



Isolated Extension Cable

AP9825
AP9825*i*

Thank You!

Thank you for selecting the Isolated Extension Cable (AP9825 or AP9825i). 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 Isolated Extension Cable.

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

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Overview

Introduction

American Power Conversion's Isolated Extension Cable (AP9825 and AP9825i) is a device that allows you to lengthen the communications connection between a server running PowerChute® software and an APC™ uninterruptible power supply (UPS). When standard cables are used for distances of more than 5 meters, communications can become unreliable and ground loops can damage computer serial ports.

If your facility uses large APC UPSs (Matrix-UPS™ or the Symmetra™ PowerArray™, for example), it may not be practical to place the server running PowerChute software close enough to use the standard data cables. With the Isolated Extension Cable, you can house a UPS in one location and monitor it up to 100 meters away.

Features of the Isolated Extension Cable

The Isolated Extension Cable:

- Boosts signals and reduces noise by using a current loop scheme
 - Provides an isolation barrier that prevents damage from ground loops
 - Works with cables up to 100 meters in length
 - Requires no configuration after plug in
 - Displays information on operation — including some wiring problems — on LEDs
 - Supports all the functions normally available to and from the UPS
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Overview *continued*

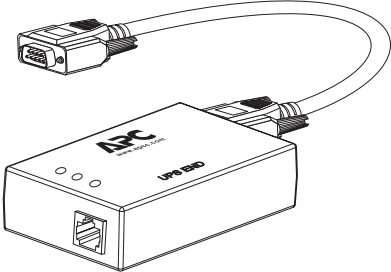
Hardware requirements

The Isolated Extension Cable requires:

- UPS-protected power at the Server End
 - A serial cable that was provided with PowerChute or PowerChute *plus*
 - RJ45 Cat 5 cable (15 m supplied). You may want to use a longer cable. For further information, see “Cable requirements” on page 10.
 - An additional AC Adapter, when used with an APC Back-UPS® or Back-UPS Pro® model UPS. For further information, see “Optional power for UPS End Unit” on page 6.
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Inventory: Table 1

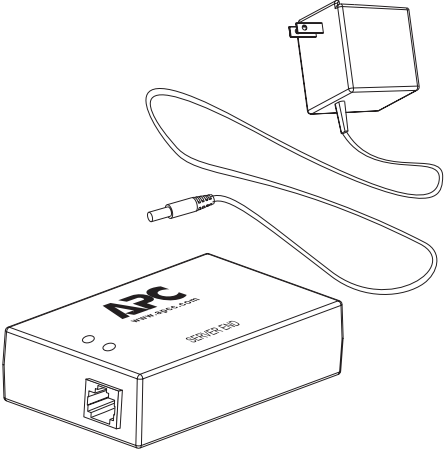
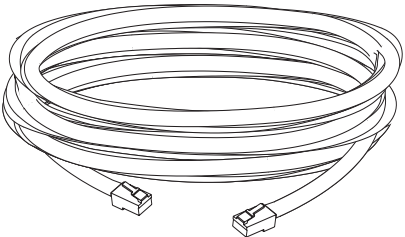
The Isolated Extension Cable consists of the parts listed in the following table.

Item	Illustration
UPS End Unit with attached DB9-DB9 Cable	

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Overview *continued*

Inventory:
Table 1
continued

Item	Illustration
<p>Server End Unit shown with standard AC Adapter (APC Part Number AP9505)</p> <p>Note: Model AP9825i comes with a universal AC Adapter (APC Part Number AP9505i)</p>	 <p>The illustration shows the APC AP9825i Server End Unit, a rectangular device with the APC logo and website address on top. It has an RJ45 port on the front. Above it is a standard AC adapter with a power cord and a power plug.</p>
<p>RJ45 Cable (15 m)</p>	 <p>The illustration shows a 15-meter RJ45 cable, coiled with two RJ45 connectors at the ends.</p>

Setup

Introduction

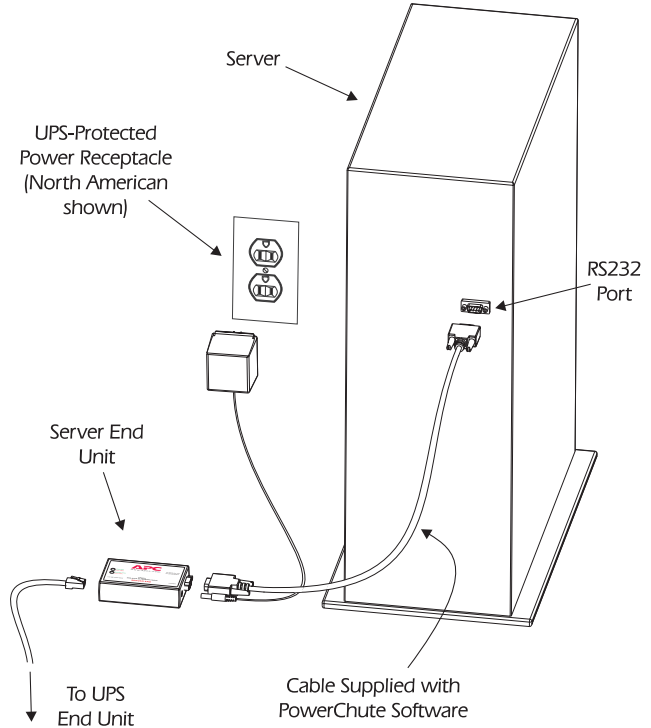
The Isolated Extension Cable requires no configuration.

Using a different cable

The Isolated Extension Cable comes with 15 meters of RJ45 cable. You can use an existing building cable or a longer cable only if it fulfills the requirements listed in “Cable requirements” on page 10.

Setting up the server end: Figure 1

Follow the diagram below to set up the Server End Unit with the RJ45 Cable and the server.



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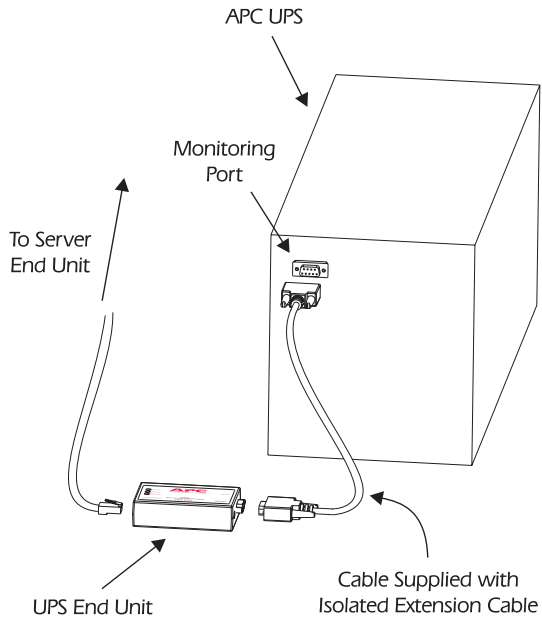
Setup *continued*

Reminder

You must plug the AC Adapter into a receptacle that is protected by UPS power in order to ensure that communication is maintained during utility failure.

Setting up the UPS end:
Figure 2

Follow the diagram below to set up the UPS End Unit with the RJ45 Cable and the UPS.



Continued on next page

Setup *continued*

Optional power for UPS End Unit

The UPS End Unit has an optional power port for use with a second AC Adapter. Normally, the UPS provides enough power through the data cable. You must provide extra power for the UPS End Unit if either of the following conditions applies:

- you have a heavy load of accessories connected to the UPS via the DB9 port
- you are connecting to an APC Back-UPS or Back-UPS Pro model UPS

Note: If you use an optional AC Adapter, you must plug the adapter into a receptacle that is protected by UPS power in order to ensure that communication is maintained during utility failure.

Ordering an additional adapter

To order an additional adapter, contact APC at the number on the back cover of this manual. The reference number for the standard (North American) AC Adapter is AP9505. The reference number for the universal AC Adapter (for use with AP9825i) is AP9505i.

LEDs

Introduction

The Server End Unit has two LEDs; the UPS End Unit has three. These LEDs provide status information and help diagnose problems.

Server End LEDs:

Table 2

The following table gives the conditions reported by each LED on the Server End Unit.

LED	STATUS	DESCRIPTION
LOW BAT POL ERR	Off	Normal condition.
	Green	The UPS battery is low.
	Red	There is a polarity wiring problem on the RJ45 cable.
RXD/AC FAIL POL ERR	Off	Normal condition for Simple Signaling (Back-UPS).
	Flickering Green	The computer or accessory is receiving data from the UPS (Smart Signaling only: Smart-UPS, Matrix-UPS, or Symmetra Power Array).
	Solid Green	The UPS is on battery.
	Red	There is a polarity wiring problem on the RJ45 cable.

Continued on next page

LEDs *continued*

UPS End LEDs:
Table 3

The following table gives the conditions reported by each LED on the UPS End Unit.

LED	STATUS	CONDITION
DATA POL ERR	Off	Normal condition for Simple Signaling (Back-UPS).
	Flickering Green	The computer or accessory is sending data to the UPS (Smart Signaling only: Smart-UPS, Matrix-UPS, or Symmetra <i>Power Array</i>).
	Red	There is a polarity wiring problem on the RJ45 cable.
UPS ON [†]	Yellow	The UPS is being turned on by the server or accessory.
UPS OFF	Yellow	The UPS is being turned off by the server or accessory.

[†] For further information, see “Using Accessories” on page 9.

Polarity errors

A red LED on either unit of the Isolated Extension Cable indicates a polarity error. Polarity errors are caused by wire pairs that are reversed. For the wire pairings, refer to Table 4, “Cable definition,” on page 11.

Using Accessories

Introduction

The Isolated Extension Cable works in conjunction with APC accessories, such as Call-UPS® or Share-UPS®, with certain limitations. Read completely before deciding where to connect your accessories.

Accessory guidelines

- Do not use more than one Isolated Extension Cable in a series data path.
 - The UPS ON command is *not* supported when an APC accessory generating the ON command is connected at the server end. If you want to ensure UPS ON capability, connect the accessory to the UPS end. (You can use the accessory's Advanced Port or one of its Basic Ports.)
 - The Isolated Extension Cable operates at 2400 baud. Some devices, such as the PowerNet® SNMP Adapter, can run at higher rates. Locate these devices such that the Isolated Extension Cable is not in line with them, or set the device to operate at 2400 baud.
 - Use of the Isolated Extension Cable is *not* supported when it is connected between a Control-UPS/400 (APC Part Number AP9012) and the AS/400 server. When using the Isolated Extension Cable with a Control-UPS/400, connect the Isolated Extension Cable between the Control-UPS/400 and the UPS.
-

Specifications

Cable requirements

The Isolated Extension Cable is intended for use with cables that:

- Comply with 10BaseT wiring schemes
 - Are no longer than 100 meters
 - Meet local wiring and safety codes
 - Have been installed by qualified personnel
-

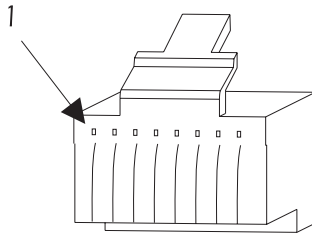
Warning



Wiring safety is the responsibility of those installing the cable. Incorrect installation can result in improper functioning of the device or damage to hardware. The use of substandard cables can produce toxic fumes in the event of a fire.

RJ45 pin locations: Figure 3

The figure below shows the pin locations on the RJ45 connector.



Continued on next page

Specifications *continued*

Cable definition: The pairing scheme and the functions of each wire pair of the RJ45 Cable are provided below.

Table 4

UPS End	Function	Server End
1 2	+24VDC → UPS–SVR Data →	1 2
3 6	+24VDC → Low Battery →	3 6
4 5	← +24VDC ← UPS–SVR Data	4 5
7 8	← !On/Off ← On!/Off	7 8

Product specifications:

Table 5

The specifications for the Isolated Extension Cable are given in the following table.

Item		Specification
Size of unit (h × w × l)		2.5 cm × 6.1 cm × 9.7 cm 1.0 in. × 2.4 in. × 3.8 in.
Length between units	Normal	15 m (50 ft)
	Maximum	100 m (328 ft)
Power requirements	UPS End	24VDC @ 10mA nom. 50mA peak
	Server End	24VDC @ 30mA nom. 65mA peak

Limited Warranty

American Power Conversion (APC) warrants Isolated Extension Cable 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.

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.

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, 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, or other competent authority.

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.



Toll free technical support:

U. S. & Canada	1-800-800-4272
Austria	0660 6480
Belgium	0800 15063
Czech Republic	0 800 102063
Denmark	800 18 153
Finland	9800 13 374
France	0 800 906 483
Germany	01300818907
Holland	0800 0224655
Hungary	00800 12221
Ireland	1 800 702000 x 2045
Israel	177 353 2206
Italy	1678 74731
Japan	0120-80-60-90
Luxembourg	0800 2091
Norway	800 11 632
Poland	00800 353 1202
Portugal	050 553182
South Africa	0800 994206
Spain	900 95 35 33
Sweden	020 795 419
Switzerland	0800 556177
Turkey	0800 35390275
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