ENCONNEX

Enconnex EdgeRack 3P Series
USER MANUAL

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Table of Contents

Figures

Tables

1. General Information

1.1. Product Overview

The Enconnex EdgeRack 3P Series is a plug and play, fully integrated, pre-engineered IT cabinet solution that contains all the components you need to properly secure and manage your business-critical systems. The foundation of our system starts with one of our quality IT enclosures that is equipped with the necessary soundproofing material to keep this contained solution as quiet as possible. From there we equip this system with all of the necessary gear you need such as power, high-efficiency cooling, and a powerful and intuitive management system with touch-screen to help you keep track of your EdgeRack 3P Series system status.

1.2. Product Features

The following features come standard with your Enconnex EdgeRack 3P Series system, unless otherwise noted.

- A fully integrated design that lets you load your equipment and go
- Built in monitoring system with touch screen UI to make it easier to view, receive notifications and control the unit running status
- Optimized cooling system with hot/cold air management and seamless integration with cabinet.
- Rack mount power distribution module built in to provide power line protection and management, UPS service bypass, surge protection and power metering

1.3. Additional Product Options

- Optional hot air hose to discharge heating to an HVAC return or designated outside area.
- Multiple security upgrade options such as RFID card reader, biometric scanner, and PIN access control

2. Component Identification

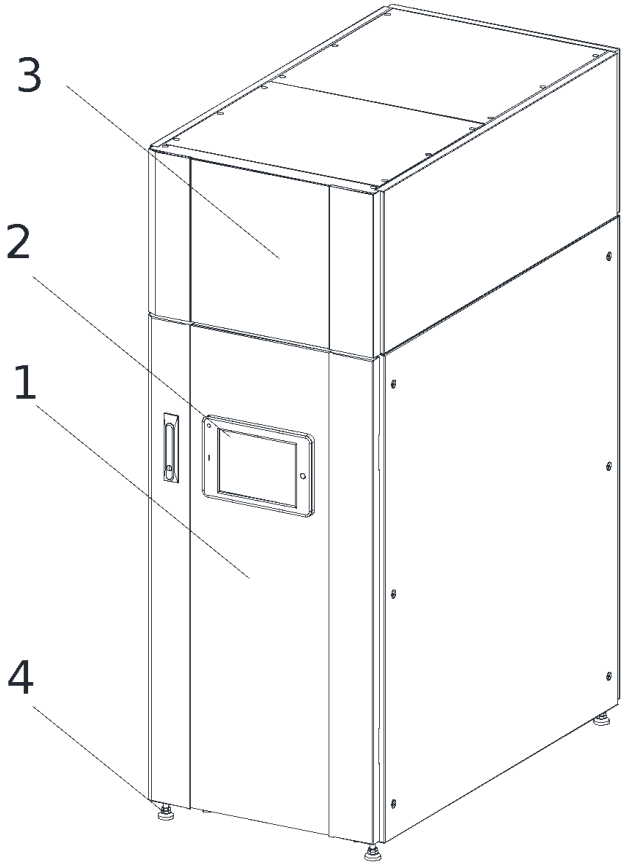

Figure 2-1: EdgeRack 3P Series Exterior Components

1.Glass Door 2. HMI 3. Air-Conditioning Unit 4. Leveling Feet

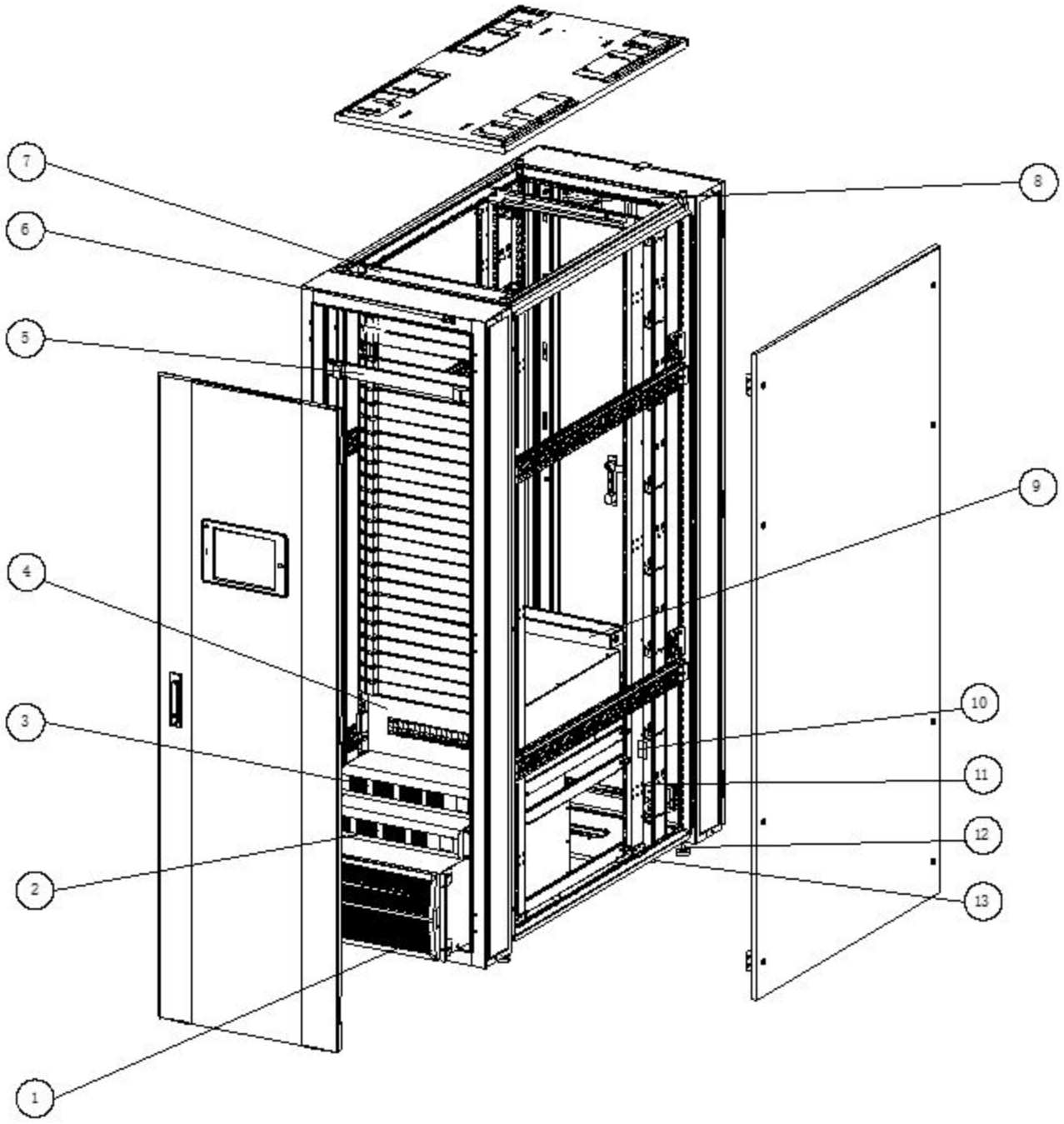

Figure 2-2: EdgeRack 3P Series Interior Components

1. External Battery Module	2. UPS	3. Power Distribution Module
4. Blank Panel	5. Door Position Switch	6. Light
7. Smoke Sensor	8. Water leakage detector	9. Temp. & Humid. Sensor
10. Electromagnet	11. Leveling Feet	12. Castors

3. General Information on Installed Components

The following is a brief overview of the primary function for the major installed components of your EdgeRack 3P Series system.

3.1. Air Conditioning Unit

Provides stable temperature, humidity, and clean air for critical load equipment. These levels can be configured via the HMI.

3.2. Power Distribution Module

Provides power distribution and monitoring for critical load and infrastructure equipment.

3.3. Integrated Monitoring Host

The monitoring host is the information center and the hub of human-machine interaction (HMI). It monitors, controls and alerts on hardware functioning in the system for the UPS, air conditioning, Power Distribution Module, temperature and humidity sensors and other intelligent equipment. It also monitors the alarm door switch status, leak detection status and other dry contact points. All information can be monitored remotely by network details - refer to the “Monitoring System” chapter in this document. The touchscreen display acts as a control terminal that displays pertinent data and enables the user to set parameters.

3.4. Blanking Panel

When the spare “U” is not installed, install the blind plate for hot and cold airflow isolation and improve the cool air utilization.

3.5. Temperature and Humidity Sensor

This sensor reads the temperature and humidity of the cabinet.

3.6. Smoke Sensor

Provides detection of smoke inside the cabinet, activates alarm, and sends status signal to the monitoring host. (Optional)

3.7. Position Switch

This switch detects the door-open and door-closed state and provides a status signal to the monitoring host.

3.8. Electromagnetic Door System

The electromagnet power circuit enables the door to automatically open when the temperature is too high based on the parameters set via the HMI.

3.9. Casters

These removable wheels are engineered to help you roll your cabinet safely and smoothly into place.

3.10. Leveling Feet

Allow the cabinet height to be adjusted to properly fit in the desired location. All four leveling feet can be adjusted to raise the equipment to the appropriate location.

4. Product Specifications

4.1. Dimensions

Part Number	Width (mm)	Depth (mm)	Height (mm)
ECX-ER3P-42U	600mm	1100mm	2000mm

Table 4.1-1: Product Dimensions

4.2. Environmental Requirements

Item	Indoor	Outdoor
Temperature	18℃～40℃	Air cooled：-20 °C～+55 °C
Humidity	20%～80%	5% RH ~ 95% RH (Non-Condensing)
Altitude	Altitude <1000m, Above 1000m Derating Capacity, Power Derating of 6% per Kilometer above	
AC Frequency	Voltage 208V-220V ± 20% Frequency 50Hz/60Hz ± 5Hz	
Noise	Normal Operation Conditions 48dB to 54dB	
Noise	Harsh Environment / High Temperature 61dB to 67dB	
Noise	Start-up stage for Fan and Compressor 70dB	

Table 4.2-1: Environmental Requirements

4.3. Storage Environment

Item	Requirements
Environment	Clean（no dust), Good Ventilation
Temperature	-40℃～+60℃
Humidity	5% RH～95% RH without Condensation

Table 4.3-1: Product Storage Environment

5. System Handling and Inspection

⚠WARNING

Read this section carefully as it deals with situations that may cause bodily injury or equipment damage.

5.1. Transportation

The EdgeRack 3P Series unit contains machine and electrical equipment inside. Improper transport and improper handling may damage some of the components leading the system to not function properly. It is the responsibility of the user to ensure the safety and quality while the unit in is transportation. Important: This unit needs to be transported upright and must not be laid in a horizontal position.

5.2. Handling

Please use appropriate mechanical handling tools when unloading the EdgeRack 3P Series unloading Important: The safe handling angle of this unit angle should be in the range of 75 ° ~ 105 °

Model	Packing Size (mm) W × D × H	Gross Weight (kg)
ECX-ER3P-42U	710mm × 1210mm × 2180mm	374kg

Table 5.2-1: Unit Packing Size and Gross Weight

Model	Unit Size (mm) W × D × H	Net Weight (kg)
ECX-ER3P-42U	600mm × 1100mm × 2000mm	330kg

Table 5.2-2: Unit Size and Net Weight

5.3. Delivery & Inspection

Upon receipt of the unit(s) please perform an external visual inspection of each unit packaging to ensure the following:

- The unit was not exposed to water or left outside for an extended period
- All the packaging has remained in-tact, unopened, and undamaged
- The unit was shipped and stored in the proper upright position
- The unit was not stacked in transportation
- No impact on off-loading the unit

Note: If damage was detected, document each incident, and escalate according to your company policy.

5.4. Internal Inspection

- Please check the unit carefully to ensure its completely damage free after unpacking
- Ensure the accessories are complete according to the packing list.
- If there are any parts missing or damaged, please contact your local representative and Enconnex Service Department immediately.
- If there is an incomplete list of parts according to the packing list, please contact your local representative and Enconnex Service Department immediately.

6. Installation Preparation

NOTICE

Read this section carefully as it deals with situations that may cause damage to equipment.

6.1. Preparing the Location

Before installing the equipment, a quick site inspection will help to make sure the location is suitable for the operating requirements to ensure the equipment is easily installed and running in the best operational conditions.

6.2. Consideration Factors

- The EdgeRack 3P Series unit should be installed indoors, and the environment temperature should be controlled within a few degrees of the ideal operating temperature of 30 °C.
- Ensure the installation location is clean, and free from dirt, debris, or any other materials that could be corrosive or harmful to your equipment
- Measure and check the size of the installation site passageway or door conveniently for equipment entry.

- Finally, make sure you are installing the equipment on a level, solid surface that is rated to hold the entire load. Use our adjustable leveling feet to make fine-tuned leveling adjustments as needed.

6.3. Installation Clearance

Please consult your local, state, or government laws regarding workspace clearance and electrical / mechanical equipment. We recommend at least 800mm of clearance around the unit to ensure proper airflow and for proper maintenance. Adjust the height of the leveling feet to ensure each one is at the same level.

6.4. Electrical Site Preparation

Please make sure the final installation location has the proper electrical outlets installed to power your equipment.

⚠⚠DANGER

Read this section carefully as it deals with situations that may cause bodily injury or death.

Please note the following electrical requirements:

- All electrical installations should be performed by a licensed and certified technician.
- Power outlets or hardwired solutions must meet all local, state, or government codes.
- The power outlet / breaker must meet the maximum draw of the EdgeRack 3P Series unit.
- The electrical components of the EdgeRack 3P Series system require a proper ground.

Note: Please see section "7.5 Electrical Parameters" for electrical connection details.

7. Installation

7.1. Remove the Packaging

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

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

Step 3: Remove the cabinet from the pallet and place it in the specified position.

⚠**WARNING**

Read this section carefully as it deals with situations that may cause bodily injury or equipment damage.

Note: The cabinet net weight is very heavy at 727.5 lbs. (330kg). A typical installation may require 4-5 individuals. Please consult with your company's rules / guidelines for working with heavy equipment.

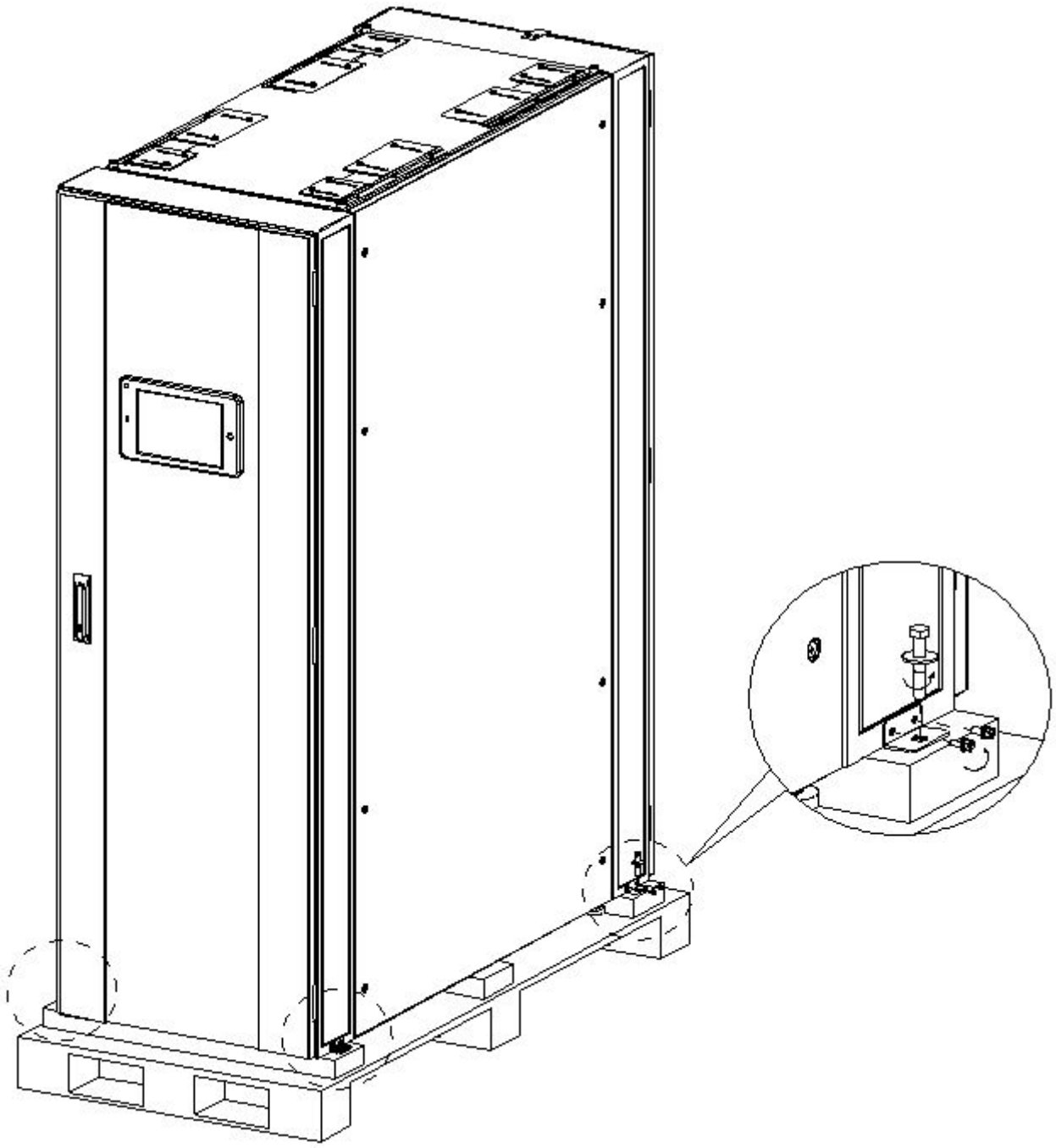

Figure 7.1-1: Remove the packaging

7.2. Remove the Fixed Door Kit

Step 1: Remove the rear door fixed kit.

Note: After the removal of the fixed door kits, the back door will not be able to close normally, this is a normal operation. After the electromagnetic door kit gets power, the rear door can be closed normally.

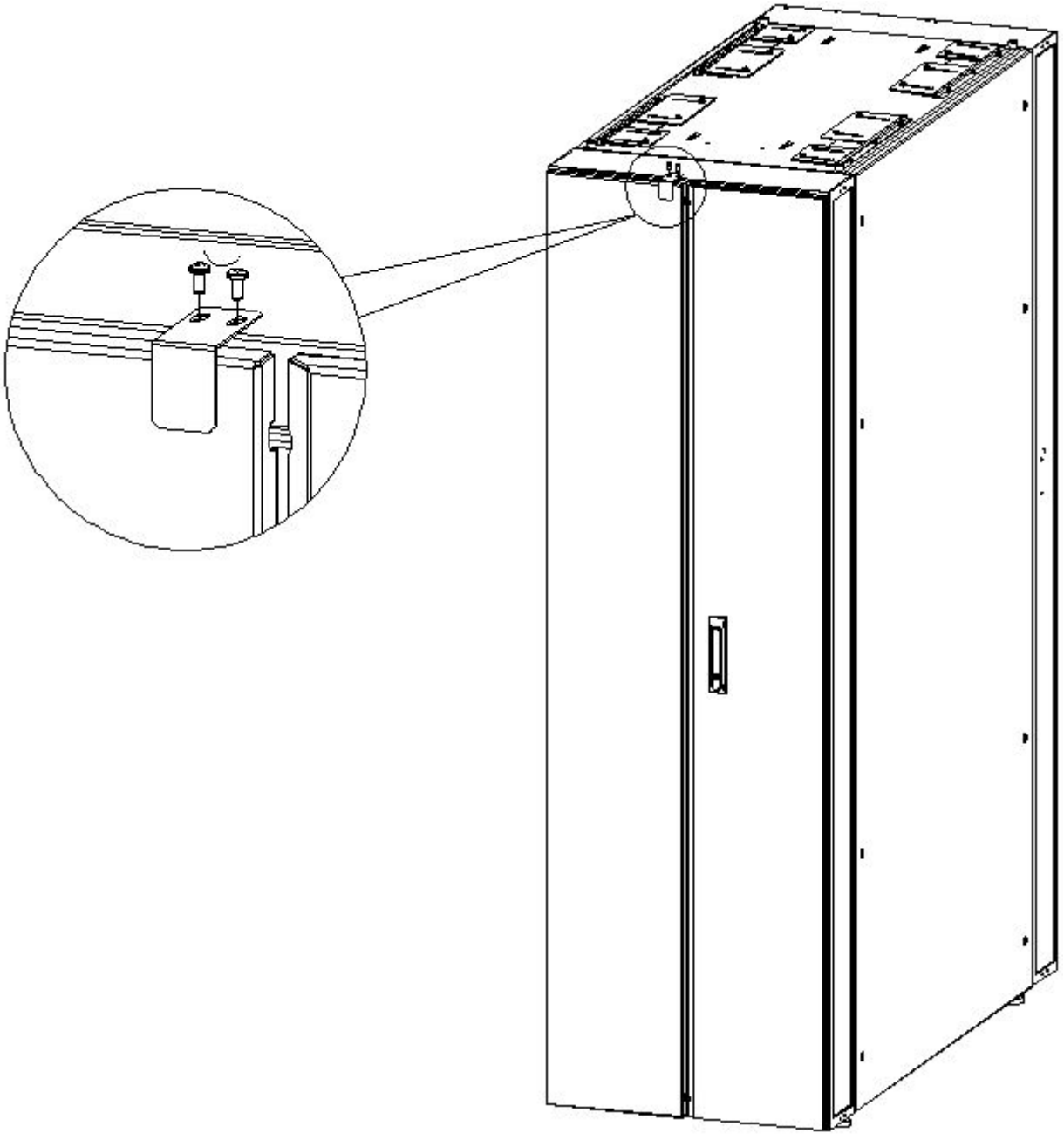

Figure 7.2-1: Remove the rear fixed door kit

Step 2: Remove the fixed front door kit.

Note: After the removal of the fixed door kits, the front door will not be able to close normally, this is a normal operation. After the electromagnetic door kit gets power, the front door can be closed normally.

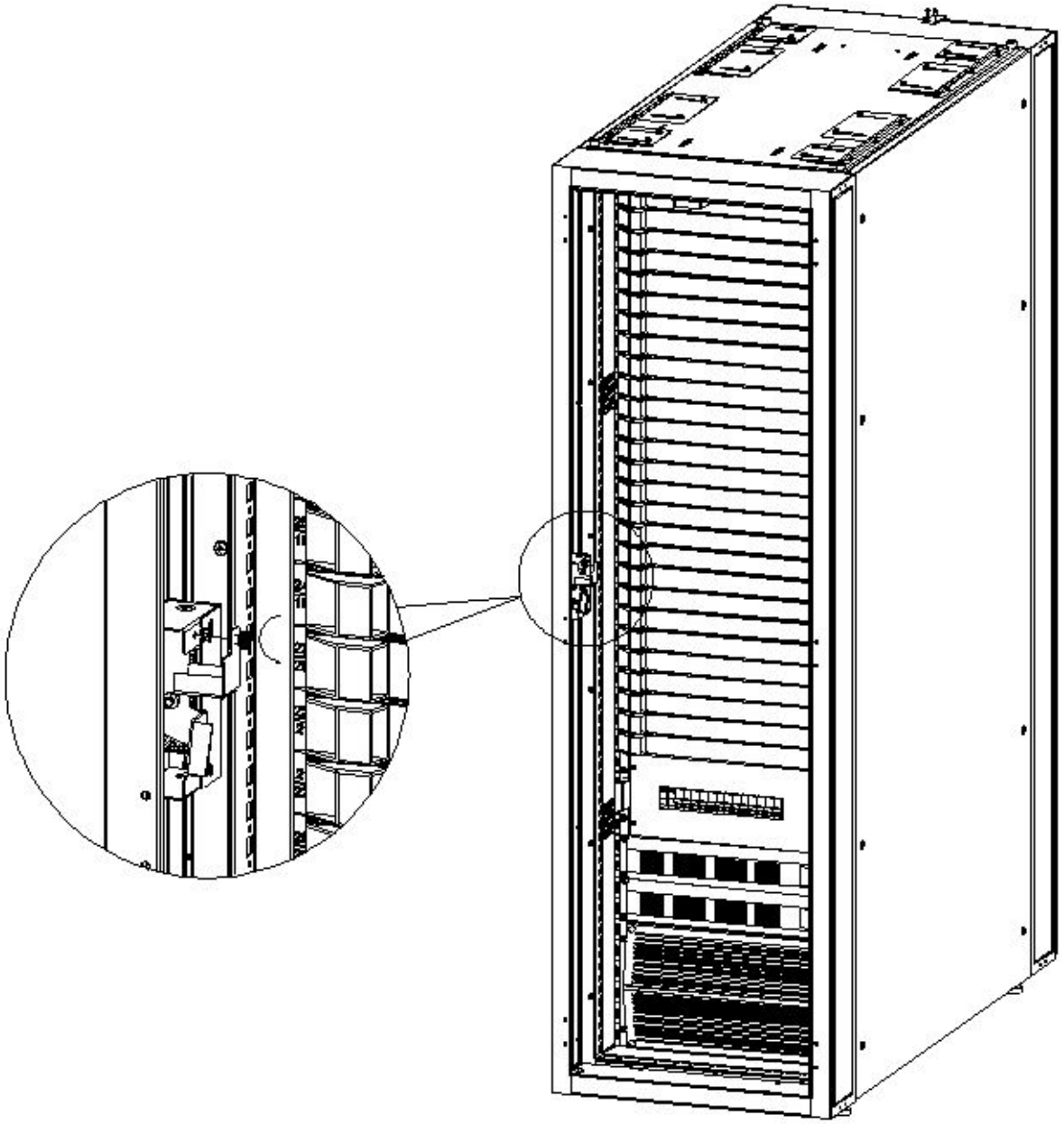

Figure 7.2-2: Remove the fixed front door kit

7.3. Leveling the Cabinet & Air Conditioning Unit

Step 1: Measure from the floor to the top of each corner to ensure an even unit height. The optimal stable height for these units is between 2005 - 2008mm.

Step 2: To ensure the unit is level, with a leveling tool measure the top of the unit. Use the adjustable leveling feet to make small adjustments, as necessary.

Step 3: Adjust the fastening nut on each leveling foot to lock in the height.

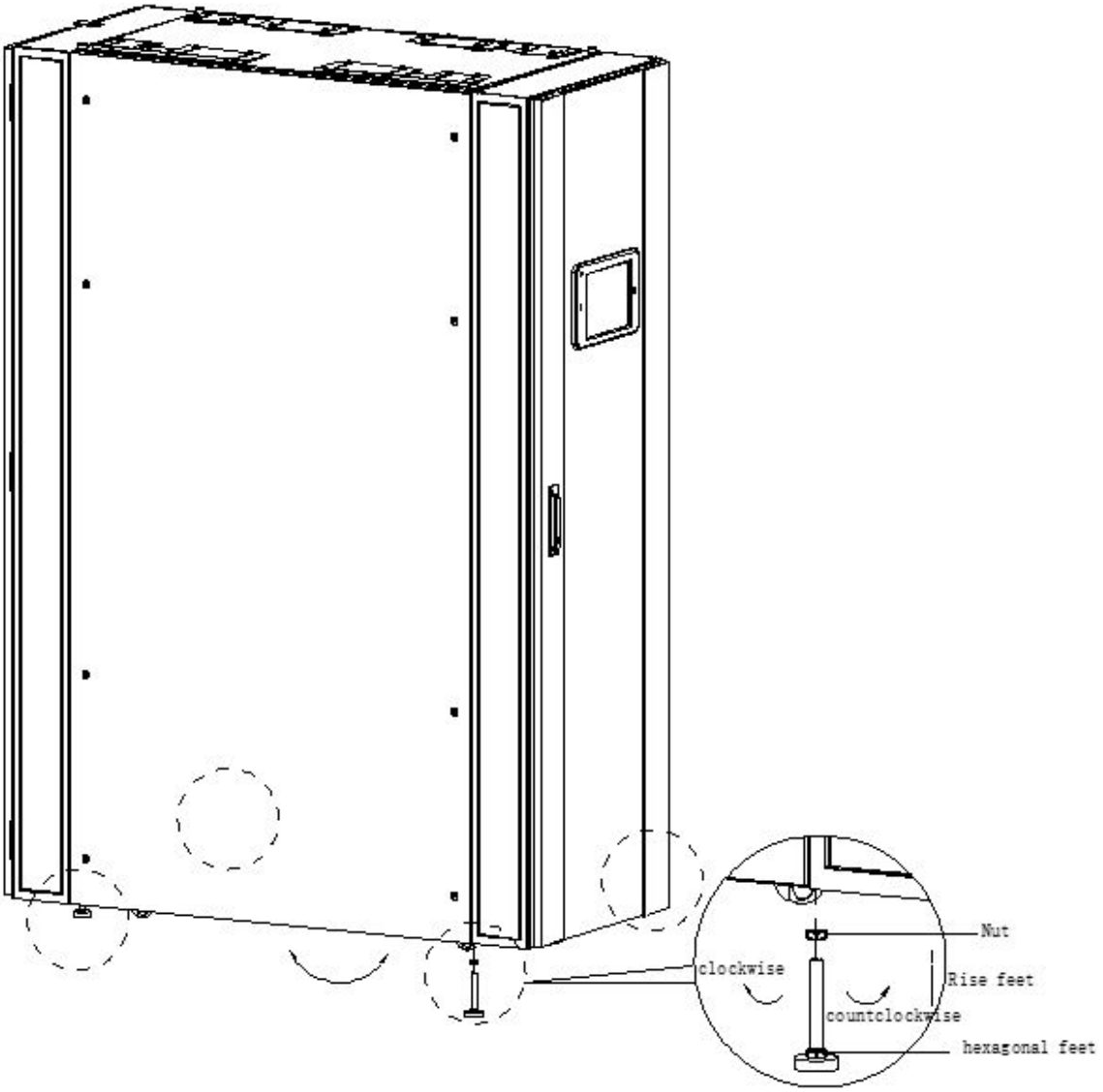

Figure 7.3-1: Leveling Cabinet & Air Conditioning Unit

NOTICE

Read this section carefully as it deals with situations that may cause damage to equipment.

Do not remove the hexagonal leveling feet as these are an integral part of product stability.

Adjusting the hexagonal leveling feet: Using an adjustable wrench, turn the leveling feet clockwise to raise the height of the cabinet, and counterclockwise to lower it. Each hexagonal foot has 3 inches of adjustment (80mm).

7.4. Electrical Installation:

Step 1: Air Conditioning Wiring Connection:

Connect the Air Conditioning supply cable to the 32Amp Air Conditioning MCB as shown below in figure 7.4.1 in the power distribution unit at the rear port. Check the wiring of the label after removing the cover, including the power line (G, N, L) fan signal line 0-10v (Y,0). Also refer to the electrical schematic diagram shown below in figure 7.4.2 for reference.

Step 2: UPS Wiring Connection:

Connect the UPS supply cable to the 32Amp UPS MCB as shown below in figure 7.4.1 in the power distribution unit at the rear port. Check the wiring of the label after removing the cover. Also refer to the electrical schematic diagram shown below in figure 7.4.2 for reference.

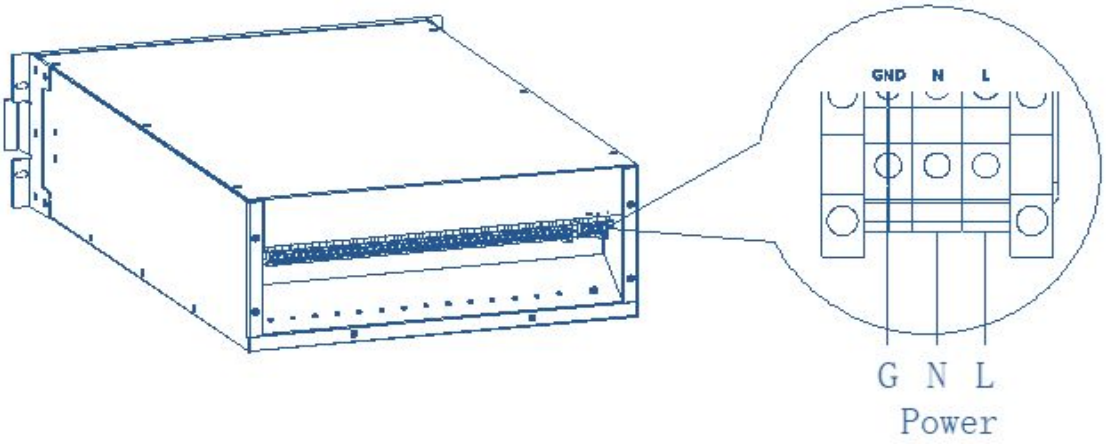

Figure 7.4-1: 32A Rack Mounted Distribution Unit

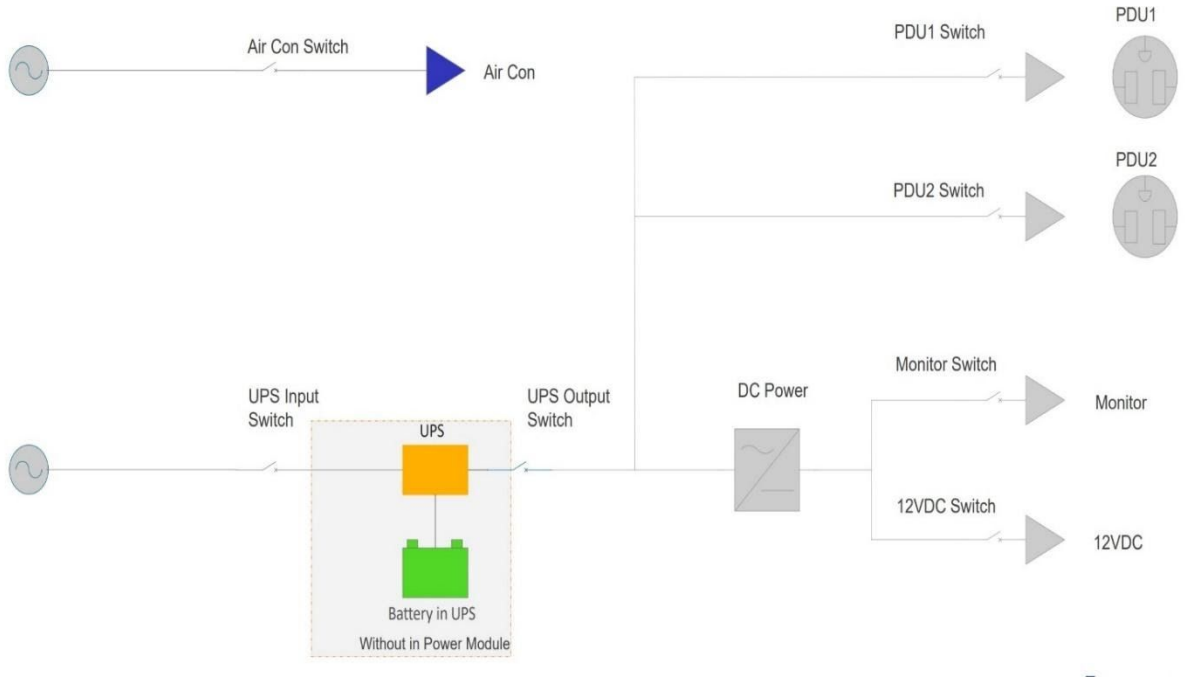

Figure 7.4.2: Electrical Schematic

⚠⚠DANGER

Read this section carefully as it deals with situations that may cause bodily injury or death.

7.5. Electrical Parameters

Model EdgeRack 3P Series		ECX-ER3P-42U
Indoor Unit	Full Load Current	2 x 32Amp
	Cable Advice	6 mm^{2} -
	Breaker Advice	2 x 32Amp

Table 7.5-1: Electrical Parameters

Notice:

1. All the connections of the electrical supply circuit, control line, and ground electrode must conform to the local laws and regulations.
2. For the full-load current of the unit please refer to the unit nameplate. The size of the supply cable should conform to the electrical standards and regulations.
3. Electrical and Electronic Installation must be installed and carried out by a professional Installer.

4. Make sure the power is switched-off, locked and tagged out at the main supply Circuit Breaker / Switch-fuse to the EdgeRack 3P Series Unit before the power meter test, and final connections.

⚠⚠DANGER

Read this section carefully as it deals with situations that may cause bodily injury or death.

8. Commissioning

8.1. Inspection

- Check that the power supply voltage is the same as the nominal voltage of equipment on the nameplate.
- Check that the system is correctly electrically connected.
- Ensure all connections are secure, tight, and terminated correctly.
- Check that the rating value of the Circuit Breaker or Switch-Fuse is correct.

⚠CAUTION

Read this section carefully as it deals with situations that may cause bodily injury or equipment damage.

Before commissioning please check the status of the unit according to table 8.1-1 below.

Item	Checking Details and Request
Unit Appearance	There is no damage to the unit, the surface is clean and has been properly leveled on a suitable surface
Electric Supply Circuit	The power supply connection should be secure and terminated correctly then measured and the pre-startup voltage values should be recorded.
Electrical Control Panel	Electrical components in the 32A distribution control panel are in good condition.
Air Conditioning Unit	No blockages at the supply air in, and air exhaust out.

Table 8.1-1: Checklist

8.2. Unit Start Up & “Power On”

Step 1: Ensure that the device is properly installed, and the two supply cables for the Air-conditioning Unit and the UPS are properly wired, secured, and terminated. Turn on all the mcb’s at the front of the power- distribution unit except for the manual maintenance bypass switch. (this should be in the “OFF” position)

Step 2: Turn on the air conditioning indoor unit switch at the air conditioning power box.

Note:

1. These switches are on each device and are not on the power distribution unit.

2. Please make sure the air conditioning pipe connection is correct, the refrigerant charging is complete, and the valves have been opened before turning on the compressor switch, otherwise you cannot turn on the compressor switch.

Step 3: Press and hold the operation button "ON" on the front panel of the UPS device for more than 2s.

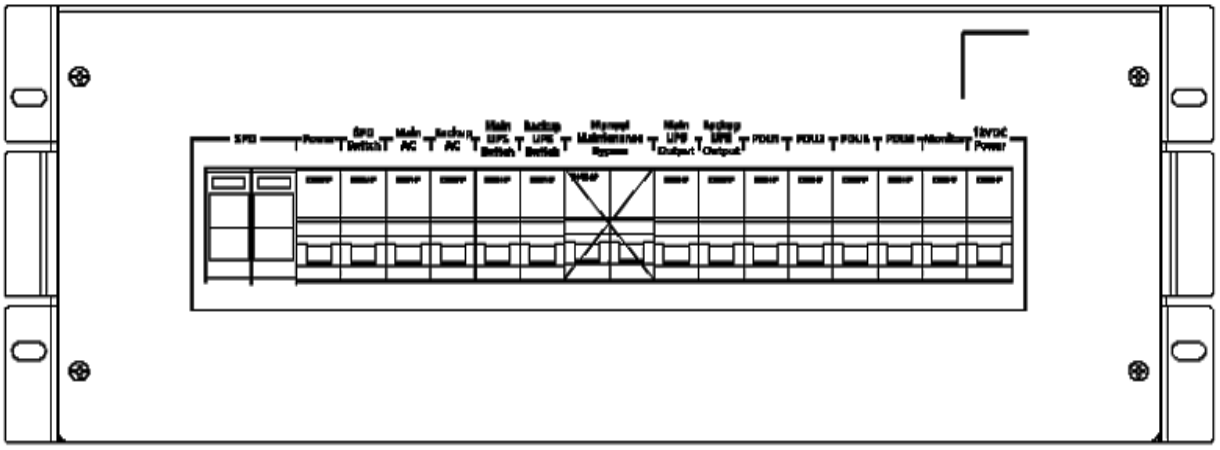

Figure 8.2-1: Power Distribution Panel

8.3. Air Conditioning Commissioning

Model	Maximum Charge Amount
ECX-ER3P-42U	2 hours

Table 8.3-1: Air Conditioning Commissioning

Note:

For the R410A refrigerant compressor, please only use RL68H refrigeration oil.
The EdgeRack 3P Series is prefilled with refrigerant and lubricating oil before unit delivery.

To Start the AC System:

- Switch the power supply mcb of the AC Unit on at the 32A Distribution Panel.
- Set the temperature setpoint on the unit 5 °C lower than actual room temperature. This will trigger the system to start-up and commence the cooling function. During this time, the compressor will charge and after 60 seconds will start running.

9. Monitoring System

After the EdgeRack 3P Series is powered on, the monitoring host (HMI) will automatically start-up and display the monitoring systems home screen.

9.1. Logging In

To get started: Once the unit is powered on, the main screen will appear. As a first-time user you will need to log in with the generic credentials provided.

1. Touch the Enconnex logo “ECX” in the top left of the monitor.
2. You will be prompted to enter your credentials
   Username: admin
   Password: 12348765
3. Once you have successfully entered the credentials, you will be presented with the “Home” screen.

Note: Each screen is listed as a tab at the top of the monitor. The current screen you are viewing will be highlighted in orange. Touch each tab to change screens.

9.2. Home Screen

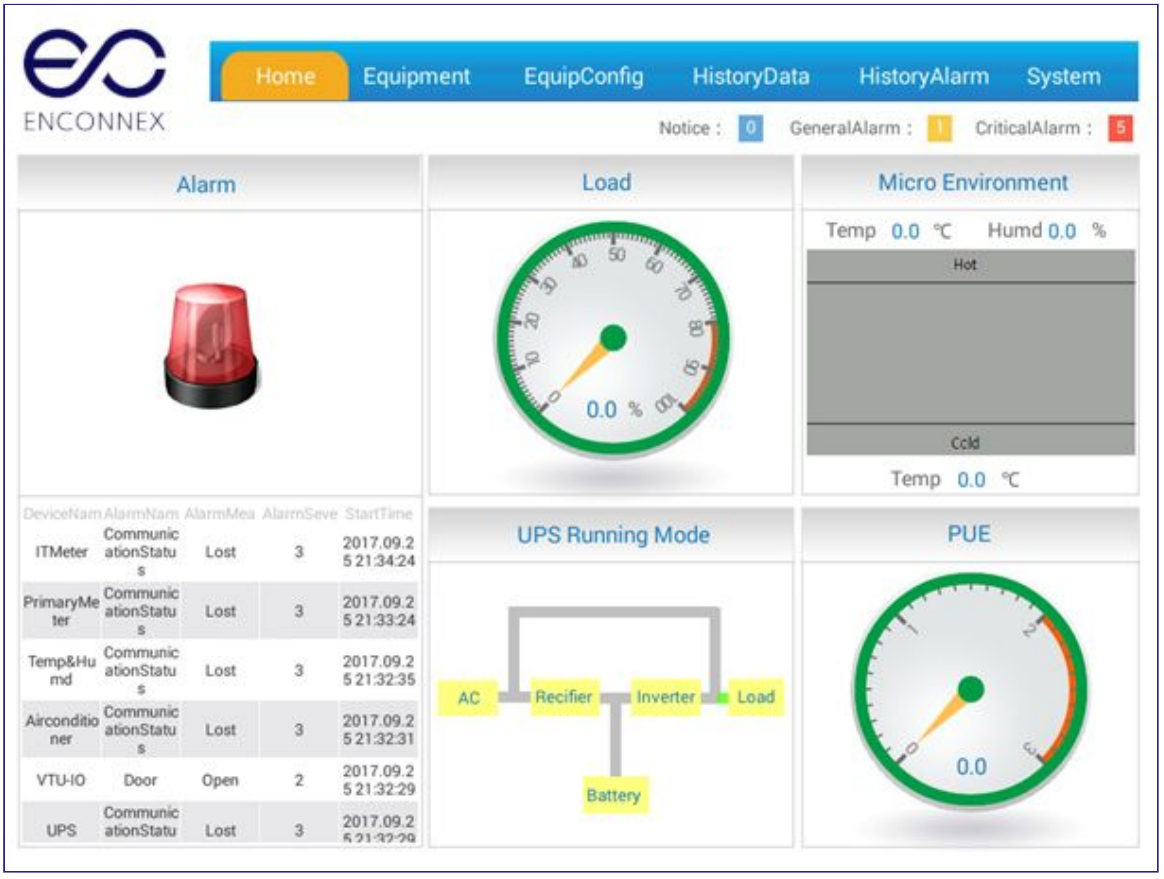

Figure 9.2-1: HMI Home Screen

The home screen is your main interface screen where you can quickly and easily get information about your systems. The following are the features you have on the Home screen with their descriptions:

Notice and Alarm Banner: This area in the top right of the screen, located under the page tabs, is reserved for a quick notice and alarm view to show the user any pending alarms or situations that may need to be addressed
Notice: Is a pre-warming that an alarm situation is pending, and the entry is logged

- **General Alarm:** General alarms notify the user of an event that occurred that needs to be addressed, but the system will continue to operate under normal conditions.
- **Critical Alarm:** Critical alarms are notifying you of an event that can cause one of your systems to fail. These are high-priority alarms and must be rectified immediately.

Alarm: Alarm information is divided into two different sections.

- Alarm lights (top left center on the main screen): This is an immediate visual indicator that there is an alarm active in the system.
- Alarm list (below the alarm light screen): The alarm list is a data log of all active alarms in the system. This list contains the following information: device name, alarm name, alarm meaning, alarm level and start time of the incident. If the alarm is reset, it is no longer displayed in the data log.

Load: If you have a UPS connected to your system, the Load dial (top middle center screen) shows the current UPS load. Note: if there is no UPS installed, this screen will show no data.
UPS Running Mode: If you have a UPS connected to your system, the UPS Running Mode (bottom middle center) will show you the current state of your UPS system. Each state is clearly indicated in the line diagram with a green line to show the following: mains mode, bypass mode and battery mode. Note: if there is no UPS installed, this screen will show no data.

Micro Environment: The Micro Environment (top right center) displays the temperature and humidity in the rear of the cabinet or “hot channel”. Real-time data is collected by the temperature and humidity sensors and presented on the screen. The top values indicate the corresponding temperature and relative humidity in the hot channel. The bottom value shows the inlet temperature of the front of the cabinet or “cold channel”.

PUE: Our PUE or “Power Usage Efficiency” meter (bottom right center) gives customers a quick view at how their EdgeRack 3P Series environment is performing. Our system collects IT load and energy usage data to provide the standard PUE calculation of total power / IT load. In a perfectly controlled environment, the absolute lowest rating you can get is 1.0.

9.3. Equipment Screen

The Equipment Screen gives users a more detailed look at the equipment they have connected to their EdgeRack 3P Series system. Selecting an item under the “Equipment List” (top left center) highlights that selection and displays information about that item. The detail for those selections is as follows:

9.3.1. UPS (Only available with an attached UPS)

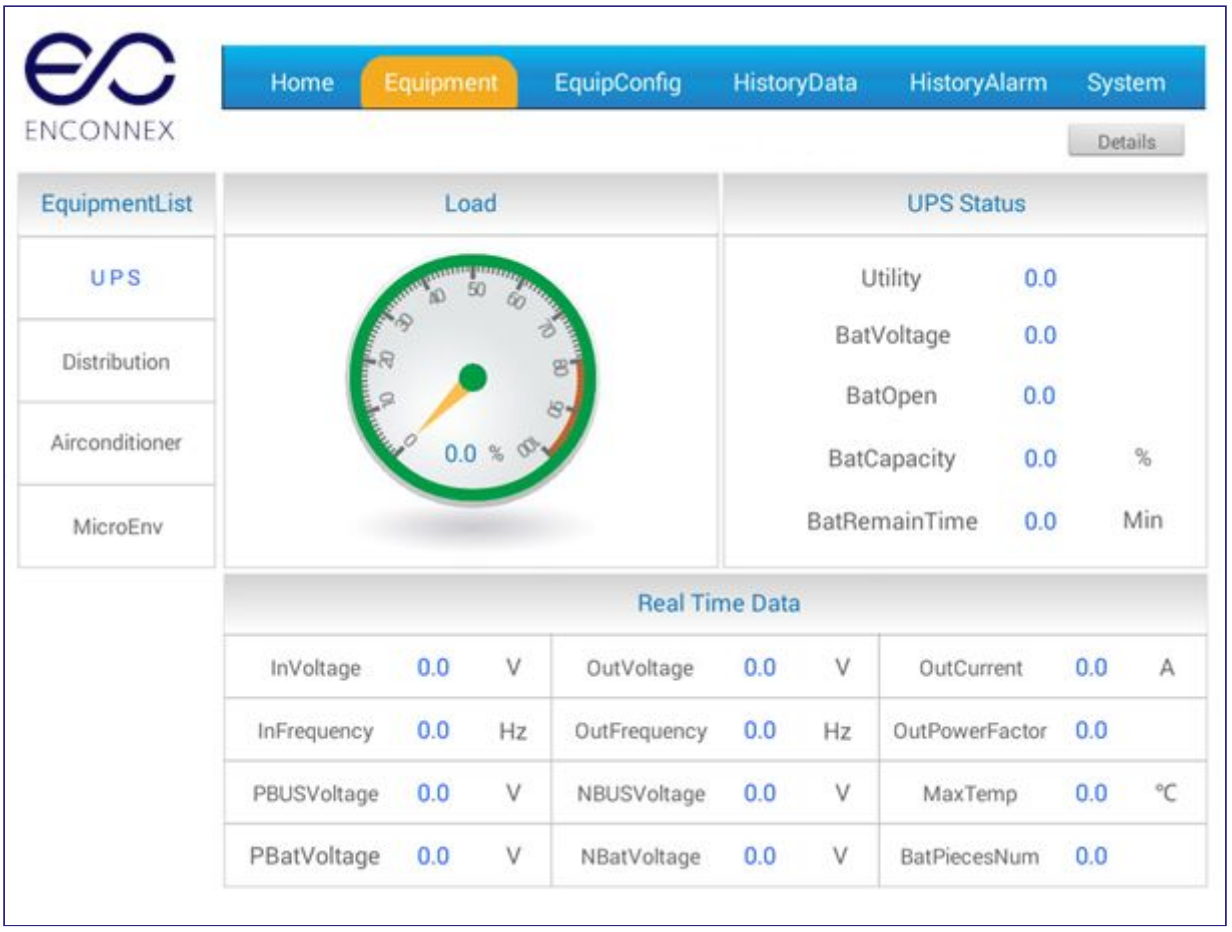

Figure 9.3-1: Equipment List UPS page

UPS Load: Quick reference dial that shows the UPS load in %

UPS Status: Shows more detailed information about the active UPS

Real-time data: Gives live data from the UPS on inputs, outputs, temps, etc.

Details: Clicking the Details button (top right center) shows all the parameters in the UPS protocol list. Users can refer to see more of the interface does not show the data information, the latter part of the details of other equipment is the same, no longer explained later.

9.3.2. Distribution

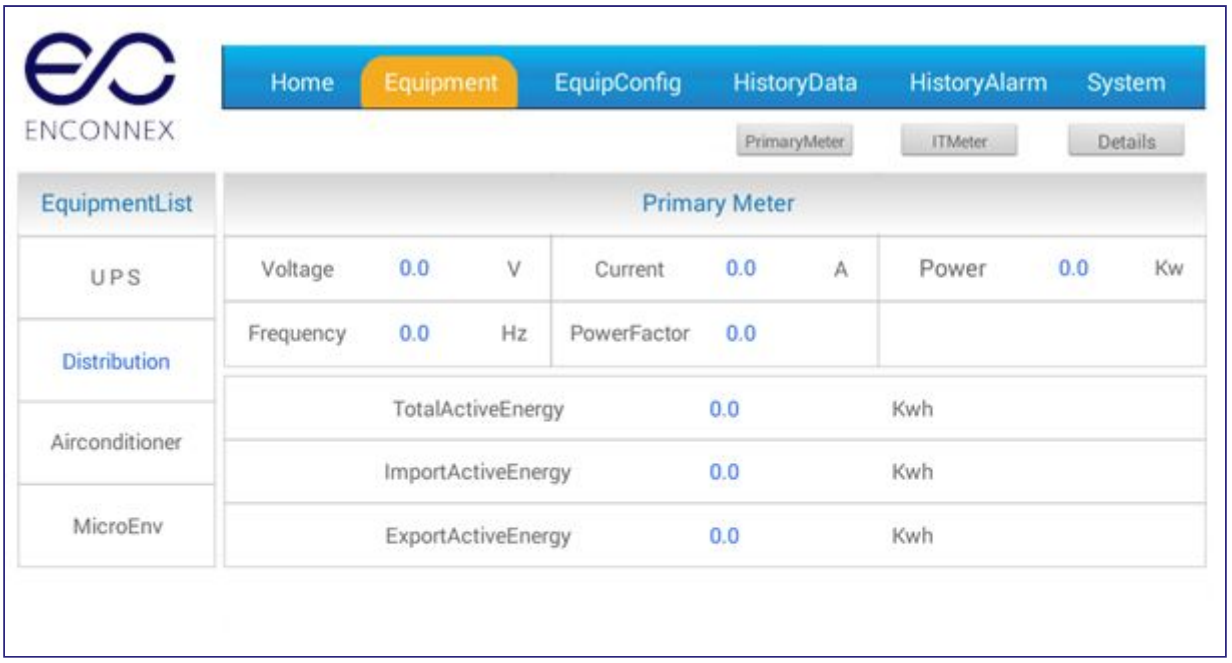

Figure 9.3-2: Equipment List Distribution page

Primary Meter, IT Meter, Details Banner: Selecting one of the options in the Primary Meter, IT Meter, Details Banner shows more information about that item.

- Primary Meter: displays information about the primary power distribution module including the main circuit voltage, current and other data.
- IT Meter: Displays IT load data
- Details: Provides more details about this screen

9.3.3. Air Conditioner

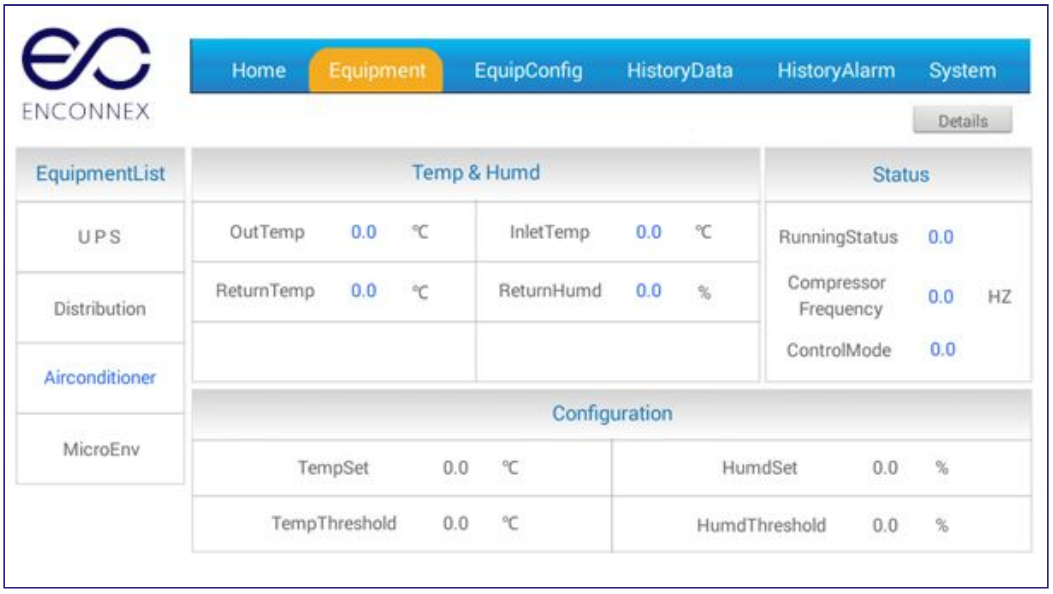

Figure 9.3-4: Equipment Air Conditioner page

Temp & Humid: “Temperature and Humidity” provides real-time data about the inlet and output temperature and humidity of the unit.

Status: Shows the operating status of the air conditioning unit including the switch machine status, compressor frequency, control mode.

Configuration: This section quickly shows the set values for each item.

9.3.4. Micro Environment

Figure 9.3-5: Equipment Micro Environment page

Micro Environment: This section shows a quick view of the following: Smoke detection status, leak detection status, Door status, hot channel temp, hot channel humidity.

Temp Curve: Shows temperature trending data over time. This system can store up to 1 year of logged data.

Humidity Curve: Shows humidity trending data over time. This system can store up to 1 year of logged data.

9.4. EquipConfig Screen

The EquipConfig Screen gives you admin access to view and change the system setpoints. when you select the tab, the system will prompt you for an admin login. This info can be changed in the system settings page.

Password (default): 4321

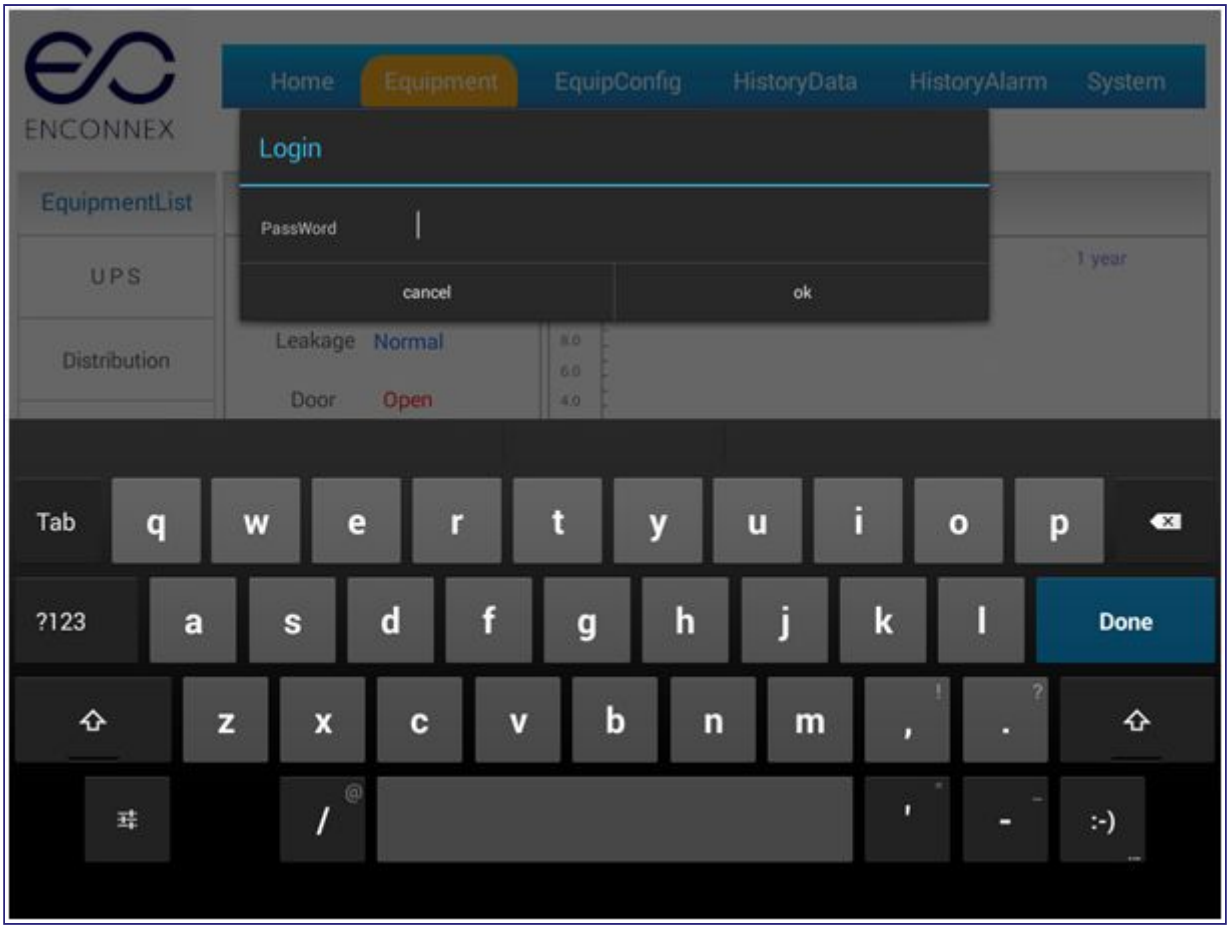

Figure 9.4-1: Equipment Configuration page

Updating Settings: The value next to each option in blue text is the current set value of your system. Select the value you wish to change by clicking the open text box and key in the new value. Selecting “set” will save the new value.

9.4.1. MicroEnv (Micro Environment)

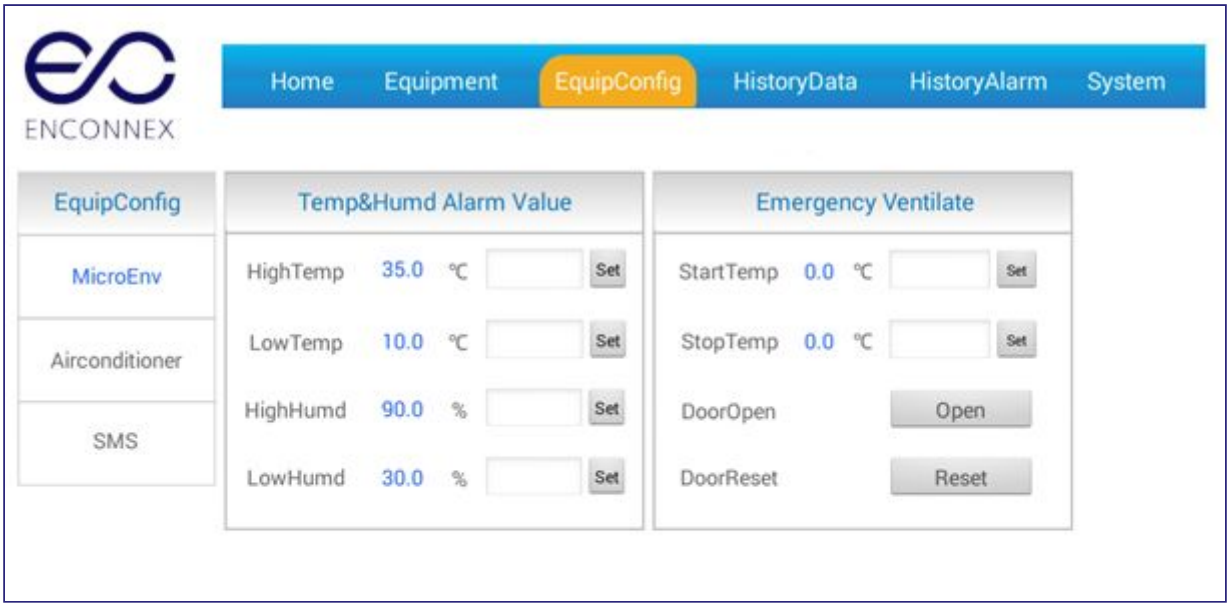

Figure 9.4-2: Equipment Configuration - Micro Environment page

Temperature & Humidity Alarm Value: When the temperature and humidity sensor detect the temperature / humidity is greater than the set value, the system will provide a corresponding alarm.

Emergency Ventilate: When the temperature and humidity sensor detects the temperature / humidity is greater than the Start-Temp set value, the emergency ventilation device will trigger the electromagnetic doors to open providing temporary relief to your equipment, giving you time to resolve the underlying issues and saving your equipment from shutdown or failure. The Stop-Temp value is set to re-energize the door once the temperature has come back down. If the temperature has dropped after the alarm but did not reach the stop temperature point, you can click Door-Reset to reset the sequence and re-energize the door., this time can be closed normally. If you need to test the state of the door, click the Open-Door button, which will dis-engage the magnetic system. Hit Door-Reset again to power back on the magnetic door.

9.4.2. Air-Conditioner

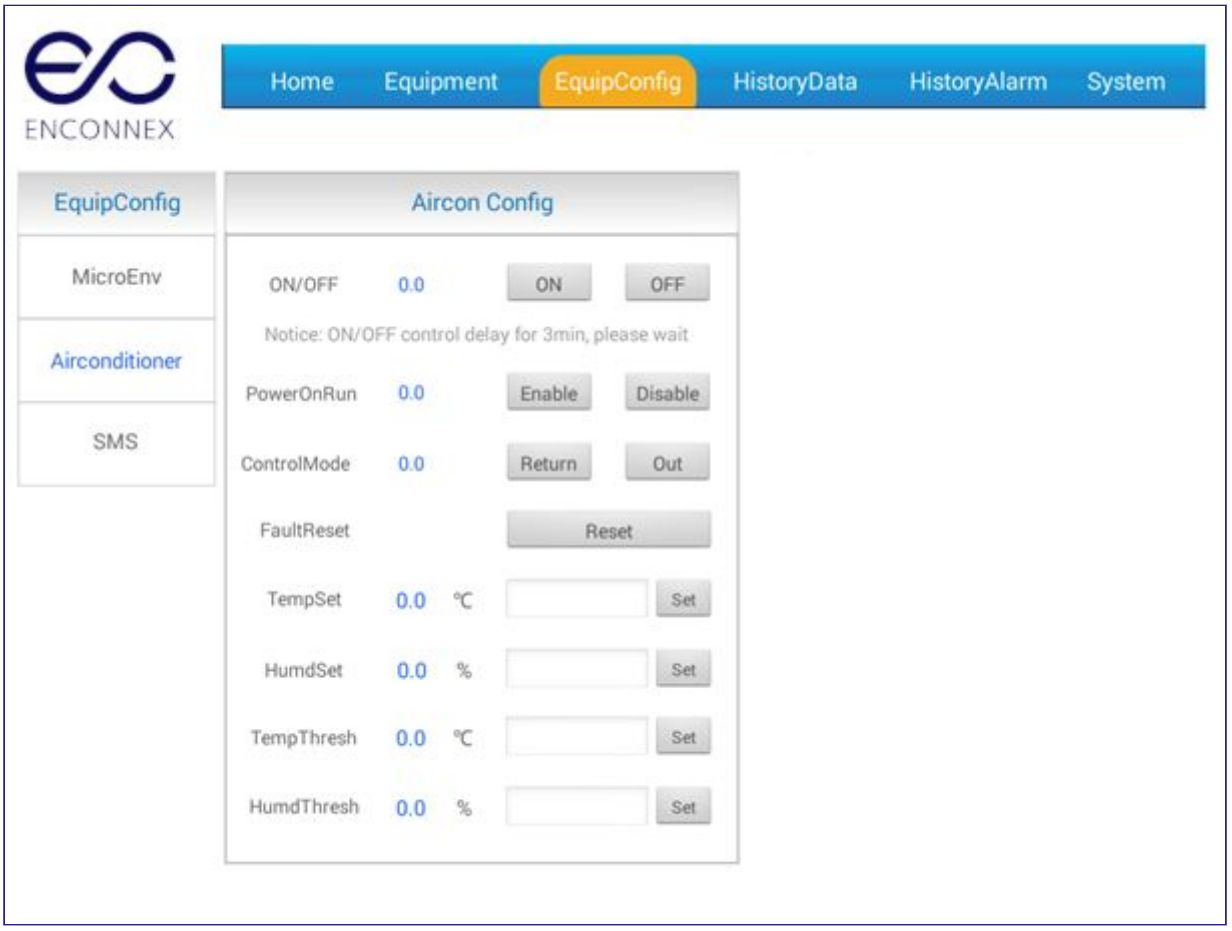

Figure 9.4-3: Equipment Configuration – Air Conditioner page

ON/OFF: Used to turn on and off the AC unit. Note: there is a 3 min. delay in this action.

Power-On-Run: Allows the AC unit to power on when the EdgeRack 3P Series unit is powered on. Select “Enable” to choose this function, or “Disable” to turn it off.

Control-Mode: Allows you to be able to send air or return air from the AC unit.

Fault-Reset: When the air conditioner is under alarm and the fault has been resolved, you can use this button to reset / cancel the alarm state.

Temp-Set: Can be used to set the temperature set point for the AC unit.

Humid-Set: Can be used to set the humidity set point for the AC unit.

Temp-Thresh: Used to set the temperature threshold.

Humid-Thresh: Used to set the humidity threshold.

9.4.3. SMS (Messaging and Alerts)

This page for the SMS alarm settings page where you can set up messaging for alarms and SMS contacts.

9.5. History Data Screen

The History Data screen lets users view history data by device. Once you select the History Data tab at the top of the screen, click on Device and select your device. Information for each device will then be shown on the screen.

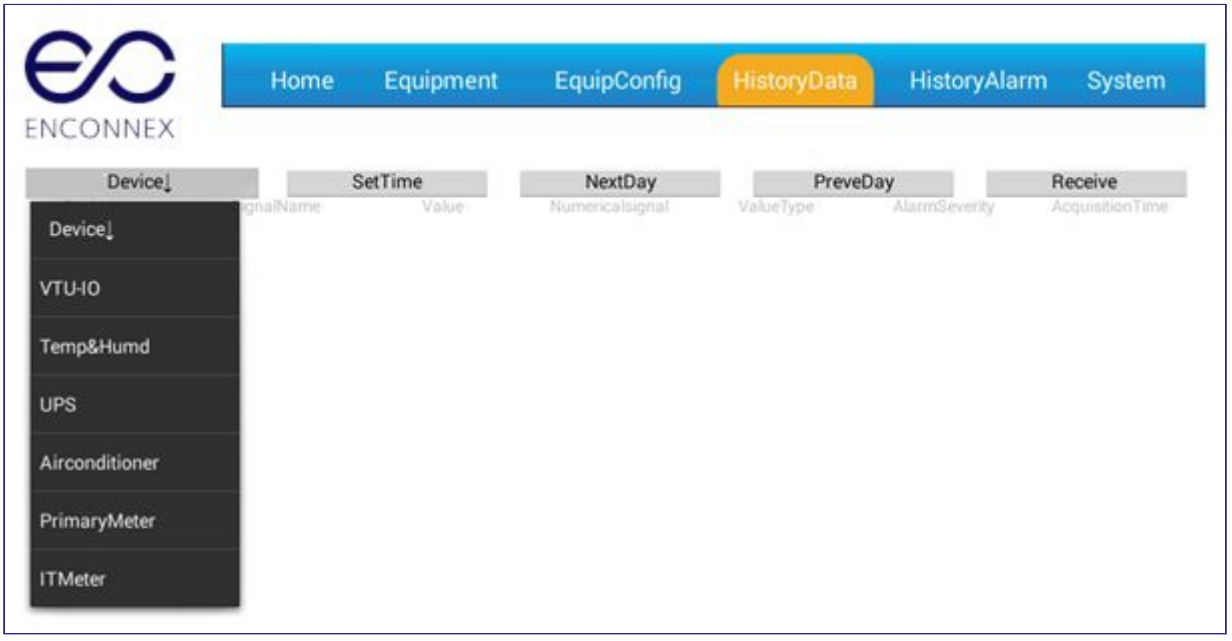

Figure 9.5-1: History Data page

9.6. History Alarm Screen

Similar to the History Data screen, the History Alarm screen shows you an alarm history by device. Once you select the History Alarm tab at the top of the screen, click on Device and select your device. Information for each device will then be shown on the screen.

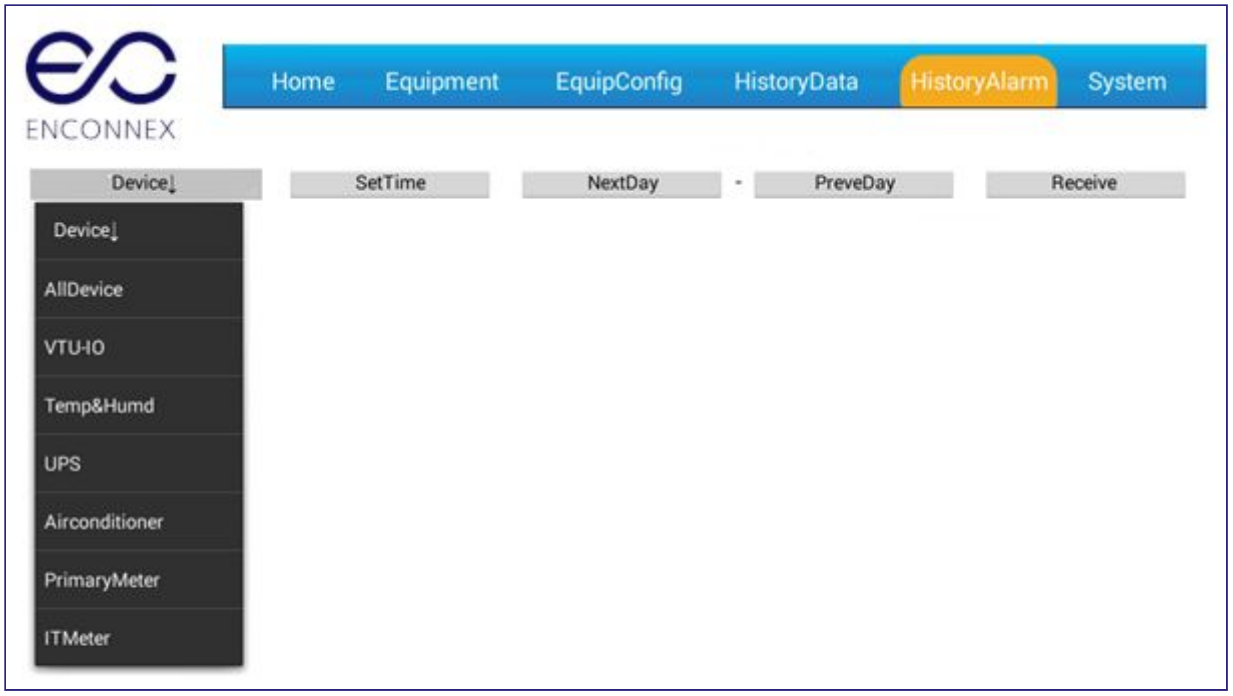

Figure 9.6-1: History Alarm Page

9.7. System Screen

The System Screen gives you admin access to view and change the system settings for passwords and data logs. When you select the tab, the system will prompt you for an admin login. This info can be changed in the system settings page.

Password (default): 4321

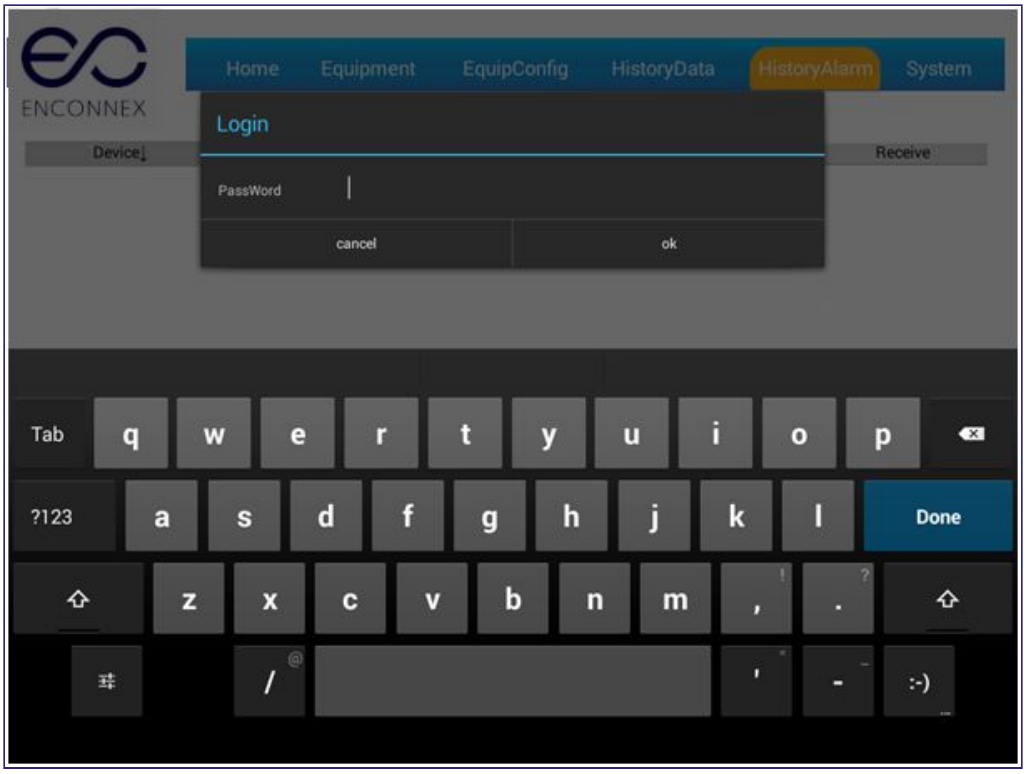

Figure 9.7-1: System Login Page

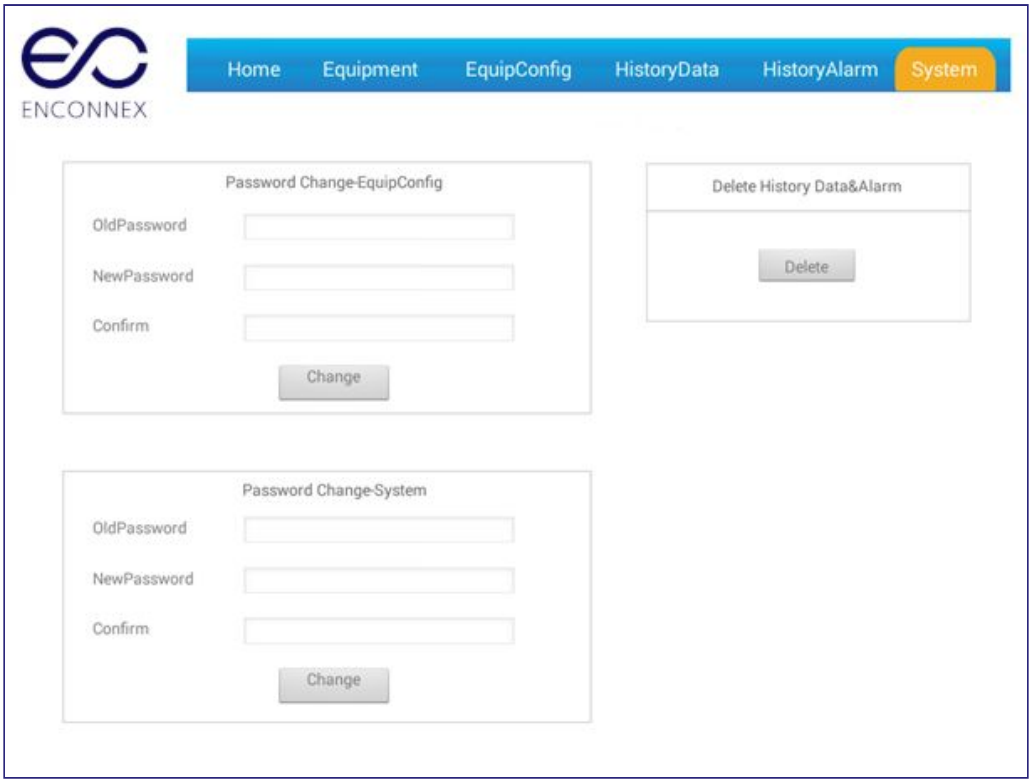

Figure 9.7-2: System page

Password Change-Equipment Configuration: Change the EquipConfig in this section by entering the old password and the new password and clicking “Change”.

Password Change-System: Change the System password in this section by entering the old password and the new password and clicking “Change”.

Delete History Data & Alarm: Click the Delete button to delete the history data.

10. Remote Monitoring

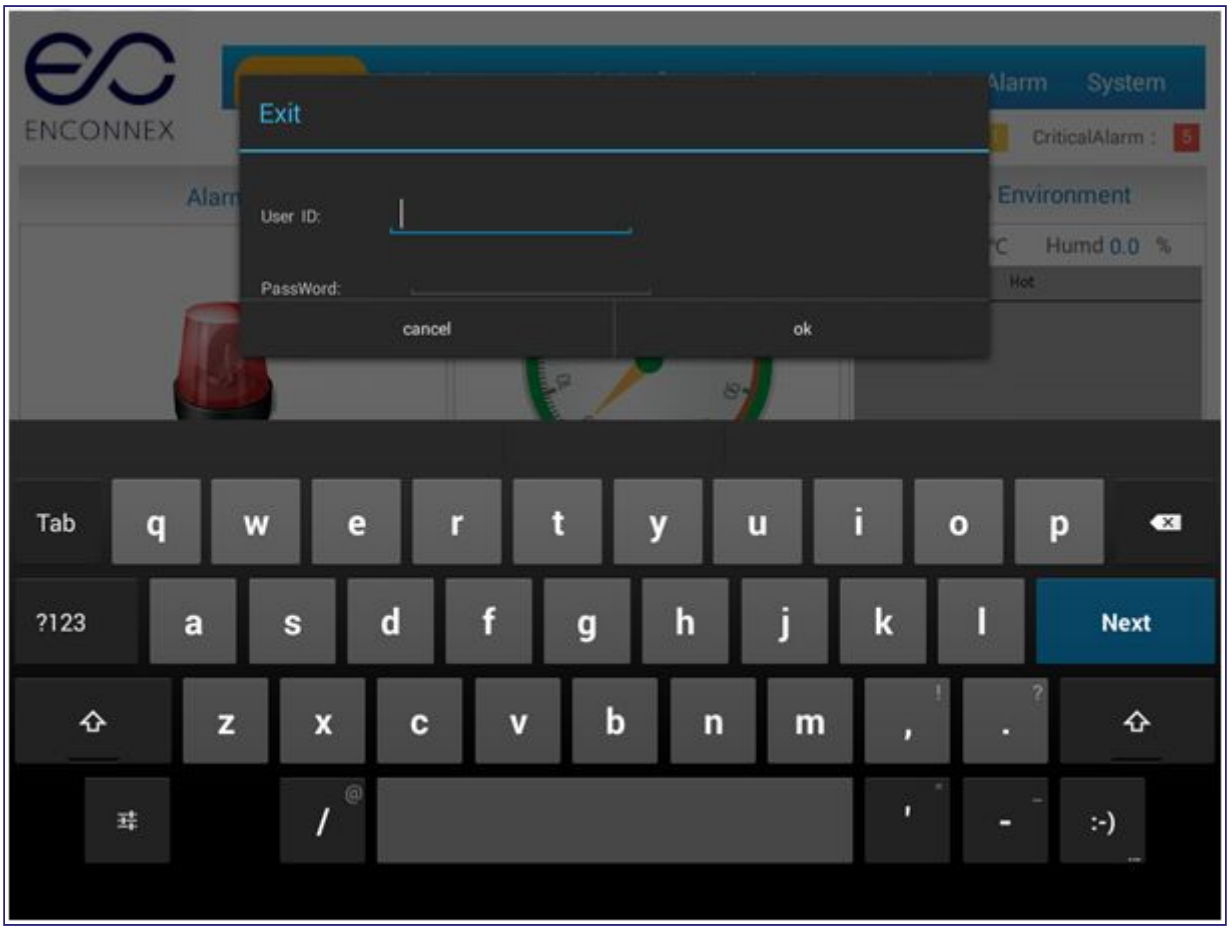

Figure 10-1: Exit Page

To activate the remote monitoring, you must first log out of the main monitoring system. Please follow these steps to enable remote monitoring on your system:

- Click on the logo to exit the system. Enter the username "admin", and password "12348765" on the HMI.
- In the menu, select the "Settings" option for the wireless network option and enter the monitor host in the corresponding IP address to view the web page interface.

11. Troubleshooting

Symptom	Possible Cause	Solution
No indication and alarm even though the mains are normal	The AC input power is not connected well	Check if input power cord firmly connected to the mains
	The AC input is connected to the UPS output.	Plug AC input power cord to AC input correctly
The icon “ ! ”and the warning code “EP” flash on LCD display and alarm beeps every second	EPO function is enabled and EPO switch is in “OFF” status, or the jumper is open	Set the circuit in closed position to disable EPO function
The icon “ ! ” and “BATTE FAULT” flash on LCD display and alarm beeps every second	The external battery is incorrectly connected	Check if all batteries are connected well
The icon “ ! ” and “OVERLOAD” flash on LCD display and alarm beeps twice every second	UPS is overload	Remove excess loads from UPS output
	UPS is overloaded. Devices connected to the UPS are fed directly by the electrical network via the Bypass	Remove excess loads from UPS output
	After repetitive overloads, the UPS is locked in the Bypass mode. Connected devices are fed directly by the mains	Remove excess loads from UPS output first. Then shut down the UPS and restart it

Fault code is shown as 43. The icon “OVERLOAD” lights on LCD display and alarm beeps continuously	UPS is overload too long and becomes fault. Then UPS shut down automatically	Remove excess loads from UPS output and restart it
Fault code is shown as 14. The icon “SHORT” lights on LCD display, and alarm beeps continuously	The UPS shut down automatically because short circuit occurs on the UPS output	Check output wiring and if connected devices are in short circuit status
Other fault codes are shown on LCD display and alarm beeps continuously	A UPS internal fault has occurred	Contact your dealer
Battery backup time is shorter than nominal value	Batteries are not fully charged	Charge the batteries for at least 7 hours and then check capacity. If the problem still persists, consult your dealer
	Batteries are defective	Contact your dealer to replace the battery
The icon“ ！” and DC/AC icon flash on LCD display and alarm beeps every second	Fan is locked or not working; or the UPS temperature is too high	Check fans and notify dealer

Table 12-1: List of Problems

Symptom	Possible Cause	Solution
AC does not work	AC Power is disconnected	Check the input power line and if tightly enough
Compressor overload	Thermal load is too large	

		Check the insulation and sealing condition, add equipment if necessary
	Too much refrigerant	Released unnecessary refrigerant
	The compressor failure	Compressor shaft, something wrong with the motor coil insulation must replace the compressor
	The power supply voltage over values	Exclude instability factors of power supply voltage
	Compressor connection is loose	Tightening compressor connecting wires
High-pressure protection alarm.	High pressure protection switch failure	Replace the high-pressure protection switch
	Expansion valve adjusting too loose	Appropriate adjustment of the expansion valve opening
	Expansion valve failure	Replace the expansion valve
	Too much refrigerant in summer	Release unnecessary refrigerant. Control the high pressure in 2.5～2.7Mpa （R410A system.
	Outdoor condenser is dirty	Clean the condenser surface dust and dirt
	Axial flow fan does not work	

		Check the static value of axial flow fan and grounding resistance if coil burned should replace the fan.
	With non-condensable gas in the system	Discharge part of gas from the up system. To vacuum system, fluorine filling when necessary
Low-pressure protection alarm.	Low pressure protection switch failure	Replace the low-pressure protection switch
	Expansion valve opening too small	Appropriate adjustment of the expansion valve opening
	Expansion valve failure	Replace the expansion valve
	Refrigerant leakage	Check the leak and add refrigerant, control the low pressure in 0.8～1.0Mpa (R410A system)
	Filter drier clogging	Replace the filter drier
	Evaporator frosting	Defrosting for the evaporator
	The evaporator surface dirt	Clean the evaporator surface
	Air volume is too small	Check if the return pipe is blocked
	Setting of low-pressure protection time delay is incorrect	Reset the low-pressure delay time

	Outdoor fan is still running at full speed while low temperature outside	To check whether there is an exception, the output of the fan speed connection is loose
High-temperature alarm	Upper limit of temperature setting is not reasonable	Reset
	Load design is too small	Check the room sealed condition, add equipment when necessary
	Refrigeration system is not open	Check the cooling system working condition
Low-temperature alarm	Lower limit temperature settings are not reasonable	Reset
	The abnormal situations	Check the room sealed condition in winter and if there is any abnormal situation

Table 12.1.2: Problems and Solutions (continued)

Appendix

Safety Symbols and Definitions

Safety

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 handle 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.

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 qualified personnel.

Or can result in serious injury or equipment damage.

⚠WARNING

Hazard of equipment falling over

· Use two or more persons 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 no spare part or tool in equipment before handle 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.