

Installation and Configuration

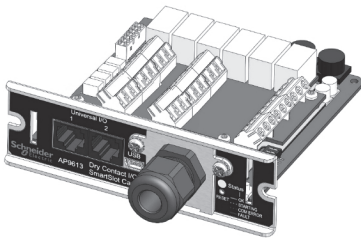
UPS Management Card Accessory

Dry Contact I/O SmartSlot Card

AP9613

990-0125E-001

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Schneider
Electric

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Safety Overview

Important Safety Information

Follow all applicable electrical codes for your installation area.

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service or maintain it. The following special messages may appear throughout this manual or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

DANGER

DANGER indicates an imminently hazardous situation which, if not avoided, **will result in death or serious injury**.

WARNING

WARNING indicates a potentially hazardous situation which, if not avoided, **can result in death or serious injury**.

CAUTION

CAUTION indicates a potentially hazardous situation which, if not avoided, **can result in minor or moderate injury**.

NOTICE

NOTICE addresses practices not related to physical injury including certain environmental hazards, potential damage or loss of data.

Product Overview

Introduction

The Schneider Electric™ Dry Contact I/O SmartSlot Card (AP9613) is a management product that provides the following features:

- **UPS status information** presented through 6 fully isolated output relays. This is expandable to 8 using universal input/output ports and optional Dry Contact I/O Accessory (AP9810)
- **UPS control and testing** by using 4 opto-isolated input contacts. An additional 4 input contacts (non opto-isolated) may be added using universal input/output ports and an optional Dry Contact I/O Accessory (AP9810)
- **UPS control and testing based on environmental conditions** using universal input/output ports and an optional Environmental Sensor (AP9335T or AP9335TH)
- **screw terminal connectors** for easy integration into various management systems
- a **Configuration Utility user interface** to customize your setup, see “Connecting to the Configuration Utility” on page 16

For more details, see “Showing the product detail” on page 4, “Configuring the Dip Switches” on page 8, “Installing” on page 11, “Specifications” on page 27.

Product description

The Schneider Electric Dry Contact I/O SmartSlot Card consists of a printed circuit board assembly. It installs in the SmartSlot of the UPS host device. The contents shipped with the product are:

- the Dry Contact I/O SmartSlot Card
- the USB A to Mini B cable (to access the Configuration Utility, see Connecting to the Configuration Utility)
- this printed manual

Hardware and software requirements and tools needed

The Dry Contact I/O SmartSlot Card works with most APC by Schneider Electric UPS devices with an output rated less than or equal to 160kVA and an available SmartSlot.

While most devices meet this requirement, verify the compatibility of your device by viewing KBase article [FA165616](#) on the APC website www.apc.com.

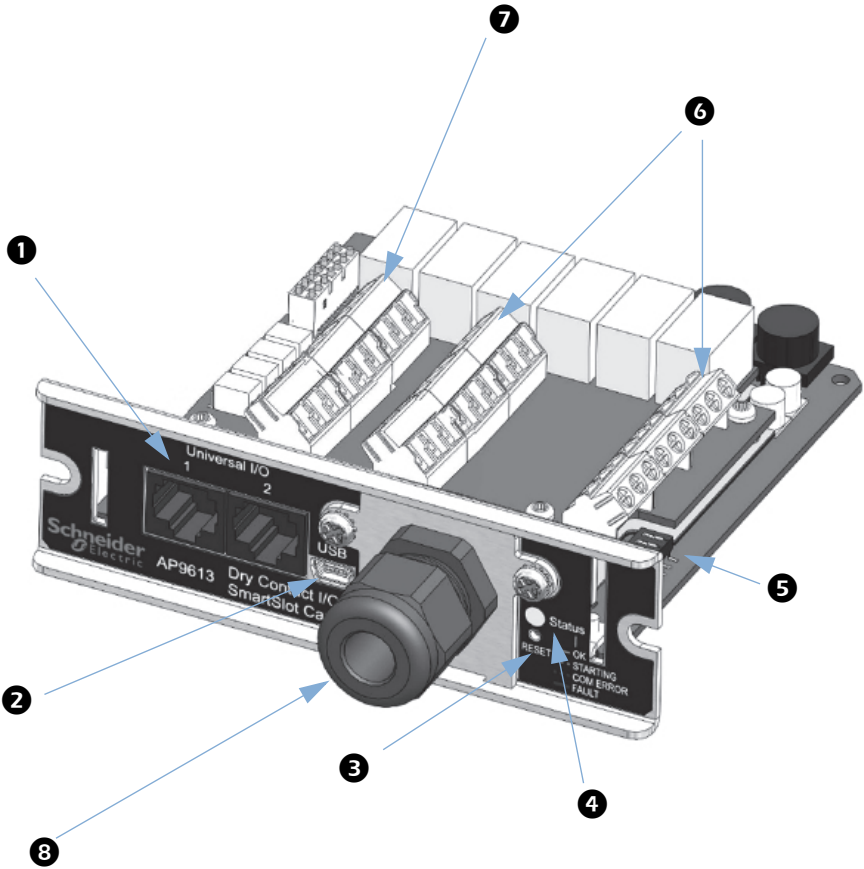
You need the following tools:

- #1 Phillips screwdriver for screw terminals
- #2 Phillips screwdriver for UPS SmartSlot screws
- a wrench of size 1" or 25.4 mm, or adjustable, to tighten the grommet

For the Configuration Utility, you need: Windows Operating System (XP, 2003, 2008, Vista, 7, 8, 8.1 or 10) and Internet Explorer browser v8 or higher.

Showing the product detail

Itemizing the features of the Dry Contact I/O SmartSlot Card



Item	Name	Description
1	Universal I/O ports 1 and 2	These support the AP9335T/TH and AP9810 dry contact accessories
2	USB cable connector	Connecting this to your PC enables usage of the Configuration Utility.
3	Reset button	Use an appropriately sized, non-metallic tool to press the Reset button. There are two options: <ul style="list-style-type: none"> • Press and hold button [LED turns off], release <i>in less than 20</i> seconds [Card reboots with NO factory settings reset]. • Press and hold button [LED turns off], <i>continue holding for 20</i> seconds [LED turns red, card resets to factory settings and reboots].
4	LED Status Indicator	

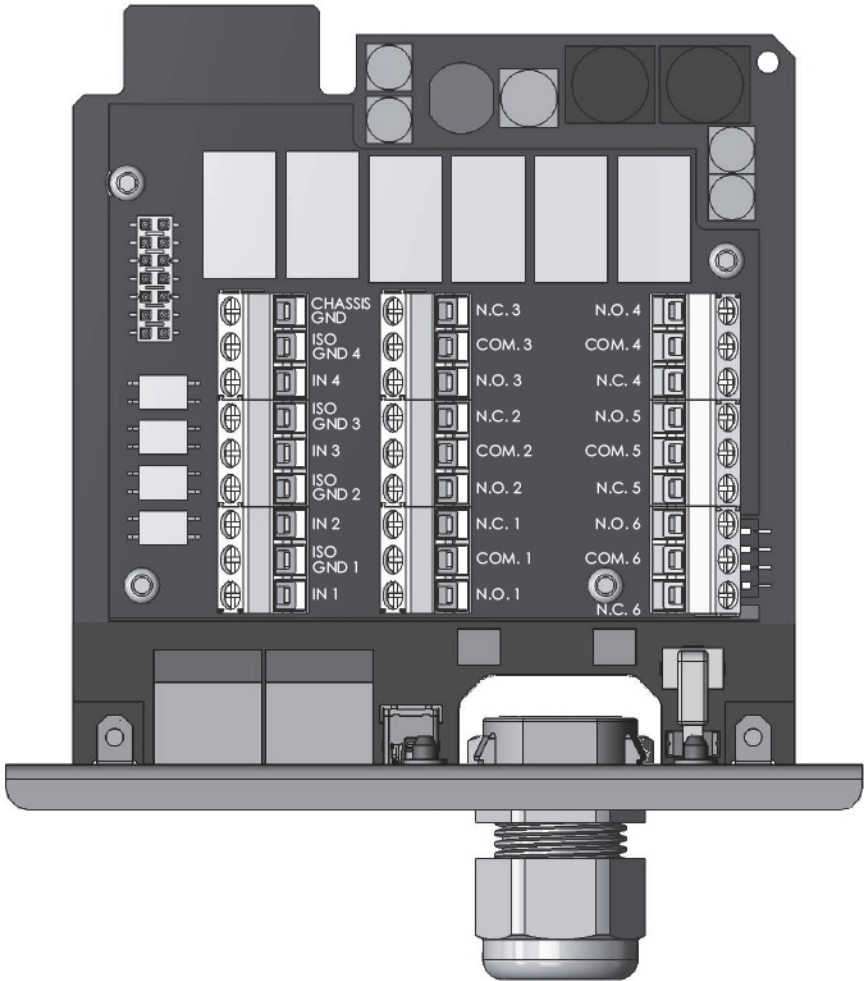
LED Status Indicator	State
Solid Green	Card communications and operations are normal
Flashing Green	Card is initializing
Flashing Red	Lost communication with UPS
	Lost communication with Universal I/O accessory
	Card hardware error
Rapidly Flashing Red	Invalid Configuration file on the Card
Solid Red	Non-operational fault with the UPS, not the Card: see KBase FA171541 on the APC website www.apc.com .

5	Dip switches	These are located near the back of the front panel on the right-hand side. See Configuring the Dip Switches.
6	Output relay terminals	Connections for alarm outputs. See Itemizing the input contact and output relay terminal blocks and “Ratings for input contacts and output relays” on page 28.

Item	Name	Description
7	Input contact terminals	<p>Connections for control inputs.</p> <p>See Itemizing the input contact and output relay terminal blocks and “Ratings for input contacts and output relays” on page 28.</p>
8	Cord grip	<p>Supports the cabling that is used to control external devices, or to connect up external switches. The bare wires connect to the terminal blocks on the Card.</p> <p>The cord grip is plastic and can secure a single cord with a diameter range of 5.8 – 10mm. This limits the number of conductors (inside the cord) and the power ratings.</p>

Itemizing the input contact and output relay terminal blocks

Number of positions on each terminal block	9
Tightening torque	0.35 N.m (3.097 lb.in)
Tightening torque max	0.4 N.m (3.54 lb.in)
Wire stripping length	5 mm (0.19 in)
Minimum wire gauge	0.14 mm ² (26 AWG)
Maximum wire gauge	2.5 mm ² (14 AWG)



Configuring the Dip Switches

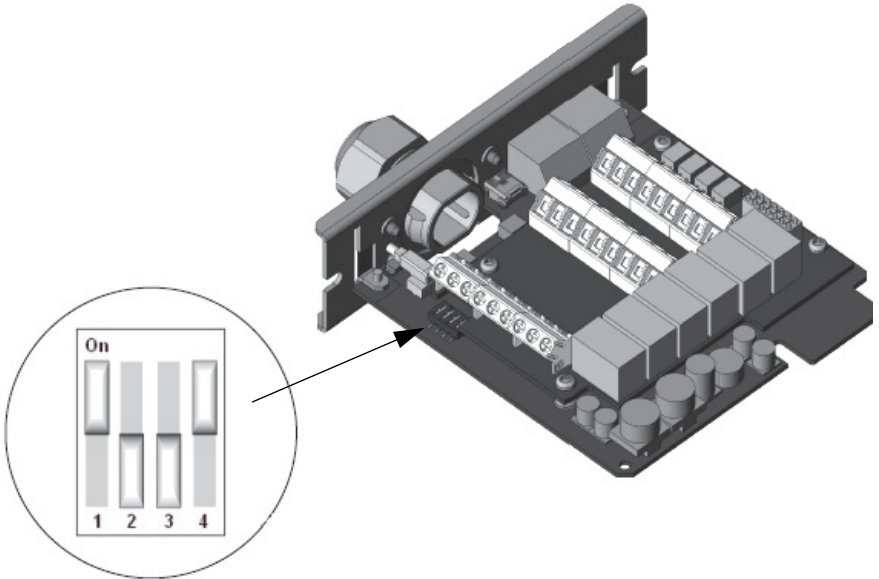
The Dry Contact I/O SmartSlot Card requires configuration before testing, final installation, and use.

See “Location of dip switches” below and “Dip switches: input and outputs” on page 9.

Location of dip switches





The “callout” below points to the location of the dip switches on the card, and shows one possible configuration: ON-OFF-OFF-ON.

See the other possible configurations at Dip switches: input and outputs



Dip switches: input and outputs

The table below lists the four possible configurations, with their corresponding inputs and outputs.

	Configuration 1	Configuration 2	Configuration 3	Configuration 4*	
	 <p>OFF-OFF-OFF-ON</p>	 <p>ON-OFF-OFF-ON</p>	 <p>OFF-ON-OFF-ON</p>	 <p>ON-ON-OFF-ON</p>	
Inputs	Device Actions				
1	Turn the UPS on.		See Configuration Utility		
2	Turn the UPS off.				Turn off the UPS gracefully.
3	Start UPS Self Test.				
4	Shut down the UPS when on battery except for Self Test or runtime calibration.	Put the UPS in bypass, if bypass is available on the UPS. If the UPS is in bypass, take the UPS out of bypass.			Shut down the UPS when on battery except for Self Test or runtime calibration.
Outputs	Device State				
1	The UPS is on battery (e.g. during a power outage, Self Test, or runtime calibration).			See Configuration Utility	
2	The UPS has a low battery.				
3	The protected load is not receiving power from the UPS or communication between the UPS and the Relay I/O Card has been lost.				
4	Replace the UPS battery.		UPS commanded to turn on (echo of Input 1).		
5	The UPS is overloaded.	The UPS is in bypass by selection from software, front panel, or rear panel.	UPS commanded to turn off gracefully (echo of Input 2).		
6	Any UPS fault or Self Test failure.	Any UPS fault, Self Test failure, or overload.	Any UPS fault, Self Test failure, overload, or replace battery.		

*In Configuration 4 the Configuration Utility is used to configure the device. This is the factory default.

Legacy Fault options

The Dry Contact I/O SmartSlot Card Configuration Utility provides legacy fault options to emulate the fault options of the legacy Relay I/O module (AP9610). See “Connecting to the Configuration Utility” on page 16.

In the Configuration Utility:

- Use the option “Fault Legacy” to emulate the AP9610 fault behavior for Output #6 in configurations 1–3. The table below describes the legacy fault behaviors that are emulated for Fault Legacy options 1, 2 and 3.

AP9613 Legacy Fault Conditions	Emulated AP9610 Output #6 behavior
Fault Legacy 1	Any UPS fault or self-test failure.
Fault Legacy 2	Any UPS fault, self-test failure or overload.
Fault Legacy 3	Any UPS fault, self-test failure, overload, or replace battery.

- Use the “Fault” option to manage fault behavior in SMT, SMX, SURTD, and SRT Smart-UPS devices.

These options can be used to manage faults in environments with both AP9610 and AP9613 cards present. For more information on Fault Definitions, see KBase article [FA171541](#) on the APC website [www.apc.com](#).

Installing

See Planning your installation directly below, “Installation steps” on page 14, and “Connecting to the Configuration Utility” on page 16.

Planning your installation

Operating considerations

⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH



Read and understand this manual and the manuals of the UPS before installing this card.

Installation must be performed by qualified personnel.

The user is responsible for compliance with all international and national electric code requirements.

Failure to follow these instructions will result in death or serious injury.

Note the following characteristics of the Dry Contact I/O SmartSlot Card when making decisions regarding system integration:

- The coils for all output relays are normally energized. The Card will generate all possible alarms in case of a system fault, such as cable failure, removal of the Dry Contact I/O SmartSlot Card, severe UPS battery discharge, or catastrophic hardware failure on the Card.
- All output relays are isolated from each other and from the UPS system ground.
- All input contacts are isolated from the UPS system ground but are common to each other.
- Control inputs are driven by user-supplied dry contact outputs. The dry contact closure sensing voltage available on these inputs is nominally 5 VDC at less than 1 mA. All control inputs are referenced to the UPS system ground.
- All control inputs must be stable for a minimum of one second to be considered valid. Longer delays can be set through the Configuration Utility. Control inputs can be asserted indefinitely.
- Be careful to assert just a single input to a device. Avoid initiating simultaneous, conflicting actions, e.g. input #1 (turn the UPS on) and input #2 (turn the UPS off).
- Control inputs are acted upon immediately after validation. However, there are several UPS conditions that can cause an input to be ineffective, such as self-test or runtime calibration. For confirmation of

inputs, we recommend that an output be configured and monitored appropriately to determine the effectiveness of an input.

- Do not wire this Dry Contact I/O SmartSlot Card when it is powered.
- The installation of this Dry Contact I/O SmartSlot Card must follow applicable building and electrical codes.
- Do not use this card to control voltage exceeding 30 VAC or VDC.
- For proper operation, ensure that the UPS is grounded and the Dry Contact I/O Card is secured with two screws to the UPS.
- Use only a single cord with the plastic cord grip.



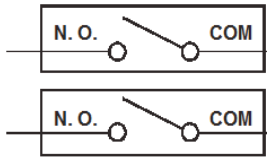
See “Ratings for input contacts and output relays” on page 28 in Specifications.

Connection strategies

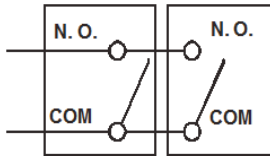
You can connect the alarm outputs of the Dry Contact I/O SmartSlot Card in several ways to meet the requirements of your management systems or switched load. Both normally open (N.O.) and normally closed (N.C.) systems are accommodated in any combination of AND or OR configurations.

You can combine Dry Contact I/O SmartSlot Card alarm outputs to form compound outputs, such as “replace battery OR fault” or “on-battery AND low battery.”

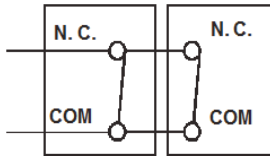
N. O. AND



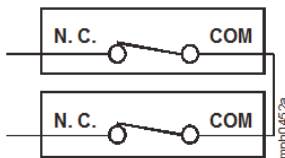
N. O. OR



N. C. AND



N. C. OR



Installation steps



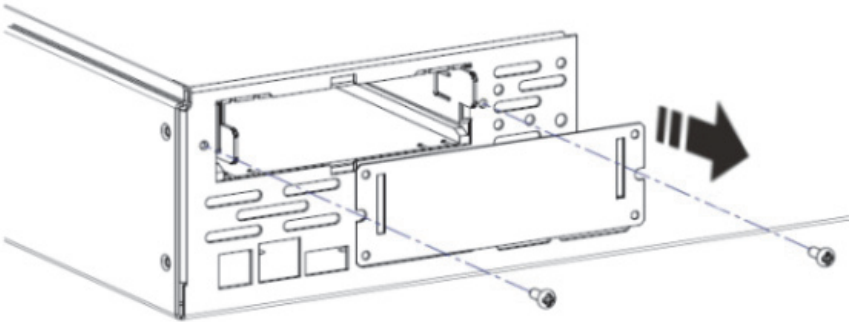
Warning: After installation, it is strongly recommended that you fully test your configuration before putting it into a production environment.

1. Make all connections to the Dry Contact I/O SmartSlot Card to support your configuration before continuing. See “Itemizing the input contact and output relay terminal blocks” on page 7 for information on making the connections.

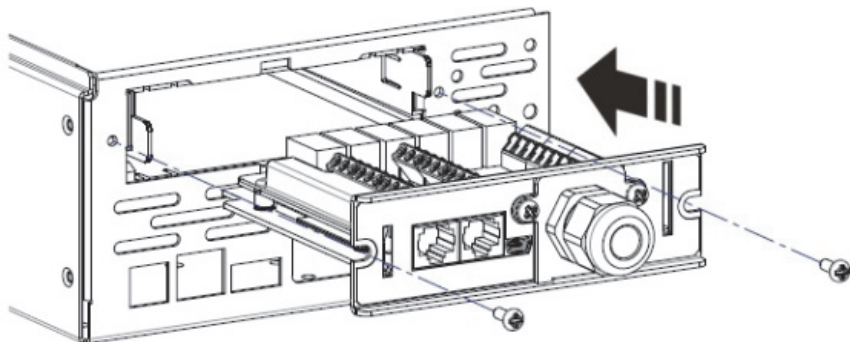


Electrostatic discharge: The Dry Contact I/O SmartSlot Card is sensitive to static electricity. Handle the Card by the end plate only. Do not touch the exposed printed circuit board.

2. Use a #2 Phillips-head screwdriver to remove the two screws retaining the slot cover on the host device. Keep the screws for use later. Keep the slot cover for future use.



3. Orient the Card to fit in the Card slot as shown. Slide the Card all the way into the slot until the end plate is flush with the back panel of the host device.



Trying to install the Card upside down may damage it. Observe the correct orientation of the Card. The sides of the printed circuit board align with the guides in the sides of the Card slot. The slot may be oriented horizontally or vertically in the host device, which must be off.

4. Secure the Card with the screws removed in step 3.



In order to provide proper grounding, the SmartSlot screws must be installed, the metal clamp must be securely tightened, and the UPS must be properly grounded.

5. Ensure the status LED is illuminated (see “Showing the product detail” on page 4).

See “Connecting to the Configuration Utility” on page 16.

Connecting to the Configuration Utility

The Configuration Utility does not need to be installed, it runs off the Card. To use the Utility, you need:

- Windows Operating System (XP, 2003, 2008, Vista, 7, 8, 8.1 or 10)
- Internet Explorer browser v8 or higher
- AP9613 Dip Switch Configuration 4. See “Dip switches: input and outputs” on page 9

With the Utility, you can:

- review the **status** of your AP9613 Dry Contact I/O SmartSlot Card and Universal I/O ports.
- perform **actions** in response to a status change in an input port or to some UPS event. See “Input Contact options” on page 20.
- **change the status of an output relay port** in response to a condition occurring in a device such as your UPS or an environmental monitor. See “Output Relay options” on page 23.
- upgrade the **firmware** on your AP9613 Dry Contact I/O SmartSlot Card. See “Upgrading the firmware” on page 26.

To launch the Configuration Utility user interface, use the USB cable to connect your PC to the port indicated by item #2 on your Dry Contact I/O front panel (see “Itemizing the features of the Dry Contact I/O SmartSlot Card” on page 4).

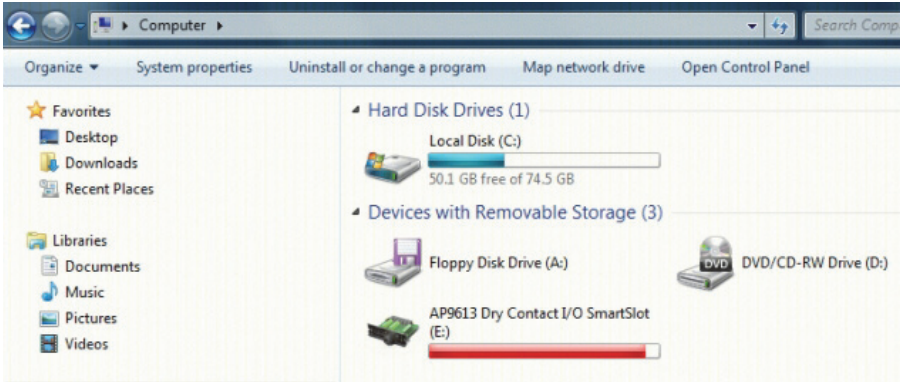


The information displayed in the Configuration Utility is a snapshot of the status of the Input Contacts and Output Relays at the time the USB cable is connected to the Card and your PC.

Any changes made to the configuration using the Configuration Utility must first be saved to become effective. See “Saving changes in the Configuration Utility” on page 18.

The Utility does not display real-time information. See KBase [FA171494](http://www.apc.com/knowledgebase/FA171494) on the APC website www.apc.com for more information.

When the Card is connected to the host PC, it displays as a drive letter on your PC, see drive E in the graphic below for example.



To run the Utility, launch the `runme.hta` file located in the root of the drive. For information on using the Configuration Utility user interface, refer to its online help.

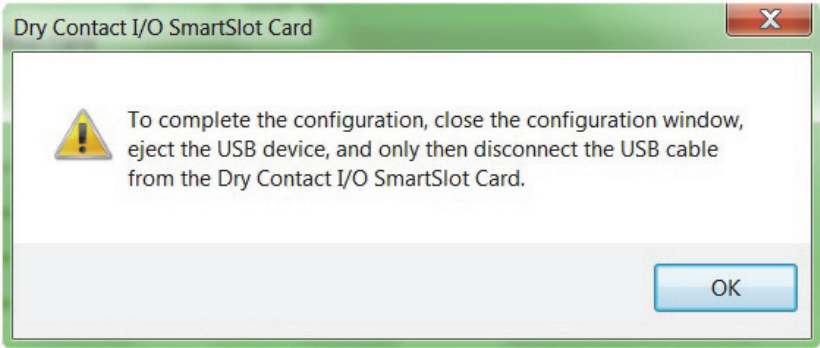
When you connect your Card with your PC using the USB cable, the Configuration Utility reads a file called `config.lua` on the Card. Each time you save a new configuration using the Utility, this file is overwritten. It is also possible to edit `config.lua` directly using a text editor like Notepad or Microsoft Word.

See the section in the Configuration Utility online help called “Copying your Configuration” for information on copying your configuration to another installation of the Card by copying the `config.lua` file.

Saving changes in the Configuration Utility

To complete the configuration using the Configuration Utility:

1. Press the Save button on the bottom left of the Configuration Utility user interface. A prompt appears to indicate the next steps.



2. Press Exit to close the user interface window.
3. Eject the USB device from your PC.
4. Disconnect the USB cable from the Dry Contact I/O SmartSlot Card.



To successfully complete the configuration, it is necessary to eject the USB device from your PC before disconnecting the USB cable from the Card.

UPS settings

Use the UPS settings of the Configuration Utility to configure the Low Battery Duration, Shutdown Delay and Return Delay of the UPS.



UPS settings are available for SMT, SMX, SURTD, and SRT Smart-UPS devices only. If UPS settings are not present in the Configuration Utility, they are not available for your device.

For SMT, SMX, SURTD, and SRT Smart-UPS devices with switchable outlet groups you can configure:

- **Low Battery Duration** — the threshold of UPS runtime remaining for which you can configure a control action to be triggered. For example if Low Battery Duration is set to 5 minutes, the control action configured for the UPS would trigger when runtime remaining falls below 5 minutes.

In dip switch configurations 1 – 3, the default Low Battery Duration is 2 minutes. In dip switch configuration 4, Low Battery Duration can be configured through the Configuration Utility, to a value between 0 and 30 minutes.

For SMT, SMX, SURTD, and SRT Smart-UPS devices without switchable outlet groups you can configure:

- **Shutdown Delay** — the duration that the UPS will wait before turning off when a UPS shutdown command is issued. In dip switch configurations 1 – 3, Shutdown Delay is 20 seconds. In dip switch configuration 4, Shutdown delay can be configured in the Utility to a value between 0 and 600 seconds.
- **Return Delay** — the duration that the UPS will wait before turning on when a UPS turn on command is issued. In dip switch configurations 1 – 3, Return Delay is 10 seconds. In dip switch configuration 4, Return Delay can be configured in the Utility to a value between 0 and 300 seconds.

Input Contact options

Use the input contact options available in the Configuration Utility to trigger **Actions** on a **Target** device or relay, based upon a change in the status of an input contact.

Target	Control Action	Definition				
UPS UPS Outlet Group 1 – 3	On	Turn the target on immediately.				
	On with Delay	Turn the target on immediately, or for certain UPS devices, turn the target on with the delay currently configured on the target device. For SMT, SMX, SURTD, and SRT Smart-UPS devices: <table border="1" data-bbox="420 500 973 695"> <thead> <tr> <th data-bbox="420 500 643 570">With Switched Outlet Groups</th> <th data-bbox="643 500 973 570">Without Switched Outlet Groups</th> </tr> </thead> <tbody> <tr> <td data-bbox="420 570 643 695">Turn on the outlet groups in sequence.</td> <td data-bbox="643 570 973 695">Turn on using the Return Delay setting, set in the Configuration Utility. See “UPS settings” on page 19.</td> </tr> </tbody> </table>	With Switched Outlet Groups	Without Switched Outlet Groups	Turn on the outlet groups in sequence.	Turn on using the Return Delay setting, set in the Configuration Utility. See “UPS settings” on page 19.
		With Switched Outlet Groups	Without Switched Outlet Groups			
	Turn on the outlet groups in sequence.	Turn on using the Return Delay setting, set in the Configuration Utility. See “UPS settings” on page 19.				
Off	Turn the target off immediately.					
Off Gracefully	Turn off the target gracefully, following the Low Battery and Shutdown Delay durations set on the UPS. For SMT, SMX, SURTD, and SRT Smart-UPS devices: <table border="1" data-bbox="420 927 973 1138"> <thead> <tr> <th data-bbox="420 927 643 997">With Switched Outlet Groups</th> <th data-bbox="643 927 973 997">Without Switched Outlet Groups</th> </tr> </thead> <tbody> <tr> <td data-bbox="420 997 643 1138">Turn off the outlet groups in sequence.</td> <td data-bbox="643 997 973 1138">Turn off the target gracefully, following the Low Battery Duration and Shutdown Delay set in the Configuration Utility. See “UPS settings” on page 19.</td> </tr> </tbody> </table>	With Switched Outlet Groups	Without Switched Outlet Groups	Turn off the outlet groups in sequence.	Turn off the target gracefully, following the Low Battery Duration and Shutdown Delay set in the Configuration Utility. See “UPS settings” on page 19.	
	With Switched Outlet Groups	Without Switched Outlet Groups				
Turn off the outlet groups in sequence.	Turn off the target gracefully, following the Low Battery Duration and Shutdown Delay set in the Configuration Utility. See “UPS settings” on page 19.					

Target	Control Action	Definition				
UPS	Shutdown	<p>If the UPS is on battery, turn off the UPS, following the Shutdown Delay set on the UPS. Shutdown will not occur if the UPS is performing a runtime calibration. Turn the UPS back on when input power is restored.</p> <p>For SMT, SMX, SURTD, and SRT Smart-UPS devices:</p> <table border="1" data-bbox="413 311 969 591"> <thead> <tr> <th data-bbox="413 311 690 380">With Switched Outlet Groups</th> <th data-bbox="690 311 969 380">Without Switched Outlet Groups</th> </tr> </thead> <tbody> <tr> <td data-bbox="413 380 690 591">If the UPS is on battery, reboot the UPS in sequence. Turn off the outlet groups following any configured outlet group delays. Turn on the outlet groups in sequence when input power has been restored.</td> <td data-bbox="690 380 969 591">If the UPS is on battery, reboot it following the Shutdown Delay and Return Delay durations, set in the Configuration Utility. See “UPS settings” on page 19. Turn the UPS back on when input power is restored.</td> </tr> </tbody> </table>	With Switched Outlet Groups	Without Switched Outlet Groups	If the UPS is on battery, reboot the UPS in sequence. Turn off the outlet groups following any configured outlet group delays. Turn on the outlet groups in sequence when input power has been restored.	If the UPS is on battery, reboot it following the Shutdown Delay and Return Delay durations, set in the Configuration Utility. See “UPS settings” on page 19. Turn the UPS back on when input power is restored.
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UPS Outlet Group 1 – 3	Shutdown	<p>For SMT, SMX, SURTD, and SRT Smart-UPS devices:</p> <table border="1" data-bbox="413 717 969 846"> <thead> <tr> <th data-bbox="413 717 969 764">With Switched Outlet Groups</th> </tr> </thead> <tbody> <tr> <td data-bbox="413 764 969 846">If the UPS is on battery, reboot the UPS in sequence. Turn off the outlet groups immediately, and turn them back on in sequence when input power has been restored.</td> </tr> </tbody> </table>	With Switched Outlet Groups	If the UPS is on battery, reboot the UPS in sequence. Turn off the outlet groups immediately, and turn them back on in sequence when input power has been restored.		
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UPS Outlet Group 1 – 3	Shutdown with Delay	<p>For SMT, SMX, SURTD, and SRT Smart-UPS devices:</p> <table border="1" data-bbox="413 935 969 1063"> <thead> <tr> <th data-bbox="413 935 969 982">With Switched Outlet Groups</th> </tr> </thead> <tbody> <tr> <td data-bbox="413 982 969 1063">If the UPS is on battery, reboot the UPS in sequence. Turn off the outlet groups in sequence. Turn the outlet groups back on when input power has been restored.</td> </tr> </tbody> </table>	With Switched Outlet Groups	If the UPS is on battery, reboot the UPS in sequence. Turn off the outlet groups in sequence. Turn the outlet groups back on when input power has been restored.		
With Switched Outlet Groups						
If the UPS is on battery, reboot the UPS in sequence. Turn off the outlet groups in sequence. Turn the outlet groups back on when input power has been restored.						
	Reboot	<p>Turn off the target immediately. Turn it back on when input power has been restored.</p> <p>For SMT, SMX, SURTD, and SRT Smart-UPS devices:</p> <table border="1" data-bbox="413 1192 969 1427"> <thead> <tr> <th data-bbox="413 1192 690 1260">With Switched Outlet Groups</th> <th data-bbox="690 1192 969 1260">Without Switched Outlet Groups</th> </tr> </thead> <tbody> <tr> <td data-bbox="413 1260 690 1427">Turn off the target immediately. Turn on the outlet groups in sequence.</td> <td data-bbox="690 1260 969 1427">Turn off the target immediately. Turn it back on following the Return Delay set in the Configuration Utility. See “UPS settings” on page 19.</td> </tr> </tbody> </table>	With Switched Outlet Groups	Without Switched Outlet Groups	Turn off the target immediately. Turn on the outlet groups in sequence.	Turn off the target immediately. Turn it back on following the Return Delay set in the Configuration Utility. See “UPS settings” on page 19.
With Switched Outlet Groups	Without Switched Outlet Groups					
Turn off the target immediately. Turn on the outlet groups in sequence.	Turn off the target immediately. Turn it back on following the Return Delay set in the Configuration Utility. See “UPS settings” on page 19.					

Target	Control Action	Definition			
UPS UPS Outlet Group 1 – 3	Reboot Gracefully	Turn the target off following the Low Battery Delay and Shutdown Delay set on the UPS. Turn on following the Turn On delay set on the UPS, when input power has been restored. For SMT, SMX, SURTD, and SRT Smart-UPS devices:			
		<table border="1"> <thead> <tr> <th data-bbox="405 289 692 358">With Switched Outlet Groups</th> <th data-bbox="692 289 985 358">Without Switched Outlet Groups</th> </tr> </thead> </table>	With Switched Outlet Groups	Without Switched Outlet Groups	
		With Switched Outlet Groups	Without Switched Outlet Groups		
Turn off the outlet groups in sequence. Turn on the outlet groups in sequence.	Turn off the target following the Shutdown Delay, and turn it on following the Return Delay, both set in the Configuration Utility. See “UPS settings” on page 19.				
	Self Test	Perform a self test on the target.			
	Bypass *	Place the target in bypass mode. If the target is in bypass mode, take it out of bypass mode. This is not available for outlet groups.			
Output Relay 1 – 6 UIO Port 1 – 2 Output Relay (if optional AP9810 Dry Contact I/O Accessory is connected)	Normal	Set the output relay state to the state that is configured for Normal. You can configure the Normal state of an output relay to Normally Open or Normally Closed by wiring the contact to the respective contact point on the card.			
	Abnormal	Set the state of the output relay to the opposite of what is defined for Normal. For example if Normal is defined as Normally Open, choosing Abnormal sets the output relay to Normally Closed.			

*Not available on all devices. Refer to your UPS User Guide to verify that your UPS supports this function.

Output Relay options

Use the Output Relay options available in the Configuration Utility to monitor a **Source** device or relay for configured **Conditions** and change the status of an output relay based upon the Condition detected.

Source	Condition	Definition
UPS UPS Outlet Group 1-3	On	Source is on.
	Off	Source is off.
	Online	Source is online.
	On Battery	Source is on battery.
	On Battery: Power Fail	Source is on battery due to a power outage.
	Low Battery	Source is reporting low battery, as the runtime remaining has fallen below the Low Battery Duration . For certain UPS devices, this duration can be set in the Configuration Utility. See “UPS settings” on page 19.
	Replace Battery	Battery needs to be replaced at source.
	Lost Communication	Internal communication between the AP9613 card and the Source has been lost.
	Overload	Source is overloaded.
	Bypass: Fault or Software*	Source is in bypass mode due to a hardware fault, or due to a software command. For example this condition can be triggered if a UPS is in bypass due to an internal fault, or is commanded to enter bypass by PowerView or other UPS smart-slot accessories.
	Bypass: Maintenance or Fault*	Source is in bypass mode due to a maintenance bypass, or a fault such as Internal Fault, Bypass Overload, or UPS Main Relay Fault.
	Bypass: Manual	Source has been manually set to bypass mode, for example through the UPS display interface.
	Off or Lost Communication	Source is off or internal communication between the AP9613 card and the source has been lost.
	Self Test	Source is in self test mode.
Calibration	Source is currently performing a runtime calibration.	

Source	Condition	Definition
UPS UPS Outlet Group 1-3	Self Test Fail	The source self test has failed.
	Fault	Source is reporting a fault. See KBase FA171541 on the APC website www.apc.com for more information.
	Fault Legacy 1- 3	Source is reporting a legacy fault. See KBase FA171541 on the APC website www.apc.com for more information.
	Bypass Out of Tolerance*	Source is reporting Bypass Out of Tolerance.
	Output Out of Tolerance*	Source is reporting Output Out of Tolerance.
	No battery	Source is reporting no battery present.
	Battery Over Temperature	Source is reporting battery exceeds internal temperature threshold. The temperature threshold is set by the UPS and is not configurable.
	Input Breaker Tripped*	Source is reporting input breaker has been tripped.
Input Contact 1 – 4	Normal	Set the input relay state to the state that is configured for Normal. You can configure the Normal state of an input relay to Normally Open or Normally Closed by wiring the contact to the respective contact point on the card.
	Abnormal	Set the state of the input relay to the opposite of what is defined for Normal. For example if Normal is defined as Normally Open, choosing Abnormal sets the input relay to Normally Closed.

*Not available on all devices. Refer to your UPS User Guide to verify that your UPS supports this function.

Universal I/O Port options

Use the Universal I/O Port options to configure responses to **Conditions** detected by devices connected to the ports. For example if the AP9335T Temperature Sensor or AP9335TH Temperature and Humidity Sensor is connected to an I/O port, the following Environmental options are available:

Source	Condition	Definition
AP9335T Temperature Sensor	Temperature Above Maximum	Sensor is reporting temperature is above maximum threshold.
	Temperature Below Minimum	Sensor is reporting temperature is below minimum threshold.
AP9335TH Temperature and Humidity Sensor	Humidity Above Maximum	Sensor is reporting humidity is above maximum threshold.
	Humidity Below Minimum	Sensor is reporting humidity is below minimum threshold.

The minimum and maximum thresholds for temperature and humidity can be set in the Configuration Utility. The temperature and humidity environmental alarms and inputs from the Dry Contact I/O accessory (AP9810) can also be mapped to targets, as detailed in “Input Contact options” on page 20.

Upgrading the firmware

Visit the APC website, www.apc.com to view the latest firmware release available for the Dry Contact I/O SmartSlot Card.

To install the firmware:

1. Download the latest firmware release to your PC.
2. Launch the Configuration Utility, as described on page 16.
3. Select the Firmware tab.
4. Under Firmware Update, click the Browse button and select the firmware downloaded in Step 1.
5. Click the Upload button to upload the firmware to the Card.
6. When prompted by the Configuration Utility, disconnect the USB cable from the Card to complete the update. The Configuration Utility will close and the card will apply the firmware update and restart.
7. When the card has restarted, reconnect the USB cable to the card and launch the Configuration Utility. View the Firmware tab to confirm that the firmware has updated successfully.

Specifications




For all specifications, when there is a difference between the VDE and UL approval standards, use the lower rating.

Electrical, physical, environmental, and approval specifications

Item	Specification
Electrical	
Nominal switching capacity	3A@ 30 VAC or VDC
Rated voltage	24 VDC
Rated current	200 mA
Input Contact (#1–4) and Output Relay (#1–6)	See “Ratings for input contacts and output relays” on page 28
Physical	
Size (height × width × depth)	38.00 x 121.00 x 108.00 mm 1.50 x 4.75 x 4.25 in
Shipping size (height × width × depth)	73.00 x 165.00 x 234.95 mm 2.86 x 6.50 x 9.25 in
Weight	0.14 kg 0.30 lb
Shipping weight	0.45 kg 1.00 lb
Environmental	
Elevation Operating Storage	0 to 3000 m (0 to 10,000 ft) 0 to 15 000 m (0 to 50,000 ft)
Temperature Operating Storage	0 to 40°C (32 to 104°F) -15 to 65°C (5 to 149°F)

Item	Specification
Relative Humidity Operating Storage	0 to 95% 0 to 95%
Approvals	
Emissions and Immunity Verification:	FCC Part 15 Class A, EN 55022 Class A, EN 55024, EN 61000-3-2, EN 61000-3-3, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11

Ratings for input contacts and output relays

	Voltage Rating	Current Rating (Max.)
Input Contact (#1–4)	 <p>The input contacts should not be connected to any voltage. They should be shorted to ground, or left open via a relay connection at the other end.</p> <p>Active: when the input contact is shorted to ground.</p> <p>Inactive: when the input contact is left open.</p>	N/A
Output Relay (#1–6)	0–30 VAC or VDC	3 A per relay (16 A Total Max)

Troubleshooting

Issue	Solution
<p>The AP9613 Card status indicator is flashing red or solid red.</p>	<p>See “LED Status Indicator” on page 5 for detailed descriptions of the status indicators.</p>
<p>The Configuration Utility does not display as a drive letter when the USB cable is connected to the PC.</p>	<p>For the Configuration Utility, you need: Windows Operating System (XP, 2003, 2008, Vista, 7, 8, 8.1 or 10) and Internet Explorer browser v8 or higher.</p> <p>The Card dip switch configuration must be set to configuration 4. See “Dip switches: input and outputs” on page 9.</p> <p>Disconnect and reconnect the USB cable between the card and the PC.</p>
<p>Configuration changes made in the Configuration Utility have not been saved.</p>	<p>See “Saving changes in the Configuration Utility” on page 18.</p>
<p>AP9613 Dry Contact I/O SmartSlot card does not activate the output relay upon Low Battery Warning until two minutes of runtime is remaining, though the Low Battery warning is set on the UPS to a value other than the default of 2 minutes.</p>	<p>This is a known issue affecting SMT, SMX, SURTD, and SRT Smart-UPS devices only.</p> <p>Use dip switch configuration 4 to configure the Low Battery Duration using the Configuration Utility. See “Dip switches: input and outputs” on page 9.</p>
<p>The AP9613 Configuration Utility shows an incorrect relay state or status.</p>	<p>The Configuration Utility displays the content of a configuration file <code>config.lua</code> which is loaded when the AP9613 card is connected to your PC using the USB cable. The changes made using the Configuration Utility are not reflected in real-time and are saved and written to the configuration file only when the USB connection between the AP9613 card and the PC is disconnected.</p> <p>See “Saving changes in the Configuration Utility” on page 18.</p>

Warranty

Two-Year Factory Warranty

This warranty applies only to the products you purchase for your use in accordance with this manual.

Terms of warranty

APC warrants its products to be free from defects in materials and workmanship for a period of two years from the date of purchase. APC will repair or replace defective products covered by this warranty. This warranty does not apply to equipment that has been damaged by accident, negligence or misapplication or has been altered or modified in any way. Repair or replacement of a defective product or part thereof does not extend the original warranty period. Any parts furnished under this warranty may be new or factory-remanufactured.

Non-transferable warranty

This warranty extends only to the original purchaser who must have properly registered the product. The product may be registered at the APC Web site, www.apc.com.

Exclusions

APC shall not be liable under the warranty if its testing and examination disclose that the alleged defect in the product does not exist or was caused by end user's or any third person's misuse, negligence, improper installation or testing. Further, APC shall not be liable under the warranty for unauthorized attempts to repair or modify wrong or inadequate electrical voltage or connection, inappropriate on-site operation conditions, corrosive atmosphere, repair, installation, exposure to the elements, Acts of God, fire, theft, or installation contrary to APC recommendations or specifications or in any event if the APC serial number has been altered, defaced, or removed, or any other cause beyond the range of the intended use.

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NO SALESMAN, EMPLOYEE OR AGENT OF APC IS AUTHORIZED TO ADD TO OR VARY THE TERMS OF THIS WARRANTY. WARRANTY TERMS MAY BE MODIFIED, IF AT ALL, ONLY IN WRITING SIGNED BY AN APC OFFICER AND LEGAL DEPARTMENT.

Warranty claims

Customers with warranty claims issues may access the APC customer support network through the Support page of the APC Web site, www.apc.com/support. Select your country from the country selection pull-down menu at the top of the Web page. Select the Support tab to obtain contact information for customer support in your region.

Labor

- APC will support labor costs if a quality issue is found during start-up that is determined to be caused by workmanship or a factory defect.
- The mechanical contractor who is performing the repairs must call APC technical services to obtain a repair authorization number before any work is started.
- The mechanical contractor must provide detailed information, (photos, start-up sheets) to APC technical services before any repairs are started.
- If any repairs are performed without prior authorization, APC will not pay for any labor cost.
- APC will not support claims for any of the following:
 - Truck rental
 - Travel time
 - Rental on recovery machine and cylinders
 - Gas mileage
 - Solder, flux, sil-phos, silver solder, and silver solder flux.
- APC will pay for \$2.50 per pound for refrigerant.

Parts

- APC warrants the parts of their systems for 1 year from the date of start-up or 18 months from the shipping date of the system. This warranty covers only the cost of the part and not the labor for installation.
- Warranty parts requests need to have specific unit information (serial number, model number, job number) to allow proper identification and processing of the warranty part transaction.
- A purchase order may be required to issue any warranty part. An invoice will be sent once a parts order is filled and shipped to the field. You have 30 days to return a part to APC. After 30 days, the warranty invoice will be outstanding and payment of the invoice will be expected in full.
- Return authorization documentation will be sent with any replacement part. This documentation must be sent back with the defective part to APC for proper identification of the warranty return. Mark the warranty return number on the outside of the package.
- After the part has been received at APC, APC will determine the status of the credit based on an examination of the returned part. Parts that are damaged from: lack of maintenance, mis-application, improper

installation, shipping damage, and acts of man/nature will not be covered under the parts warranty.

- For any warranty parts request received before 1:00 PM EST, the part will be shipped Same Day Standard Ground delivery. Any costs associated with Next Day or Airfreight will be the responsibility of the party requesting the part.
- Shipping costs for warranty parts are the responsibility of the sender.

Life Support Policy

General policy

American Power Conversion (APC) does not recommend the use of any of its products in the following situations:

- 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.
- 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 APC is adequately protected under the circumstances.

Examples of life-support devices

The term *life-support device* includes but is 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 adults and infants), anesthesia ventilators, infusion pumps, and 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 these 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.

APC Worldwide Customer Support

Customer support for this or any other product is available at no charge in any of the following ways:

- Visit the APC Web site to access documents in the APC Knowledge Base and to submit customer support requests.
 - **www.apc.com** (Corporate Headquarters)
Connect to localized APC Web sites for specific countries, each of which provides customer support information.
 - **www.apc.com/support/**
Global support searching APC Knowledge Base and using e-support.
- Contact the APC Customer Support Center by telephone or e-mail.
 - Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

For information on how to obtain local customer support, contact the representative or other distributors from whom you purchased your product.

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