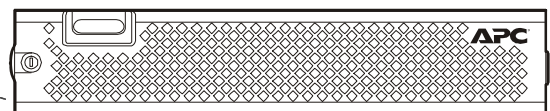
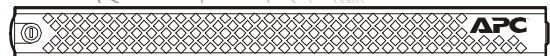


Installation Manual

InfraStruXure[®] Central

AP9465
AP9470
AP9475





This manual is available in English on the enclosed CD.

Dieses Handbuch ist in Deutsch auf der beiliegenden CD-ROM verfügbar.

Este manual está disponible en español en el CD-ROM adjunto.

Ce manuel est disponible en français sur le CD-ROM ci-inclus.

Questo manuale è disponibile in italiano nel CD-ROM allegato.

本マニュアルの日本語版は同梱の CD-ROM からご覧になれます。

O manual em Português está disponível no CD-ROM em anexo.

Данное руководство на русском языке имеется на прилагаемом компакт-диске.

您可以从包含的 CD 上获得本手册的中文版本。

동봉된 CD 안에 한국어 매뉴얼이 있습니다 .

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Product Description

Overview

Inventory

- **APC® InfraStruXure™ Central server**—A 1U or 2U management device. The InfraStruXure Central server works with your APC devices, NetBotz appliances, and other third-party SNMP devices to provide a comprehensive monitoring solution for your IT environment and equipment.

The InfraStruXure Central appliance is available in Basic, Standard, or Enterprise models.

- **Rack-mount rails**—RapidRails™ used to install the InfraStruXure Central server in a standard, 19-inch (482 mm) enclosure or rack.
- **Power Cords**—NEMA 5-15P to IEC-320-C13 and an IEC-320-C13 to IEC-320-C14 power cord. Use the cord appropriate for your power distribution.

Note: The Enterprise model of the InfraStruXure Central server device comes with two of each cable.

- The *InfraStruXure Central Installation Manual* (this book)

Receiving inspection

Inspect the package and contents for shipping damage, and make sure that all parts were sent. Report any damage immediately to the shipping agent. Report missing contents, damage, or other problems immediately to APC or your APC reseller.

Please recycle



The shipping materials are recyclable. Please save them for later use, or dispose of them appropriately.

Disclaimer

APC is not responsible for damage sustained during reshipment of this product from a reseller.

Safety

Rack-mounting safety

The InfraStruXure Central server is shipped with rack-mounting rails. Install the rails at the appropriate position in your rack, and mount the unit. If the unit is mounted in an enclosure instead of an open rack, the maximum ambient temperature in the enclosure should be no greater than 35°C (95°F).

- When you install equipment in the rack, make sure it does not interfere with the air flow required for safe operation for the equipment.
- When you mount equipment in the rack, make sure you do not cause a hazardous condition because of an uneven mechanical load.
- When you connect equipment to the supply circuit, avoid overloading the circuits, which could jeopardize over-current protection and damage the supply wiring. See ratings on the equipment nameplates for guidance.
- Maintain reliable earth grounding of the unit, particularly for supply connections (e.g., when Power Distribution Units (PDUs) that are not directly connected to the branch circuit are used).

Equipment containing a battery

This equipment contains a non-replaceable lithium coin cell battery.

Installation

Installation Instructions

This installation guide provides instructions for trained service technicians installing one or more systems in a rack. The provided RapidRails rack kit can be installed without tools in any enclosure that has square holes. One rack kit is required for each system installed in the rack. VersaRails™ rack kits, which are designed for use with enclosures that have round holes, are available for purchase separately.



Caution: Do not install rack kit components designed for another system. Use only the rack kit for your system. Using the rack kit for another system may result in damage to the system and personal injury to yourself and to others.

Before You Begin

Before you begin installing your system in the rack, read the safety instructions on page 2 and in this section.

Observe the following safety precautions when installing your system in the rack



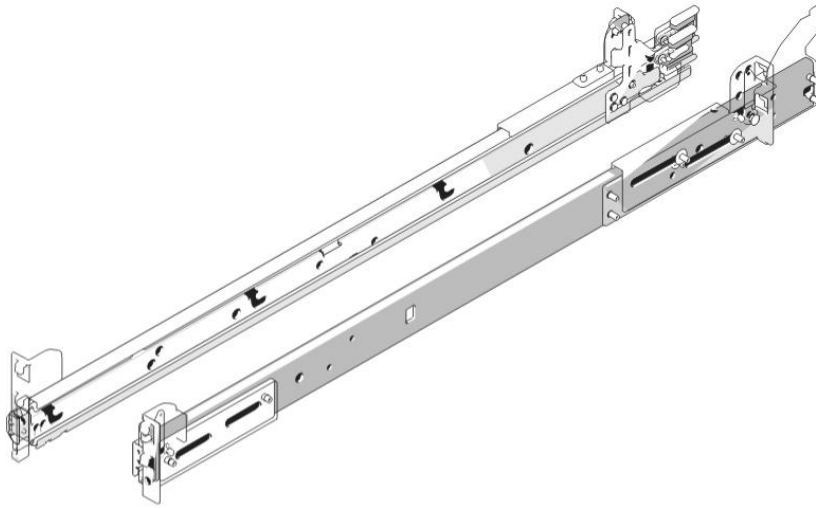
Caution:

- When installing multiple systems in a rack, complete all of the procedures for the current system before attempting to install the next system.
- Follow the procedures in this document to protect yourself as well as other service technicians. Your system is very large and heavy, and proper preparation and planning are important to prevent injury to yourself and to others, especially when systems are installed in the top half of the rack.
- Installing systems in a rack without front and side stabilizer feet could cause the rack to tip over, potentially resulting in bodily injury. Always install the stabilizer feet of the rack before installing components. The stabilizer feet help prevent the rack from tipping over when a system or other component is pulled out of the rack with the slide assemblies fully extended. See the documentation provided with the rack cabinet for instructions on installing and anchoring the stabilizer feet.
- After installing systems in a rack, never pull more than one system out of the rack on its slide assemblies at one time. The weight of more than one extended system could cause the rack to tip over and cause injury.

RapidRails Rack Kit Contents

The RapidRails rack kit includes the following items:

- One pair of RapidRails slide assemblies

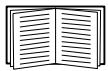


Installation Tasks

To install a rack kit, perform the following tasks in order:

1. Remove the rack doors.
2. Select a location within the rack.
3. Install the RapidRails slide assemblies.
4. Install the system in the rack.
5. Replace the rack doors.

Remove the rack doors



See the procedures for removing doors in the documentation provided with your rack cabinet.



Caution:

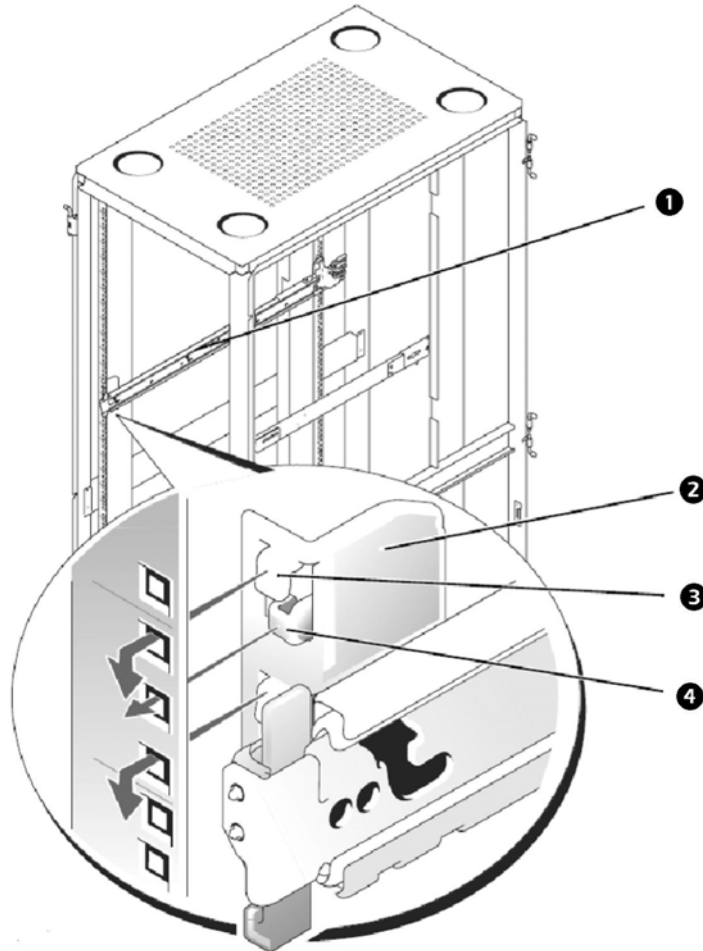
- Due to the size and weight of the rack cabinet doors, never attempt to remove them by yourself.
- Store the doors where they will not injure someone if the doors accidentally fall over.

Select a location within the rack

Each InfraStruXure Central Standard or Basic Edition system requires 1 U (44 mm [1.75 inches]) of vertical space in the rack. Each InfraStruXure Central Enterprise Edition system requires 2 U (88 mm [3.5 inches]) of vertical space in the rack.

Install the RapidRails slide assemblies

1. At the front of the rack cabinet, position one of the RapidRails slide assemblies so that its mounting-bracket flange fits in one U-space in the rack. The top mounting hook on the slide assembly's front mounting bracket flange should enter the top hole of the U-space.
2. Push the slide assembly forward until the top mounting hook enters the top square hole of the U-space, and then push down on the mounting-bracket flange until the mounting hooks seat in the square holes and the push button pops out and clicks (see below).



- ❶ Slide assembly (2)
- ❷ Mounting bracket flange
- ❸ Mounting hooks (2)
- ❹ Push button

3. At the back of the enclosure, pull back on the mounting-bracket flange until the top mounting hook is in the top square hole of the U-space you selected, and then push down on the flange until the mounting hooks seat in the square holes and the push button pops out and clicks.
4. Repeat steps 1 through 3 for the slide assembly on the other side of the rack.



Caution: Ensure that the slide assemblies are mounted at the same position on the vertical rails on each side of the rack.

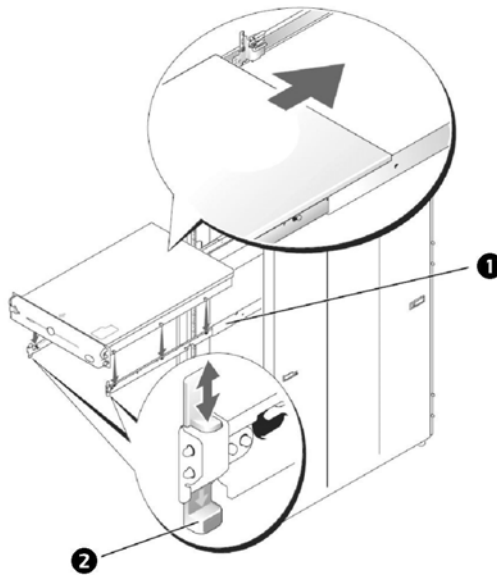
Install the system in the rack



Caution:

- If you are installing more than one system, install the first system in the lowest available position in the rack.
- Never pull more than one component out of the rack at a time.
- Because of the size and weight of the system, never attempt to install the system in the slide assemblies by yourself.

1. Pull the two slide assemblies out of the rack until they lock in the fully extended position. Lift the system into position in front of the extended slides (see below).



- ❶ shoulder screw on system
- ❷ system locking mechanism

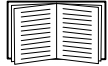
2. Place one hand on the front-bottom of the system and the other hand on the back-bottom of the system.
3. Tilt the back of the system down while aligning the back shoulder screws on the sides of the system with the back slots on the slide assemblies.
4. Engage the back shoulder screws into their slots.
5. Lower the front of the system and engage the front and middle shoulder screws in their slots (the middle slot is just behind the yellow system release latch). When all shoulder screws are properly seated, the system locking mechanism at the front of each slide assembly clicks and locks the system into the slide assembly.

6. Press up on the slide release latch at the side of each slide to slide the system completely into the rack.
7. Push in and turn the captive thumbscrews on each side of the front chassis panel to secure the system to the rack.



To remove the system from the slide assemblies, press down on the thumbpads of the system locking mechanism, and then pull the system forward.

Replace the rack doors



See the procedures for replacing doors in the documentation provided with your rack.

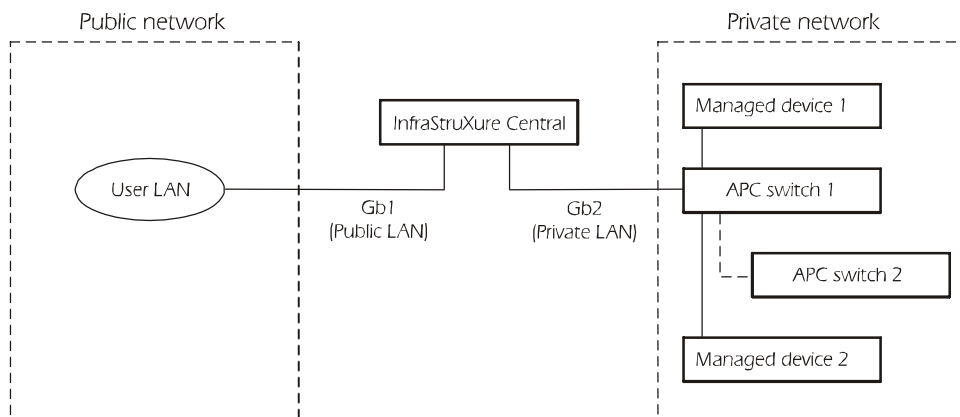


Caution: Because of the size and weight of the rack cabinet doors, never attempt to remove or install them by yourself.

Communication Connection

Network overview

The InfraStruXure Central server provides for the management of networked APC devices, NetBotz appliances, and other third-party SNMP devices. It connects to both your existing network (Public LAN) and a private network (Private LAN) to manage connected devices.



Set up the Private LAN

Connect a CAT-5 network cable to the network port on each SNMP device

The InfraStruXure Central server can manage any APC device with a network port, as well as third-party SNMP devices.

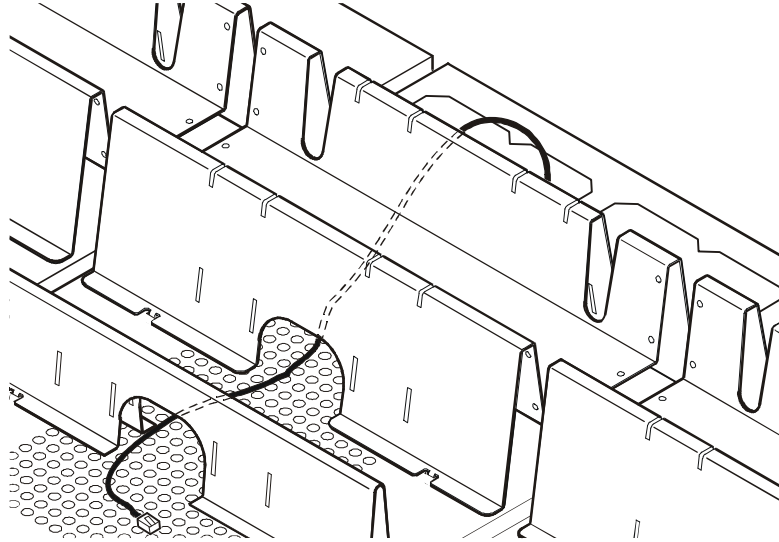


Note: If you are running PowerChute® Network Shutdown software with an InfraStruXure system's UPS, that UPS must be connected to the public network.

Route network cables to the InfraStruXure Central server and switch (or hub)

Overhead routing. This section is for InfraStruXure system installations.

1. Ensure that the APC Shielding Partitions and Cable Ladders are installed on the NetShelter enclosures and the InfraStruXure PDUs.
2. Run the Cat-5 network cables (provided) from each APC device to the switch (or hub)
 - a. Start with the device farthest from the switch (or hub) that uses the longest CAT-5 network cable.
 - b. Bundle cables together and route the bundles in the data cable troughs along rows and across ladders, if necessary.



3. Connect each APC device's network cable to any available port on the switch (or hub).

Install and route data cables (alternative routing).



Note: If possible, route data cables overhead, as described in “Overhead routing” on this page. Using APC Shielding Partitions and Cable Ladders with your InfraStruXure system reduces problems related to induced voltages for data transmission.

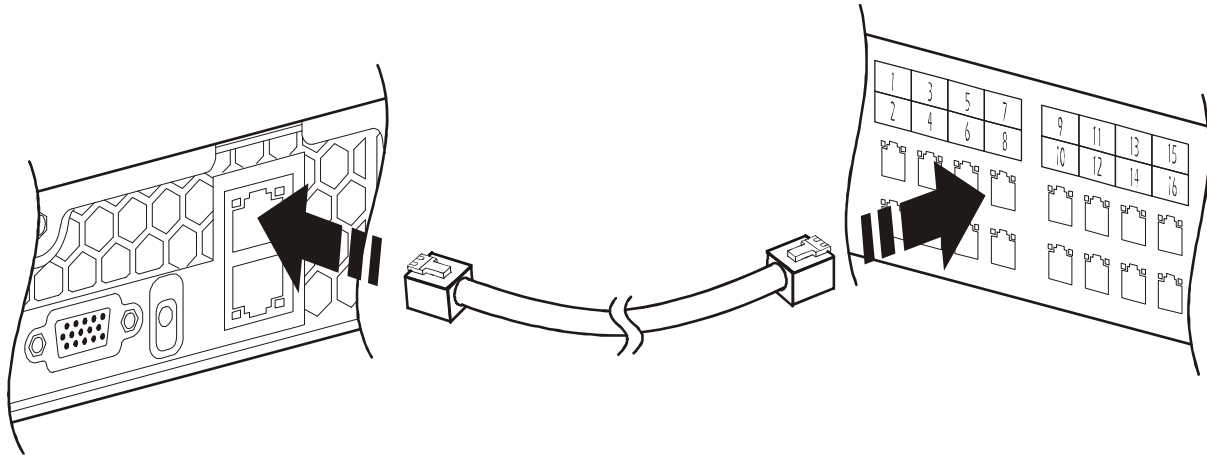
If you must route data cables under a raised floor:

- Do not route data cables inside an InfraStruXure PDU to the floor, either within the power cable conduit or in any other location. Induced voltages from the power cables may interfere with data transmission. Route data cables out the roof of the InfraStruXure PDU and down inside the first NetShelter enclosure to the floor.
- Induced voltages can also create problems under the floor when data cables are too close to any power cables. Even if data transmission is successful after the initial installation, later additions to power cabling under the floor for other equipment in your data center can jeopardize the integrity of the data transmission for your InfraStruXure Central system.

Connect the InfraStruXure Central server to your Public LAN

For InfraStruXure system installations, connect the InfraStruXure Central server's **Gb1** port (Standard version shown) to any network port on the user's Public LAN, using a network jumper cable, or a standard network cable, if necessary.

Public LAN connection:



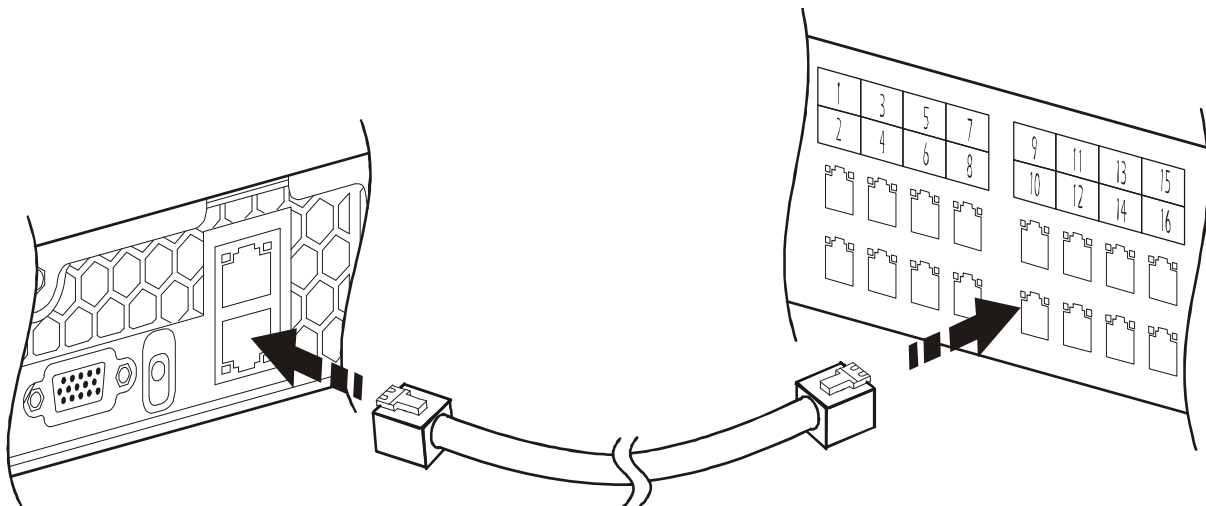
Connect the InfraStruXure Central server to your Private LAN

1. Connect a port on your Private LAN to the InfraStruXure Central server's **Gb2** port (Standard version shown).



As indicated by the label that covers the **Gb2** port, do not connect any network other than your Private LAN to that port, or to any switch that connects to that port.

Private LAN Connection:



2. To access the Private LAN (port **Gb2**), see "Initial Configuration" on page 10.

Apply power to the InfraStruXure Central server and switch (or hub)

After you install the InfraStruXure Central server and switch (or hub) and make all of the communication connections, connect the power cords to a Rack PDU within the enclosure to apply power to the InfraStruXure Central server.

Initial Configuration

Configure the InfraStruXure Central Server

To configure the public LAN network settings on the InfraStruXure Central server for the first time, you must connect to the InfraStruXure Central server as follows:

- Connect the private network port (Gb2) with a computer connected directly to the **Gb2** port or connected to a switch (or hub) that is connected to the **Gb2** port. .

System and Web browser prerequisites

The InfraStruXure Central console is a stand-alone Java application that runs on systems that meet the following requirements:

- A PC with a 1 GHz or better AMD/Intel processor running Microsoft® Windows® (2000 SP4, XP SP2, Server 2003, or Vista) or Red Hat Enterprise Linux 5.x (32-bit platforms only)
- 512MB RAM
- A screen resolution of at least 1024x768.

Configuring the InfraStruXure Central server from a remote computer

1. Connect a computer to a network port on the private switch (or hub), or directly to the **Gb2** port if a switch (or hub) is unavailable. The computer must meet the following requirements:
 - It must be configured to obtain an IP address automatically (through DHCP).
 - It must be running TCP/IP as a network protocol.
 - The browser must be JavaScript® enabled:
 - Mozilla Firefox® version 1.5.0.6 or higher
 - Netscape Navigator version 8.2
 - Microsoft Internet Explorer® version 7.0
2. Release and renew your computer's IP address to assign it an address on the Private LAN.
3. Open the browser, and enter the LAN IP address for the InfraStruXure Central server.
4. Use 192.168.1.1 as the default IP address for InfraStruXure Central on the LAN.
5. Download and install the InfraStruXure Central Client from the displayed Web page.
6. Double-click the **ISX Central Client** icon to display the **InfraStruXure Central Logon** dialog.
7. When the **InfraStruXure Central Logon** display appears, use **apc** (lowercase) for both the username and password, and click **OK**.
8. After the client starts, select the **Settings** menu and select **Server Administration Settings**.
9. In the displayed sub-menu, select **Network Settings**.
10. On the Public tab of the **Network Settings** display, enter the necessary information about the InfraStruXure Central server. This information can be provided by your network administrator.
11. When you are finished, click **Apply** and then **OK**.

Enable Remote Monitoring

APC can remotely monitor your InfraStruXure Central server and the devices it manages, and notify you of events via e-mail, pager, or phone. If you decide to use APC's Remote Monitoring Service (RMS), follow these steps:



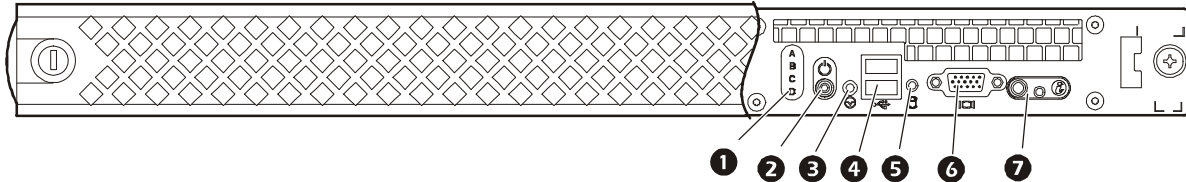
Warning: Information that will be sent to the APC monitoring service must be entered in English. Any other language may prevent RMS from being able to properly notify of or describe any critical issues.

1. From the **Settings** menu, select **Server Administration Settings**.
2. In the **Server Administration Settings** sub-menu, click the **Remote Monitoring** entry.
3. In the **APC Remote Monitoring Service** display, click **Registration Settings**.
4. If you have not registered for RMS:
 - a. In the **Choose RMS Settings Type** display, select **New Customer** and click **Next**.
 - b. In the **RMS Contact Information** display, fill in all of the required fields and click **Next**.
 - c. In the **RMS Company Information** display, fill in all of the required fields and click **Finish**.
5. If you have previously registered for RMS:
 - a. In the **Choose RMS Settings Type** display, select **Existing Customer** and click **Next**.
 - b. In the **RMS Logon Settings** display, fill in your e-mail address and password, then click **Next**.
 - c. In the **RMS Contact Information** display, verify that the displayed information is correct and click **Next**.
 - d. In the **RMS Company Information** display, verify that the information is correct and click **Finish**.
6. Visit <http://rms.apc.com> to complete the RMS configuration. On the RMS page, click **Contact Us** to obtain the phone number to call and complete the activation process.

Product Information

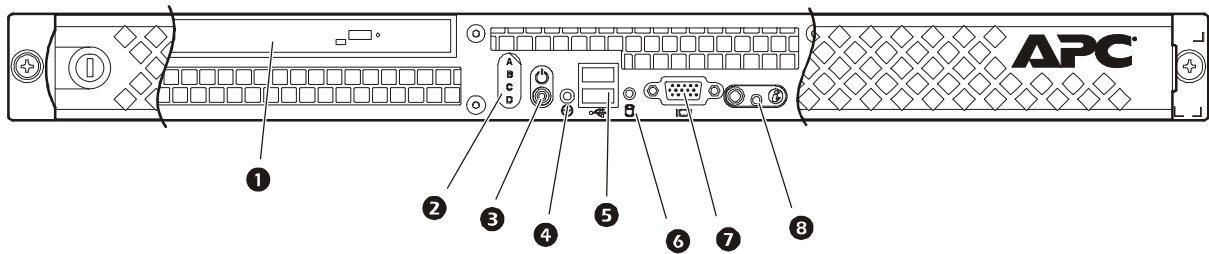
InfraStruXure Central Front Panel

Basic model (front)



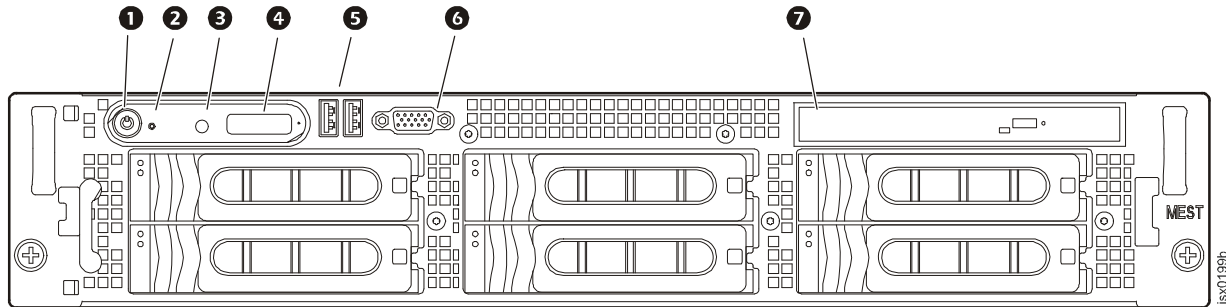
Item	Function
① Diagnostic Indicators	The four diagnostics indicators on the system front panel display error codes during system startup.
② Power-on Indicator, Power Button	The power-on indicator lights when the system power is on. The power-on indicator blinks when the system is not turned on but power is available. The power button controls the power supply output to the system.
③ NMI button	The NMI button is used to troubleshoot software and device driver errors when using certain operating systems. This button can be pressed using the end of a paper clip. Use this button only if directed to do so by qualified support personnel.
④ USB Ports (2)	Used to connect USB 2.0-compliant devices to the system.
⑤ HDD LED	Hard disk drive LED. When this LED is amber, the disk is being accessed.
⑥ Monitor	VGA monitor port
⑦ System Identification Button Blue and Amber System Status Indicator LEDs	<p>The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pushed, the blue system status indicator on the front and back blinks until one of the buttons is pushed again.</p> <p>LEDs illuminate as described below to indicate system status:</p> <ul style="list-style-type: none"> • Blue Off, Amber Off: System is turned off. • Blue Off, Amber Blinking: The system has detected an error. • Blue On, Amber Off: Power is turned on, system is operational. • Blue Blinking, Amber Off: The system identification indicator has been activated to identify the system in a rack.

Standard model (front)



Item	Function
1 DVD Drive	Allows CD/DVD-based updates for software and firmware. (Not available on the Basic model)
2 Diagnostic Indicators	The four diagnostics indicators on the system front panel display error codes during system startup.
3 Power-on Indicator, Power Button	The power-on indicator lights when the system power is on. The power-on indicator blinks when the system is not turned on but power is available. The power button controls the power supply output to the system.
4 NMI button	The NMI button is used to troubleshoot software and device driver errors when using certain operating systems. This button can be pressed using the end of a paper clip. Use this button only if directed to do so by qualified support personnel.
5 USB Ports (2)	Used to connect USB 2.0-compliant devices to the system.
6 HDD LED	Hard disk drive LED. When this LED is amber, the disk is being accessed.
7 Monitor	VGA monitor port.
8 System Identification Button	The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pushed, the blue system status indicator on the front and back blinks until one of the buttons is pushed again.

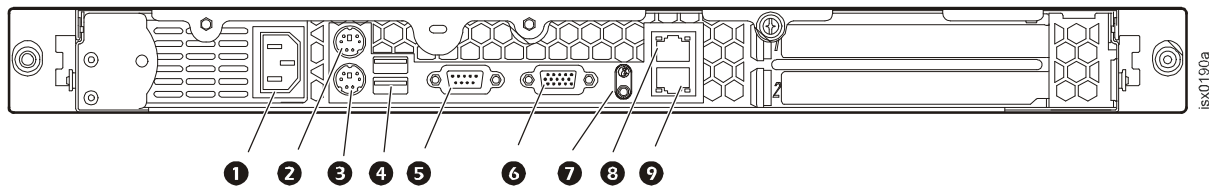
Enterprise model (front)



Item	Function
1 Power-on Indicator, Power Button	The power-on indicator lights when the system power is on. The power-on indicator blinks when the system is not turned on but power is available. The power button controls the power supply output to the system.
2 NMI Button	Used to troubleshoot software and device driver errors when using certain operating systems. This button can be pressed using the end of a paper clip. Use this button only if directed to do so by qualified support personnel or by the operating system's documentation.
3 System Identification Button	The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pushed, the blue system status indicator on the front and back blinks until one of the buttons is pushed again.
4 LCD Display (Enterprise only)	Provides system ID, status information, and system error messages. The LCD display is illuminated with a blue light during normal system operation. If the system needs attention due to a problem with power supplies, fans, system temperature, or hard drives, the LCD display will be illuminated with amber light. Note: If the system is connected to AC power and an error has been detected, the LCD display flashes amber regardless of whether the system is turned on.
5 USB Ports (2)	Used to connect USB 2.0-compliant devices to the system.
6 Monitor	VGA monitor port
7 DVD Drive	Allows CD/DVD-based updates for software and firmware. (Not available on the Basic model.)

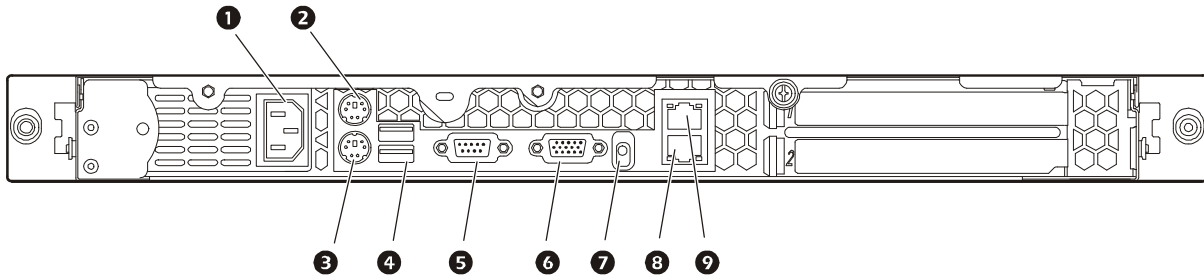
InfraStruXure Central rear panel

Basic model (rear)



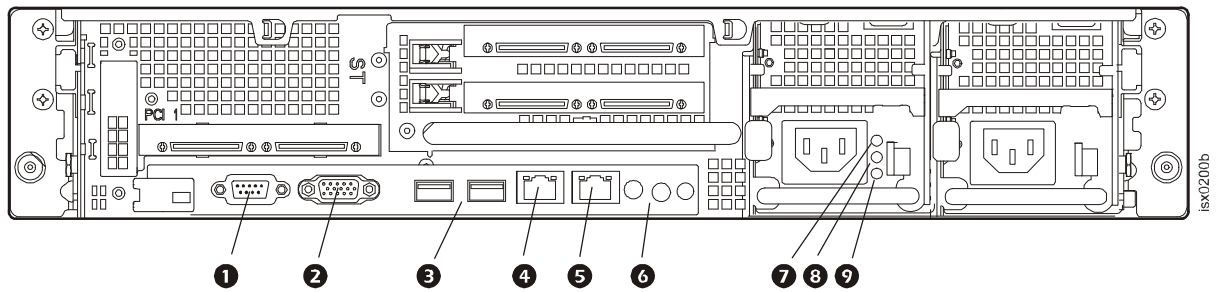
Item	Function	
❶	Power Socket	Receptacle for power cord.
❷	Mouse	PS/2 Mouse port
❸	Kbd	PS/2 Keyboard port
❹	USB Ports (2)	Used to connect USB 2.0-compliant devices to the system.
❺	Serial	9-pin
❻	Monitor	External monitor port
❼	System Status LED and button	The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pushed, the blue system status indicator on the front and back blinks until one of the buttons is pushed again.
❽	Gb1	Gigabit Ethernet port for connecting to a public LAN.
❾	Gb2	Gigabit Ethernet port for connecting to the private LAN.

Standard Model (rear)



Item	Function	
1	Power Socket	Receptacle for power cord.
2	Mouse	PS/2 Mouse port
3	Keyboard	PS/2 Keyboard port
4	USB Ports (2)	Used to connect USB 2.0-compliant devices to the system.
5	Serial Port	9-pin
7	System Status LED and button	The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pushed, the blue system status indicator on the front and back blinks until one of the buttons is pushed again.
8	Gb2	Gigabit Ethernet port for connecting to the private LAN.
9	Gb1	Gigabit Ethernet port for connecting to a public LAN.

Enterprise Model (rear)



Item	Function	
1	Serial Port 9-pin	
2	Monitor External monitor port	
3	USB Ports (2) Used to connect USB 2.0-compliant devices to the system.	
4	Gb1 Gigabit Ethernet port for connecting to the public LAN.	
5	Gb2 Gigabit Ethernet port for connecting to a private LAN.	
6	System Identification Button Blue and Amber System Status Indicator LEDs	<p>The identification buttons on the front and back panels can be used to locate a particular system within a rack. When one of these buttons is pushed, the blue system status indicator on the front and back blinks until one of the buttons is pushed again.</p> <p>LEDs illuminate as described below to indicate system status:</p> <ul style="list-style-type: none"> • Blue Off, Amber Off: System is turned off. • Blue Off, Amber Blinking: The system has detected an error. • Blue On, Amber Off: Power is turned on and the system is operational. • Blue Blinking, Amber Off: The system identification indicator has been activated to identify the system in a rack.
7	Power supply status	A green LED indicates that the power supply is operational
8	Power supply fault	An amber LED indicates a problem with the power supply.
9	AC line status	A green LED indicates that a valid AC source is connected to the power supply.

Specifications

InfraStruXure Central server

Electrical

Input	100–240 VAC; 50/60 Hz; 0.7 A to 0.5 A
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Physical

Dimensions (H × W × D)

Unit	Basic: 4.5 × 48.3 × 54.6 cm (1.7 × 19 × 21.5 in) Standard: 4.5 × 48.3 × 54.6 cm (1.7 × 19 × 21.5 in) Enterprise: 7.6 × 48.3 × 68.6 cm (3 × 19 × 27 in)
Shipping	Basic: 30.5 × 63.5 × 88.9 cm (12 × 25 × 35 in) Standard: 30.5 × 63.5 × 88.9 cm (12 × 25 × 35 in) Enterprise: 38.1 × 63.5 × 91.4 cm (15 × 25 × 36 in)

Weight

Unit	Basic: 11.8 kg (26 lb) Standard: 20.4 kg (45 lb) Enterprise: 37.2 kg (82 lb)
Shipping weight	Basic: 13.2 kg (29 lb) Standard: 21.7 kg (48 lb) Enterprise: 38.6 kg (85 lb)

Environmental

Temperature

Operating	50 to 95 °F (10 to 35°C)
Storage	5 to 122 °F (–15 to 50°C)

Elevation

Operating	10 000 ft (3000 m) above MSL
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Humidity

Operating	20–80% RH, non-condensing
Storage	5–95% RH, non-condensing

Compliance











Approvals	UL, CE, FCC, CSA, ICES-003, IRAM, NOM, CE CISPR 22, TUV-GS, SAB, GOST, NEMKO, SPRING, VCCI, MIC, BSMI, C-Tick, CCC
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Appendix A: LED Error Codes

Error Code Listing

Overview

The four diagnostics indicators on the system front panel display error codes during system startup. The following table lists the causes associated with these codes.

Code	Causes
	Possible processor failure.
	Memory failure.
	Possible expansion card failure.
	Possible video card failure.
	Hard drive failure.
	Possible USB failure.
	No memory modules detected.
	System board failure.
	Memory configuration error.
	Possible system board resource and/or system board hardware failure.

 <p>A B C D</p>	Possible expansion card failure.
 <p>A B C D</p>	Other failure.
 <p>A B C D</p>	The system is in a normal operating condition after POST.
<p>● = yellow ● = green ○ = off</p>	

Appendix B: Diagnostic Messages

Message Listing

Overview

The system's control panel LCD provides status messages to signify when the system is operating correctly or when the system needs attention.

The LCD lights blue to indicate a normal operating condition, and lights amber to indicate an error condition. The LCD scrolls a message that includes a status code followed by descriptive text..

The following table lists the potential error messages along with a short description of the condition described by the message.

Code	Text	Causes
N/A	SYSTEM NAME	The SYSTEM NAME displays under the following conditions: <ul style="list-style-type: none">• The system is turned on.• The power is off and active POST errors are displayed.
E1000	FAILSAFE, Call Support	Contact APC Customer Support at a number on the back cover of this manual
E1114	Temp Ambient	Ambient system temperature is out of acceptable range.
E1116	Temp Memory	Memory has exceeded acceptable temperature and has been disabled to prevent damage to the components.
E12nn	xx PwrGd	Specified voltage regulator has failed.
E1210	CMOS Batt	CMOS battery is missing, or the voltage is out of acceptable range.
E1211	ROMB Batt	RAID battery is either missing, bad, or unable to recharge due to thermal issues.
E1229	CPU # VCORE	Processor # VCORE voltage regulator has failed.
E1310	RPM Fan ##	RPM of specified cooling fan is out of acceptable operating range.
E1313	Fan Redundancy	The system is no longer fan-redundant. Another fan failure will put the system at risk of over-heating.
E1410	CPU # IERR	Specified microprocessor is reporting an internal error.
E1414	CPU # Thermtrip	Specified microprocessor is out of acceptable temperature range and has halted operation.
E1418	CPU # Presence	Specified processor is missing or bad, and the system is in an unsupported configuration.
E141C	CPU Mismatch	Processors are in a configuration unsupported by APC.
E141F	CPU Protocol	The system BIOS has reported a processor protocol error.
E1420	CPU Bus PERR	The system BIOS has reported a processor bus parity error.
E1421	CPU Init	The system BIOS has reported a processor initialization error.
E1422	CPU Machine Chk	The system BIOS has reported a machine check error.
E1610	PS # Missing	No power is available from the specified power supply; specified power supply is improperly installed or faulty.
E1614	PS # Status	No power is available from the specified power supply; specified power supply is improperly installed or faulty.

E1618	PS # Predictive	Power supply voltage is out of acceptable range; specified power supply is improperly installed or faulty.
E161C	PS # Input Lost	Power source for specified power supply is unavailable, or out of acceptable range.
E1620	PS # Input Range	Power source for specified power supply is unavailable, or out of acceptable range.
E1624	PS Redundancy	The power supply subsystem is no longer redundant. If the last supply fails, the system will go down.
E1710	I/O Channel Chk	The system BIOS has reported an I/O channel check.
E1711	PCI PERR B## D## F## PCI PERR Slot #	The system BIOS has reported a PCI parity error on a component that resides in PCI configuration space at bus ##, device ##, function ##. The system BIOS has reported a PCI parity error on a component that resides in the specified PCI slot.
E1712	PCI SERR B## D## F## PCI SERR Slot #	The system BIOS has reported a PCI system error on a component that resides in PCI configuration space at bus ##, device ##, function ##. The system BIOS has reported a PCI system error on a component that resides in the specified slot.
E1714	Unknown Err	The system BIOS has determined that there has been an error in the system, but is unable to determine its origin.
E171F	PCIE Fatal Err B## D## F## PCIE Fatal Err Slot #	The system BIOS has reported a PCIe fatal error on a component that resides in PCI configuration space at bus ##, device ##, function ##. The system BIOS has reported a PCIe fatal error on a component that resides in the specified slot.
E1810	HDD ## Fault	The SAS subsystem has determined that hard drive ## has experienced a fault.
E1811	HDD ## Rbld Abrt	The specified hard drive has experienced a rebuild abort.
E1812	HDD ## Removed	The specified hard drive has been removed from the system.
E1913	CPU & Firmware Mismatch	The BMC firmware does not support the CPU.
E1A11	PCI Rsr Config	PCI risers are not configured correctly; some invalid configurations may prevent the system from turning on.
E1A12	PCI Rsr Missing	One or all of the PCI risers are missing, preventing the system from turning on.
E1A14	SAS Cable A	SAS cable A is missing or bad.
E1A15	SAS Cable B	SAS cable B is missing or bad.
E2010	No Memory	No memory is installed in the system.
E2011	Mem Config Err	Memory detected, but is not configurable. Error detected during memory configuration.
E2012	Unusable Memory	Memory is configured, but not usable. Memory subsystem failure.
E2013	Shadow BIOS Fail	The system BIOS failed to copy its flash image into memory.
E2014	CMOS Fail	CMOS failure. CMOS RAM not functioning properly.
E2015	DMA Controller	DMA controller failure.
E2016	Int Controller	Interrupt controller failure.

E2017	Timer Fail	Timer refresh failure.
E2018	Prog Timer	Programmable interval timer error.
E2019	Parity Error	Parity error.
E201A	SIO Err	SIO failure.
E201B	Kybd Controller	Keyboard controller failure.
E201C	SMI Init	System management interrupt (SMI) initialization failure.
E201D	Shutdown Test	BIOS shutdown test failure.
E201E	POST Mem Test	BIOS POST memory test failure.
E201F	DRAC Config	Dell remote access controller (DRAC) configuration failure.
E2020	CPU Config	CPU configuration failure.
E2021	Memory Population	Incorrect memory configuration. Memory population order incorrect.
E2022	POST Fail	General failure after video.
E2110	MBE Crd # DIMM ## & ##	One of the DIMMs in the set implicated by "## & ##" has had a memory multi-bit error (MBE). If no memory card is present, the "Crd #" string is left out of the message.
E2111	SBE Log Disable Crd # DIMM ##	The system BIOS has disabled memory single-bit error (SBE) logging, and will not resume logging further SBEs until the system is rebooted. "##" represents the DIMM implicated by the BIOS. If no memory riser card is present, the "Crd #" string is left out of the message.
E2112	Mem Spare Crd # DIMM ##	The system BIOS has spared the memory because it has determined that the memory had too many errors. "## & ##" represents the DIMM pair implicated by the BIOS. If no memory card is present, the "Crd #" string is left out of the message.
E2113	Mem Mirror Crd # DIMM ## & ##	The system BIOS has disabled memory mirroring because it has determined that one half of the mirror has had too many errors. "## & ##" represents the DIMM pair implicated by the BIOS. If no memory card is present, the "Crd #" string is left out of the message.
E2118	Fatal NB Mem CRC	One of the connections in the Fully Buffered DIMM (FBD) memory subsystem link on the Northbound side has failed.
E2119	Fatal SB Mem CRC	One of the connections in the FBD memory subsystem link on the Southbound side has failed.
I1910	Intrusion	System cover has been removed.
I1911	>3 ERRs Chk Log	LCD overflow message. A maximum of three error messages can display sequentially on the LCD. The fourth message displays as the standard overflow message.
I1912	SEL Full	System Event Log is full of events, and is unable to log any more events.
W1228	ROMB Batt < 24hr	Warns predictively that the RAID battery has less than 24 hours of charge left.

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