adequate for UPS but not for bypass.	The UPS will function on-line with the input voltage, but in the event that bypass is required, the input voltage is not adequate to power the load equipment.	Option 1: Improve the incoming voltage. Option 2: Proceed with startup. Normal bypass is not available.
	Low/No AC input, startup on battery.	Input voltage is not adequate to start the UPS. If startup proceeds, the UPS will function from battery.	Option 1: Abort startup until acceptable input voltage is present. Option 2: Proceed with startup. Battery will be discharged.
General Status	# of batteries increased.	At least one battery module has been added to the system.	No corrective action necessary.
	# of batteries decreased.	At least one battery has been removed from the system.	
	# of Pwr Modules increased.	At least one power module has been added from the system.	
	Intelligence Module inserted.	An intelligence module has been installed in the lower IM slot.	
	Intelligence Module removed.	An intelligence module has been removed in the lower IM slot	
	Redundant Intelligence Module inserted.	An intelligence module has been installed in the upper IM slot.	
	Redundant Intelligence Module removed.	An intelligence module has been removed in the upper IM slot.	
	# of External Battery Cabinets increased.	At least one external battery cabinet has been connected to the frame.	
	# of External Battery Cabinets decreased.	At least one external battery cabinet has been disconnected from the UPS.	

CHAPTER 4: MESSAGES

	PowerView Message	Meaning	Corrective Action
General Status (continued)	Redundancy Restored.	Power module redundancy loss occurred and was restored. Either additional modules have been installed or the load has been reduced.	No corrective action necessary.
	Load is No Longer above Alarm Threshold.	The load exceeded the load alarm threshold. The situation has been corrected because either the load decreased or the threshold was increased.	
	Min Runtime restored.	The system runtime dropped below the configured minimum runtime and was restored. Either additional battery modules were installed, the existing battery modules were recharged, the load was reduced, or the threshold was raised.	
Module Failure	Bad Battery Module.	A battery module failed and requires replacement.	Refer to installing modules in the Physical Installation or Service Manual.
	Bad Power Module.	A power module failed and requires replacement.	
	Intelligence Module is installed and failed.	The intelligence module in the lower IM slot has failed.	
	Redundant Intelligence Module is installed and failed.	The intelligence in the upper IM slot has failed.	
Threshold Alarm	Load is above kVA alarm threshold.	The load has exceeded the user specified load alarm threshold.	Option 1: Reduce the load. Option 2: Use the PowerView interface to raise the alarm threshold.
	Redundancy has been lost.	The UPS no longer detects redundant power modules. Either power module(s) failed or the load increased.	Option 1: If possible, install additional power modules. Option 2: Decrease the load. Option 3: Disable the redundancy alarm by setting redundancy to zero. (Startup>Setup>Alarms>Redundancy>Zero)

CHAPTER 4: MESSAGES

	PowerView Message	Meaning	Corrective Action
Threshold Alarm (continued)	Redundancy is below alarm threshold.	Actual power module redundancy has fallen below the user specified redundancy alarm threshold. Either power module(s) failed or the load has increased.	Option 1: If possible, install additional power modules. Option 2: Decrease the load. Option 3: Use the PowerView to decrease the redundancy alarm threshold. (Startup>Setup>Alarms>Redundancy)
	Runtime is below alarm threshold.	The predicted runtime is lower than the user specified for the minimum runtime alarm threshold. Either the battery capacity has decreased or the load increased.	Option 1: Allow the battery modules to recharge. Option 2: If possible, increase the number of battery modules. Option 3: Decrease the load. Option 4: Use the PowerView to decrease the minimum runtime alarm threshold. (Startup>Setup>Alarms>Runtime)
Bypass	Bypass is not in range (either freq or voltage).	The frequency and/or voltage are out of acceptable range for bypass. This message occurs when the UPS is online and indicates that the bypass mode may not be available if required. The system may start on-battery.	Option 1: Decrease the sensitivity to input frequency. (Startup>Setup>OutputFreq) Option 2: Correct input voltage to provide acceptable voltage and/or frequency.
	Bypass contactor stuck in bypass position.	The UPS is positioned in the bypass position and cannot go on-line.	Call your contract service provider or APC Technical Support.
	Bypass contactor stuck in on-line position.	The UPS is positioned in the on-line position and cannot go to bypass.	
	UPS in bypass due to internal fault.	The UPS has transferred to bypass mode because a fault has occurred.	
	UPS in bypass due to overload.	The load exceeded the system power capacity. The UPS has switched to bypass mode.	Option 1: Decrease the load. Option 2: If possible, add power modules to the system.
	System is in Maintenance Bypass.	The UPS is in bypass because the maintenance bypass switch is in the On position.	No corrective action necessary.

CHAPTER 4: MESSAGES

	PowerView Message	Meaning	Corrective Action
General Fault	On Battery.	The UPS is in the on-battery mode. The battery modules are being discharged.	No corrective action is necessary. Note: Runtime is limited in duration. Prepare to shutdown the UPS and the load equipment, or restore incoming voltage.
	Need Bat Replacement.	One or more battery modules are in need of replacement.	Refer to module replacement procedure.
	UPS Fault.	A fault occurred in a power module. The UPS Fault message always occurs when there is a bad power module failure message.	Call your contract service provider or APC Technical Support.
	Shutdown or unable to transfer to Batt due to overload.	The UPS has shutdown because an overload occurred and bypass is not available.	Option 1: Reduce the load to eliminate overload. Option 2: If possible, add power modules to eliminate overload. Option 3: Replace failed power modules to eliminate overload. Note: If bypass is not available because of a power failure, wait for power to be restored. If there is a utility problem, have it corrected.
	Load Shutdown from Bypass. Input Freq/Volts outside limits.	The UPS shut the load down while it was on bypass, because the input power went out of acceptable range.	Correct the input voltage problem.
	Fault, Battery Charger Failure.	The battery charger in one or more power module(s) failed.	Refer to module replacement procedure.
	Fault, Bypass Relay Malfunction.	The bypass relay has malfunctioned.	Call your contract service provider or APC Technical Support.
	Fault, Internal Temp exceeded normal limits.	The temperature of one or more battery modules is too hot.	Replace overheated module. Refer to module replacement procedure.

CHAPTER 4: MESSAGES

	PowerView Message	Meaning	Corrective Action
General Fault (continued)	Input circuit breaker tripped open.	The input circuit breaker on the UPS tripped open. Input voltage is disconnected to the UPS.	Option 1: If this occurs in conjunction with an overload condition, decrease the load and reset the breaker. Option 2: If no overload condition exists, reset breaker. If it trips open again, call your contract service provider or APC Technical Support.
	System level fan failed.	A cooling fan in the UPS frame failed.	Call your contract service provider or APC Technical Support.
	The Redundant Intelligence Module (IM) is in control.	The intelligence module in the lower IM slot has failed or is not installed. The intelligence module in the upper IM slot is managing all activity.	Replace the intelligence module. Refer to module replacement procedure.
	IIC inter-module communications failed.	The communications between the MIM and at least one other module failed.	Call your contract service provider or APC Technical Support.

Service

If the UPS requires service, do not return it to the dealer! Follow these steps:

1. Review the problems discussed in the **Messages** chapter to eliminate common problems.
2. Verify that no circuit breakers are tripped. A tripped circuit breaker is the most common UPS problem!
3. If the problem persists, call customer service or visit the APC Internet Website at <http://www.apc.com/support>.
 - Note the model number of the UPS, the serial number, and the date purchased. A technician will ask you to describe the problem and try to solve it over the phone, if possible. If this is not possible, the technician will issue a Returned Material Authorization Number (RMA#).
 - If the UPS is under warranty, repairs are free. If not, there is a repair charge.
4. Pack the UPS in its original packaging. If the original packing is not available, ask customer service about obtaining a new set. Visit the APC web site at <http://www.apc.com/support> for customer support telephone numbers.
5. Pack the UPS properly to avoid damage in transit. Never use polystyrene beads for packaging. Damage sustained in transit is not covered under warranty.
6. Mark the RMA# on the outside of the package.

CHAPTER 5: MAINTENANCE