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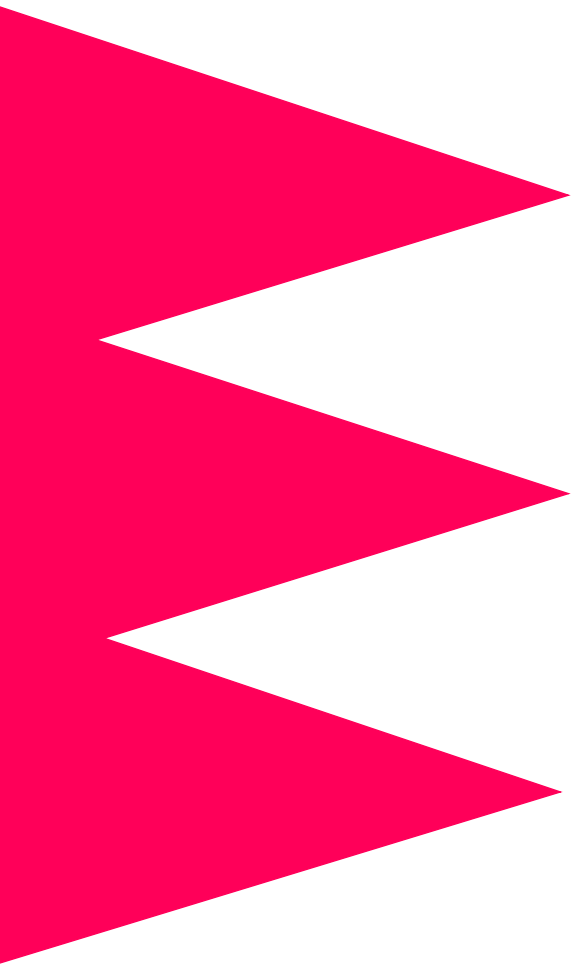
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Smart Slot™

Interface Expander

AP9607

APC®

Thank You!

Thank you for selecting the UPS Interface Expander (AP9607). It has been designed for many years of reliable, maintenance-free service in combination with your American Power Conversion (APC) uninterruptible power supply (UPS). APC is dedicated to the development of high-performance electrical power conversion and control products. We hope that you will find this product a valuable, convenient addition to your computing system.

***Please* read this manual!** It provides important safety, installation, and operating instructions that will help you get the most from your Interface Expander.

***Save* this manual!** It includes instructions for obtaining warranty service.

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 this equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

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Introduction

Overview

The UPS Interface Expander (AP9607) is an American Power Conversion (APC) SmartSlot™ accessory that provides two additional computer interface ports for your APC UPS equipped with a SmartSlot accessory slot. It allows the UPS to work in conjunction with your power management software to provide safe system shutdown in extended power outages for up to three network servers or other devices.

Since the computer interface port of the UPS remains available while using the Interface Expander, it is possible to provide advanced UPS and power management functions to all protected devices. You can provide power management with APC PowerChute© *plus* software and UPS accessories such as the APC Web/SNMP Management Card (AP9606) for network connectivity and the Call-UPS© *II* (AP9208, AP9608) remote management device.

The Interface Expander draws power from the UPS. It monitors the UPS and reports power conditions (e.g., On Battery, Low Battery, On Line) to all attached devices.

Continued on next page

Features of the Interface Expander

The Interface Expander:

- Mounts in all APC devices equipped with a SmartSlot accessory slot.
- Works well in a heterogeneous network. Servers running different operating systems can monitor the same UPS simultaneously.
- Supports advanced or simple signaling on the advanced port of the UPS.
- Can delay shutdown of the UPS until all servers have shut down gracefully.
- Allows you to restart hung servers.
- Has operating modes that cause the UPS to shut down after confirmation from all protected devices or after an interval set by the user. See “Configuring the Interface Expander” on page 19.
- Does not depend on the operation of the network to protect connected devices. As a hard-wired accessory, the Interface Expander reliably conveys important status messages during poor power conditions.

Continued on next page

Hardware and software requirements

The Interface Expander requires:

- An APC device equipped with a SmartSlot accessory slot. SmartSlot devices include—but are not limited to—the APC UPSs in the next item.
- An APC UPS of one the following models:
  - Smart-UPS®, except models AP250, AP400, AP600, AP900, AP1250, AP2000, SUVS420, SUVS650, SUVS1000, SUVS1400, SU620.
  - Matrix-UPS™, except models with serial numbers less than x9412.
  - Symmetra™ *PowerArray*™.
- APC PowerChute software (simple signaling) or PowerChute *plus* (advanced or simple signaling) software. See “Simple versus smart signaling: Table 3” on page 7.
- A serial cable (for each connected device) that monitors shutdown signals. See “Choosing cables: Table 1” on page 4.

Continued on next page

Choosing cables: Table 1

This table lists the cables for use with the systems supported by the Interface Expander. When ordering a cable, provide the Part Number.

IF you want to connect the Interface Expander to a(n)…	THEN order…	Part Number
Windows or NetWare server	UPS LAN Manager Cable	940-0020
UNIX server	UNIX Basic Signaling Cable	AP9823
IBM AS/400	AS/400 Cable Model 9402/ 9404	940-0006
Macintosh Apple-Share server	PowerChute for Macintosh (software and cable)	AP9001
15-ft extension cable	UPS Interface Extension	AP9815
50-ft extension cable	Isolated Extension Cable	AP9825

Safety warning



The Interface Expander is to be used only in conjunction with an APC UPS. Use only APC UPS monitoring cables. Do not connect a computer to any Interface Expander port using a “straight-through” wired extending cable. Connections using a UPS or cable made by any other manufacturer may cause damage or improper operation of the the Interface Expander unit, the UPS, or the computer.

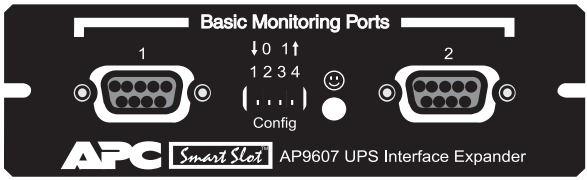
Do not operate the Interface Expander where the ambient temperature or humidity is outside the limits listed in “Product specifications: Table 7” on page 32.

Product Description

Interface Expander panel: Figure 1

The following figure shows the front panel of the Interface Expander. The panel contains:

- 2 Basic monitoring ports
- 4 Configuration DIP switches
- a status LED



Basic monitoring ports

The two computer interface ports on the Interface Expander are called *Basic* ports because they supply simple UPS signaling for On Battery and Low Battery conditions in the UPS. For further information see “Simple versus smart signaling: Table 3,” on page 7.

Configuration DIP switches

The Interface Expander Configuration DIP switches control the shutdown operation of the unit. See “Configuring the Interface Expander” on page 19.

Continued on next page

Status LED: Table 2

The Interface Expander status LED provides important information concerning operation of the unit. Refer to the table below for a description of the conditions indicated by the LED.

Status	Description
On	Normal operation. The Interface Expander is on and communicating with the UPS.
Mostly on, with a single blink off	The Interface Expander is signaling a UPS On Battery condition to the connected servers.
Mostly on, with two blinks off	The Interface Expander is signaling On Battery and Low Battery conditions to the connected servers, and will eventually shut down the UPS.
Flashing continuously	Shutdown of the UPS is imminent.
Mostly off, with a single flash on	UPS outputs are off—UPS is in Sleep mode.
Blinking slowly and continuously	The Interface Expander failed its self-test.
Off	The Interface Expander is powered off or is not able to communicate with the UPS.

Key Concepts

Simple versus smart signaling: Table 3

The communication between an APC UPS and a connected server can be of two types: simple signaling or smart signaling. This table provides information that distinguishes the two types.

Item	Communication Types	
	Simple Signaling	**Smart Signaling**
UPS monitoring features	–On Battery signal –Low Battery signal	–On Battery signal –Low Battery signal –Continuous advanced monitoring visible in PowerChute *plus* graphs
Software used	PowerChute (or PowerChute *plus* configured for simple signaling)	PowerChute *plus* configured for smart signaling
Port type	Basic	Advanced or Basic
UPS models supported	–Back-UPS –Smart-UPS† –Matrix-UPS –Symmetra *PowerArray*	–Smart-UPS, –Matrix-UPS, and –Symmetra *PowerArray*
Communication cables	Cables in the interface kit associated with each OS. See “Choosing cables: Table 1” on page 4.	Cable supplied with PowerChute *plus*

† See “Hardware and software requirements,” on page 3 for a listing of APC UPSs that do not support simple signaling with the Interface Expander.

Continued on next page

Key Concepts *continued*

Master server versus Interface Expander servers

A “master” server is a server connected to the (Advanced) computer interface port of the UPS. This server uses PowerChute *plus*, configured for smart signaling, to monitor and control the UPS. Although the Advanced port on the UPS can provide simple signaling, we strongly recommend using it for smart signaling with the advanced capabilities of PowerChute *plus*.

Servers connected to the Basic ports of the Interface Expander use simple signaling with PowerChute or PowerChute *plus* to provide UPS shutdown capabilities and advanced notification features. If you are running PowerChute *plus* on these servers, you must configure it for simple signaling. See “Configuring PowerChute *plus* for simple signaling” on page 9.

Continued on next page

Configuring PowerChute *plus* for simple signaling

To use PowerChute *plus* on a server connected to the Interface Expander, configure PowerChute *plus* for simple signaling. Use either **one** of these procedures.

1. (Re)install PowerChute *plus*. When the installation program prompts for the UPS Type, select "Back-UPS" and continue with the installation, including a reboot of the system.
2. Run PowerChute *plus* and connect to the UPS.
3. Verify that the status line on the PowerChute *plus* screen shows "On Line." Proceed with Step 4 below.

OR

1. With PowerChute *plus* running, select **Communication Parameters** from the **Configuration** menu.
2. Click **Simple Signalling**. Click **OK**.
3. Close PowerChute *plus*.
4. *If the UPS had previously been connected using smart signaling*:
   a. Unplug the UPS.
   b. Turn off the UPS output by pressing the Off button for at least 5 seconds.
   c. Change communication cables, using the simple signaling cable from the interface kit. (See "Choosing cables: Table 1" on page 4.)
5. Restart PowerChute *plus* and attach the server to the UPS.
6. Verify that the status of the UPS on the PowerChute *plus* screen shows "On Line."

Continued on next page

Low Battery signal

The Interface Expander generates a Low Battery signal when it detects a Low Battery condition at the UPS, regardless of whether the UPS is on battery. The Interface Expander generates a Low Battery signal under certain other conditions according to the configured shutdown mode (see "Configuring the Interface Expander" on page 19), when it may force a Low Battery signal and an On Battery signal, causing the servers to shut down.

Scheduled shutdowns

When a server connected to the (Advanced) computer interface port on the UPS is running UPS-monitoring software such as PowerChute *plus*, you can execute scheduled or supervised UPS shutdowns for the servers connected to the Interface Expander. The Interface Expander intercepts the shutdown signal and sends the following messages to all attached servers or devices:

- On Battery and Low Battery signals (for the low-battery duration set in the UPS)
- Shutdown commands (e.g., Sleep, Turnoff, etc., as requested by PowerChute *plus*)

The servers connected to the Basic ports to shut down gracefully before they lose power when the UPS output is turned off—a feature normally available only to servers using PowerChute *plus* and smart signaling.

Continued on next page

Setup overview

To set up the Interface Expander, you will be required to perform the following procedures as applicable:

1. Determine which SmartSlot accessory slot you will use for the Interface Expander. See “Multiple SmartSlot Installation” on page 12.
2. Install the Interface Expander into the SmartSlot accessory slot of the UPS or other device. See “Installation” on page 15.
3. Connect the protected devices. See “Connecting to Protected Devices” on page 17.
4. Configure the Interface Expander for automatic shutdown. See “Configuring the Interface Expander” on page 19.
5. Test the operation of the Interface Expander. See “Testing the Interface Expander” on page 23.

Multiple SmartSlot Installation

Introduction

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

Priority of SmartSlot devices: Table 4

Install SmartSlot accessories as dictated by the following table. An accessory with higher priority is to be placed in the accessory slot with the higher number.

Note: *The Share-UPS accessory (AP9207) has the same priority as the Interface Expander. For information on accessories that are not listed, see the documentation provided with the accessory.*

Accessory	P/N	Priority	Position
PowerNet SNMP Adapter or Web/SNMP Management Card	AP9605 AP9603 AP9606	Highest	High-numbered slot  Low-numbered slot
Call-UPS® *II*	AP9608	Second-highest	
Relay I/O Module	AP9610	Third-highest	
Interface Expander	AP9607	Second lowest	
Measure-UPS® *II*	AP9612T AP9612TH	Lowest	

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Multiple SmartSlot Installation *continued*

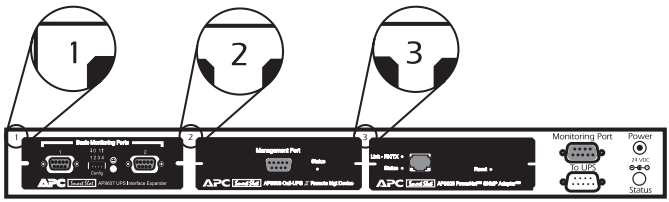
If your UPS has one SmartSlot accessory slot

If your UPS has exactly one SmartSlot accessory slot, use this accessory slot for the SmartSlot device with the lowest priority. Install SmartSlot devices with higher priority in an Expansion Chassis (AP9600) or Triple Chassis (AP9604—see "Installation in the APC Triple Chassis" on this page).

If you are using a Symmetra PowerArray, see "Installation in the Symmetra *PowerArray*" on page 14.

Installation in the APC 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 the Interface Expander in slot #1. (In this scenario, Measure-UPS*II* could be installed in the accessory slot of the UPS.)



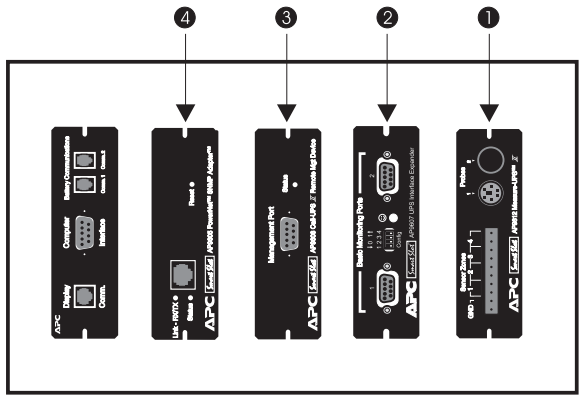
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Multiple SmartSlot Installation *continued*

Installation in the Symmetra PowerArray

For installation of multiple SmartSlot devices in the Symmetra *PowerArray*, refer to the numbering shown in the figure that follows. Note that the PowerNet SNMP Adapter is installed in slot #4, Call-UPS*II* in #3, the Interface Expander in #2, and Measure-UPS*II* 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 “Installation in the APC Triple Chassis” on page 13, if applicable.



Daisy chains

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

Installation

Warning



Handle the Interface Expander by the front panel. Do not touch the exposed printed circuit board or components. Touching the circuit board or components may result in damage to the Interface Expander.

Reminder

Before you install the Interface Expander, install any required power management software (PowerChute, PowerChute *plus*, or software required by your operating system). If you plan to use PowerChute *plus* on servers connected to the Basic ports of the Interface Expander, see "Master server versus Interface Expander servers" on page 8 and "Configuring PowerChute plus for simple signaling" on page 9.

Installation procedure

To install the Interface Expander, perform the following steps in the order given.

Note: *If your UPS configuration uses more than one SmartSlot device, refer to "Multiple SmartSlot Installation" on page 12 before proceeding.*



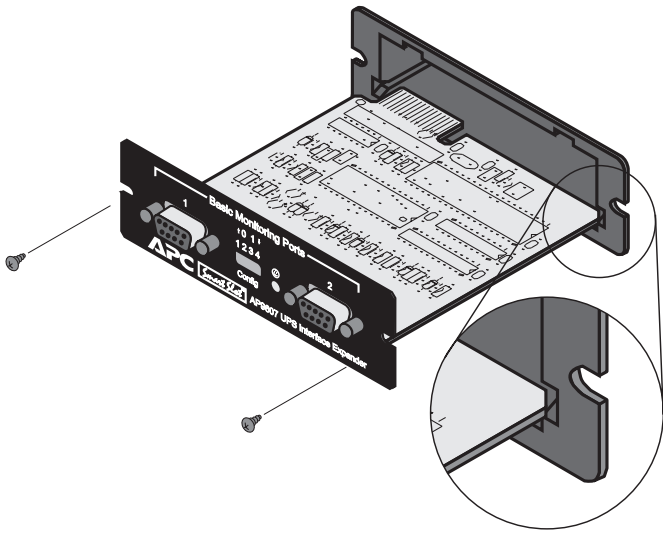
1. Turn off the UPS or device that will house the Interface Expander. To turn off the UPS:
   a. Unplug the UPS.
   b. Turn off the UPS output by pressing the Off button for at least 5 seconds.
2. Unpack the Interface Expander. The shipping materials are recyclable. Please reuse or dispose of them appropriately.
3. Use a #2 Phillips head screwdriver to remove the two screws fastening the accessory slot cover on the back panel of the UPS or device. Keep the screws for Step 5 below. Save the accessory slot cover for future use (e.g., shipping the UPS).

Continued on next page

Installation procedure, continued

4 Orient the Interface Expander to fit the accessory slot. Slide the Interface Expander all the way into the slot until the front panel is flush with the back panel of the UPS or device.

***Note**: While it is not possible to install the Interface Expander upside down, it is possible to damage the unit in the attempt to do so. Observe the correct orientation as shown below. Note that the sides of the printed circuit board align with the card guides in the sides of the accessory slot. The accessory slot in the UPS or device may be oriented horizontally or vertically.*



5 Secure the Interface Expander with the screws removed in Step 3.

6 Proceed with "Connecting to Protected Devices" on page 17.

Connecting to Protected Devices

Connection procedure

To connect the devices, refer to "Connecting the Interface Expander: Figure 2" on page 18 and perform the following steps in the order given.

1. Connect the master server to the (Advanced) computer interface port of the UPS. (See "Master server versus Interface Expander servers" on page 8.)

   ***Note**: A server not supported by PowerChute plus must use simple signaling with the appropriate cable. (See "Choosing cables: Table 1" on page 4.)*

   If an accessory, such as Call-UPS II or Measure-UPS II, is already using the (Advanced) computer interface port of the UPS, connect the master server to the UPS monitoring port on the accessory. (Accessories label this port in different ways, but the function—replicating the computer interface port of the UPS—is the same.)

2. Connect the other server(s) to the Basic ports on the Interface Expander, using APC cables. See "Choosing cables: Table 1" on page 4.

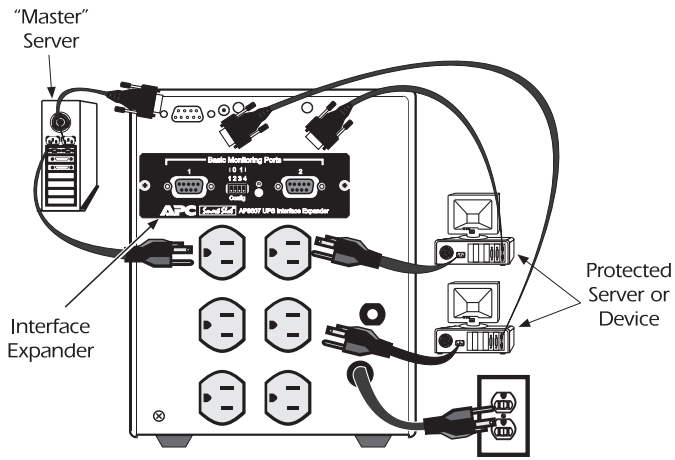
   ***Note**: Servers connected to the Basic ports of the Interface Expander use simple signaling for monitoring the UPS. If these servers use PowerChute plus, this software must be configured for simple signaling. See "Configuring PowerChute plus for simple signaling" on page 9.*

3. Connect the power cords of all protected servers and devices to the power outlets on the UPS.
4. Continue with "Configuring the Interface Expander" on page 19.

Continued on next page

Connecting the Interface Expander: Figure 2

The following figure shows how to connect the devices, as described in “Connection procedure” on page 17.



Configuring the Interface Expander

Shutdown modes

To configure the Interface Expander, you must choose one of the three available modes of automatic UPS shutdown. Each shutdown mode is described in this section.

- Confirmed
- Until Low Battery
- Timer

DIP switches: Table 5

Select the shutdown mode by using the DIP switches as described in the following table. (An abbreviated form of his table also appears on the bottom side of the Interface Expander circuit board.)

Shutdown Mode		**Switch Setting (↓=0, ↑ =1)**			
		1	**2**	**3**	**4**
Confirmed		0	0	0	*
Until Low Battery		0	0	1	N/A
Timer	2 min.	0	1	0	N/A
	5 min.	0	1	1	N/A
	10 min.	1	0	0	N/A
	15 min.	1	0	1	N/A
	30 min.	1	1	0	N/A
	60 min.	1	1	1	N/A
* Server on Advanced Port	Await Confirmation	0	0	0	0
	Treat as Confirmed	0	0	0	1

Continued on next page

Confirmed shutdown mode

In Confirmed mode, the Interface Expander shuts down the UPS after all connected servers have signaled that they have completed shutdown of the operating system.

***Note**: Do not use Confirmed mode if any server connected to the Interface Expander Basic ports or the UPS Advanced port is incapable of sending a shutdown confirmation signal. See "PowerChute plus support for Confirmed shutdown mode" on this page.*

PowerChute *plus* support for Confirmed shutdown mode

Some versions of PowerChute *plus* do not support Confirmed shutdown mode when set up for simple signaling. Other versions require some editing of the **pwrchute.ini** file in the PowerChute *plus* installation directory. To find out whether your version of PowerChute *plus* supports Confirmed shutdown mode, go to http://support.apcc.com/ and find the link to "*What Versions of* PowerChute *plus Support Confirmed Shutdown Mode?"* under **Preinstallation Information|SmartSlot Device|Installation Planning**.

Continued on next page

Behavior of Confirmed mode

If power returns before any connected server has signaled shutdown of the operating system, the Interface Expander returns to On Line status.

If the Interface Expander detects a Low Battery condition in the UPS before all connected servers have signaled shutdown of the operating system, it notifies the servers that the UPS battery is exhausted, shutting down the UPS after the Low Battery Signal Time has elapsed.

If utility power returns after at least one server has confirmed shutdown of the operating system, but before all servers have confirmed system shutdown, the Interface Expander forces On Battery and Low Battery signals so that the remaining servers shut down as well. The Interface Expander sends the forced Low Battery signal for a period of time equal to the Low Battery Signal Time and then shuts down the UPS, which cycles power to restart the servers.

Confirmed shutdown mode and the Advanced port

If you configure the Interface Expander in Confirmed shutdown mode by setting DIP switches 1, 2, and 3 in the down (0) position, you must set DIP switch #4 to determine the behavior of the server or device connected to the Advanced port.

When the Interface Expander is configured for Confirmed mode, DIP switch #4 behaves as follows:

- With DIP switch #4 in the 0 (down) position, the Advanced port operates normally, awaiting shutdown confirmation in the Confirmed shutdown mode.
- With DIP switch #4 in the 1 (up) position, the Interface Expander treats the Advanced port as always confirmed. Use this setting when the Advanced port will not be receiving a shutdown confirmation signal.

Note:*When the shutdown mode of the Interface Expander is set to Until Low Battery or Timer, the position of DIP switch #4 has no effect.*

Continued on next page

Until Low Battery shutdown mode

Until Low Battery shutdown mode is similar to the standard operation of the UPS. During a utility failure, the Interface Expander allows the UPS to run on battery until utility power is restored, or until the battery is exhausted. If the Interface Expander detects a UPS Low Battery condition, it sends a Low Battery signal on all ports for a period of time equal to the Low Battery Signal Time and then shuts down the UPS.

If utility power returns after the Low Battery timer has begun, the Interface Expander will continue the countdown and force the UPS to cycle power.

This mode is useful for applications which require maximum run time.

Timer shutdown mode

In Timer shutdown mode, the Interface Expander allows the UPS to operate on battery for a user-specified length of time before shutting down the UPS. See "DIP switches: Table 5" on page 19 for the available timer settings.

If power returns before the timer has run out, the Interface Expander returns to On Line status. When the timer runs out or when the Interface Expander detects a Low Battery condition in the UPS, the Interface Expander sends a Low Battery signal for a period of time equal to the Low battery signal time and then shuts down the UPS.

***Note**: If you are using PowerChute software, set the shutdown delay for a time longer than the Interface Expander timer setting. Otherwise, if the power returns after the server shuts down, the server may not restart. To set the shutdown delay, go to* **Configuration**|**Event Actions** *and select UPS On Battery from the Event list and Shut Down Server in the Action box. Click* **Options** *and enter a setting for Begin Shutdown Sequence in __ Seconds. Click* **OK**.

Continued on next page

Testing the Interface Expander

To check the operation of the Interface Expander, perform the following steps in the order given.

1. Confirm that the UPS in on and that the battery is fully charged.
2. Verify that the Interface Expander has been installed, connected, and configured.
3. Confirm that all connected servers and devices are on and running their power management software with power management screens visible, if applicable.
4. Confirm that the status LED on the Interface Expander is on, indicating normal operation.
5. Simulate a utility power failure.
6. Confirm that the status LED of the Interface Expander is mostly on with a single blink off, indicating that the Interface Expander is sending an On Battery signal to the connected servers or devices. See “Status LED: Table 2” on page 6.
7. Confirm that all connected servers and devices have received the On Battery message from the Interface Expander.
8. Restore utility power.
9. Confirm that all connected servers and devices have received the message that utility power has been restored.

***Note**: To check the shutdown mode of your configuration, keep the utility power off long enough to allow all connected servers and devices to shut down. After all connected servers and devices have shut down, restore power and verify that they all restart.*

Warranty Information

Limited warranty

American Power Conversion (APC) warrants the Interface Expander 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. 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.

Obtaining service

To obtain service under warranty you must obtain a Returned Material Authorization (RMA) number from APC or a designated 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.

Continued on next page

Warranty limitations

Except as provided herein, American Power Conversion makes no warranties, express or implied, including warranties of merchantability and fitness for a particular purpose. Some jurisdictions 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.

Troubleshooting

If you have problems with your Interface Expander

The troubleshooting chart (Table 6) covers many of the problems that might arise with the Interface Expander. If you encounter a problem with your Interface Expander, refer to the troubleshooting chart first. There may be a simple solution you are overlooking.

Troubleshooting: Table 6

The following table shows the solution to common problems with the operation of the Interface Expander.

Problem	Possible Cause	Solution
A server connected to a Basic port does not acknowledge On Battery signal.	The wrong cable is being used.	Verify that the cable is the one supplied with your interface kit. See "Choosing cables: Table 1" on page 4.
	There is an internal problem with the Interface Expander.	Remove the Interface Expander temporarily from the UPS and reinstall. If the problem persists, see "If problems persist," on page 28.
Status LED flashes continuously.	There is an internal problem with the Interface Expander.	Remove the Interface Expander temporarily from the UPS and reinstall. If the problem persists, see "If problems persist," on page 28.

Continued on next page

Troubleshooting: Table 6, continued

Problem	Possible Cause	Solution
One or more servers shuts down when the UPS is on battery, but does not restart when power returns.	*Timer mode:* the operating system shutdown time as set in PowerChute *plus* is too short.	The power management software shutdown time must be set longer than the Interface Expander Timer shutdown mode setting.
	Confirmed mode: the Interface Expander did not receive shutdown confirmation from servers that shut down, and utility power was restored. The server shut down but the UPS did not shut down.	Verify that the servers can confirm shutdown. See "PowerChute *plus* support for Confirmed shutdown mode" on page 20. If not, configure the Interface Expander for Timer or Until Low Battery shutdown mode.
The server on UPS Advanced port cannot communicate with the UPS.	The communication cable is not properly fastened.	Verify cable connections. See "Choosing cables: Table 1" on page 4.
	The wrong cable is being used.	Verify that the cable is correct for this server.
	The master server is connected to the Interface Expander.	The master server must be connected to the computer interface (Advanced) port on the UPS.
	The port on the master server is being used by another application.	Close the offending application.

Continued on next page

If problems persist

For problems not covered in the troubleshooting chart (see "Troubleshooting: Table 6" on page 26), or if the problem persists, follow this procedure:

1. Note the serial number and date of purchase of the Interface Expander unit. Contact APC Customer Support 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 Interface Expander unit is under warranty, repairs are free of charge. If the warranty has expired, there will be a nominal charge for repair.
4. Pack the Interface Expander carefully in its original packaging, if possible. Do not use polystyrene beads for packing. 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 applicable).
5. Mark the RMA number clearly on the outside of the shipping carton. The factory will not accept any materials without this marking.
6. Return the Interface Expander unit by insured, prepaid carrier to the U.S. address on the back cover of this manual.

Life-Support Policy

General policy

As a general policy, 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 affect significantly 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 life-support devices

Life support devices include but are not limited to 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 protection may be ordered as options on many APC UPS systems. APC does not claim that units with this modifications 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.

Specifications

Basic port pin assignments

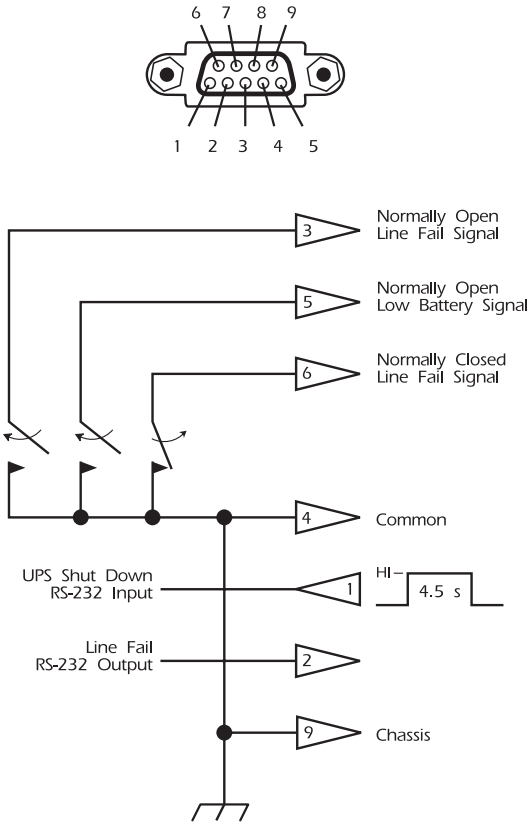
The following limitations and capabilities apply to the Basic ports of the Interface Expander:

- Pins 3, 5, and 6 are open collector outputs which must be pulled up to a common referenced supply no greater than +40 VDC. The transistors are capable of a maximum non-inductive load of 25 mA. Use only Pin 4 as the common.
- The output at Pin 2 generates a low-to-high RS-232 level when the device is signaling an On Battery condition. The pin is normally at a low RS-232 level.
- The Interface Expander unit may be signaled to shut down the UPS by applying a high RS-232 level to Pin 1 for 4.5 seconds. Shutdown is also dependent on the UPS status and the Interface Expander shutdown mode (see "Configuring the Interface Expander," on page 19).

Continued on next page

Basic port pin assignments: Figure 3

The following figure shows the Basic port pin assignments.



Continued on next page

Product specifications: Table 7

The following table shows the product specifications for the Interface Expander.

Item	Specification
Physical	
Size (H × W × D):	4.0 × 4.0 × 1.5 in (10.2 × 10.2 × 3.8 cm)
Weight:	0.3 lb (0.136 kg)
Shipping weight:	0.7 lb (0.318 kg)
Environmental	
Elevation (above MSL): Operating Storage	 0 to 10,000 ft (0 to 3000 m) 0 to 50,000 ft (0 to 15 000 m)
Temperature: Operating Storage	 32 to 104°F (0 to 40°C) 5 to 113°F (-15 to 45°C)
Operating Humidity:	0 to 95%, non-condensing
Approvals	
EMC verification:	FCC/DOC Class B, EN 50022, EN50082-1
Other:	CE, C-Tick (AS/NZS 3538)

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Declaration of Conformity

Application of Council Directives	89/336/EEC
Standards to Which Conformity is Declared	EN55022: 1995 EN50082-1: 1992 including IEC 1000-4-2: 1995 IEC 1000-4-3: 1995 IEC 1000-4-4: 1995
Manufacturer's Name and Address	American Power Conversion 132 Fairgrounds Road West Kingston, Rhode Island 02892 USA -or- American Power Conversion (A.P.C.) b.v. Ballybritt Business Park Galway, Ireland
Importer's Name and Address	American Power Conversion (A.P.C.) b.v. Ballybritt Business Park Galway, Ireland
Type of Equipment	UPS Accessory Equipment
Model Numbers	AP9607

I, the undersigned, hereby declare that the equipment specified above conforms to the above directives.

St. Louis, MO **Place**

June 24, 1999 **Date**



Ted Eckert
Regulatory Compliance Engineer

www.apcc.com

Toll-free Customer Support:

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U. K.	0800 132990

Areas without toll free numbers:

+1 401 789 5735 (USA) or

+353 91 702020 (Ireland)

+7095 916 7166 (Russia)

Serial number:_____

E-mail Customer Support:

Australia	anztech@apcc.com
Europe	apceurtech@apcc.com
India	isbtech@apcc.com
Japan	jsupport@apcc.com
Latin America	apctchla@apcc.com
SE Asia	asetech@apcc.com

Online Customer Support:

U.S. & Canada http://support.apcc.com/

Addresses:

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

APC Ireland
(A. P. C.) b. v.
Ballybritt Business Park
Galway
Ireland

APC Japan
BR Gotanda 7th Floor
2-30-4 Nishi-gotanda,
Shinagawa-ku
Tokyo 141 Japan

APC Europe
143 Bis Avenue de Verdun
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