Engineered by





Installation and Customization

NetShelter™ SX 24U Cabinet

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AR3104X717

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The APC by Schneider Electric NetShelter SX 600 mm (23.6 in.) wide, 24U cabinet is a high-quality cabinet for storage of industry-standard (EIA-310), 19 in. rack-mount hardware, which includes servers and voice, data, networking, internetworking, and power protection equipment.

This manual covers the following NetShelter SX cabinet:

Model	Rack Mounting	Rack Mounting	External Cabinet	Cabinet
	Height	Width	Width	Depth
AR3104X717	24U*	482 mm (18.98 in.)	600 mm (23.62 in.)	1070 mm (42.13 in.)

*1U= 44.45 mm (1.75 in.)

Disclaimer

APC by Schneider Electric is not responsible for damage sustained during reshipment of this product.

Inspection

Inspect the packaging and contents for shipping damage. Make sure that all parts are accounted for. Report any damage immediately to the shipping agent. Report missing contents, damage, or other problems immediately to APC by Schneider Electric or your reseller.

Please Recycle



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

Important Safety Information

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



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



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

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

WARNING

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

A CAUTION

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

CAUTION

CAUTION, used without the safety alert symbol, indicates a potentially hazardous situation which, if not avoided, **can result in** equipment damage.

NOTICE

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

Safety Instructions

This manual contains important instructions that must be followed during the installation and customization of the cabinet.

AWARNING

• This cabinet is easily tipped. Use extreme caution when unpacking or moving.

• Use at least two people to unpack and move the cabinet.

 Before moving the cabinet on its casters, load 158 kg (350 lb) of equipment into the bottom of the cabinet for extra stability.

When moving on its casters, make sure the leveling feet are up and push the cabinet from the front
or rear.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

HEAVY EQUIPMENT

TIP HAZARD

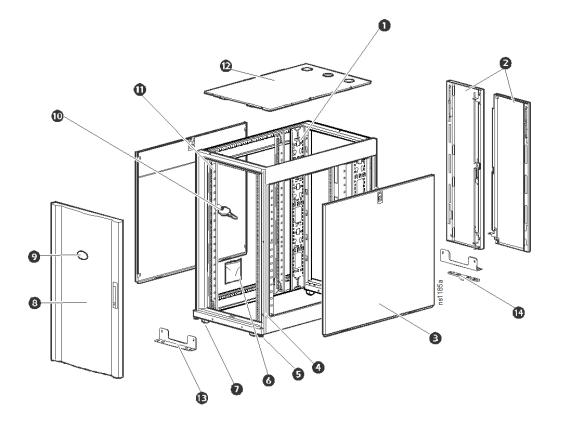
Use at least two people to unpack the cabinet. Failure to follow these instructions can result in death, serious injury, or equipment damage.

Labels

Look for additional safety information affixed to the cabinet. See "Labels" on page 6 for more information.

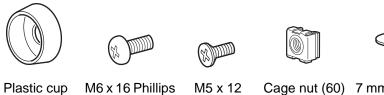
Component Identification

Cabinet



- Adjustable vertical 0U accessory channel
- 2 Removable rear split doors
- 3 Removable side panels with locks
- Ocabinet frame
- Adjustable leveling feet
- Hardware bag (see page 5)
- Casters

- 8 Removable and reversible front door
- Nameplate (if equipped)
- Key for doors and side panels
- Vertical mounting flanges
- 1070 mm (42.13 in.) roof
- Bolt-down bracket
- Rear door cable containment bracket



screw (4)

Cage nut (60) 7 mm (0.28 in.) hole plug (4)

Tools (provided)

washer (60)

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TORX® T30/#2 Phillips tool

slot screw (60)

Cage nut tool (1)

Cabinet Installation

Move the Cabinet

AWARNING

TIP HAZARD

• This cabinet is easily tipped. Use extreme caution when unpacking or moving.

- Use at least two people to unpack and move the cabinet.
- Before moving the cabinet on its casters, load 158 kg (350 lb) of equipment into the bottom of the cabinet for extra stability.
- When moving on its casters, make sure the leveling feet are up and push the cabinet from the front or rear.

Failure to follow these instructions can result in death, serious injury, or equipment damage.





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Labels. The following labels can be found on the cabinet, and serve to communicate the following information:

Label **1**: Generic Tip Hazard



Label 2: Extend Slide-Mounted Hardware One Piece at a Time

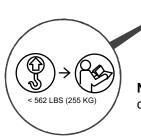
Casters. The cabinet can be moved on its casters with up to 1020 kg (2,250 lb) of equipment installed. Once in place, lower the leveling feet. With the leveling feet lowered, the static cabinet can be loaded to 1364 kg (3,000 lb).

NOTE: Some labels on cabinet indicate caster related information. See label **9** to right.

Lifting Points. The cabinet can be lifted by removing the hole plugs and attaching appropriate hardware (not included), to the top of the cabinet frame. Use appropriately rated M10 hardware.



NOTE: If using supplemental lifting hardware, ensure the load angle is a minimum of a 75°.



NOTE: Each individual frame lift point is capable of lifting 255 kg (562 lb).

A WARNING

HEAVY EQUIPMENT

Cabinet should only be moved by a qualified person.

• Verify total weight. Never exceed loading capacity specified by the hardware ratings.

Failure to follow these instructions can result in death, serious injury, or equipment damage.

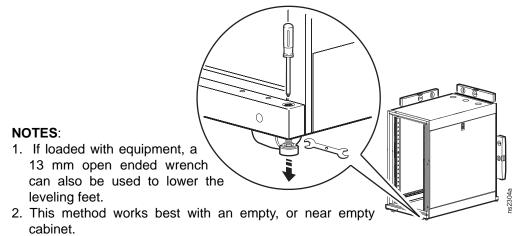
Level the Equipment

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

1. Ensure the cabinet is in its intended location. Remove the front and rear doors. See "Removal" on page 9 for instruction.

NOTE: Before removing the front door, unplug the ground wires and any other wire connections that may interfere with the removal of the doors.

2. Insert a Phillips head screwdriver into the screw above the leveling foot. Turn the screw clockwise to extend the leveling foot until it makes firm contact with the floor.



- 3. Door removal is not required if using the 13 mm open-ended wrench.
- 3. Adjust each foot and, using a level, adjust the feet until the cabinet is level and plumb.
- 4. Install the front and rear doors.

A A DANGER

HAZARD OF ELECTRIC SHOCK

When Installing the doors, remember to reconnect all ground and other connection wires. Failure to follow these instructions will result in death or serious injury.

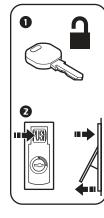
Remove the Casters and Leveling Feet (optional)

- 1. Lay the cabinet on its side.
- 2. Using a 10 mm socket wrench (not provided), remove the four hex nuts from each of the casters and remove the casters.
- 3. For each leveling foot, use a Phillips screwdriver to turn the foot clockwise until it is released from the frame.

NOTE: Remove all equipment from the cabinet before removing casters and leveling feet.

Side Panels, Roof, and Doors

Side Panels



Removal

1. Use the key to unlock the panel, if necessary.

B

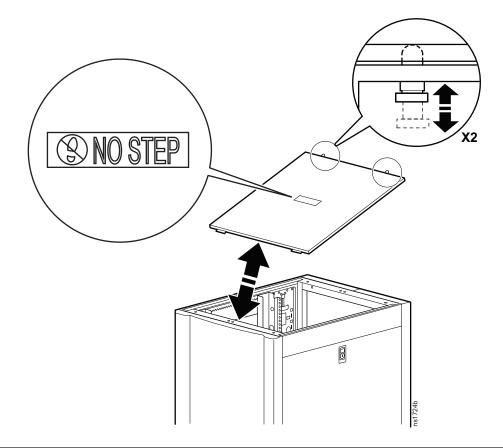
- 2. Push the panel latch in at the top of the handle where indicated, and pull the bottom of the latch away from the cabinet.
- 3. Lift the panel up and off the side brace lip at the bottom of the panel frame.

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Installation

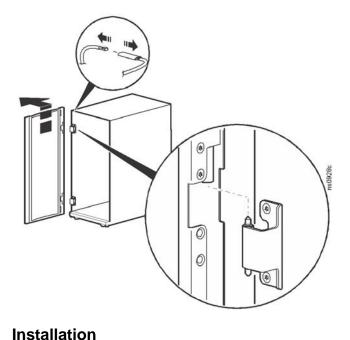
- 1. Engage the bottom of the panel securely with the side brace lip before pushing the top of the panel forward into place.
- 2. Use the key to lock the panel, if necessary.

Roof



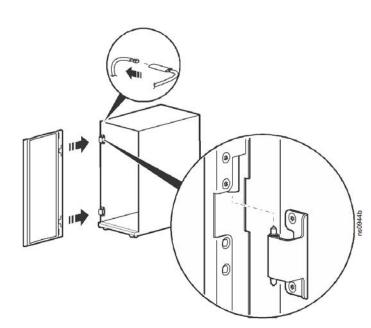
Door

Removal



1. Unlock the cabinet front door handle and open the door.

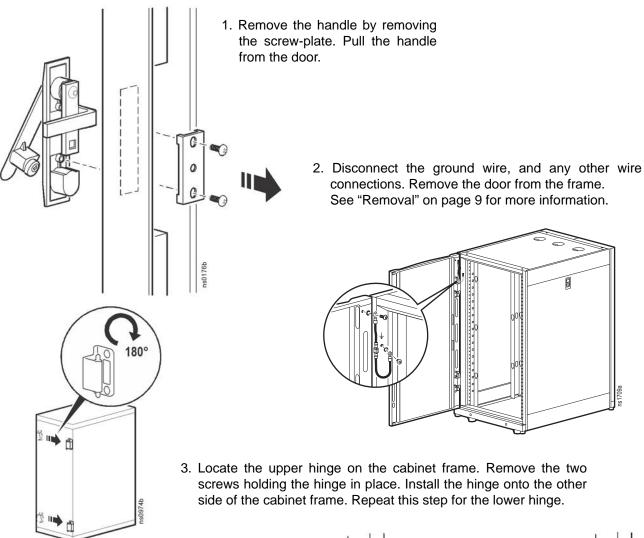
- 2. Disconnect the ground wire and any other wire connections that may interfere with the removal of the doors.
- 3. The hinges come apart by lifting upward and outward. Slowly lift and pull the door from the cabinet until the hinge pins on the door are free of the hinges on the cabinet frame.



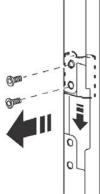
- 1. The doors self-align on hinge pins when properly installed. With the door at a 90 degree angle to the front of the cabinet, position the door over the hinge pins.
- 2. Slowly lower the door into the cabinet frame ensuring that the door hinges correctly align to the cabinet frame hinges.
- 3. Connect the ground wire and any other wire connections. Make sure the door opens and closes properly.

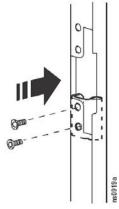
Reverse the Front Door

NOTE: The front door can be reversed so that the door opens in the other direction. This procedure assumes that initially, when facing the cabinet, the hinges are on the left and the door is opening from right.

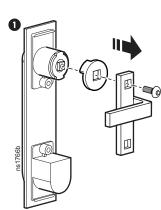


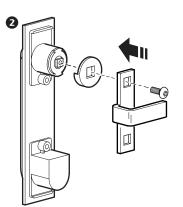
4. Remove the hinges from the door and install them using the set of holes directly below where they were originally installed. Rotate the door 180 degrees and install on cabinet





5. Install the door to the hinges now on the reverse side of the cabinet frame. See "Installation" on page 9 for instruction. Connect the ground wire and any other wire connections previously disconnected.

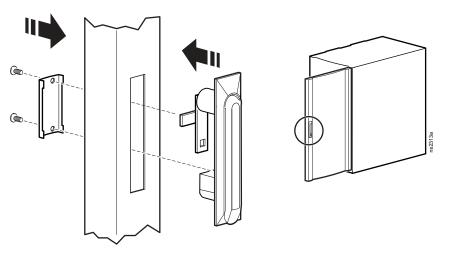




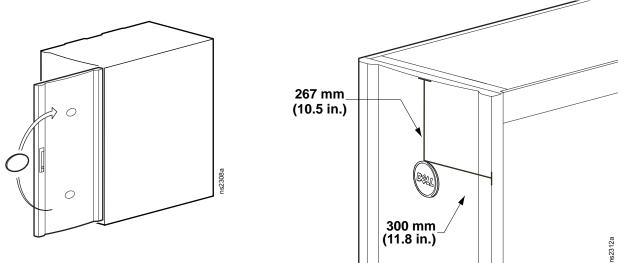
6. Locate the lock handle.

Remove the cam screw, cam washer, and cam. Rotate the cam washer 90 degrees, and the latch 180 degrees.

Install the handle on the door.



7. Remove the nameplate (if equipped) from the door. Install the nameplate at the location shown in the illustrations below.



NOTE: NetShelter SX cabinets are intended for use with Listed equipment. If you install un-Listed equipment, you should evaluate the safety of your configuration.

AWARNING

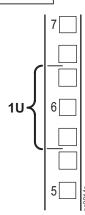
TIP HAZARD

- This cabinet is easily tipped. Make sure you have secured the cabinet to the floor before installing equipment.
- Install the heaviest equipment first and toward the bottom of the cabinet to prevent the cabinet from becoming top-heavy.
- Do not extend equipment on sliding rails until you have installed 158 kg (350 lb) of equipment into the bottom of the cabinet for stability or until you have installed the stabilizer plate or bolt-down brackets. Do not extend more than one piece of equipment on sliding rails at a time.

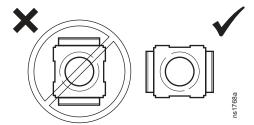
Failure to follow these instructions can result in death, serious injury, or equipment damage.

To Install Rack-mount Equipment in the Cabinet:

- 1. Review the equipment manufacturer's installation instructions.
- 2. Locate the top and bottom U-space on the vertical mounting rails. Every third hole on the mounting rails is numbered to indicate the middle of a U-space.
- 3. Install the cage nuts on the interior of the vertical mounting rail; then install the equipment. (To remove a cage nut, squeeze the sides to release it from the square hole.)



Cage Nuts



APC by Schneider Electric offers a cage nut hardware kit (AR8100) for use with square holes.

NOTE: Install cage nuts horizontally, with the ears engaging the sides of the square hole. Do NOT install cage nuts vertically with the ears engaging the top and bottom of the square hole.

Installation

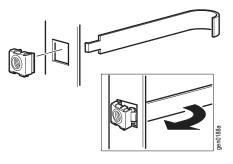
1. Insert the cage nut into the square hole by hooking one ear of the cage nut assembly through the far side of the hole.

NOTE: Install the cage nuts on the interior of the vertical mounting flange.

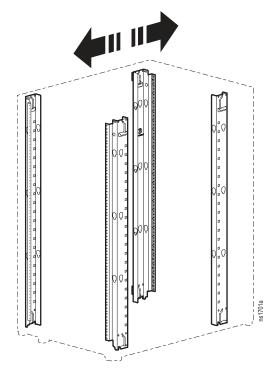
2. Place the cage nut tool on the other side of the cage nut and pull to snap it into position.

Removal

- 1. Remove any attached screw.
- 2. Grasp the cage nut and squeeze the sides to release it from the square hole.



Vertical Mounting Flanges



Vertical mounting flanges come factory-installed at 737 mm (29 in.), the proper location for use with rack-mountable equipment.

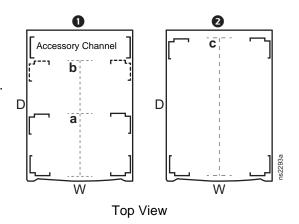
The mounting flanges are adjustable towards the front or the rear of the cabinet to accommodate different rails or equipment with other depths.

For Dell[™] cabinets, such as AR3100X717 and AR3104X717, the vertical mount flanges may be secured in place with additional screws.

To adjust the flanges, these screws must be removed. After adjustment, ensure all of the removed screws are secure and once again installed properly. If the rack will be shipped with equipment loaded inside, all screws must be secured. Four screws secure each of the four vertical mount flanges in the AR3104X717.

Position the Vertical Mounting Flanges

- Configuration ①: The Accessory Channel is installed. The Vertical Mounting Flanges can be installed a minimum distance of (a) and can extend as far as (b).
- Configuration 2: The Accessory Channel is removed. The Vertical Mounting Flanges can extend as far as (c).

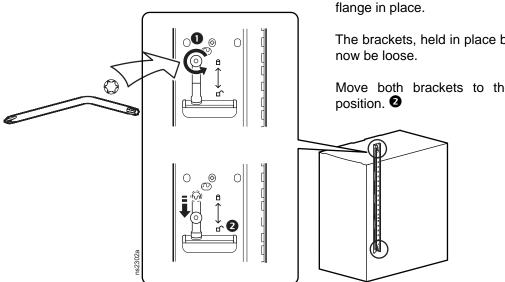


Models	Cabinet Width (W)	Cabinet Depth (D)	а	b	С
AR3104X717	600 mm	1070 mm	190.5 mm (7.5 in.)	781.0 mm (30.75 in.)	920.7 mm (36.25 in.)

AWARNING

FALLING EQUIPMENT

Remove all equipment installed on the vertical mounting flanges before performing any adjustments. Failure to follow these instructions can result in serious injury or equipment damage.

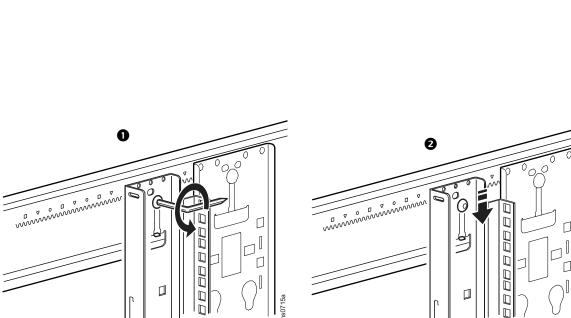


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1. Use the provided TORX T30 tool to loosen the top and bottom TORX screws **1** holding the vertical mounting flange in place.

The brackets, held in place by the TORX screws, will

Move both brackets to the designated unlocked



- 2. Move the mounting flange to the desired location. Vertical mounting flanges adjust in 6 mm (1/4 in.) increments.
- 3. To align the vertical mounting flange, note the symbol (for example, a diamond). Only one symbol will be visible. In the factory standard position, a circle symbol is visible.

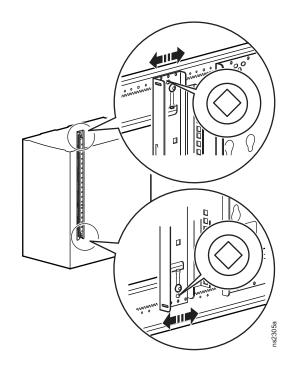
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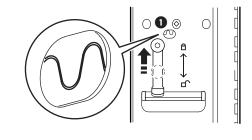
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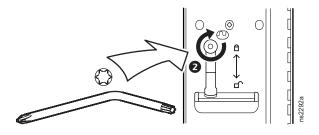
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Make sure the same symbol is visible through the corresponding hole at both the top and the bottom of the flange.





a



4. When the vertical mounting flange is in the desired location at the top and bottom, raise the flat bracket to the lock position. The teeth in the bracket will engage fully with the teeth in the side brace. ●

Tighten the TORX screws. 2

Secure the Cabinet

WARNING

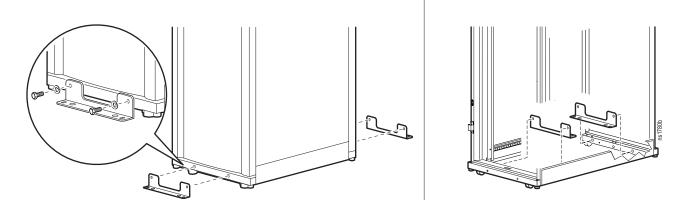
TIP HAZARD

Make sure you secure the cabinet to the floor before installing equipment. Failure to follow these instructions can result in death, serious injury, or equipment damage.

Brackets can be used to bolt the cabinet to the floor internally or externally. Some options for providing additional stabilization are shown below. See **www.apc.com** for bracket installation support and more information.

NOTE: Only use the bolt-down bracket or stabilization plate with the casters or leveling feet installed.

Accessory	Part Number	Description		
Bolt-down kit	AR7701	Attaches to rack and floor internally or externally to provide additional stability without blocking cable access.		
NetShelter SX Stabilizer Plate	AR7700	Attaches externally to the rack and floor to provide additional stability.		
Pallet / Bolt- down Brackets	provided with the cabinet	Attaches to the rack, internally or externally, to secure the rack to the floor. This provides additional stability without blocking cable access. With the appropriate mounting hardware, meets IBC/CBC seismic requirements.		

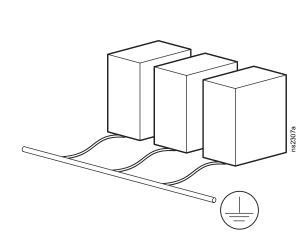


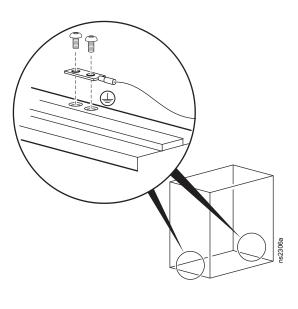
Ground the Cabinet

The doors, side panels, and roof of the cabinet are grounded to the cabinet frame. The doors are grounded with quick-disconnect cables. The roof and side panels are inherently grounded through spring fingers.

Each cabinet should be bonded directly to a common ground using one of the designated grounding locations (two M6 threaded inserts) at the top or bottom of the cabinet.

- Use a Common Bonding Network Jumper kit (for example, Listed [KDER] Panduit® RGCBNJ660PY or equivalent).
- Use paint-piercing washers between the ground terminal and the cabinet frame, or remove the paint on the frame under the ground terminals, per NEC NFPA 70 Article 250.12.
- Torque the screws to 6.9 N•m (60 lb-in).
- Do not ground one cabinet to another cabinet in a cascading style. Ground each cabinet directly to the building ground.





A DANGER

HAZARD OF ELECTRIC SHOCK Connection of the cabinet to building Common Bonding Network (CBN) is required. Failure to follow these instructions will result in death or serious injury. The NetShelter SX cabinet has multiple cable access openings, including on the roof, sides, and bottom. Route, secure, and organize cables using these openings.

In addition, two rear vertical 0U cable organizers, or accessory channels, are included with the cabinet. Further cable management accessories are available. Please see **www.apc.com** or contact an APC by Schneider Electric re-seller for more information.

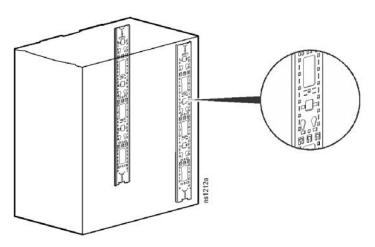
Accessory Channel

The accessory channels provide toolless mounting capabilities for Rack Power Distribution Units and cable management accessories.

There are two accessory channels included with the 1070 mm (47.24 in.) deep cabinet. The factory-default position for the accessory channels is in the rear of the cabinet, as shown in the graphic.

The channels also provide tie-off locations for cables, as well as other specific holes for managing cables with many NetShelter brackets, fasteners, and toolless mounting equipment.

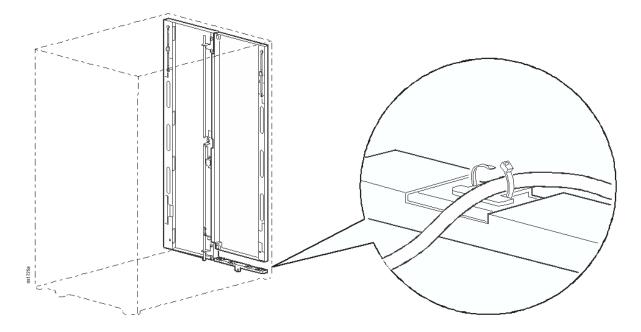
Similar to the mounting flanges, the accessory channel can be moved anywhere along the side braces. See "Vertical Mounting Flanges" on page 13 for more information.



NOTE: If needed, the accessory channels can be removed. Additional vertical 0U accessory channels are available for order.

Rear Door Cable Containment Bracket

The rear door cable containment bracket is installed within the cabinet under the left hand door. The bracket has 4 lobes for attaching cables with hook-and-loop fasteners (provided) and cable ties (not provided).



Specifications

24U Cabinet

AR3104X717

Height	1199 mm (47.20 in.)
Width	600 mm (23.62 in.)
Depth	1070 mm (42.13 in.)
Net weight	88.90 kg (196.00 lb)
Total open area (front door)	345 808 mm ² (536.00 in ²)
Total open area (rear door)	375 870 mm ² (582.60 in ²)
Open area per U (front door)	14 406 mm ² (22.33 in ²)
Open area per U (rear door)	15 658 mm ² (24.27 in ²)
Perforation pattern open area	69%
Percent open (front)	67%
Percent open (rear)	73%
Clearance*	60.96 mm (2.40 in.)
* wiring between front door and vertical rail	
Weight rating: static load ¹	1363.6 kg (3,006 lb)
Weight rating: rolling	1022.7 kg (2,255 lb)
Weight rating: shipping ²	567 kg (1,250 lb)

¹ Lower the leveling feet if the static weight is over 1022.7 kg (2,255 lb).

² **NOTE:** Additional packaging is required if the rack is being shipped with equipment installed. Please discuss packaging requirements with your Dell representative.

The limited warranty provided by APC by Schneider Electric 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

APC by Schneider Electric warrants its products to be free from defects in materials and workmanship for a period of five years (two years in Japan) from the date of purchase. Its obligation 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 applies only to the original purchaser who must have properly registered the product. Product may be registered at **http://www.warranty.apc.com**.

Exclusions

APC by Schneider Electric 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 by Schneider Electric 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 by Schneider Electric designated personnel, a change in location or operating use, exposure to the elements, Acts of God, fire, theft, or installation contrary to APC by Schneider Electric recommendations or specifications or in any event if the APC by Schneider Electric serial number has been altered, defaced, or removed, or any other cause beyond the range of the intended use.

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Warranty Claims

Customers with warranty claims issues may access the APC by Schneider Electric worldwide customer support network by visiting **http://www.apc.com/support**. Select your country from the country selection pull-down menu. Open the Support tab at the top of the web page to obtain contact information for customer support in your region.

APC Worldwide Customer Support

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

- Visit the APC by Schneider Electric Web site to access documents in the APC by Schneider Electric Knowledge Base and to submit customer support requests.
 - www.apc.com (Corporate Headquarters)
 Connect to localized APC by Schneider Electric Web sites for specific countries, each of which provides customer support information.
 - www.apc.com/support/
 Global support searching APC by Schneider Electric Knowledge Base and using e-support.
- Contact the APC by Schneider Electric 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 by Schneider Electric representative or other distributors from whom you purchased your APC by Schneider Electric product.

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