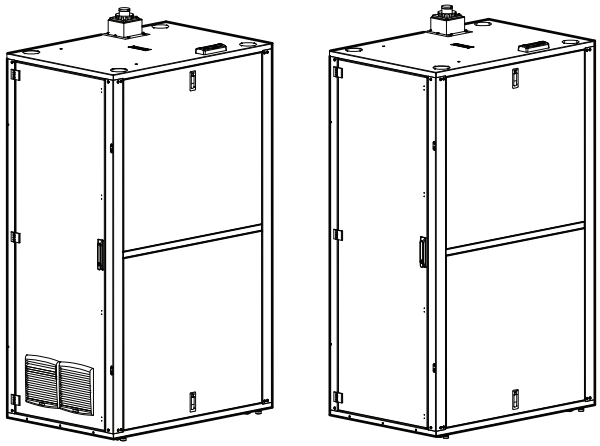
EcoStruxure™ Micro Data Center

42U, R-Series

Installation and Operation

MDC42USRSI, MDC42UARSI

Release date: 1/2024



www.apc.com

Legal Information

Contents

Introduction

APC EcoStruxure™ 42U, R-Series Micro Data Center is IP54-rated. Equipment stored inside the enclosure is protected against contamination from limited amounts of dust, other particles, and water sprays provided any openings for piping and cables are adequately sealed with gaskets or other appropriate material.

Features

	MDC42USRSI	**MDC42UARSI**
Enclosure	NetShelter RX 42U • 800W x 1200D • 19 in. Rails (905kg/2000 lb Load) • Heavy Duty Casters	NetShelter RX 42U • 800W x 1200D • 19 in. Rails (905kg/2000 lb Load) • Heavy Duty Casters • Ventilation Louvers and Filters
UPS	SmartUPS 5kVA SRT5KRMXLI	SmartUPS 5kVA SRT5KRMXLI
Rack PDU	Metered Rack PDU AP8858 (Qty 2)	Metered Rack PDU AP8858 (Qty 2)
Cooling	3.5 kW Uniflair Rack Mount • Split System with Condensing Unit • Condensate Pump	3.5 kW Uniflair Rack Mount • Split System with Condensing Unit • Condensate Pump • Emergency Fan Ventilation
Security	NetBotz 250A NBRK0250A • Standard Keylock • Temperature and Humidity Sensor AP9335TH • NetBotz Door Contacts NBES0303 • NetBotz Spot Fluid Sensor NBES0301	NetBotz 750 NBRK0750 • Standard Keylock • Temperature and Humidity Sensor AP9335TH • NetBotz Door Contacts NBES0303 • NetBotz Spot Fluid Sensor NBES0301 • Camera NBPD0165
Accessories	• Interior Lighting Kit • Cable Manager	• Interior Lighting Kit • Cable Manager • Redetec Fire Suppression System • Smoke Detection Sensors
Service and Monitoring	2 Year Factory Warranty	2 Year Factory Warranty

Documents Included with the MDC

The documentation for each component in the EcoStruxure Micro Data Center is either shipped with equipment or available online at **www.apc.com** and **www.se.com**.

Security			
SKU	**Component**	**Document Type**	**Document Part Number**
MDC42UARSI MDC42USRSI	NetBotz Spot Fluid Sensor NBES0301	Installation	990-3294
MDC42UARSI MDC42USRSI	NetBotz Door Switch Sensor NBES0303	Installation	990-3375
MDC42UARSI	APC Temperature and Humidity Sensor AP9335TH	Installation	990-3506
MDC42UARSI	NetBotz 750 Rack Monitor NBRK0750	Installation and Quick Configuration User Guide (Online)	990-91106G-001 990-5934
MDC42USRSI	NetBotz 250A Rack Monitor NBRK0250A	Installation and Quick Configuration User Guide (Online)	990-9814G 990-9890
MDC42UARSI	NetBotz Camera Pod 165 (NBPD0165)	Installation and Quick Configuration	990–5974A-001
MDC42UARSI MDC42USRSI	Interior Light Kit	Installation	QGH2632101–00
Networking			
MDC42USRSI MDC42UARSI	Micro DC Switch	Installation	None
Cooling			
MDC42UARSI MDC42USRSI	3.5 kW Uniflair Rack mount Air Conditioning, ACRMD4KI-1, Split system, Indoor unit with gravity drain, 50Hz	User Manual	990–6186–001
MDC42UARSI MDC42USRSI	3.5 kW Uniflair Rack mount Air Conditioning, ACRMD4KI-3, Split system, Outdoor unit without pre-charged refrigerant		
MDC42UARSI MDC42USRSI	Condensate Pump (Blue Diamond)	Installation	S30–195/5
Rack Power Distribution			
MDC42UARSI MDC42USRSI	AP8858, Metered, 2G, 0U, 16A, 230V, (18) C13 and (2) C19 outlets, IEC309 Cord	Installation User Guide (Online)	990-3940D 990-5568
UPS			
MDC42UARSI MDC42USRSI	APC Smart-UPS SRT 5000VA RM 230V (SRT5KRMXLI)	Installation Operation	990-91117 990-91120
Fire Suppression			
MDC42UARSI	Redetec Fire Suppression ARFS600	Installation and Operation	None
Miscellaneous and Accessories			
MDC42UARSI MDC42USRSI	Roxtec Gland Cable Seal EZ Entry 10/10	Installation	None
MDC42UARSI MDC42USRSI	Toolless Cable Management Rings AP7540	Installation	990-5003A

Safety

SAVE THESE INSTRUCTIONS

Read these instructions carefully and look at the equipment to become familiar with it before trying to install, operate, service or maintain it. The following safety 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 product safety label indicates that an electrical hazard exists that will result in personal injury if the instructions are not followed.

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

⚠ DANGER

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

⚠ WARNING

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

⚠ CAUTION

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

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.

Qualified Personnel

Electrical equipment should only be installed, operated, serviced, and maintained by qualified personnel.

A qualified person is one who has skills and knowledge related to the construction, installation and operation of electrical equipment and has received safety training to recognize and avoid the hazards involved.

Guidelines for Edge Computing

ASHRAE has published guidelines for owners of Edge computing equipment such as your Micro Data Center. (Edge equipment performs computing outside of a commercial data center with strict environmental controls.) It is recommended that you follow these guidelines to help prevent equipment damage and extend the life of your Micro Data Center. You can download the guidelines from **www.ashrae.org/technical-resources/bookstore/datacomseries**.

General Safety

This manual contains important instructions that should be closely followed during installation, maintenance, and operation of the EcoStruxure Micro Data Center. Read all safety and operating instructions before attempting to operate the EcoStruxure Micro Data Center.

Adhere to all Warning labels on the unit, in this manual and in the attendant manuals for each device within the system. Follow all operating and user instructions.

This product is not intended for use with life support or other designated “critical” devices. The maximum load must not exceed that shown on the rating label.

Operate this product in an indoor environment at an ambient temperature of 10°C to 40°C (50° to 105°F).

Keep the doors closed to minimize room air intrusion into the enclosure.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Electrical equipment must be installed, operated, serviced, and maintained only by qualified personnel.
- The Micro Data Center is intended to be installed and operated by a skilled person in a controlled location with restricted access.
- The Micro Data Center must be installed in accordance with the National Electrical Code and all applicable local codes.
- Perform appropriate Lock Out/Tag Out procedures during equipment installation and maintenance.
- Remove incoming power to the Micro Data Center before performing any work. Because of the UPS, live power exists within the equipment when power is turned off. Always use a properly rated voltage sensing device to confirm there is no voltage in the system.
- Wear appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E and follow all local codes and regulations.
- Do not insert anything into the fan grill.

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

NOTICE

IMPROPER AIRFLOW HAZARD

- Improper airflow can damage installed components. Verify that the system provides airflow needed by your equipment.
- Check the air filters regularly. Replace the filters when needed to prevent reduced airflow.
- Do not obstruct airflow by covering or blocking the ventilation grilles.

Failure to follow these instructions can result in equipment damage.

NOTICE

EQUIPMENT DAMAGE HAZARD

- Only make equipment connections as directed in this manual.
- Do not use caustic detergents or abrasive materials to clean the sheet metal. A damp, soft cloth is usually sufficient to remove dust or debris.

Failure to follow these instructions can result in equipment damage.

NetBotz Safety

More Safety information is available in the NetBotz manual.

NOTICE

EQUIPMENT DAMAGE HAZARD

- Connect only approved devices to ports on the NetBotz appliance as directed in this manual and in the NetBotz manual. Plugging in other devices may result in equipment damage.
- Do not use crossover cables.

Failure to follow these instructions can result in equipment damage.

Enclosure Safety

The following are important instructions that must be followed during installation.

⚠ WARNING

TIP/HEAVY EQUIPMENT HAZARD

- At least two people are required to move the enclosure.
- Do not load any additional equipment into the enclosure before moving the enclosure on its casters.
- When moving the enclosure on its casters, ensure the path of the enclosure is free of obstacles and debris.
- When moving the enclosure on its casters, make sure the leveling feet are raised and push the enclosure from the front or rear. Never push the enclosure from the sides.

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

⚠ CAUTION

IMPACT HAZARD

The fan box location may interfere with your working space when the rear door is open. Sharp corners exist on the fan box. Exercise care to avoid impact.

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

Cooling Safety

More Safety information is available in the Installation manual for your cooling unit.

⚠ CAUTION

HAZARD TO EQUIPMENT OR PERSONNEL

- The equipment is shipped from the factory with a nitrogen holding charge. Remove the nitrogen holding charge using the service ports located on the internal refrigerant piping.
- Improperly installed piping may result in improper operation and possible damage to the cooling unit or surrounding equipment.

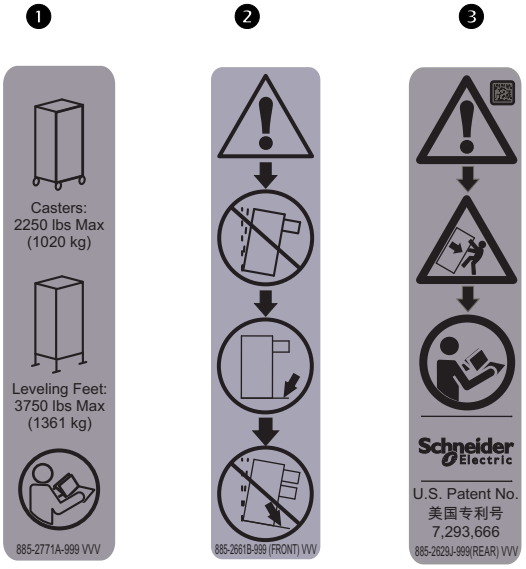
Failure to follow these instructions can result in injury or equipment damage.

Labels

Safety and informational labels are affixed to the enclosure. Read and follow the instructions on the labels.

Tip Hazard and Weight limit labels are attached to the frame of the enclosure.

1. Observe the load restrictions for the enclosure. The Dynamic load is limited to 1020 kg (2250 lb). This is the maximum load for moving the enclosure on its casters.
   The Static load is limited to 1361 kg (3750 lb). This is the maximum load for the enclosure while the unit is resting on its leveling feet.
   Read the manual.
2. Tip Hazards. Only one shelf or piece of equipment on sliding rails should be extended at a time.
3. Observe tip hazards. Be sure to read all of the instructions for the equipment.

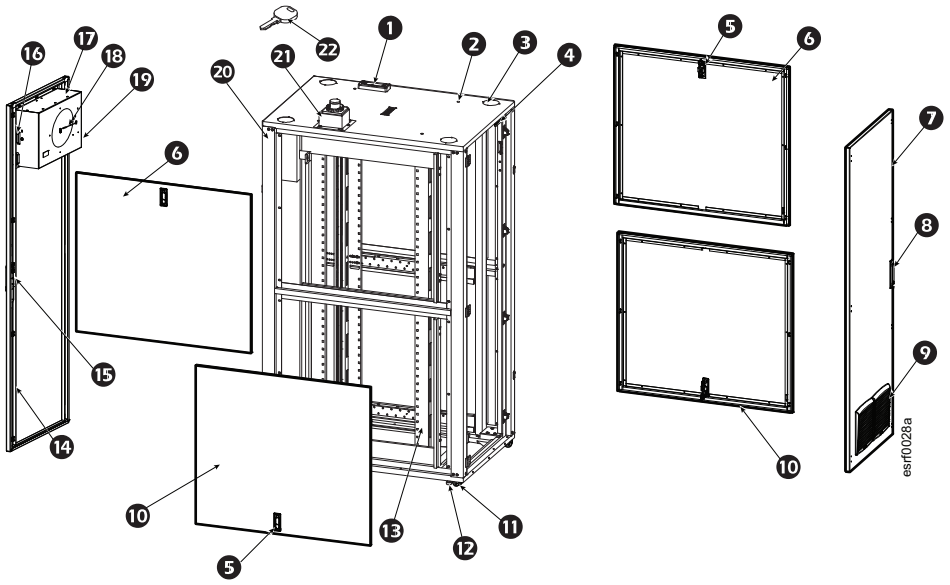


Inventory

Upon receipt of the EcoStruxure MDC, inspect for damage and notify the shipping carrier and APC at **apc.com/support** immediately if any damage is found. There will be several boxes containing various parts and accessory items. After opening a box, check the contents. Report missing or damaged components to: http://www.apc.com/support. To avoid misplacing parts, once the contents of a box is inspected and confirmed, return all of the contents to the box until time to install.The shipping materials are recyclable. Save them for later use or dispose of them appropriately.

Components

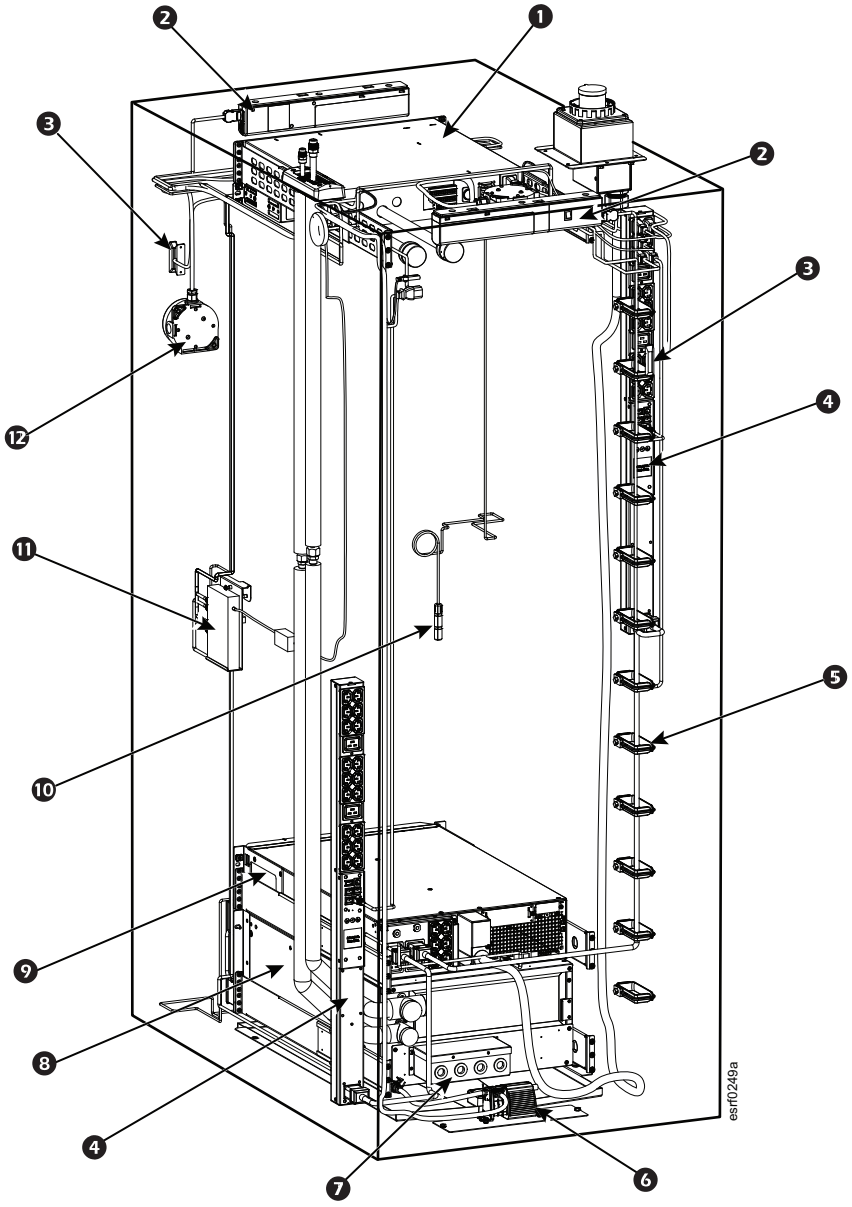
Enclosure



Item	Description	Item	Description
❶	Roxtec Cable Gland System	⓬	Leveling Foot
❷	Lifting Eye Holes/Plugs	⓭	Vertical Mounting Rail
❸	Knockouts	⓮	Rear Door
❹	Door Sensor	⓯	Locking Rear Door Handle
❺	Side Panel Lock	⓰	Fan Door Sensor*
❻	Top Side Panel	⓱	Fan Box*
❼	Front Door	⓲	Temperature Sensor*
❽	Locking Front Door Handle	⓳	C14 Outlet for Fan Power*
❾	Ventilation Louvers and Filters*	⓴	Enclosure Frame
❿	Bottom Side Panel	㉑	Power Inlet Box
⓫	Caster	㉒	Keys
* Available only on MDCs with fan ventilation option			

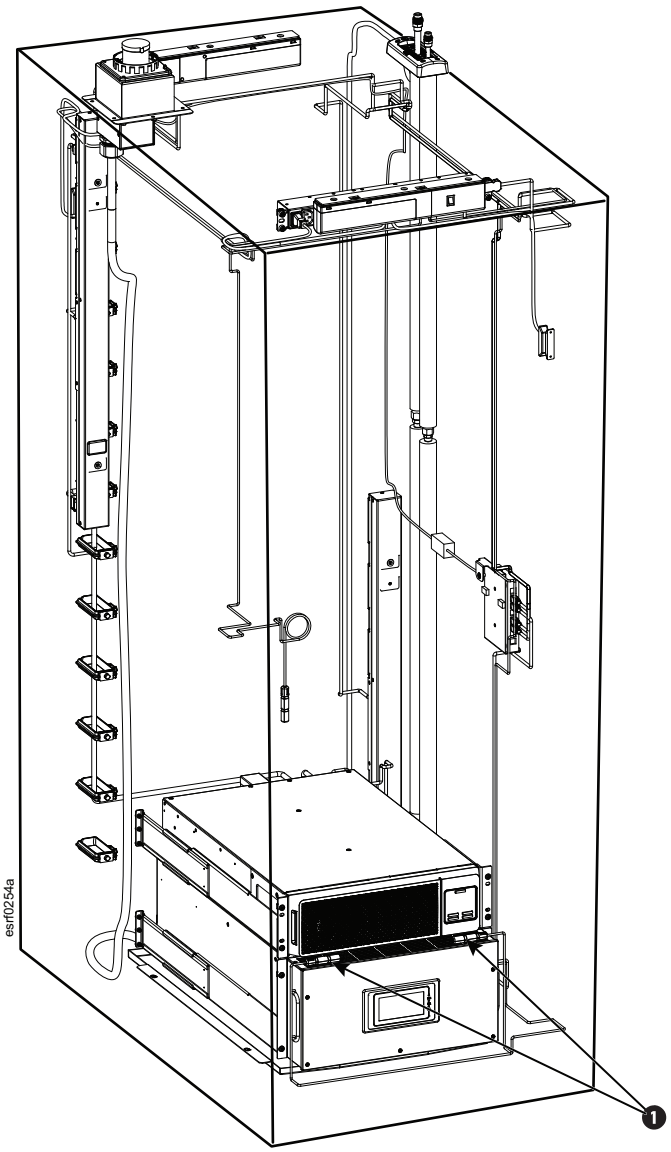
Interior

Rear view of MDC



Item	Description	Item	Description
❶	NetBotz Appliance	❼	Cooling Unit Junction Box
❷	Light Strip	❽	Cooling Unit
❸	Door Sensor	❾	UPS
❹	AP8858 Metered Rack PDU	❿	Temperature/Humidity Sensor
❺	Cable Manager	⓫	Micro DC Network Switch
❻	Condensate Pump	⓬	Smoke Sensor

Front view of MDC



Item	Description
1	Temperature/Humidity Sensors on front of cooling unit

Preinstalled Equipment

	MDC42USRSI	MDC42UARSI
Enclosure	42U NetShelter RX	42U NetShelter RX
UPS	SmartUPS 5kVA SRT5KRMXLI	SmartUPS 5kVA SRT5KRMXLI
Rack PDU	NetShelter Metered Rack PDU AP8858EU3 (Qty 2)	NetShelter Metered Rack PDU AP8858EU3 (Qty 2)
Cooling	Uniflair Rack Mount Cooling Unit 3.5kW Condensate Pump	Uniflair Rack Mount Cooling Unit 3.5kW Condensate Pump Fan Ventilation
Security	NetBotz 250A NBRK0250A Standard Keylock Temperature and Humidity Sensor AP9335TH Door Contacts NBES0303 Leak Sensor NBES0306	NetBotz 750 NBRK0750 Standard Keylock Temperature and Humidity Sensor AP9335TH Door Contacts NBES0303 Leak Sensor NBES0306
Network	Micro DC Network Switch Kit	Micro DC Network Switch Kit
Accessories	N/A	Redetec Rack Mount Fire Suppression System
Supplementary Equipment	Ethernet cables Power cables	Ethernet cables Power cables

Supplemental Equipment Box Contents

Box contents are dependent on your MDC configuration. Your MDC may not include all of the contents listed below.

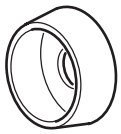
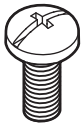
Power cables
Power inlet box
Roxtec sealing gland system
Magnetic interior lights
Camera (MDC42UARSI only)
Cable managers
Hardware bag
Cable ties
Terminal block and key for Redetec fire suppression system

NOTE: Refrigerant piping shipped inside the MDC enclosure.

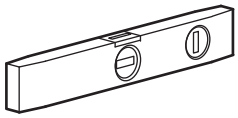
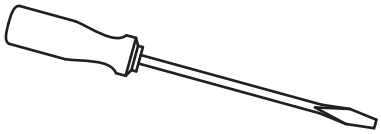
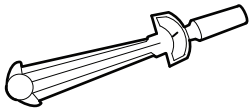
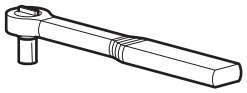
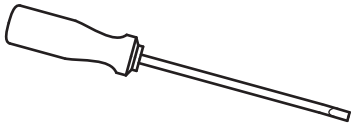
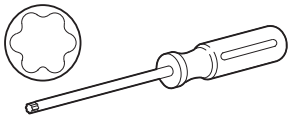
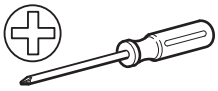
Equipment Shipped Separately

MDC42USRSI and MDC42UARSI
Uniflair outdoor condensing unit ACRMD4KI-3

Hardware Bag Contents

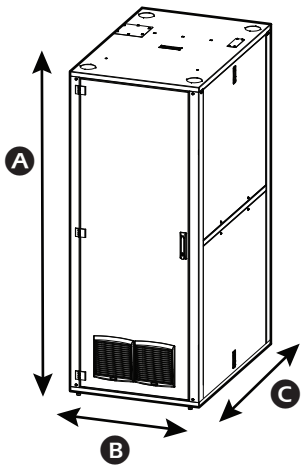
		
Plastic cup washer (60)	M6 x 16 Phillips head screw (60)	M6 Cage nut (60)
		
Cage nut tool (1)	Torx T30 / #2 Phillips tool (1)	

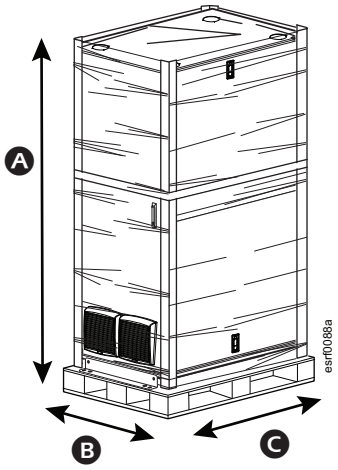
Tools Required (not provided)

		
13-mm, open-ended wrench	Level	Flat tipped screwdriver
		
Torque wrench	Ratchet wrench with 10mm socket	Small (6mm) flat tipped screwdriver
		
T-25 Torx driver	Phillips head screwdriver	T25 Torx socket

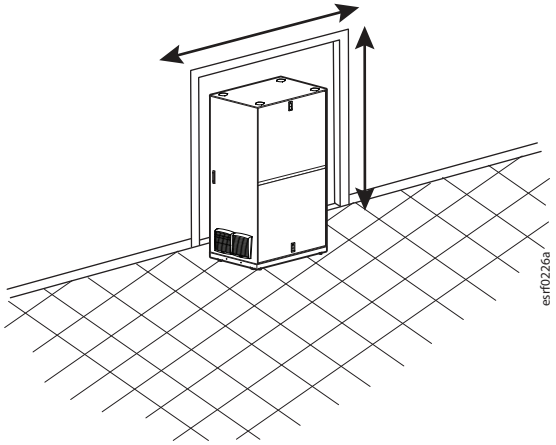
Installation

Enclosure Dimensions





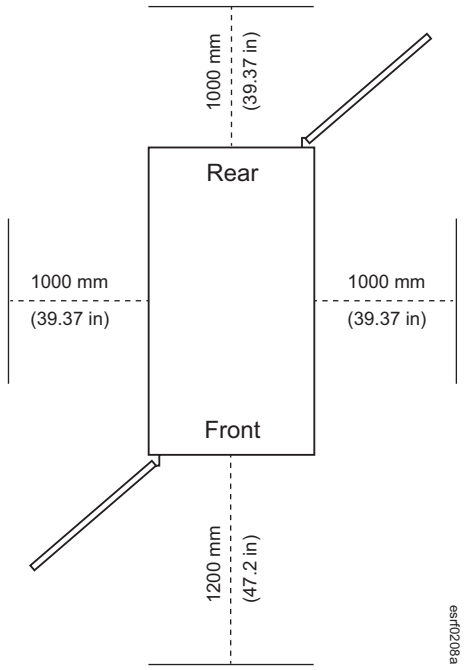
	AR5340	AR5340F
A **Height - mm (in)** Enclosure only Enclosure With Packaging	2006 (79) 2130 (83.9)	
B **Width - mm (in)** Enclosure only Enclosure With Packaging	800 (31.5) 946 (37.2)	
C **Depth - mm (in)** Enclosure only Enclosure With Packaging	1212 (47.7) 1321 (52)	1220 (48) 1321 (52)
Weight - kg (lb) Enclosure only Enclosure With Packaging	258 (568) 286 (631)	260 (575) 289 (638)



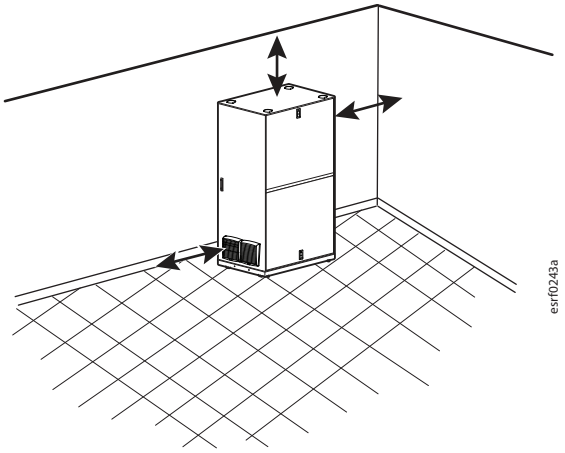
Note the dimensions of any doorways or hallways in your path to reach the final location for your enclosure. Ensure you can move the enclosure through any doorways or other obstacles.

Location Requirements

The final location for your enclosure should include sufficient space around and above to perform everyday tasks and occasional maintenance.

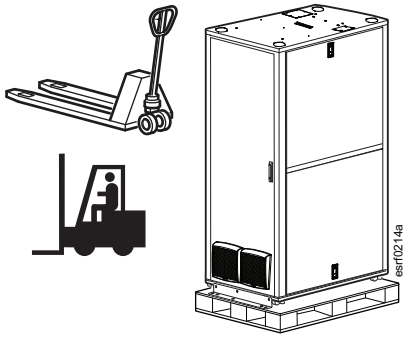


Your location should include at least 305mm (12 in) of space above the enclosure. Do not position MDC42UARSI in a way that will block the ventilation grilles.



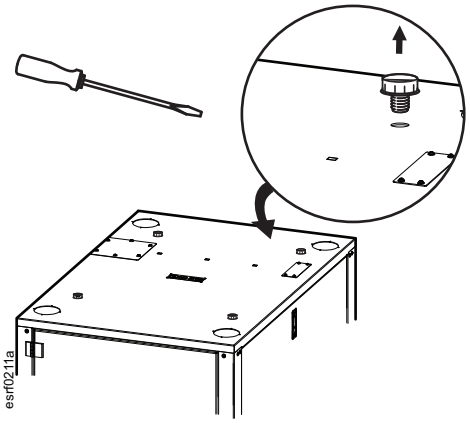
Move the MDC

Use a forklift or a pallet jack to move the MDC while it is still on the pallet, if possible. Follow the instructions in the Unpacking Sheet to complete the removal of the MDC from its pallet once it is at its final location.



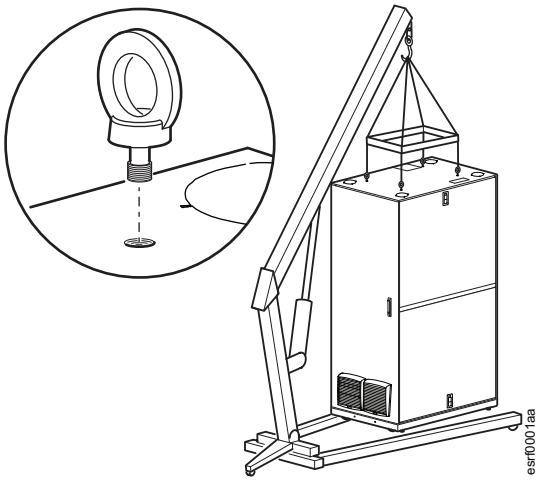
You can move an unpacked MDC using eye bolts and a lifting device. Remove the brackets securing the MDC to the pallet. See the Unpacking Sheet for complete instructions.

Use a flat tipped screwdriver to remove the hole plugs. Save the hole plugs for re-installation following the lifting task.



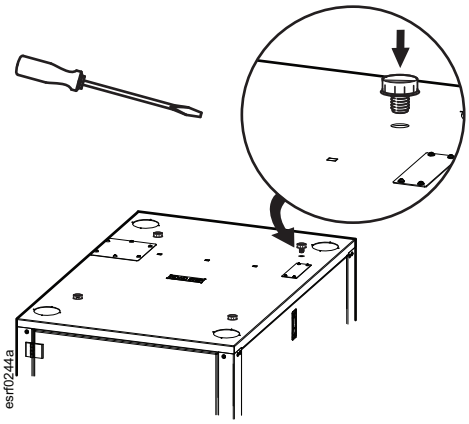
Use M10 x 20 mm shoulder eye bolts with a vertical lift rating of at least 181 kg (400 lb).

NOTE: Use appropriate lifting hardware to ensure a straight-line pull on the eye bolts.



⚠ CAUTION
EQUIPMENT DAMAGE HAZARD Avoid compromising the IP54 rating and possible equipment damage. Ensure the hole plugs are installed . **Failure to follow these instructions can result in injury or equipment damage.**

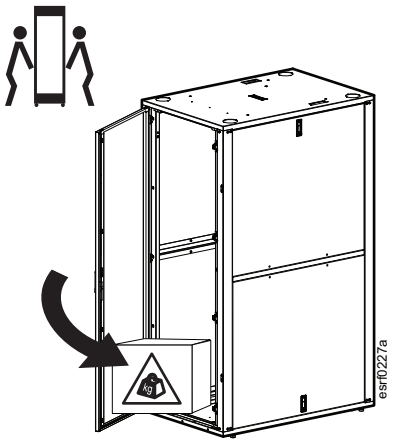
Remove the eye bolts when the lifting task is complete. Re-install the hole plugs.



Move the MDC on its Casters

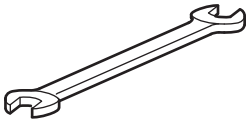
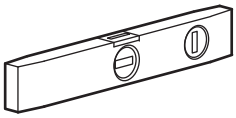
⚠ WARNING
TIP/HEAVY EQUIPMENT HAZARD • At least two people are required to move the MDC. • When moving the MDC on its casters, ensure the path of the MDC is free of obstacles and debris. • When moving the MDC on its casters, make sure the leveling feet are fully raised and push the MDC from the front or rear. Never push the MDC from the sides. **Failure to follow these instructions can result in death, serious injury or equipment damage.**

Do not move a loaded MDC on its casters if the weight exceeds the Maximum Dynamic Load of 1020 kg (2250 lb). At least two people should move the MDC.

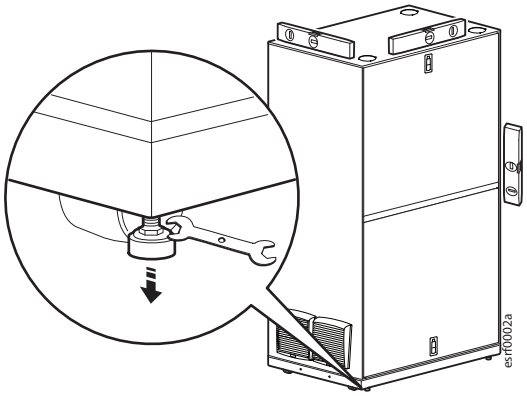


Leveling Feet

Tools Required (not provided)

	
13-mm, open-ended wrench	Level

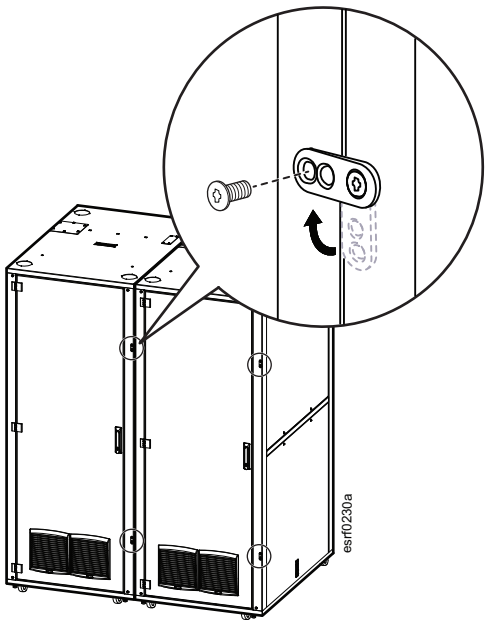
When the MDC is in its final location, lower the leveling feet. Use a 13-mm, open-ended wrench (not provided) to lower the leveling feet. Use a level (not provided) to ensure the MDC is level and plumb while lowering the leveling feet.



Join MDCs

NOTICE
• Joining two or more MDCs is intended for stability purposes only. • Side panels are NOT removed when joining MDCs.

Two or more MDCs may be joined using the brackets attached to the front and rear as shown.



Ground the MDC

The MDC does not include a common grounding point. A common ground using a discrete bonding jumper must be connected directly to each MDC. Follow all local and national codes.

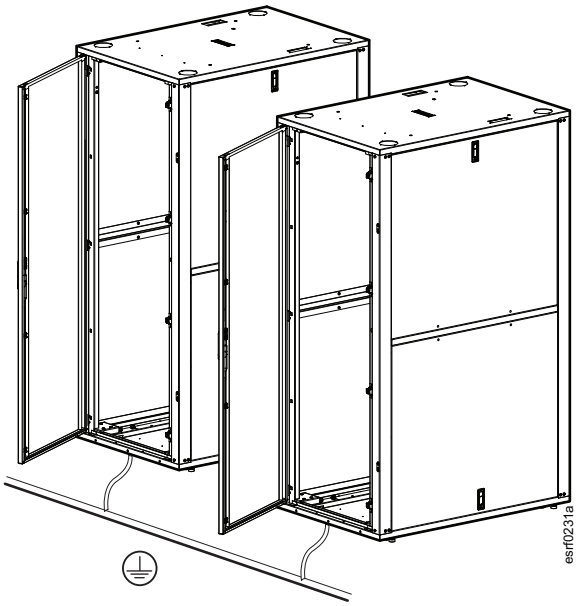
⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

Connection of the MDC to the building Common Bonding Network (CBN) is required.

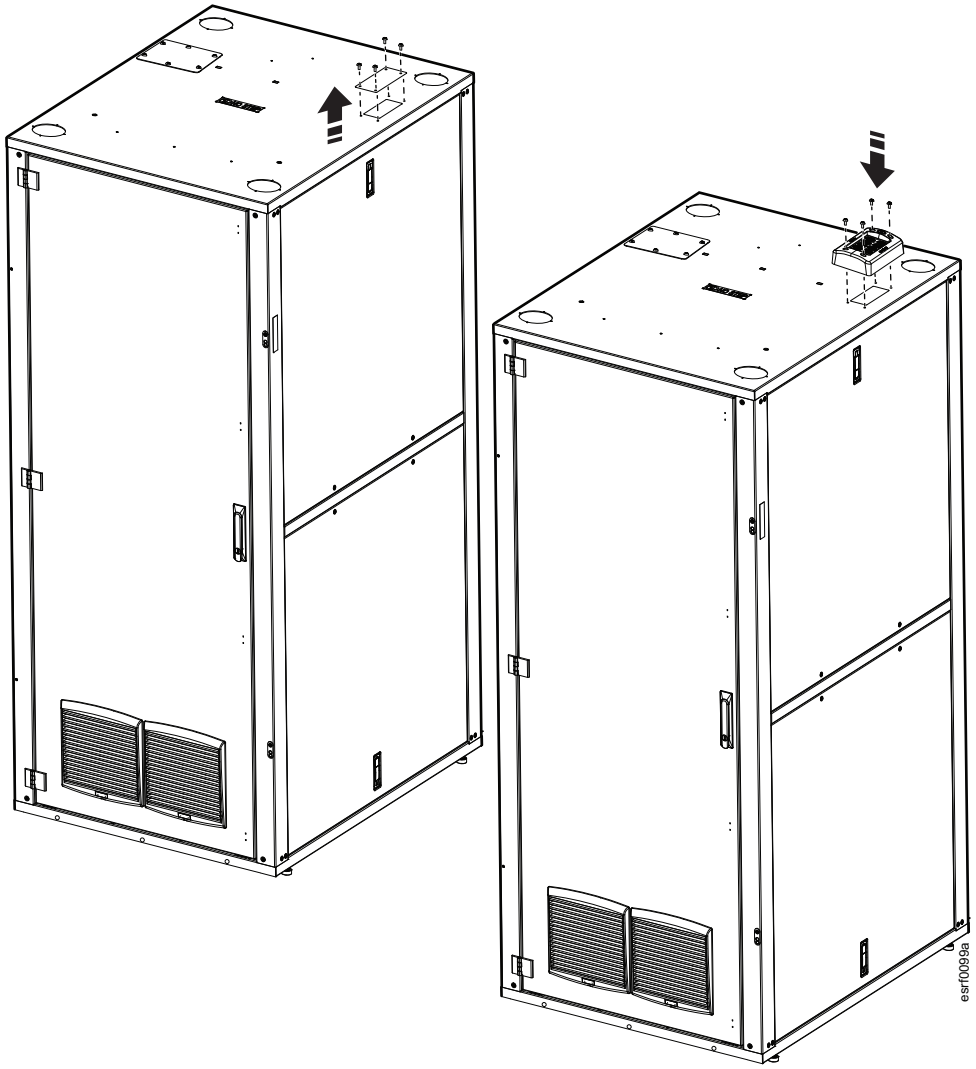
Failure to follow these instructions will result in death or serious injury.

- Each MDC should be bonded directly to a common ground.
- Never install ground wires continuously, one to the next, in series.
- Use a Common Bonding Network Jumper kit, for example, Listed [KDER] Panduit® RGCBJ660PY or equivalent.
- Use paint-piercing washers between the ground terminal and the enclosure frame or remove the paint on the frame under the ground terminals per NEC NFPA 70 Article 250.12.



Roxtec Gasket

Remove the sealing plate on the roof and install the Roxtec cable entry system (provided in the supplemental equipment box) using the four (4) hex head screws included.



Cooling Unit

The cooling unit is installed in your EcoStruxure MDC but the refrigerant piping must be installed. The piping (with insulation) for installation in the interior of the enclosure is shipped inside the enclosure. Piping from the enclosure to the outside condenser is not provided.

⚠ WARNING

EQUIPMENT DAMAGE HAZARD

- Cooling equipment shall be installed and serviced only by qualified persons.
- Follow all Safety instructions in the Uniflair Rack Mount Cooling Unit Installation Manual.

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

NOTES:

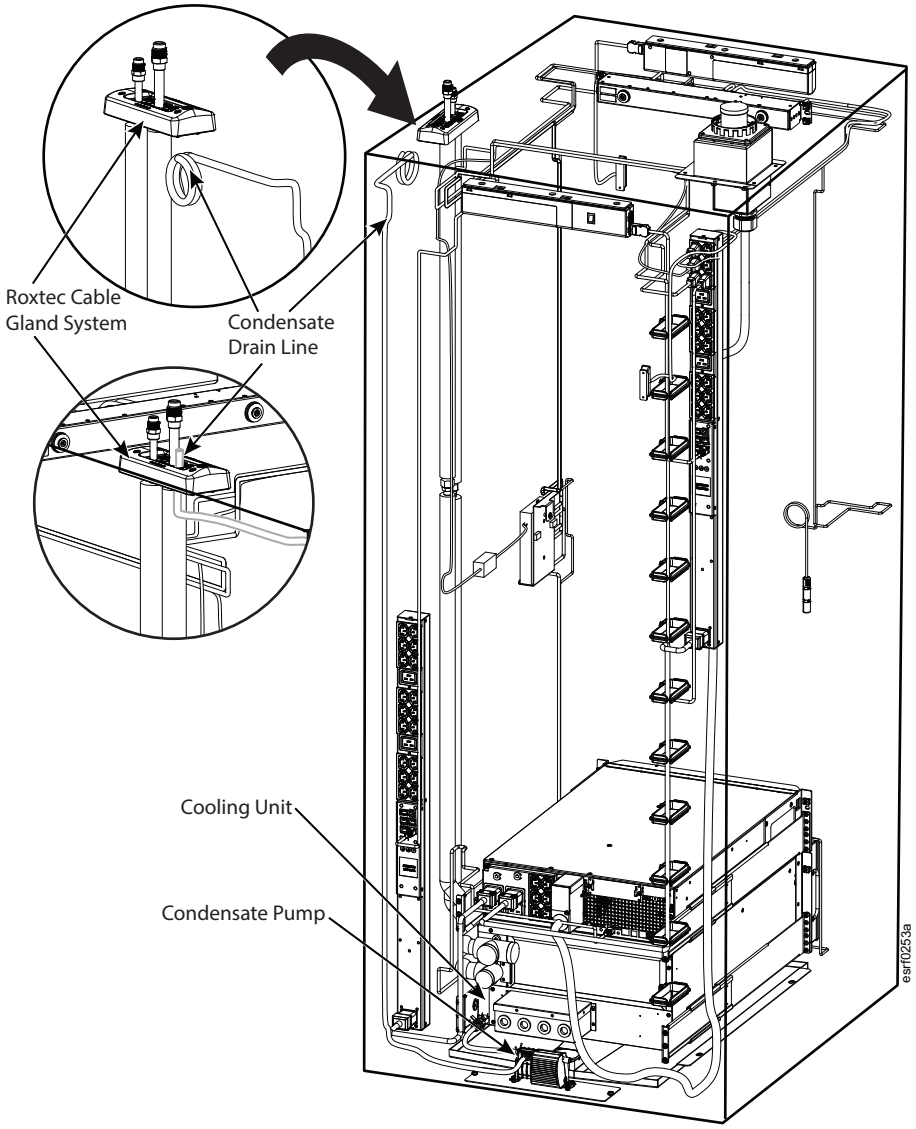
1. Refer to the Installation Manual for your cooling unit for installation instructions.
2. Perform all commissioning checks, leak detection, and vacuum pumping procedures as directed in your cooling installation manual.

The cooling unit is installed at the bottom of the enclosure.

Locate and remove the refrigerant pipes secured to the inside of the Micro Data Center enclosure. Connect the pipes to the valves.

The condensate drain line is coiled below the sealing plate where the Roxtec cable entry system will be installed.

Ensure the condensate drain hose is properly installed so that condensate can drain properly. Refer to the Installation instructions for your condensate pump.



Follow the instructions in your cooling unit manual to install the outdoor condenser. Connect the suction line valve and the liquid line valve from the condenser to the appropriate refrigerant lines in the enclosure. If your MDC includes a low ambient kit, refer to the installation instructions provided with the kit.

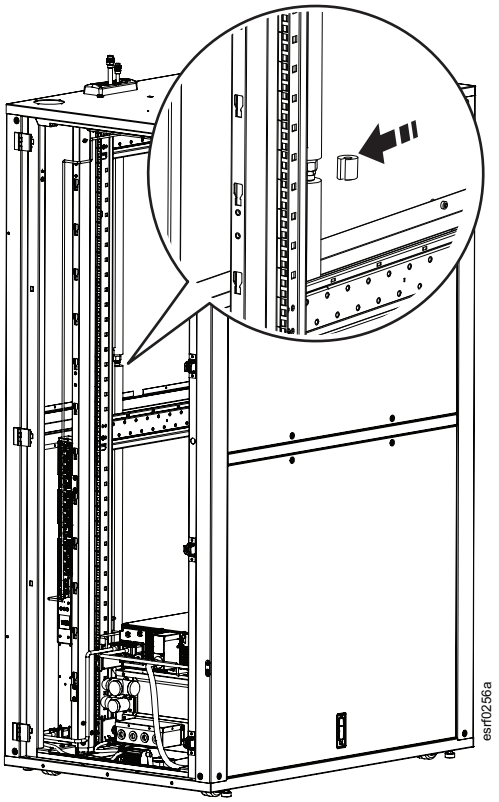
NOTICE

EQUIPMENT DAMAGE HAZARD

- Do not apply power to the outdoor cooling unit until the Micro Data Center is receiving power.
- Leave the covers on the line valves until ready to connect the refrigerant pipes.
- Ensure the connections between the valves and the pipes are tight.

Failure to follow these instructions can result in equipment damage.

Ensure that any areas of exposed piping on the interior of the MDC are covered with insulation (not provided).



NOTES: The cooling unit is pre-wired with a USB-to-RS485 cable for communicating with the cooling unit though an Ecostruxure IT server. Use the serial connection information below for the cable, and use the Device Discovery details below to discover it in EIT server software.

Type: Crac
Vendor: Uniflair
Family: Rack_mount_room_cooling
Server address: 1

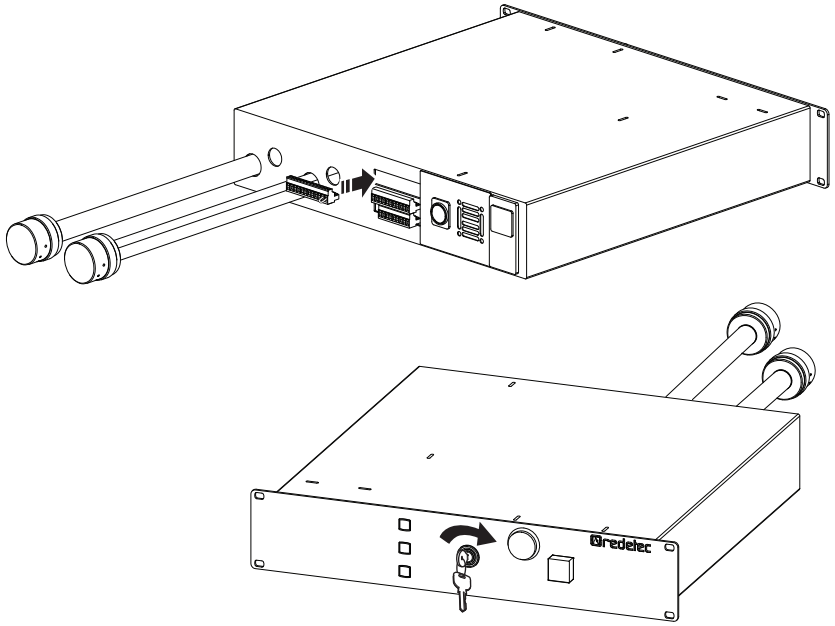
Baud Rate: 9600
Data Bits: 8
Parity: None
Stop Bits: 1
Flow Control: None

Fire Suppression

The Fire Suppression system requires the installation of the green terminal block (provided in the supplemental equipment box) to the top receptacle on the back of the unit. The green terminal block has a red jumper wire to activate the internal battery backup.

NOTE: The green terminal block should not be plugged in until ready for initial startup.

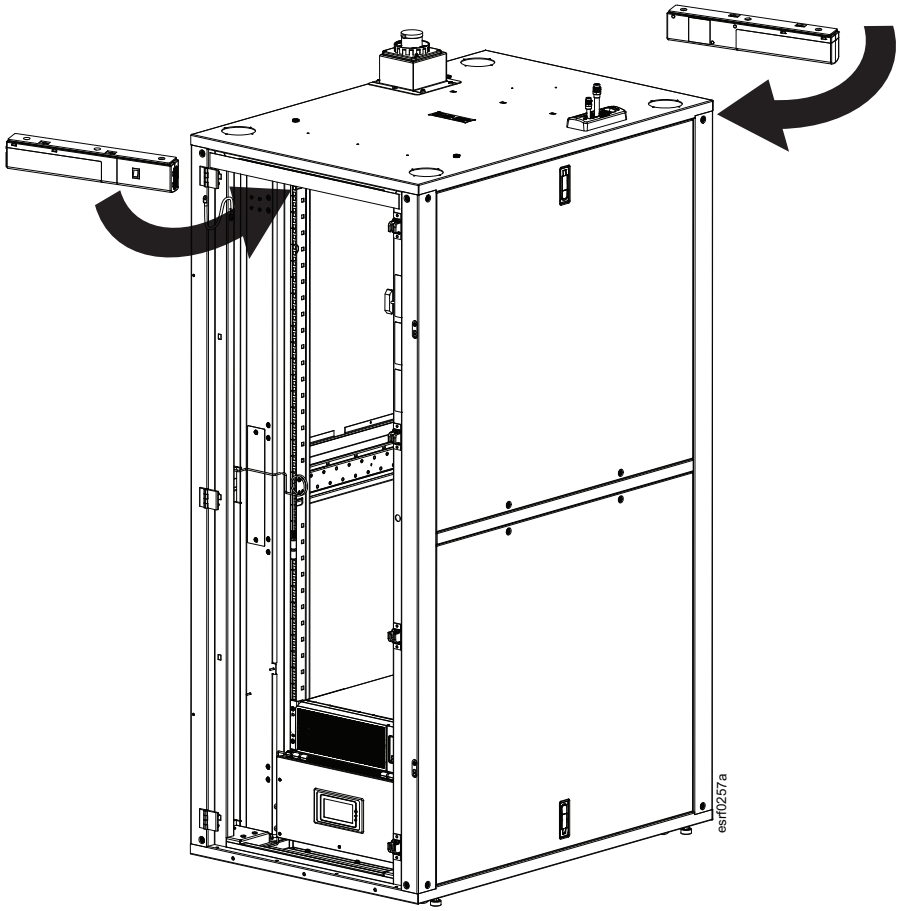
The key (provided in the supplemental equipment box) is necessary to change the setting from **Isolate** to **Normal**.



Refer to the Fire Suppression system Quick Start manual for start-up instructions. Refer to Fire Suppression manual External Connections for connecting Volt-Free Contacts to your Building Management System, if desired.

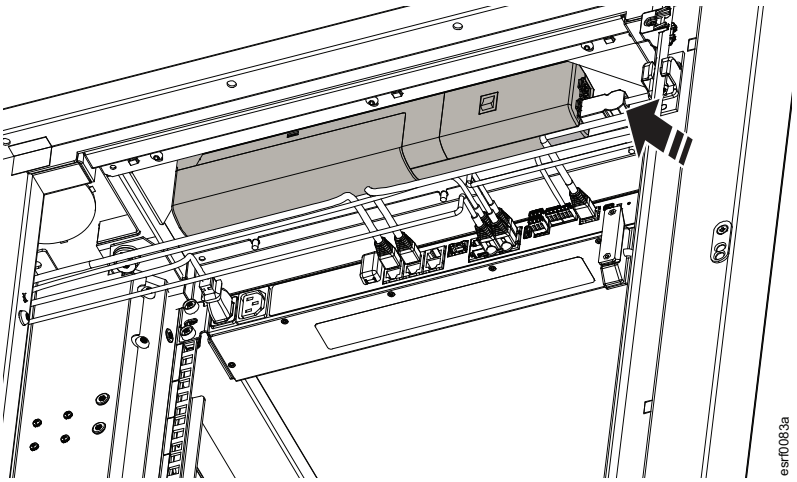
Lighting Installation

The two LED lighting strips are packed inside the accessory box. Remove them from the shipping box. The light strips are magnetic and are installed to the inside of the roof at the front and rear of the enclosure.



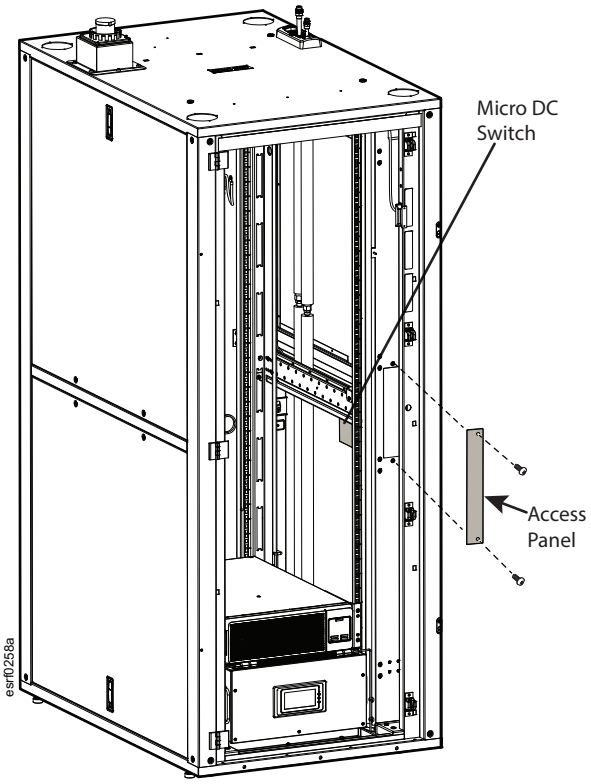
Plug the magnetic light strips into the pre-installed power cables.

The lights should be positioned towards the front and rear rack opening and doors so they do not interfere with cables and power cords.



Access the Micro DC Network Switch

Access plates are located on each side of the MDC enclosure frame in the front. Open the front door. Remove two (2) T25 Torx head screws to remove an access panel. The Micro DC Switch is behind the access panel on the right side of the MDC.



Bring Power to the MDC

⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- The Micro Data Center must be installed in accordance with the National Electrical Code and all applicable local codes.
- Mains power must be installed, operated, serviced, and maintained only by qualified personnel.
- The Micro Data Center is intended to be installed and operated by a skilled person in a controlled location with restricted access.
- The system does not incorporate a main power disconnect. Due to the use of the UPS, live power exists within the equipment when power is turned off. Always use a properly rated voltage sensing device to confirm there is no voltage in the system.
- Wear appropriate personal protective equipment (PPE) and follow safe electrical work practices. See NFPA 70E and follow all local codes and regulations.

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

Building power is brought to the Micro Data Center through the roof.

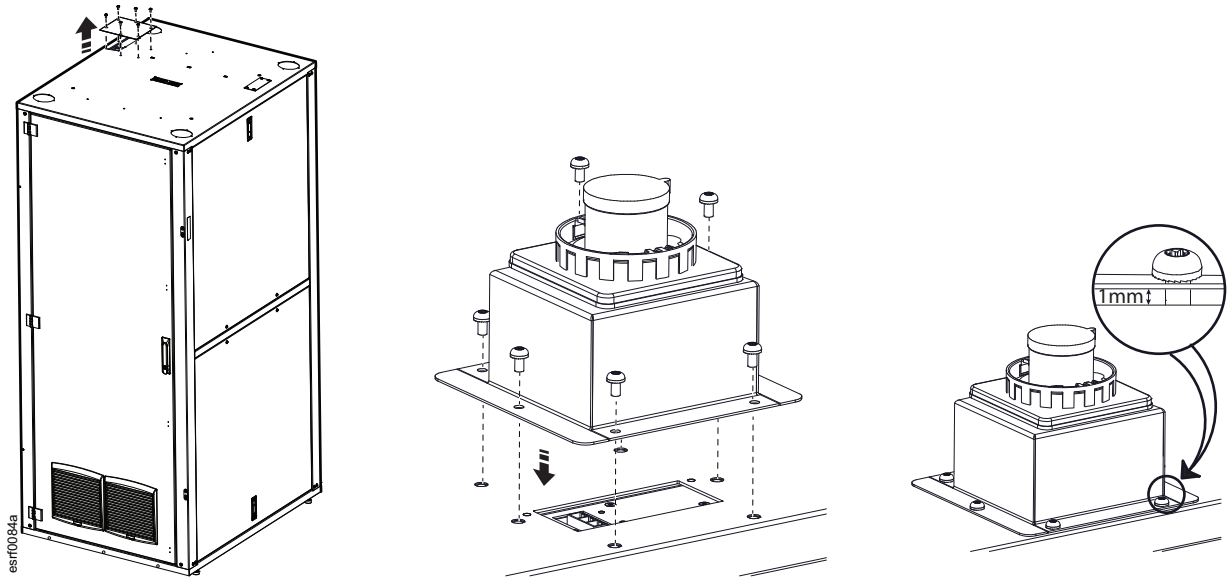
1. Remove the sealing plate on top of the Micro Data Center. Save the screws for use when installing the power inlet box.
2. The power inlet box is located in the supplemental equipment box shipped inside the enclosure. There is a connector under the sealing plate. There is a black quick connect connector hanging from the power inlet box that connects to a black connector below the removed sealing plate. Those connectors should be pushed together until they make an audible click. Use the screws removed with the sealing plate to secure the power inlet box to the roof of the MDC.

NOTICE

DAMAGE HAZARD

Leave a small (1 mm) gap between the roof and the underside of the inlet box when tightening the screws to avoid crushing the gasket material.

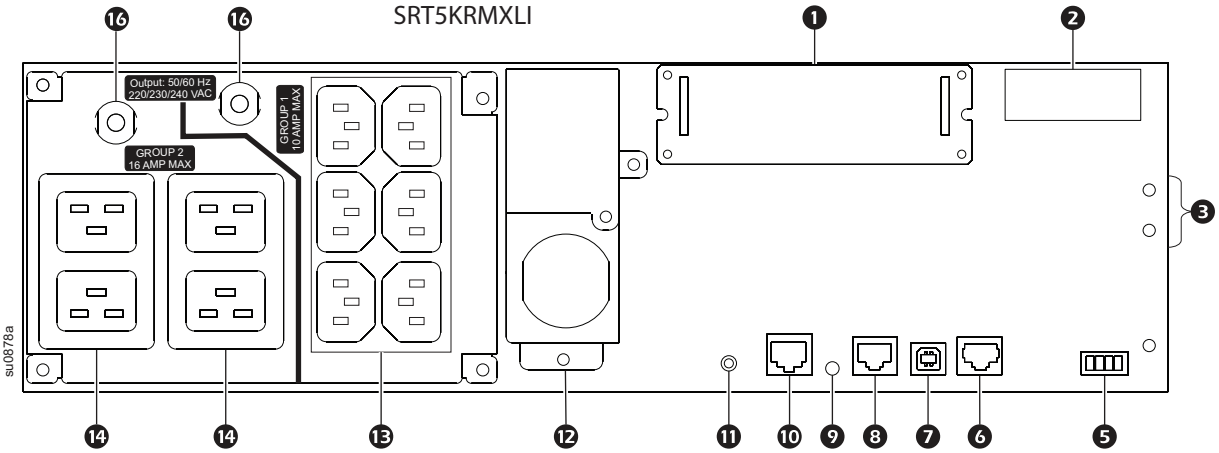
Failure to follow these instructions can result in equipment damage.



3. Bring mains power to the Micro Data Center using flexible cable and a receptacle compatible with the IEC309 IP67 connector in the power inlet box. Make sure the connector is the same voltage and current rating as required for the Micro Data Center.
   NOTE: The power cable inside the MDC enclosure has been installed at the factory. The power cable is hardwired into the 5K UPS.

UPS

Refer to the UPS manual included with your Micro Data Center for complete installation instructions. Complete the setup of the UPS as described in the UPS Operation manual.



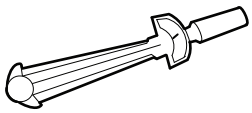
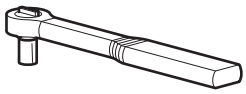
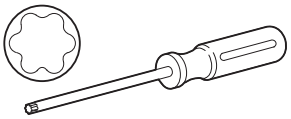
Side Panels

It may be easier to install some of your equipment and cables if one or more side panels are removed to improve access. Since the MDC is a sealed unit, care must be used when removing and installing the side panels in order to ensure the gasket material will not be damaged.

⚠ CAUTION
HEAVY EQUIPMENT HAZARD The side panels are heavy. At least two people should remove or install the side panels. **Failure to follow these instructions can result in injury or equipment damage.**

NOTICE
DAMAGE HAZARD Use care when removing or installing the side panels. Avoid crushing or tearing the gasket material. **Failure to follow these instructions can result in equipment damage.**

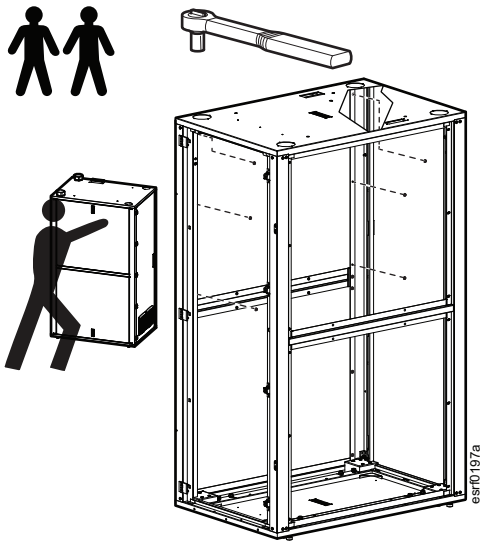
Tools Required (not provided)

	
Torque wrench	Ratchet wrench with 10mm socket
	
T-25 Torx driver	T25 Torx socket

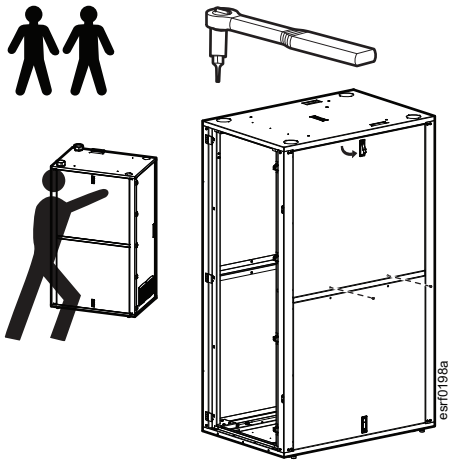
Remove the Side Panels

The side panels are secured to the frame with three (3) M6 nuts at the front and three (3) M6 nuts at the rear of the frame on the interior of the unit.

At least one person should hold the panel in place from the outside while the M6 nuts are removed.



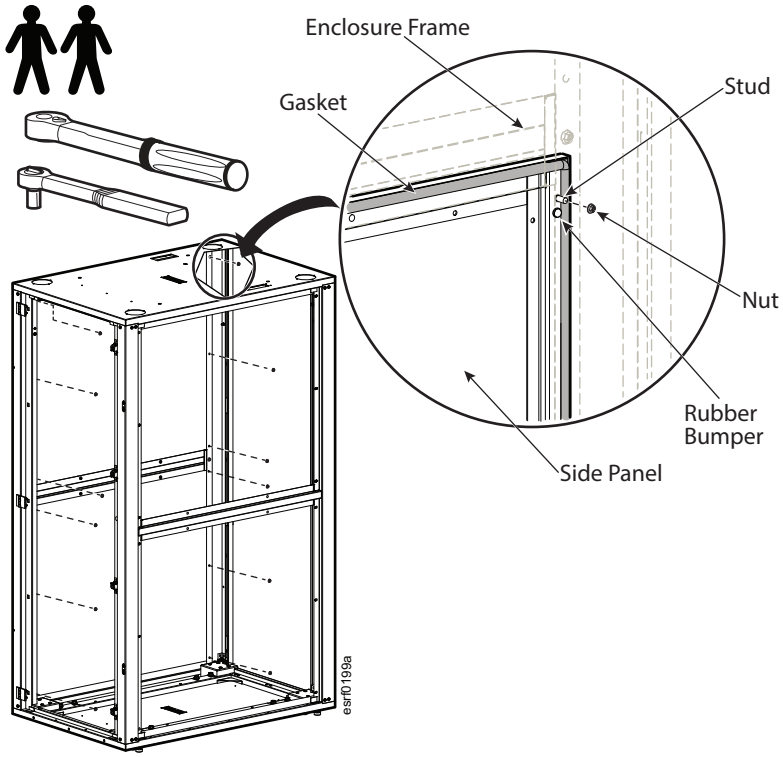
With at least one person holding the panel in place, remove the two (2) T25 screws and rubber washers securing the panels to the cross brace support. Lift the latch to release the side panel. Use care when removing the side panels.



Install the Side Panels

NOTICE
DAMAGE HAZARD • To avoid damaging the gasket, do not use an electric screwdriver or drill to secure the hardware. • Refer to the torque specifications to avoid overtightening the fasteners. Overtightening the fasteners may permanently damage the gasket and compromise the seal. **Failure to follow these instructions can result in equipment damage.**

Fit the six (6) threaded studs on the side panel through the holes in the frame. Have at least one person hold the side panel in position while a second person secures the six (6) M6 nuts.

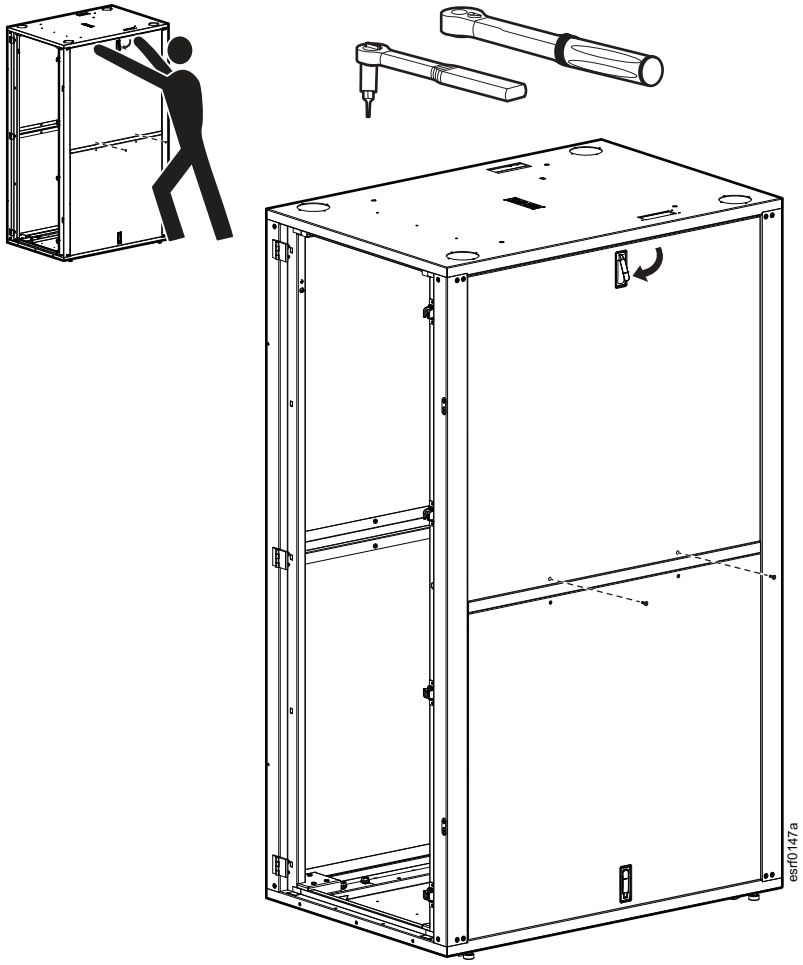


Use a 10mm socket and torque wrench. Torque: 8 - 12 in lbs (0.9 - 1.4 Nm)

Rubber bumpers installed near the studs on the side panels help prevent over-compression of the gasket. Observe the torque requirements and use care to prevent damage to the gaskets.

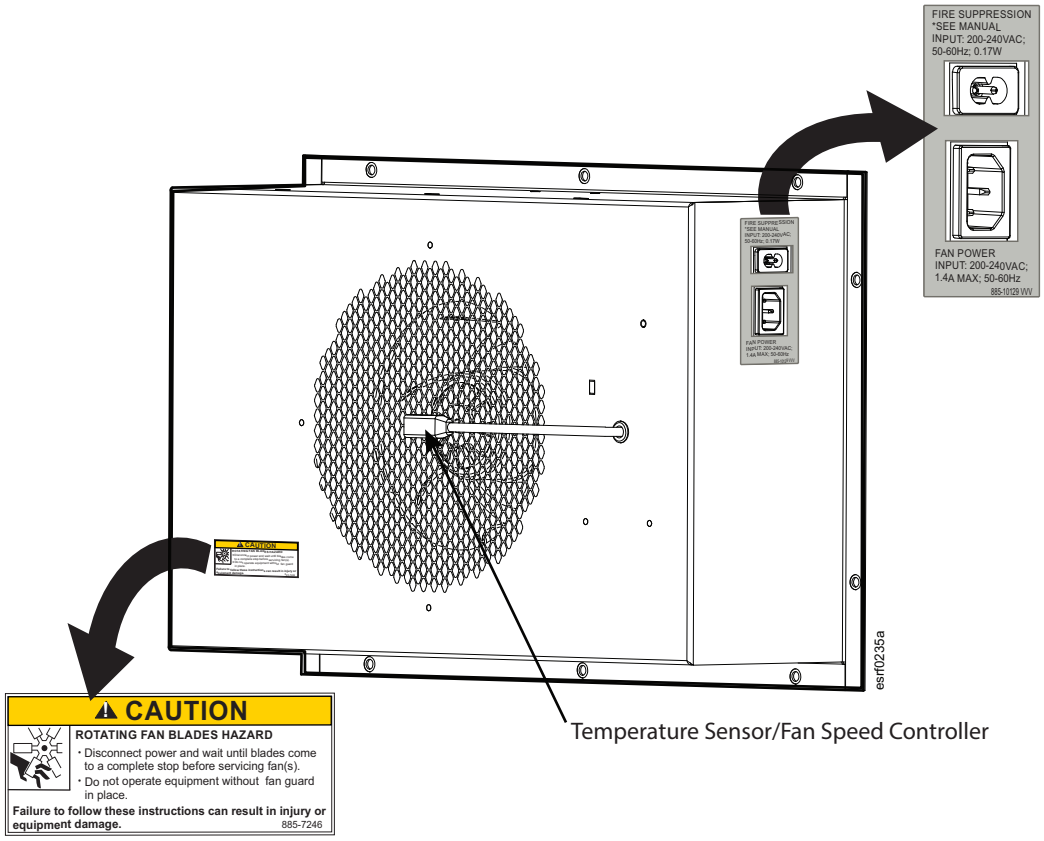
Install the two (2) T25 screws and rubber washers to the support. Use a T25 socket and torque wrench.
Torque: 8 - 12 in lbs (0.9 - 1.4 Nm)

Press the side panel at the top to compress the gasket while securing the latch. Use care not to damage the gasket. Check to make sure the latch is secured in the locked position.

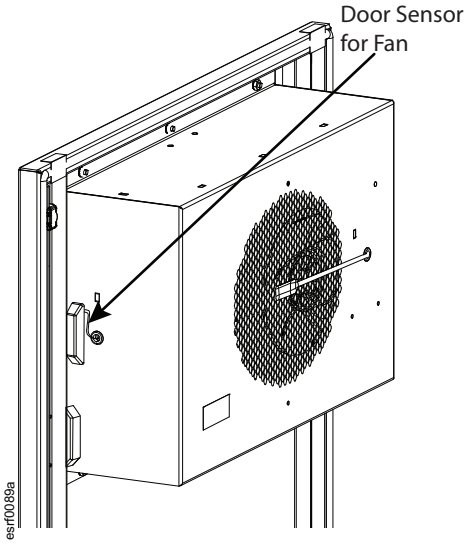


Fan Operation (MDC42UARSI only)

The fan box includes an IEC C8 inlet, relay, and terminal blocks to support the fan interlock for fire suppression. By default, the interlock is bypassed. The door sensor stops the fan when the door is opened.



The fan box includes a door sensor connected to the fan that will cause the fan to stop when the rear door is opened.



Fan Specifications

Electrical	
Input Voltage	200-240V
Input Frequency	50/60Hz
Input Power	160W
Output Current	1.4A
Output Connections	(1) C14, (1) C8
Environmental	
Operating Temperature	-25 to 60°C (-13 to 140°F)
Ingress Protection Rating	IP54
Compliance	
Safety Verification	UL

Start-Up

Checklist for Initial Start-Up

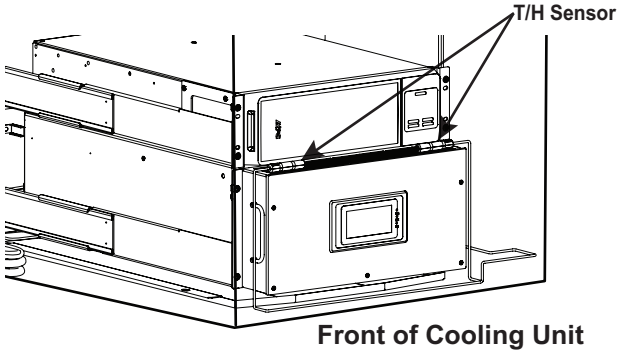
NOTICE
It is important to check that all connections are secure before applying power to the MDC.

1. Mains power is connected to the MDC.
2. UPS batteries are secured.
3. The UPS is powered ON. The UPS network cable is connected to the Micro DC Switch.
    - Check the display on the UPS for status.
    - The Rack PDUs power cables are connected to the UPS, and are powered ON. The Rack PDUs network cables are connected to the Micro DC Switch. Check the operation status on the Rack PDU display.
4. Determine which NetBotz model is installed in your MDC (NB250A or NB750). The NetBotz power cable is connected to the Rack PDU. The NetBotz network cable is connected to the Micro DC Switch. MDCs with cooling units and fans have an additional cable attached to Relay 1 port (NetBotz 750) or the Relay Output port (NetBotz 250A).
5. Sensors are positioned and cables connected to the NetBotz appliance. Cooling alarms must be created and configured. See “Configure NetBotz 750 Cooling Alarms” on page 36 or “Configure NetBotz 250A Cooling Alarms” on page 33 for more information. The NetBotz User Guide contains instructions for creating and configuring these alarms.
    - Temperature/Humidity sensors: MDCs with cooling units have three (3) temperature/humidity sensors. One (1) temperature/humidity sensor will be secured to the side of the U-space. After the customer equipment is installed, move this sensor and secure it to the approximate center (left-to-right) to ensure that the sensor is located in the active airflow of the equipment. The other two (2) temperature/humidity sensors are factory installed to the air conditioning unit.
    - Door contact sensors
    - Spot leak sensor (MDC42UARSI)
    - Camera (MDC42UARSI)
6. The cooling unit power cord is connected to the Rack PDU.
7. The green terminal block has been installed. See “Fire Suppression” on page 21 for more information. The fire suppression system power cord is plugged into the Rack PDU. The smoke detection sensors are in place. An additional power cord is plugged into the fire suppression system at one end and the fan box at the other end. Refer to the Redetec manual for complete instructions for initial power-up. (MDC42UARSI)
8. The Micro DC Switch power cord is plugged into the Rack PDU and powered ON.
9. The fan power cord is plugged into the C14 inlet on the fan box and the Rack PDU or UPS. The fan sensor cable is plugged into the NetBotz appliance.

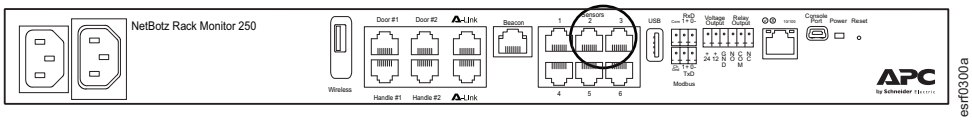
Configure NetBotz 250A Cooling Alarms

MDCs with NetBotz 250A, fans, and cooling must configure the NetBotz appliance as shown in this section. Refer to the NetBotz 250A User Guide for complete instructions on NetBotz 250A configuration.

- Sensor NB:2 and Sensor NB:3 are located directly at the Cooling Unit discharge air vent.



- Sensor NB:2 and Sensor NB:3 are connected to Universal Sensor Ports #2 and #3 on the NetBotz 250A. Using different sensor ports or the use of only 1 sensor is also acceptable but the NetBotz 250A configuration must be changed to match.

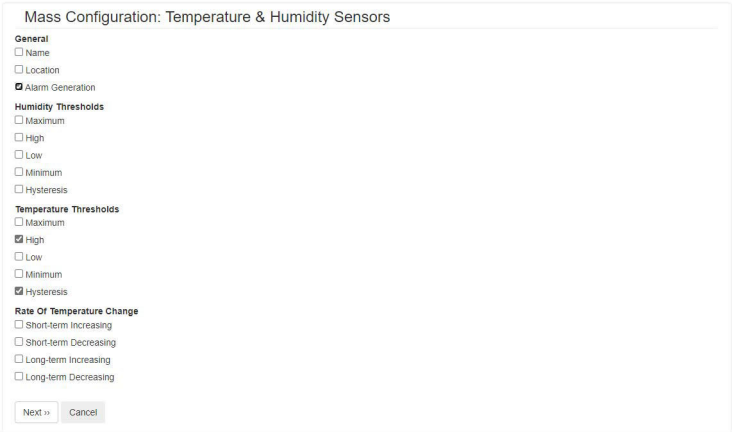


- Set the High Temperature Threshold to 35°C (95°F) to detect the loss of function of the Cooling Unit. The Max Temperature Threshold may be used instead if the customer wants to use the Hight Temp Threshold for equipment monitoring at a lower temperature. The configuration of the NetBotz 250A must be changed to map the Max Temperature Threshold.

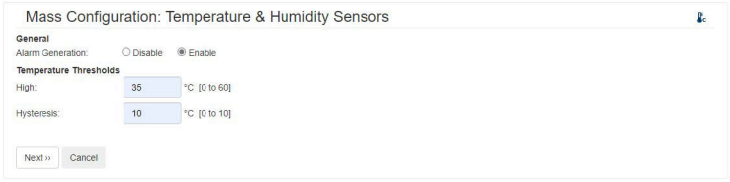
Configuring Multiple Temperature and Humidity Sensors

Log into the NetBotz 250A User Interface and navigate to the Temperature & Humidity Sensors configuration page. Select Mass Configuration.

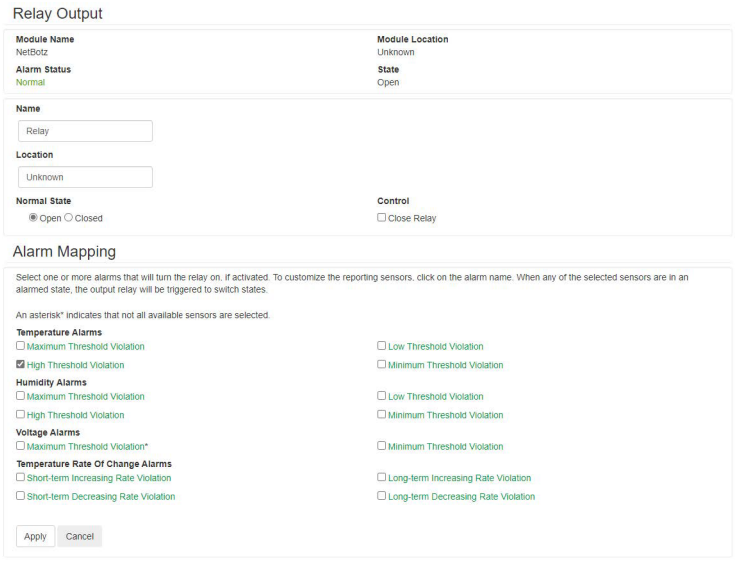
The Mass Configuration page allows you to configure sensors.



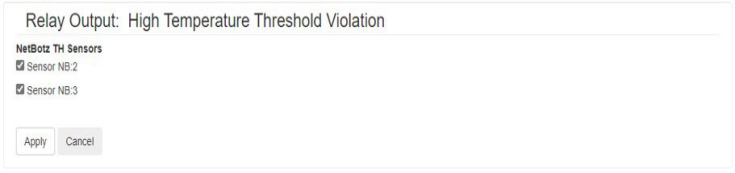
Enable Alarm Generation. Set the Temperature Thresholds. High is set to 35°C and Hysteresis to 10°C. Click on Next.



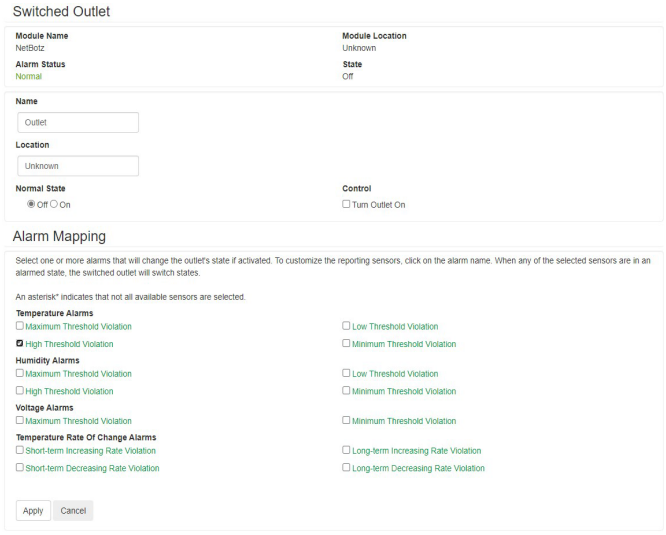
On the Relay Output page, under Alarm Mapping, Temperature Alarms, click the box next to High Threshold Violation to put a check in the box. Click on Apply to save the selection.



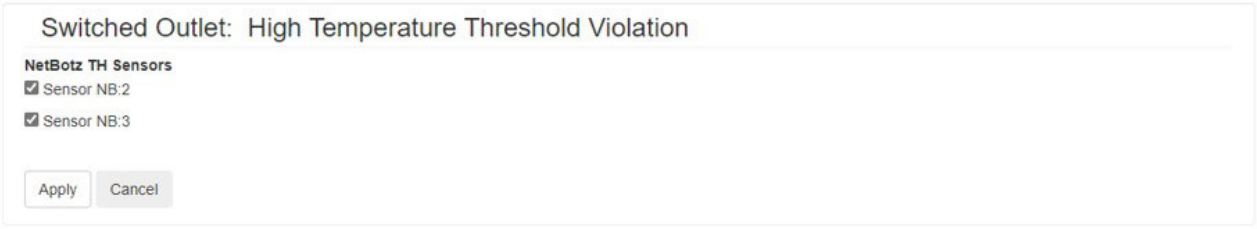
Bind the High Temperature Violation Alarm to Sensor NB:2 and Sensor NB:3 by clicking on the boxes to show a check mark in the box. Click Apply to save your selections.



On the Switched Outlet page, under Alarm Mapping, Temperature Alarms, click the box next to High Threshold Violation to put a check in the box. Click on Apply to save the selection.



Bind the High Temperature Violation Alarm to Sensor NB:2 and Sensor NB:3 by clicking on the boxes to show a check mark in the box. Click Apply to save your selections.



Configure NetBotz 750 Cooling Alarms

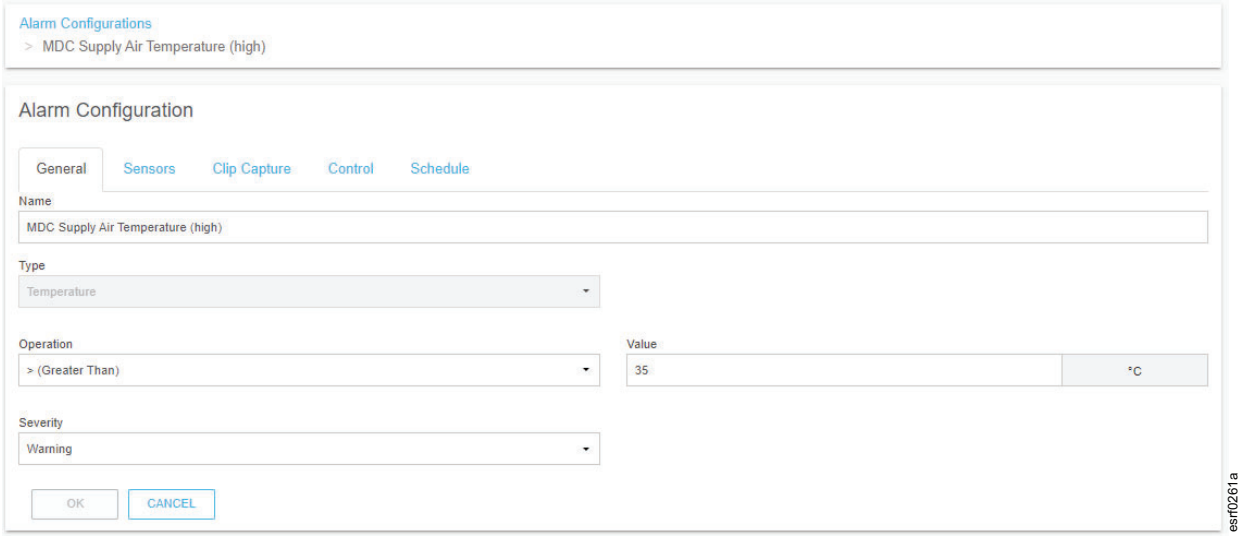
MDCs with NetBotz 750, fans, and cooling must configure the NetBotz appliance as shown in this section. Refer to your NetBotz User Guide for complete instructions.

Use the Alarm Configuration page to create the new alarms. You must add the sensors to the new alarms manually according to the instructions in the NetBotz User Guide.

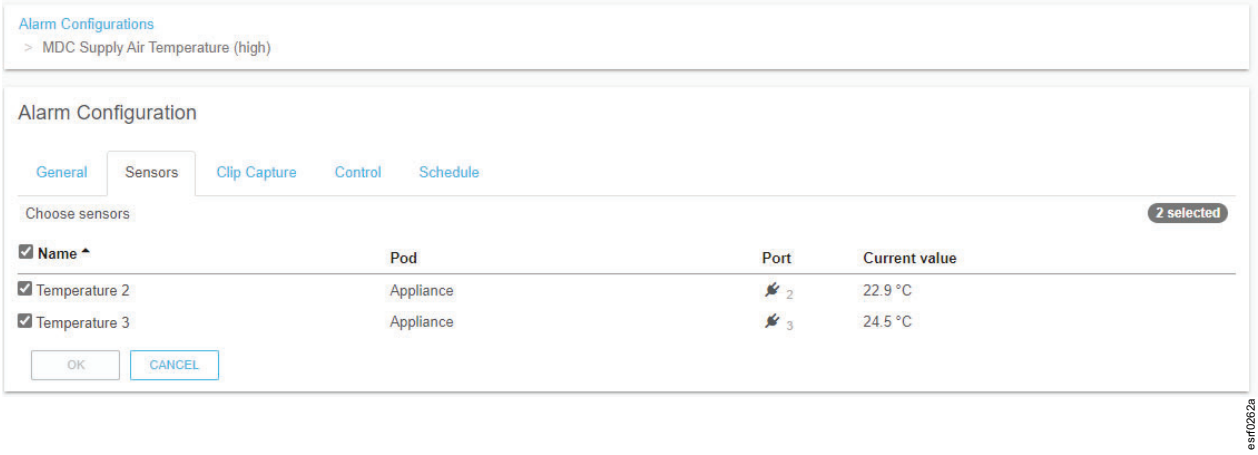
MDC Supply Air Temperature (High)

From the NetBotz 750 Web User Interface, navigate to Alarm Configurations. Create the alarm for MDC Supply Air Temperature (High) as shown below.

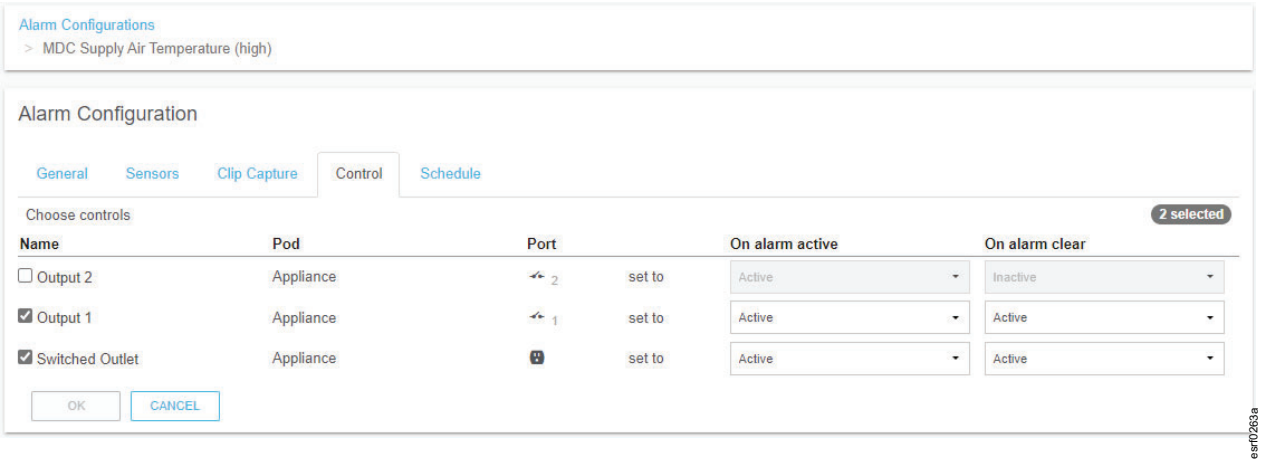
The Value is set to 35°C (95°F). Set Operation to **> (Greater Than)**. The Severity is set to **Warning**. If the temperature rises above 35°C (95°F), an alarm is generated, indicating the loss of function of the cooling unit.



The temperature sensors relay data to the NetBotz 750 appliance using Universal Sensor Ports #2 and #3. To add the sensors, refer to the NetBotz 750 User Guide for instructions. The cooling unit sensors are physically located on the front of the cooling unit cold air discharge vent to best acquire the necessary temperature information. The Current value shows the temperature reading from the sensors.

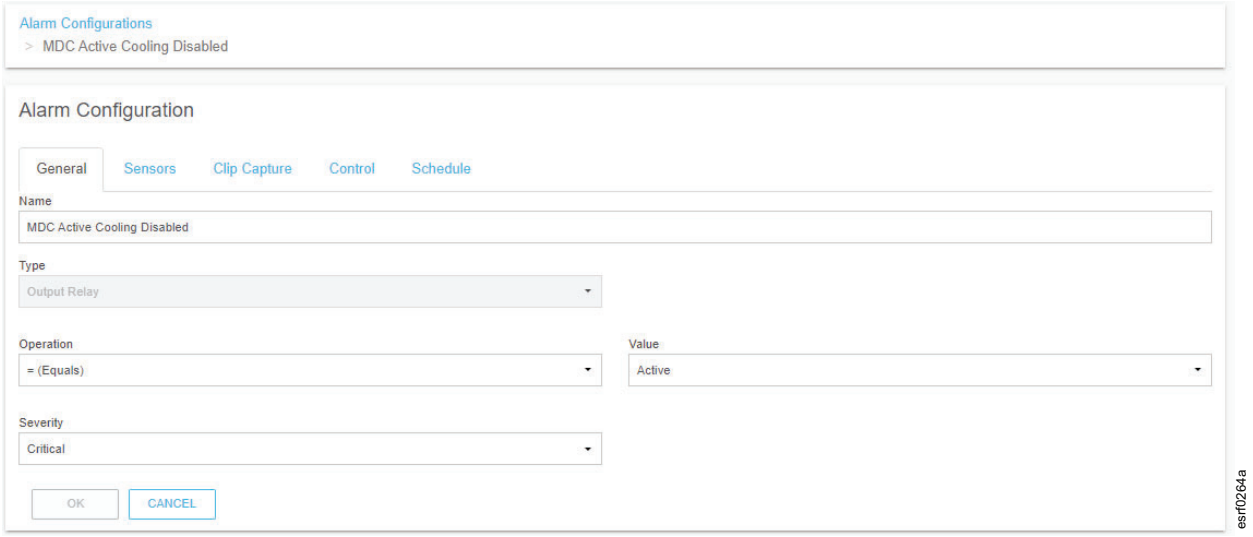


On the Control tab of the Alarm Configuration page, set the Output 1 and Switched Outlet to **Active**.

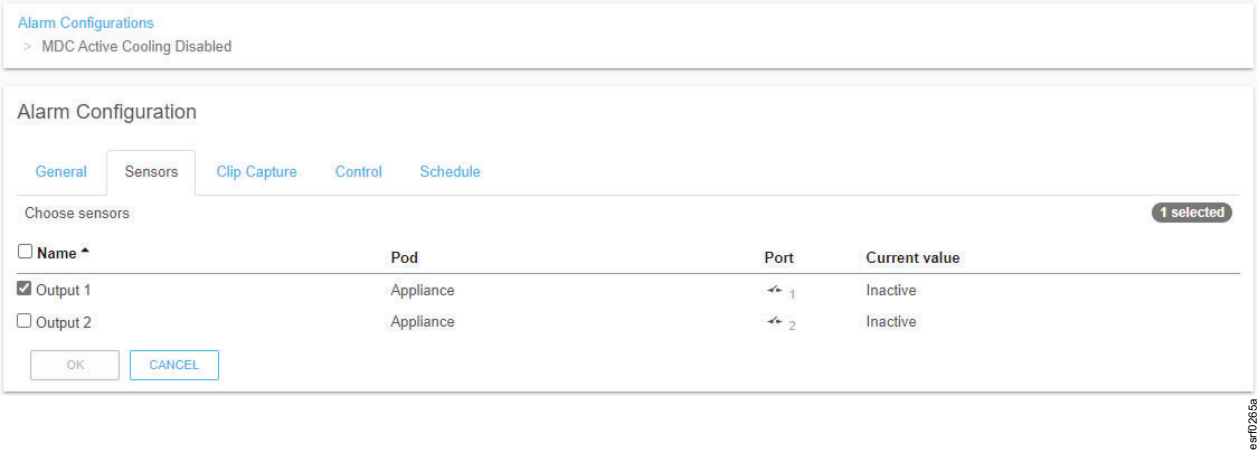


MDC Active Cooling Disabled Alarm

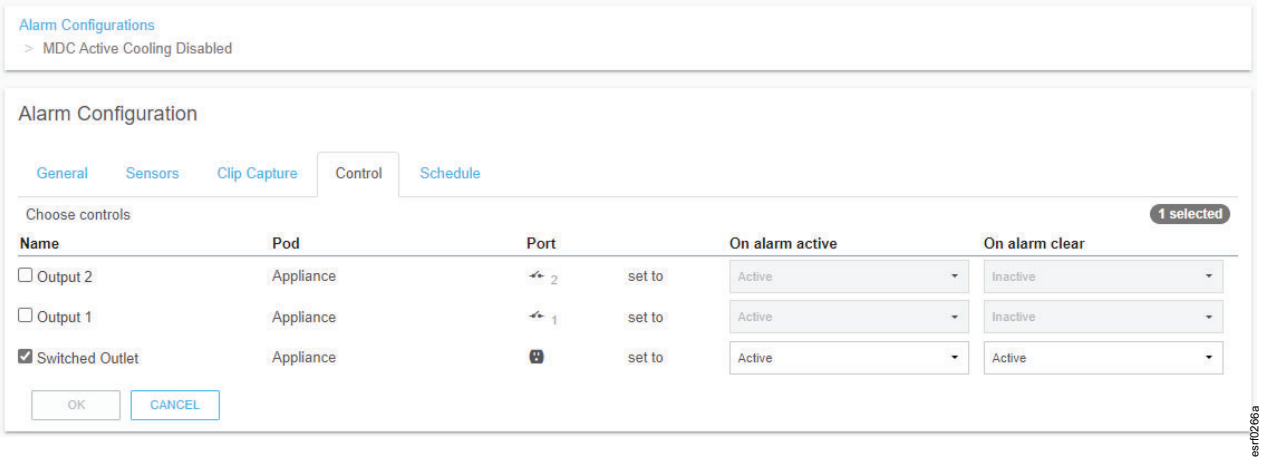
Create the MDC Active Cooling Disabled Alarm according to the instructions in your NetBotz User Guide. Set the Operation to **= (Equals)**. Set the Value to **Active** and the Severity to **Critical**.



On the sensors tab, select Output 1 as the NetBotz port the sensor is using.



Select Switched Outlet and set the On alarm active and On alarm clear boxes to **Active**.

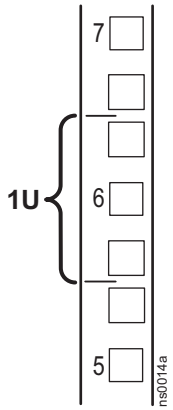


Equipment Installation

Cage Nuts

Proper location in the rack for the cage nuts:

1. 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.
2. Install the cage nuts on the interior of the vertical mounting rail; then install the shelf or equipment.



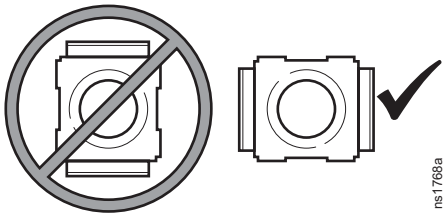
⚠ CAUTION

FALLING EQUIPMENT HAZARD

Do not install cage nuts vertically with the tabs engaging the top and bottom of the square hole.

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

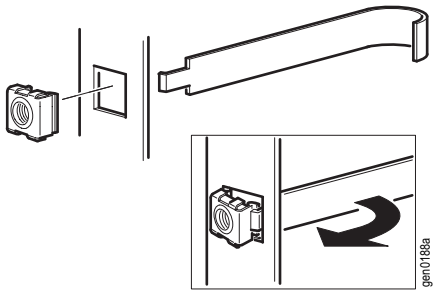
- Install cage nuts horizontally, with the tabs engaging the sides of the square hole.
- Install the cage nuts on the interior of the vertical mounting rail.



Install the cage nut:

1. From the inside of the rack, insert the cage nut into the square hole.
2. Hook one tab of the cage nut assemble through the far side of the hole.

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

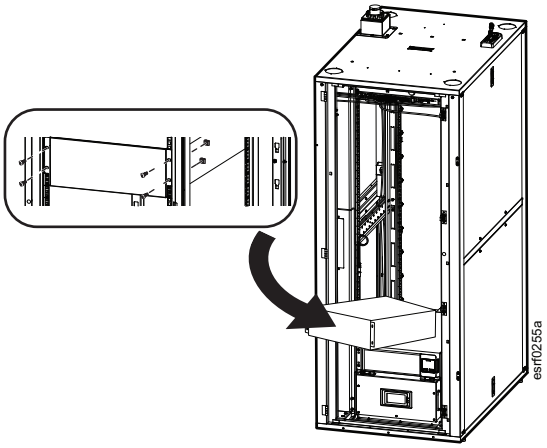


Remove the cage nut:

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

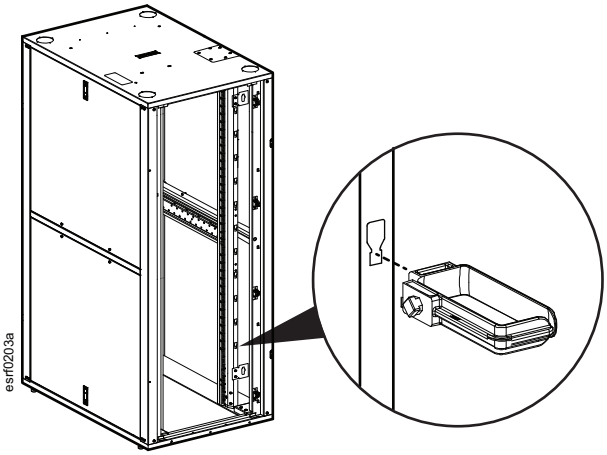
Install Your Equipment (not provided)

If possible, install your equipment starting from the bottom of the MDC and working your way up. Use the M6 cage nuts and M6 Phillips head screws supplied in the hardware bag to secure the equipment in the enclosure.



Cable Managers

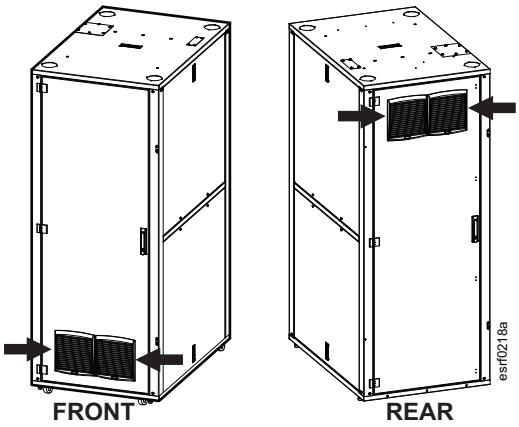
Cable managers can be moved along the vertical mounting rails using the cut outs shown below.



Maintenance

Ventilation Grille Filters (MDC42UARSI only)

There are four (4) ventilation grilles on the MDC, two (2) on the bottom of the front door and two (2) at the top of the rear door.



Inspect the filters at regular intervals until you can determine a schedule for filter replacement. The schedule and type of filter needed will depend on your environment.

Replacement Filters (not provided)

Part #	Description
NSYCAF223	G2 M1 Synthetic standard filters
NSYCAF223O	G2 M1 Filters for greasy environments
NSYCAF223T	G3 M1 Synthetic fine filters
NSYCAF223M	Stainless steel anti-insect filters

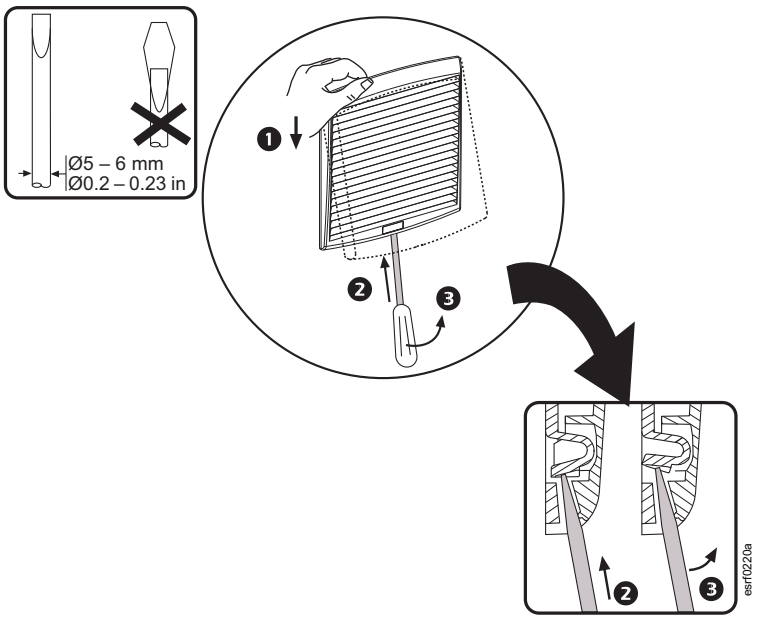
NOTICE
Contact customer service at www.apc.com/support to get help to order the correct filters for your environment.

Replace the filters according to the schedule you have determined. Clean filters maximize the efficiency of the fan.

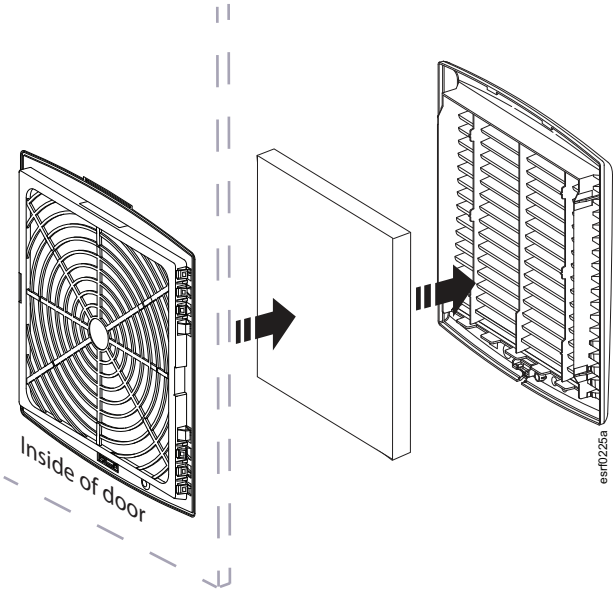
How to Access and Replace the Filters

The filters are located behind the IP54-rated air ventilation grilles.

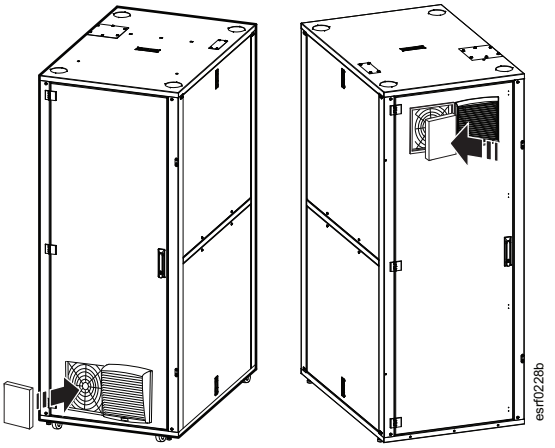
1. Remove the louvered grille covers by releasing the catch with a small screwdriver as shown below.



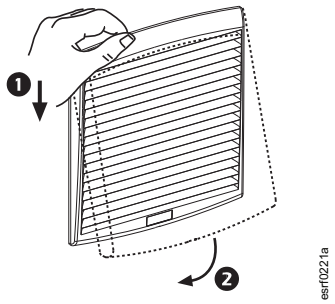
2. Once the grille cover is removed, the filter can be removed from the frame. The plastic grille cover and grille frame should be wiped with a damp cloth if necessary, to remove any dirt, dust, or debris.



3. Install the new filter to the grille frame.



4. Install the grille cover by pressing the tabs at the top of the grille cover into the grille frame (❶), then press the bottom of the grill cover down to secure it in the catch on the frame (❷).



To Use the C8 Inlet as an Interlock

This configuration is **NOT** used with the Redetec Fire Suppression System.

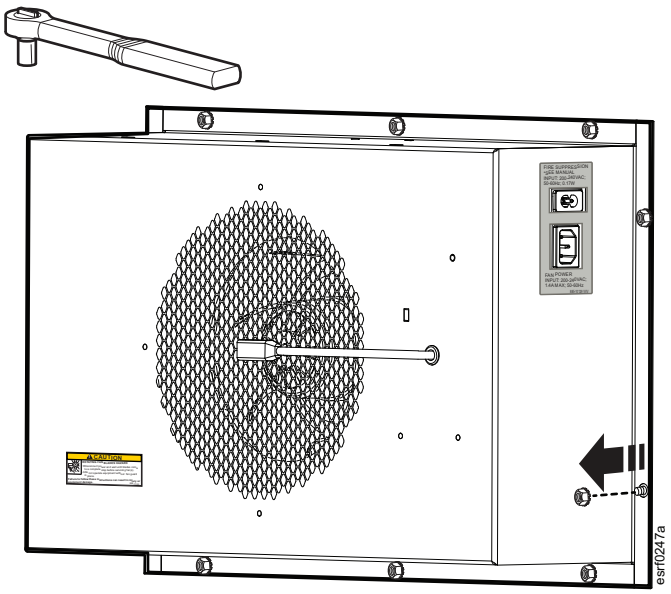
⚠ ⚠ DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

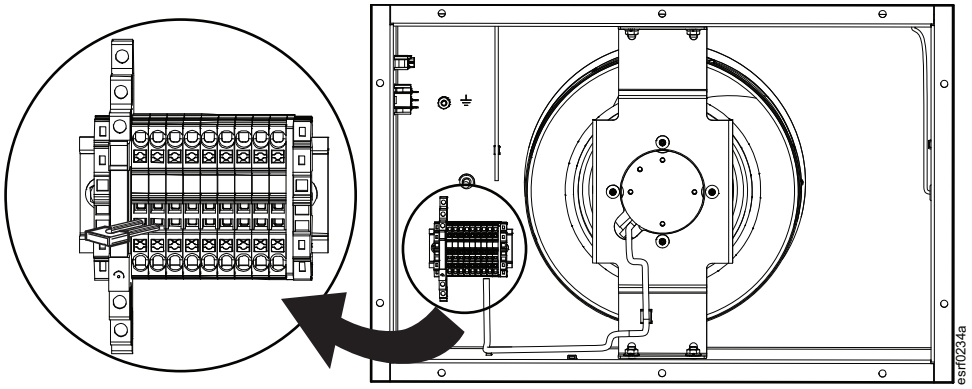
Unplug power cord(s) from the fan box before performing any work on the fan box.

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

1. Open the rear door.
2. Disconnect the power cord from the fan box.
3. Remove the ten (10) M5 Hex Nuts with lock washers with a socket wrench and 10mm socket to release the fan box from the rear door.

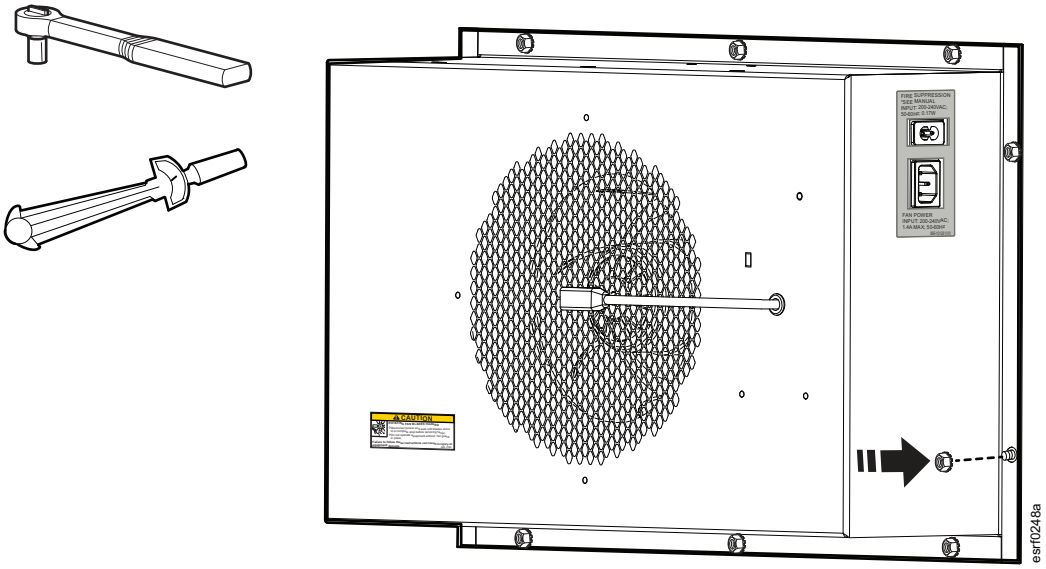


4. To use the relay, remove the jumper between the Q214 and Q211 terminals that is used to bypass the relay contacts.

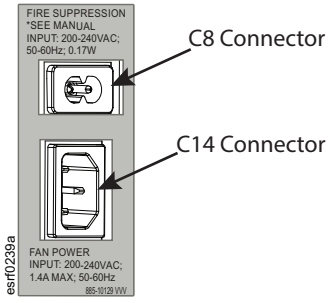


NOTE: Consider saving the jumper. If you want to return the fan operation to its original default design, you will need it.

5. Install the fan box to the rear door using the ten (10) 5m Hex Nuts with lock washers. Torque: 32 - 40 in-lbs (3.6 - 4.5 Nm)



6. Apply power to the C8 inlet and the C14 connector in order for the fan to function.



Radio Frequency Interference

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.

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www.apc.com

As standards, specifications, and design change from time to time, please ask for confirmation of the information given in this publication.

990-6350B-001