



**MasterSwitch™**

**230V**

**AP9210i**

**APC®**

AMERICAN POWER CONVERSION

# Thank You!

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Thank you for selecting the MasterSwitch™ 230V network-manageable power control unit (PCU). The MasterSwitch 230V 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 MasterSwitch 230V.

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

## Declaration of Conformity

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<b>Application of Council Directives:</b>	89/336/EEC
<b>Standards to which conformity is declared:</b>	EN55022, EN50082-1
<b>Manufacturer's Name and Address:</b>	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
<b>Importer's Name and Address:</b>	American Power Conversion (A. P. C.) b. v. Ballybritt Business Park Galway, Ireland
<b>Type of Equipment:</b>	UPS Accessory Equipment
<b>Model Numbers:</b>	AP9210I
<b>Serial Numbers:</b>	WA9801000000-WA9952999999
<b>Years of Manufacture:</b>	1998, 1999

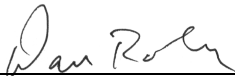
We, the undersigned, hereby declare that the equipment specified above conforms to the above directives.

St. Louis, MO

Place

1/7/98

Date



Dan Rohr  
Design Engineer

Galway, Ireland

Place

1/7/98

Date



Ray Ballard  
General Manager, Galway

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# 1 Introduction

## 1.1 Overview

The MasterSwitch™ is a network-manageable, intelligent power control unit (PCU) designed to provide control of power for up to eight 230-VAC electrical devices.

The MasterSwitch allows you to:

- Individually control each of eight outlets using a web browser, a Simple Network Management Protocol (SNMP) browser, telnet, or a terminal program.
- Remotely and individually reboot hung servers.
- Remove power to non-essential loads.
- Sequentially apply power to equipment that is plugged into the MasterSwitch.

## 1.2 Hardware Requirements

MasterSwitch 230V requires an IEC power cord rated at 10 amps, 230VAC.

## 1.3 Online Documentation

The diskette that comes with the MasterSwitch includes a copy of the MasterSwitch *User Guide* in portable data format (pduguide.pdf). This guide can be read using Acrobat Reader, a free application available from Adobe (<http://www.adobe.com>). If you do not have web capabilities, a copy of this guide is available from the APC FTP site ([apccorp.apcc.com](http://apccorp.apcc.com)).

## 2 Product Description

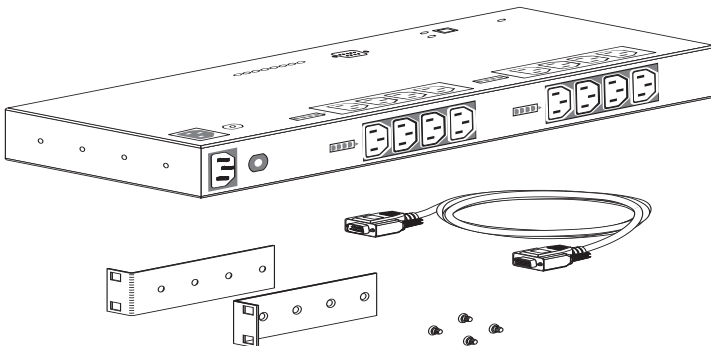
### 2.1 Inventory

In addition to this installation guide, the MasterSwitch also comes with the following items:

- Two rack-mounting brackets. (See Table 1.)
- Four screws for attaching the rack-mounting brackets to the MasterSwitch. (See Figure 1.)
- One DB9 female cable (APC PN 940-0103) for connecting a terminal (or terminal emulator) to the MasterSwitch for configuration. (See Figure 1.)
- One diskette which contains a copy of the MasterSwitch *User Guide* (pduguide.pdf) in Portable Document Format (PDF), as well as a copy of the MasterSwitch Management Information Base (MIB) that provides the object identifiers (OIDs) needed to use an SNMP browser to monitor and control the MasterSwitch.
- One copy of the warranty card.

*Note:* Please fill out and return the warranty card. This card not only provides us with valuable feedback on how we can refine our products to better serve your needs, but also enables us to notify you about important product updates and changes.

Release notes may also be included to advise you of any information that has become relevant since this *Installation Guide* and the online *User Guide* were last revised.



**Figure 1: MasterSwitch 230V with Rack-Mounting Brackets and Configuration Cable**

## 2.2 Front Panel

As shown in Figure 2, the MasterSwitch also features:

A 9-pin configuration port for connecting the MasterSwitch to a terminal (or terminal emulator) during the setup procedures. (See “Installation” on page 5.) This connection is made using the 9-pin cable (APC PN 940-0103) that comes with the MasterSwitch.

- An 8-pin RJ45 jack for connecting the MasterSwitch to a 10Base-T Local Area Network (LAN).
- Two LEDs—Link and Status—for monitoring the network connection.
- Eight LEDs—one for each receptacle—to report power on or off conditions of the MasterSwitch power outlets.
- A reset button that reinitializes the MasterSwitch without affecting its outlet power (warm reboot).

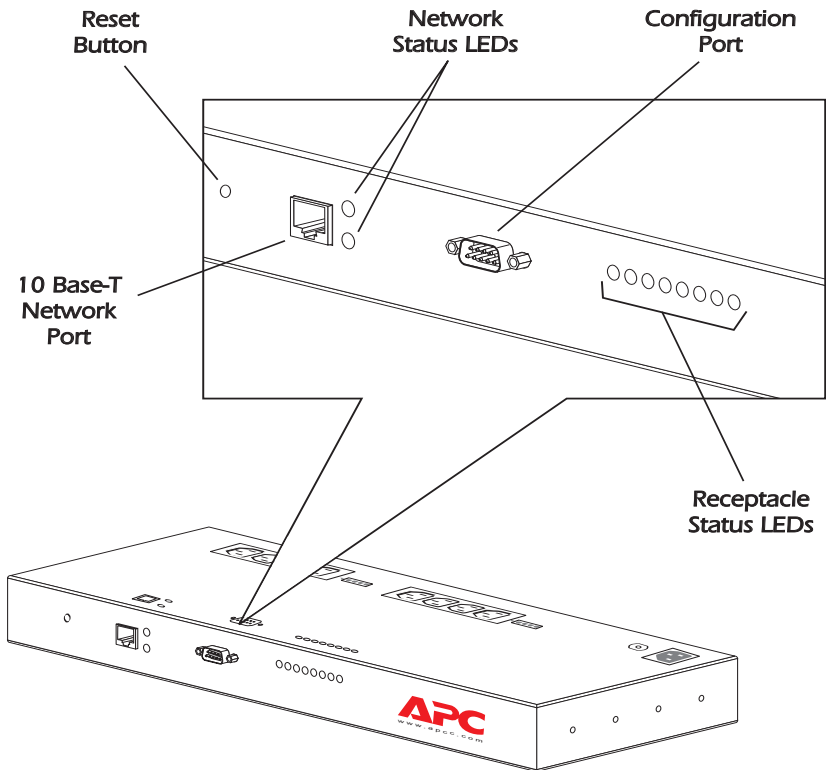


Figure 2: MasterSwitch 230V Front Panel

## 2.3 Rear Panel

As shown in Figure 3, the MasterSwitch has:

- Eight 230-VAC, 10-amp power receptacles (8 IEC 320).
- One circuit breaker.

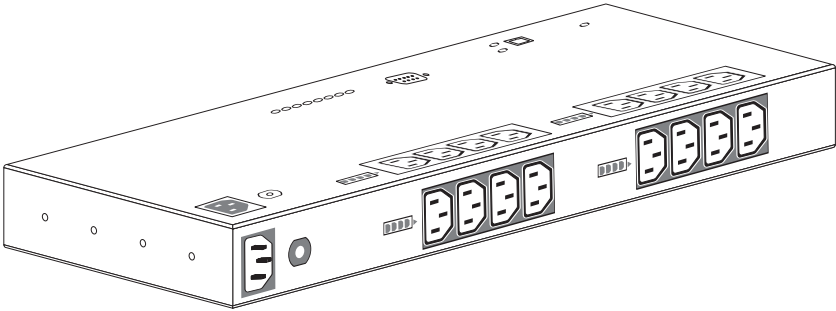


Figure 3: MasterSwitch 230V Rear Panel

## 2.4 Status Indicator

The MasterSwitch has eight receptacle status leds located on the front panel. When a status LED is on, it indicates the corresponding receptacle has power. When a status LED is off, its receptacle does not have power.

The front panel of the MasterSwitch also has two leds that display network connection status. Refer to Table 1.

LED	STATE	INDICATION
Link – RX/TX	Blinking Green	MasterSwitch is connected to a working network.
	Off	MasterSwitch has failed to connect with a network.
Status	Solid Green	MasterSwitch is ok.
	Blinking Green	Network configuration values have not been defined for the MasterSwitch.
	Flashing Red	Processing bootp. (See Section 4.)
	Solid Red	Hardware failure.

Table 1: Network Connection (10Base-T) Status Indicators



## 3 Installation

The MasterSwitch, which connects to a 10Base-t LAN through the RJ45 jack on the front of the unit, can be used as a freestanding desktop unit or mounted in an APC NetShelter™ cabinet (or other 19" NEMA rack).

### 3.1 Desktop Installation

The MasterSwitch is equipped with rubber feet for desktop use and can be located wherever space permits. To install MasterSwitch on a desktop:

- 1 Place the MasterSwitch in its permanent location. Make sure that this location is within 3 meters of a single-phase, 230-VAC, 10-amp outlet, and that the back of the unit (receptacle side) will be readily accessible.
- 2 Plug the male end of your network interface cable (not supplied with the MasterSwitch) into the RJ45 jack on the front of the MasterSwitch.
- 3 Plug the MasterSwitch power cord into the single-phase, 230-VAC, 10-amp outlet.

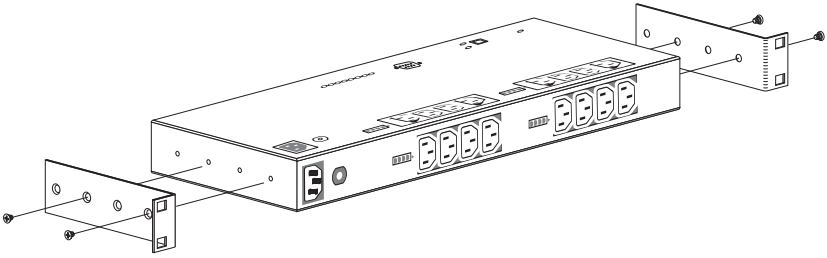
Refer to See Section 4 for information on setting up the MasterSwitch.

### 3.2 Rackmount Installation

To mount the MasterSwitch in a NetShelter (or other 19" NEMA rack):

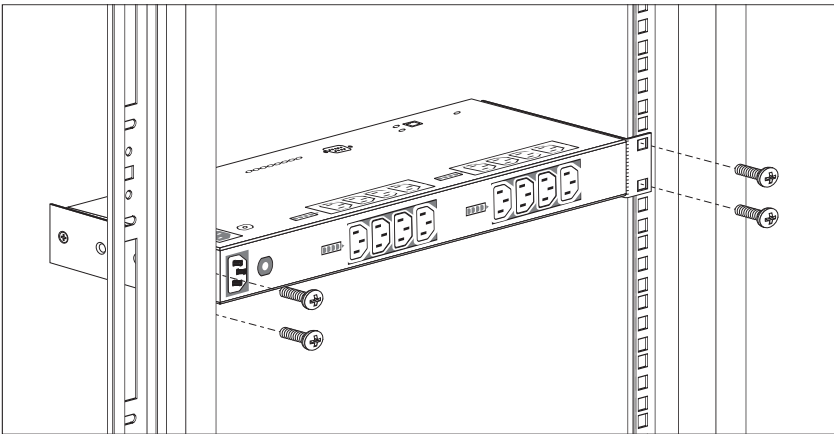
- 1 Peel the rubber feet from the bottom of the MasterSwitch.
- 2 Attach the mounting brackets to the MasterSwitch. (See Figure 4.) Use a #2 Phillips-head screwdriver and two of the supplied screws to attach each mounting bracket to the MasterSwitch.

**Note:** *The mounting brackets can be attached at various positions along the side of the chassis. Choose a position that will allow sufficient room between the mounted MasterSwitch with attached cables and the cabinet door in its closed position. If more than two mounting holes are aligned, choose the pair that are farthest apart.*



**Figure 4: Attaching Mounting Brackets**

- 3 Mount the MasterSwitch into the NetShelter cabinet (Figure 5) with four caged nuts and machine screws (not supplied with the MasterSwitch). If the MasterSwitch is being installed in a cabinet other than a NetShelter, use hardware that is appropriate for the cabinet.
- 4 Plug the male end of your network interface cable (not supplied with the MasterSwitch) into the RJ45 jack on the front of the MasterSwitch.
- 5 Plug the MasterSwitch power cord into a single-phase 230-VAC, 10-amp outlet.
- 6 See “Setup” on page 7 for information on setting up the MasterSwitch.



**Figure 5: Mounting MasterSwitch in a NetShelter Cabinet**

# 4 Setup

## 4.1 Defining Address Values

Before the MasterSwitch can operate over the network, it needs to have certain address values defined. These values can be set by a server using the Bootstrap Protocol (BOOTP) or by a terminal (or terminal emulator) connected to the 9-pin configuration port on the front panel of the MasterSwitch. The MasterSwitch comes with bootp enabled.

Refer to the MasterSwitch *User Guide* for information on the initial configuration of the MasterSwitch. See “Online Documentation” on page 1 of this manual.

## 4.2 Configuration Using SNMP

If you want to use SNMP to configure and control the MasterSwitch, you will need to load and compile the APC MasterSwitch MIB at any network management station (NMS) that you plan to use for SNMP control of the MasterSwitch.

The MasterSwitch MIB is provided on the diskette that came with the MasterSwitch. If you want to use this MIB, see the documentation for instructions on loading and compiling MIBs.

## 4.3 Checking Operation

After the MasterSwitch is installed and set up:

- Confirm the network connection by checking that the status LEDs (Link and Status) are on.
- Confirm that all eight of the receptacle status LEDs are on.

# 5 Problem Resolution

## 5.1 Troubleshooting

PROBLEM	POSSIBLE CAUSE	SOLUTION
No power from any receptacle.	Blown MasterSwitch circuit breaker or no input power.	Reset circuit breaker, or correct input power problem.
Network connection LEDs do not come on.	Connection to network is faulty.	Make sure network cable is securely connected to the MasterSwitch and network.
Circuit breaker trips continuously or frequently.	Amperage drawn by load equipment exceeds 10-amp maximum	Limit load equipment to those devices which together draw less than 10 amps.

**Table 2: Troubleshooting**

## 5.2 If Problems Persist

If the MasterSwitch requires service:

- 1 Check the MasterSwitch using Table 2 before calling for service.
- 2 Note the model number of the MasterSwitch, the serial number, and the date purchased. See the back cover of this manual for the correct telephone number and call apc Technical Support. A technician will ask you to describe the problem in order to help solve it over the phone.
- 3 If the MasterSwitch requires servicing, the technician will give you a return merchandise authorization (RMA) number. If APC Technical Support is not available in your area, call the dealer that sold the MasterSwitch. If it is under warranty, repairs are free. Otherwise there will be a charge for repair.
- 4 It is important to pack the MasterSwitch properly to avoid damage in transit. If possible, use the original packing materials. Damage sustained in transit is not covered under warranty.
- 5 Include a letter with your name, RMA number, address, copy of the sales receipt, description of the trouble, your daytime phone number, and a check (if necessary).

- 6 Mark the RMA number on the outside of the package. The factory cannot accept any package without this marking.
- 7 Return the MasterSwitch by insured, prepaid carrier to the address given by the technician.

## 6 Specifications

TYPE	ITEM	SPECIFICATION
Electrical	Input Nominal input voltage: Acceptable input voltage: Nominal input frequency: Overcurrent protection: Input connector:	230 VAC 207–253 VAC 50/60 Hz 12 (resettable circuit breaker) IEC 320 inlet connector
	Output Output connectors:	IEC 320 receptacles
	Maximum total current draw:	10 A
Physical	Size (h × w × d) Without mounting brackets: With mounting brackets:	5.4 × 43.2 × 16.5 cm 4.8 × 48.3 × 16.5 cm
	Weight Net weight: Shipping weight:	3.0 kg 4.5 kg
Environmental	Elevation Operating: Storage:	0 to 3000 m 0 to 15,000 m
	Temperature Operating: Storage:	0 to 40° C 0 to 45° C
Approvals		CISPR, CE, VDE

**Table 3: MasterSwitch Specifications**

# Limited Warranty

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American Power Conversion (APC) warrants MasterSwitch 230V 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

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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.



## AMERICAN POWER CONVERSION

### 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
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+353 91 702020 (Ireland)  
+7095 916 7166 (Russia)

Serial number: \_\_\_\_\_

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