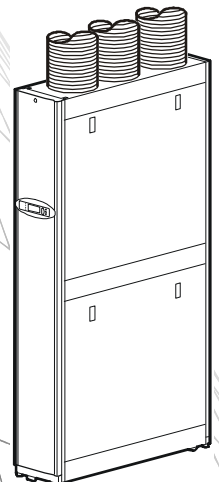


Installation

InRow[®] SC

ACSC100
ACSC101





This manual is available in English on the enclosed CD.

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

Deze handleiding staat in het Nederlands op de bijgevoegde cd.

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。

Instrukcja Obsługi w języku polskim jest dostępna na CD.

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。

您可以从附属的 CD 上获得本手册的中文版本。

동봉된 CD 안에 한국어 매뉴얼이 있습니다 .

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General Information

Overview

Save these instructions

This manual contains important instructions that must be followed during the installation of the American Power Conversion (APC®) InRow SC.

Safety symbols that may be used in this manual



Electrical Hazard: Indicates an electrical hazard which, if not avoided, could result in injury or death.



Danger: Indicates a hazard which, if not avoided, could result in severe personal injury or substantial damage to product or other property.



Warning: Indicates a hazard which, if not avoided, could result in personal injury or damage to product or other property.



Heavy: Indicates a heavy load that should not be lifted without assistance.



Caution: Indicates a potential hazard which, if not avoided, could result in personal injury or damage to product or other property.

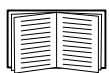


Tip Hazard: This equipment is easily tipped. Use extreme caution when unpacking or moving.



Note: Indicates important information.

Cross-reference symbol used in this manual



See another section of this document or another document for more information on this subject.

Safety



Warning: Use the equipment on a flat and level surface.

Do not obstruct the air inlets and outlets of the equipment.

For indoor use only.

Do not attempt to service the equipment except to replace fans or to clean and replace the air filters. The equipment contains no other user-serviceable parts.

Do not place the rear of the equipment less than 203 mm (8 in) away from any wall or obstacle. Clearance around the equipment should be in accordance with ASHRAE, local, and national codes.

Do not install the air conditioner where there are fumes or flammable gases, or in an extremely humid space.

The equipment contains refrigerant under pressure. Service should only be performed by qualified refrigeration technicians.



Electrical Hazard: Only connect this equipment to a single-outlet dedicated circuit.

This equipment has two power inlets. Only one inlet should be connected at a given time. Ensure that both inlets are disconnected before servicing the equipment.

The plug serves as the disconnect for the equipment. Install the plug near the equipment where it is readily accessible.

Connect the equipment to the appropriate supply. The ACSC100 is rated 200–240 Vac, 60 Hz and requires 20-A overcurrent protection. The ACSC101 is rated 200–240 Vac, 50 Hz and requires 16-A overcurrent protection.

The equipment should only be used with the correct supplied power cord. Select the proper cord for your region.

The unit is supplied with an LCDI (Leakage Current Detection and Interruption) cord. This cord must be used where required by the local electrical code.



Tip Hazard: The equipment is easily tipped over. Use extreme caution when unpacking and moving the equipment. Do not lean anything against the equipment. When using a forklift to move the equipment, make sure to lift only from the bottom.

When moving the equipment on a ramp, always face the narrow width in the direction of travel.



Heavy: This equipment is heavy. For safety, at least two people must be present when moving or installing it.

Always check the floor loading to make sure it supports the weight of the equipment before moving the equipment to its final location.



Caution: Keep your hands, clothing, and jewelry away from moving parts. Check the equipment for foreign objects before closing the doors and panels and starting the equipment.

Do not place this equipment on its side. If the equipment has been tipped, place it upright on a flat, solid surface and keep it in this position for a minimum of 24 hours before operating.



Note: All work should be performed by APC authorized personnel only.

Follow all local and national codes when installing this system.

Inspecting the Equipment

Your equipment has been tested and inspected for quality assurance before shipment from APC. To ensure that the equipment was not damaged during transit, carefully inspect both the exterior and interior of the equipment immediately upon receipt.

Verify that all parts ordered were received as specified. See “Inventory” on page 5.

Filing a claim

If damage is identified on receipt of the equipment, note the damage on the bill of lading and file a damage claim with the shipping company. See the back page of this manual for information on contacting APC Customer Support to file a claim with the shipping company. The shipping claim must be filed at the receiving end of the delivery.



Note: In case of shipping damage, do not operate the equipment. Keep all packaging for inspection by the shipping company.

Storing the Equipment Before Installation

If the equipment will not be installed immediately, store it in a safe place, protected from the elements.



Caution: Leaving the equipment uncovered and exposed to the elements can cause damage and will void the factory warranty.

Moving the Equipment

Moving the equipment through door openings

See “Weights and Dimensions” on page 9. If any door opening does not meet minimum requirements, the opening will need to be modified.



Tip Hazard: The equipment is narrow and easily tipped over. Use extreme caution when unpacking and moving the equipment. When using a forklift to move the equipment, make sure to lift only from the bottom.

When moving the equipment on a ramp, always face the narrow width in the direction of travel.



Caution: Do not tip the unit to fit it through a door. If the unit is tipped, it must be placed on a level surface and left in the vertical position for 24 hours.

Moving the equipment to its final location

Select the appropriate tools for moving the equipment. Each site will have different needs and considerations.

Pallet jack

Forklift



Heavy: Do not attempt to move the equipment without the assistance of at least one other person.

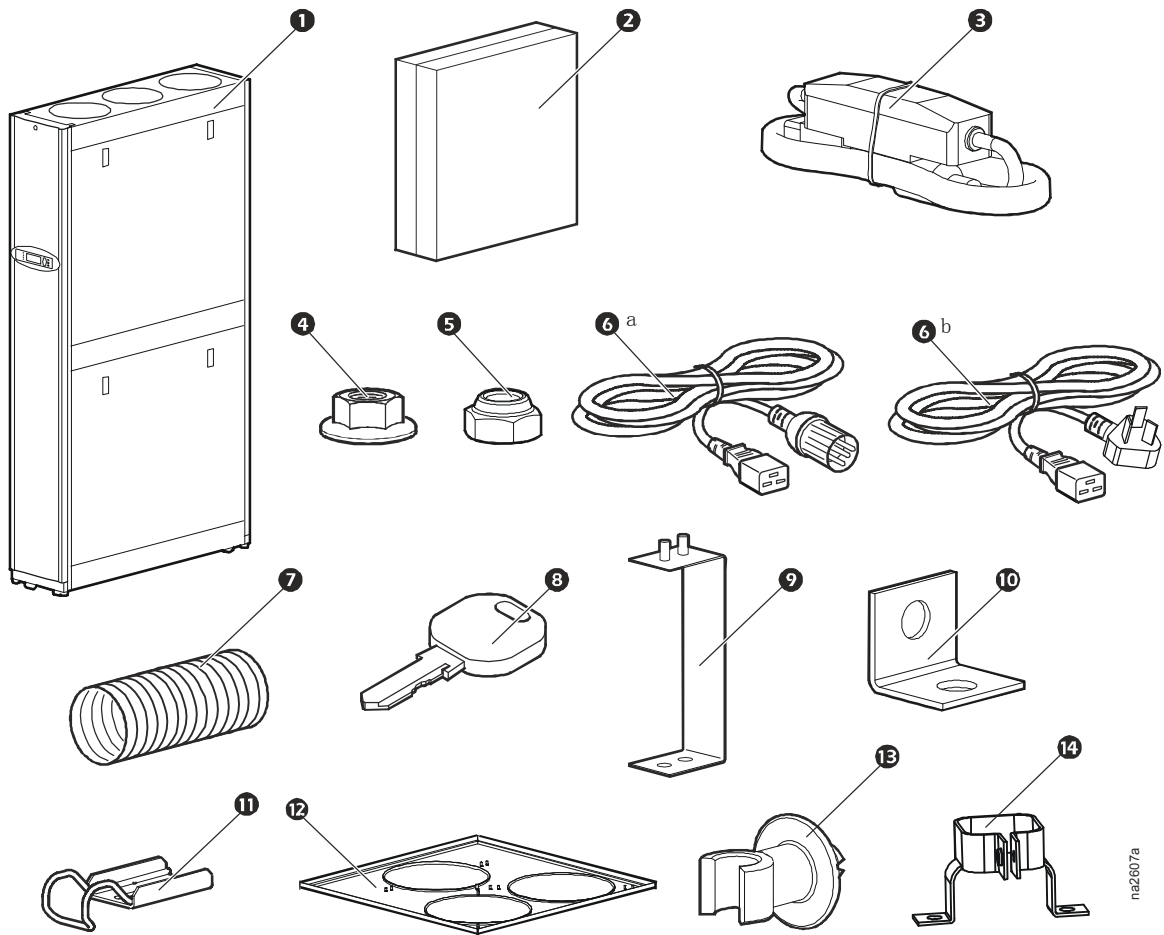


Tip Hazard: The equipment is narrow and easily tipped over. Use extreme caution when unpacking and moving the equipment to its final location.



Warning: When using a forklift to move the equipment, leave it on the pallet and make sure to lift only from the bottom.

Inventory

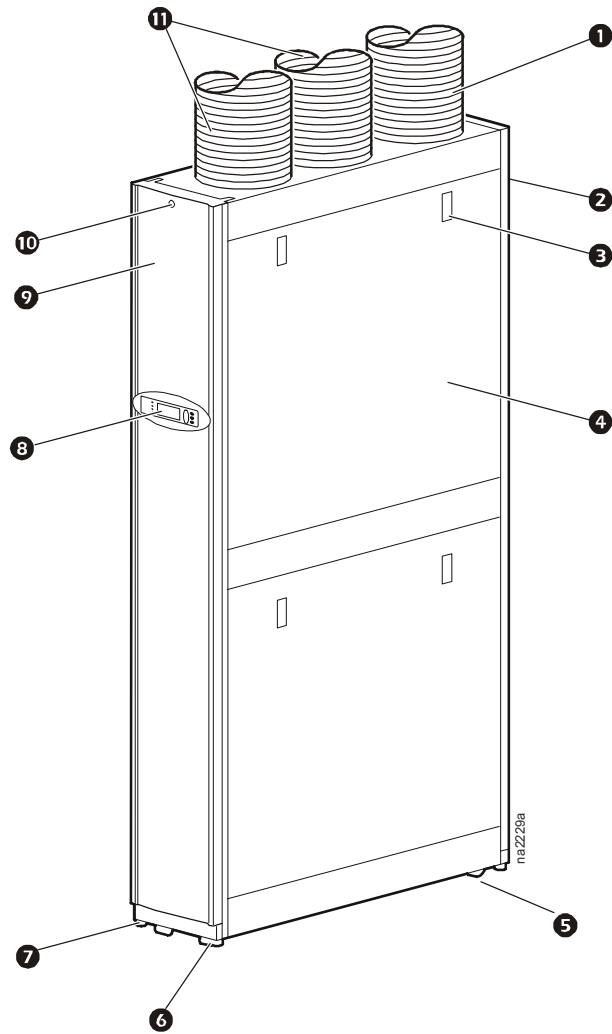


Item	Description	Quantity
1	InRow SC	1
2	Accessory box (contains all items listed below)	1
3	LCDI power cord (ACSC100 only)	1*
4	M4 x 0.7 mm hex nut (use with clamps and standoffs)	20
5	M6 x 1.0 mm nylock nut (use with bracket)	1
6 ^a	IEC 309 power cord (ACSC101 only)	1*
6 ^b	Power cord (ACSC101 - for use in China only)	1*
7	Flex duct tube	3
8	Key	2
9	Standoff (Exhaust tubes only)	4
10	Bracket	1
11	Clamp	6
12	Ceiling tile adapter	1
13	Wire clips	3
14	Strain relief for power cord	1
	Bolt-down kit (not shown)	1

* Use the appropriate power cord for your location.

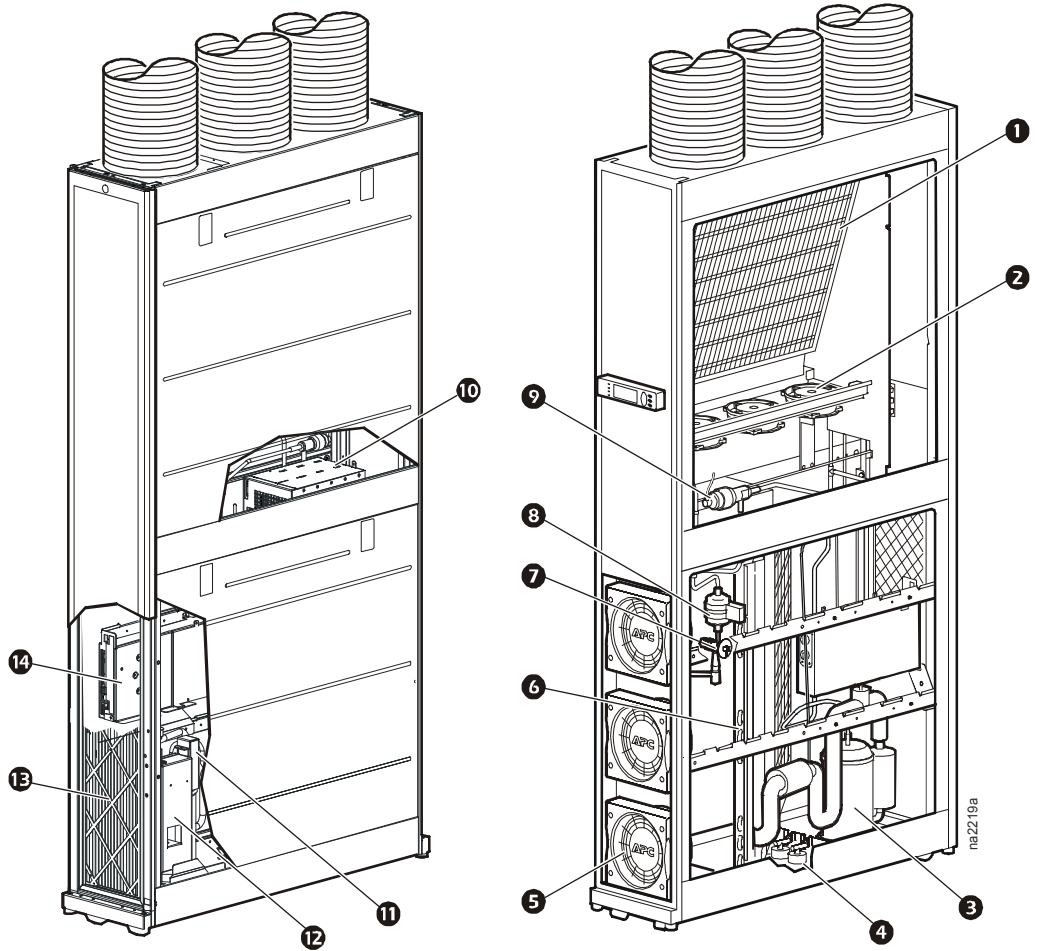
Component Identification

Exterior



- | | |
|--------------------------------|----------------------------|
| ❶ Intake air duct | ❷ Adjustable leveling foot |
| ❸ Removable rear door | ❸ Display interface |
| ❹ Side panel latch | ❹ Removable front door |
| ❺ Removable side panel | ❺ Door lock |
| ❻ Rear casters (non-swiveling) | ❻ Exhaust air duct |
| ❼ Front casters (swiveling) | |

Interior



- | | | | |
|---|-----------------------|---|-------------------------------------|
| ❶ | Condenser coil | ❸ | Refrigeration filter/drier |
| ❷ | Condenser fans | ❹ | Hot gas bypass valve |
| ❸ | Compressor | ❺ | Power supply |
| ❹ | Condensate pan floats | ❻ | Condensate pump |
| ❺ | Evaporator fans | ❼ | High voltage box |
| ❻ | Evaporator coil | ❽ | Standard washable 1/2-in air filter |
| ❼ | TXV expansion valve | ❾ | User interface panel |

Room Preparation

During the design of the data center, consider ease of entry for the equipment, floor loading factors, and accessibility to ducting and wiring.

Ensure the room is insulated to minimize the influence of exterior heat loads. Use the minimum required amount of fresh air for make up to comply with local and national codes and regulations. Fresh air imposes extreme load variation on the cooling equipment from summer to winter and causes increased system operating costs.

Incoming power supply requirements

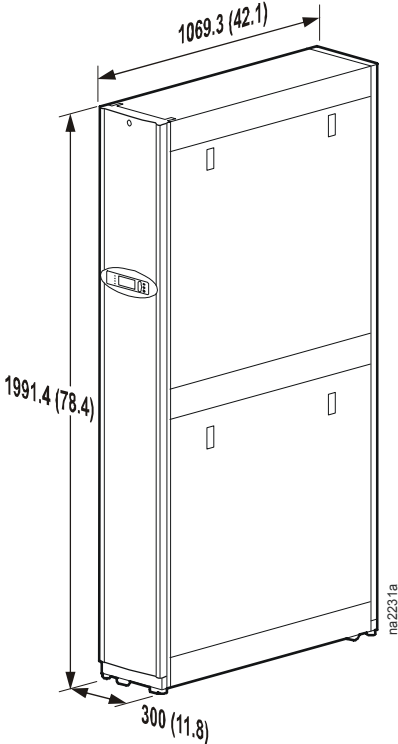
The equipment must be grounded. Electrical service must conform to national and local electrical codes and regulations.

Weights and Dimensions

Weights

Unpacked weight	165.92 kg (365 lb)
Packed weight	216 kg (475.2 lb)

Dimensions



Dimensions are shown in mm (in).

Installation

Removing Doors and Panels

Door removal



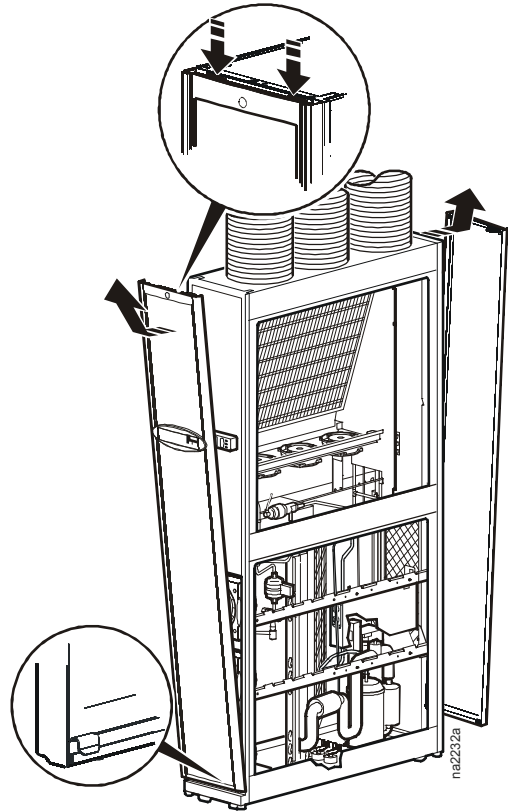
Warning: All doors and side panels must be locked during normal operation. Do not open side panels while fans are operating.



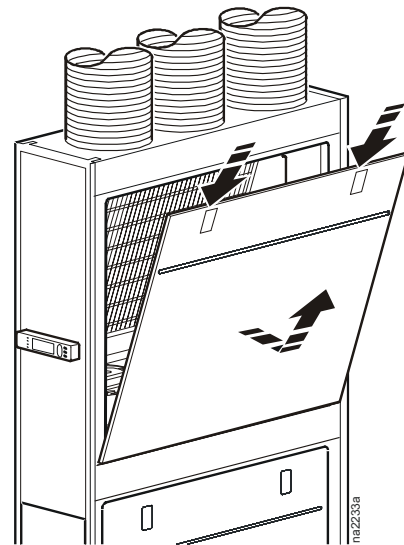
Caution: Use caution when removing the front and rear doors while equipment is operating. Unplug any ground wire and display connection cables.



Note: Do not lean doors against a wall with the spring latches facing the wall. This can deform the spring latches and prevent them from properly working.



Side panel removal



Positioning the Equipment

Positioning the equipment

The equipment can be positioned inside of or at the end of a row of enclosures, or it can stand alone in any location inside the data center.

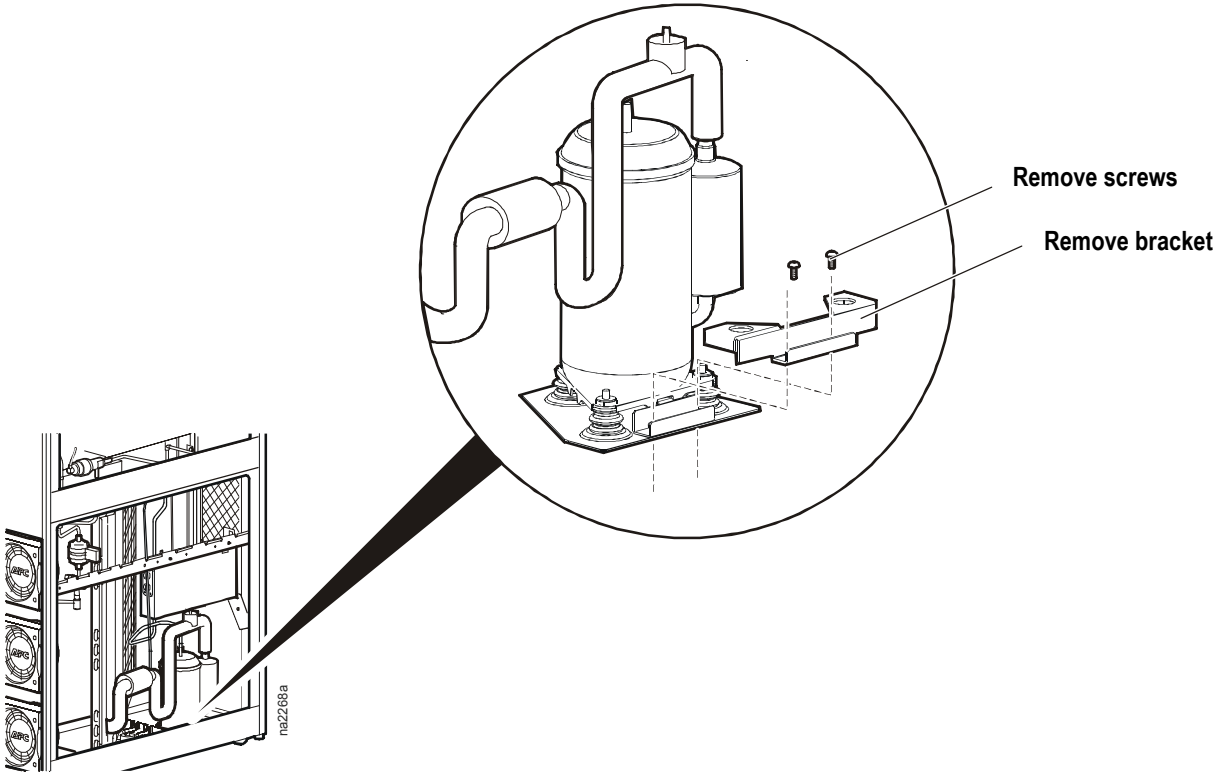
Remove compressor shipping brackets



Caution: Failure to complete the following steps may result in equipment damage and will void your warranty.

The compressor is secured by a two-piece bracket to prevent damage during shipping. This bracket must be removed before you apply power to the equipment.

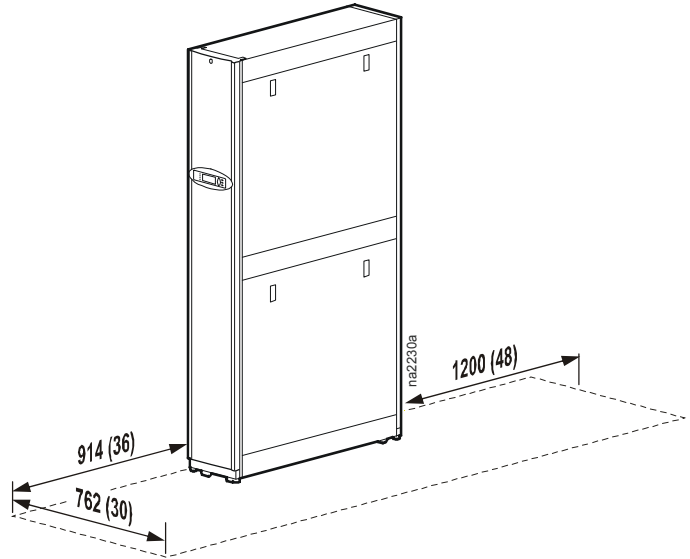
1. Remove two T30 Torx screws from the bracket as shown. Save the screws for possible future use.
2. Remove both halves of the bracket (one half of bracket shown) and save for possible future use.



Service access

All required periodic maintenance can be performed from the front or back of the equipment.

For repair procedures, disconnect the equipment and move it away from the row of enclosures into a clear area. Approximately 1070 mm (42 in) of clear floor space is required to free the equipment from the row of enclosures. Once the equipment is clear of the row, Allow approximately 914 mm (36 in) of clear floor space in front and back of the equipment, plus 762 mm (30 in) of clear floor space from the side you are accessing.



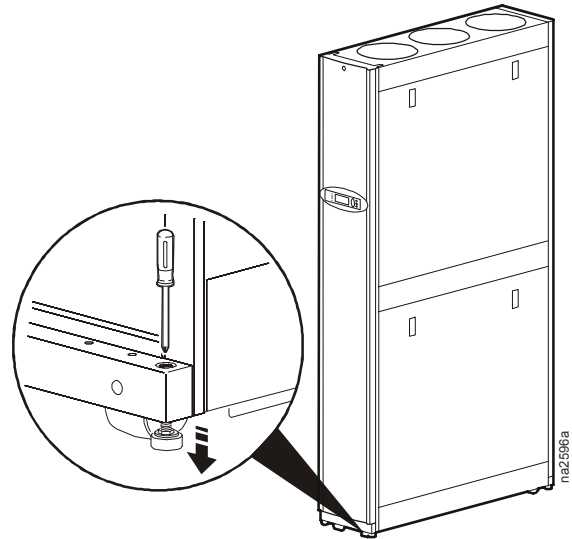
Dimensions are shown in mm (in).

Leveling

The leveling feet at the corners of the equipment provide a stable base if the floor is uneven, but cannot compensate for a badly sloped surface.

Once the equipment is in its intended location, use a screwdriver to turn each leveling foot clockwise until it makes contact with the floor. Adjust each foot until the equipment is level and plumb.

You can remove the casters and leveling feet to allow the equipment to rest directly on the floor.



Tip Hazard: The equipment is narrow and easily tipped over. Use extreme caution when leveling the equipment to avoid tipping.

Stabilizing the Equipment

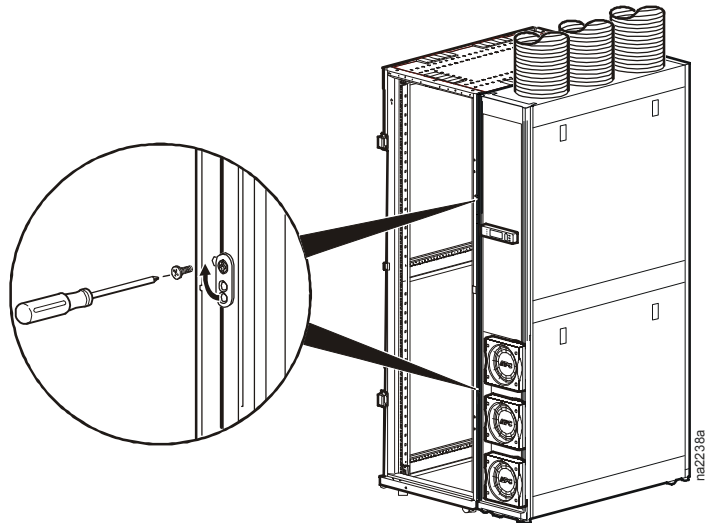
Floor brackets

To prevent the equipment from moving from its final location (if it is not joined with an enclosure), use the included bolt-down kit (AR7701). Follow the installation instructions included with the kit.

Joining to enclosures

SX enclosures. The equipment comes with two joining brackets installed on the front and two installed on the rear.

1. Remove the front and back doors. See “Door removal” on page 10.
2. Locate the four joining brackets on the equipment. Rotate each bracket 90° toward the adjoining enclosure, so that the bracket is parallel to the floor, and secure using the screws provided. One screw hole allows 600-mm spacing and the other allows 24-in spacing.



VX enclosures. The equipment may be joined to a VX enclosure by using an accessory kit (AR7602, sold separately.)

Mechanical Connections

Condenser Duct Considerations

The preferred method for managing condenser air in the InRow SC is to install the unit using the flexible air ducts and ceiling tile plate, provided the drop ceiling plenum is connected to a building cooling system return.

To ensure proper operation and prevent downtime, the plenum must provide an adequate volume of airflow, be within a set temperature range, and be able to treat heat rejected by the unit on a continuous basis.

These requirements are defined as follows:

- Provide at least 1440 m³/hr (850 CFM) of airflow to and from the condenser of each installed unit
- Condenser inlet air temperatures must be between 0-40°C (32-105°F)
- Total heat rejected by condenser, up to 10kW per unit, must be treated by the building cooling system or exhausted to the outside ambient air.

If the building cooling system has night and weekend setbacks, is shut down during the off-season, shut down for maintenance, or has limited remaining capacity you may need to consider alternatives to the standard installation.



Note: Having a very large plenum is not a substitute for proper ventilation and heat rejection. Heat rejected into the plenum must be able to get out of the facility and into the ambient environment. Otherwise, it will simply accumulate in the plenum and cause the unit to shut down.

While the actual size of the plenum is not critical, it is recommended that the plenum be at least 300 mm (12 in) deep to prevent restriction of the duct tube outlets. Consult with your engineer, mechanical contractor, or HVAC specialist to determine if the building air conditioning system is capable of supporting this load.

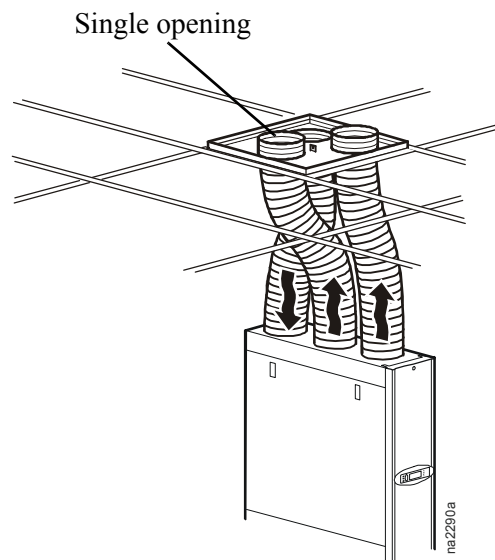
For additional details see Application Note #109, available at www.apc.com/support.

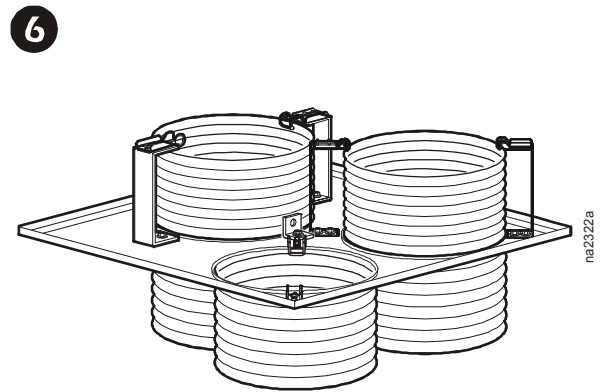
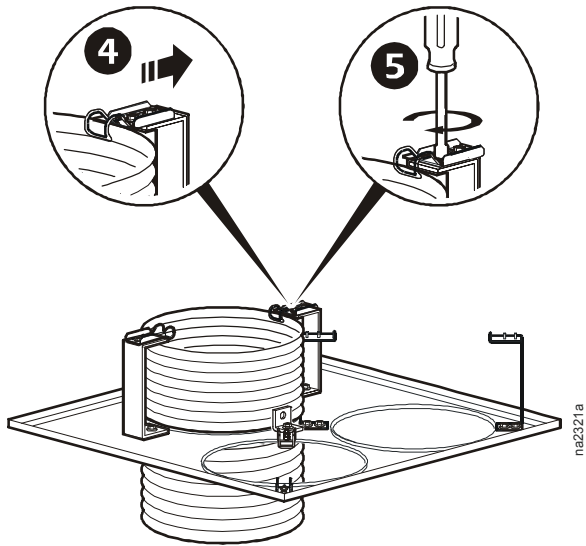
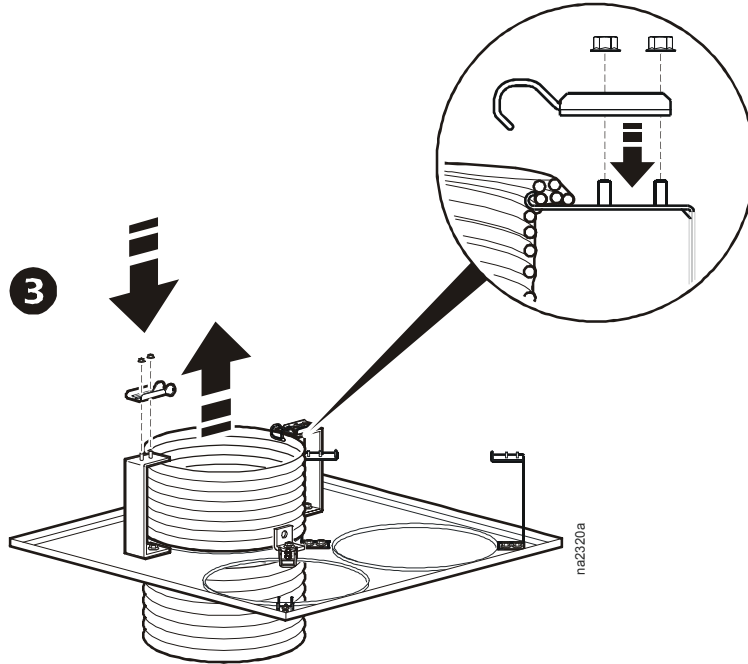
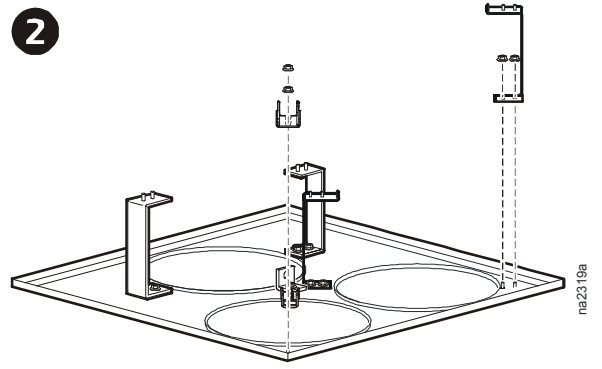
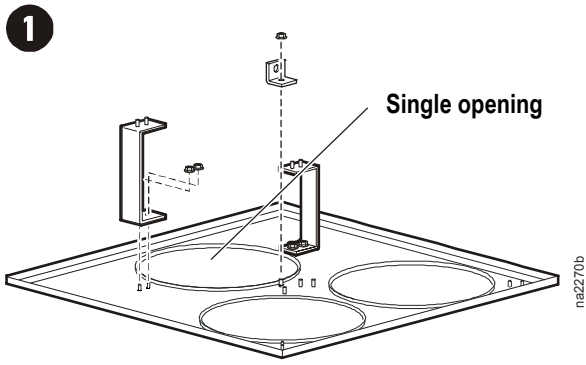
Intake and exhaust tube connections

Install one intake flex duct tube to the rear and two exhaust flex duct tubes to the middle and front. One of the exhaust tubes must always be installed in the single opening of the three-hole ceiling tile adapter as shown. Take your installation requirements into consideration when deciding where to place the ceiling tile adapter and where to install the intake tube and the second exhaust tube. One possible configuration is shown. Ensure the three tubes are similar in length and avoid causing sharp bends in the tubes.



Note: The exhaust tubes must protrude higher above the ceiling tile adapter than the intake tube to prevent hot air bypassing of the airflow between the exhaust and supply air ducts.

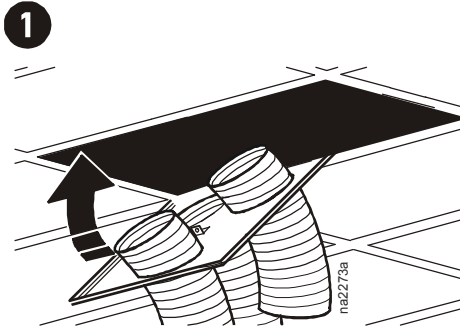




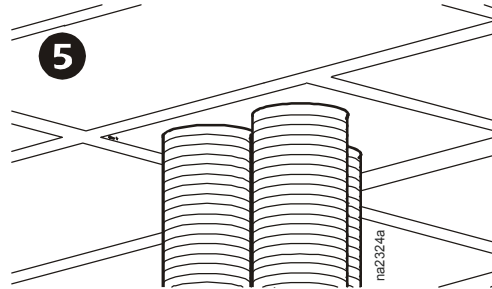
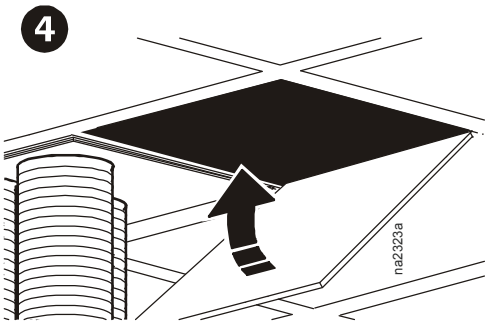
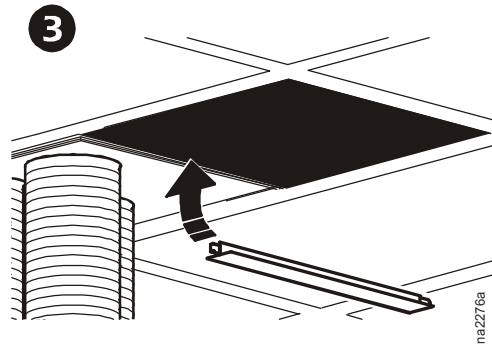
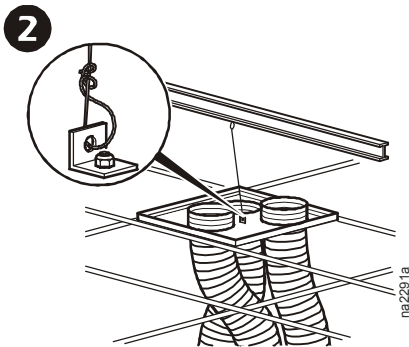
Install the adapter in a suspended ceiling.



Note: There should be no less than 30.5 cm (12 in) of open space above the ceiling adapter opening so exhaust air is not blocked.



Caution: Use 10-gauge (minimum) steel wire to support the ceiling tile adapter as shown. Ensure the wire is anchored to the building structural support (not the suspended ceiling frame).



Connect intake and exhaust tubes to the equipment.

1. Ensure the three tubes are similar in length and contain no sharp bends.
2. Trim any excess length.
3. Push each tube into its corresponding air duct on the equipment.

Ducting to an ambient environment. If necessary, the equipment can be ducted to an ambient (outside air) environment. If you choose to do so, you must obtain all components necessary for that installation (not included with the equipment). Comply with all local codes and observe the following requirements:

- Additional 250-mm (10-in) diameter tubes may be needed. Flexible metal tubes can be used.
- Booster fans may be required depending upon the length of the additional tubing installed.
- Route all three tubes to the ambient environment, and ensure the tubes are all of similar length.
- Avoid sharp bends that could cause a reduction of air flow in the tubes.
- Insulate all tubes to prevent condensation on their outer surfaces (in winter, ambient temperature may be low enough that uninsulated tubes may sweat, depending on room condition).

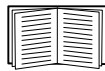


Note: The condenser entering air temperature must be at a minimum of 0°C (32°F) to prevent condensation on the outside of the InRow SC. See “Condenser Duct Considerations” on page 14 for more information.

- Install screening or nets as necessary to prevent insects or other solid objects from entering the tubes.
- Install covers as necessary to prevent rain and snow from entering the tubes.



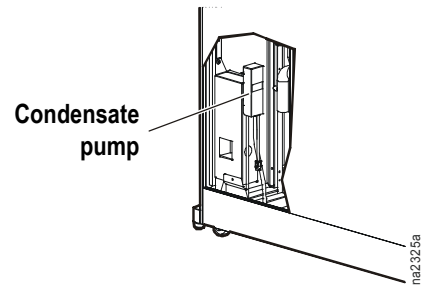
Note: Fresh air imposes extreme load variation on the cooling equipment from summer to winter and causes increased system operating costs. Monitor equipment performance to ensure the venting installation is working properly. The capacity of the equipment will be reduced during very hot days.



For more information on ducting to an ambient temperature, see APC application note AN-109 Application Guidelines for the InRow SC Condenser.

Condensate pump

The pump is factory-wired and piped internally to the condensate pan. The pump is capable of moving liquid a maximum of 15.2 m (50.0 ft), which may include a maximum lift of 4.9 m (16.0 ft). For example, if your lift is 3 m (10 ft), you only have 12.2 m (40.0 ft) of usable run remaining. The pump also uses an on-board condensate high level float switch wired into the alarm input for local and remote alarm capabilities.



Warning: Do not exceed the lift or the run length of the drain system.

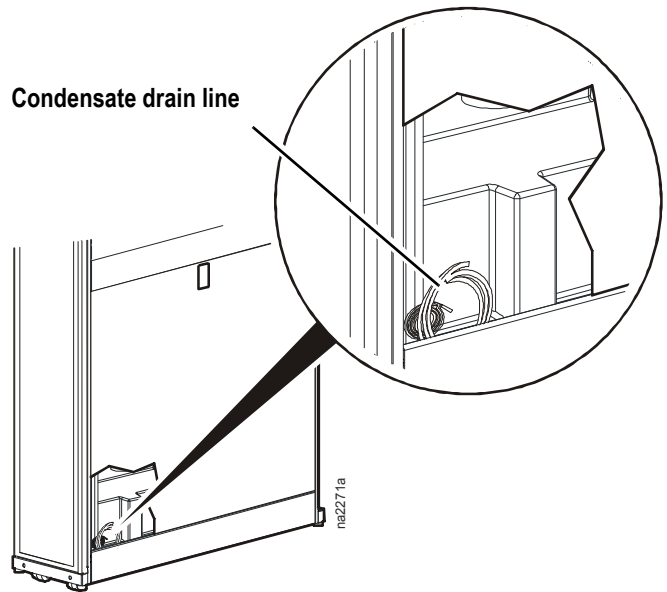
Condensate pump drain connection.



Warning: To prevent equipment damage from condensate, do not leave the condensate drain line coiled inside the unit. Route the condensate line out the top or bottom of the unit as shown on the next page.



Note: Sufficient PVC drain line is supplied to route the drain to the outside of the equipment. Provide additional drain line at installation to allow routing to a remote drain.



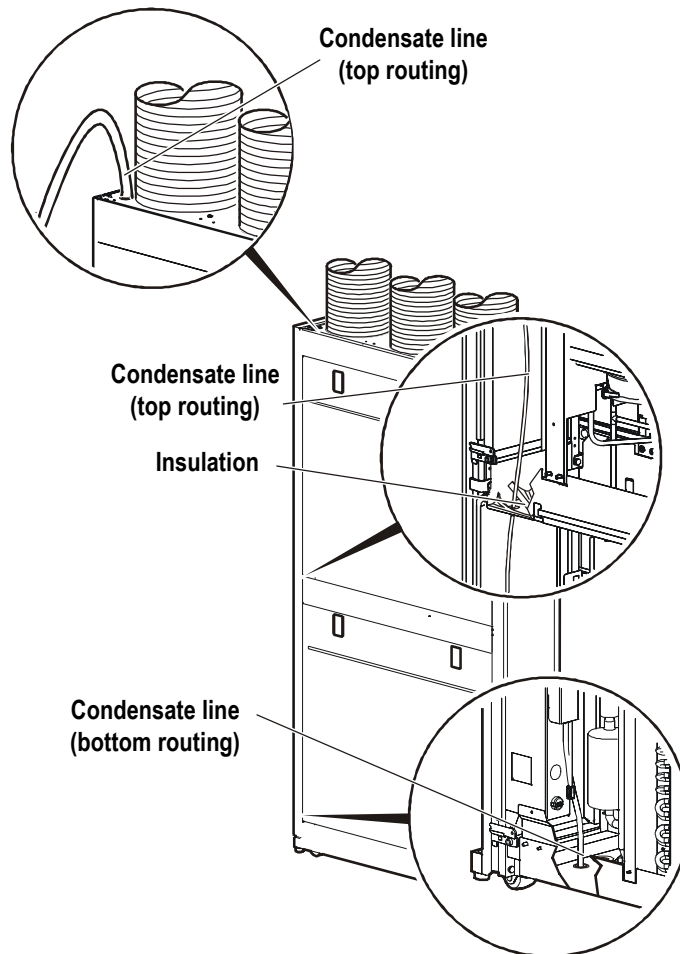
Routing the condensate pump drain line. Route the condensate drain line through the top or the bottom of the equipment to an appropriate drain.



Note: Comply with all local codes when installing the condensate drain line to the drain system.



Caution: Failure to properly route condensate drain line before operation could result in water damage.



Electrical Connections

Electrical connections required in the field are:

- Controls (user interface, Network Management Card, A-Link)
- Communication (Building Management System)
- Power to InRow SC
- Temperature sensor

All electrical connections must be in accordance with applicable industry guidelines as well as national and local codes.

See the equipment nameplate for voltage and current requirements.

All low-voltage connections, including data and control connections, must be made with properly insulated wires. The low voltage wires and connections must have at least 300-V insulation.



Electrical Hazard: Potentially dangerous and lethal voltages exist within this equipment. More than one disconnect switch may be required to energize or de-energize this equipment. Observe all cautions and warnings. Failure to do so could result in serious injury or death. Only qualified service and maintenance personnel may work on this equipment.



Warning: Use a voltmeter to ensure that power is turned off before making any electrical connections.

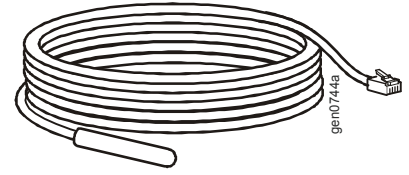


Note: Single phase service is required. Electrical service must conform to national and local electrical codes. The equipment is grounded through the power cord.

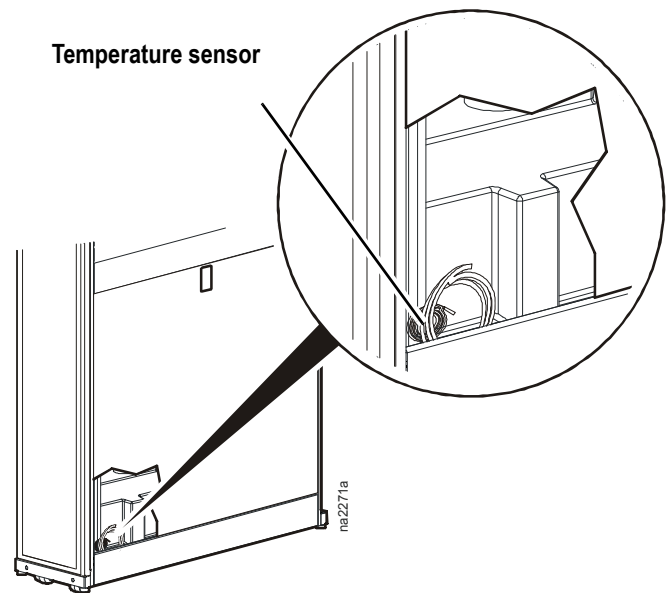
Temperature sensor

The temperature sensor is coiled inside the unit as shown.

In Spot Cooling and RACS configurations, the reading from the temperature sensor (AP9335T) is used for monitoring purposes only. The sensor may be placed where desired or left coiled inside the unit. It is recommended that the sensor be routed to the front of the heat load for the most accurate temperature reading. If the sensor is left inside the unit, ensure the sensor and cable do not rest against the compressor or refrigerant lines. Doing so may damage the sensor.

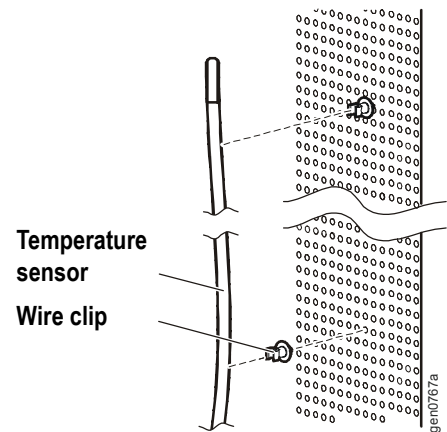


In InRow configuration, the temperature sensor (AP9335T) monitors the temperature of the air entering the IT equipment. The reading is used to control the operation of the unit, so the sensor must be placed as directed on page 22 or the equipment will not operate properly.



Connect the temperature sensor.

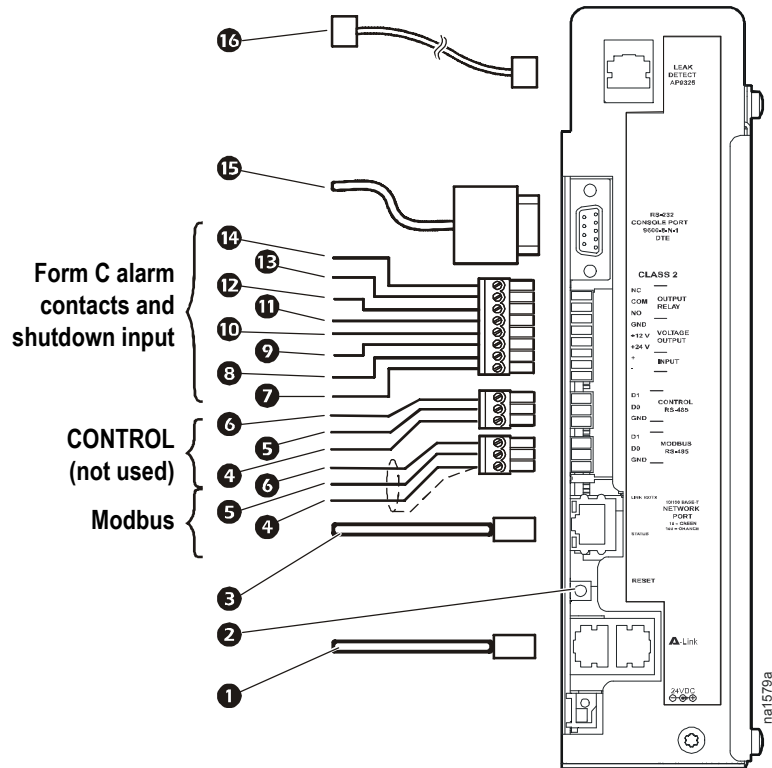
1. Insert the rack temperature sensor connector in the temperature sensor port at the user interface. See “Power connections” on page 28.
 - a. For a top installation, push the rack temperature sensor through the wire channel located at the top of the equipment in the left hand side just above the user interface connectors.
 - b. For a bottom installation, route the sensor through the wire clamps along the electrical panel and then push the sensor through the customer access hole in the bottom of the equipment.
2. Route the sensor through either the top or the bottom of the equipment.
3. Secure the temperature sensor bulb in front of the warmest heat source in the enclosure. Do not secure in front of a blanking panel.
4. Secure the temperature sensor cable to the front door of the enclosure at multiple locations using the provided wire clips as shown. See “Inventory” on page 5.



The sensors must be installed where lack of sufficient cooling air is most likely. The optimum position of the rack temperature sensors will vary from installation to installation. Servers most likely to have insufficient or inadequately cooled cooling air due to the recirculation of hot air from the hot aisle include:

- a. Servers positioned at the top of a rack.
- b. Servers positioned at any height in the last rack at an open end of a row.
- c. Servers positioned behind flow-impairing obstacles such as building elements.
- d. Servers positioned in a bank of high-density racks.
- e. Servers positioned next to racks with Air Removal Units (ARU).
- f. Servers positioned very far from the equipment.
- g. Servers positioned very close to the equipment.

User interface box



- | | |
|--|--|
| <p>❶ A-Link ports</p> <p>❷ Reset button</p> <p>❸ Network port (for CAT-5 10/100 Base T ethernet cable)</p> <p>❹ Modbus shield/ground</p> <p>❺ Modbus (A- = True)</p> <p>❻ Modbus (B+ = True)</p> <p>❼ Shutdown - (for remote shutdown)</p> <p>❽ Shutdown + (for remote shutdown)</p> | <p>❾ 24 Vdc (bias)—20 mA is the maximum current allowed from this voltage output port</p> <p>❿ 12 Vdc (bias)—20 mA is the maximum current allowed from this voltage output port</p> <p>⓫ Return (bias)</p> <p>⓬ NO (normally open)</p> <p>⓭ COM (common)</p> <p>⓮ NC (normally closed)</p> <p>⓯ RS-232 console port (see the <i>InRow SC Service</i> manual)</p> <p>⓰ Leak detector (AP9325)</p> |
|--|--|

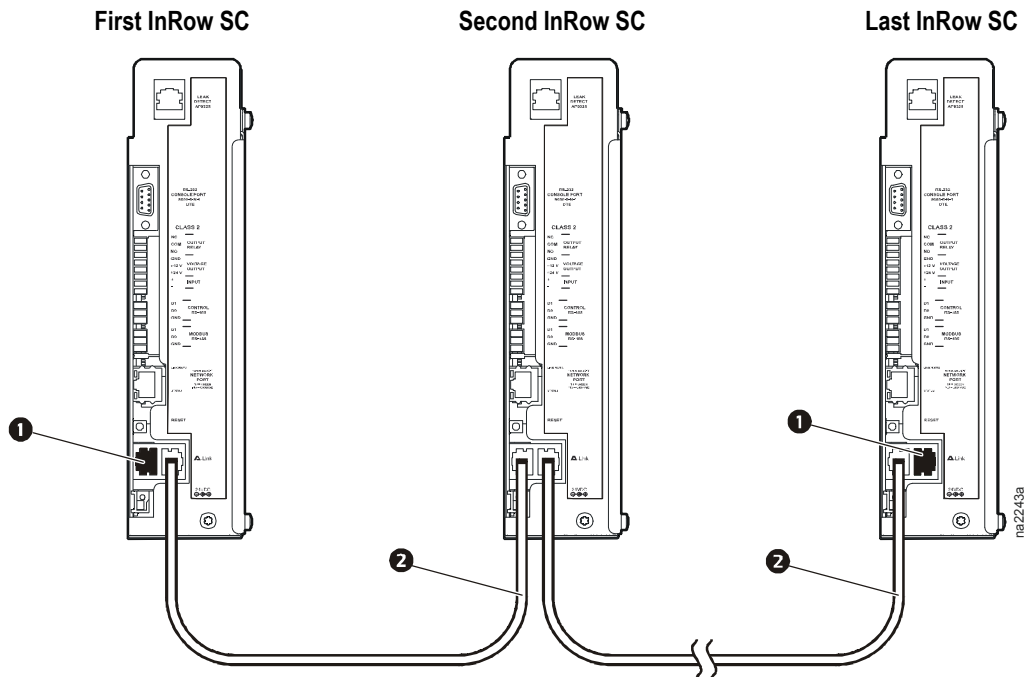
A-Link ports



Note: All input and output connections should be wired as Class 2 circuits.

The A-Link bus connection allows multiple InRow SCs (up to twelve) to communicate with one another. To enable the InRow SC to work as a group, link them using CAT-5 cables with RJ-45 connectors. A supplied terminator (150 Ω , 1/4 W) is factory installed in the A-Link port, and must remain inserted into the A-Link ports of the first and final InRow SCs only.

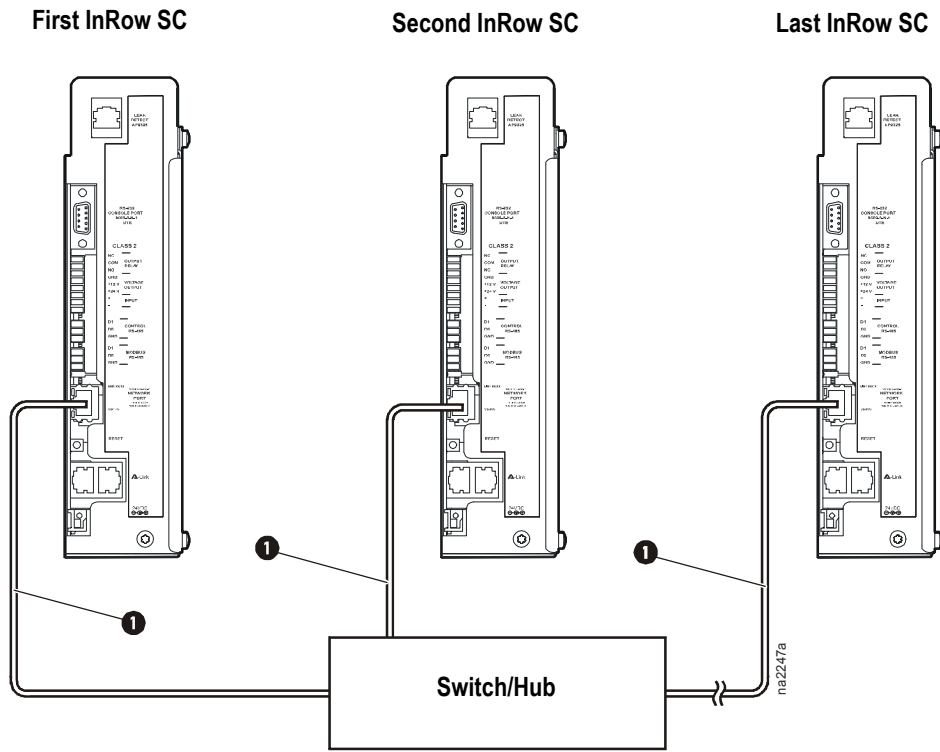
The maximum wire length for the entire group may not exceed 1000 m (3,280 ft).



❶ RJ-45 terminator (provided)

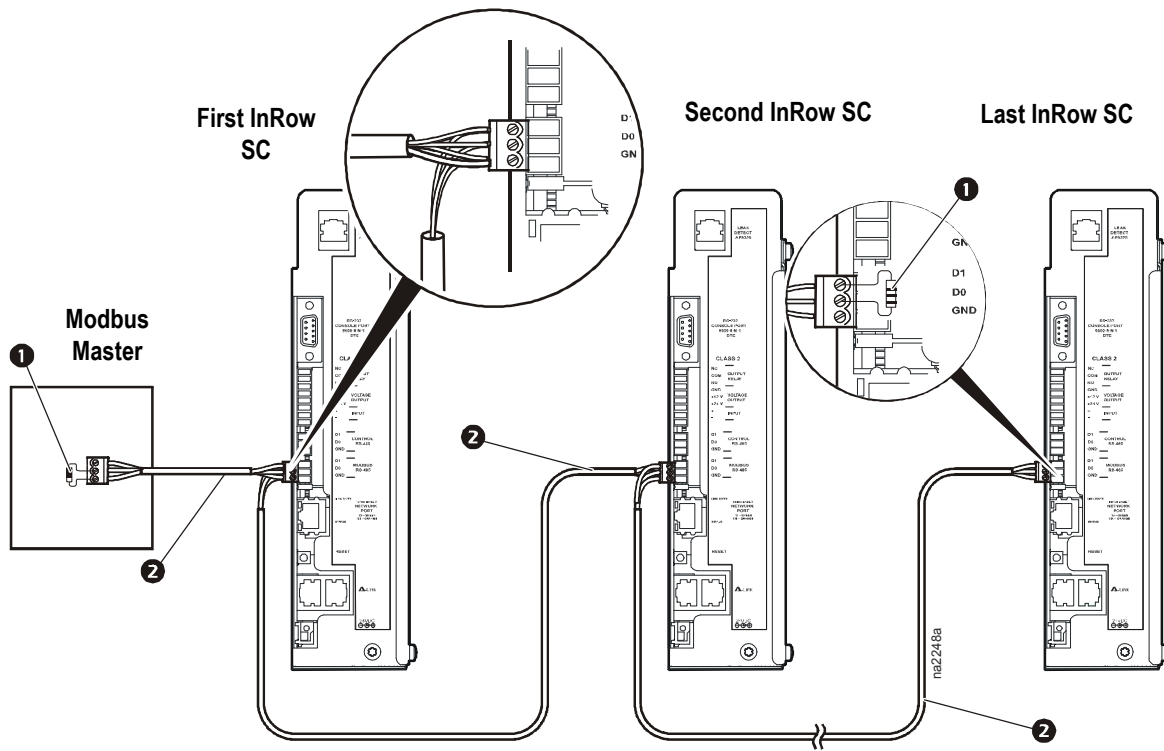
❷ A-Link cable

Network port



- 1 CAT-5 LAN cable (10/100 Base-T)

Modbus—building management system



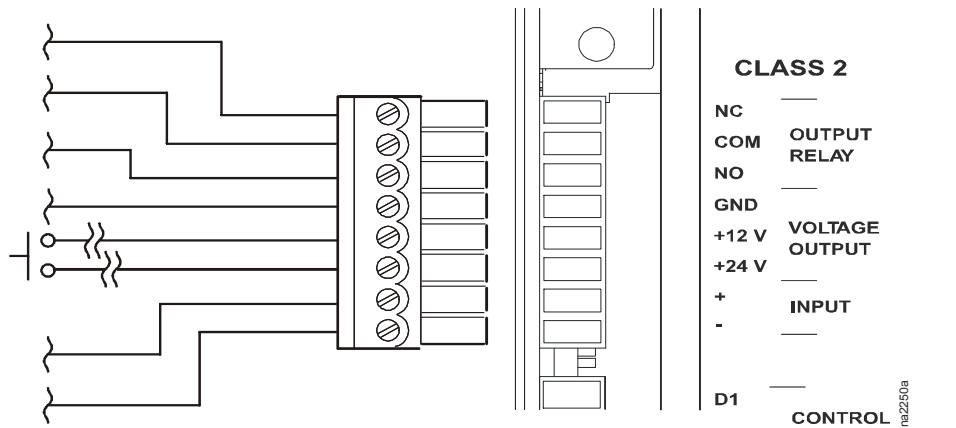
❶ 150Ω 5% termination resistor (provided)

❷ Modbus cable (RS-485) segment



Note: Connect the shield only once per segment. For example, the shield is connected at the first InRow SC, but not at the Modbus Master.

Form C alarm contacts and shutdown input



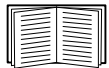
A relay internal to the user interface is typically controlled by a user-defined alarm (e.g. malfunctioning fans). Before an alarm condition exists, the signal on the COM (common) terminal is routed to the NC (normally closed) terminal. When the alarm is activated, the relay is energized, causing the signal on the COM terminal to be routed to the NO (normally open) terminal and changing the state of the connected device. The NO and NC terminals could be connected to remote indicator lights, a warning buzzer, or another device to alert an operator to the presence of an alarm condition.

A remote disconnect switch can be connected to the shutdown inputs.

Leak detector port



Rope water detector (AP9325). You can install up to four optional rope water detectors in series. The rope water detector connects to the RJ-45 leak detector port located at the top of the interface box.



See the “Rope Water Detector” installation manual, supplied with the kit, for installation and setup instructions.

Power connections

Connect the power cord to the top of the equipment (standard) or route the cord through the bottom (optional).

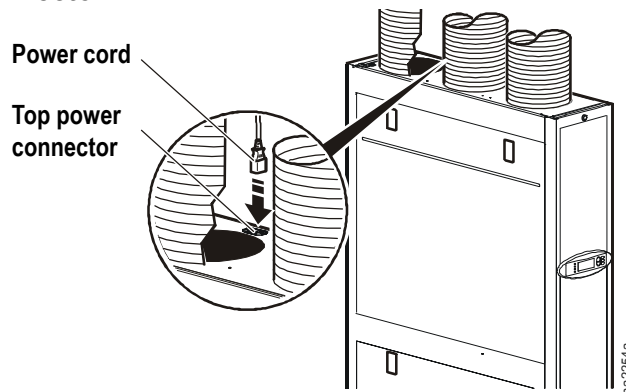


Electrical Hazard: The equipment is supplied with either an LCDI power cord (for 60 Hz operation), an IEC 309 power cord (for 50 Hz operation), or a GB 2099 power cord (for use in China). Use the equipment only with the supplied power cord appropriate for your region. Replacement power cords must be purchased from APC only.

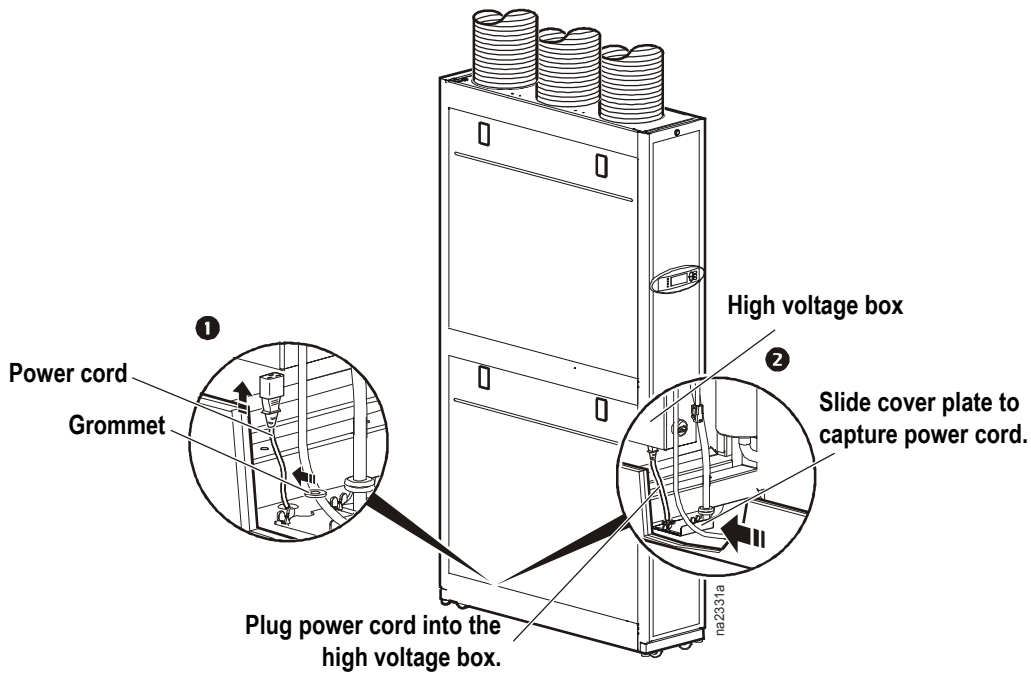


Note: Use only one connection.

Connect the power cord to the top power connector.



Connect the power cord to the bottom power connector.



Warning: Ensure the equipment power input is disconnected before servicing.

Checklists

Initial Inspection Checklist

Ensure that the:

-
- Installation procedure is complete according to the installation manual.

 - Equipment shows no signs of damage.

 - Clearance around the equipment is in accordance with ASHRAE, local, and national codes as well as the installation manual.

 - Ensure the equipment is either secured to an enclosure or fastened to the floor.



Equipment must be properly de-energized and locked-out before service is performed on this equipment.

Never operate the equipment unless all covers, guards, doors, and panels are in place and locked.

Electrical Inspection Checklist

Ensure that the:

-
- Incoming voltages match the phase and voltage listing on the nameplate.

 - Equipment is properly grounded to an earth ground.

 - Internal electrical components and terminal blocks do not have any loose connections.

 - Electrical connections are tight, including controllers and auxiliary devices.

 - Wiring is routed and secured to avoid hazardous situations.



All electrical wiring must comply with national and local codes.

The equipment is grounded through its power cord. Ensure the equipment is connected to a grounded outlet.

Mechanical Inspection Checklist

Ensure that the:

-
- Condensate drain line is the size of the drain connection and is routed properly.

 - Condenser air is properly ducted to the ceiling tile adapter.

 - Ceiling tile adapter is secured to the building structure with properly-sized safety wire.

 - Leveling feet are down and the equipment is properly leveled.

User Interface Box Inspection Checklist

Ensure that the:

-
- Input contacts and output relays (if applicable) are connected correctly.

 - A-Link connections are secure (if applicable).

 - Building management system RS-485 port is connected properly (if connecting to a building management system).

 - Temperature sensor is properly routed and mounted on the front (entering air side) of the enclosure immediately to the left or right of the equipment (if InRow or RACS operating mode will be selected).

Final Inspection Checklist

Ensure that the:

-
- Interior and exterior of the equipment are clean and free from debris.

 - Packaging materials are disposed of properly.

Warranty

One-Year Factory Warranty

The limited warranty provided by American Power Conversion (APC®) in this Statement of Limited Factory Warranty applies only to products you purchase for your commercial or industrial use in the ordinary course of your business.

Terms of warranty

American Power Conversion warrants its products to be free from defects in materials and workmanship for a period of one year from the date of purchase. The obligation of APC under this warranty is limited to repairing or replacing, at its sole discretion, any such defective products. 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, start-up by non-APC designated personnel, a change in location or operating use, 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.

THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, BY OPERATION OF LAW OR OTHERWISE, OF PRODUCTS SOLD, SERVICED OR FURNISHED UNDER THIS AGREEMENT OR IN CONNECTION HERewith. APC DISCLAIMS ALL IMPLIED WARRANTIES OF MERCHANTABILITY, SATISFACTION AND FITNESS FOR A PARTICULAR PURPOSE. APC EXPRESS WARRANTIES WILL NOT BE ENLARGED, DIMINISHED, OR AFFECTED BY AND NO OBLIGATION OR LIABILITY WILL ARISE OUT OF, APC RENDERING OF TECHNICAL OR OTHER ADVICE OR SERVICE IN CONNECTION WITH THE PRODUCTS. THE FOREGOING WARRANTIES AND REMEDIES ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES AND REMEDIES. THE WARRANTIES SET FORTH ABOVE CONSTITUTE APC'S SOLE LIABILITY AND PURCHASER'S EXCLUSIVE REMEDY FOR ANY BREACH OF SUCH WARRANTIES. APC WARRANTIES EXTEND ONLY TO PURCHASER AND ARE NOT EXTENDED TO ANY THIRD PARTIES.

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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.

Warranty Procedures

Claims

To obtain service under the warranty, contact APC Customer Support (see the back cover of this manual for contact information). You will need the model number of the Product, the serial number, and the date purchased. A technician will also ask you to describe the problem. If it is determined that the Product will need to be returned to APC, you must obtain a returned material authorization (RMA) number from APC Customer Support. Products that must be returned must have the RMA number marked on the outside of the package and must be returned with transportation charges prepaid. If it is determined by APC Customer Support that on-site repair of the Product is allowed, APC will arrange to have APC authorized service personnel dispatched to the Product location for repair or replacement, at the discretion of APC.

Parts

- APC warrants the parts of their systems for 1 year from the date of commissioning or 18 months from the ship date. This warranty only covers the cost of the part and not the labor for installation.
- Calls for 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 parts. An invoice will be sent once the parts are shipped to the field. You have 30 days to return the defective parts 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 the 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, we will determine the status of the credit based on the findings of the returned part. Parts that are damaged from lack of maintenance, misapplication, improper installation, shipping damage, or acts of man/nature will not be covered under the parts warranty.
- Any warranty parts request received before 1:00 PM EST 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.
- Return freight of warranty parts to APC is the responsibility of the party returning the part.

Radio Frequency Interference



Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

USA—FCC

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference. The user will bear sole responsibility for correcting such interference.

Canada—ICES

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Japan—VCCI

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may occur, in which case, the user may be required to take corrective actions.

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラス A 情報技術装置です。この装置を家庭環境で使用すると、電波妨害を引き起こすことがあります。この場合には、使用者が適切な対策を講ずるよう要求されることがあります。

Taiwan—BSMI

警告使用者：
這是甲類的資訊產品，在居住的環境中使用時，可能會造成射頻干擾，在這種情況下，使用者會被要求採取某些適當的對策。

Australia and New Zealand

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

European Union

This product is in conformity with the protection requirements of EU Council Directive 2004/108/EC on the approximation of the laws of the Member States relating to electromagnetic compatibility. APC cannot accept responsibility for any failure to satisfy the protection requirements resulting from an unapproved modification of the product.

This product has been tested and found to comply with the limits for Class A Information Technology Equipment according to CISPR 22/European Standard EN 55022. The limits for Class A equipment were derived for commercial and industrial environments to provide a reasonable protection against interference with licensed communication equipment.

Attention: This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Korean 한국

A 급 기기 (업무용 방송통신기기)

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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 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 APC representative or other distributors from whom you purchased your APC product.

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