

Call-UPS II™

AP9208

AP9608 

APC®

AMERICAN POWER CONVERSION

Thank You !

Thank you for selecting this American Power Conversion Call-UPS II remote control accessory. Whether you have the SmartSlot or external version, your Call-UPS II has been designed for many years of reliable, maintenance-free service in combination with your American Power Conversion Uninterruptible Power Supply. American Power Conversion is dedicated to the development of high-performance electrical power conversion and control products and we hope that you will find this product a valuable, convenient addition to your computing system.

Please read this manual! It provides installation and operating instructions that will help you get the most from your Call-UPS II accessory.

Save this manual! It includes important instructions for the safe installation of your Call-UPS II accessory. Further, it includes instructions for obtaining factory service should the proper operation of the accessory come into question.

Radio frequency interference

WARNING: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

***Shielded communications cables must be used with this unit
to ensure compliance with the Class A FCC limits.***

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la Class A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

Contents

1	Introduction	1
1.1	Overview	1
1.2	Hardware Requirements	1
2	Product Description	2
2.1	The Call-UPS // Panel	2
2.2	Management Port	2
2.3	UPS Monitoring Port [External Version]	2
2.4	UPS Cable [External Version]	3
2.5	Optional Power Port [External version]	3
	With Smart-UPS	3
	With Matrix-UPS and Symmetra Power Array	3
2.6	Status Indicator	4
3	Installation and Setup	5
3.1	Handling	5
3.2	Receiving Inspection	5
3.3	Installation	5
	Smart Slot	5
	External Version	6
3.4	Confirm Operation	6
3.5	Configure Call-UPS //	7
	Initial Logging On	7
	Customize Settings	8
	Connect to Modem	9
4	Operation	11
4.1	Logging On to Call-UPS //	11
4.2	UPS Status [and Diagnostics]	11
	With Smart-UPS and Matrix-UPS	12
	With Symmetra Power Array	15
4.3	UPS Control	20

4.4	UPS Characteristics	22
	With Smart-UPS and Matrix-UPS	22
	With Symmetra Power Array	25
4.5	Data/Event Logging	27
4.6	Call-UPS Settings	29
4.7	Paging Setup	32
4.8	Measure-UPS Info	36
5	Problem Resolution	38
5.1	Troubleshooting Chart	38
5.2	If Problems Persist	39
6	Specifications	40
6.1	Management Port	40
6.2	Product Specifications	41
Appendix:		
	Multiple Smart Slot Installation	42
	Triple Chassis	42
	Symmetra Power Array	43
	Daisy Chains	43
	Smart-UPS and Matrix-UPS	43

1 Introduction

1.1 Overview

American Power Conversion's Call-UPS *II* is a remote UPS management device that allows you to monitor and control your APC UPS by modem. It provides the following features:

- Remote UPS status display
- Remote UPS control (e.g., safe reboot during power outage or when the server is down)
- Data and event logging
- Operator paging in case of trouble

Call-UPS *II* works with any APC Smart-UPS™, Matrix-UPS™ or Symmetra™ Power Array™. It draws power from the UPS, and can be used with the APC Measure-UPS™ Environmental Monitor and the APC PowerNet™ SNMP Adapter™.

Call-UPS *II* comes in two versions: as an external device (AP9208) and as a SmartSlot™ card (AP9608). SmartSlot Call-UPS *II* mounts in all APC devices equipped with a SmartSlot. The external Call-UPS *II* connects to the UPS communications port.

1.2 Hardware Requirements

Call-UPS *II* requires an APC Smart-UPS, Matrix-UPS, Symmetra Power Array or other APC device equipped with a SmartSlot. For paging or remote management, Call-UPS *II* requires both a modem that understands industry standard AT commands, and a telephone line. For configuration, Call-UPS *II* requires local DTE equipment — either a dumb terminal or a computer running terminal emulation software (e.g., HyperTerminal). A remote management site requires its own computer with modem and terminal emulation software. The communications rate for Call-UPS *II* can be configured to 1200, 2400, 9600, and 19,200 baud. The default is 9600.

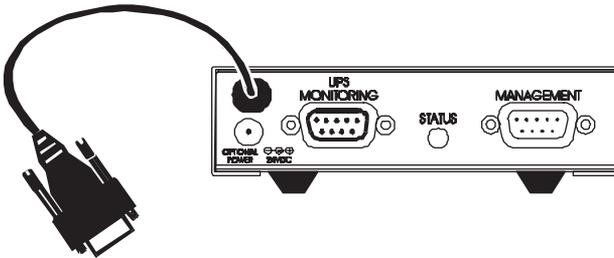
2 Product Description

2.1 The Call-UPS II Panel

The SmartSlot Call-UPS II panel contains the management port and the status indicator. See the figure below.



The external Call-UPS II rear panel contains the management port, status indicator, UPS monitoring port, and optional power jack. See the figure below.



2.2 Management Port

The Call-UPS II management port is used for configuring Call-UPS II and for remote management and paging by modem. For specifications, see Sec. 6.1.

2.3 UPS Monitoring Port [External Version]

The UPS monitoring connector duplicates the signals from the UPS so that the normal computer-to-UPS connection is maintained. This port is for use with APC software and interface kits only.

2.4 UPS Cable [External Version]

Use this cable to connect Call-UPS *II* to an APC Smart-UPS, Matrix-UPS, Symmetra Power Array or other APC smart device (Share-UPS or Triple Chassis, for example).

2.5 Power Port [External Version]

The external version of Call-UPS *II* has a power port for an optional power adapter. This adapter is not needed in most situations. Call-UPS *II* normally receives power from the UPS through the UPS connection cable, giving Call-UPS *II* protection from poor power conditions. After UPS shutdown for low-battery condition, Call-UPS *II* will still draw power from the UPS for a time determined by the size of the load and the capacity of the UPS. However, Call-UPS *II* stops drawing power from the UPS before the battery is completely drained.

To determine whether a power connector will be useful, refer to the two paragraphs that follow. You can obtain a power adapter by contacting APC technical support at one of the numbers given on the back cover of this manual. The APC part number for the power adapter is AP9505.

With Smart-UPS

The optional power adapter is required for some older Smart-UPS models that do not supply power to Call-UPS *II*. To determine whether your Smart-UPS supplies power to Call-UPS *II*, refer to the Smart-UPS user manual. Plug the adapter into a wall receptacle if you want remote turn-on and turn-off capability; otherwise, plug it into a Smart-UPS receptacle. (Smart-UPS models 250, 370, and 400 cannot be turned on or off by remote connection; for these models plug the adapter into a Smart-UPS receptacle.)

With Matrix-UPS

You will need the optional power adapter for use with Matrix-UPS only if you want remote turn-on capability. Matrix-UPS can be turned off remotely by Call-UPS *II*, but, without the adapter, Call-UPS *II* will then lose power. The UPS will execute a Graceful Reboot command (item 5 on the UPS Control menu of Call-UPS *II*) without causing Call-UPS *II* to lose power. Plug the power adapter into a wall receptacle if you want remote turn-on and turn-off capability. Otherwise, plug it into a Matrix-UPS receptacle.

2.6 Status Indicator

The status indicator shows the following conditions.

STATUS LED	INDICATION
Off	Call-UPS II is off.
On Continuously	Call-UPS II is on with no user logged in.
Single short flashes	User is logged in or logging in.
Double short flashes	Lockout is in progress.
Rapid flashes	Call-UPS II failed its power on self-test.

3 Installation and Setup

3.1 Handling

Call-UPS *II* is sensitive to electrostatic discharge. It is shipped in a conductive bag to help dissipate damaging static charges. Leave the product in the bag until ready to install. Handle Call-UPS *II* by the end plate only. Do not touch the printed circuit board or other components.

3.2 Receiving Inspection

Once the Call-UPS *II* has been removed from its shipping container, inspect it for damage that may have occurred while in transit. Notify the carrier and place of purchase immediately if any damage is found. The packing materials are recyclable and should be disposed of properly. Please complete and return the enclosed warranty card.

Call-UPS *II* is shipped with a null modem cable (APC part number 940-0103).

3.3 Installation

Before installing Call-UPS *II*, install your UPS. Then refer to the appropriate section that follows.

SmartSlot

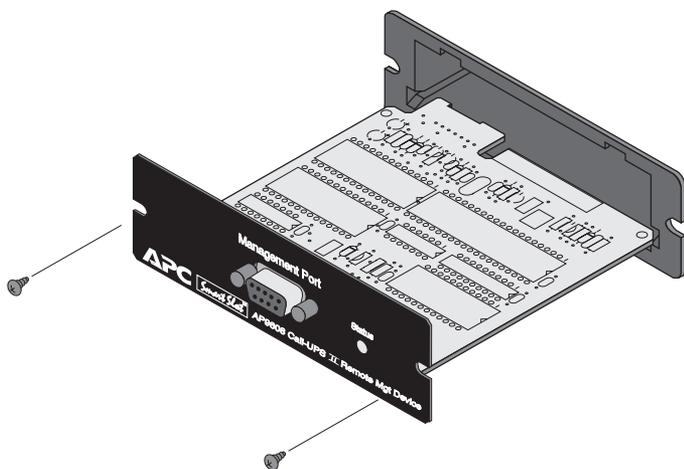
If you are using a SmartSlot Call-UPS *II* with other SmartSlot devices, refer to the appendix, “Multiple SmartSlot Installation” on pages 42–43.

While it is not possible to install the Call-UPS *II* upside down, you can damage the unit in the attempt to do so. Note the proper orientation of the Call-UPS *II* shown in the figure that follows. The sides of the printed circuit board align with the locating slots in the sides of the SmartSlot. In a UPS, the SmartSlot may be oriented horizontally or vertically.

Use the following procedure to install the Call-UPS *II*:

- 1 Shut down the protected loads and turn off the UPS.
- 2 Use a #2 Phillips head screwdriver to remove the two screws retaining the cover. Keep the screws handy for step 4 below. Retain the cover for future use.
- 3 Orient the Call-UPS *II* to fit in the SmartSlot as shown below. Slide the Call-UPS *II* all the way into the SmartSlot. The panel of the Call-UPS *II* should be flush with the front face of the slot.

- 4 Secure the Call-UPS *II* with the screws removed in step 2.
- 5 Turn on the UPS and the protected equipment.



External Version

It is not necessary to turn off the the UPS or its load before connecting or disconnecting the external Call-UPS *II*. When connected, Call-UPS *II* may cause the UPS to beep, or, if the UPS is powered off, to power on. This is normal.



Use only APC-supplied cables to connect the external version of Call-UPS *II* to the UPS. Do not connect to any Call-UPS *II* port except as specified in these instructions. Connections using a cable or any other manufacturer may cause damage to or improper operation of Call-UPS *II*, the UPS, or the computer.

If a device such as a server or workstation is currently using the communications port on the back of the UPS, disconnect it now according to the UPS connection instructions. Connect that device securely to the UPS Monitoring Port on Call-UPS *II*. See Sec. 2.5 to determine if the optional power adapter is required.

3.4 Confirm Operation

Observe the status indicator on Call-UPS *II*. After a moment it should be on continuously. If the indicator flashes rapidly, Call-UPS *II* has failed its power-on self-test. See Chapter 5.

3.5 Configure Call-UPS II

Call-UPS II requires on-site configuration before remote operation. You will be able to change any of the settings later by the remote connection. Follow these steps to configure Call-UPS II for:

- Communication parameters
- Password protection
- Time and date
- Paging (optional)
- Dial-back security (optional)
- Event logging (optional)

Initial Logging On

Connect DTE equipment (a dumb terminal or a computer running terminal emulation software) to the Management Port of Call-UPS II using the supplied null modem cable. It may be necessary to use an adapter (not supplied) to connect the DTE equipment to the null modem cable.

Set the communication parameters of the DTE equipment to 9600 bits per second, 8 data bits, no parity, and 1 stop bit (9600, 8, N, 1).

With Call-UPS II running (Status Indicator on steady), press CTRL + P (press and hold the CTRL key while pressing the P key). At the prompt:

```
Enter Password>
```

Type in **APC** and press ENTER.

***Note:** "APC" is the factory default password for Call-UPS II. If the default has been changed through previous configuration, enter the changed password. Call-UPS II communication is case sensitive. Enter APC in upper case.*

On correct entry of the password, Call-UPS II displays the following information:

```
----- SMART-UPS 700 -----  
  
Call-UPS II by American Power Conversion Corp  
(c) Copyright 1994,95,97 All Rights Reserved  
  
Site ID: 12345678  
Location: Physical Location of This UPS  
  
Press Any Key To Continue...
```

Note the top line, which displays the model number of the UPS that is currently connected . Site ID and Location are user configuration items. The display shows the factory defaults.

Press any key to bring up the Main menu:

```
----- MAIN MENU -----  
  
Date: Dec-16 '97                               Time: 08:39:36  
  
1- UPS Status  
2- UPS Control  
3- UPS Characteristics  
4- Data/Event Logging  
5- Call-UPS Settings  
6- Paging Setup  
7- Measure-UPS Info  
?- Help  
<ENTER> Display Menu  
<ESC> End Session  
>
```

Customize Settings

From the Main menu, you can go to the various menus by pressing the number associated with each of them. Press **5**, then ENTER to bring up the Call-UPS Settings menu. Set the date, time, password, location, and baud rate from this menu. The baud rate should be set at 9600. The other menu items can be left alone for now. Note that any changes you make are displayed when you return to the menu.

Then press ESC to return to the Main menu. Type **6** and press ENTER for the Paging Setup menu, where you can change the Site ID number from its default setting. If you will be using the paging capability of Call-UPS II, use this menu to enable and set up paging.

If you plan to use Call-UPS II for logging, go to the Main menu, type **4** and press ENTER for the Data/Event Logging menu. Proceed from there to set up logging.

To change any of the changeable setting of the UPS and Call-UPS II, use the other menus listed in the Main menu. For a full description of the entire menu scheme, see Section 4.

Any changes to Call-UPS II communication settings are held until the end of the session. Changes are made when Call-UPS II issues modem commands at that time.

Connect to Modem

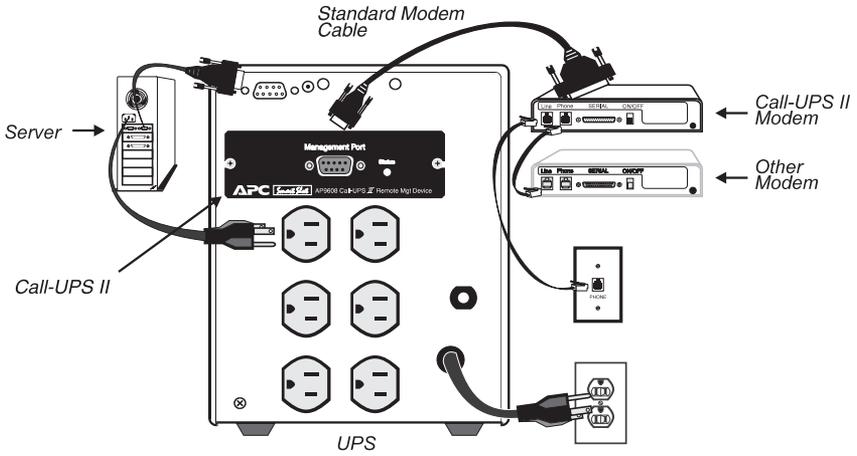
Call-UPS II requires a modem for remote UPS control and paging. If a modem is used with Call-UPS II, some thought must be given to powering it. Plugging the modem into the protected power output of the UPS will keep the modem operating in bad power conditions, but remote turn-on of the UPS will not be possible since, when the UPS is off, the modem is off. By plugging the modem into a wall socket, remote turn-on of the UPS will work, but the modem will have to get by with unprotected power. Also, it is possible in this situation to miss pages, since the modem would be off in a power outage that Call-UPS II tries to report by paging.

A better option is to use a modem designed for portable computers that draws power from the computer. Call-UPS II will power such a modem, providing protected power whether the UPS is on or off. Be careful to use a modem that draws power from Call-UPS II, not a battery.

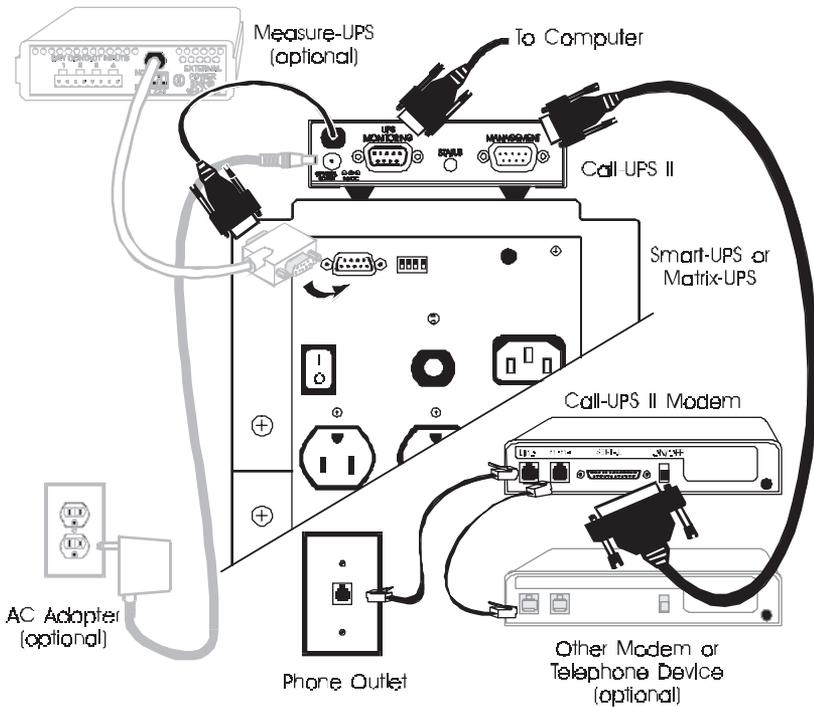
The configuration is complete. Disconnect the management device from Call-UPS II. Connect the Call-UPS II according to the appropriate system connection diagram on the following page.

***Note:** Use a standard modem cable to make this connection. Do not use the null modem cable supplied with Call-UPS II.*

SmartSlot Configuration



External Configuration



4 Operation

4-1 Logging On to Call-UPS II

For on-site logging on to Call-UPSII, see Section 3.5.

For remote logging on to Call-UPSII, connect via modem to the site of the UPS. After establishing communication, press CTRL + P. Call-UPSII prompts you for the password. Type in your password. (If you have not changed the password, the default password is APC.) The Opening screen is displayed. After pressing any key, the Main menu appears.

All Call-UPSII functions are available from the Main menu. To gain access to one of the listed functions, type the associated number and press ENTER. To redraw the screen, press ENTER by itself.

Tip: Extensive online help is available throughout the menu system. It is available whenever a “?” appears on a menu.

The “>” is the Call-UPSII menu prompt. Call-UPSII uses the double prompt “>>” to request a settable value. Some of these values can be viewed by selecting them on the menu, pressing SPACEBAR to cycle through a list of possible settings and then pressing ENTER to change the setting to the current one listed.

Any time Call-UPSII responds to a command with the prompt “Are You Sure?” Call-UPSII requires confirmation of the command. Type **YES** in uppercase letters at the prompt to confirm the command. Any other entry aborts the command.

To return to the Main menu from another menu, press ESC. Press ESC from the Main menu screen to end the Call-UPSII session and hang up the modem.

The paragraphs which follow give a description of the menus available in the Main menu.

Note: Menu item 7 on the Main menu, Measure-UPS Info, appears only if Call-UPSII is used with a Measure-UPS environment monitor.

4.2 UPS Status [and Diagnostics]

The name and content of the first item on the Main menu varies according to the UPS being used. With a Smart-UPS or a Matrix-UPS, the first item is “UPS Status.” When used with the Symmetra Power Array, the

first item is “UPS Status and Diagnostics.” Refer to the appropriate sections and accompanying tables that follow.

With Smart-UPS and Matrix-UPS

Type **1**, then ENTER at the Main menu to display the status of the connected UPS.

Note: This example is from a Matrix-UPS 3000. Other models may not show this exact information.

```
----- MATRIX 3000 STATUS -----  
Utility Line: 241.2 VAC           Battery Info  
UPS Output: 235.6 VAC           -----  
UPS Load: 000.0 %              Voltage: 55.62 VDC  
Run Time: 0185 min            Capacity: 100.0 %  
Load Power: 000.0 VA          Smart Cells: 002  
Load Current: 00.00 A         Bad Cells: 000  
UPS Temp: 019.8 C            Batt Date: 02/23/97  
Freq: 60.00 Hz              Self Test: OK  
Last Xfer: Test  
  
Status: On-Line  
<ESC>=Main menu>
```

The following table describes the items on the UPS Status screen when Call-UPS// is used with Smart-UPS or Matrix-UPS.

UPS STATUS (Smart-UPS and Matrix-UPS)	
Item	Description
Utility Line	Utility line input, in volts AC RMS.
UPS Output	UPS output to the load, in volts AC RMS.
UPS Load	Connected load as a percentage of the rated capacity of the UPS.
Run Time	Estimate of the total run time currently available from the UPS, based on present load and battery, in minutes.
Load Power	Amount of power being drawn by the load, in volt-amps (if supported by the UPS).
Load Current	Amount of current being drawn by the load, in amps (if supported by the UPS).
UPS Temp	Current temperature inside the UPS, in degrees Celsius.
Freq	Output frequency of the UPS, in hertz.
Last Xfer	Reason for the last UPS transfer to battery. Possible results are: Test, Low Voltage, Hi Voltage, Rate of Change, and Notch/Spike.
Voltage	Total voltage of the UPS batteries, in volts DC.
Capacity	Battery charge as a percentage of capacity.
Smart Cells	Number of Smart Cell battery packs connected to the UPS (only with Matrix-UPS).
Bad Cells	Number of Smart Cells connected to the UPS that have gone bad (only with Matrix-UPS).
Batt Date	Date of the last battery change.
Self Test	Results of the last UPS self-test. Possible results are: OK, None (not available), Unable to Test (invalid results due to overload), and Battery Failed (due to insufficient capacity).

The Status line at the bottom of the Status screen can display the following UPS status conditions:

- Runtime Calibration
- Waiting to Power Load
- Smart Boost
- Smart Trim
- On-Line
- On-Battery
- Low Battery
- Replace Battery
- In Bypass
- Sleeping – Delayed Wakeup
- Sleeping – Inverter Shutdown
- Forcing Graceful Shutdown
- Sleeping – Low Battery
- Shutdown Overload – Unable to Transfer to Battery
- UPS Fault

The following fault conditions display only when Call-UPS// is used with a Matrix-UPS and a fault condition exists.

- Main Relay
- Batt Charger
- Bypass Relay
- Internal Temp
- Elec Unit Fan
- Iso Unit Fan
- Bypass Supply
- Voltage Select
- DC Imbalance

If the UPS is powered off during a status request, Call-UPS// responds with the message:

UPS Powered OFF

With Symmetra Power Array

Type **1**, then ENTER at the Main menu to display the Status and Diagnostics screen of the connected Symmetra Power Array.

```

----- SYMMETRA STATUS -----
IM Status: On & Ok                Last Xfer: None
RIM Status: Off & Failed           Last Self test: OK
----- INPUT/OUTPUT -----
Input: 246.0 V at 60.04 Hz  Load Assuming No Redundancy: 000 %
Output: 000.0 V at 60.04 Hz  Allowing for n+1 Redundancy: 000 %
Load Current: 00.0 A                Capacity: 16.0 kVA
                                         Alarm if Over: 06.0 kVA
----- POWER MODULES -----
Installed: 05                      Fault Tolerance: n+0
Bad: 00                            Alarm if Under: n+2
----- BATTERIES -----
Installed: 004  Voltage: 137.1 VDC  Runtime: 0244 min.
Bad: 000      Capacity: 98.0 %      Alarm if Under: 015 min.

System Status:On-Line

1- Main Frame Information
2- External Battery Frame Information for frame(s): 1, 2, 3, 6, 7
<ENTER>=Refresh, <ESC>=Main menu, ?=Help>

```

The following table describes the items on the UPS Status and Diagnostics screen when Call-UPS// is used with a Symmetra Power Array. The table continues on the next page.

UPS STATUS AND DIAGNOSTICS (Symmetra Power Array)	
Item	Description
IM Status	Status of the Intelligence Module.
RIM Status	Status of the Redundant Intelligence Module.
Last Xfer	Reason for the last UPS transfer to battery. Possible results are: Test, Low Voltage, HiVoltage, Rate of Change, and Notch/Spike.
Last Self Test	Results of the last Self Test. Possible results are listed in earlier Self Test Table in this section.
Input	Utility line input, in volts AC RMS and in hertz.
Output	UPS output to the load, in volts AC RMS and in hertz.
Load Current	Amount of current being drawn by the load, in amps.

UPS STATUS AND DIAGNOSTICS
(Symmetra Power Array, Continued)

Item	Description
Load Assuming No Redundancy	Connected load as a percentage of the capacity of the good battery modules, assuming all good modules are available for power.
Allowing For n+ [1] Redundancy	Connected load as a percentage of the capacity of the good battery modules, assuming one [two, no] good module is reserved for redundancy. The value of redundancy (n+0, n+1, n+2) is taken from the Alarm if Under setting (see below).
(Battery Power) Capacity	Battery power available, in kilovolt-amperes.
(Load) Alarm if Over	Load alarm threshold, in kilovolt-amperes. If the load is at or above this setting, an alarm sounds. Changeable in the UPS Characteristics menu.
Installed	Number of power modules/batteries installed in the Symmetra Power Array.
Bad	Number of power modules/batteries that have failed.
Fault Tolerance	Redundancy of the Symmetra Power Array, given the present load and battery capacity. A Fault Tolerance of n+2, for example, means that two modules could fail and there would be enough power for the load in the event of utility line power outage.
(Fault Tolerance) Alarm if Under	Low redundancy alarm. If the Fault Tolerance goes below this setting, an alarm sounds. Changeable in the UPS Characteristics menu.
Voltage	Total voltage of the batteries, in volts DC.
(Battery Charge) Capacity	Battery charge as a percentage of capacity.
Runtime	Estimated runtime on-battery with the present load, based on the latest Run Time Calibration (Sec. 4.3).
(Runtime) Alarm if Under	Runtime alarm threshold, in minutes. If the Runtime reading falls below this setting, an alarm sounds. Changeable in the UPS Characteristics menu.

The System Status line at the bottom of the UPS Status and Diagnostics screen can display the following Symmetra status conditions:

- Runtime Calibration
- Waiting to Power Load
- Smart Boost
- Smart Trim
- On-Line
- On-Battery
- Low Battery
- Replace Battery
- In Bypass
- Sleeping – Delayed Wakeup
- Sleeping – Inverter Shutdown
- Forcing Graceful Shutdown
- Sleeping – Low Battery Shutdown
- Overload – Unable
- Bad Power Module
- Intelligence Module is installed and failed
- Redundant Intelligence Module is installed and failed
- Bad Battery Module
- Load is above kVA alarm threshold
- Redundancy has been lost
- Redundancy is below alarm threshold
- Bypass is not in range (either freq or voltage)
- Bypass contactor stuck in bypass position
- Bypass Contactor stuck in on-line position
- UPS in bypass due to internal fault
- UPS in bypass due to over-load
- System is in Maintenance Bypass
- Input circuit breaker tripped open
- System level fan failed
- The Redundant Intelligence Module is in control
- IIC inter-module communications failed
- Turn on requested, override required
- UPS will turn on automatically when conditions are met
- Runtime is below alarm threshold
- # of batteries increased
- # of batteries decreased
- # of power modules increased
- # of power modules decreased
- Intelligence Module inserted
- Intelligence Module removed
- Redundant Intelligence Module inserted
- Redundant Intelligence Module removed
- # of External battery Cabinets increased
- # of External Battery Cabinets decreased

If the UPS is powered off during a status request, Call-UPS// responds with the message:

UPS Powered OFF

In addition to providing general status information, the UPS Status and Diagnostics screen serves as a menu for obtaining more detailed information on the Symmetra frames and external frames.

To go to the Main Frame screen, type **1** and press ENTER. The following display will appear.

Main Frame			
L1-	Power Module	None	-RIM
	No Module IIC	OK	-IM
L2-	Power Module	Battery	
	OK	OK	
L3-	Power Module	Battery	
	OK	OK	
L4-	Power Module	Battery	
	OK	OK	
L5-	Power Module	Battery	
	BAD	None	

<ENTER>=Refresh, <ESC>=Status Menu, ?=Help, or module code for details>

The Main Frame screen is a map of the Symmetra array. The left column displays the five levels of power module slots (L1 to L5). The box at the top of the right column displays the status of the Redundant Intelligence Module (RIM) on the first line and the status of the Intelligence Module (IM) on the second line. The remainder of the right column displays the four levels of batteries. The power module and battery boxes display the status of the corresponding power module or battery on the second line.

The Main Frame screen also serves as a menu for more detailed information on each of the power modules and the intelligence modules. By typing **L1** and pressing ENTER, for example, you can view a screen that displays information regarding Power Module L1. For information on the Intelligence Module, type **IM** and press ENTER, and so on. Included in this information are hardware and firmware version numbers and the

module serial number, in addition to raw status readings. Normally you will not need to go to these module status screens unless you need information for technical support. To return to the Main Frame screen, press ESC.

For External Battery Frame(s) Information, type **2** and press ENTER. The last choice is available only when external battery frames are connected to the Symmetra power array. These external battery frames are numbered and listed next to the menu item. (See earlier screen capture of the UPS Status and Diagnostics screen.) The message prompts you to enter the battery frame number. Type the number of one of the external battery frames to go to a Battery Frame screen. An example follows.

```

                                Battery Frame
+-----+-----+
| Battery      | Battery      |
| OK           | OK           |
+-----+-----+
| Battery      | Battery      |
| Failed       | No frame IIC |
+-----+-----+
| Battery      | Battery      |
| OK           | OK           |
+-----+-----+
| Battery      | Battery      |
| None         | OK           |
+-----+-----+
| Battery      | Battery      |
| None         | None         |
+-----+-----+
| Battery      | Battery      |
| None         | None         |
+-----+-----+
Batteries possible: 12  F/W Rev: A01  Manuf. Date: 06/06/97
Batteries Installed: 07  H/W Rev: G98  S/N: W960123456789
ENTER=Refresh, ESC=Status menu, or enter frame number>
```

4.3 UPS Control

For remote control of the connected UPS, go to the Main menu and type 2 and press ENTER. Call-UPS II displays the Control menu.

```
----- CONTROL MENU -----  
1- Turn UPS ON  
2- Turn UPS OFF  
3- UPS Self Test  
4- Simulate Power Failure  
5- Graceful Reboot  
6- Graceful Turn OFF  
7- Start Runtime Cal (Stop Runtime Cal)  
8- Put UPS in Bypass (Return from Bypass)  
?- Help  
<ENTER> Display menu  
<ESC> Return to Previous menu  
>
```

Select from the menu items to perform the following:

UPS CONTROL	
Command	Description
Turn UPS ON	Restores power to the load.
Turn UPS OFF	Cuts off power to the load immediately. This does not allow for graceful shutdown for operating systems that require it.
UPS Self Test	Starts a UPS self test and displays the results.
Simulate Power Failure	Puts the UPS on battery for a moment as if there were a power failure.
Graceful Reboot	Causes the UPS to cycle power to the attached computer to reboot it. Call-UPS II signals that the UPS is on battery and that the battery is nearly exhausted. Graceful Reboot uses the value set for Low Battery Duration. See UPS Characteristics table, Sec. 4.4.

UPS CONTROL (Continued)	
Command	Description
Graceful Turn OFF	Causes the UPS to shut down. Call-UPS <i>II</i> immediately signals that the UPS is on battery and that the battery is nearly exhausted. Graceful Turn OFF uses the value set for Low Battery Duration. See UPS Characteristics table in Sec. 4.4.
Start (Stop) Runtime Calibration	Starts and stops runtime calibration on the UPS. Calibration starts only if the UPS has a 100% battery charge. If the UPS accepts the command to start runtime calibration, Call-UPS <i>II</i> reports "Runtime Calib: OK." If the UPS does not accept the command, Call-UPS <i>II</i> reports "Runtime Calib: NO." Runtime is displayed on the UPS Status [and Diagnostics] Screen. Note: <i>Smart-UPS products with serial numbers that begin with the letter W do not support runtime calibration.</i>
Put UPS in (Return from) Bypass	<i>For Matrix-UPS and Symmetra Power Array only.</i> Puts the UPS in Bypass mode and returns the UPS from Bypass mode.

If the UPS is powered off when UPS Control is selected from the Main menu, Call-UPS *II* responds with an abbreviated control menu:

```

----- CONTROL MENU -----
    1- Turn UPS ON
    2- Turn UPS OFF
    ?- Help
<ENTER> Display menu
<ESC> Return to Previous menu
>

```

Type **1** to turn the UPS on, then press ESC to return to the Main menu or press ENTER to re-display the full UPS Control menu.

4.4 UPS Characteristics

UPS characteristics are set at the factory for normal operation and usually do not need to be changed. However if a change is needed, select items from the UPS Characteristics menu. New settings may conflict with the operation of UPS monitoring software in use, so check the requirements of the system before changing them. Default and optional values for these settings vary from one UPS to another.

Note: Smart-UPS products with serial numbers beginning with the letter W do not support reporting and setting UPS characteristics with Call-UPSII. In this case, item 3, UPS Characteristics will not appear on the Main menu.

To display or change the characteristics of the UPS, type **3** and press ENTER from the Main menu. The appearance of the UPS Characteristics menu will vary according to the type of the connected UPS. Refer to the appropriate sections and accompanying tables that follow.

With Smart-UPS and Matrix-UPS

Call-UPSII connected to a Smart-UPS or Matrix-UPS displays the following UPS Characteristics menu:

```
----- UPS CHARACTERISTICS -----  
  
    UPS ID: UPS_IDEN  
    1- Output: 240 V  
    2- Output Freq Range: AUTO  
    3- Output Voltage Reporting base: Auto  
    4- If UPS fails and freq or voltage is out of  
       range: Go to Bypass  
-----  
    5- Low Battery Duration: 02 min.  
    6- Shutdown Delay: 020 sec.  
    7- Return Delay: 000 sec.  
    8- Return Battery Capacity: 00 %  
    9- Scheduled Self Test: every 14 Days  
-----  
    10- Alarm if runtime is less than: 000 min.  
    11- Alarm if load is greater than: 00.0 kVA  
    12- Alarm if redundancy is less than: n+2 (0=never)  
-----  
    13- Reset UPS to Default Settings  
        ?- Help  
<ENTER> Display Menu  
<ESC> Return to Previous Menu  
  
>
```

You can choose a numbered item to change its current setting. Type its corresponding number and press ENTER. Press SPACEBAR when prompted to cycle through the settable values. Press ENTER to confirm any change and return to the UPS Characteristics menu.

The following table gives a description of the settings on the UPS Characteristics menu. Those marked with a † are non-settable characteristics.

UPS CHARACTERISTICS (Smart-UPS and Matrix UPS)	
Setting	Description
Model †	Model name of the connected UPS.
UPS Dip Switches †	Hexadecimal display of the UPS switch settings for those UPSs that have them. Used by technical support. Note: <i>Call-UPS II will not allow changes to UPS characteristics if this value is other than 0.</i>
UPS S/N †	Serial number of the UPS.
F/W Rev †	Revision number of the firmware in the UPS.
UPS ID	Identification of the UPS (not settable through Call-UPS II).
Manuf. Date †	Date of manufacture of the UPS.
Output	Rated output voltage of the UPS. Settable for UPSs that allow change of output voltage. You will be prompted to select from the choices displayed.
Battery Date	Date of the last battery replacement (not settable through Call-UPS II).
Low Transfer	Lowest allowed utility line voltage before transfer to battery operation. Consult your UPS and computer manuals for proper setting. Note: <i>Matrix-UPS does not allow setting low transfer voltage.</i>
High Transfer	High utility line voltage setting for transfer to battery operation. Consult your UPS and computer manuals for proper setting.

UPS CHARACTERISTICS (Smart-UPS and Matrix UPS, Cont.)

Setting	Description
Sensitivity	Sensitivity of the UPS to power line fluctuation. Set this value according to the type and magnitude of expected fluctuation and the susceptibility of the load. Values range from high to low sensitivity. Use lower sensitivity settings when running from a less stable power source, e.g., an inexpensive fuel-powered generator, when you have determined that the connected devices can handle the instability.
Shutdown Delay	Time interval between issuance of a UPS turn off command and actual shutdown of the load. Since the UPS notifies the computer of the impending shutdown, Shutdown Delay allows for graceful turn off.
Return Delay	Time interval after which the UPS turns on after restoration of utility power. Use return delay to prevent branch circuit overloads.
UPS Self Test	Time intervals between UPS battery self-tests.
Audible Alarm	Function of the UPS audible alarm.
Low Battery Duration	Time interval between low-battery warning and shutdown of the UPS. Select from values between 2 and 10 minutes.
Return Battery Capacity	Battery capacity desired for UPS restart after a power outage. Select from values between 0% and 90%. At 0%, the UPS will restart as soon as utility line power returns to normal. With other settings, the UPS will charge the batteries to the specified level prior to restart.
Reset UPS to Default Settings	Returns the UPS to its default state. Type YES (all uppercase) and press ENTER when prompted to confirm resetting. Any other entry stops resetting.

With Symmetra Power Array

Call-UPS II connected to a Symmetra Power Array displays the following UPS Characteristics menu:

```
----- UPS CHARACTERISTICS -----  
  
UPS ID: UPS_IDEN  
1- Output: 240 V  
2- Output Freq Range: 60/.1 Hz  
3- Output Voltage Reporting Base: Auto  
4- If UPS fails and freq or voltage is out of range: Go to Bypass  
  
-----  
5- Low Battery Duration: 02 min.  
6- Shutdown Delay: 020 sec.  
7- Return Delay: 000 sec.  
8- Return battery Capacity: 10 %  
9- Scheduled Self Test: every 14 days  
  
-----  
10- Alarm if runtime is less than: 015 min.  
11- Alarm if load is greater than: 05.0 kVA  
12- Alarm if redundancy is less than: n+1 (0=never)  
  
-----  
13- Reset UPS to Default Settings  
<ENTER> Display menu  
<ESC> Return to Previous menu  
  
>
```

To change a setting, type the number of the menu item and press ENTER. The following screen displays when you enter “9.”

```
NOTE: Changes May Conflict with monitoring Software  
  
Press <SPACE> To See Next Entry, <ENTER> To Accept  
  
UPS Self Test> 14 Days
```

The following table gives a description of the settings on the UPS Characteristics menu for Call-UPS II connected to the Symmetra Power Array.

UPS CHARACTERISTICS (Symmetra Power Array)	
Setting	Description
Output	Output voltage of the UPS, in volts AC.
Output Freq Range	Output frequency range of the UPS, in hertz.
Output Voltage Reporting base	Desired output voltage setting. The default setting, Auto, indicates that output voltage equals the nominal input voltage. Other settings are 208 VAC and 240 VAC.
If UPS fails ...	Instructs the UPS to go to bypass mode or to drop the load in the event the UPS fails and the frequency or voltage is out of range of their settings (see 1 and 2 on this menu).
Low Battery Duration	Time interval between low-battery warning and shutdown of the UPS. Select from values between 2 and 10 minutes.
Shutdown Delay	Time interval between the issuance of a UPS turn off command and actual shutdown of the load. Since the UPS notifies the computer of the impending shutdown, Shutdown Delay allows for graceful turn off.
Return Delay	Time interval after which the UPS turns on after restoration of utility power. Use Return Delay to prevent branch circuit overloads.
Return Battery Capacity	Battery capacity desired for UPS restart after a power outage. Select from values between 0% and 90%. At 0%, the UPS will restart as soon as utility line power returns to normal. With other settings, the UPS will charge the batteries to the specified level prior to restart.
Scheduled Self Test	Time intervals between UPS battery self-tests
Alarm if ...	Three alarm thresholds. An alarm will sound if any of the three alarm settings — calculated runtime, load, and redundancy — is out of range. For a description of these settings, see UPS Status and Diagnostics table, Sec. 4.2.
Reset UPS to Default Settings	Returns the UPS to its default state. Type YES (all uppercase) and press ENTER when prompted to confirm resetting. Any other entry stops resetting.

4.5 Data/Event Logging

To enable logging and to specify which data and events are included in logging, select 4 from the Main menu. Select items from the Data/Event Logging menu using the screen listing below.

```
----- LOGGING MENU -----
1-Power Events: ON          3-   UPS Faults: ON
2-UPS Control:  ON          4-  User Activity: ON
                               5-  Measure-UPS: OFF
Date: Jul-27 '97              Time: 15:05:35
-----
Jul-27 15:01:12 UPS Returned On Line
Jul-27 15:01:34 Shut Down Until Power Returns
Jul-27 15:01:38 Power Restored, Load Powered ON
-----
6- List Event Groups
7- View Event Log
8- Reset Event Log
9- Log UPS Data to screen
10- Log Interval: 1 min
11- Data Format: Text
?- Help
<ENTER> Display menu
<ESC> Return to Previous menu
>
```

The following is a sample Call-UPS// UPS data log, with Data Format set to Text:

```
Jul-27 '97 14:42:39
Line:117.8VAC Max:119.0VAC Min:117.1VAC Batt:27.67VDC
Freq:60.00Hz Temp:025.2C Load:017.6%
Jul-27 '97 14:43:39
Line:119.0VAC Max:119.0VAC Min:117.8VAC Batt:27.67VDC
Freq:60.00Hz Temp:025.2C Load:017.6%
Jul-27 '97 14:44:39
Line:119.0VAC Max:119.0VAC Min:117.8VAC Batt:27.67VDC
Freq:60.00Hz Temp:025.2C Load:018.7%
Jul-27 '97 14:45:39
Line:118.4VAC Max:119.0VAC Min:117.8VAC Batt:27.67VDC
Freq:60.00Hz Temp:025.6C Load:018.7%
```

For a description of the items on the Data/Event Logging menu, refer to the table that follows.

DATA/EVENT LOGGING		
Item	Default	Description
Power Events	ON	Call-UPS II will log power events, such as utility line failure and battery exhausted, when enabled. Enter 0 when prompted to disable, 1 to enable.
UPS Control	ON	Call-UPS II will log control events, such as UPS turned on and UPS in bypass, when enabled. Enter 0 to disable, 1 to enable.
UPS Faults	ON	Call-UPS II will log UPS faults, such as UPS is overloaded, and internal temperature too high, when enabled. Enter 0 to disable, 1 to enable.
User Activity	ON	Call-UPS II will log user activity, such as users logging on and password changes, when enabled. Enter 0 to disable, 1 to enable.
Measure-UPS	OFF	Call-UPS II will log Measure-UPS alarms, e.g., high temperature, low temperature, and contact closure, when enabled. Enter 0 to disable, 1 to enable.
List Event Groups	Displays a list of all reportable events, sorted into event groups.	
View Event Log	Displays the event log. Call-UPS II pauses after each page of log information.	
Reset Event Log	Clears the event log. Log information is kept in non-volatile memory, so log items remain even when Call-UPS II is off.	
Log UPS Data to Screen	Queries the UPS for operating data at preset intervals (see next item) and displays this information on the screen. Call-UPS II reports date, time, current line voltage, minimum line voltage, maximum line voltage, battery voltage, line frequency, internal UPS temperature, and UPS load.	
Log Interval	Time interval at which Call-UPS II queries the UPS for log data. The default is 1 minute. Set from 1 to 99 minutes between queries, depending on how much data is needed.	
Data Format	Choose one of two log data output formats. Use text, the default, if the data will be used in word processing programs. Use the comma delimited format for importing the data into spreadsheets or databases.	

4.6 Call-UPS Settings

To see or change Call-UPS// settings, go to the main menu and type **5**, then press ENTER. You will see the following display.

```
-----CALL-UPS SETUP -----
Model Number: AP9608           HW Rev: A2
Serial Number: WA718570411     F/W Rev: K
Manuf. Date: 6/27/97

-----
1-   Set Date: Sep-28 '97 7-   Ansi Color: Off
2-   Set Time: 10:38:06 8-   Baud Rate: 9600
3- Set Password: ***** 9-   Answer Ring: 0
4-   Dial Back: OFF 10-Answer Lockout: 0 min
5-Dial Back Str: DT5551212
6-   Location: Physical Location of This UPS

-----
11- UPS Present: ON
12- Reset Call-UPS to Default Settings
?- Help
<ENTER> Display menu
<ESC> Return to Previous Menu

>
```

The top section of the Call-UPS Setup menu displays the following Call-UPS// device information which will be needed in case technical support is required:

- Model Number — the model number of Call-UPS//
- H/W Rev — the revision of the Call-UPS// hardware
- Serial Number — the serial number of this Call-UPS// unit
- F/W Rev — the revision number of the Call-UPS// firmware
- Manuf. Date — the date this Call-UPS// was manufactured

The remaining two sections of the Call-UPS Setup menu list changeable settings of Call-UPS//. For a description of these settings, see the table that follows.

CALL-UPS II SETTINGS		
Setting	Default	Description
Set Date	–	Current date in mm/dd/yy format.
Set Time	–	Current time in hh:mm:ss format. Call-UPS II uses 24-hour format.
Set Password	APC	From 0 to 8 alphanumeric characters. Use no characters (press enter when prompted for the password) for no password.
Dial Back	OFF	Dial Back Security feature. With Dial Back on, Call-UPS II hangs up when called, and then calls the number you set for the Dial Back String (see next).
Dial Back Str	DT5551212	Dial string used to implement dial-back security (see preceding). Call-UPS II prefaces this string with the attention command, so do not include AT in the string. Use industry standard dial strings of up to 20 alpha-numeric characters for the telephone number of the modem to be called back. Use the vertical bar (pipe) character () to start a new line in the string. Make sure the remote modem is set to answer calls.
Location	Physical ...	Description of the physical location of the UPS. Use up to 40 alphanumeric characters. Call-UPS II does not wordwrap, so use the vertical bar (pipe) character () to start a new line. For example, “ACME Company Any Town” will display: ACME Company Any Town
Ansi Color	OFF	Causes Call-UPS II to send ANSI standard color display escape sequences when on.
Baud Rate	9600	Call-UPS II communication setting, in bits per second. Choose between 1200, 2400, 9600, and 19,200 bps. Set to the highest supported bit rate of the DTE port of the modem or other DCE equipment in use. Many modems have DTE port rates that are higher than the communication link rate in order to support data compression. For example, many 9600 baud modems will support bit rates of 19,200 or higher at their DTE ports. Consult your modem user manual.

CALL-UPS II SETTINGS (Continued)

Setting	Default	Description
Answer Ring	0	Number of rings before the Call-UPS II modem answers a call. After each communication session, the modem SO register is set to this value. If the value is 0 (the default), Call-UPS II will send "ATSO=0," and the modem will not answer calls. Set this value to 0 to use Call-UPS II for paging only. With Answer Ring set to 0, Call-UPS II will not answer a stray call and will always be available for paging. Values from 0 to 15 are accepted.
Answer Lockout	0 min	Answer Lockout time interval, for use of multiple devices (like modems) on the same telephone line as Call-UPS II. When set to a non-zero value, the modem is prevented from accepting incoming calls during the defined interval after a communication session. To use Answer Lockout, make sure the modem attached to Call-UPS II is the first device in the telephone line chain (see figure at end of Sec. 3.5). When this feature is enabled, the next device down the chain will get as many rings as it needs to answer a call. Make sure that all other automatic answering devices on the line with Call-UPS II are set to answer in a greater number of rings than Call-UPS II. Values from 0 to 99 minutes are accepted.
UPS Present	ON	States whether Call-UPS II is connected to a UPS. Change the default setting (ON) if Call-UPS II is connected only to Measure-UPS. This shortens the menu structure and the polling sequence.
Reset ...		Resets Call-UPS II to factory defaults.

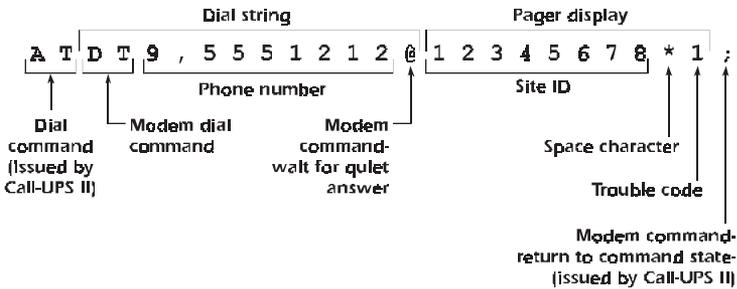
4.7 Paging Setup

When used in conjunction with a modem that understands industry standard AT commands, Call-UPS II can be set up to page an operator in case of trouble, such as on-battery operation or problems with the UPS. To use paging, choose item 6 on the Main menu menu to bring up the Paging Setup menu. Select items from the Paging Setup menu, referring to the screen listing and table later in this section.

Call-UPS II reports the condition by showing a code on the pager's display. Call-UPS II reports information in this format:

[Site ID][space character][trouble code]

Site ID, Space Character, and Trouble Code are among the settings programmed by the user (see below). When a reportable condition occurs, Call-UPS II uses the modem to page an operator. Call-UPS II issues a modem command string like this:



The initial AT comes from Call-UPS II. Do not include it in the Dial String. In this example, the Dial String is DT9,5551212@. DT instructs the modem to dial in tone mode. The 9 and comma are only needed when Call-UPS II is used with a phone system that requires dialing 9 for an outside line. The comma adds a pause. The @ symbol at the end of the pager phone number sets the modem to “wait for quiet answer” (five seconds of silence) before entering the number to send to the pager. The 12345678 in the example comes from item number 8, Site ID, on the Call-UPS II Paging Setup menu. Call-UPS II then issues the Space Character and Trouble Code shown near the end of the example. For this example, the pager would show:

12345678 1

Call-UPS II also issues the semicolon at the end of the modem command. This sends the modem back into command state.

```

----- PAGING SETUP -----
1-      Paging: ON
2- Dial String 1: DT9,5551212@
3- Dial String 2: DT9,5551212@
4-      Repeat 1: 1           8-      Site ID: 12345678
5-      Repeat 2: 1           9-      Space Char: *
6- Page Interval: 1 min      10- Dial Speed: Slow
7- Message Delay: 15 sec    11- End String:

--- EVENT ----- NUM: 1 2 CODE -- EVENT--NUM: 1 2 CODE
12- UPS ON-BATTERY        Y N 0  20- ZONE 1          Y N 8
13- ON & LOW BATTER      Y N 1  21- ZONE 2          Y N 9
14- UPS SHUT DOWN        Y N 2  22- ZONE 3          Y N 10
15- UPS ON-LINE          Y N 3  23- ZONE 4          Y N 11
16- REPLACE BATTERY      Y N 4  24- ZONES CLEAR Y N 12
17- UPS FAULT            Y N 5  25- PROBE 1        Y N 13
18- LOST COM W/ UPS      Y N 6  26- PROBE 2        Y N 14
19- BYPASS               Y N 7  27- PROBES CLEAR Y N 15

-----
?- Help
<ENTER> Display menu
<ESC> Return to Previous menu

>

```

PAGING SETUP		
Setting	Default	Description
Paging	OFF	To enable paging, enter 1 when prompted. Enter 0 to disable.
Dial String 1	DT9, 5551212@	Dial string for the pager (the first pager if two are used). Use standard modem commands such as: DP — dial in pulse mode; DT — dial in tone mode W — wait for second dial tone; , (Comma) — pause (typically for 2 seconds); @ — wait for a quiet answer (5 seconds of silence)
Dail String 2	DT9, 5551212@	Dial string for a second pager number.
Repeat 1	1	Number of times, from 0–4, that the page for the first pager number is repeated. Call-UPS II cycles through Repeat 1, Repeat 2, and Page Interval for each reportable event. Events are buffered and prioritized during paging to keep the operator updated with the best information. <i>Note: paging is also controlled on an event basis (see later chart). Set Repeat to 0 to disable a pager without having to disable all the events.</i>
Repeat 2	1	Same as Repeat 1, for pager associated with Dial String 2.

PAGING SETUP (Continued)		
Setting	Default	Description
Page Interval	1 min	Time between paging cycles. This timeout occurs after both pagers have been paged. After the timeout, paging continues with the next pager number that still has repeats as set above. Valid entries are 0 to 10 minutes. With Page Interval set to 0, Call-UPS II repeats pages without delay.
Message Delay	15 sec	Amount of time after on-battery operation that Call-UPS II waits before initiating paging. This feature prevents paging during brief power disturbances. Select from the list of times, 15 through 120 seconds.
Site ID	12345678	Identification number for the connected UPS, to be reported during paging. Enter a unique and meaningful number of up to eight numeric (0-9) characters. Keep in mind the length of the pager display.
Space Character	*	Space character suitable for the pager. Select from @, #, and none. This appears on the pager as a space separating the Site ID from the trouble code.
Dial Speed	Slow	Select from slow, medium, and fast dial speeds. Unless dialing speed is needed, use the default, slow dialing. Faster dial speeds may be incompatible with some pagers and other telephone equipment.
End String		Character(s) appended to the end of the Dial String. Use an End String if the paging service has a menu for reviewing and leaving messages. Call-UPS II appends a final semicolon (;) after the End String in order to hang up the modem and return it to command mode.

The remaining fields in the Paging Setup menu define the events that trigger a page, the pager(s) that will be paged when the event occurs, and the code that will be displayed on the pager. Each event type can be set so that either, both, or neither of the pagers will be paged for that event. The defaults are “Y” (ON) for the first pager, and “N” (OFF) for the second. Event codes from 0 to 15 can be assigned to each type. The following table describes triggering events and the default setting for each. A default of “Y N 5,” for example, means that the associated event in the first column

will page the first pager but not the second, and that the first pager will show a “5” after the Site ID when it receives the page.

Note: The default code numbers defined by the Paging Setup menu varies widely according to the type of UPS. Measure-UPS, zone, and probe alarms apply only if those devices are present, even though they appear on the menu.

PAGING SETUP (EVENTS)	
Event	Description
UPS ON-BATTERY	UPS is operating on battery power because of utility line problems. The Message Delay setting (see earlier Paging Setup menu table) has been exceeded.
AC-FAIL/ LOW BATTERY	Utility power has failed, and the UPS battery is nearly exhausted.
UPS SHUT DOWN	UPS has been shut down by command or low-battery condition.
UPS ON-LINE	UPS has returned to online operation (after an on-battery, low-battery, or shutdown condition).
REPLACE BATTERY	UPS has issued a Replace Battery alarm.
UPS FAULT	UPS has detected an internal fault.
MEASURE-UPS ALARM	Measure-UPS environment monitor associated with the connected UPS has issued an alarm.
MEASURE-UPS ALL CLEAR	All alarms from Measure-UPS have been cleared.
ZONE [n]	Zone monitor (1-4) has detected a condition that exceeds preset zone monitor limits. For use with Measure-UPS only.
ZONES CLEAR	Conditions triggering earlier Zone alarms have been cleared.
PROBE [n]	Probe monitor (1-2) has detected a temperature or humidity condition that exceeds preset probe limits. For use with Measure-UPS only.
PROBES CLEAR	Conditions triggering earlier Probe alarms have been cleared.

4.8 Measure-UPS Info

Note: The Measure-UPS Info Main menu item appears only when Call-UPSII is used in conjunction with a Measure-UPS environment monitor.

Type **7**, then press ENTER at the main menu to display Measure-UPS status, settings, and alarms:

```
----- MEASURE-UPS STATUS -----  
                                PROBE 1      PROBE 2  
TEMP Celsius):                26.67  
  Low Limit: 1- 18.10      5-  
  High Limit: 2- 23.97      6-  
  
HUMIDITY (%RH):              036.9  
  Low Limit: 3- 040.3      7-  
  High Limit: 4- 070.0      8-  
F/W Rev: 4Gx  
----- CURRENT ALARMS -----  
                                Hi Temp  
                                Lo RH  
<ESC>=Main Menu>
```

The fields on this screen display Measure-UPS readings for each connected probe, settable alarm limits for each probe, and any current alarms. To make changes to the alarm settings, type the number of the menu item (1–8). If you want to change the low humidity limit for the Measure-UPS Probe 1, for example, you can type **3** and press enter. Scroll through the available choices by pressing SPACEBAR. Press ENTER to make the selection and return to the Measure-UPS Info screen. When you are finished making changes, press ESC to return to the Main menu. The following table describes the status items and lists the choices for the settable alarm limits.

MEASURE-UPS INFO	
Item	Description
TEMP	Current ambient temperature of each attached probe, in degrees Celsius.
Lo Limit (Temp)	Setting for the low temperature Measure-UPS alarm. Choose from 9.94 (the default), 14.02, 18.10, and 4.08 degrees Celsius.
Hi Limit (Temp)	Setting for the high temperature Measure-UPS alarm. Choose from 32.13 (the default), 45.90, 54.06, and 23.97 degrees Celsius.
HUMIDITY	Current percentage of relative humidity of each probe.
Lo Limit (Humidity)	Setting for the low humidity Measure-UPS alarm. Choose from 20.1 (the default), 30.2, 40.3, and 10.0 percent relative humidity.
Hi Limit (Humidity)	Setting for the high humidity Measure-UPS alarm. Choose from 80.0 (the default), 84.5, 90.1, and 70.0 percent relative humidity.
F/W	Firmware revision number of Measure-UPS.
Current Alarms	Status display of current Measure-UPS alarms, which can include Lo Temp, High Temp, Lo RH, Hi RH, and the four contact closures. The earlier sample screen shows Hi Temp and Lo RH because the reported values for these items exceed their respective alarm limits.

Press ENTER at the > prompt on the Measure-UPS screen to display fresh readings.

5 Problem Resolution

5.1 Troubleshooting Chart

TROUBLESHOOTING		
Problem	Possible Cause	Solution
Power light flashes rapidly when unit is first turned on.	Internal problem with Call-UPS II.	Disconnect Call-UPS II from the UPS momentarily, then reconnect.
Remote modem will not answer.	Call-UPS II Setup item Answer Ring set to 0.	Set Answer Ring to value other than 0 (see Sec. 4.6).
	Answer Lockout in progress.	Call back after Answer Lockout interval has expired.
	Remote modem plugged into UPS that has been turned off.	Plug remote modem into a wall socket or use modem powered by Call-UPS II.
	Modem did not receive setup string from Call-UPS II.	Turn modem on before plugging in Call-UPS II; check the cables.
Cannot log in locally to configure Call-UPS II.	Call-UPS II is dialing back.	Press ESC to bypass the dialback in progress or type connect and press ENTER . Call-UPS II will not echo this message, so typing will be "blind."
Pages are not getting through.	No @ symbol at the end of the dial string.	Add an @ symbol at the end of the dial strings in the Paging Setup Menu. Many paging controllers need additional time to establish a connection.
	Not enough time between repeats, or not enough repeats.	Add to the values in the Repeat 1, Repeat 2, and Paging Timer settings in Paging Setup.
	Call-UPS II is dialing too quickly for the paging equipment.	Set Dial Speed in Paging Setup to a lower value.
	Space character cancels sending the page.	Set Space Character in Paging Setup to none.

The troubleshooting chart covers many of the problems that might arise with Call-UPS *II*. If you have a problem with Call-UPS *II*, refer to this chart first. There may be a simple solution you are overlooking.

5.2 If Problems Persist

For problems not covered in the earlier troubleshooting chart, or if the problem persists, follow this procedure:

- 1 Note the serial number and date of purchase of the Call-UPS *II*. Contact Customer Service at the phone number or address on the back cover of this manual.
- 2 Be prepared to provide a description of the problem. A technician will help solve the problem over the phone, if possible, or will give you a Return Material Authorization (RMA) number.
- 3 If the Call-UPS *II* is under warranty, repairs are free of charge. If the warranty has expired there will be a nominal charge for repair.
- 4 Pack the Call-UPS *II* carefully to avoid damage in transit. Damage sustained in transit is not covered under the warranty. Enclose a letter in the package with your name, address, RMA number, a copy of the sales receipt, daytime phone number, and check (if necessary).
- 5 Clearly mark the RMA number on the outside of the shipping carton. The factory will not accept any materials without this marking.
- 6 Return the Call-UPS *II* by insured, prepaid carrier to the address on the cover of this manual.

6 Specifications

6.1 Management Port

The management port is a standard 9-pin RS-232 serial communications port. The port is configured as data terminal equipment (DTE) with no handshaking, and supports bit rates of 1200, 2400, 9600, and 19,200 bits per second. The data format is 8 data bits, 1 start bit, 1 stop bit, and no parity. The pinout of the management port is listed below.

MANAGEMENT PORT PINOUT	
Pin	Function
1	Unused
2	Receive data input
3	Transmit data output
4	RS-232 high
5	Ground
6	Unused
7	Request to send output
8	Clear to send input
9	Unused

6.2 Product Specifications

Electrical		
Current Draw (Normal Operation):	External	45 mA _{dc} typical

Physical		
Size (H × W × D):	External	1.33 × 4.25 × 4.5 in. (3.4 × 10.8 × 11.4 cm)
	SS	1.5 × 4.0 × 4.0 in. (3.8 × 10.2 × 10.2 cm)
Weight:	External	0.89 lb (0.40 kg)
	SS	0.27 lb (0.123 kg)
Shipping Weight:	External	1.5 lb (0.68 kg)
	SS	0.8 lb (0.363 kg)

Environmental	
Storage Elevation:	Up to 50,000 ft (15,000 m) above MSL
Storage Relative Humidity:	0 to 95%, non-condensing
Storage Temperature:	+4 to +122° F (-15 to +70° C)
Operating Elevation:	Up to 10,000 ft (3,000 m) above MSL
Operating Relative Humidity:	0 to 95%, non-condensing
Operating Temperature:	+32 to +113 F (0 to +45° C)

Approvals	
EMC Verification:	FCC/DOC Class B, EN50022, EN50082-1

Appendix: Multiple SmartSlot Installation

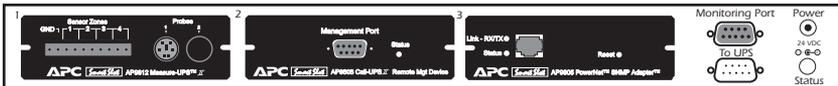
If your UPS configuration uses more than one SmartSlot device, you must install them in the correct order for them to work together properly.

A SmartSlot device with higher priority is to be placed in the SmartSlot labeled with the higher number. Refer to the table that follows.

DEVICE	PART #	PRIORITY	POSITION
PowerNet SNMP Adapter	AP9605	Highest	Highest-numbered slot.
Call-UPS II Remote UPS Management Device	AP9608	Second Highest	Second-highest-numbered slot (highest if no PowerNet SNMP Adapter is present).
Relay I/O Module	AP9610	Medium	Any slot numbered lower than PowerNet SNMP Adapter & Call-UPS II and higher than Measure-UPS.
Interface Expander	AP9607	Medium	Any slot numbered lower than PowerNet SNMP Adapter & Call-UPS II and higher than Measure-UPS.
Measure-UPS	AP9612TH	Lowest	Lowest numbered slot.

Triple Chassis

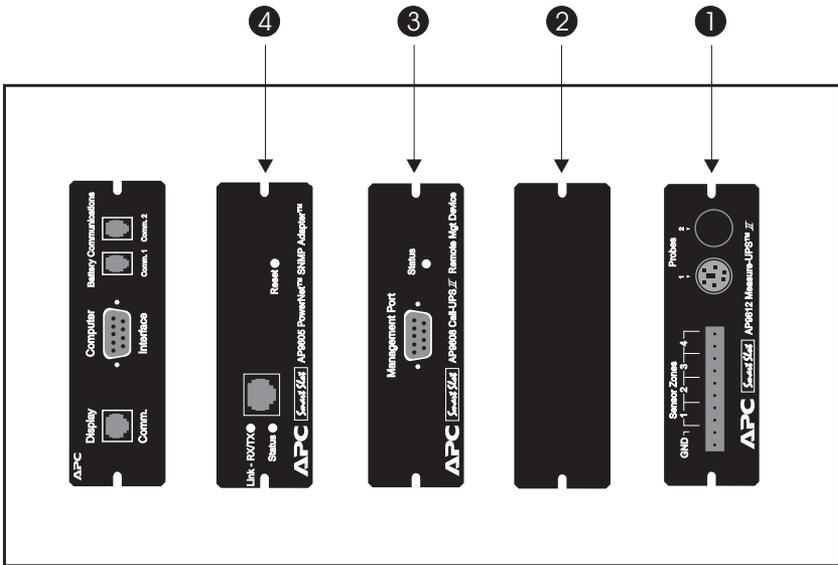
To install SmartSlot devices in the APC Triple Chassis (AP9604), note that the slots are numbered on the rear panel. The following figure shows the rear panel of the Triple Chassis with the PowerNet SNMP Adapter installed in slot #3, Call-UPS II in slot #2 and Measure-UPS II in slot #1.



Symmetra Power Array

For installation of multiple SmartSlot devices in the Symmetra Power Array, refer to the numbering in the figure that follows. Note that the PowerNet SNMP Adapter is installed in slot #4, Call-UPS II in #3, no device in #2, and Measure-UPS in #1.

If you are using an external SmartSlot housing (Expansion Chassis or Triple Chassis) in conjunction with a Symmetra Power Array, install the devices with higher priority in the external slot(s). Refer to the earlier Triple Chassis section, if applicable.



Daisy Chains

If you have increased your SmartSlot capacity by daisy-chaining Expansion Chassis or Triple Chassis, install the PowerNet SNMP Adapter and Call-UPS II in the highest-numbered and second-highest-numbered slots, respectively, of the chassis installed farthest from the UPS.

Smart-UPS and Matrix-UPS

If your APC UPS has only one SmartSlot, install the low-priority devices in the UPS SmartSlot and use an external SmartSlot housing (Expansion Chassis or Triple Chassis) for the device(s) with higher priority. Refer to the earlier Triple Chassis section, if applicable.

Limited Warranty

American Power Conversion (APC) warrants its products to be free from defects in materials and workmanship for a period of two years from the date of purchase. Its obligation under this warranty is limited to repairing or replacing, at its own sole option, any such defective products. To obtain service under warranty you must obtain a Returned Material Authorization (RMA) number from APC or an APC service center. Products must be returned to APC or an APC service center with transportation charges prepaid and must be accompanied by a brief description of the problem encountered and proof of date and place of purchase. This warranty does not apply to equipment which has been damaged by accident, negligence, or misapplication or has been altered or modified in any way. This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

EXCEPT AS PROVIDED HEREIN, AMERICAN POWER CONVERSION MAKES NO WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation or exclusion of implied warranties; therefore, the aforesaid limitation(s) or exclusion(s) may not apply to the purchaser.

EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL APC BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, APC is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, costs of substitutes, claims by third parties, or otherwise. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

Life support policy

As a general policy, American Power Conversion (APC) does not recommend the use of any of its products in life support applications where failure or malfunction of the APC product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. APC does not recommend the use of any of its products in direct patient care. APC will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to APC that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) the liability of American Power Conversion is adequately protected under the circumstances.

Examples of devices considered to be life support devices are neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief, or other purposes), autotransfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators for both adults and infants, anesthesia ventilators, and infusion pumps as well as any other devices designated as “critical” by the U.S. FDA.

Hospital grade wiring devices and leakage current may be ordered as options on many APC UPS systems. APC does not claim that units with this modification are certified or listed as Hospital Grade by APC or any other organization. Therefore these units do not meet the requirements for use in direct patient care.



AMERICAN POWER CONVERSION

Toll free technical support:

United States and Canada
1-800-800-4272
Ireland
1-800-702000
U. K.
0800-132990

Areas without toll free numbers:

+1 401 789 5735 (USA) or
+353 91 702020 (Ireland)

Addresses:

American Power Conversion Corporation
132 Fairgrounds Road
P. O. Box 278
West Kingston, Rhode Island 02892
USA

American Power Conversion Corporation
(A. P. C.) b. v.
Ballybritt Business Park
Galway
Ireland

www.apcc.com

Serial number: _____

Entire contents copyright © 1997 American Power Conversion.
All rights reserved; reproduction in whole or in part without permission is prohibited.
All trademarks are the property of their respective owners.

