



APC communication cable for Hitachi Thunder

AP9807

Installation and
Quick Start

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1 Introduction

The data protection that Hitachi Data Systems' Thunder 9500™ V Series family of storage products provides is now further enhanced through integration with a APC Smart-UPS. Upon detection of power loss, the APC Smart-UPS communicates with Thunder to initiate and complete a graceful shutdown of the Thunder 9500V. Upon shutdown the APC Smart-UPS will then go into "sleep" mode to conserve battery until utility power is restored. Once utility power has been restored to the APC Smart-UPS, the UPS will signal Thunder to bootup.

1.1 What You Will Need

You will need the following items in order to successfully setup and integrate the APC Smart-UPS with the Thunder 9500V product:

1. This installation guide
2. APC Communication Cable for Hitachi Thunder Storage Part #AP9807
3. An APC Smart-UPS configuration that provides appropriate power for your specific Thunder configuration

At <http://hds.apcc.com> you can view approved configurations as well as determine where you can purchase your APC Smart-UPS and the APC Storage Communication Cable.

1.2 Steps for Integration

Follow these simple steps for properly integrating the APC Smart-UPS with Thunder:

1. At the moment the following connectivity option is supported:
 - a. Connect Thunder's power supply side AC#0 to one APC Smart-UPS system and redundant power supply side AC#1 to a separate APC Smart-UPS system for full redundancy. If choosing this solution the same model APC Smart-UPS must be used for AC#0 and AC#1.
2. Identify and purchase the APC Smart-UPS configuration you will need for supplying sufficient power to Thunder for the integration. Use the APC Smart-UPS configurator for Hitachi Thunder found at: <http://hds.apcc.com>. It will help you determine:
 - a. The recommended APC smart-UPS model to use
 - b. If you need additional battery modules for longer battery run time
 - c. What receptacles you want to use on the APC Smart-UPS. The receptacles could be
 - i. IEC 320 C13 (for use with plugs that come with Thunder)
 - ii. NEMA L5-15R (for use with plugs that come with Thunder)
 - iii. NEMA L6-30P (for use with the PDU plugs that come with Hitachi Data Systems' Global Rack, as bought in North and South America)
 - iv. IEC 309 (for use with the PDU plugs that come with Hitachi Data Systems' Global Rack, as bought in the EMEA and APIA regions)
 - v. Some cases may require an intermediary APC PDU to connect to the UPS
 - d. What plug the UPS will have for plugging into your source of power
3. Configure APC Smart-UPS Settings
4. Configure Thunder:
 - a. Connect Thunder's power supplies to the APC Smart-UPS
 - b. Connect the Communication cable between Thunder and the APC Smart-UPS
 - c. Set Thunder's rotary switch setting

- d. Set Thunder's shutdown delay as desired¹
- e. Shutdown and Reboot Thunder

¹ Zero (0) minutes is recommended for immediate shutdown once the shutdown request has been provided to Thunder by the APC Smart-UPS. The APC Smart-UPS will only provide the immediate shutdown signal once it reaches its low battery state. At times one desires for a host to complete its shutdown prior to Thunder shutting down; in these cases, the shutdown delay could be set for X minutes, allowing host to complete its shutdown and then directing Thunder to initiate its shutdown. The APC Smart-UPS backup runtime is a crucial parameter when choosing an appropriate APC Smart-UPS configuration in these cases.

2 APC Smart-UPS Settings

The APC Smart-UPS needs to have its communication settings changed either by your Hitachi Sales Engineer or by calling APC customer support at the phone numbers at the end of this document.

3 Connecting Thunder to Two APC Smart-UPS

This section describes how to setup Thunder and the APC Smart-UPS for integration. In this case, Thunder's power supply side AC#0 is connected to one UPS and Thunder's power supply side AC#1 is connected to a separate APC Smart-UPS system for full redundancy.

3.1 Step 1: Connecting Cables

Use the following diagram for connecting:

1. Thunder's power cables to the APC Smart-UPS
2. Communication cable between Thunder and the APC Smart-UPS

Figure 1: Direct Connect (AC#0 & AC#1) shows how you connect the power cables from Thunder directly to the APC Smart-UPS. Figure 2: Connect AC#0 & AC#1 through PDU to APC Smart-UPS shows you how to connect the power cables from Thunder to a PDU, which in turn connects to the APC Smart-UPS.

Figure 1: Direct Connect (AC#0 & AC#1)

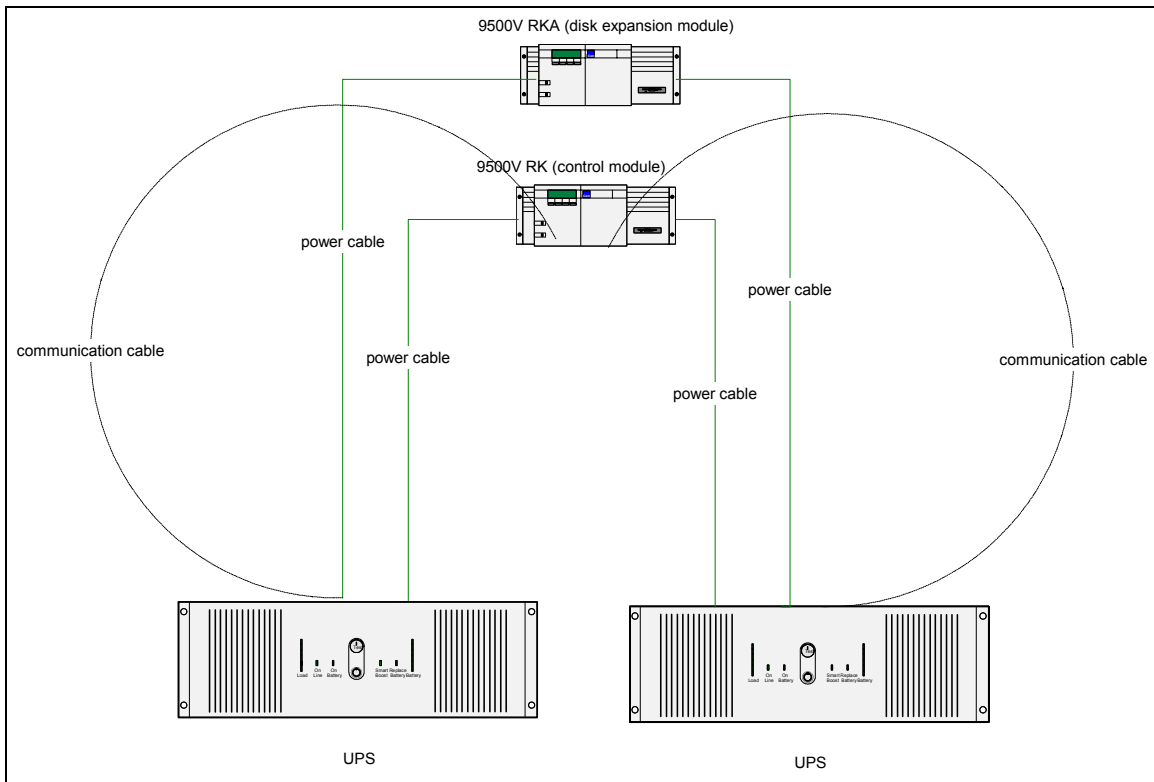
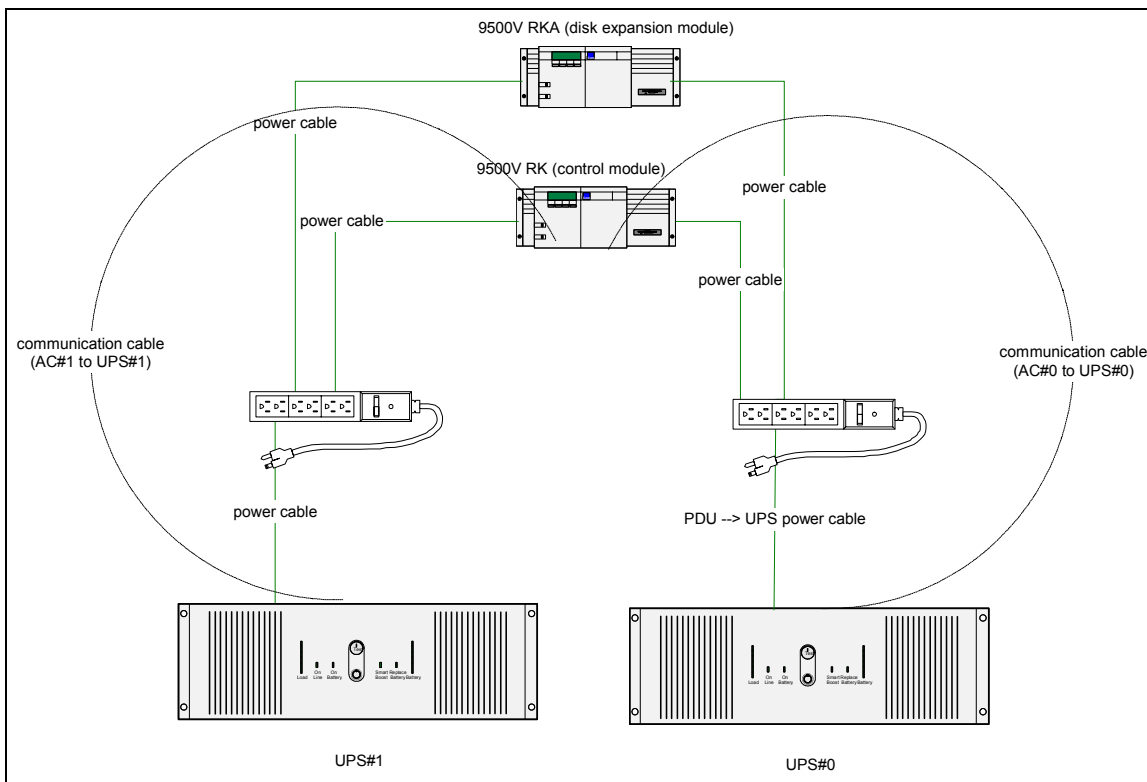


Figure 2: Connect AC#0 & AC#1 through PDU to APC Smart-UPS



3.2 Step 2: Thunder's Rotary Switch Setting

The rotary switch to be set is found in the front of Thunder's RK (control module), next to the power on/off switch.



Set it to switch setting **6**.

3.3 Step 3: Shutdown Delay Setting

Use Thunder's Resource Manager which is used for configuring Thunder's logical settings:

1. Change to administrator mode
2. Connect to the Thunder you are working with
3. Select Configuration
4. Select Parameter Wizard
5. Choose Basic Settings
6. Click "Continue" until you see "Shutdown Delay" as a setting

7. Set the Shutdown Delay value, in minutes, to:
 - a. Zero (0) for immediate shutdown once Thunder has received the shutdown signal from the APC Smart-UPS
8. Click “Continue” until you complete the Basic Parameter Wizard Settings
9. Exit Resource Manager.

3.4 Step 4: Reboot Thunder

To make the settings effective, use Thunder’s front power on/off switch:

1. Power-off Thunder
2. Wait for the “Ready” & “Power” lights to go out.
3. Power-on Thunder

This completes all the configuration steps for integration.

3.5 Conditions That Would Trigger a Graceful Shutdown

Conditions that must exist for Thunder to Shutdown (any one scenario is sufficient):

- Main switch is turned OFF
- Thunder’s RK AC#0 and AC#1 have received the low battery signal from their corresponding APC Smart-UPS
- One power supply (AC#0 or AC#1) has received the low battery signal from the APC Smart-UPS and the other AC# is faulty or is not receiving input power

Figure 3 below shows a scenario when the shutdown will NOT be triggered. Figure 4 shows the scenario when shutdown WILL be triggered.

Figure 3: No Shutdown Scenario

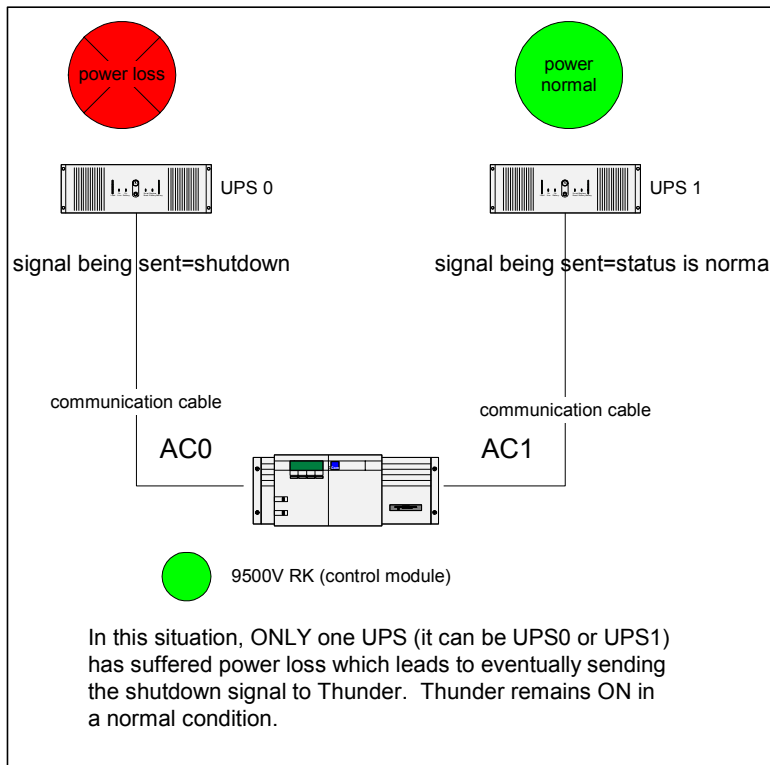
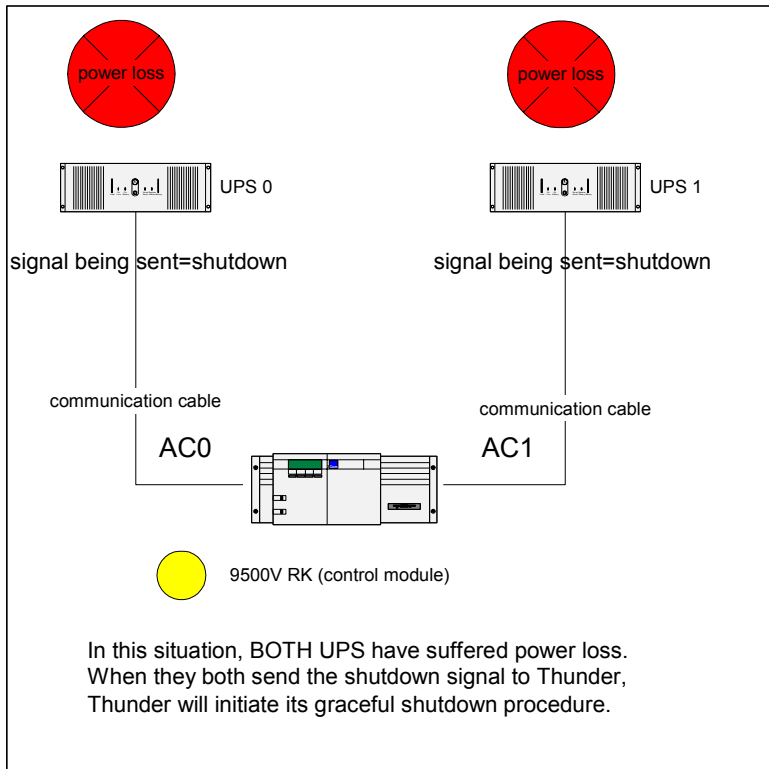


Figure 4: Shutdown Scenario



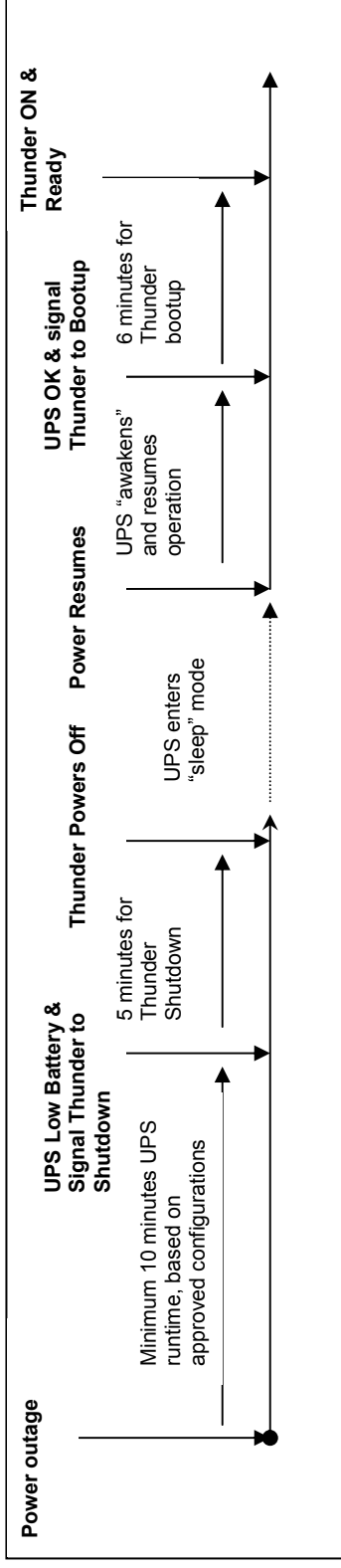
3.6 Conditions for Thunder to Bootup After a Graceful Shutdown

Conditions that must exist for Thunder to bootup (either scenario is sufficient):

- Main switch is turned ON, AC#0's APC Smart-UPS is no longer in a "low battery" state and now is in a "on battery" state
- Main switch is turned ON, AC#1's APC Smart-UPS is no longer in a "low battery" state and now is in a "on battery" state

4 Visual Sequence of Events

The following diagram provides a graphical perspective to how the UPS/Thunder integration occurs:



5 Troubleshooting and Support

5.1 APC

For APC Smart-UPS troubleshooting and support, contact APC at:

World Region	
APIA (Asia Pacific)	
China	+86 800-810-0160
Japan	+81 (3) 5434 2021
Korea	+82 2 501 – 6492
India	(080) 5737497/8/9
Philippines	(632) 915-5457
Saudi Arabia	9714-3433404
Other Countries	http://www.apc.com/support/contact/index.cfm

EMEA (Europe, Middle East, Africa)	
France	0805 110053
Germany	0800 1010067
United Kingdom	0 800 279 9254
Russia (C.I.S.)	7 (095) 916 71 66
Other Countries	http://www.apc.com/support/contact/index.cfm

North and South America	
Brazil	11-4689-8600
Canada	800-800-4272
Mexico	001-800-804-4283 ext. 5407
United States	800-555-2725
Other Countries	http://www.apc.com/support/contact/index.cfm

5.2 Hitachi Data Systems

For Thunder support, contact Hitachi Data Systems Technical Support at:

World Region	Contact
APIA (Asia Pacific)	North Ryde, Australia +61 2-9325-3300
EMEA (Europe, Middle East, Africa)	Hitachi Data Systems Local Support
North and South America	+1-800-348-4357
Global Support	+1-800-348-4357

For UPS/Thunder Integration Support, contact Hitachi Data Systems who will work with APC in order to meet your needs.

APC Worldwide Customer Support

Customer support for this or any other APC 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 an APC Customer Support center by telephone or e-mail.
 - Regional centers:

Direct InfraStruXure Customer Support Line	(1)(877)537-0607 (toll free)
APC headquarters U.S., Canada	(1)(800)800-4272 (toll free)
Latin America	(1)(401)789-5735 (USA)
Europe, Middle East, Africa	(353)(91)702000 (Ireland)
Japan	(0) 3 5434-2021
Australia, New Zealand, South Pacific area	(61) (2) 9955 9366 (Australia)

- Local, country-specific centers: go to **www.apc.com/support/contact** for contact information.

Contact the APC representative or other distributor from whom you purchased your APC product for information on how to obtain local customer support.

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