EdgeRack 5M Series

USER MANUAL

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Notice

Enconnex is not responsible for damages to the unit or personal injury due to noncompliance with operation requirements as outlined in this document.

- This User Manual must be strictly complied with at the time of installation and throughout the life of the EdgeRack and the integrated Rack Cooling Unit (RCU).

- Operation of the RCU equipment must be completed by professionals who are familiar with this manual.

- Only technicians that have received professional training from Enconnex may service the system.

- Power to the RCU must be shut off if internal maintenance of the equipment is required.

- RCU should only be operated with the cabinet side panels installed.

- Warranty of the equipment is ensured only under the premise that the contents included in this manual are complied with.

- Parameters included in this manual are only to be used as a reference. Enconnex reserves the right to change the parameters without prior notice.

- In case of a lost, damaged, or misplaced manual, a replacement copy can be requested from the Enconnex website, www.enconnex.com.

- This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance by a person responsible for their safety.

- Children should be supervised to ensure that they do not play with the appliance.

- This appliance can be used by children aged from 8 years and above and persons with reduced physical, sensory or mental capabilities or lack of experience and knowledge if they have been given supervision or instruction concerning use of the appliance in a safe way and understand the hazards involved. Children shall not

play with the appliance. Cleaning and user maintenance shall not be made by children without supervision.

- If the supply cord is damaged, it must be replaced by the manufacturer, its service agent or similarly qualified persons in order to avoid a hazard.

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Table of Contents

1   General Safety Precautions

1.1.   Overview

Enconnex is not responsible for any of the following situations:

- Operation of equipment in adverse environments beyond the manual instructions.

- Any installation and operation environment beyond regulations of any relevant international standards.

- Altering of the product or changes in the software without prior approval.

- Failure to follow operational instructions and safety warnings of the product and manual. See the end of this manual for further details.

- Equipment damage caused by natural disasters.

1.2.   Local Rules and Regulations

Local rules and regulations should be followed during equipment operation. Safety precautions in the manual serve as a supplementary guide to local safety specifications.

1.3.   Basic Installation Requirements

Personnel performing the RCU installation and maintenance must receive authorized training.

- Equipment installation, operation and maintenance can only be conducted by qualified and trained people.

- Replacing and changing equipment or components (including software) must be completed by professionals with Enconnex certification or authorization.

- Operators should immediately report faults or errors which may cause safety issues.

2   Product Overview

2.1   Product Introduction

The EdgeRack 5M by Enconnex is a self-contained unit, with an 11U Rack Cooling Unit (RCU) mounted at the top of the rack designed to cool up to 5 kW of heat load. The system is ready to deploy your IT equipment and is ideal for areas where space is limited. The EdgeRack 5M is the perfect solution for your IT needs, with sound dampening material, plexiglass front and rear doors, and plenty of space for your equipment. This all-in-one self-contained system can be installed in controlled environments.

2.2   Specifications

Table 2.2-1 Specifications

Model	EdgeRack 5M
Cooling capacity	5kW
Standard VoltageRange (Global version)	220V~240V
Standard Voltage Range (US version)	208V~240V
Temperature sensor accuracy	± 1 °C
Optional	rack PDU and UPS
Controls	Integrated basic controls for monitoring
Dimensions(W*D*H)	600mm*1200mm*1957mm
Weight	248kg

2.3   Product Composition

The EdgeRack 5M series cabinet consists of a pre-installed Rack Cooling Unit (RCU), standard moveable EIA vertical rails, two button-style vertical rack PDU mounts, sound-dampened and air-controlled construction, and 2.5" diameter heavy-duty casters. Accessories include top of rack output air duct, condensate drain hose, cage nuts, and floor-mount kit.
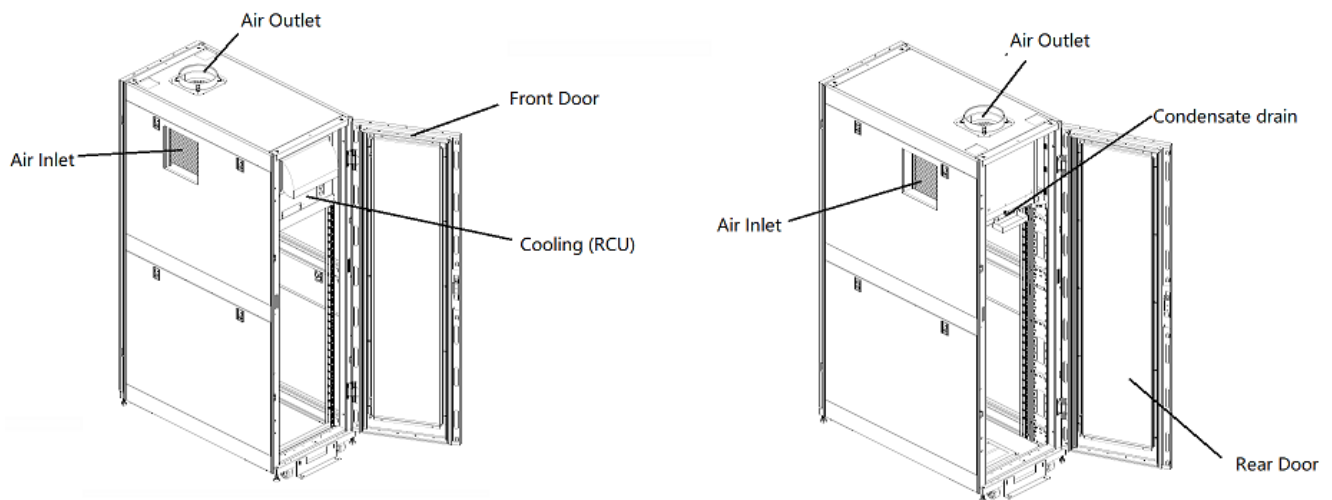
Figure 2.3-1 Structural diagram of EdgeRack 5M

NOTE: The picture is for reference only. Please refer to the real object for details.

2.3.1 Rack Cooling Unit Components

The RCU consists of the following: compressor, evaporator, fan, condenser, and liquid storage tray.

Compressor

- 65dB under normal operation conditions

- Compressor has built in protection to reduce startup and shutdown wear

Evaporator

- The evaporator has three fan speeds, high, low, or auto.

Condenser fan

- Condenser fan is one speed and synchronizes with the compressor

Humidity condensate tray

- Built-in condensate tray with a sensor that will shut the unit down when full. There is a valve in the rear of the unit to empty the tray which will clear the alarm.

2.3.2 Controller

Controller system consists of a main control panel, temperature sensors, compressor, and fan. Note that the temperature sensor ports are located behind the cover plate found on the display side of the RCU.

3

Functions of the controller:

- Schedule using a timer to turn the unit on, off, or to enter sleep mode.

- The temperature setting range: Cooling: 17 ~ 32 °C / 63 ~ 90 ° F.

- The compressor has a 3.5-minute delay of function during startup for self-protection.

- The evaporator fan has 2 speed levels, high or low; and can auto switch between high or low based on cooling demand.

- The condenser fan has only one speed that is synchronized with the compressor.

- Self-diagnostic error code display.

- Memory function during power shutdown.

- The default display is the ambient temperature.

- The temperature default setting is Fahrenheit and is interchangeable between Fahrenheit & Celsius.

- Audible alarms for alerts.

2.4 Environmental requirements

2.4.1 Operating conditions

The installation location for EdgeRack 5M should be easily accessed, away from heat, direct sunlight, and corrosive gases. Operating conditions shown in Table 2-1.

Table 2-1 Operating conditions

Items	Requirement
Temperature	18℃～40℃
Humidity	20% ~ 80%
Altitude	altitude<1000m, Above 1000m derating capacity, power derating 6% per kilometer
Rated operating voltage (Global version)	220~240V 1N 50Hz
Rated operating voltage (US version)	208~240V 1N 60Hz

2.4.2 Storage Environment

Table 2-2 Storage Environment

Items	Requirement
Environment	clean（no dust）,good ventilation
Environment Temperature	-20 °C ~ + 70 °C
Environment humidity	5%RH～95%RH without condensation
Duration	Less than 6 months, if not, need to reconsider performance

2.5 Space

There must be sufficient space for installation,service and maintenance of the EdgeRack 5M unit. The figure below shows the space required on the front side and rear side of the EdgeRack 5M unit.

A clearance of at least 2.6 ft (800 mm) is recommended on all sides of the installed EdgeRack. 2.6 ft (800 mm) is also recommended between adjacent EdgeRack units. At least 300mm space shall be reserved on the top of the unit.
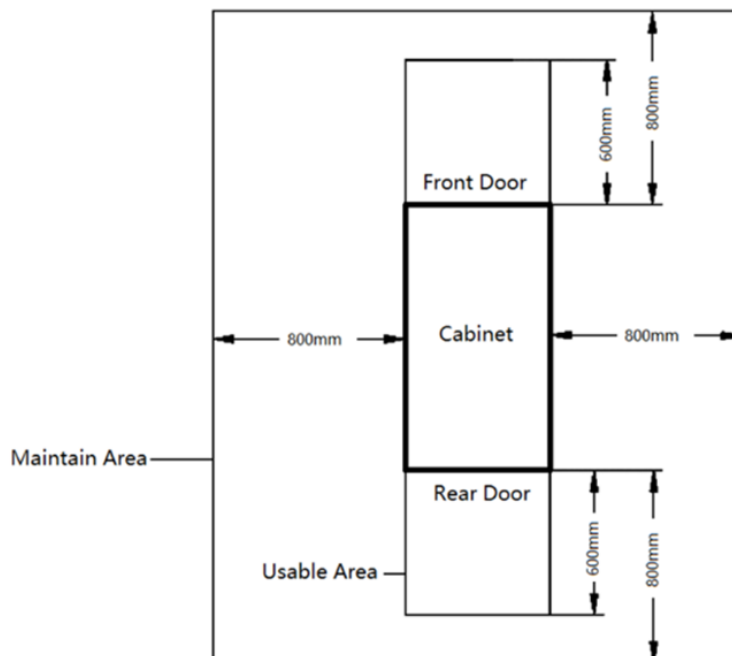

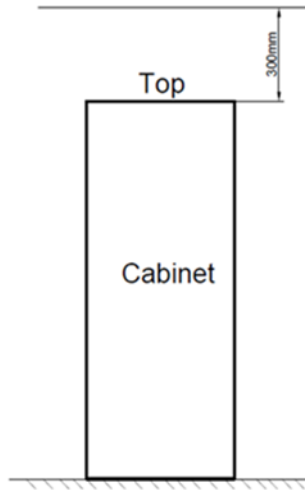*Figure 2.5-1: Model space requirements*

Figure 2.5-2: Model top space requirements

3 Installation Guide

Please install the equipment strictly according to the requirements to achieve the best operation and longest lifetime.

- Before installation, it is required to ensure that the installation environment complies with the requirements, and to confirm if the building is suitable for the pipeline laying, electrical wiring and air duct construction.
- The installation shall strictly follow the design drawings with maintenance space reserved.
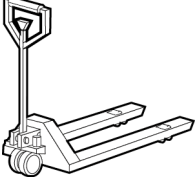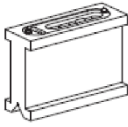
NOTE:

- Ensure the installation place is capable of supporting the total weight of a fully-loaded EdgeRack.
- To ensure proper air flow, prepare to use blanking panels on the front in RU spaces not occupied by IT equipment.
- It is recommended that the EdgeRack be installed in a room that does not have employees working on a continual basis. The RCU runs at about 69 dBA, in comparison to normal talking at 45 dBA.

3.1 Required Tools

The following Table 3.1-1 shows the usual tools and utilities which are quite handy in the installation process.

Table 3.1-1 Install Tools

Name	Drawing	Name	Drawing
Electric drill		Philips screwdriver	
Electric Forklift		Hand forklift	
Level		Stepladder	

3.2 Equipment transportation, unpacking, inspection

3.2.1 Transportation & Movement

The EdgeRack should be considered as fragile and care must be taken during transport, handling, and installation.

The appearance of the entire package, including all the components is shown in Figure 3.2-1.
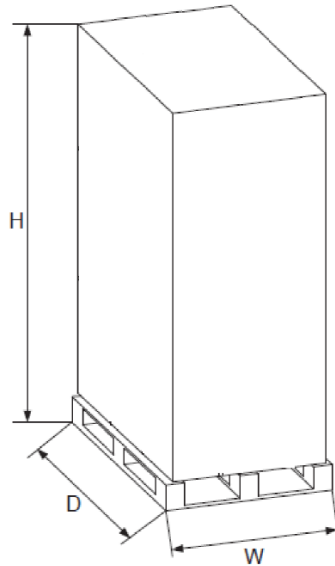

Figure 3.2-1 Packaging diagram

Table 3.2-1 Shipping Dimensions of the unit

Item	Package	Shipping Dimension (unit: mm)			Shipping Weight (unit: kg)
Edge Rack 5M	Wooden	W	D	H	352
		670	1270	2220	

The EdgeRack 5M including cabinet, closed frames, and the cooling unit need to be moved to the vicinity of the installation site. EdgeRack 5M, as an equipment with large components, is on the heavier side and needs to be transported using equipment such as a hand pallet truck or electric forklift.

Figure 3.2-2 shows the schematic diagram of a hand pallet truck and an electric forklift.
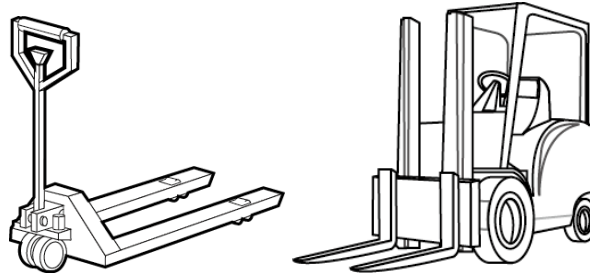
Figure 3.2-2 Hand Pallet Truck & an Electric Forklift

When using a hand pallet truck or an electric forklift truck, the tines of the hand pallet or electric forklift must be aligned with the center of gravity to prevent the package from toppling or falling over as shown in Figure 3.2-3*.*
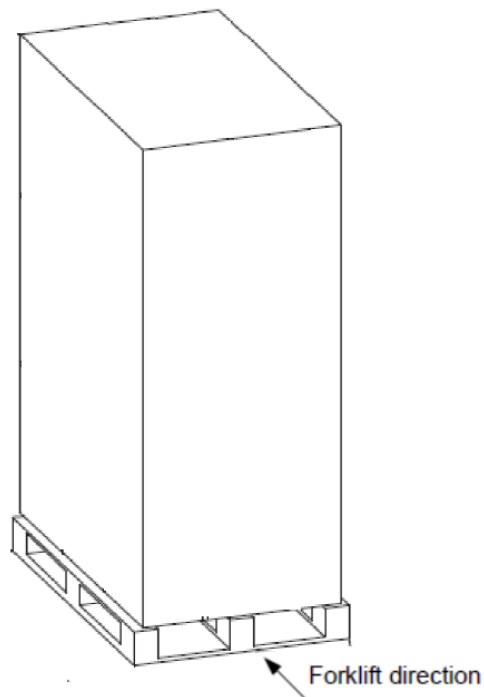

Figure 3.2-3 Forklift Direction

During transportation and installation, in order to avoid pipes from being damaged and compressor oil from leaking, the equipment should not be excessively jolted or tipped.

Warning: After transportation, like any refrigerant system, you must keep it in its final location for some hours before starting up.

- Normal Transportation inclination shall not exceed 15 °, stay for 8 hours before starting up.
- In the worst case, the Transportation tilt angle range is 15 ° ~ 45 °, standing for at least 12 hours before starting up.
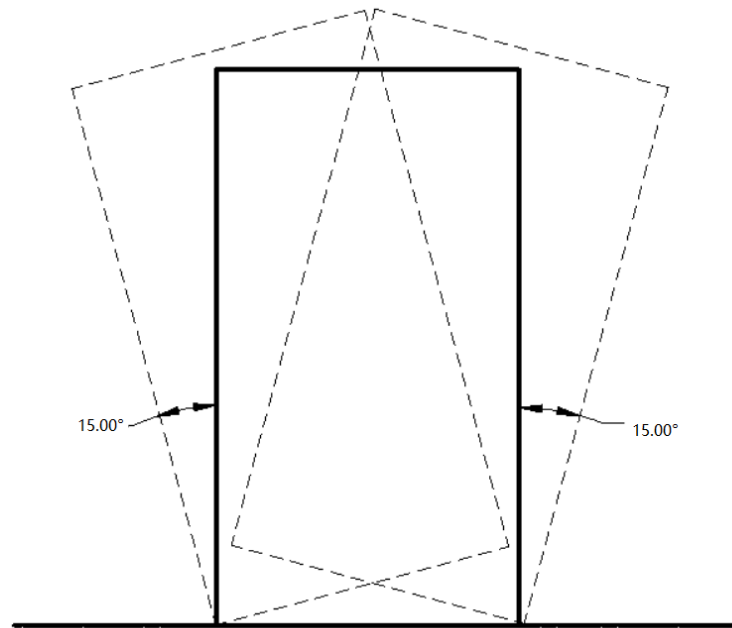- The inclination angle shall not exceed 45 °.

Figure 3.2-4 Carrying obliquity

Note:

- Ensure that the equipment stands upright. Do not place the equipment outdoors.
- While using the forklift or the hand pallet truck, ensure that the fork arms,(if adjustable and flexible) open to the greatest extent which will ensure that the fork arms can be placed under the pallet of the equipment in a precise manner.
- Ensure that the length of the fork arms match with the equipment.
- Use mechanical handling tools such as forklifts or pallet jacks during the unloading and moving process. Place the unit in the middle to guarantee symmetry. It is important to move slowly and carefully to prevent dents and scratches to the equipment.
- Check the quantity and type for accessories according to the packing list. In case of missing accessories or nonconformity of models, please keep field records and immediately contact the Enconnex Customer Service Center or representative.
- Be careful when moving the EdgeRack after it has been operating. The condensation tray may contain water which must be drained out before moving the EdgeRack. Take similar steps when moving the EdgeRack as was taken during initial installation.

3.2.2 Unpacking

Packing materials of the cabinet are reusable. Keep the packing materials for further use or dispose of them appropriately as per the protocols and local regulations.

Please follow the steps and procedures below when unpackage.

Step 1: First remove the packaging above the shipping pallet, and then remove the fixed bolts and fixed feet (total 4) on both front and rear of the cabinet.

Step 2: Use an adjustable wrench/spanner to fine tune the hexagonal feet to ensure that the cabinet casters can touch the ground.

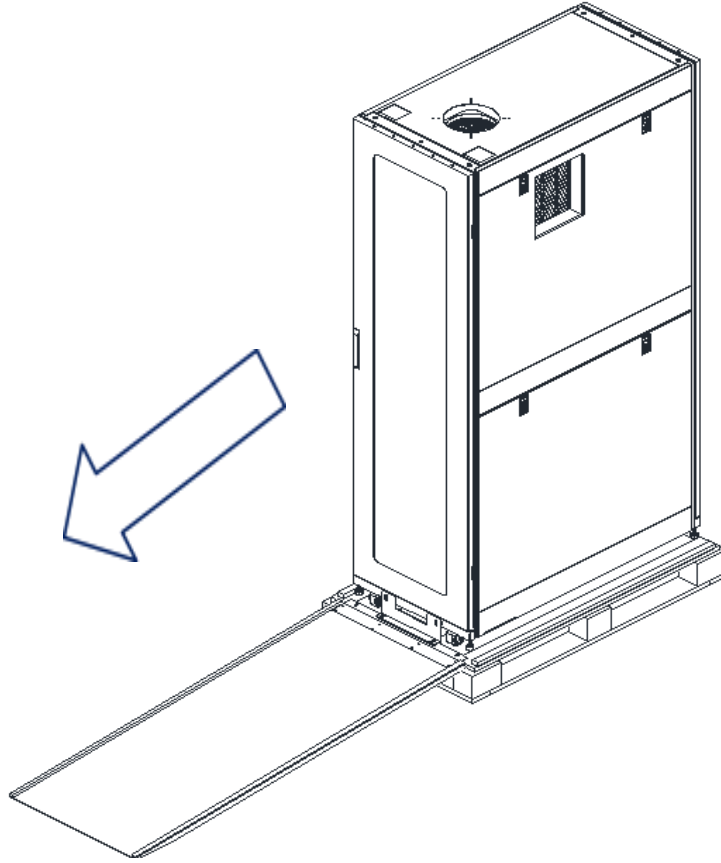**Step 3**: Move the cabinet from the pallet and place it on the specified position.

Figure 3.2-5 Removing from the Pallet

3.3 Accessories

Table 3.3-1 Accessories

No.	Product Name	Specifications & Material	Quantity
1	Temperature Sensor	/	1
2	Drain-Pipe	5m PVC	1
3	Exhaust Duct	Size:Φ200*1800mm Color:Grey Material: PP+Steel wire Compression ratio：1:4	1
4	Exhaust Duct Flange	Plastic	1

Figure 3.3-1 Accessories

3.4 Install the duct

It is recommended that the exhaust duct at the top of the EdgeRack is plumbed into the main HVAC return. A flexible tube (Φ200mm) is included. If there is a need for a longer air duct, it can usually be purchased from a local hardware store. See spec in Table 3.3-1.
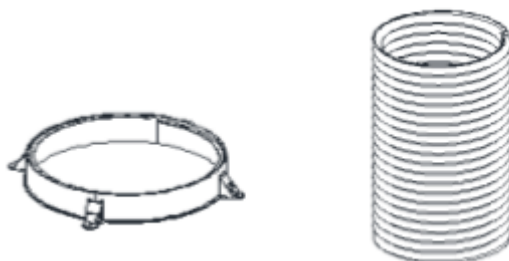

Figure 3.4-1: Schematic diagram of accessories

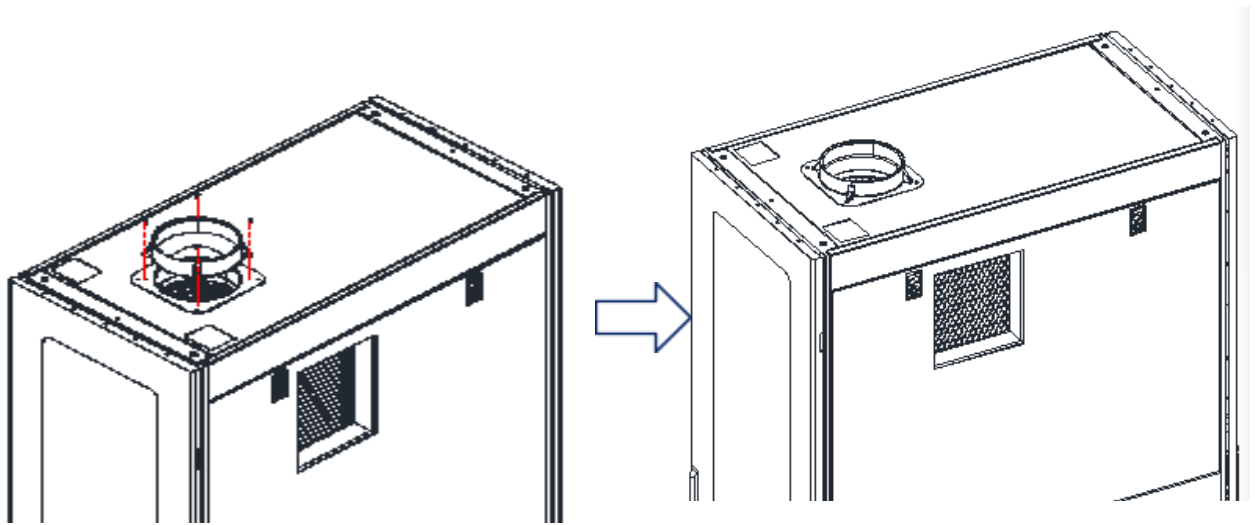### 3.4.1 Install the Exhaust duct flange

Figure 3.4-2: Install the exhaust duct flange

3.4.2 Install the exhaust duct

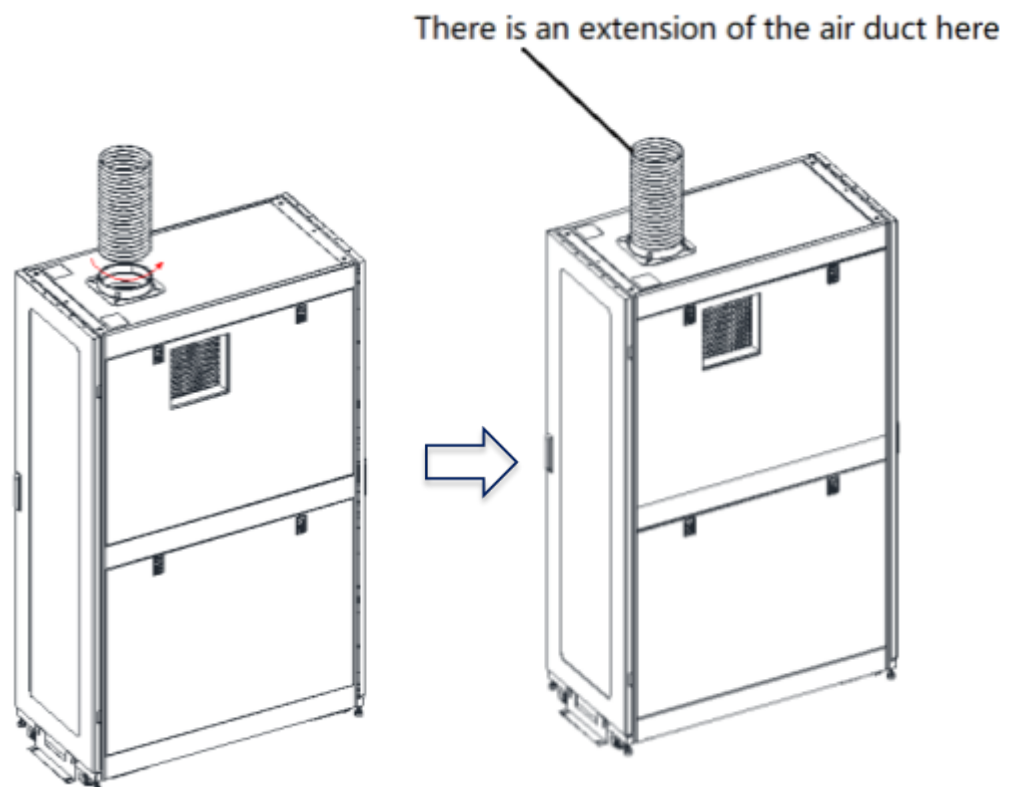There is an extension of the air duct here

Figure 3.4-3: Install the exhaust air duct

NOTE:
If the top space is not enough, you can screw in the air pipe first, and then screw the flange to the top.

3.5 Electrical installation

- Using the dedicated 16A or 20A breaker according to the rated power cord for the RCU's power source will prevent faults caused by other equipment in the room from affecting the RCU's power, and inrush current from the RCU's compressor affecting other equipment in the room.
- DO NOT Plug the RCU into a UPS. Most UPS systems are not designed to handle compressor surge current. Running the RCU on the battery backup will greatly reduce run-time for IT equipment also on the UPS.
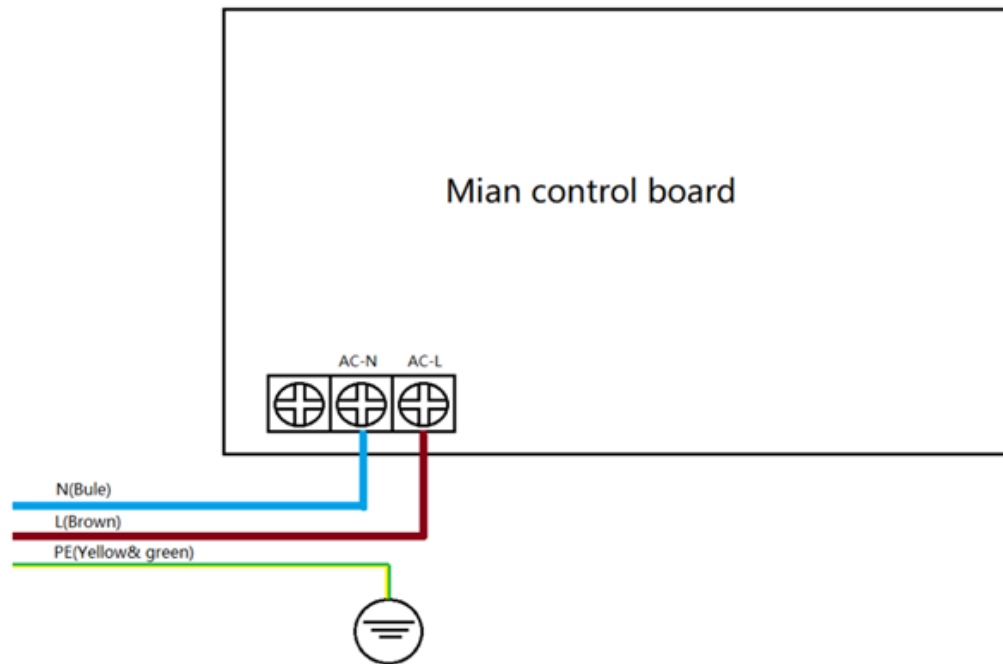

Figure 3.5-1: Connection of power line

Wiring connection drawing and remark this is just for fixing wiring connection, not for plug connection.

⚠WARNING

The means for disconnection must be incorporated in the fixed wiring in accordance with local regulations.

4 Controller

4.1 Controller Interface

Figure 4.1-1: RCU Controller Interface

- **Power:** switch on / off; default standby

- **Temp+:** set cooling temperature by +1 °C / ° F or hold for three seconds to go to the highest value. Digital display shows the temperature setpoint by flashing.

- **Temp-:** set cooling temperature by -1 °C / ° F or hold for three seconds to go to the lowest value. Digital display shows the temperature setpoint by flashing.

- **Speed:** during cooling mode, switch between automatic, high, or low fan speed; (HI SPEED / LOW SPEED / AUTO will light up accordingly). During power on, you can hold the button for 3 seconds and switch the temperature unit between Fahrenheit (digital display shows "F" in 5 seconds) & Celsius (digital display shows "C" in 5 seconds)

- **Timer:** when the unit is switched on, shows the remaining time before it will turn off & enables the ability to change timer; selectable between 01-24 hours. When the unit is switched off, it shows the remaining time before the unit will turn on & enables the ability to change the timer; selectable between -- or 01-24 hours. To reset the timer, press TIMER once when showing the remaining time.

4.2 Controller Operations

4.2.1 Cooling

Cooling mode – cooling is the default mode. The temperature setting range is 17 ~ 32 °C / 63 ~ 90 ° F. The default temperature setpoint is 25 °C (77 ° F)

Compressor run command:

- When Temp ≥ Temp setpoint +1°C (+2°F), the compressor and the condenser fan are both running.

- When Temp ≤ Temp setpoint - 1 °C (-2 ° F), the compressor and the condenser fan stop.

- When Temp = Temp setpoint, the compressor and condenser fan keep the previous state

NOTE: When the compressor is stopped, "COOLING" indicator flashes; otherwise, it lights up.

4.2.2 Fan Speed

Fan speed of the evaporator can be switched between automatic, high, and low fan speed. Low fan speed is the default mode. During cooling mode, the fan can be set among all 3 modes.

Automatic Mode:

Temp ≥ Temp setpoint + 3 °C (or 6 ° F), set at high speed; otherwise low speed will be set.

NOTE: During automatic mode, the AUTO indicator lights up and high or low speed (HI SPEED / LOW SPEED indicator lights up according to the actual fan speed) wherein there will be 2 indicators.

4.2.3 Reset

Pressing the **Reset** Button, located in the GUI, only reboots the Intelligent Network Controller. It does not change the Energy (kWh) value and does not affect the output voltage.

4.2.4 Timer Function

- The timer can be set between 01-24 hours.

- If the unit is running, setting the timer will make the unit shut down when the timer is up; otherwise, it will switch the unit on from standby condition.

- By pressing POWER once, the timer will be reset.

- The TIMER indicator will light up after setting the time. And the TIMER indicator flashes when the timer is ready to be set.

4.2.5 Temperature Sensor

The unit has three temperature sensors in total.

- The temperature sensor 1 is installed on the evaporator coil inside the RCU to detect the evaporating temperature.
- The temperature sensor 2 is installed at the return air side inside the RCU to detect the return air temperature of the RCU, that is the temperature to be controlled of the RCU unit and the temperature displayed on the display screen.
- Temperature sensor 3, the external temperature sensor of the unit, can be installed at any position inside EdgeRack. It is also the control temperature of the RCU and the temperature displayed on the display screen.

NOTE：

- The temperature sensor 3 is attached in the package as an accessory of EdgeRack and is not installed at the factory.
- When the external temperature sensor (temperature sensor 3) is installed and connected, the return air temperature sensor (temperature sensor 2) will automatically be disabled, and the temperature controlled by the RCU unit is the temperature detected by the temperature sensor 3.
- Temperature sensor 3 is recommended to be installed midway down the inside of the front door.

4.2.6 Recommended Temperature Setting

- It is recommended to set the temperature to 30 ℃.

4.2.7 Critical Alarm Protection and Controls

During the event of a critical alarm, the RCU will stop running to protect internal components.

- **Condensate Tray Full Alarm:**

  The digital display shows "E1" & ALARM indicator flashes.

  When the water tray switch detects that the water is full for 3 seconds, the RCU will stop running. Reset the alarm and restart the unit after draining out the water. The unit returns to normal operation by pressing power on (**POWER** button) again.

- **Temperature Sensor T1 Fault:**

  The digital display shows "E2" & ALARM indicator flashes. After troubleshooting, the unit cannot return to normal operation until the **POWER** button is pressed.

- **Temperature Sensor T2 Fault:**

  The digital display shows "E3" & ALARM indicator flashes. After troubleshooting, the unit cannot return to normal operation until the **POWER** button is pressed.

- **Filter Maintenance Reminder:**

  After the unit runs for a total of 4,000 hours, the ALARM indicator flashes, but the unit keeps on running. By holding both the **TEMP+** and **TEMP-** buttons for 3 seconds, turn off the alert and reset the internal timer to zero. This helps keep track of runtime.

- **Compressor Delay Protection:**

  During initial power there is no delay protection. When the compressor stops and starts again, it has a startup delay of minimum 3.5 minutes.

- **Defrost Protection:**

  Digital display shows "dF". If the coil temperature is under or equal to -2°C, the anti-icing process will be activated, the evaporator fan speed is operated in high-speed, while both the compressor & the condenser fan stop running. RCU will exit the defrost protection when the value of the coil temperature is continuously over 2 °C for 1 minute.

5 RCU technical specifications

Table 5-1: RCU Technical specifications (Global version)

MODEL	ECX-RCU-5K
POWER SOURCE	220~240V/50Hz
L.R. A	42A
INPUT POWER	2600W
INPUT CURRENT	11.7A
COOLING CAPACITY	16000BTU/h
REFRIGERANT	R410A/750g
HIGH PRESSURE	3.5MPa
LOW PRESSURE	2.3MPa
CLIMATE TYPE	T1

Table 5-2: RCU Technical specifications (US version)

MODEL	ECX-RCU-5K
POWER SOURCE	208~240V/60Hz
L.R.A	38A
INPUT POWER(26.7℃, 19.4℃)	2000W
INPUT CURRENT(26.7℃, 19.4℃)	9.3A
COOLING CAPACITY(26.7℃, 19.4℃)	16000BTU/h
REFRIGERANT	R410A/26.5oz (750g)
HIGH PRESSURE	508 PSIG(3.5MPa)
LOW PRESSURE	334 PSIG(2.3MPa)
CLIMATE TYPE	T1

NOTE:

- Working temperature ranges from 18℃ to 40℃. Once the room temperature exceeds this range; RCU may not work properly.
- The parameters above are subject to modification without further notice.

6 Fault code

Table 6-1   Fault code

No.	Fault code	Fault name
1	E1	Condensate tray is full.
2	E2	Interior temperature sensor T1 failure
3	E3	Interior coil tube temperature sensor T2 failure
4	A1	Please contact professional service personnel to check the refrigeration system or compressor wiring.

NOTE: When E1, E2, E3 or A1 occur, the RCU will shut down. "ALARM" light flashing prompt, buzzer alarm prompt and the fault code will be displayed. After troubleshooting, press the "power" key to return to normal operation.

7 Malfunction and troubleshooting

Table 7-1   Malfunction and troubleshooting

Malfunction	Cause	Solution
The RCU does not operate	Power failure	Supply power again.
	Power switch is failed connected	Re-connect to power.
	Plug is not inserted into socket	Insert plug into socket.
	Fuse melted / breaker tripped	Replace fuse / reset breaker
	Condensate tray full alarm.	Drain the water from the condensate tray and restart the RCU unit.
	The unit has no cooling demand.	The unit is in normal condition.
Cooling effect is not obvious	Improper air flow through the condenser section.	Check whether the return air vent of the condenser is blocked, and clean it up in time.
	Air filter is dirty.	Clean filtering mesh.
	Block in the air intake.	Remove blocks.
	Cabinet door is open.	Close the door
	Refrigerant leaks	Contact service personnel or manufacturer for repairs.
Water leakage	Machine tilt	Adjust the machine to level.
	Water outlet pipe is blocked.	Disassemble the panel and clear inside the pipe.
Abnormal noise	Machine placing is not stable.	Place the machine stably.
	Filtering mesh is blocked.	Clean the filter trap.

NOTE:

● When the above malfunction cannot be eliminated and requires repairing, please contact the supplier or agent, please do not disassemble the machine yourself.

● When the RCU starts up or stops, there will be a sound of the refrigerant circulating, which is normal.

8 SNMP Communication

The unit supports SNMP v2 get communication. Any SNMP walk software will work. ManageEngine MibBrowser Free Tool is shown below. The submittal package with the unit comes with the MIB file required to read all the points correctly.
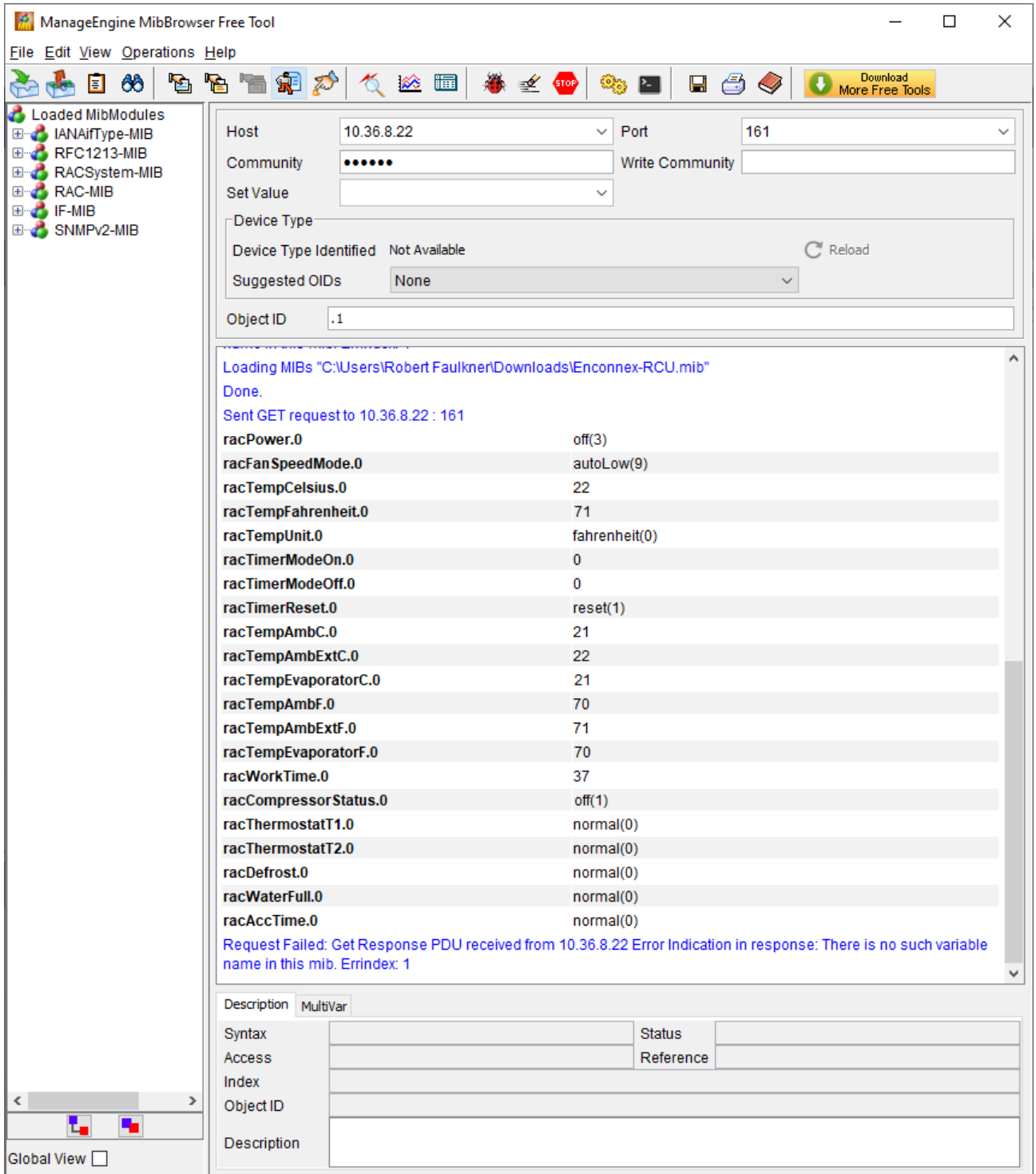
Figure 8-1: MibBrowser

9 Web GUI Controls

To access the Web GUI for the RCU, plug a computer into the front of the unit via an ethernet cable. The network port is located behind the cover plate found on the display side of the RCU. Default address is 169.254.173.207 with login and password being admin.

9.1 Status

Figure 9.1-1: Status

9.2   System Settings

The primary authentication and network settings may be changed here.

Figure 9.2-1: System Settings

9.3 Serial Port Settings

Note that the Serial Port Settings page is not applicable to this hardware. The system is running a shared firmware for other hardware that may have a serial port.

9.4 Communication Settings

Security and Route Settings may be changed here per your network requirements. Enconnex discourages changes to the Basic and Protocol Settings without guidance by Technical Support.
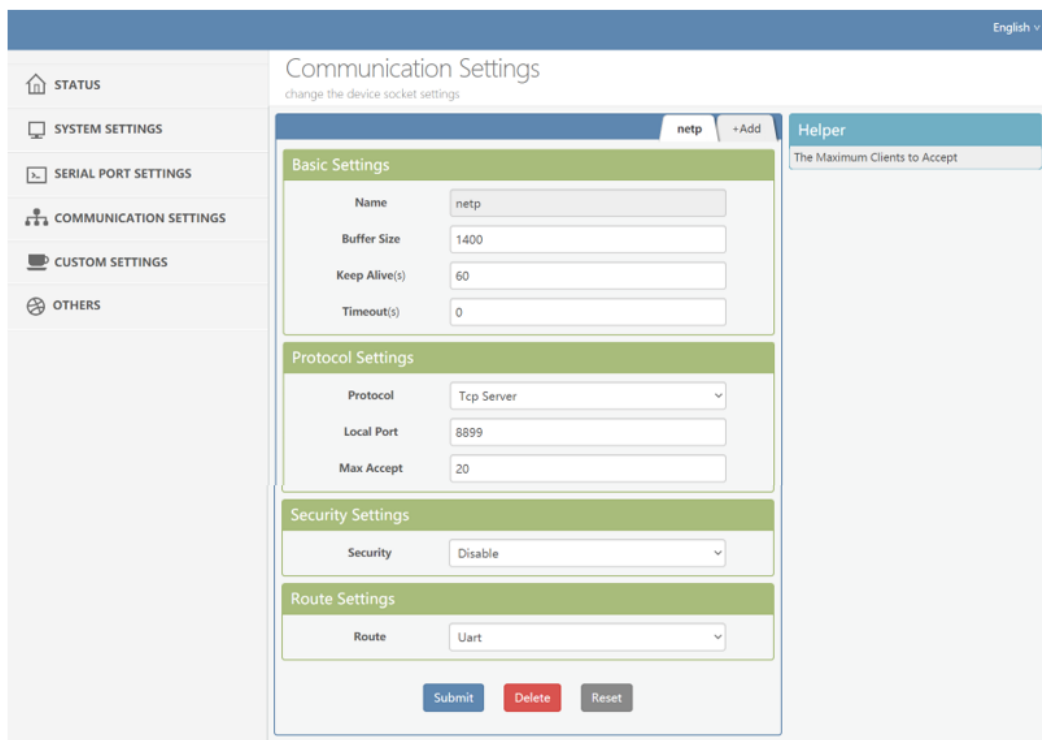

Figure 9.4-1: Communication Settings

9.5 Custom Settings

Note that the SNMP community string is read/write and may be changed as appropriate per your security policy.
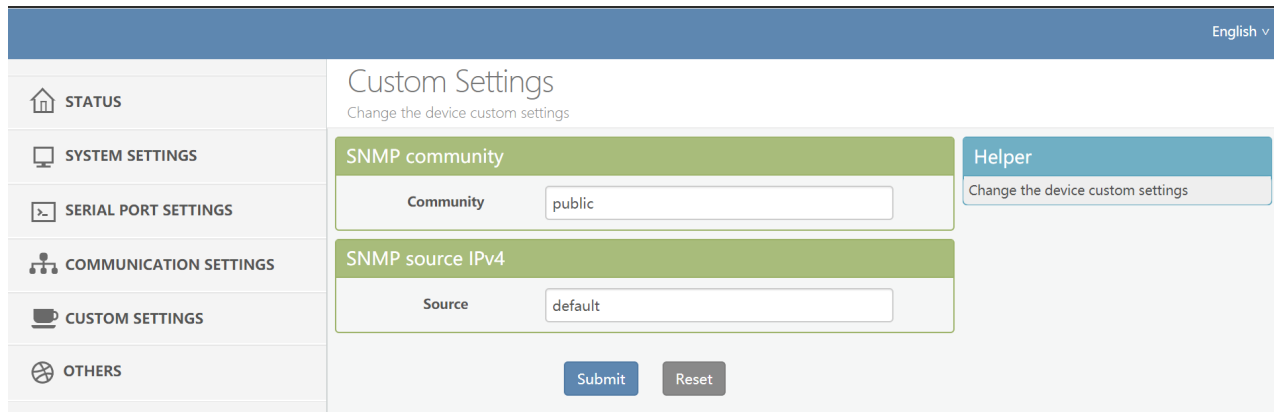
Figure 9.5-1: Custom Settings

9.6   Others

The Backup function will create an XML file that can be Restored to the RCU in the future. When Upgrade firmware is available, this is where it can be loaded.

Here you can also change the fallback "factory" settings. Clicking the Set button will force your current settings to be the fallback settings whenever a restart occurs. Clicking the Clear button will restore the original factory default settings. Upon clicking the Restart button, it will also reload the SYS, UART, and/or SOCK settings per the checkboxes you select.
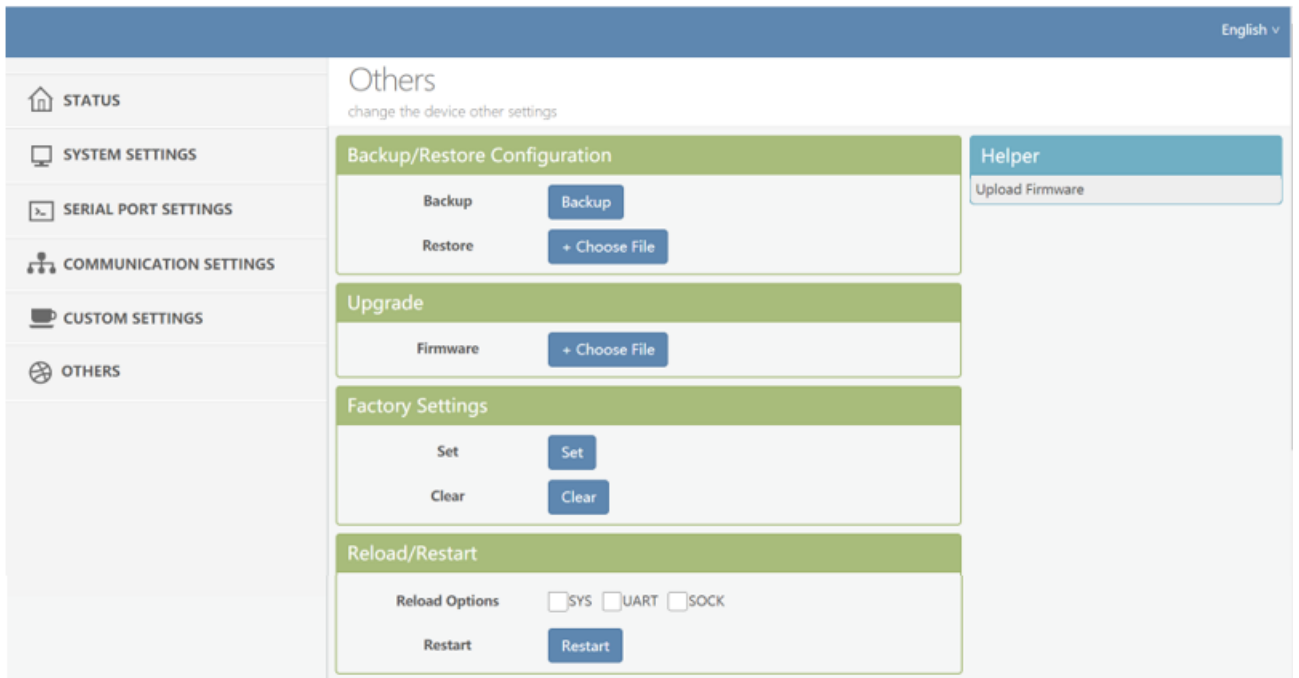

Figure 9.6-1: Others

10 Maintenance

The EdgeRack has suggested maintenance intervals of 6 months. This routine maintenance does not require downtime.

10.1 Condensate Tray

The internal condensate tray may be drained through the rear tap. The tray should be emptied every 6 months, or as needed. Note that a full tray will result in an alarm that triggers shutdown of the cooling system.

Caution: Moving the EdgeRack with water in the condensate tray may lead to spillage and damage to racked equipment. Always drain the condensate tray prior to moving the EdgeRack.

10.2 Filter

The internal air cycle has two filters that are accessible, one on either side, when removing the top side panels. This filter may accumulate dust that can lead to reduced performance. The filters should be rinsed in water and left to dry prior to returning to the unit. Note that with the side panels off, there will be reduced performance of the cooling system.

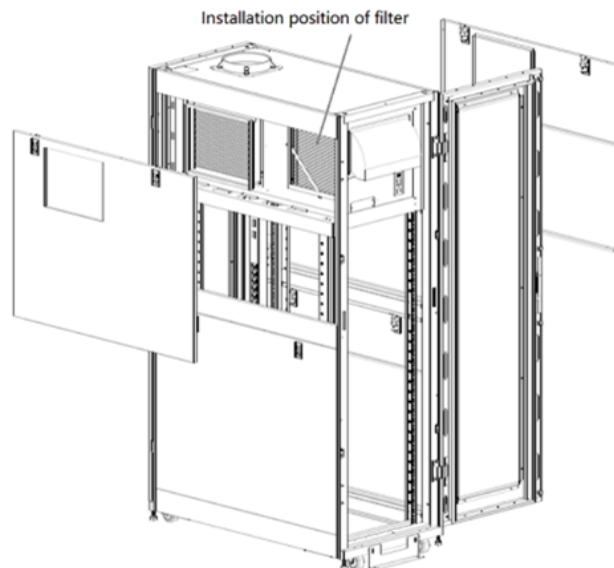When you need to clean the filter, please follow the below procedure.

Figure 10.2-1: Installation position of filter

- Open the side panel top lock with the special key.
- Remove the side panel.
- Remove the gasket holding the filter.

Figure 10.2-2: The gasket location

- Take out the filter.
- Remove the contaminants in the filter using a compressed air dust cleaner.
- If the filter is extremely dirty, use warm water and a soft cleanser and then air dry the part thoroughly. Do not expose the part to direct sunlight or use another heating device for baking, as this could deform the filter body and its frame.
- Equip the filter in the device after cleaning.
- Install the gasket to fix the filter.
- Install the side panel.

10.3 RCU Installation

When there is a special case, the RCU needs to be removed from EdgeRack, please follow the steps below.
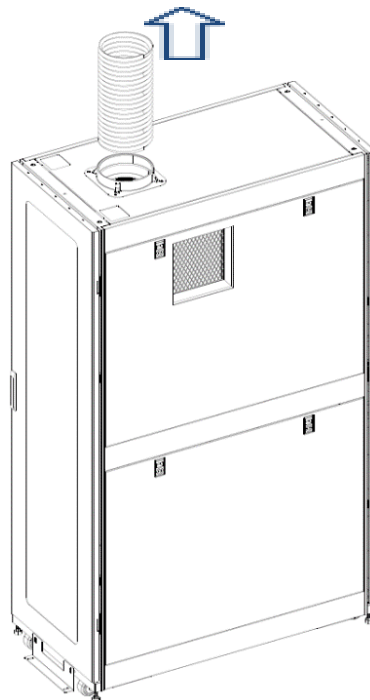
- Remove the exhaust duct.

Figure 10.3-1: Remove the exhaust duct

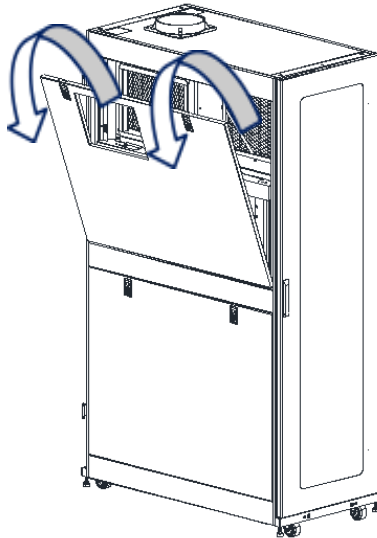- Remove the panels on both sides of the cabinet.

Figure 10.3-2: Remove the panels on both sides of the cabinet.
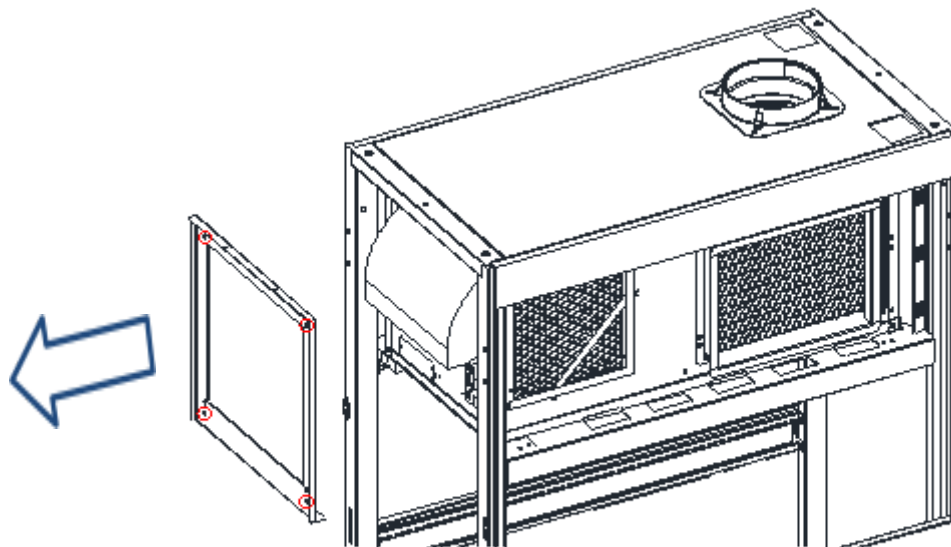
- Remove the RCU front sealing bracket.

Figure 10.3-3: Remove the RCU front sealing bracket.
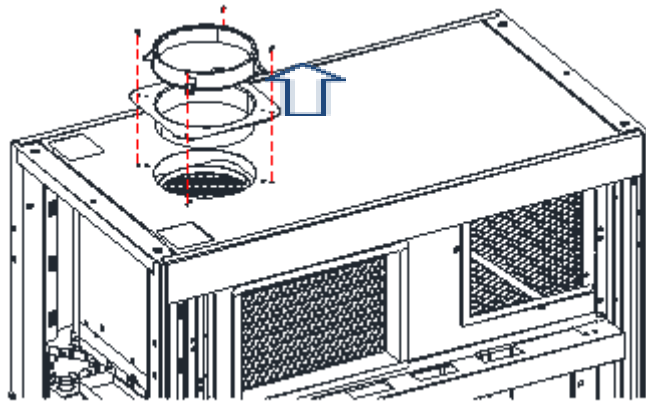
- Remove the cabinet top flange.

Figure 10.3-4: Remove the cabinet top flange.

- Unscrew the two screws on the top of the rear of the cabinet, and remove the upper cover of the cabinet.
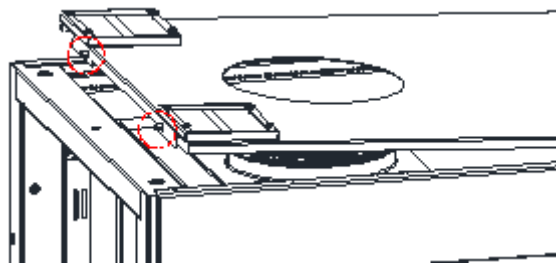

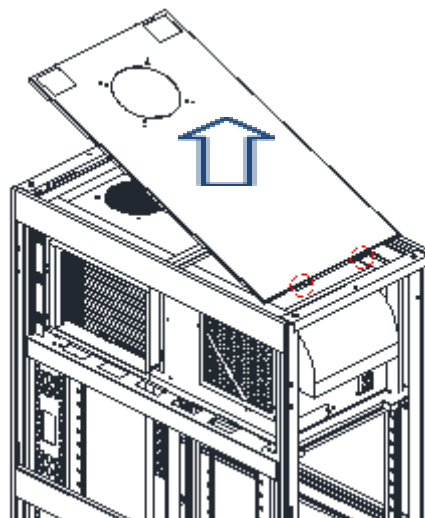*Figure 10.3-5: Schematic diagram of screw position.*

Figure 10.3-6. Remove the upper cover of the cabinet.
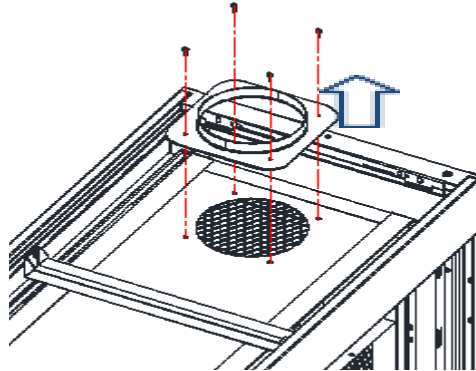
- Remove the overhead duct flange

Figure 10.3-7. Remove the overhead duct flange
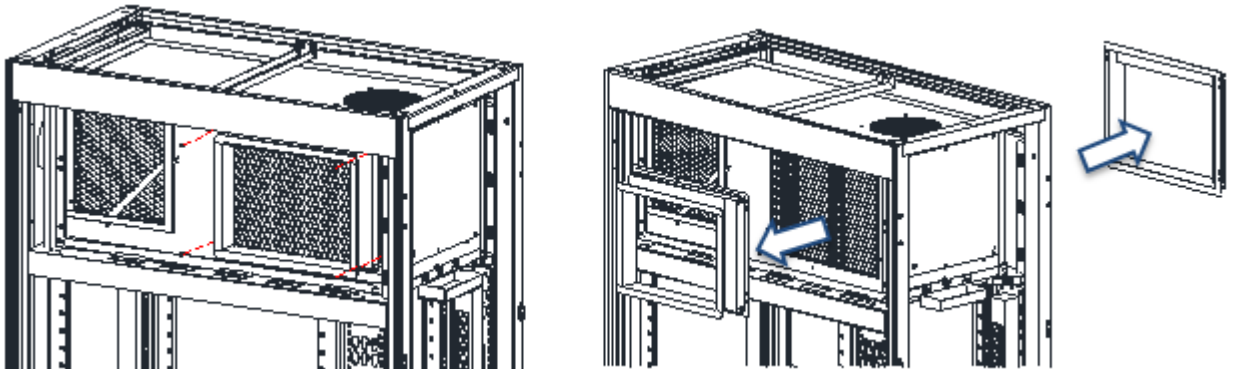
- Remove the RCU flange

Figure 10.3-8. Remove the RCU flange
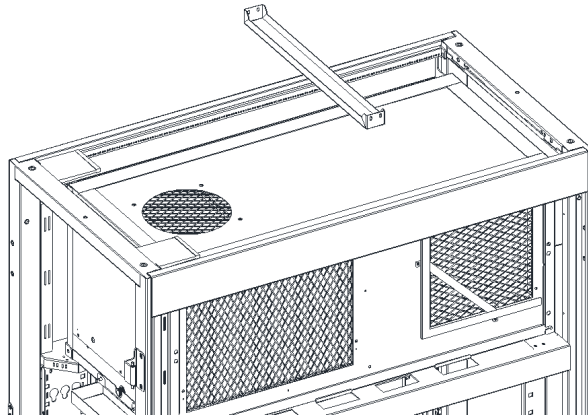
- Remove the cabinet top beam.

Figure 10.3-9. Remove the cabinet top beam

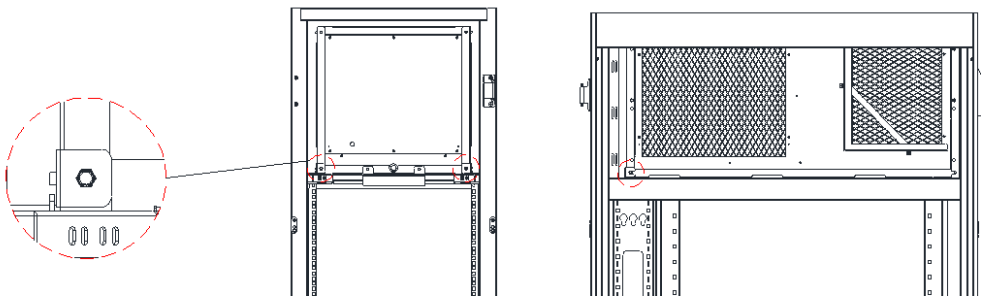- Unscrew 2 cover nuts on the back and cover nuts on both sides to remove the RCU.
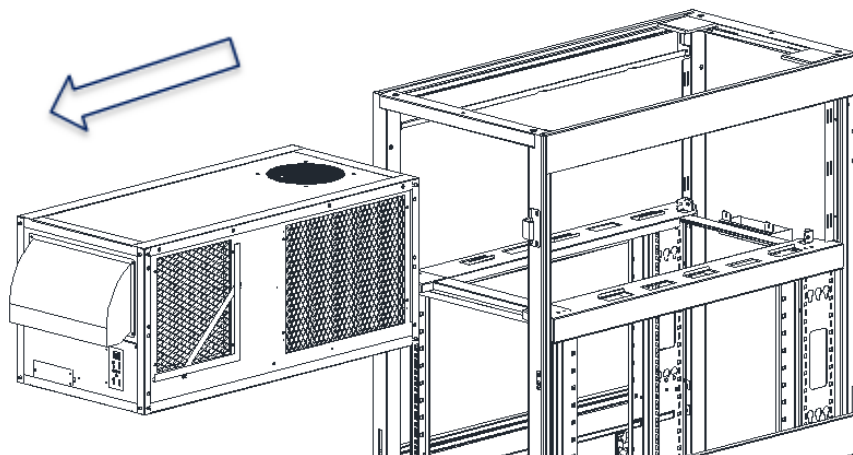

Figure 10.3-10. Schematic diagram of cover nut position

Figure 10.3-11. Remove the RCU

11 Important Safety Information

Read the instructions carefully to become familiar with the equipment before trying to install, operate, service, or maintain. The following special 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
DANGER indicates an imminently hazardous situation which can result in death or serious injury.

⚠WARNING
WARNING indicates a potentially hazardous situation which can result in death or serious injury.

⚠CAUTION
CAUTION indicates a potentially hazardous situation which can result in minor or moderate injury.

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

Read the handling information before trying to install, operate, service, or maintain equipment. Comply with local regulations and law when handling refrigerant.

⚠ ⚡DANGER

Hazard of electric shock, explosion, or arc flash

- **Apply appropriate personal protective equipment (PPE) and follow safe electrical work practices.**
- **This equipment must be installed and serviced by qualified personnel only.**
- **Turn off all power supplying this equipment before working on or inside the equipment.**
- **Always use a properly rated voltage sensing device to confirm power is off.**
- **Replace all devices, doors, and covers before turning on power to this equipment.**
- **Ensure proper grounding to earth prior to power up.**
- **Do not apply power if the power cable is damaged.**

Or can result in death or serious injury.

⚠WARNING

Hazard from moving parts

- **Keep hands, clothing, and jewelry away from moving parts. Check the equipment for foreign objects before closing the doors and starting the equipment.**

Or can result in death or serious injury.

⚠CAUTION

Hazard to equipment or personnel

- **All work must be performed by company qualified personnel.**
- **Do not impede air flow for the condenser path or the evaporator path.**
- **Do not modify the equipment in any way.**

Or can result in serious injury or equipment damage.

⚠WARNING

Hazard of equipment falling over

- **Use two or more people at all times to move or turn this equipment.**
- **Always push, pull, or turn while facing the front and rear of this equipment. Never push, pull or turn while facing the sides of this equipment.**
- **Slowly move this equipment across uneven surfaces or door thresholds.**
- **Lower leveling feet to floor when this equipment is at rest.**
- **Lower leveling feet and attach joining brackets to adjacent racks when this equipment is in final position.**

Or can result in serious injury or equipment damage.

⚠CAUTION

Hazard to equipment or personnel

- **Make sure there is no spare part or tool in equipment before handling equipment.**

Or can result in serious injury or equipment damage.

⚠CAUTION

Refrigerant high pressure and hazard to equipment

- **The equipment is to be charged with R-410A only.**
- **Copper pipe must support minimum 55bar pressure.**

Or can result in serious injury or equipment damage.

NOTICE

This product cannot be classified and disposed of with other wastes in EU areas. To prevent potentially harmful substances from being introduced to the environment, please recycle waste.