Forge MDC 6K-42U

Standard Single Rack 6K-42U

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User Manual

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Thank you for purchasing our products!

Please read this manual before using the product.

nJoy *is a brand of power and backup protection products that create solutions for multiple levels of environment complexity, residential to industrial.*

About this manual

Thank you for choosing our micro data center (MDC).
This user manual introduces how to install the MDC cabinets, components, and cooling units and how to control the MDC using the web UI. Commissioning and troubleshooting information is also provided.

NOTE!
The web UI may vary with versions. The web UI actually displayed shall prevail.

Conventions

The symbols that may be found in this user manual are defined as follows.

Symbol	Definition
⚠ WARNING	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
⚠ CAUTION	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.
NOTE!	Information notes call attention to important features or instructions. Ignoring this type of note may result in ineffective configuration, loss of data or damage to device.

1 Safety precautions

General requirements

• Read this manual carefully before operating the product.

• The “caution” and “warning” sections in this manual do not represent all the safety precautions.
These sections only highlight some points for safety precautions.

• This product is recommended for commercial or other professional use.

• This product is to be used for its design purposes only and we will not accept any responsibility of misuse.

• The areas inside the product cabinet are restricted areas. We recommends that access to restricted areas be given to authorized employees only.

• The product password must be kept by the designated person-in-charge.

• For the safety precautions of the uninterruptible power systems (UPS) and air-conditioners, refer to their user manuals and maintenance manuals.

Electrical safety

• For electrical connections, insulating tools must be used.

• After the product emits a warning through the monitoring floor, locate and eliminate the cause promptly to avoid further problems or failures.

Risk of electric shock

An electric shock can cause personal injury or even death. Therefore, pay attention to the following points:

• Before working on components inside the product, disconnect the control box and the remote power supply.

• Before installation, read all the operating instructions, verify that all the components are received at the installation site and check the nameplate to ensure that the voltage matches the mains supply.

• Comply with the on-site or local laws and regulations.

Cooling unit safety

• Use the R410A refrigerant only.

• Brass must support a minimum working pressure of 55bar.

• This product is recommended for commercial or other professional use.

• This product is to be used for its design purposes only and we will not accept any responsibility of misuse.

• The areas inside the product cabinet are restricted areas. We recommends that access to restricted areas be given to authorized employees only.

• The product password must be kept by the designated person-in-charge.

• For the safety precautions of the uninterruptible power systems (UPS) and air-conditioners, refer to their user manuals and maintenance manuals.

Safety precautions

• When maintaining or replacing components, pay attention to high-temperature components (such as the compressor, refrigerant pipe, and electric heater) to prevent scalds and to prevent the refrigerant system from being cracked or exploded due to misoperations.

• Refrigerant leakage may cause frostbite. Take protective measures (for example, wear antifreeze gloves) when handling refrigerant.

Installation environment requirements

Pay attention to the following when working at least 2 meters above the ground:

• Comply with local laws and regulations.

• The operator must be trained and qualified.

• Before working at heights, check the climbing tools and safety gears such as safety helmets, safety belts, ladders, springboards, scaffolding, and lifting equipment. If they do not meet the requirements, take corrective measures or disallow working at heights.

• Wear personal protective equipment such as the safety helmet and safety belt or waist rope and fasten it to a solid structure. Do not mount it on an insecure moveable object or metal object with sharp edges. Make sure that the hooks will not slide off.

• Set a restricted area and eye-catching signs for working at heights to warn away irrelevant personnel.

• Carry the operation machinery and tools properly to prevent them from falling off and causing injuries.

• Personnel involving working at heights are not allowed to throw objects from the height to the ground, or vice versa. Objects should be transported by tough slings, hanging baskets, highline trolleys, or cranes.

• Ensure that guard rails and warning signs are set at the edges and openings of the area involving working at heights to prevent falls.

• Do not pile up scaffolding, springboards, or other sundries on the ground under the area involving working at heights. Do not allow people to stay or pass under the area involving working at heights.

• Inspect the scaffolding, springboards, and workbenches used for working at heights in advance to ensure that their structures are solid and not overloaded.

• Any violations must be promptly pointed out by the site manager or safety supervisor and the involved personnel should be prompted for correction. Personnel who fail to stop violations will be forbidden from working.

Potential risks

• Operate the product only after disconnecting it from all power sources.

• Before opening internal components for maintenance, disconnect the mains switch and all power supplies to the UPS.

2 Product overview

2.1 Introduction to the MDC

An MDC (Micro Data Center) is a data processing unit that includes all the necessary resources (both IT and infrastructure) to satisfy IT needs. Thus, if we consider the IT needs of a small/medium sized enterprise, this would imply the existence of servers (domain, file, internet servers for the enterprise website), possibly data storage and networking equipment. They should be placed in a temperature-controlled room, protected against power outages by a UPS (Uninterruptible Power Source) system, and possibly protected against unforeseen situations that may affect the servers' operation (fire, flood or infiltration of liquids). An MDC includes all these functionalities, moreover,

it allows real time monitoring of the operating conditions of the components and notification by various means when events occur that could adversely affect the computer components.

Constructively, an MDC takes the form of an ordinary rack with frames for mounting various computer units (servers, storage units, etc.). In addition, it may also comprise:

- air conditioning unit (A/C) for maintaining a low temperature of the equipment.

- UPS to ensure operation during power outages.

- external battery module for a long backup time.

- sensors (temperature, humidity, liquid leakage, smoke).

- management and monitoring unit with possibility of network connection (wired or wireless).

- power distribution unit with automatic fuses.

- interior lighting.

Consequently, the advantages of using an MDC are:

- Low latency: having all the computer modules (servers, storage modules, network connection, etc.) in one place will significantly reduce the response and data access time.

- Increased reliability: due to the presence of the infrastructure sub-assemblies (air conditioning, UPS, sensors, etc.) in the same enclosure as the IT sub-assemblies, their operating conditions will be greatly improved and malfunctions will be largely prevented, increasing system reliability.

- Reduced installation and commissioning time as the MDC can be delivered fully or partially assembled.

- Scalability: as IT needs grow, the use of MDCs allows new units to be added to existing ones and integrate naturally into the IT system.

- Reduced costs: the use of MDCs, by their standardized and modular nature, excludes the need to designate and equip a specialized location for the installation of IT systems, while retaining all its advantages (air conditioning, monitoring, reliability, etc.)

As a converged data center infrastructure solution, our new generation of Micro Data Center has the following features:

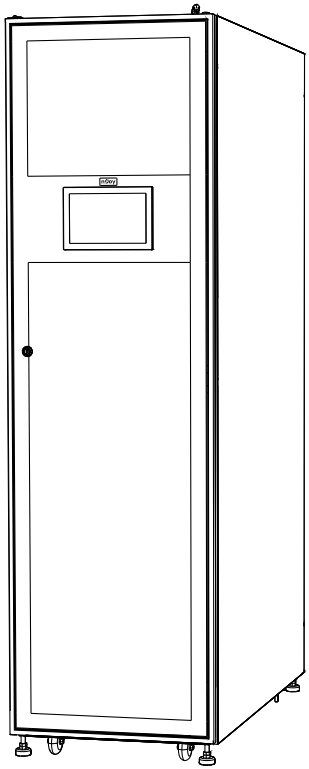
• Integrating subsystems such as UPS, power distribution, cooling, environmental monitoring, and lighting.

• Available as a single cabinet or as multiple cabinets to accommodate different applications.

• Pre-designed systems with factory validation

• Quick cabinet deployment and flexible configurations:

The MDC is designed for use in environment requiring micro data centers, computers, or server rooms for small and medium businesses and branch offices. It comes with a choice of single cabinet and row or multiple cabinet system. All devices that meet EIA-310-D standards can be installed in the cabinet. It comes standard with a 10.1-inch touchscreen, LED lighting with colorful atmosphere lights, temperature and humidity sensor, smoke sensor, water leakage detector, electronic electric locks, etc.



Forge MDC 6K 42U

NOTE!

1. The Forge MDC 6K-42U (Standard single cabinet) are equipped with a swing door. When the system works normally, the door is closed. When the system overheats (temperature of rack inlet higher than 35°C) or a smoke alarm occurs, the door automatically opens, and the system enters the emergency operation mode.

2. Cooling capacity is measured under this working condition: Indoor return air: @37.8°C/20%RH Outdoor ambient temperature: 35°C.

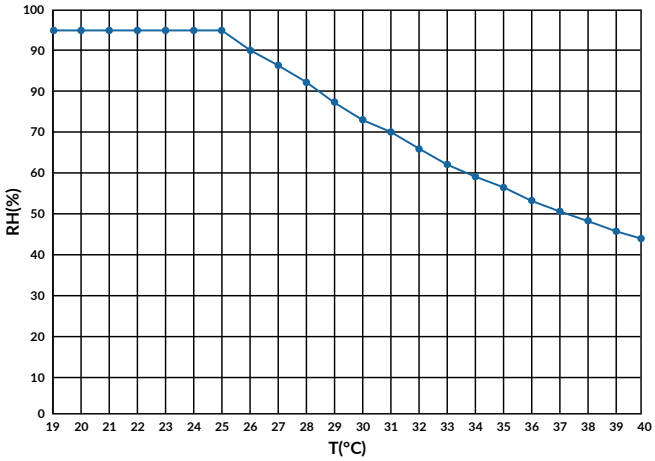
3. All cooling units are integrated cooling units without refrigerant, which needs to be charged on site.

4. The 3.5 kW cooling units, have the evaporative kit for free drainage.

5. If an evaporative kit of 3.5 kW cooling unit is used, it is necessary to check in advance the temperature and humidity conditions on site. Please refer to the chart below: In a well-sealed cabinet (leakage rate below 10%), the T/H condition below the curve will not trigger an overflow (condensate) alarm and shutdown. If the T/H condition is higher than the curve, there is a risk of overflow because the condensate volume is higher than the capacity of the evaporation kit. In this case, it is recommended to use with a condensate pump instead.

6. An emergency gravity drain is provided to prevent overflow alarms. Gravity drainage can be performed by manually opening the manual water valve of the cooling unit.

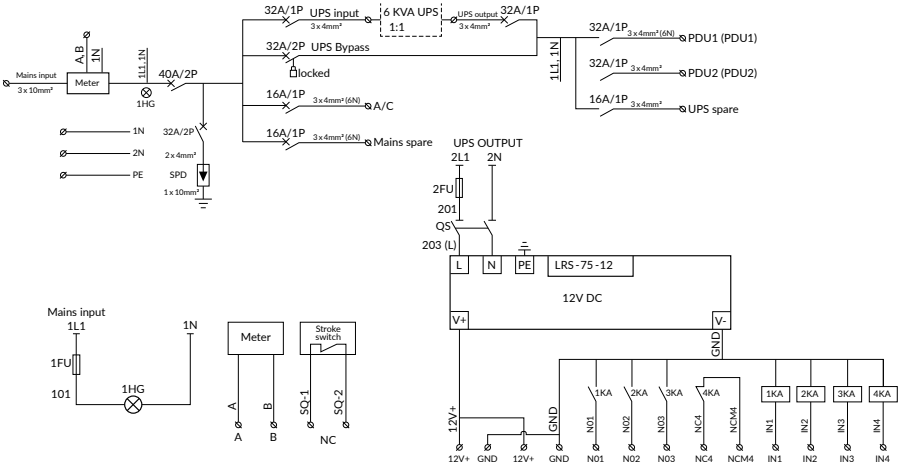
Ambient temperature (°C)	Ambient umidity (%)
19	95
20	95
21	95
22	95
23	95
24	95
25	95
26	90
27	87
28	83
29	78
30	74
31	70
32	66
33	63
34	59
35	56
36	53
37	51
38	48
39	46
40	43



Temperature and humidity of 3.5 kW integrated cooling unit (with self-evaporative kit)

2.2 System electrical diagram

The following figure shows a circuit example of a single cabinet. Circuits of other models are similar.

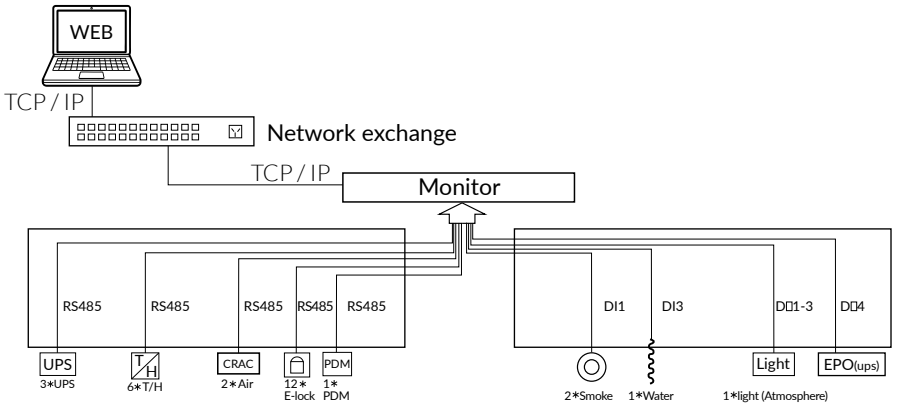


Electrical diagram

NOTE!

Two spare terminals, one for mains backup circuit and one for UPS backup circuit, are available to meet additional customer requirements.

2.3 Monitoring system



Monitor circuit

2.4 Environment requirements

- The equipment will be installed indoors, the surface where it is installed flat and horizontal, away from direct sunlight, with temperatures of 0 - 40 degrees, humidity less than 90% (no condensation) and with sufficient operating space. The site infrastructure must support a weight of 800Kg.

- The connection to the power supply network and the electrical cable used must be able to withstand a current of at least 40A and must be correctly made (L, N, PE connections at the power supply terminal block of the PDM must correspond to the phase, null and grounding of the network).

- it is not recommended to use this equipment in a residential environment.

- the installation of the equipment should be carried out only by specialized/ authorized personnel in compliance with the rules of work protection and the use of electrical protective equipment (insulating gloves, etc.)

- do not carry out installation or maintenance operations with the equipment connected to the mains.

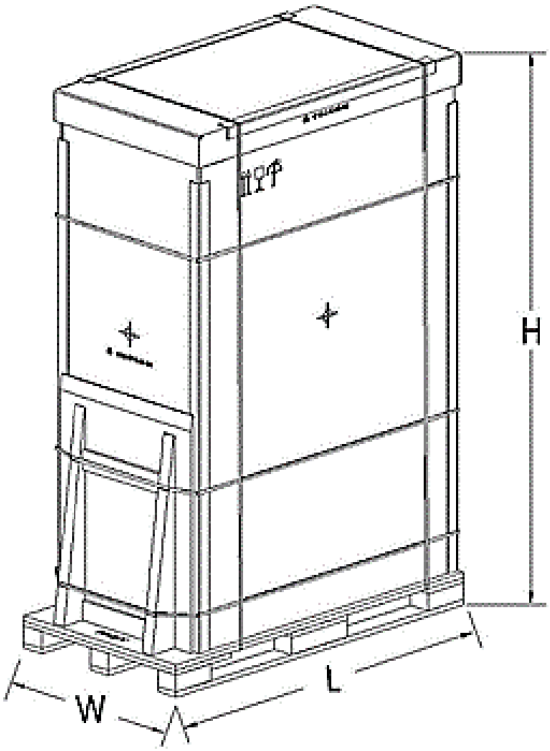
The recommended operating and storage environment are as shown below.

Storage temperature	-25°C to +55°C (battery excluded)
Storage environment	Indoor/clean (no dust, etc.)
Operating temperature	0°C to 40°C
Ambient humidity	5%RH to 95% RH (no condensation)
Altitude	≤ 3000 m (consult us for usage over 1000 m)

3 Installation preparation

3.1 Package

The figure below shows the package of MDC.



Cabinet package

3.2 Transportation and unpacking

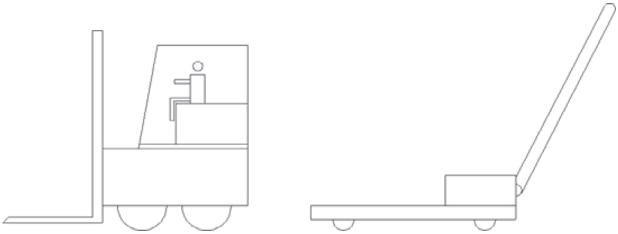
The figure below shows the package of MDC.

⚠ CAUTION

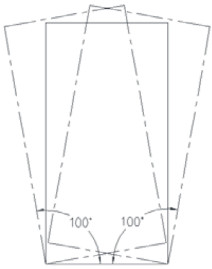
Ask a qualified technician to install infrastructure of the data center room.

3.2.1 Transportation

Because cabinets and cooling outdoor units are heavy, electric forklift or manual forklift is recommended for handling and moving them to the installation site. When transporting, ensure that the inclination angle of the cargo should not exceed 10°, as shown in the following figures.



Transporting tools



Tilt angle range

NOTE!

– All devices must be kept upright all the time.

– Since the device is heavy, the center of gravity of the device must be balanced during transportation.

– The cooling outdoor unit must be kept upright. Do not reverse the unit or set it upside down, otherwise it will be damaged.

3.2.2 Unpacking

For the convenience of unpacking and transporting the MDC, you can move the unit to the nearest flat ground before unpacking.

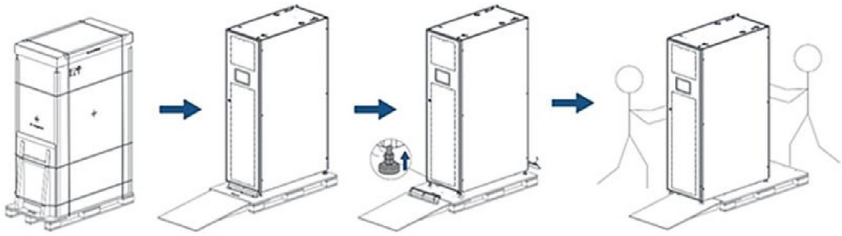
The unpacking procedure is as follows:

Step 1 Transport the packaged device to an open, flat, and firm ground. Remove the packagingand cushion materials.

Step 2 Place the ramp pallet at the front of the cabinet as shown in figure below.
Step 3 Open the front and rear doors, remove the angle bracket, and screw the feet to ensure smooth movement of casters.

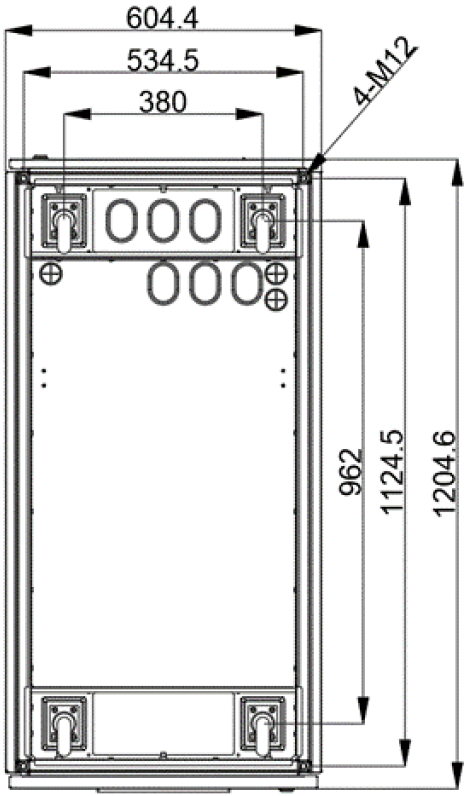
Step 4 Close the front and rear doors. Slowly push the cabinet down along the pallet. It is recommended that at least two operators perform this step to ensure safety.

Installation preparation



3.3 Requirements about installation site

The MDC can be installed on cement floor or raised floors. Ensure sufficient space or height between the cabinet bottom and the ceiling. See the bottom dimensions of the MDC cabinet in the following figures.

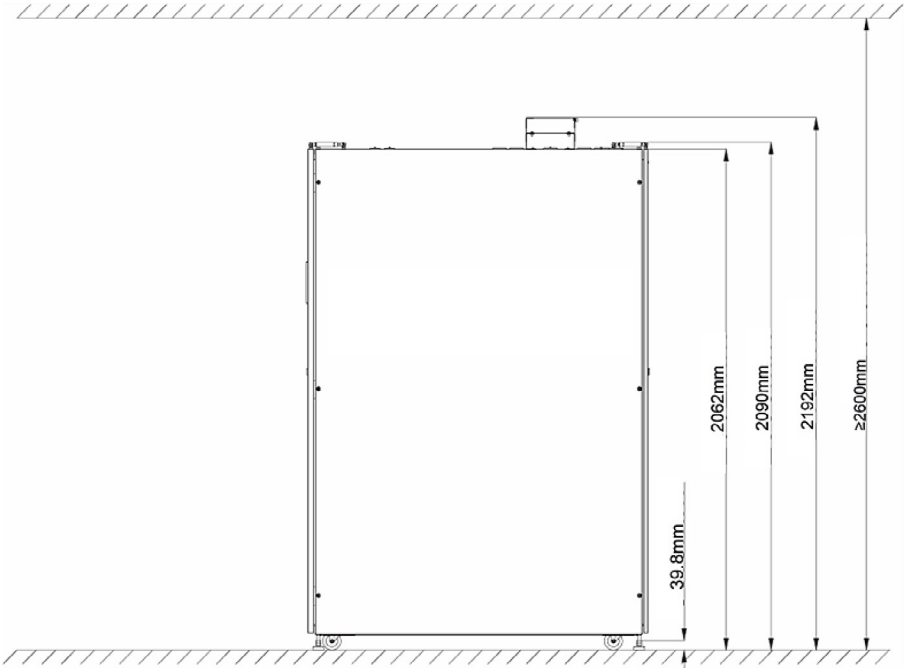


(unit: mm)

Bottom of a Forge MDC 6K-42U is 600mm

NOTE!

- *The cabinet layout and labeled data shown in the figure are only for explanation and recommended values, and cannot be directly used as a reference for engineering layout drawings.*
- *The distance between the cabinet and the wall should not be less than 1m.*
- *If the length of the row (multiple) cabinets exceeds 6m, it is recommended to leave passages at both ends. The width of the passage should not be less than 1m.*
- *If the actual site conditions do not meet the site requirements, contact our customer service center.*



Installation site planning diagram (side view)

4 Cabinet installation and electrical wiring

Raise the MDC support legs to allow the MDC to be wheeled and, using the ramp provided in the package, lower the MDC from the transportation platform.

Return the MDC to its final position and lower the 4 support legs until they make firm contact with the floor.

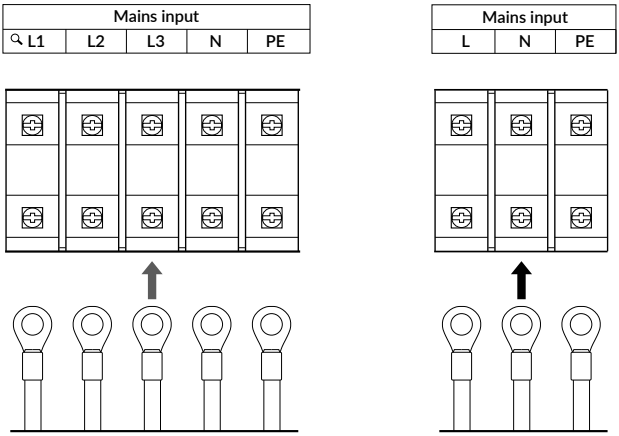
NOTE!

All cables are provided except for an external input cable.

4.1 Connect external cables

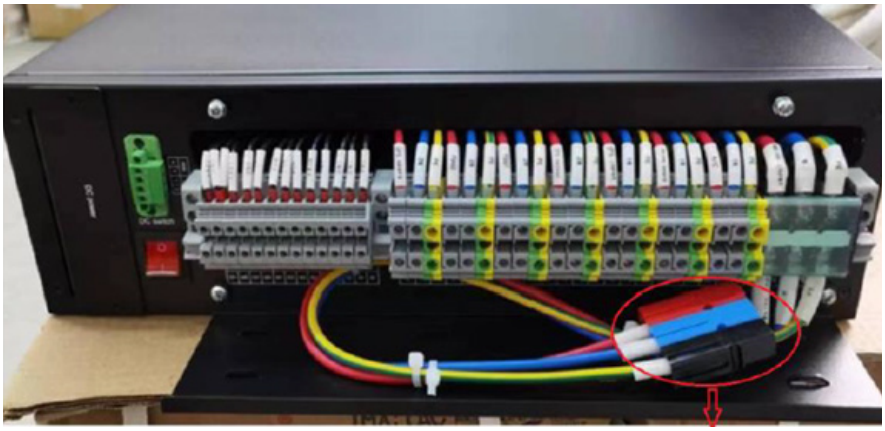
For the single MDC cabinets (Forge MDC 6K-42U), external input cables (single-phase three-wires) are required to connect the utility power with internal pre-assembled PDM.

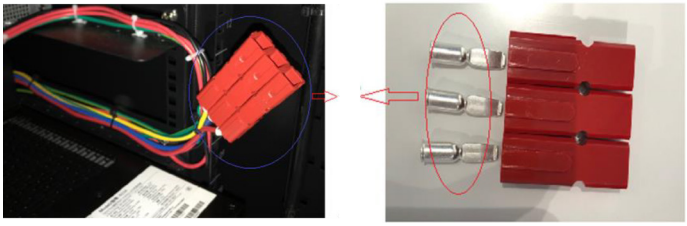
To connect with PDM, the input cables must be configured with OT terminals as shown in the figures below. OT terminals are available in the accessory kit provided, or you can use your own.



For single MDC cabinets (Forge MDC 6K-42U) equipped with 3.5 kW integrated cooling unit, one extended cable with red terminals for easy connection with utility power is provided on the PDM. You can crimp a Butt terminal provided in the accessory kit or prepared by yourself on the input cable and connect it to the red terminals.

The following figure shows the Butt terminals.

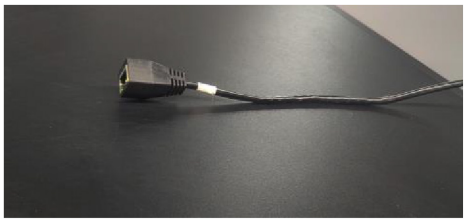


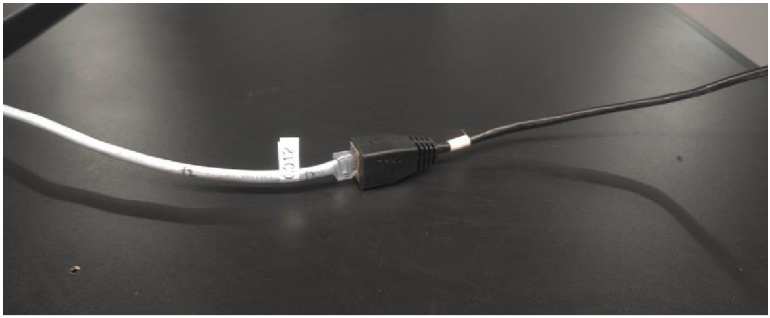


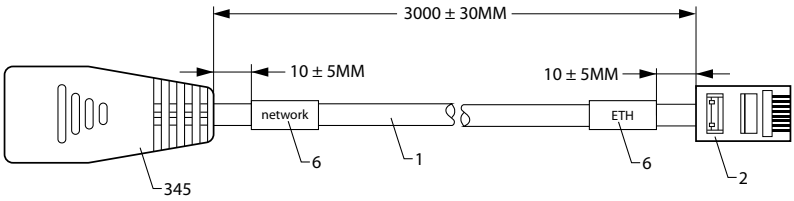
For single rack MDC with 3.5 kW cooling unit

Input cable specifications:
PMSS6K4S 3,5 kW 1 40A/2P RVV3*10 mm²/AWG8#.

The MDC provides an RJ45 northbound port on the top of the cabinet. You can use a standard network cable to connect it to your local area network (LAN).





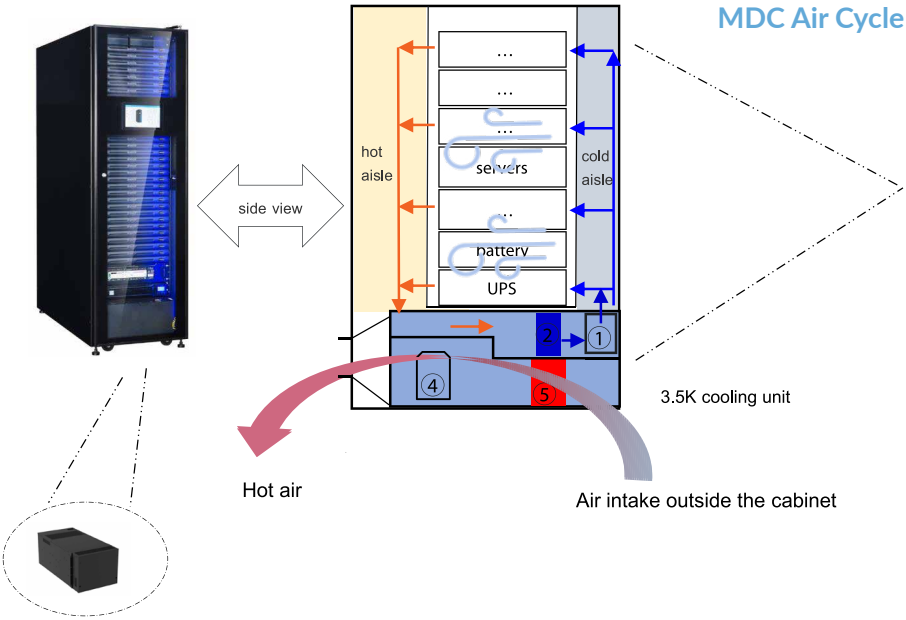


5 Installation of cooling units

3.5kW integrated cooling unit (with condensed water self-evaporating)

Cooling	3.5kW
Input	220~240V +- 10%, 1PH, 50/60Hz
Cooling capacity kW	3.5
Air volume m3/h	≧ 600
Self-Evaporated capacity tray kW	1.2
Max operating current A	13.5
Acoustic noise db	≤ 65
Size(W × D × H) mm	440 × 900 × 351
NW kg	55
Refrigerant	R410A

Air flow circle



Installation materials

Refrigerant: R410A

Gravity drainage pipe (for integrated cooling unit): Hard PVC pipe, inner diameter ≥ 12 mm.

5.1 Install the integrated cooling unit

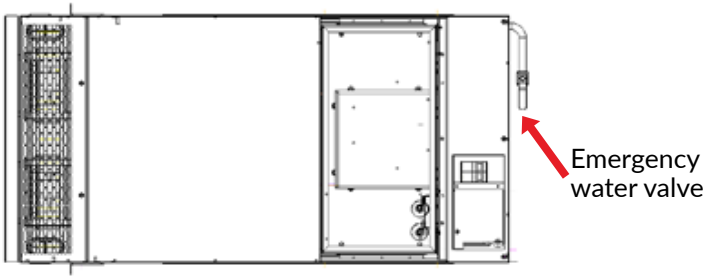
For integrated cooling, no outdoor unit is needed and only the drainpipe and air duct need to be installed on site. The cooling units are shipped without refrigerant. See 5.2.2 Charge the refrigerant for vacuum and refrigerant charge.

5.1.1 Connect the drainpipe

• The rating power for the evaporative kit is 500 W and the evaporating rate is 0.85L/h. To use this option, use a 1m gravity drainpipe with 12 mm OD together with the emergency water valve. The water valve is off by default. You can manually open the water valve to start gravity drainage when overflow or evaporative kit failure occurs.

NOTE!

It is recommended to connect the gravity drainpipe on site for emergency use when a self- evaporative kit fault, water leakage, or high water level alarm occurs.



5.2 Charge the refrigerant

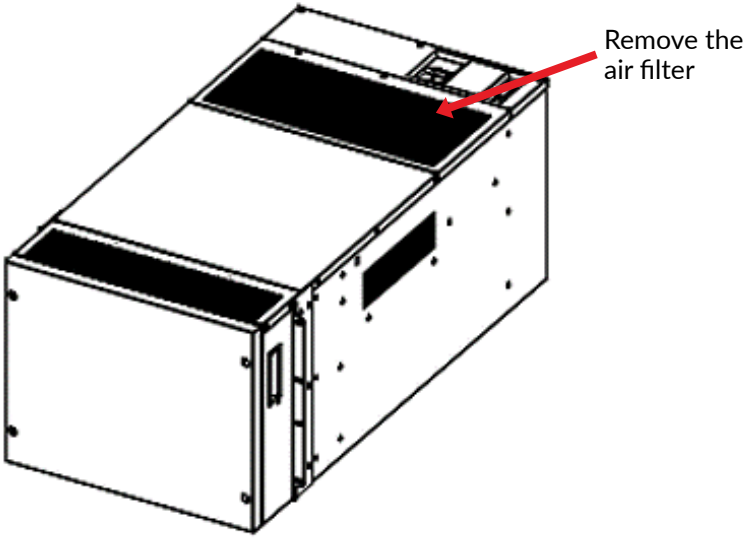
5.2.1 Vacuum

The unit does not contain refrigerant, and it needs to be charged with refrigerant as required before normal use. The recommended charge amount is 600g.

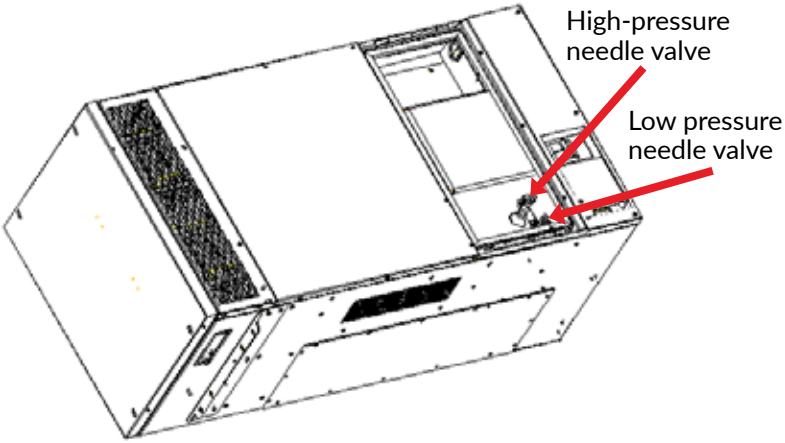
NOTE!

Refrigerant charging does not require pulling the cooling device out of the cabinet before vacuumizing and refrigerant charging. Ensure that the cooling unit is powered off during vacuumizing and refrigerant charging. See the steps below:

Step 1: Use a Phillips screwdriver to remove the three screws at the rear filter of the unit, remove the cover panel, and take out the air filter.



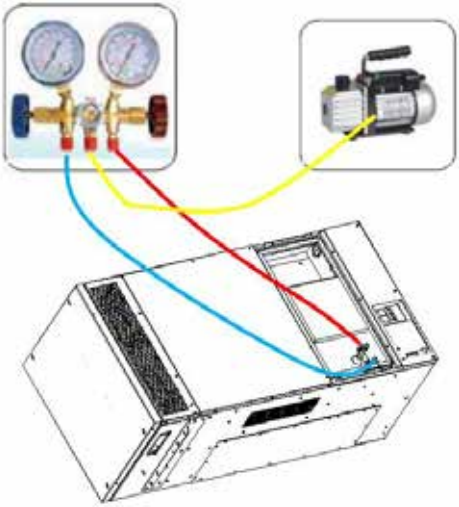
Step 2: Locate the system high- and low-pressure needle valves.



Step 3: Connect pressure gauge to both the high- and low-pressure needle valves and the middle pipe to the vacuum pump.

NOTE!

The high-pressure gauge should be connected to the high-pressure needle valve, and the low-pressure gauge should be connected to the low-pressure needle valve. Connect the red pipe to the high-pressure gauge and blue pipe to the low-pressure gauge.



Step 4: Turn on the vacuum pump to start vacuumizing.
The system vacuum degree is required to be below 0 Pa.

NOTE!

If there is no vacuum meter on site, you can keep vacuumizing for over 1 hour with a 3L vacuum pump to meet the requirement. This duration is obtained based on previous experiments. If you use a vacuum pump lower than 3L, extend the vacuumizing time appropriately.

Step 5: Maintain system pressure.

1. Turn off pressure gauges and then vacuum pump.

2. Observe whether the pressure gauge pointer remains motionless (at -0.1 MPa) within 10 minutes to 20 minutes. If yes, the system is well sealed and ready for refrigerant charging.

5.2.2 Charge R410A refrigerant

After the system pressure is maintained, remove the vacuum pump from the pipeline and connect the refrigerant tank for refrigerant charging. The total charge amount of R410A refrigerant is 600g.

The refrigerant charging process is as follows:

Step 1: Connect the refrigerant tank with the middle gas pipe connected to the vacuum pump and tighten it.

Step 2: Loosen the middle pipe connected with the double-ended pressure gauge for four to five turns.

Step 3: Turn on the switch of the refrigerant tank to have the gas fill the pipe and rush out from the connection.

This process lasts about 10 seconds.

Step 4: Place the refrigerant tank upside down on the scale.

NOTE!
During charging, the refrigerant tank must be inverted, and those with siphon tubes do not need to be inverted.

Step 5: Tighten the pressure gauge connection, and open the high- and low-pressure valves.
After the pipeline is emptied, the refrigerant is charged. Wait until the charging completes.

Step 6: Close the high- and low-pressure valves of the pressure gauge, keep the pipes connected, and power on for refrigeration operation.

Step 7: If it cannot be charged in a static state, turn on the cooling unit and open the low-pressure valve to enable slow charge from the suction tube (low-pressure valve).

You can turn on the cooling unit by either of the following tools:

• HMI: See 7.8.2 Turn on/off the cooling unit for details.

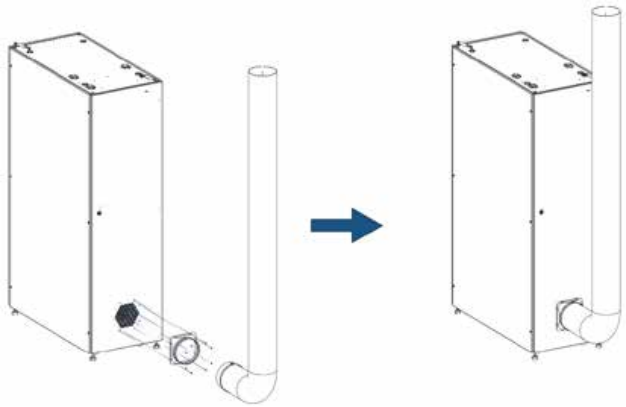
Step 8: Remove the pressure gauge.

Connect the drainage pipe
Outer diameter: Φ12mm
Length: 1M

NOTE!
The gravity drainage pipe outlet can not be higher than the outlet of cooling.

5.2.3 Connect the soft air duct or air chimney

For cabinets equipped with 3.5 kW integrated cooling units, a soft air duct and a square to round pipe adapter are provided. Connect them to the hot air outlet at the rear door to vent the hot air to the ambient. The following figure shows the connection.



NOTE!
It is recommended that the hot air be exhausted outside, otherwise the indoor temperature will gradually rise, and the cooling capacity of cooling unit will be derated.

5.3 Operation and commissioning

5.3.1 Check before operation

The daily operation and management of the unit must be carried out by special personnel in accordance with the relevant regulations. Inspection should be performed before power-on.

• Check whether the circuit breaker specifications are in line with power requirements on the unit nameplate.

• Use a multimeter to carefully check whether all electrical cables are properly connected. Use a megohmmeters to check whether the enclosure is short circuited. Check that the grounding cable is properly connected and that the insulation resistance to the ground is greater than 2 mΩ. Check that the power cable meets the capacity requirements.

• Check the power cable and communication cable of the indoor and outdoor units.

5.3.2 Commissioning

Step 1 Set the return air temperature lower than the current ambient temperature.

Step 2 Turn on the compressor and outdoor unit to start system refrigeration. Turning on the outdoor unit is not required for the integrated cooling unit.

Step 3 Observe the change of the high- and low-pressure gauge.
During the startup of the compressor, the low pressure should decrease, and the high pressure should rise. If there is no change in pressure, stop the device immediately.

NOTE!
If any abnormal situation is found during the startup of the compressor, stop the unit immediately and eliminate the faults.

Step 4 Use a clamp ammeter to measure the running current of the integrated cooling unit or split outdoor unit.

The running current must be lower than the rated current. For the split cooling unit, check that the outdoor unit is free from abnormal noise and vibration.

6 Turn on/off the MDC

6.1 Check before turning on the MDC

Before turning on the MDC, check and confirm a few aspects such as the system settings, the power distribution cable connection, and the cooling unit installation.

6.1.1 Check the system settings

• Check that cabinets are installed (including cable tray and side panel) and fixed to the correct location in sequence. You can open the cabinet door and find the cabinet number in lower right corner of the cabinet bottom. Ensure that the leveling feet of the cabinet are adjusted and leveled.

• Check that the cabinets are joined together at equal height, the screws between the cabinets are tightened, and the cabinets are sealed without gaps.

• Check that the protective coil on the cabinet is not loose or dropped.

• Check that the blank plate has been installed in the spare part of the cabinet where no equipment is installed.

6.1.2 Check electrical connections

• Check that all cabinets (including battery cabinets) are grounded and the ground cable between the cabinet door and body is connected.

• Check that the number of battery cells is correct, the connections between the batteries are correct and the positive and negative connections of the battery are correct.

• Check that the wiring of the PDM is secured and not loose.

• Confirm that the power supply voltage and frequency meet the conditions and verify that the phase order of the three-phase source is correct by using a multimeter.

• Check that the PDU in each cabinet is connected to the PDM correctly.

6.1.2 Check electrical connections

• Check that the pipes of the cooling units are connected and fixed properly, and correct pipe insulation measures has been taken.

• Check that the cooling unit pipes have been vacuumized, and pressure holding and leakage detection measures has been taken.

• Check that the cooling unit drainpipe is installed and fixed properly, and the drainage works correctly.

• Check that the outlet of the copper pipes on top or bottom of the cabinet are sealed and protected.
• Check that the globe valves on the refrigerant pipes are open and the refrigerant circuit has been set up.

• Check that the power and communication cables to outdoor unit/indoor unit/ integrated cooling unit are properly connected.

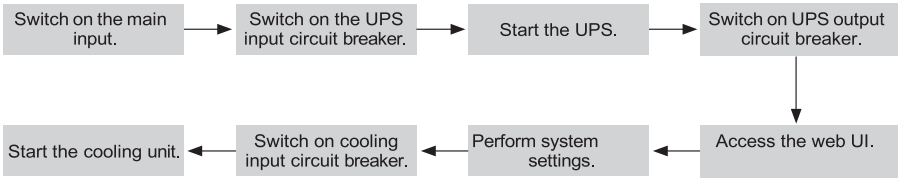
• For the outdoor unit, check that it is fixed in place, and there are no obstructions affecting its ventilation.

6.2 Turn on the MDC

⚠ CAUTION

Installation or commissioning of the MDC must be performed by our customer service engineers or authorized specialists.

To turn on the MDC:



Step 1 Switch on the system main input.

Step 2 Switch on the UPS input circuit breaker on the PDM.

Step 3 Switch on the circuit breaker for the UPS's battery.

Step 4 Start the UPS by following its user guide.

Step 5 Switch on UPS's output circuit breakers on the PDM.

Step 6 Switch on PDU input circuit breakers on the PDM to turn on the PDUs.

Step 7 Check that the user screen is on.
If it is off, turn on the DC module switch on the back of the PDM.

Step 8 Access the user interface to set the system language, time and address on the user settings page and set the installation time, serial number, system type on the maintenance page.

The default username/password for the administrator is **admin/admin**. For details, see 7 General operations on the HMI or computer.

Step 9 Switch on cooling input circuit breakers on the PDM.

Step 10 On the HMI, go to **A/C > Details** and tap the **ON** button of the cooling unit to start the cooling unit.

If a cooling unit fault is displayed on the monitor screen, clear the fault first.

Step 11 Tap **UPS** in the bottom menu bar to check whether the UPS is working properly.

Step 12 Tap **Environment** in the bottom menu bar to check whether door lock and water leakage faults are reported. Tap **A/C** in the bottom menu bar to check whether the operation of cooling units and the temperature of each cabinet are normal.

Step 13 Tap **Alarm** in the left menu bar to check whether there is any alarm reported. If yes, locate the cause and eliminate the alarm.

6.3 Turn off the MDC

⚠ CAUTION

- **Before shutting down, ensure that the user load has been turned off with authorization.**
- **Do not turn off the MDC by turning off the power directly to avoid damaging the cooling unit.**

To turn off the MDC:

Step 1 Switch off the PDU circuit breaker on the PDM.

Step 2 Tap the OFF button of the cooling unit **(A/C > Details > OFF)**. Wait until the compressor stops output, and then turn off the cooling unit's input switch on the PDM.

Step 3 Turn off the UPS switch and disconnect the UPS's input and output switches on the PDM. Turn off the battery switch.

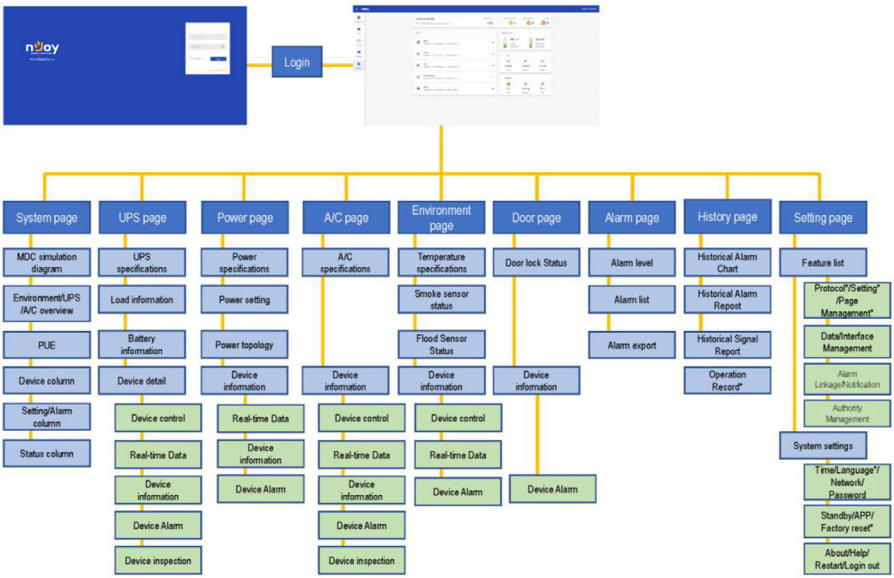
Step 4 Disconnect the main switch controlling the system input.

7 General operations on the HMI or computer

This chapter introduces the monitoring method and user interface of the MDC, including local and remote monitoring and display.

7.1 User interface overview

The following figure shows the overview of the user interface.



* indicates that the menu can be accessed only by authorized accounts.

7.2 Log in to/Log out of the MDC system

You can log in to the MDC through the HMI on the cabinet or a computer connected to the same LAN with the MDC.

NOTE!

One account can be used to log in to the MDC on only one client.

7.2.1 Log in to the MDC through the HMI

Refer to section 6.2 to turn on the MDC, enter your username and password on the login page, and tap **Login**.

NOTE!

*The default username/password for the administrator is **admin/admin**, and the default username/password for the common user is **user/user**. You will be required to change the default password when you log in to the MDC system for the first time.*

If you forget your password, contact our service personnel.

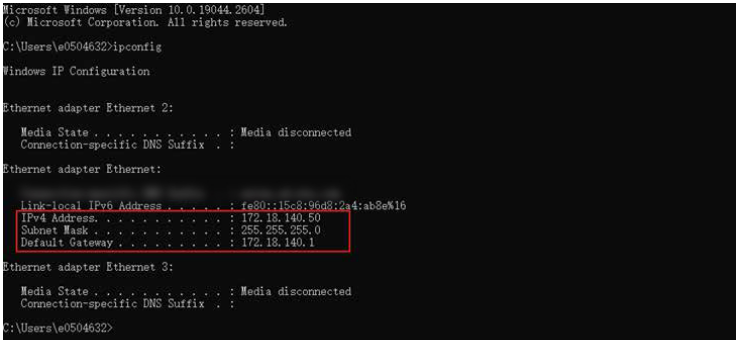
7.2.2 Log in to the MDC through a computer (wireless connection)

Step 1 Obtain the IP address that will be used for the MDC in the LAN.

1. Connect your computer to the network cable which will be used to connect to the MDC.

2. Press Win+R, enter cmd, and press Enter.

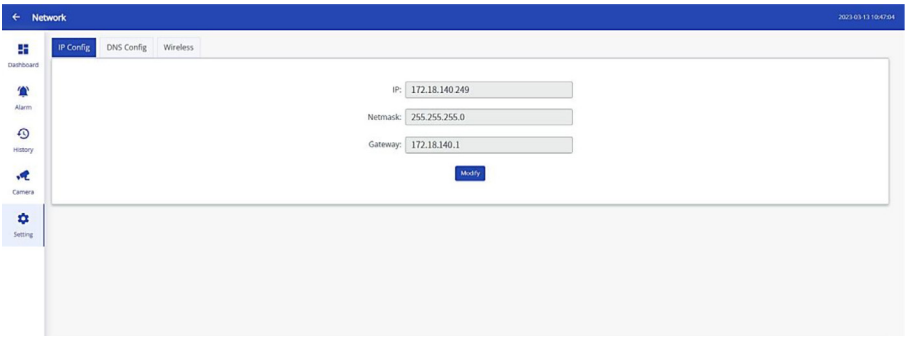
3. Enter ipconfig and press Enter. Record the values of IPv4 Address, Subnet Mask, and Default gateway. The following figure shows an example.



Step 2 Set the IP address for the MDC.

1. Refer to 7.2.1 to log in to the HMI of the MDC, and go to **Setting > Network > IP Config** on the HMI.

2. Set IP, Mask, and Gateway to the values recorded in Step 1, and tap Modify.



Step 3 Connect the MDC and your computer to the same LAN.

1. Disconnect the network cable from your computer, and connect the network cable to the **network** port on the top of the cabinet.

2. Connect your computer to the same LAN with the MDC.

Step 4 Start a browser (Google Chrome recommended) on your computer, enter the IP address of the MDC that you set in Step 2 in the address bar, and press **Enter**.

Step 5 Enter your username and password and click **Login.**

NOTE!

– The default username/password for the administrator is admin/admin, and the default username/password for the common user is user/user. You will be required to change the default password when you log in to the MDC system for the first time.

– If you forget your password, contact our service personnel.

7.2.3 Log in to the MDC through a computer (wired connection)

Step 1 Use a network cable to connect your computer to the **network** port on the top of the cabinet.

Step 2 Change the IP address of your computer to an unoccupied one in the same network segment with the MDC.

1. Go to **Go to Start > Settings > Network & Internet.**
2. Click **Change adapter settings**.
3. Right-click the network adapter and select the **Properties** option.
4. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties.**
5. Select **Use the following IP address**, and specify **IP address, Subnet mask**, and **Default gateway.**

   By default, the IP address of the MDC is 192.168.100.100, subnet mask is 255.255.255.0, and gateway is 192.168.100.1. In this case, you can set the IP address of your computer to **192.168.100.X (X** indicates any integer ranging from 2 to 254 except 100).

   If you have changed the IP address of the MDC before, refer to section 7.2.1 to log in the HMI of the MDC, and go to **Setting > Network > IP Config** to obtain the IP address.
6. Click **OK.**

Step 3 Start a browser (Google Chrome recommended) on your computer, enter the IP address of the MDC (for example, **192.168.100.100**) in the address bar, and press **Enter.**

NOTE!

*Check whether **https://** is automatically added before the IP address you entered. If not, manually add **https://** before the IP address.*

Step 4 Enter your username and password and click **Login.**

NOTE!

*– The default username/password for the administrator is **admin/admin**, and the default username/password for the common user is **user/user**. You will be required to change the default password when you log in to the MDC system for the first time.*

– If you forget your password, contact our service personnel.

7.2.4 Log out of the MDC

After you log in to the MDC, you can tap Setting in the left menu bar and then tap Log out to log out of the MDC.

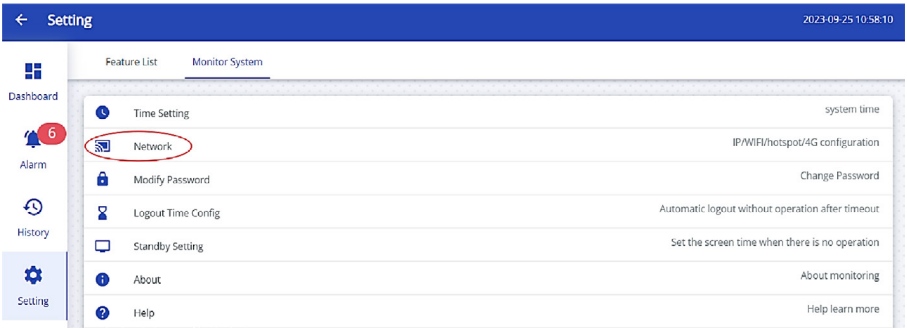
7.3 Change IP address of the system

NOTE!

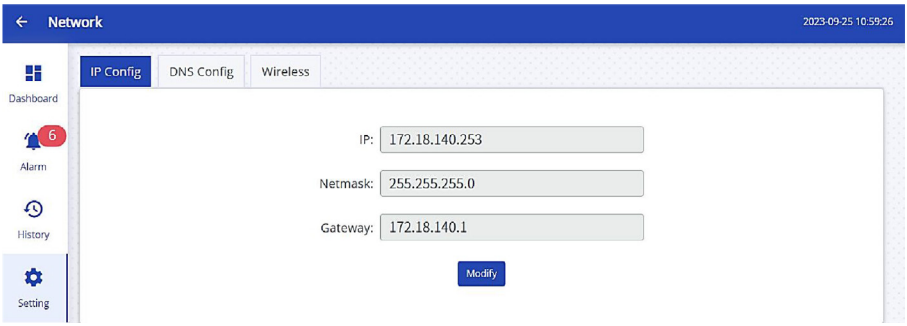
This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap Setting in the left menu bar and then tap **Monitor System > Network**, as shown below.



Step 3 Tap IP config, enter the IP address and gateway, and then tap Modify. Wait for about 10 seconds for the configuration to take effect.

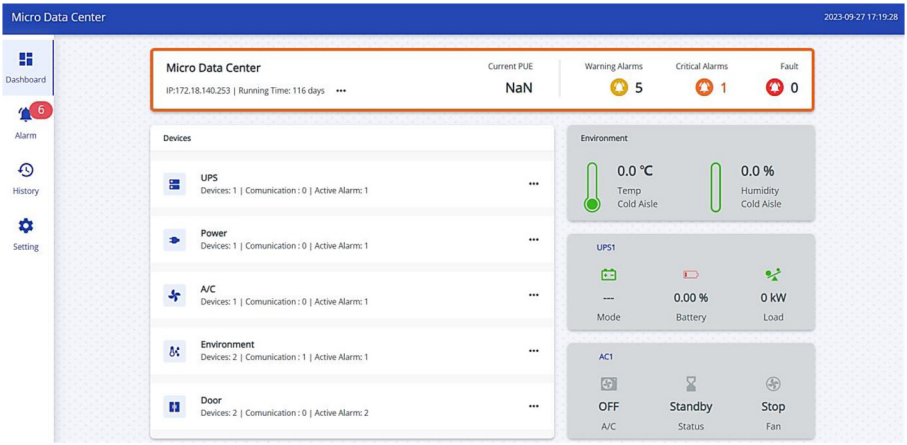


Step 4 Shut down and restart the monitoring server.

Step 3 Tap Wireless, and set parameters as required.

7.4 View system information

After you log in to the system, the following system homepage is displayed.



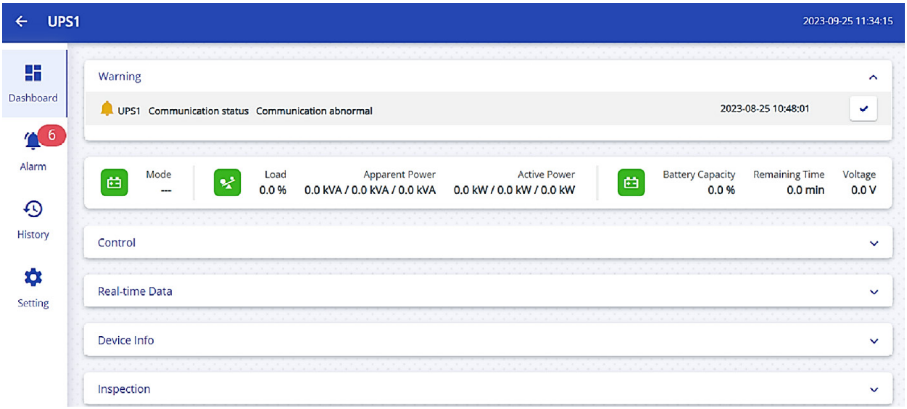
On this page, you can see the following information.

System homepage

MDC information	Displays the system name, IP address, running time, current power usage effectiveness (PUE), and number of alarms of the MDC. You can tap ... to view more MDC data, including the product name, model, serial number, material number, and installation time.
Device information	Displays the device list, which includes the total number of devices, number of online devices, and number of active alarms. You can tap ... to view more device data and control them.
Environment	Displays current temperature and humidity of the cold aisle.
UPS	Displays the current operating mode, battery level and load status of the UPS.
A/C	Displays the working status of the cooling unit and operating status of the fan.
Menu bar	Includes the dashboard, alarm, history, and settings in sequence.

7.5 View UPS details and control UPS

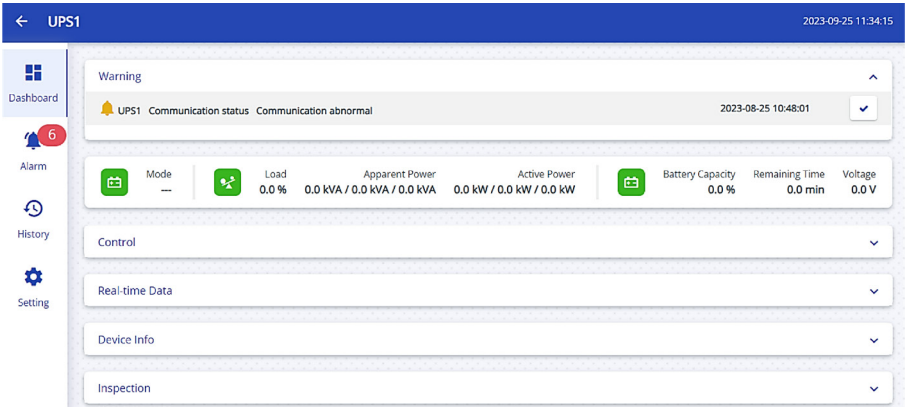
To view overall information about the UPS, refer to section 7.2 to log in to the system, and tap UPS on the Dashboard homepage to access the **UPS** page, as shown below.



On this page, you can see the working mode, load, apparent power, active power, battery capacity, remaining battery usage time, and battery voltage of the UPS.

7.5.1 View UPS alarms

To view UPS alarms, refer to section 7.2 to log in to the system, and tap **UPS** on the Dashboard homepage. Then you can see the alarms in the **Warning** module, as shown in the following figure.



7.5.2 Stop the UPS by EPO button

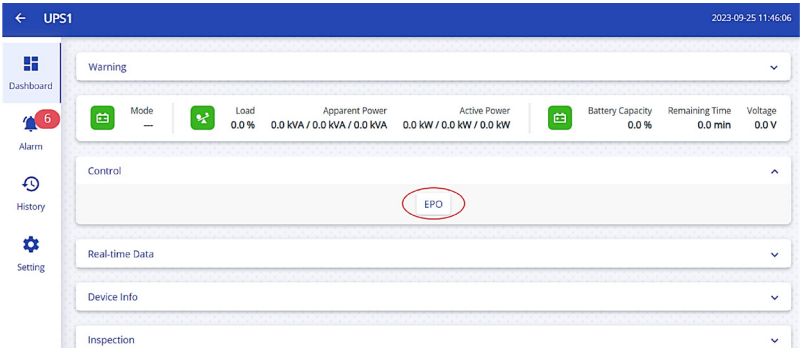
NOTE!

This operation is only available for authorized accounts.

You can stop the UPS remotely by using the EPO button upon emergency.

Step 1 Refer to section 7.2 to log in to the system, and tap **UPS** on the Dashboard homepage.

Step 2 Tap **Control** and then **EPO**.

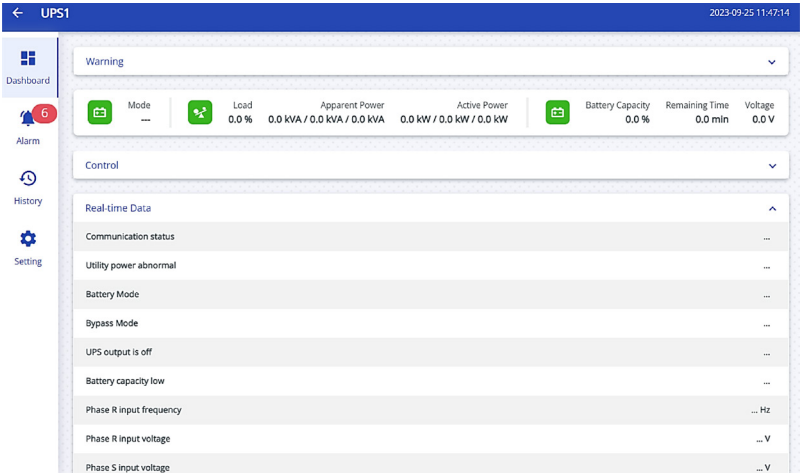


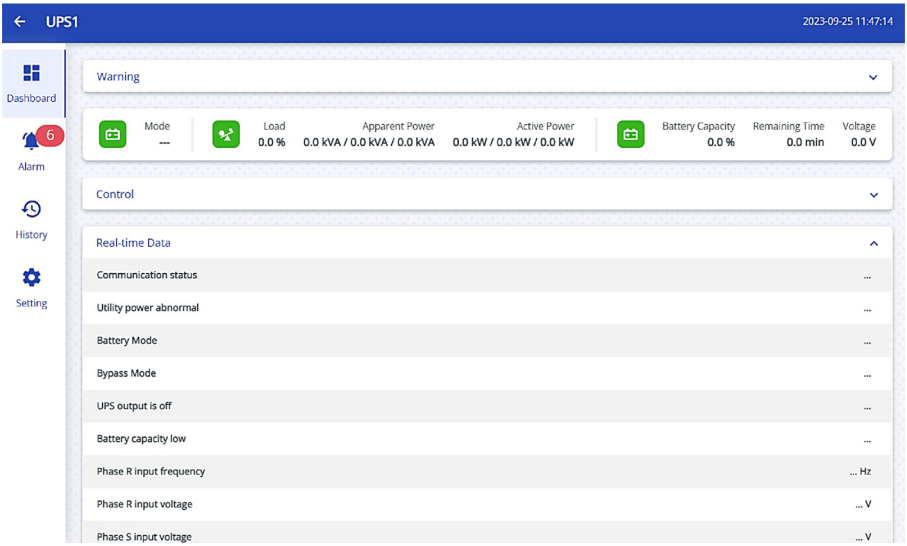
7.5.3 View real-time UPS data

Step 1 Refer to section 7.2 to log in to the system, and tap **UPS** on the Dashboard homepage.

Step 2 Tap **Real-time Data.**

Now you can see the real-time data of UPS. The following figure shows an example.





7.5.4 View UPS information

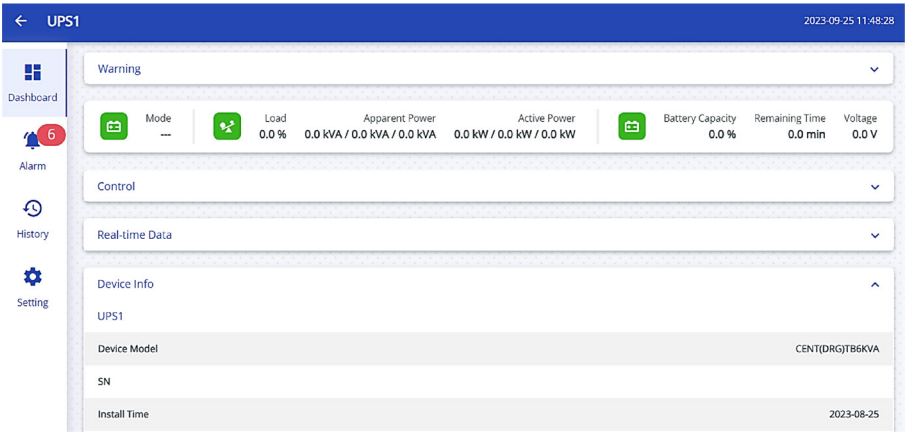
To view information of the UPS, including the model, serial number, installation time, and running time:

Step 1 Refer to section 7.2 to log in to the system, and tap **UPS** on the Dashboard homepage.

Step 2 Tap **Device Info**.

NOTE!

The device information may vary with the presettings. The following figure shows an example.



7.5.5 Perform inspection on the UPS

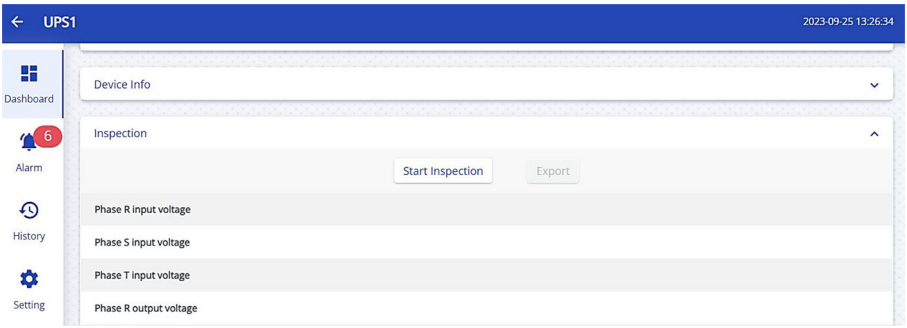
NOTE!

This operation is only available for authorized accounts.

If a UPS fault occurs, you can perform inspection on the UPS and export the result to locate faulty data.

Step 1 Refer to section 7.2 to log in to the system, and tap **UPS** on the Dashboard homepage.

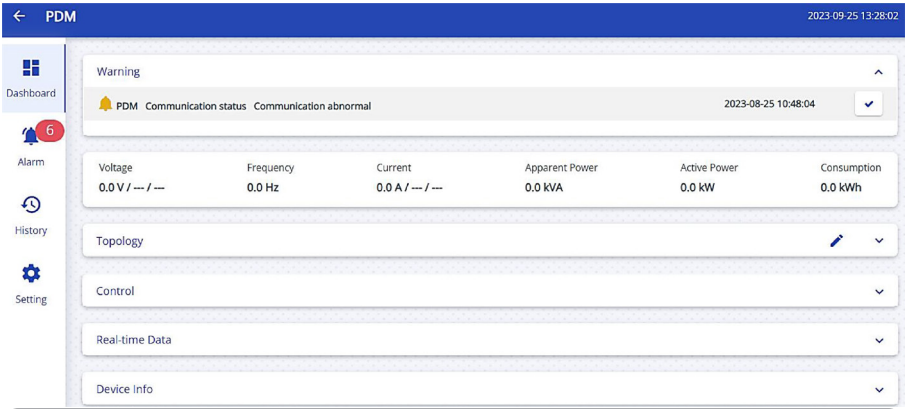
Step 2 Tap **Inspection** and then **Start Inspection.**



If you log in to the MDC using a computer, you can click **Export** to download the inspection results as an Excel file to your computer.

7.6 View PDM details and control PDM

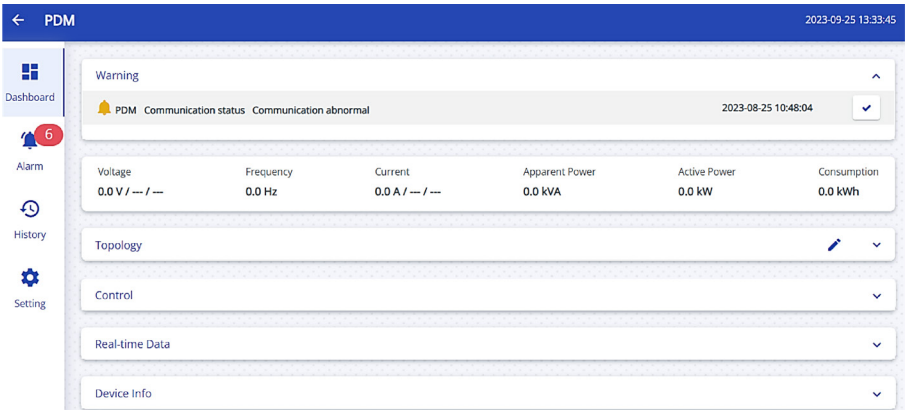
To view overall information about the PDM, refer to section 7.2 to log in to the system, and tap **Power** on the Dashboard homepage to access the **PDM** page, as shown below.



On this page, you can see the voltage, frequency, current, apparent power, active power, and power consumption of the PDM.

7.6.1 View PDM alarms

To view PDM alarms, refer to section 7.2 to log in to the system, and tap **Power** on the Dashboard homepage. Then you can see the alarms in the **Warning** module, as shown in the following figure.



7.6.2 Check PDM topology

To check the PDM topology, refer to section 7.2 to log in to the system, tap Power on the Dashboard homepage, and then tap Topology.

7.6.3 Set the PDM address

NOTE!

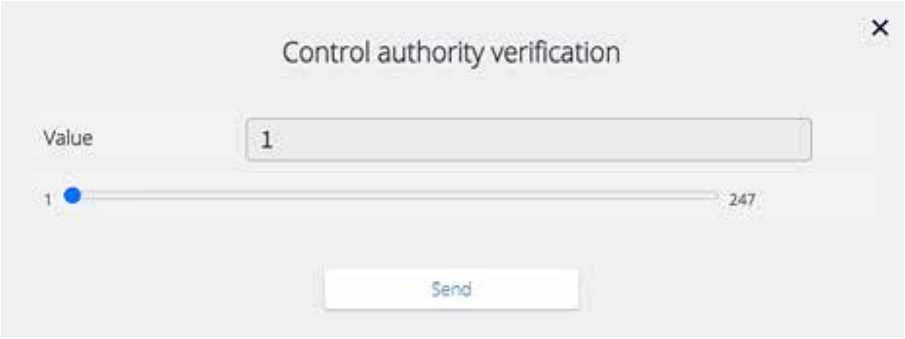
This operation is only available for authorized accounts.

To set the PDM address:

Step 1 Refer to section 7.2 to log in to the system, and tap Power on the Dashboard homepage.

Step 2 Tap **Control** and then **Address setting**.

Step 3 Set an address value, and tap **Send.**

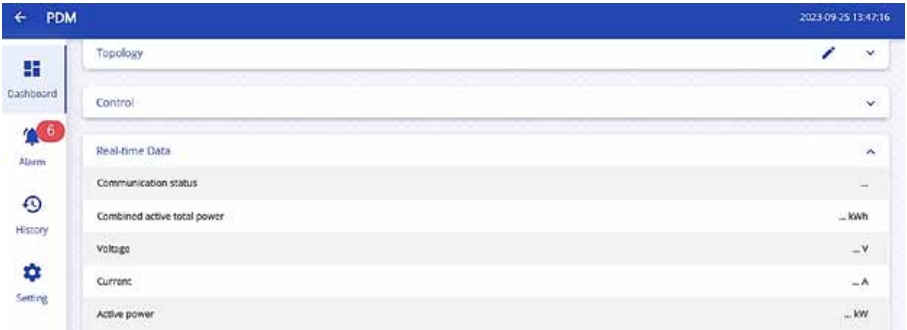


7.6.4 View real-time PDM data

Step 1 Refer to section 7.2 to log in to the system, and tap Power on the Dashboard homepage.

Step 2 Tap **Real-time Data.**

Now you can see the real-time data of PDM. The following figure shows an example.



7.6.5 View PDM information

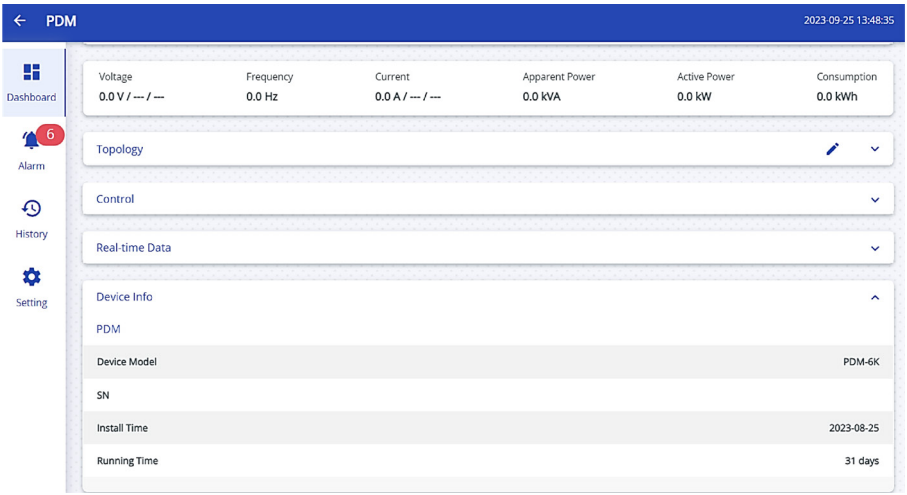
To view information of the PDM, including the model, serial number, installation time, and running time:

Step 1 Refer to section 7.2 to log in to the system, and tap Power on the Dashboard homepage.

Step 2 Tap **Device Info.**

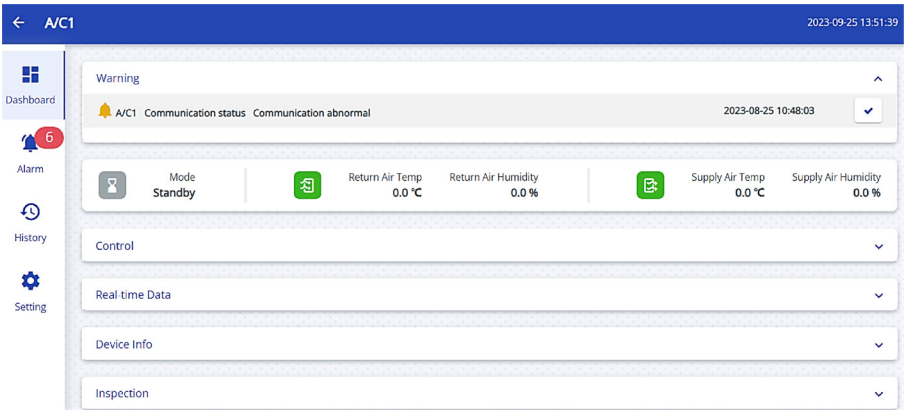
NOTE!

The device information may vary with the presettings. The following figure shows an example.



7.7 View cooling unit details and control the cooling unit

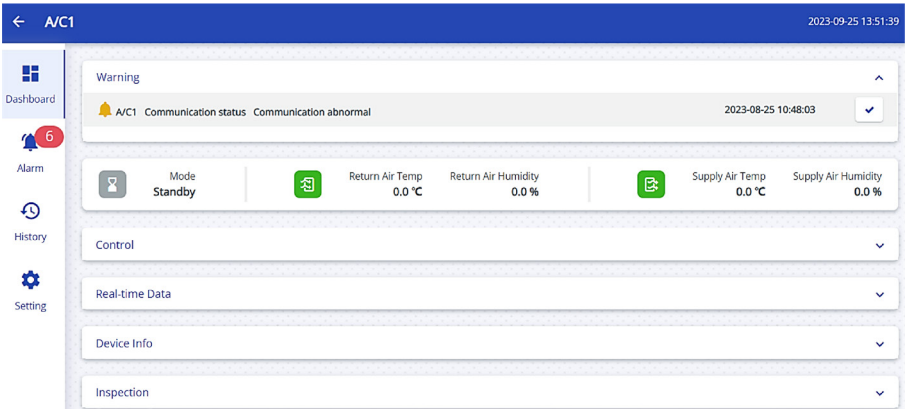
To view overall information about the cooling unit, refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage to access the **A/C** page, as shown below.



On this page, you can see the overall information of the cooling unit, including its working mode, returned air temperature and humidity, and supplied air temperature and humidity.

7.7.1 View cooling unit alarms

To view cooling unit alarms, refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage. Then you can see the alarms in the **Warning** module, as shown in the following figure.



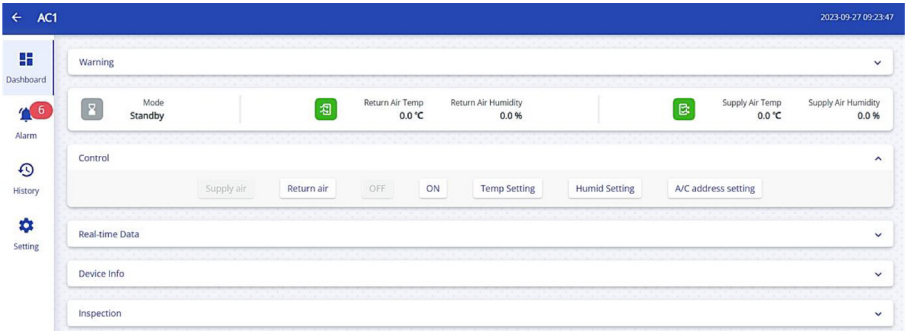
7.7.2 Turn on/off the cooling unit

NOTE!

This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage.

Step 2 Tap Control and then ON to turn on or OFF to turn off the cooling unit.



7.7.3 Supply air

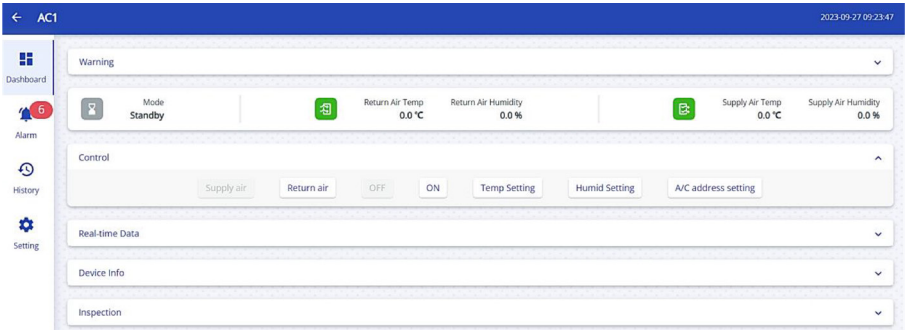
NOTE!

This operation is only available for authorized accounts.

By default, the return air mode is used. If you want to enable the supply air mode, following the steps below. The default mode is recommended.

Step 1 Refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage.

Step 2 Tap **Control** > **Supply air.** Then, tap **Start**.



7.7.4 Set temperature

NOTE!

This operation is only available for authorized accounts.

By default, the return air mode is used. If you want to enable the supply air mode, following the steps below. The default mode is recommended.

Step 1 Refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage.

Step 2 Tap **Control** and then **Temp setting.**

Step 3 Set a temperature value and tap **Send.**

7.7.5 Set humidity

NOTE!

This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage.

Step 2 Tap **Control** and then **Humid setting.**

Step 3 Set a humidity value and tap **Send.**

7.7.6 Set humidity

NOTE!

This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system, and tap A/C on the Dashboard homepage.

Step 2 Tap Control and then A/C address setting.

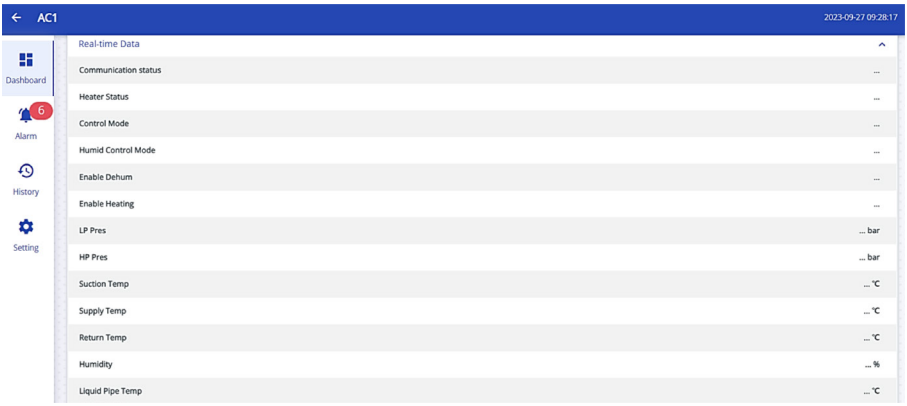
Step 3 Set a value in the range of 1 to 255 and tap Send.

7.7.7 View real-time data of cooling unit

Step 1 Refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage.

Step 2 Tap **Real-time Data**.

Now you can see the real-time data of cooling unit. The following figure shows an example.



7.7.8 View cooling unit information

To view information of the cooling unit, including the model, serial number, installation time, and running time:

Step 1 Refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage.

Step 2 Tap **Device Info.**

NOTE!

The device information may vary with the presettings. The following figure shows an example.

7.7.9 Perform inspection on the cooling unit

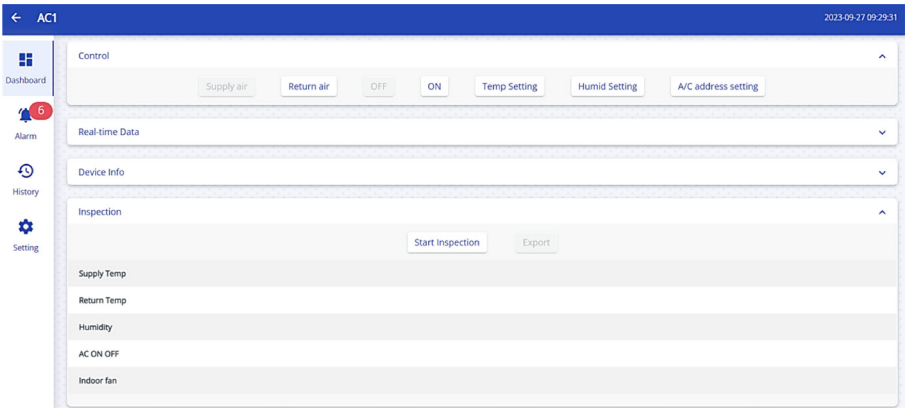
NOTE!

This operation is only available for authorized accounts.

If a cooling unit fault occurs, you can perform inspection on the cooling unit.

Step 1 Refer to section 7.2 to log in to the system, and tap **A/C** on the Dashboard homepage.

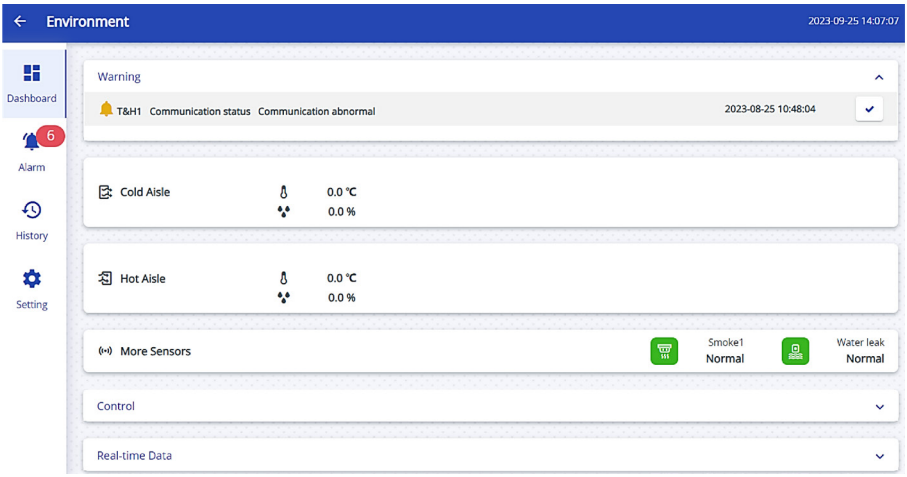
Step 2 Tap **Inspection** and then **Start Inspection.**



If you log in to the system using a computer, you can click **Export** to download the inspection results as an Excel file to your computer for further analysis.

7.8 View environment details

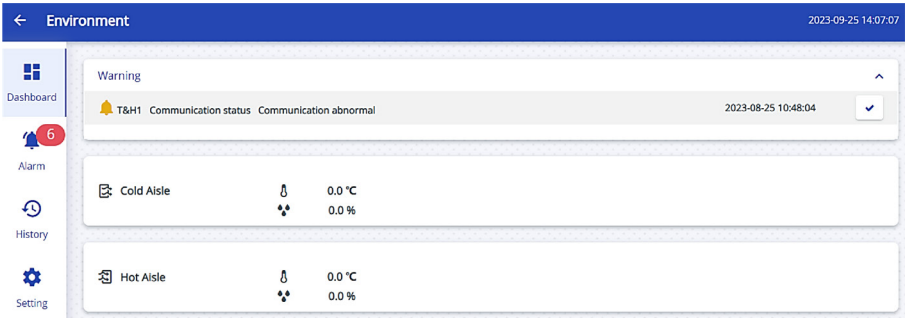
To view overall information about the environment, refer to section 7.2 to log in to the system, and tap **Environment** on the Dashboard homepage to access the **Environment** page, as shown below.



On this page, you can see temperature and humidity of cold/hot aisle and working status of the smoke sensor and water leakage detector.

7.8.1 View environment alarms

To view environment alarms, refer to section 7.2 to log in to the system, and tap Environment on the Dashboard homepage. Then you can see the alarms in the **Warning** module, as shown in the following figure.

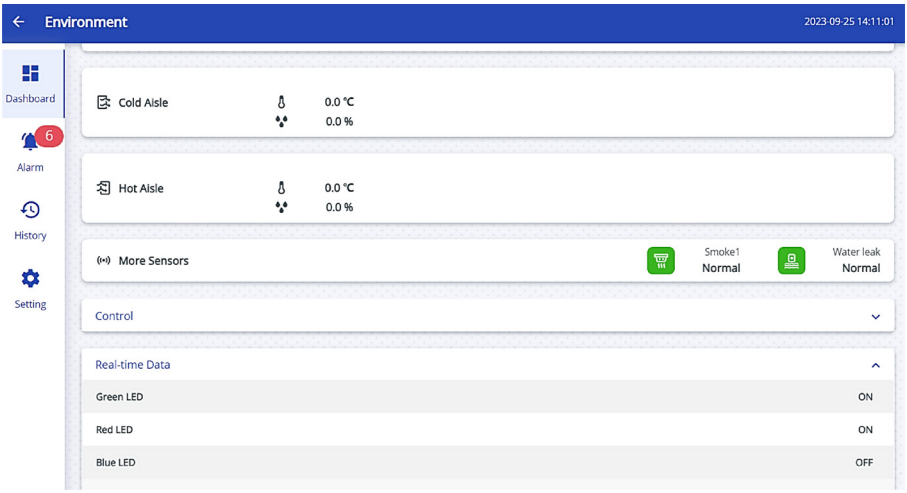


7.8.2 View real-time data of ambient lights

Step 1 Refer to section 7.2 to log in to the system, and tap Environment on the Dashboard homepage.

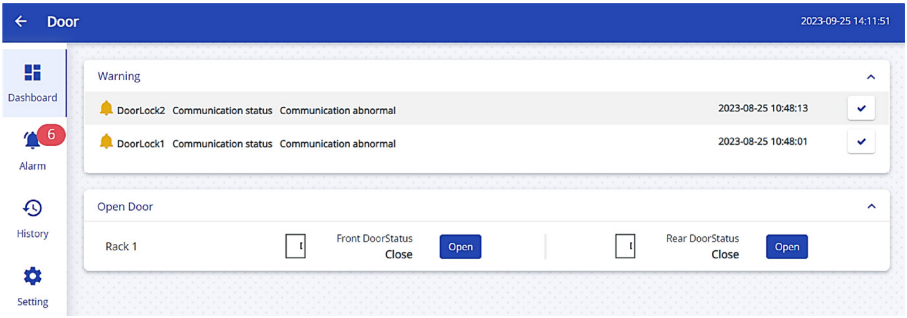
Step 2 Tap **Real-time Data**.

Now you can see the real-time data of ambient lights. The following figure shows an example.



7.9 View door lock details and control door locks

To view overall information about door locks, refer to section 7.2 to log in to the system, and tap **Door** on the Dashboard homepage to access the **Door** page, as shown below.



On this page, you can see the status of the front and rear doors of each cabinet.

7.9.1 View door lock alarms

To view door lock alarms, refer to section 7.2 to log in to the system, and tap **Door** on the Dashboard homepage. Then you can see the alarms in the **Warning** module, as shown in the following figure.

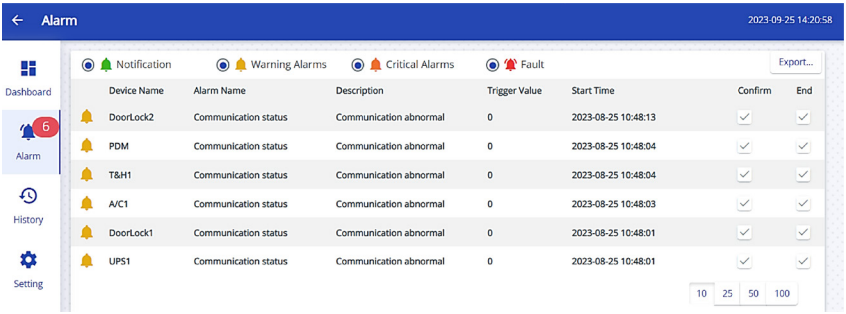
7.9.2 Open a cabinet door

Step 1 Refer to section 7.2 to log in to the system, and tap Door on the Dashboard homepage.

Step 2 Tap **Open** to open a door.

7.10 View and export current alarms

To view current alarms, refer to section 7.2 to log in to the system, and tap Alarm in the left menu bar to access the **Alarm** page, as shown below.



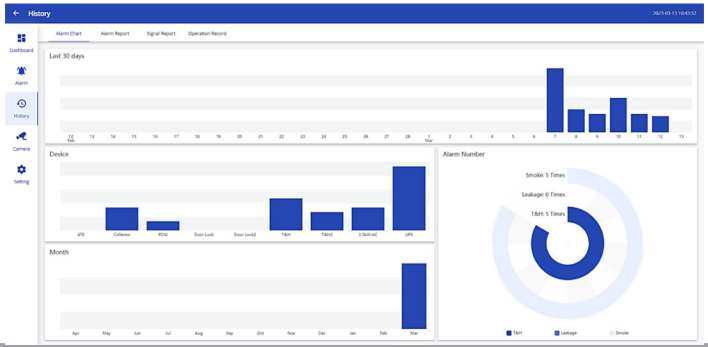
By default, all levels of alarms are displayed on this page. You can select **Notification, Warning Alarms, Critical Alarms**, and Fault to view alarms by level.

If you log in to the system using a computer, you can click **Export** to download the displayed alarms.

7.10 View and export historical alarms

7.10.1 View historical alarm charts

To view historical alarm charts, refer to section 7.2 to log in to the system, tap History in the left menu bar, and select the **Alarm Chart** tab, as shown below.



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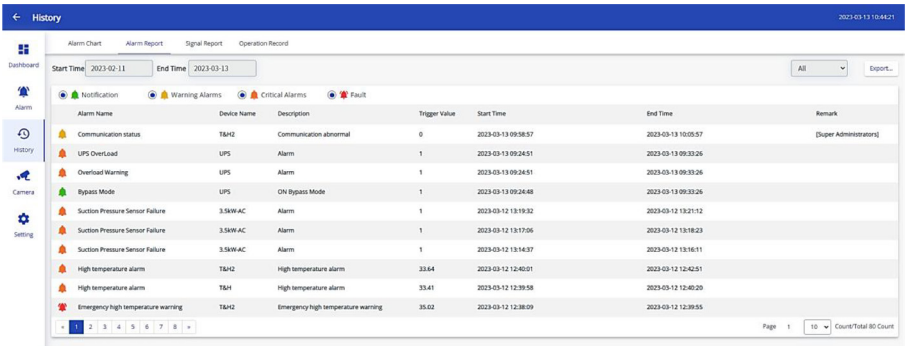
On this page, the numbers of alarms are displayed by days (last 30 days), months, and devices. Devices with maximum number of alarms are also displayed. You can check the data for alarm analysis.

7.10.2 View and export historical alarm report

To view historical alarm report, refer to section 7.2 to log in to the system, tap **History** in the left menu bar, and select the **Alarm Report** tab, as shown below.



By default, information of all alarms is displayed on this page, including the alarm name, device name, description, trigger value, start time, and end time.

You can set filters to display certain alarms.

Filter description

Start Time 2023-08-26 End Time 2023-09-25	Specifies the time when the alarms were generated.
Notification Warning Alarms Critical Alarms Fault	Specifies the type of alarms to be displayed.
All	Specifies the type of devices on which alarms are generated.

7.10.3 View and export historical signal report

To view historical signal report, refer to section 7.2 to log in to the system, tap History in the left menu bar, select the **Signal Report** tab, and set filters as required.

The following table describes the filters available on this page.

Filter	Description
Start Time 2023-08-26 End Time 2023-09-25	Specifies the time when the signals were generated.

Filter	Description
Selected DoorLock2 DoorLock1 T&H1 PDM 3.5kW-AC UPS1 ATE Collector Lock status	Specifies the type of signals to be displayed.
All History Data	Specifies the type of signals to be displayed by signal value. – **All History Data**: All historical signal data is displayed. – **Daily Maximum**: Only the historical signal data with the maximum value on each day is displayed. – **Daily Minimum**: Only the historical signal data with the minimum value on each day is displayed. – **Daily Average**: Average data on each day is displayed.

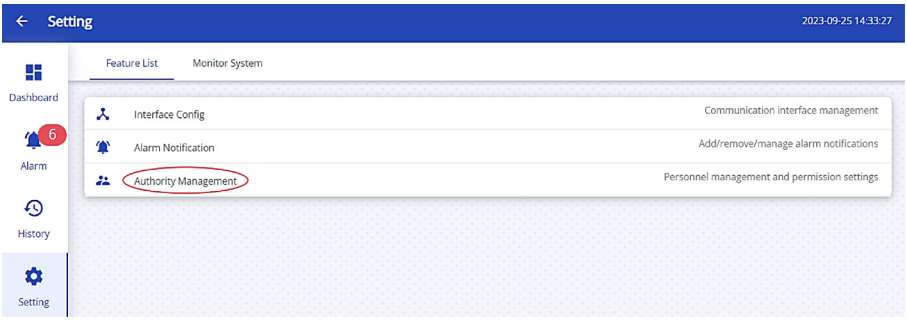
If you log in to the system using a computer, you can click **Export** to download displayed alarms as an Excel file.

7.11 Manage accounts

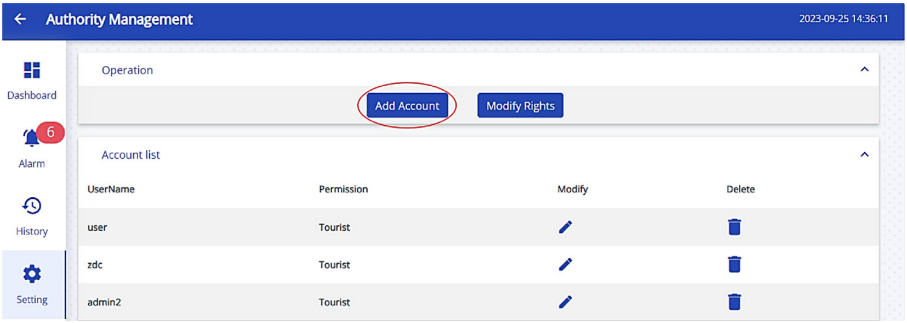
7.11.1 Create an account

Step 1 Refer to section 7.2 to log in to the system.

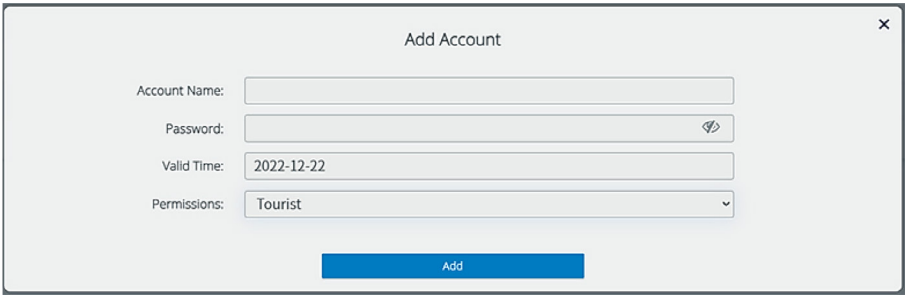
Step 2 Tap **Setting** in the left menu bar and then tap **Authority Management.**



Step 3 Tap **Add Account.**



Step 4 Enter the account name and password, choose the valid time and permission level, and tap **Add.**



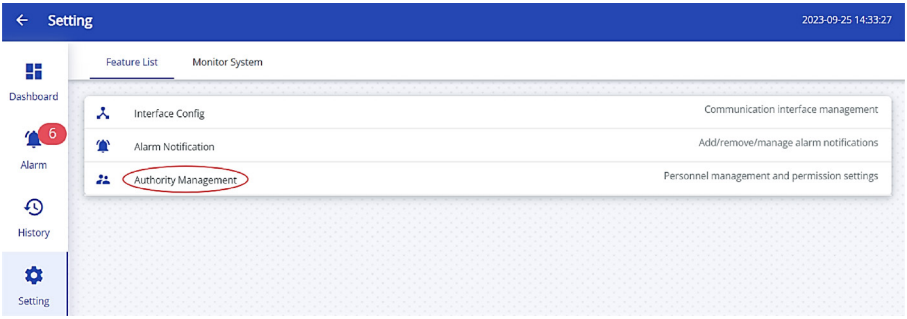
7.11.2 Modify account permissions

NOTE!

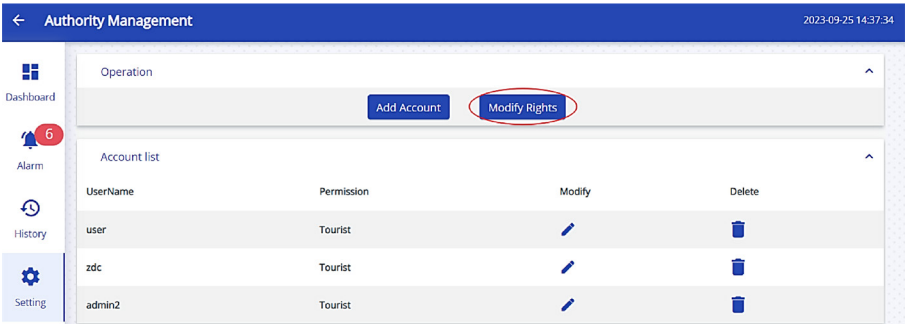
This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system.

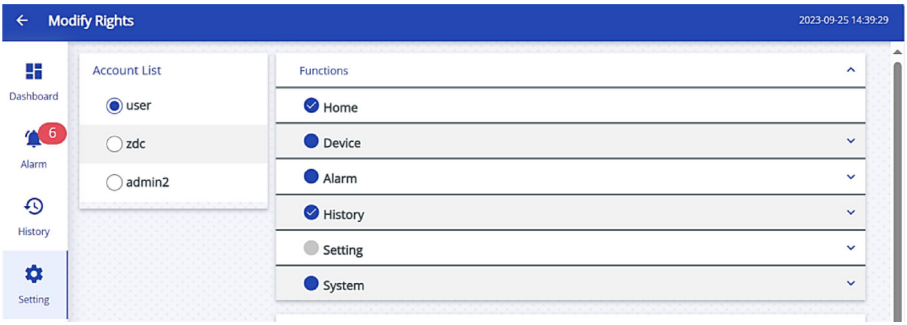
Step 2 Tap **Setting** in the left menu bar and then tap **Authority Management**



Step 3 Tap **Modify Rights.**



Step 4 Select an account, and then select required permissions for the account, and tap **Save**.



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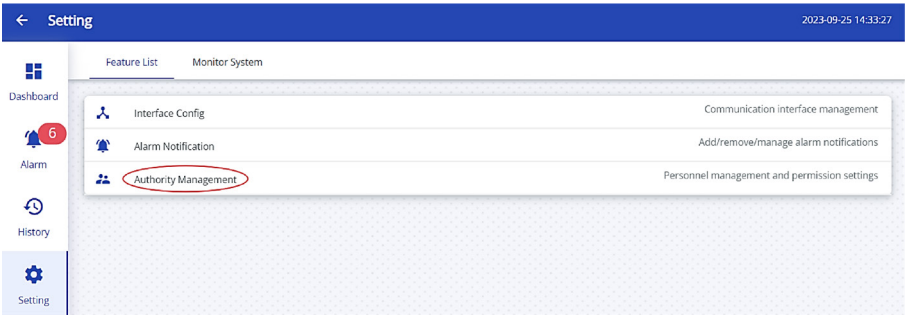
7.11.3 Modify an account

NOTE!

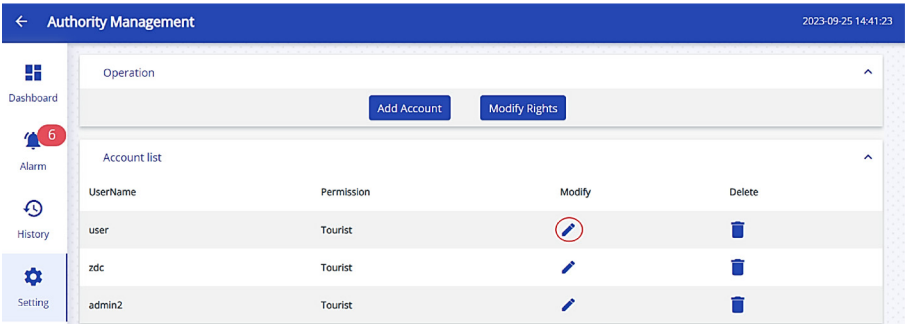
This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system.

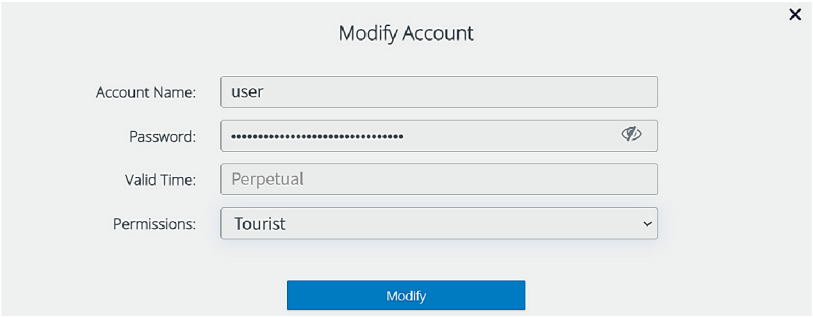
Step 2 Tap **Setting** in the left menu bar and then tap **Authority Management.**



Step 3 Tap in the line of the account to be modified.



Step 4 Modify **Account Name, Password**, and **Valid Time** as required, and tap **Modify**.



7.11.4 Delete an account

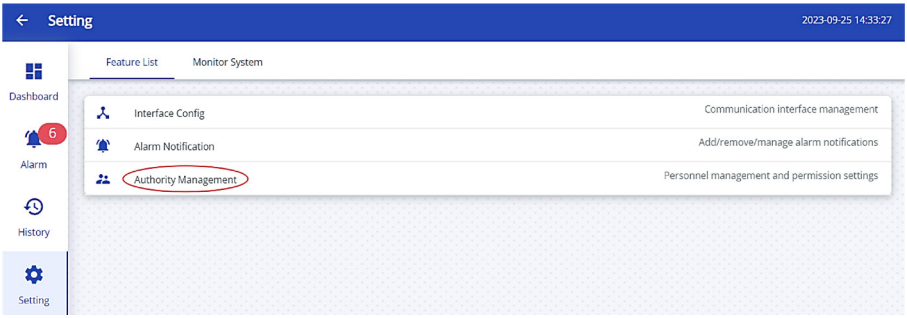
NOTE!

This operation is only available for authorized accounts.

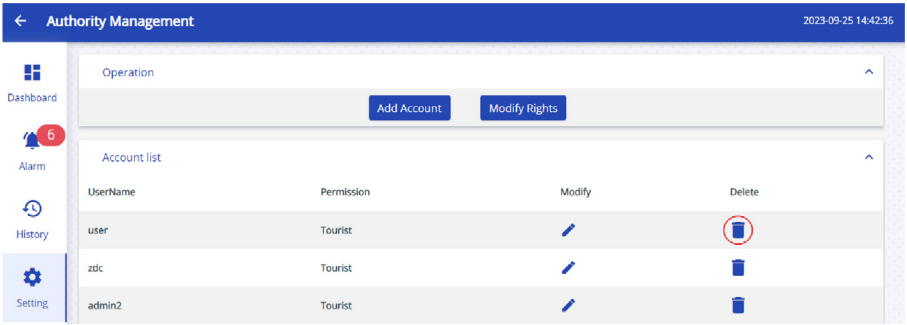
After an account is created, you can delete it as required by following the steps below.

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Authority Management.**



Step 3 Tap in the line of the account to be modified.



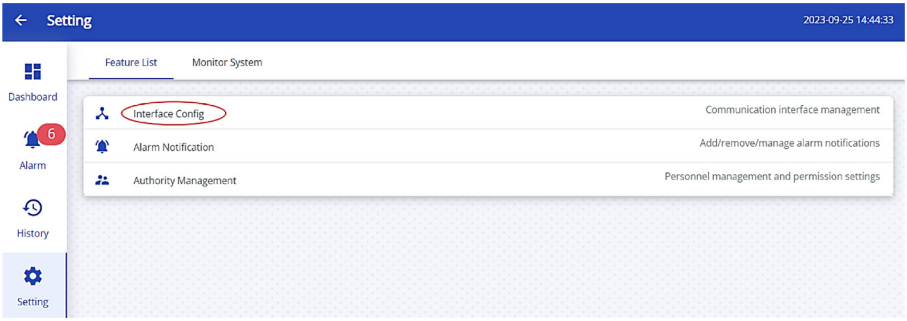
7.12 Configure the SNMP interface

NOTE!

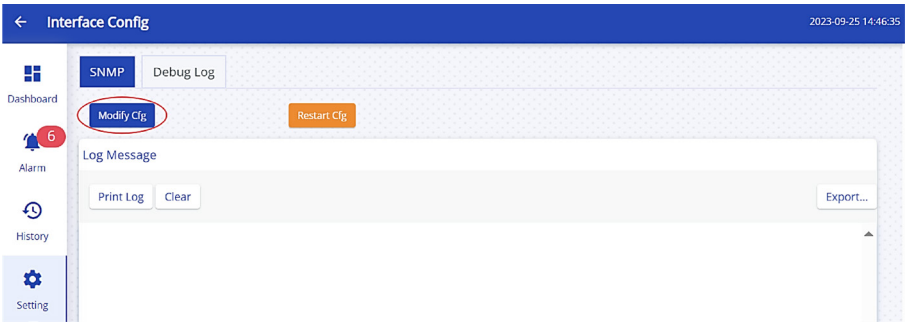
This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Interface Config.**



Step 3 Tap **Modify Cfg** to access the **SNMP Config** page.



Step 4 Select an SNMP version (V1&V2, V3).

V1&V2 are mainly used while V3 features higher security. You can select one as required. In this example, **SNMP v1&v2** is selected. If you select **SNMP v3**, security parameters such as passwords must be set.

Step 5 Tap to modify IP addresses and permissions as required and tap **Save**. Or, tap to add another group of read/write/Trap IP addresses and tap **Add**. Then, tap **Save**.

Step 6 Tap **Restart Cfg**.

7.13 Set alarm notifications

Alarm notifications can be sent through the SMS and email. You can set the alarm notification channel as required.

7.13.1 Set mobile numbers for receiving alarm notifications through SMS

NOTE!

This operation is only available for authorized accounts.

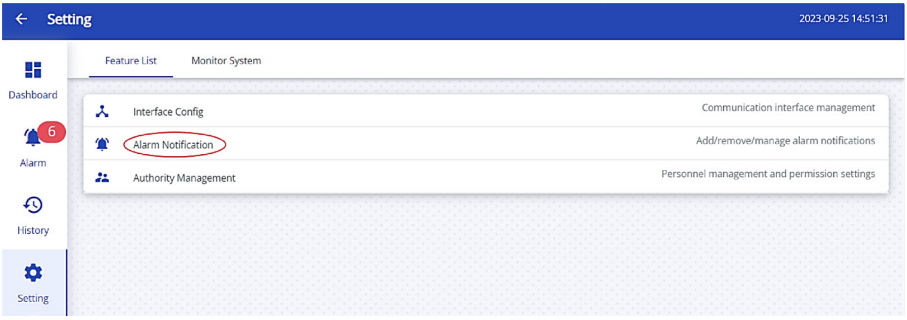
Step 1 Insert a Micro SIM card into the card slot on the top of the HMI by following the direction displayed by the silkscreen beside the card slot.

NOTE!

If you want to remove the SIM card, gently press it to pop it out.

Step 2 Refer to section 7.2 to log in to the system.

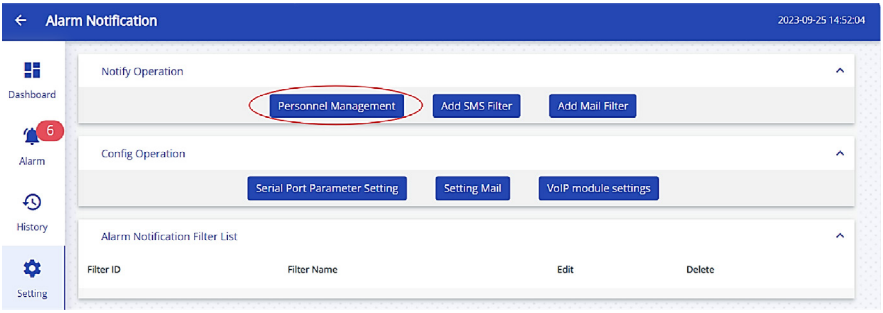
Step 3 Tap **Setting** in the left menu bar and then tap **Alarm Notification.**



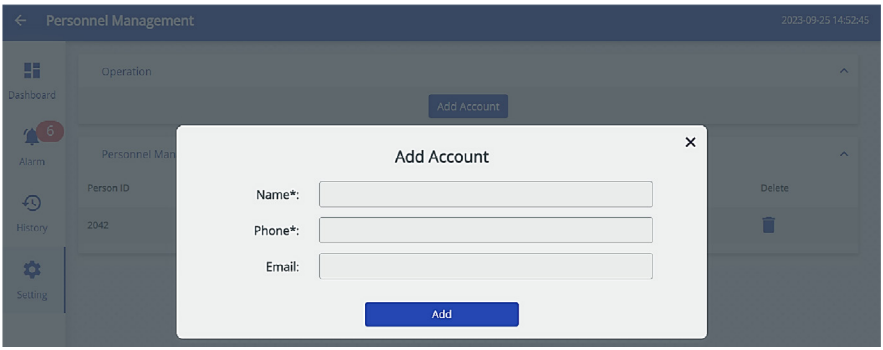
English

Română

Step 4 Tap **Personnel Management.**



Step 5 Tap **Add Account**. Then, set **Name** and **Phone** and tap **Add.**



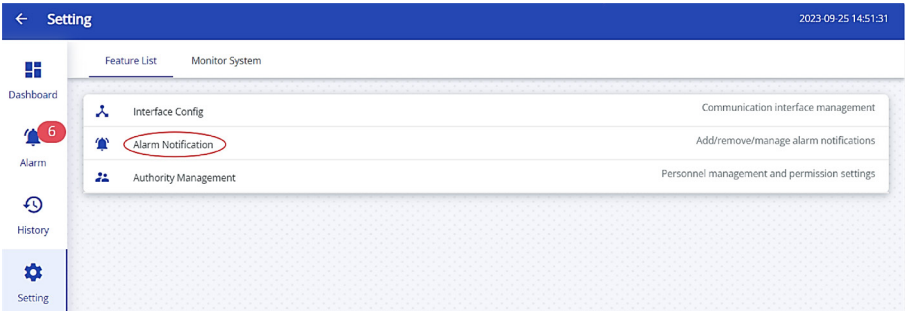
7.13.2 Set email addresses for receiving alarm notifications

NOTE!

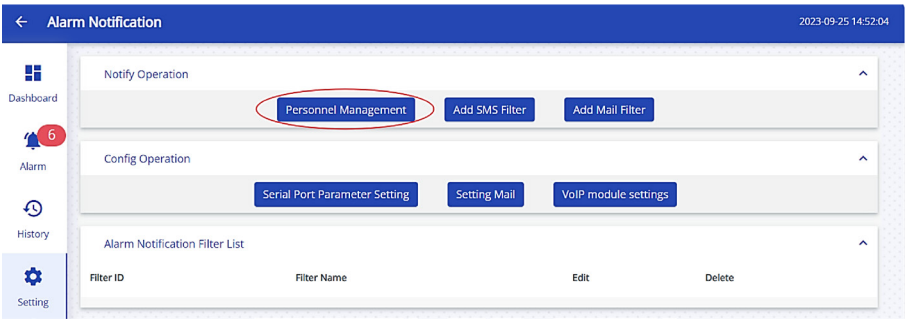
This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system.

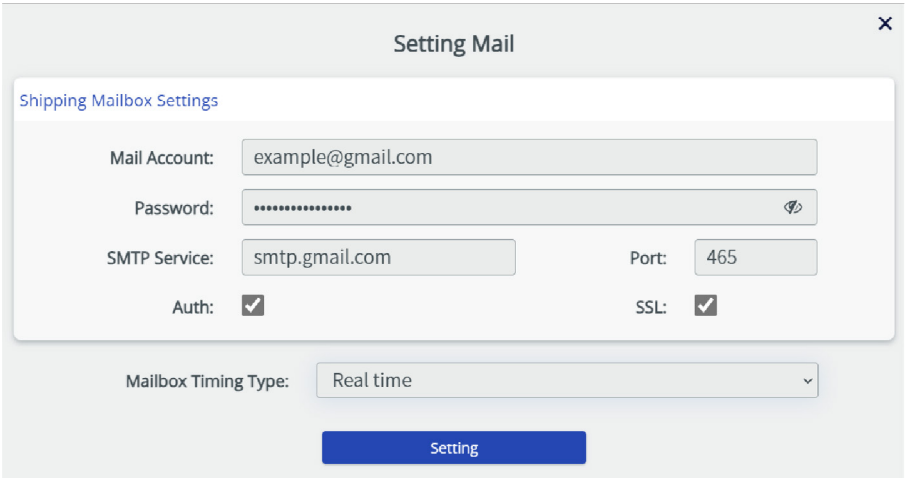
Step 2 Tap **Setting** in the left menu bar and then tap **Alarm Notification.**



Step 3 Tap **Setting Mail.**



Step 4 Set required parameters in the **Setting Mail** dialog box, and tap **Setting.**



Parameter description

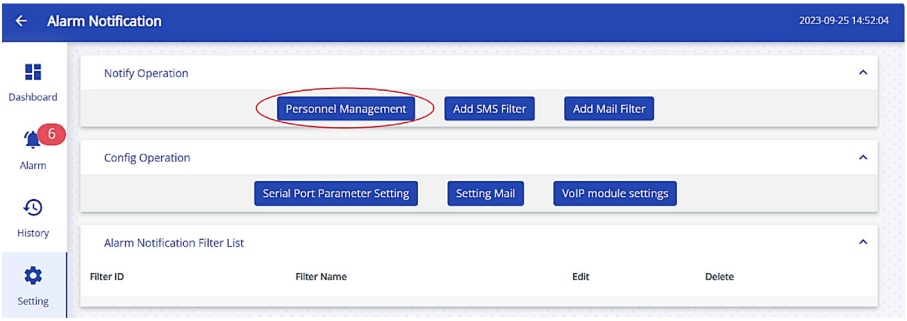
Parameter	Description
Mail Account	Specifies the email address used to send the email notifications.
Password	Specifies your email password (authorization password for some email addresses).
SMTP Service	Specifies the domain name or IP address of the server used for sending mails. If you set it to a domain name, check that the default DNS address of the monitoring host (8.8.8.8) is supported. If not, configure the DNS server that supports resolution of your domain name in Setting > Network > DNS Config. **NOTE!** *SMTP sever is used for sending emails. Therefore, this parameter must be set.*

Port	Generally, this parameter is set to 25 for unencrypted communication. For SSL encryption, this parameter is usually set to 465 and SSL must be selected. **NOTE!** *This operation is only available for authorized accounts.*
Auth	Specifies whether authorization is required. You can tick it to enable authorization.
SSL	Specifies whether SSL encryption is required. When it is selected, SSL encryption is enabled and **Port** is usually set to **465**. When it is unselected, SSL encryption is disabled and **Port** is usually set to **25.**
Mailbox Timing Type	Specifies the email sending frequency. – **Real time:** Alarm notification emails are sent in real time. – **Days:** Alarm notification emails are sent once every day. – **Week:** Alarm notification emails are sent once every week. – **Monthly:** Alarm notification emails are sent once every month.

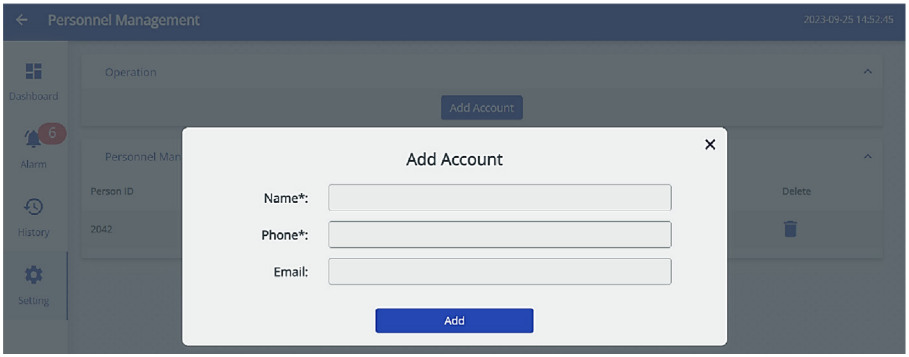
The following email address is for reference only (please refer to the actual parameters of the user):

Mailbox type	Mailbox server domain name	Encryption method and SMTP port	Mailbox server IP address	Remark
Gmail	smtp.gmail.com	SSL encryption: 465	Get method: 1. Click **Start** on the computer, enter **cmd** in the **Run** box, and click **Enter** to enter the administrator interface. 2. At the blinking point of the mouse, enter **ping mailbox server domain name**, and press **Enter** to obtain the IP address of each email server.	– The mailbox server must conform to the standard SMTP protocol, and the email sending or receiving function will be normal. – In the Password of Gmail, the app passwords of the mailbox client must be entered. – If your mailbox is not in the list, refer to the help guide of the mailbox to set the parameters.

Step 5 Tap **Personnel Management**.



Step 6 Tap **Add Account.** Then, set **Name, Phone,** and **Email,** and tap **Add.**



7.13.3 Set an SMS message filter

NOTE!

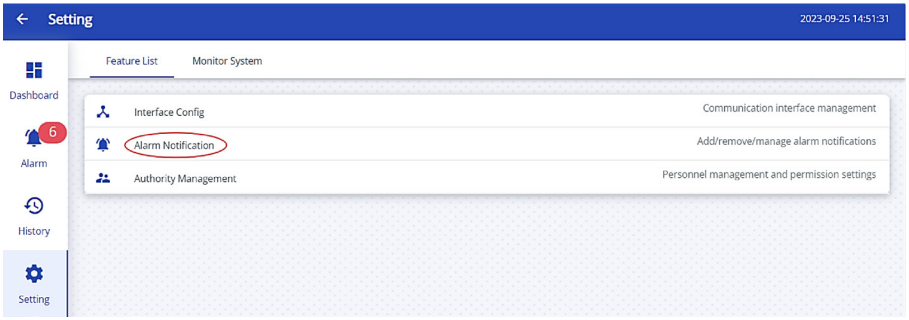
This operation is only available for authorized accounts.

If you want to send SMS messages by status, alarm level, recipient, or equipment to a specified recipient, you can set an SMS filter.

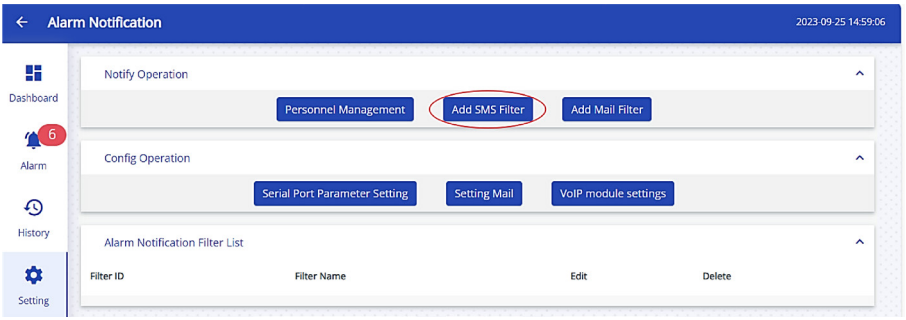
To add a filter:

Step 1 Refer to section 7.2 to log in to the system.

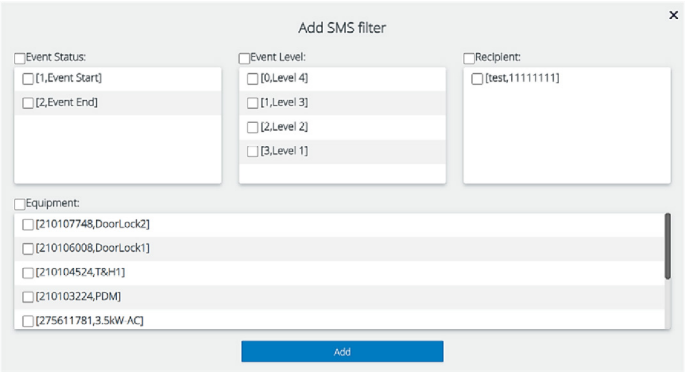
Step 2 Tap **Setting** in the left menu bar and then tap **Alarm Notification**.



Step 3 Tap **Add SMS Filter**.



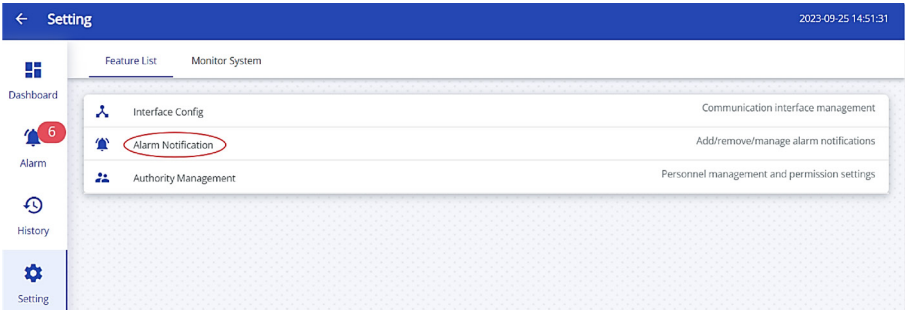
Step 4 Set **Event Status, Event Level, Recipient,** and **Equipment** as required, and tap **Add.**



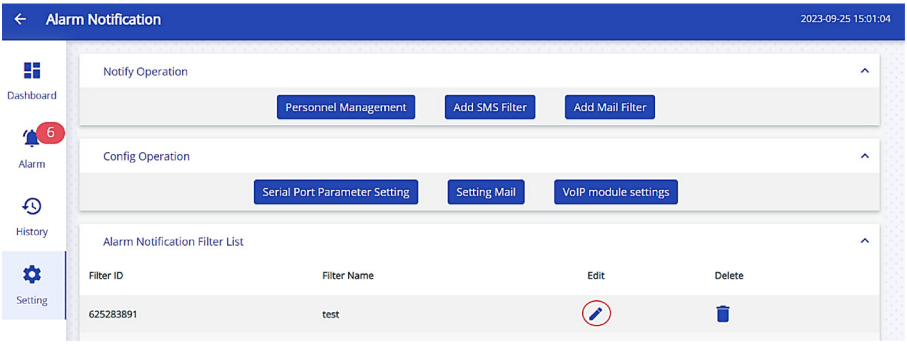
Step 5 Set a filter name and tap **Add.**

To edit an existing filter:
Step 1 Refer to section 7.2 to log in to the system.

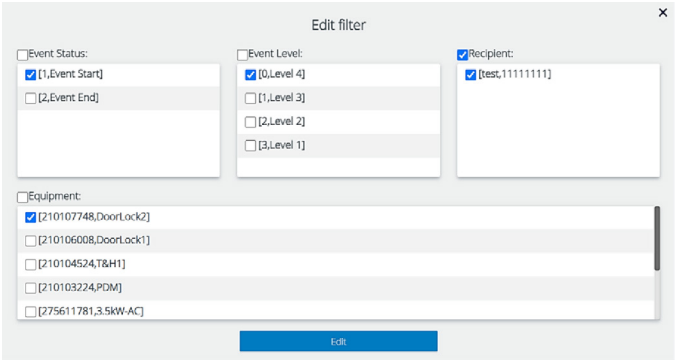
Step 2 Tap **Setting** in the left menu bar and then tap **Alarm Notification.**



Step 3 In the Alarm Notification Filter List, tap in the line of the filter to be edited.



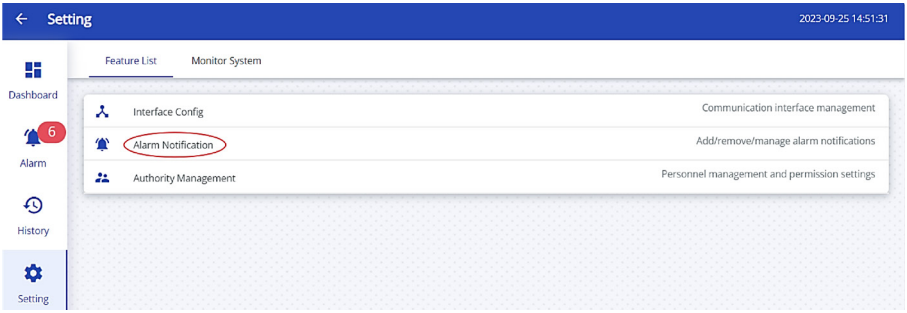
Step 4 Set **Event Status, Event Level, Recipient,** and **Equipment** as required, and click **Edit.**



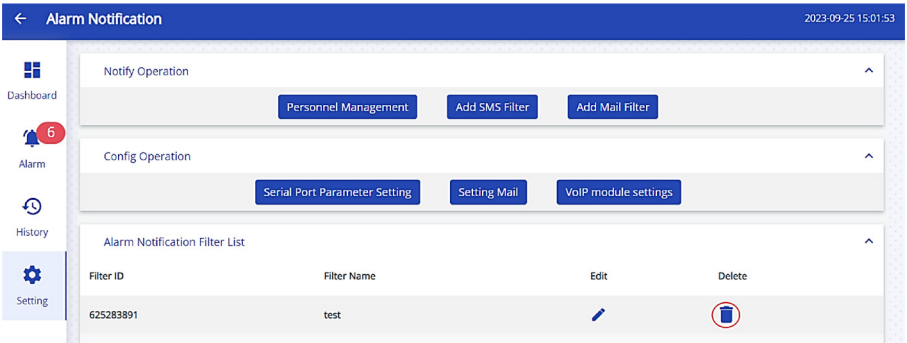
To delete an existing filter:

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Alarm Notification.**



Step 3 In the Alarm Notification Filter List, tap in the line of the filter to be edited.



Step 4 Tap **OK** in the pop-up dialog box.

7.13.4 Set a mail filter

NOTE!

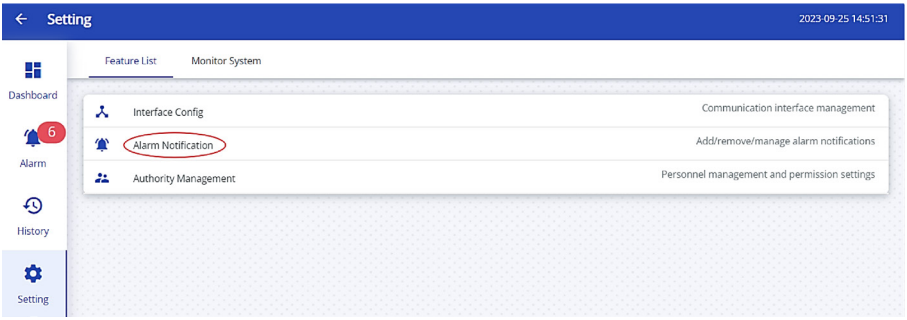
This operation is only available for authorized accounts.

If you want to send mails by status, alarm level, recipient, or equipment to a recipient, you can set a mail filter.

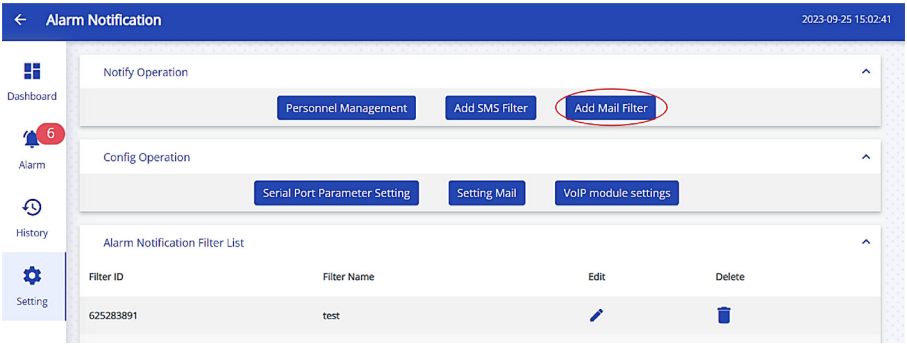
To add a filter:

Step 1 Refer to section 7.2 to log in to the system.

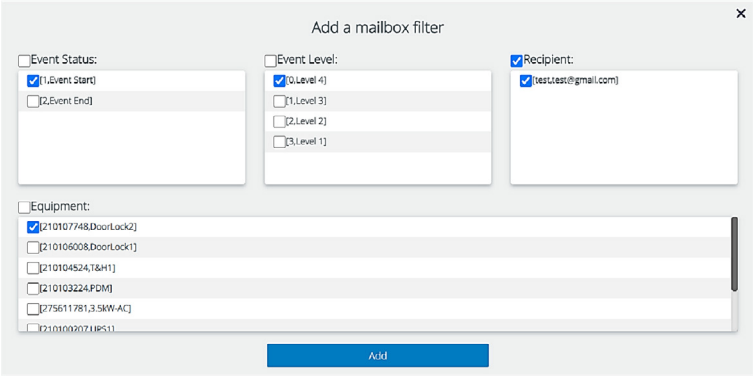
Step 2 Tap **Setting** in the left menu bar and then tap **Alarm Notification**.



Step 3 Tap **Add Mail Filter.**



Step 4 Set **Event Status, Event Level, Recipient,** and **Equipment** as required, and tap **Add.**



Step 5 Set a filter name and tap Add.

The operations for editing and deleting an email filter are similar to those for editing and deleting an SMS filter. For details, see 7.15.3 Set an SMS message filter.

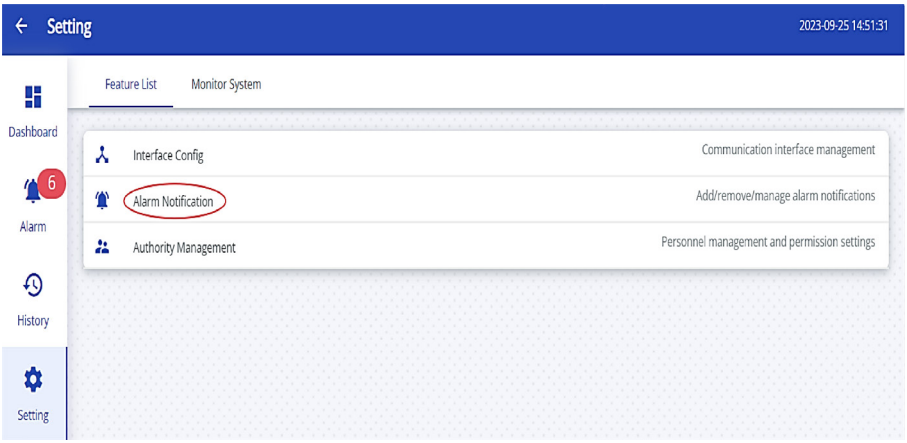
7.13.5 Configure gateway parameters

NOTE!

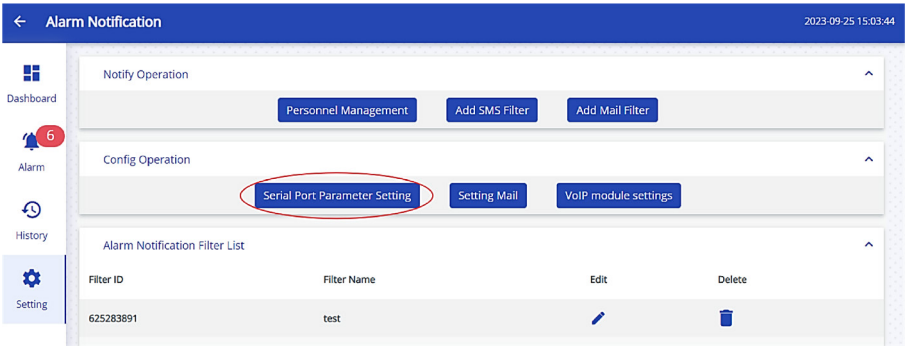
This operation is only available for authorized accounts. Default settings are recommended.

Step 1 Refer to section 7.2 to log in to the system.

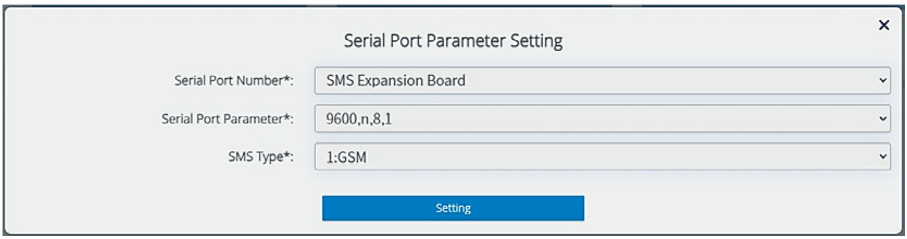
Step 2 Tap **Setting** in the left menu bar and then tap **Alarm Notification**.



Step 3 Tap **Serial Port Parameter Setting.**



Step 4 Set **Serial Port Number, Serial Port Parameter**, and **SMS Type** as required and tap **Setting.**



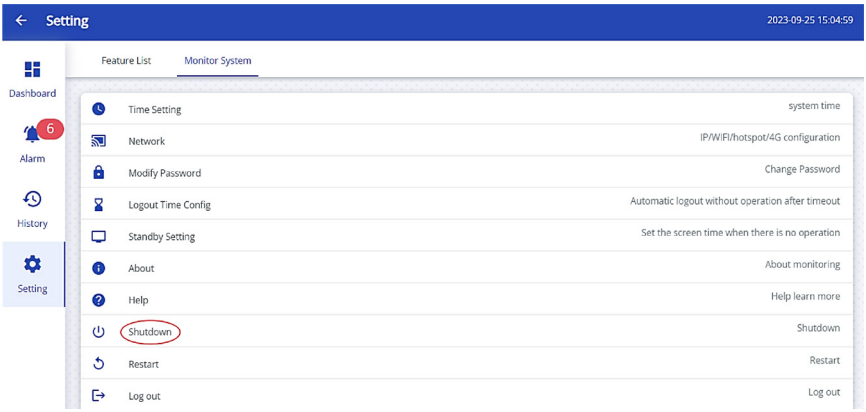
7.15 Shut down the MDC

NOTE!

This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap Setting in the left menu bar and then tap Monitor System > Shutdown.

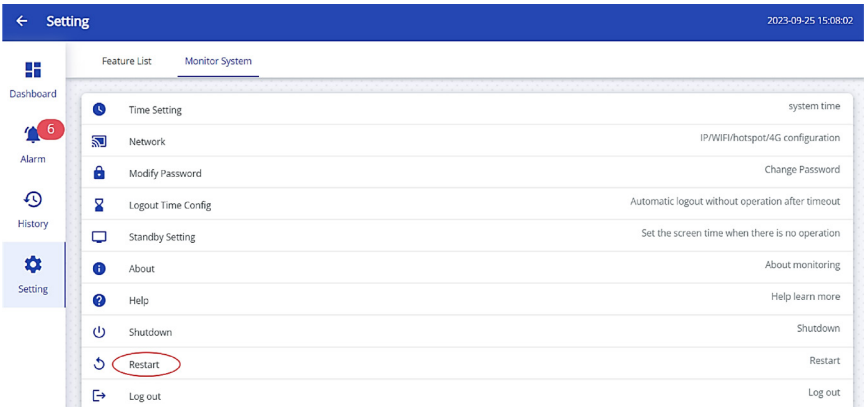


Step 3 Tap **OK** in the pop-up dialog box.

7.16 Restart the MDC

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Monitor System > Restart.**
Step 3 Tap **OK** in the pop-up dialog box.

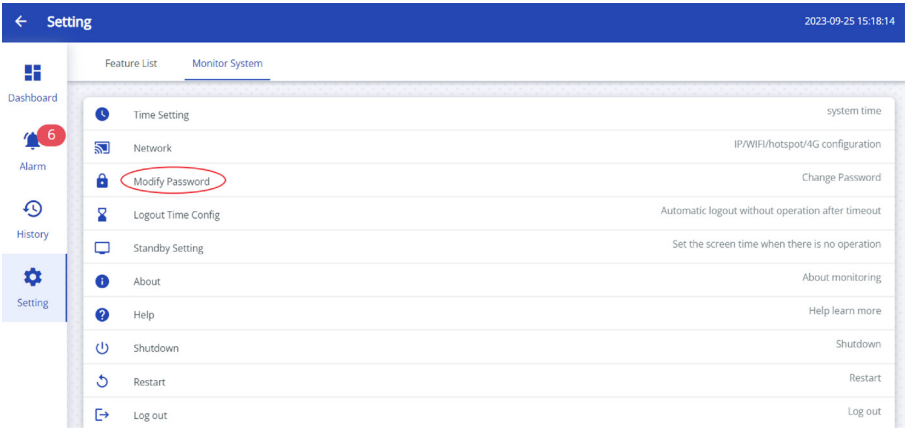


Step 3 Tap **OK** in the pop-up dialog box.

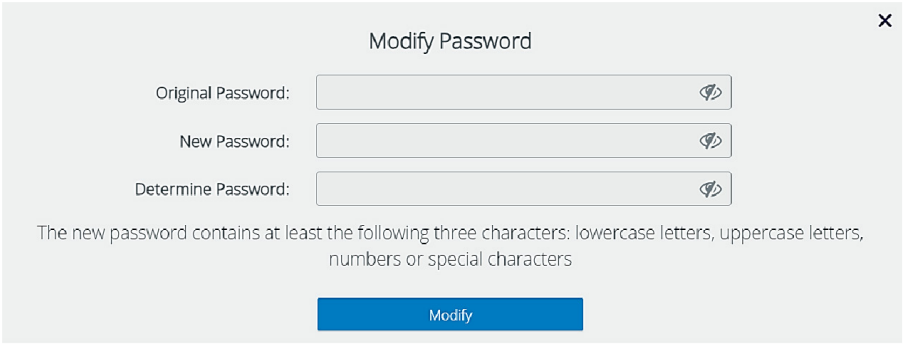
7.17 Modify password

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap Setting in the left menu bar and then tap Modify Password.



Step 3 Specify Original Password, New Password, and **Determine Password.** Then, tap **Modify.**



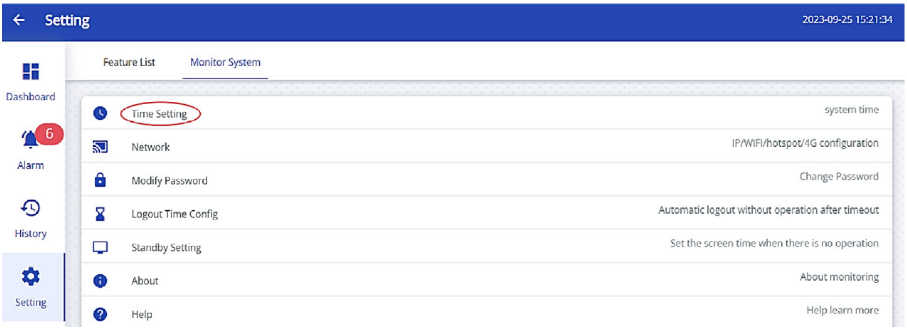
7.18 Set system time

NOTE!

This operation is only available for authorized accounts.

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Monitor System > Time Setting.**



Step 3 Set time and tap OK.

7.19 Set automatic logout interval

NOTE!

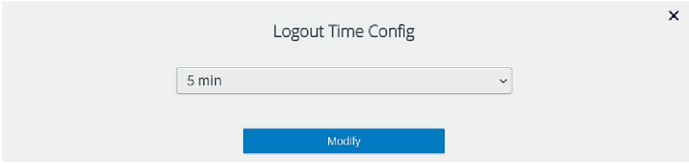
This operation is only available for authorized accounts.

To automatically log users out after they do not perform operations after an interval:

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Monitor System > Logout Time Config.**

Step 3 Select a time interval and tap **Modify.**
If you want to keep users logged in, select **No Logout.**



7.20 Set screen off interval

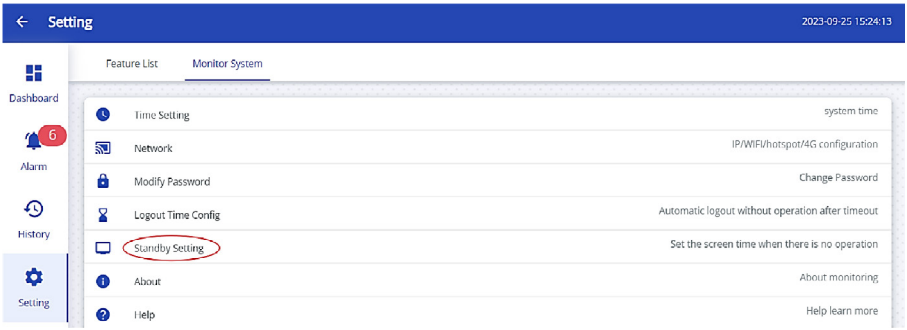
NOTE!

This operation is only available for authorized accounts.

To automatically log users out after they do not perform operations after an interval:

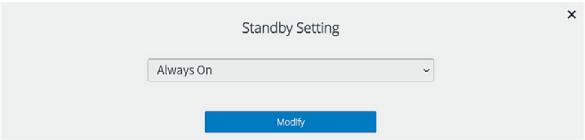
Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Monitor System > Standby Setting.**



Step 3 Select a time interval and tap **Modify.**

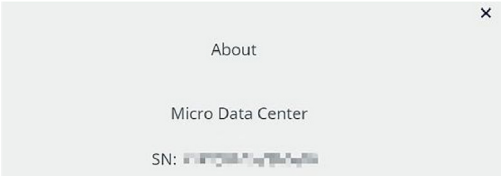
If you want to keep the screen on, select **Always On.**



7.21 Check MDC version and SN

To check the product version, firmware version, and serial number of the MDC, refer to section 7.2 to log in to the system, tap Setting in the left menu bar and then tap Monitor System > About.

Step 2 Tap **Setting** in the left menu bar and then tap **Monitor System > Standby Setting.**



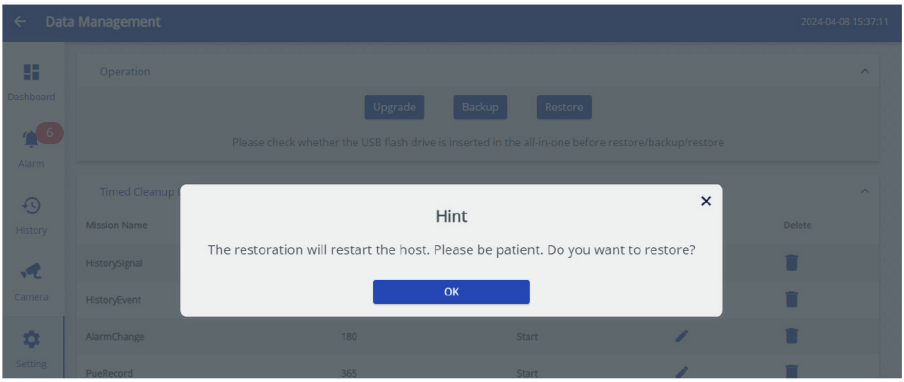
7.21.1 Local restore (USB stick)

NOTE!

This operation is only available for the super administrator account.
– The USB stick is prepared by the user, and the name of the USB stick must be changed to IVIEW.
– If the USB stick is not inserted, a prompt will be displayed.
– If the MDC fails to detect the inserted USB stick, restart the monitor and insert the USB stick again.

Step 1 Create a folder named **backup** under the *USB stick* (format: FAT32, name: IVIEW), and save **app.zip** (used for restoration) and **fp.app.chksum** (restoration tag file) in the **backup** folder.

Step 2 Tap **Setting** in the left menu bar and then tap **Data Management**.



Step 3 Tap **Backup** and then **OK.**

Step 4 Enter your password, and tap **OK.**
The system is backing up and will restart automatically,please wait... will be displayed. The MDC will be restarted automatically in 7 to 8 minutes.

After the MDC is restarted, **The system is backing up and will restart automatically, please wait...** will be displayed again. After the backup is completed, **The backup is successful, the file path is in/backup, the Backup File is app.zip and the MD5 file is fp.app.chksum** will be displayed.

Step 5 Remove the *USB stick* and restart the monitor.

7.22.2 Local restore (USB stick)

NOTE!

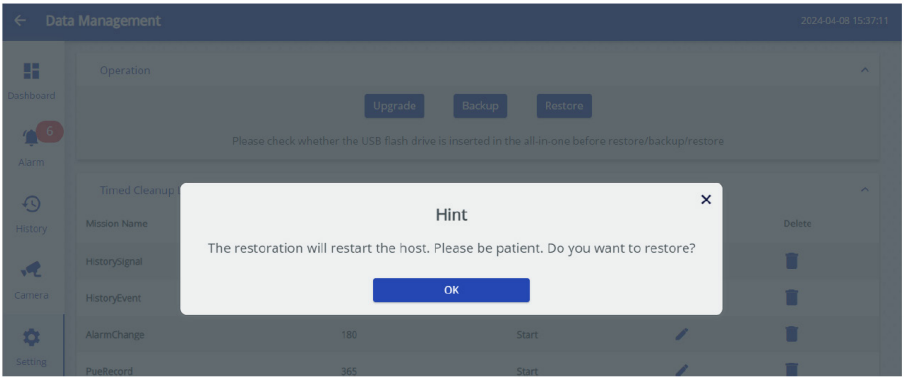
– This operation is only available for the super administrator account.
– The USB stick is prepared by the user, and the name of the USB stick must be changed to IVIEW.
– If the USB stick is not inserted, a prompt will be displayed.
– If the MDC fails to detect the inserted USB stick, restart the monitor and insert the USB stick again.

Step 1 Create a folder named **backup** under the U disk (format: FAT32, name: IVIEW), and save **app.zip** (used for restoration) and **fp.app.chksum** (restoration tag file) in the **backup** folder.

Step 2 Insert the *USB stick* on the monitor.

Step 3 Tap **Setting** in the left menu bar and then tap **Data Management**.

Step 4 Tap **Restore** and then **OK.**



Step 5 Enter your password, and tap **OK.**
The system is restoring and will restart automatically, please wait... will be displayed. The MDC will be restarted automatically.

After the MDC is restarted, **The system is restoring and will restart automatically, please wait...** will be displayed again. After the restoration is completed, **The restore is successful, please pull off the USB stick and reboot the system!** will be displayed.

Step 6 Enter your password, and tap **OK.**

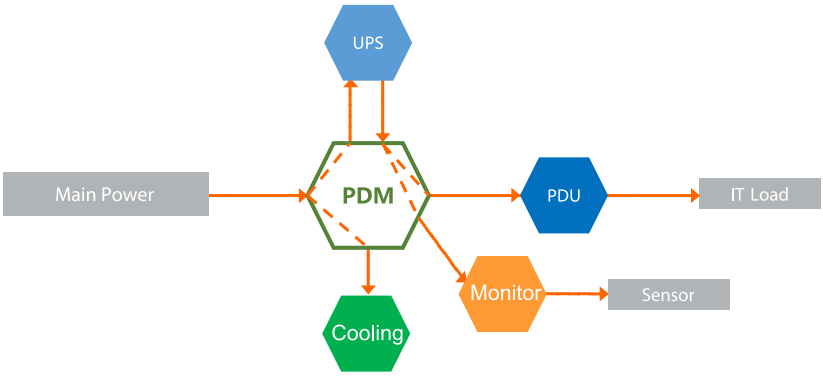
8 Functional modules

Dimensions: 600(W) x 1200(D) x 2060(H)
Power supply: 230V a.c. single-phase (L+N+PE)
Constructively, the MDC is presented in the form of a metal rack that ensures the mounting of various IT units (servers, storage units, etc.) and includes:
- UPS to ensure operation during power outages.
- external battery module for a long backup time
- sensors (temperature, humidity, liquid leaks, smoke).
- remote management and monitoring unit by connecting to the network (wired or wireless).
- electric current distribution unit provided with automatic fuses.
- interior lighting.

The supporting and mounting structure is the metal skeleton that ensures the structural integrity and allows the mounting of the other components. Structurally, it is a metal rack with a 42U equipment space (part of this space is already occupied by infrastructure modules).

The components of the Forge 42U MDC are: UPS, External Battery Module, PDM, Monitor, PDU and it is provided with interior lighting, smoke sensors, liquid leak detector, temperature and humidity detector.

From the point of view of the circulation of electricity, these modules are electrically interconnected so as to ensure the most precise control of the current distribution between them.

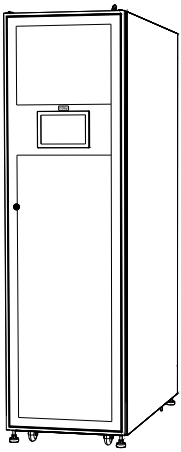


8.1 Cabinet

The supporting and mounting structure is the skeleton that ensures the structural integrity and allows the mounting of the other components. Structurally, it is a 600(W) x 1200(D) X 2060(H) rack with a 42U equipment space (part of this space is already occupied by the infrastructure modules). Access to the interior is ensured by 2 doors; the front one is made of glass allowing the equipment to be monitored even with the door closed, it is also provided with the LCD touch screen that allows the MCD to be configured and monitored. Both doors are equipped with both mechanical and electronic locking systems.

The cabinet is suitable for standard MDC single cabinet system with closed hot and cold aisles. It is used to house rack-mounted cooling units, UPS, PDM, and other components required in the system. In addition, its remaining space can be used to place 19″ equipment that complies with the industry standard (EIA-310-E) and fits the cabinet. The front door of the cabinet is a single-opening glass door, and the rear door is a single-opening sheet metal door.

The cabinet size (H*W*D) is 2060mm*600mm*1200mm.

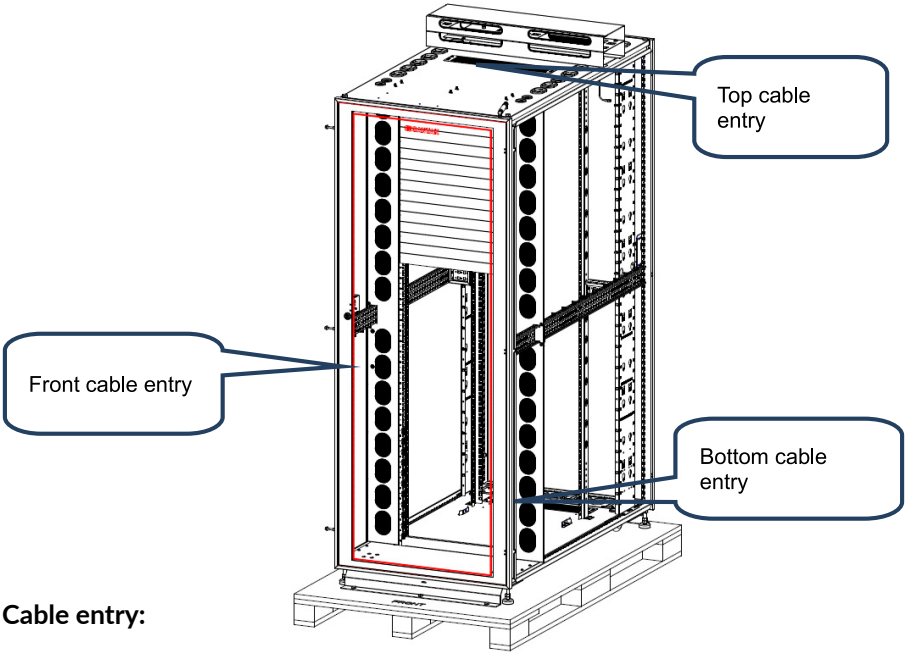


The cabinet has the following characteristics:
- A 19-inch cabinet with a load capacity of up to 1860 kg is used. It does not have a side door.
- Cold-rolled high-strength carbon steel sheet, class A, with a thickness of 1.2-2.0 mm is used.
- A sealed design is applied. A single-opening glass door is used as the front door, and a single-opening sheet metal door is used as the back door.
- The air retention accessories are installed in the cabinet to cool the IT equipment with all the cold air.
- Vertical AC PDU can be installed in the back of the cabinet.
- Two shelves for cables are provided in the front and back of the cabinet.
- The exact location of each unit (U) is marked on the vertical uprights of the cabinet.
- The front and back doors of the cabinet are equipped with electronic locks, which can be unlocked with the help of keys or the operation on the monitoring screen. The state of opening and closing the door can be monitored.
- A gas spring is mounted in the upper part of the cabinet. In case of emergency, it can be opened automatically with the electronic lock to ensure heat dissipation.
- The back of the cabinet is equipped with a light that turns on when the door is open.
- The cabinets can be joined quickly to achieve the installation of the cabinet in two or three rows.

- The front door of the cabinet is equipped with a three-color RGB ambient light, which can be connected to the main cabinet to display the working status of the data center.

- The cabinet is equipped as standard with an upper wiring shelf, which can make separate high-voltage and low-voltage cables.

Dimensions (H x W x D): 2060mm×600mm×1200mm.
Available space: 42U.
Blind board: 15 plastic blind boards 1U (standard configuration).
Load capacity: > 1860 kg.
Structure: Glass door with simple opening like the front door, sheet metal door with simple opening like the back door.
Surface: Electrostatically sprayed surface to meet Class A environmental requirements.
Color: black
Material: High-quality cold-rolled carbon steel plate, class A, high strength (0.8-2.0 mm.)
IP rating: IP50.
Grounding and antistatic: Reserved grounding screw.
Environmental requirements: RoHS.



Cable entry:

8.2 Cooling unit

Air conditioning unit (A/C) R03A
This subassembly ensures the internal air conditioning of the MDC, which is necessary to prevent overheating of the equipment mounted inside it.

The rack-mounted small precision cooling unit is designed to provide recirculating cooling within the cabinet. It is integrated with the main equipment in the cabinet to form an independent data center. The cooling unit is installed at the bottom of the cabinet and operates adaptively to load changes in the cabinet. The cooling unit adopts air-cooled heat dissipation, DC variable frequency compressor, electronic expansion valve, and high-efficiency EC fan to achieve high energy efficiency ratio and high sensible heat ratio operation of the whole system.

This series of air-cooled precision cooling unit are suitable for medium and small data centers, computer rooms, and equipment rooms. In accordance with the temperature and humidity requirements of electronic equipment, the cooling unit maintains the constant temperature and humidity of the computer room. The split unit adopts a well-known brand DC inverter compressor, indoor and outdoor Electronically Commutated (EC) fans, electronic expansion valve, and R410A eco-friendly refrigerant to realize flexible cooling adjustment.

The integrated cooling unit is easy to install without connection of indoor and outdoor units but only on-site connection of condensate pipeline.
The indoor cooling unit includes the EC fan, electronic expansion valve, controller (optional), filter, water leakage detector, condensate pump, temperature sensor and other components.

EC fan
The EC fan enables stepless adjustment of air volume, and the fan speed changes quickly based on loads. It has the advantages of high air volume, high performance, long life, and low noise.

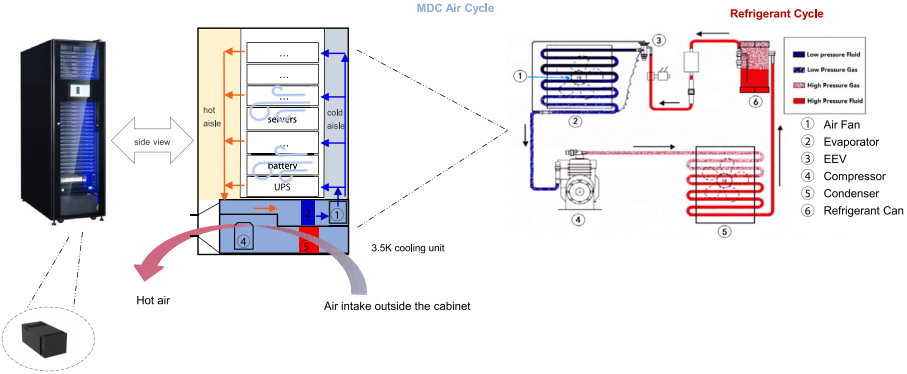
Electronic expansion valve
Using the electronic expansion valve, the control accuracy and response speed is improved. It ensures precise cooling, stable system control, and high load matching accuracy, thereby providing excellent energy-saving performance.

Water leakage detector
The cooling unit is equipped with an electronic water leakage detector, which monitors the cooling unit and computer room and generate an alarm when water leakage occurs. Alarms will be uploaded to the centralized monitoring system through the standard communication protocol. It is powered from the PDM on the A/C (A/C switch).

Power input	220V±15% to 50/60Hz
Maximum power (KW)	3.0
Maximum current (A)	13.5
Nominal cooling capacity (kW) (35/35°C)	≧3.5[1]
Dimensions (W x D x H, mm)	440±2×900±2×351±2
Rated air volume of indoor unit (m3/h)	≧600
Noise [dB(A)]	≤65
Air supply mode	Top air supply
Self-Evaporated capacity tray (kW)	1.2
Energy Efficiency Ratio (EER)	2.8
Refrigerant	R410A, eco-friendly refrigerant
Indoor unit height	8U
Function	Cooling, heating, dehumidification, temperature/humidity and control parameter settings, power-off memory, auto start upon power-on, remote power on/off, remote settings, etc.
Control mode	Return/supply air temperature control

Communication	Modbus protocol, RS485 port
Operating temperature (°C)	-40 °C until +50 °C
Certification	CE, RoHS

[1] The cooling capacity is measured under the following working conditions: indoor air intake and air return of 37.8°C/20%RH, outdoor intake air dry bulb temperature of 35°C.



8.3 PDM - Power Distribution Module

The PDM provides power distribution to all other modules mounted in the MDC. At the back it has the electrical connections for powering the modules, and at the front it has the corresponding breaker-e for each connection, so that all other modules can be connected or disconnected individually. Inside there is also a stabilized 12V supply for powering sensors and other equipment that requires this voltage.

The following describes the front panel elements from left to right:

Mains Indicator: green indicator light when the MDC is powered from the mains.

Meter: smart-meter that displays the values of the electric current from the mains (voltage, power consumed, etc.)

Mains Input: main circuit breaker (bipolar, 40A) connects to the AC mains.

SPD (Surge Protection Device): activates spike protection. Composed of a 32A bipolar breaker and the protection devices on which you will be able to see if they have been activated.

A/C: single pole circuit breaker, 16A. Connects to the 230V AC input of the conditioned air.

Mains spare: single pole circuit breaker, 16A. This is an additional power connection. An additional UPS or other equipment can be powered from here. Not connected in standard configuration.

UPS Input: single pole switch, 32A. Controls the power supply to the MDC UPS. Connects to the AC IN input of the UPS.

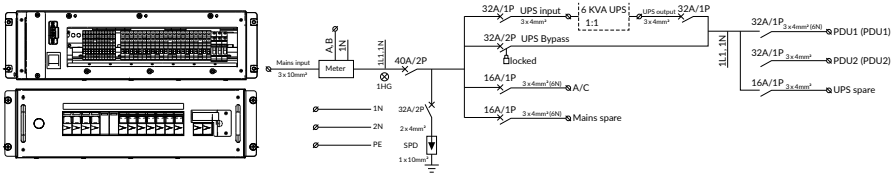
UPS Output: single pole switch, 32A. Controls the power transfer from the UPS output to the other modules in the MDC. Connects to the AC OUT output of the UPS.

PDU1: single pole circuit breaker, 32A. Controls the power supply of the pre-existing PDU (Power Distribution Unit) in the MDC.

PDU2: single pole switch, 32A. Controls the power supply of an additional PDU that can be mounted in the MDC.

UPS Maintenance Bypass: bipolar switch, 32A. This switch is used if for various reasons the UPS must be shut down (maintenance or repair activities, replacement, etc.) without interrupting the power supply to the other modules and equipment mounted in the MDC.

Space occupied in rack: 3U



English

Română

8.4 UPS - Summit 6KR (Uninterrupted Power Source)

The UPS unit ensures uninterrupted operation of the equipment installed in the MDC in the event of mains power interruptions, as well as providing a clean and stable supply voltage. The UPS is supplied on the UPS Input output of the PDM (controlled by the UPS Input switch), and the UPS output is connected to the PDM on the UPS Output input (controlled by the UPS Output switch) so that the stabilized and filtered current can reach the consumers.

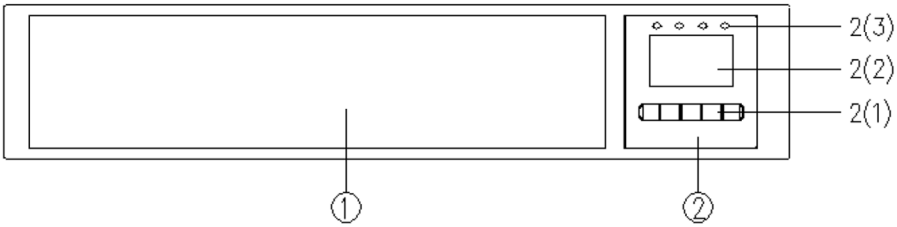
8.4.1 Technical features

- Topology: on-line UPS with double conversion and pure sine wave
- Full digital control
- Output PF = 1
- High charger capability, the charger current is up to 4Amps
- Smart charging method to expand battery life time
- EBM quantity auto detection
- Communication ports: EPO, Dry in, Dry out, intelligent slot, USB, RS232
- IoT: Ethernet(default) and Wireless (optional)
- Dot-matrix LCD, it supports multi-language
- ECO Mode
- Start-able without battery

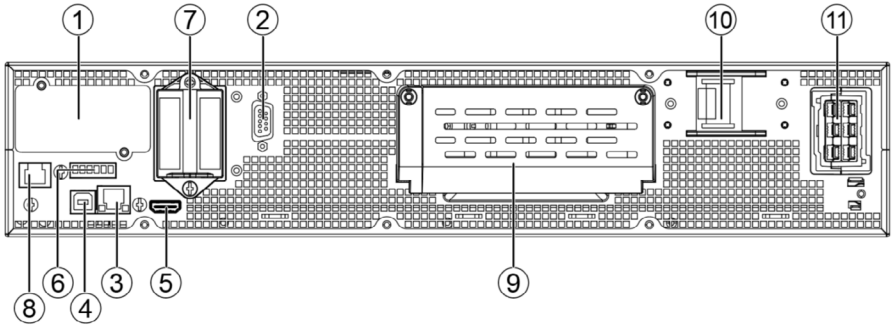
Lower TCO than lead-acid solution.
Maximum output power factor is 1, VA=W.
Level 3 Built-in lithium battery connection , synchronization with UPS (SOC, SOH, behavior, external balancing).
Compact design: 2U UPS+ 2U EBM.
Long backup time with up to 4 optional EBM cabinets, with automatic detection.
Rack/tower dual set-up with rotatable LCD panel.
USB, RS232 port, dry contacts, EPO & ROO connectors, SNMP/Modbus.
Built-in Ethernet port for cloud connection.
Maintenance bypass accessory with load segment control.
Certification: UN38.3, IEC62019, CE, IEC62040.

Key Technology

- Level 3 LFP lithium battery system with advanced BMS
- Industry leading BMS reliability design
- Built-in cloud connection
- Up to 4 compact external battery modules
- UPS and lithium battery UL, IEC certification, cybersecurity certificate



1. Ventilation area.
2. LCD Modular, including: 2(1)---Button.
2(2)---LCD screen.
2(3)---LED indicator.

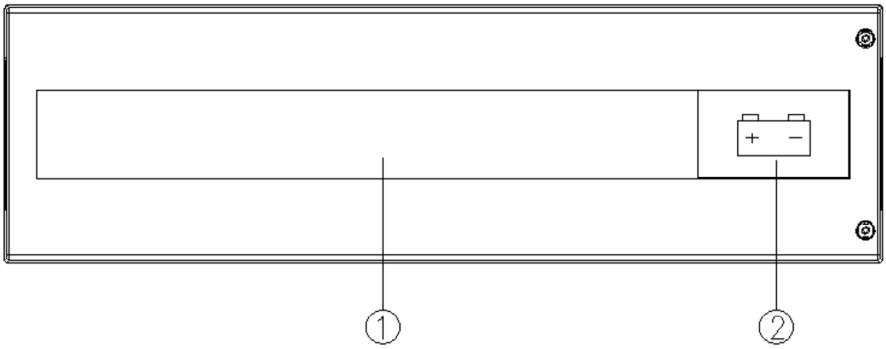


UPS (1-1)

Rear view

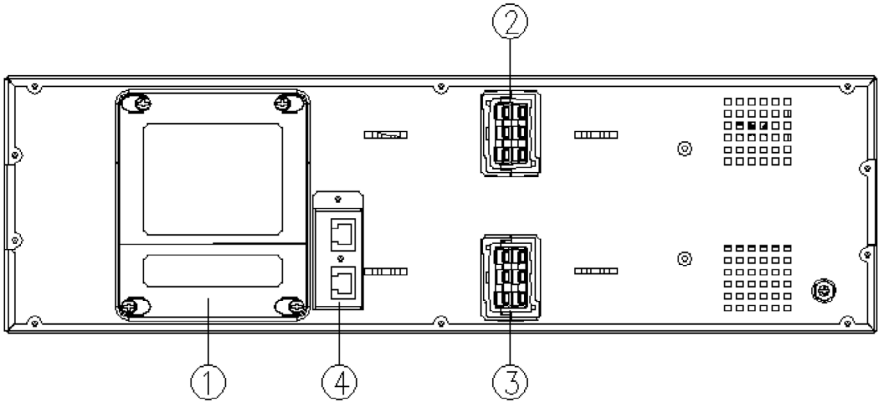
1. INTELLIGENT SLOT.
2. RS232.
3. Ethernet port (RJ45, for IoT function).
4. USB.
5. Wireless (HDMI, For IoT function).
6. EPO & DRY in/out.
7. PARALLEL SLOT.
8. RJ45 (for EBM detect /RT MBP detect).
9. AC Input /Output port(Terminal Block).
10. Breaker of input(only for 1-1 model, optional, default is no).
11. External battery port.

• **EBM(External Battery Modular):**



Front view

1. EBM label area.
2. EBM label.

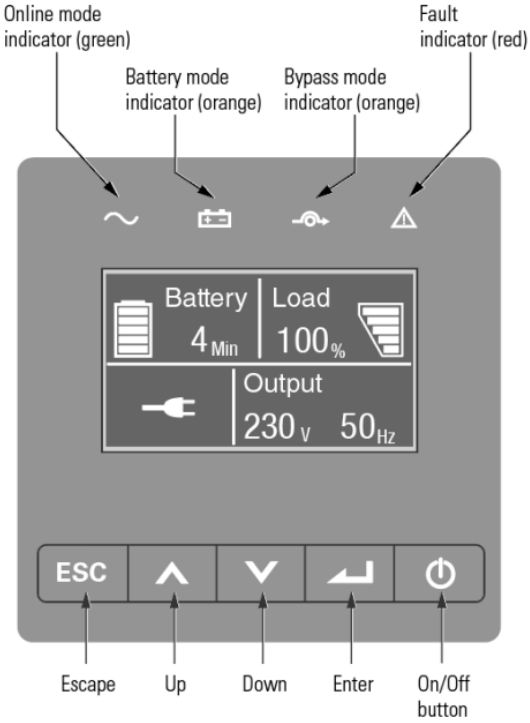


Rear view

1. Fuse board cover (replace EBM fuse).
2. EBM port 1.
3. EBM port 2.
4. EBM detection Box (RJ45 port).

LCD control panel

The UPS has a five-button graphical LCD display. Through the control panel, the UPS provides useful information about the UPS itself, load status, events, measurements and settings.



The following table shows the indicator status and description:

Indicator	Status	Description
Green	On	The UPS is operation normally on Online or on High Efficiency mode.
Yellow	On	The UPS is in Battery mode.
Yellow	On	The UPS is in Bypass mode.
Red	On	The UPS has an active alarm or a fault. See chap. X for details.

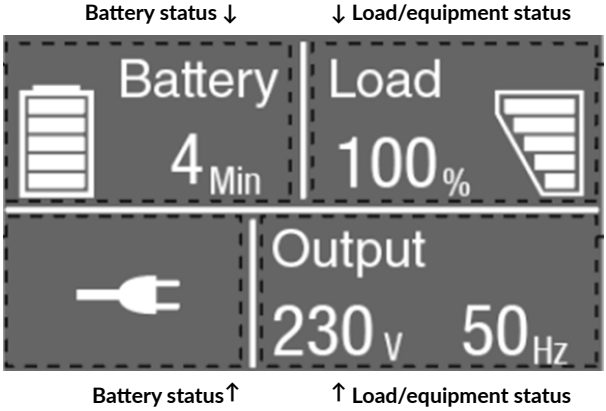
The following table shows the indicator status and description:

The button	Function	Illustration
	Power on	Press the Button for >100ms & < 1s can power on the UPS without utility input at the condition of battery connected.
	Turn on	When the Unity is powered on, press the button for >3s can turn on the UPS.
	Turn off	Press the button > 4s can turn off the UPS.
	Scroll up	Press to Scroll up the menu option
	Scroll down	Press to Scroll down the menu option
	Enter menu	Press to Scroll down the menu option
	Exit the present menu	Press to exit present menu to Main menu or the higher–level menu without changing a setting
	Mute buzzer	Press the button to mute the buzzer temporarily, once new warning or fault is active, buzzer will work again

The Buzzer

Alarma	Descriere
1 beep every 2 minutes	Load supplied on bypass
1 beep every 4 seconds	Load supplied on battery. If battery low, beep every second
1 beep every second	General warning active
2 beeps every second	Overload warning
Continuous	Fault active

Back Light:
After 10 minutes of inactivity, the LCD backlight will automatically dim. Press any button to restore the screen.



Operation status	Cause	Description
	Standby mode	The UPS is Off without output.
	Online mode	The UPS is operating normally and protecting the equipment.
1 beep every 4 seconds	Battery mode	An utility failure has occured, and the UPS is powering the equipment with battery. Prepare your equipment for shutdown.
1 beep every 1 seconds	Battery mode with battery low	This warning is approximate, and the actual time to shutdown may vary significantly.
	High Efficiency mode	Once the mains are loss or abnormal, the UPS would transfer to Line mode or Battery mode and the load is supplied continuosly.

	Converter mode	The UPS would free run with fixet output frequency(50Hz or 60Hz). The output maximum power and maximum charging current should be derating to 60% in converter mode.
	Bypass mode	Overload or fault has occured, or a command has been received, and the UPS is in Bypass mode.
	Battery test	UPS is executing a battery test.
	Battery fail	The UPS detects bad battery or battery disconnected.
	Overload	Some unnecessary loads should be cut off to reduce the load.
	Fault mode	Some fatal problems happened.
	Parallel mode	UPS is working in parallel mode

8.4.2 Display functions

Use the two middle buttons (and) to scroll through the menu structure. Press the Enter ( ) button to select an option. Press the ESC ( ) button to cancel or return to the previous menu.

When starting the UPS, the display is in the default UPS status summary screen.

Main menu	Submenu	Display information or Menu function
UPS status		UPS mode, IoT status, date/time, battery status, parallel information and current alarms
Event log		Displays the events and faults stored
Measurements		[Load] W VA A P?%, [Input L1/Output] V Hz, [Input L2/Input L3] V Hz(if they exist). [Battery] % min V EBM, [DC Bus] V, [Temperature] °C.
Control	Load segment	Load segment enable or disable
	Start battery test(single mode). Single battery test(parallel).	Starts a manual battery test in stand-alone mode or starts a single battery test in parallel mode.
	Parallel UPS battery test (single mode).	Starts a manual battery test test in parallel mode.
	Single UPS turn off (parallel mode).	Operate this machine to exit parallel connection.
	Reset fault state	Clear active fault.
	Reset event list	Clear events and faults.
	Reset com card / Reset IoT	Reset IoT and Modbus TCP function inside UPS.
	Restore factory settings	Restore to default factory settings.
Settings		Refer to User settings.
Identification		[Model name], [Serial number], [firmware version], [comm card firmware], [IP/MAC adress].

8.4.3 User settings

Submenu	Available settings	Default settings
Password	Can be changed by user	4732
Language	English, Italiano, Français, Deutsch, Español, Русский, Polski, 简体中文.	English
User password	[Enabled, ****], [Disabled]	Enabled
Audible alarms	[Enabled], [Disabled]	Enabled
Output voltage	[220V], [230V], [240V]	[230V] [240V] for AU
Output frequency	[Autosensing], [converter 50Hz, 60Hz]	Autosensing

High efficiency	[Disabled], [Enabled]	Disabled
Auto bypass	[Disabled], [Enabled]	Enabled
Start/Restart	Cold start: [Disabled], [Enabled] Enabled. Auto restart: [Disabled], [Enabled]	[Enabled]
Site wiring fault	[Disabled], [Enabled]	Disabled]
Overload pre-alarm	[50% ~105%]	105%
External battery	[Auto detection], [Manual EBM: 0~6], [Manual Ah: 0~300Ah]	Auto detection 0 EBM 0 Ah
Charger current	4A - for Forge 42U MDC	4A - for Forge 42U MDC
Dry in signal	[Disabled], [Remote on], [Remote off], [Forced bypass]	Disabled
Dry out signal	[Load powered], [On bat], [Low bat], [Bat open], [Bypass], [UPS OK]	Bypass
Ambient temerature alarm	[Enabled], [Disabled	Enabled
Battery remaining time	[Enabled], [Disabled]	Enabled
Date and time	dd/mm/yyyy hh:mm	01/01/2020 00:00
LCD contrast	[0-100%]	50%
Modbus TCP	[Enabled], [Disabled]	Disabled
IoT Enable	[Yes], [No]	No

NOTE!

If the utility power is IT system, the site wiring fault function should be disabled.

8.5 EBM - RA2011BX - External Battery Module

The EBM unit houses the batteries required to operate the UPS, which uses the batteries to produce 230V AC in situations where the mains voltage is missing or outside normal parameters. When the mains voltage returns to normal, the UPS will charge the batteries.

Technical characteristics:
Battery type: Pb-Acid or AGM, 12 V / 240Vdc (20 batteries), 151 x 65 x 95mm.
Number of batteries: 20.
Rack space: 3U.

Battery Installation

1. Take out the front panel, take out the top cover by removing screws on top & rear & side according to Fig 2-1:

Fig 2-1

2. Put the battery into the chassis refer to Fig 2-2:

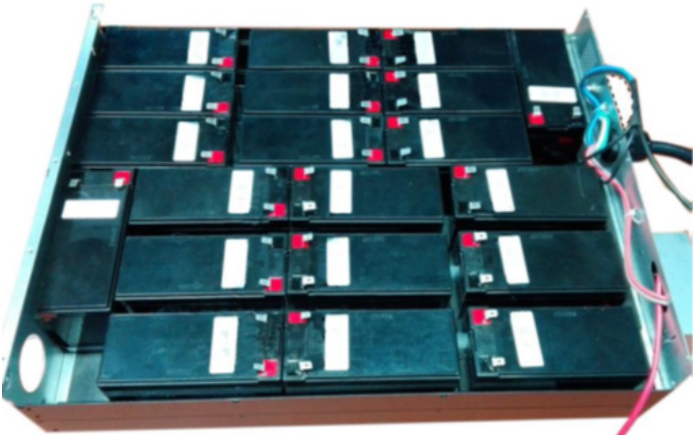


Fig 2-2

3. Connect the battery with W11, W12, W13, W14, W15, W16 refer to Fig 2-3:

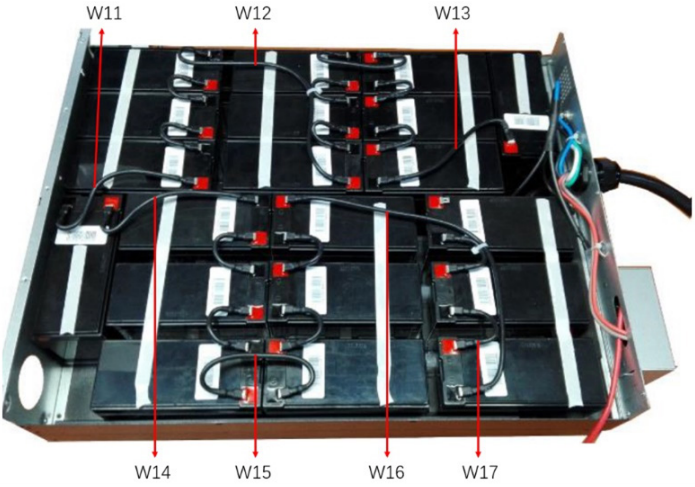


Fig 2-3

4. Install the battery plastic cover and connect the battery wire +, then connect the

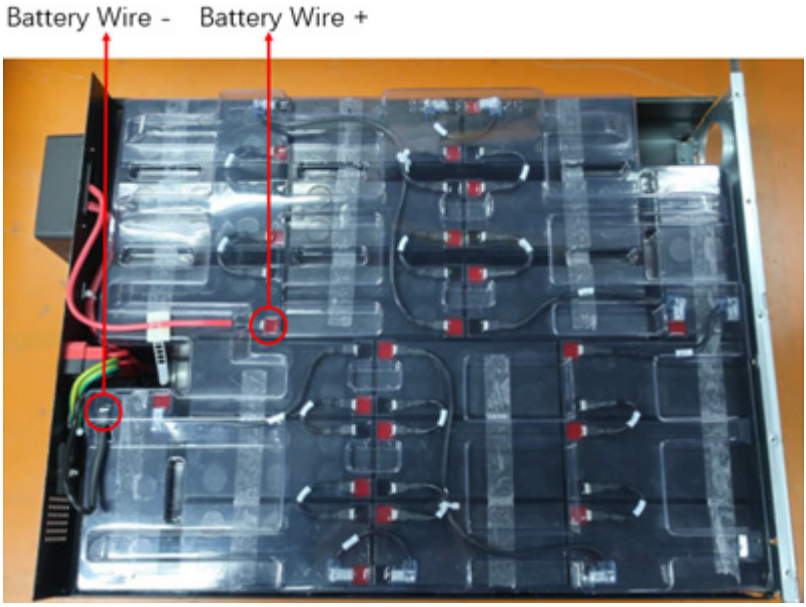
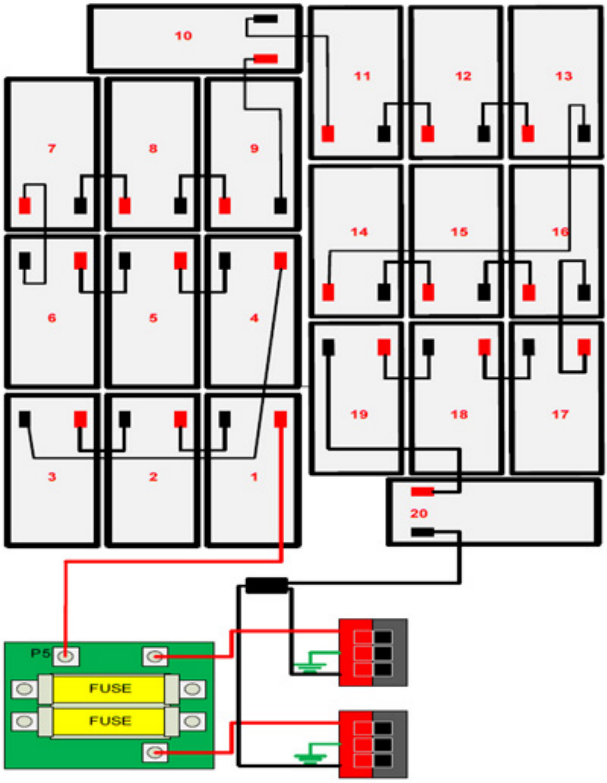


Fig 2-4

5. Install the top cover with screws refer to Fig 2-5:

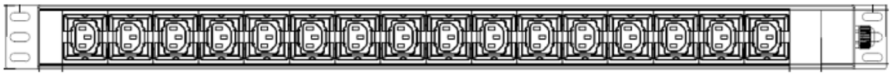
Fig 2-5

Internal wiring diagram



8.6 PDU - Power Distribution Unit

The PDU module distributes the voltage coming from the UPS to the equipment that is installed in the MDC (servers, networking, storage units, etc.). Constructively, it is a multiple socket equipped with 12 C13 and 4 C19 sockets, as well as a 32A automatic fuse, positioned at the rear of the rack in vertical position. It is powered from the PDU1 output of the PDM module and its power supply is controlled from the PDU1 switch on the front panel.



8.7 Monitor

Equipped with a 10.1-inch LCD and built-in monitoring software, the integrated intelligent monitor IVIEWS is suitable for standard single cabinet/row cabinet. It can be connected to comprehensive power environment monitoring devices including the UPS, cooling unit, PDM, temperature/humidity sensor, water leakage detector, and smoke sensors. The monitoring software based on B/S structure can be displayed locally or remotely through the web. A standard SNMP northbound interface is provided for DCIM or third-party system integration.

The monitoring module collects all the data coming from the other modules as well as from the sensors, and through the graphical user interface installed it is possible to configure the MDC operation under different aspects (monitoring, notifications, etc.)

All electrical connections of the monitor are factory default, inside the MDC are mounted several sensors that provide various information on the status of different components, environmental conditions (temperature, humidity) etc.. Thus can be monitored various parameters to improve the operating conditions of the equipment, and will issue alerts or notifications in case of potentially dangerous situations.

Technical data.

Supply voltage: 12V DC 5A.

Data Out (DO) ports: 2, normal signal open or closed

Data In (DI) ports: 9, for Dry Contact UPS, smoke sensors, infrared, liquid leak, door opening.

Powered Data Out (DO) ports: 4, for alarm lights, automatic door buzzers, etc.

RS485 ports: 8. Ports 1 and 2 also support RS232. Ports 3 and 4 have RJ45 connection.

USB ports: 2, type A. Supports USB camera, flash drive, keyboard and mouse.

MicroSD Slot: 1, supports max. 64GB.

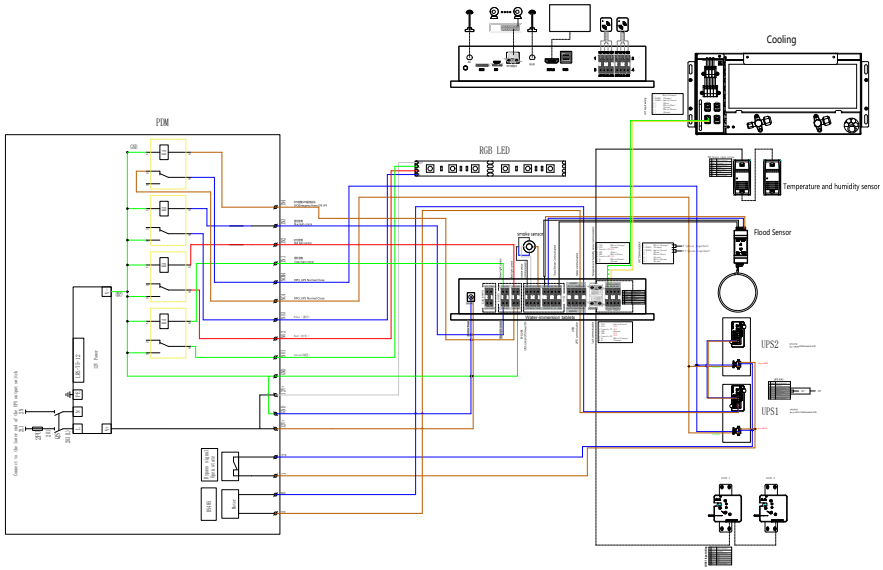
MicroSIM Slot: 1.

Ethernet port: 1, RJ45, 100/1000Mbps.

HDMI port:1, for additional display.

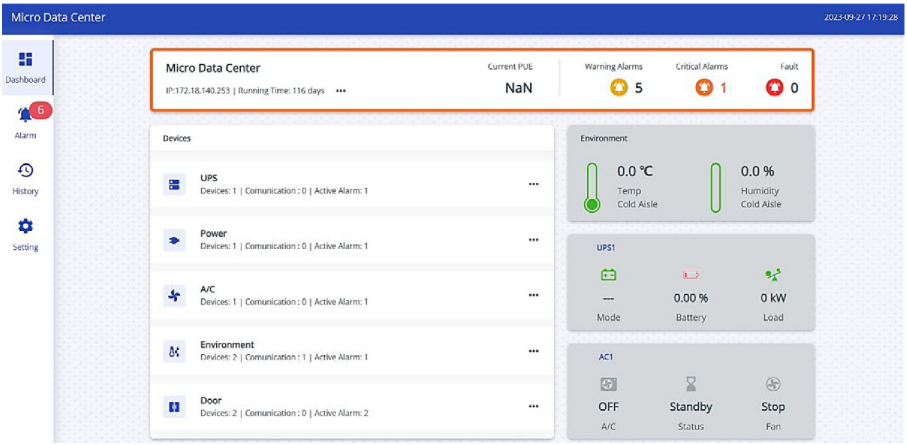
Bottom interface

Top interface



8.8 HMI - Human Machine Interface

The user-friendly HMI (10.1-inch LCD touchscreen) is equipped on the front door of the cabinet, as shown in the following figure.



8.9 Sensors

The integrated monitoring system can control cabinet doors and monitor the operating status of cooling units and UPS, input power parameters, and environment parameters such as cabinet inlet and outlet air temperature and door status, water leakage, smoke and fire. A temperature and humidity sensor is installed at the front of each IT cabinet, a smoke sensor is installed at the top of the rear of the cooling unit cabinet, and a water leakage detector is installed at the bottom of the rear of the cooling unit cabinet. The following figures show the sensors.

Inside the MDC are mounted several sensors that provide various information on the status of different components, environmental conditions (temperature, humidity), etc. Thus, various parameters can be monitored to improve the operating conditions of the equipment, and alerts or notifications will be issued in case of potentially dangerous situations.

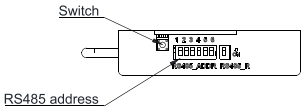
The electronic locks are installed on the inner column of the front and rear doors of the cabinet. Check that the front, rear, top, and bottom dimensions are proper so that the doors can be opened smoothly without interference.

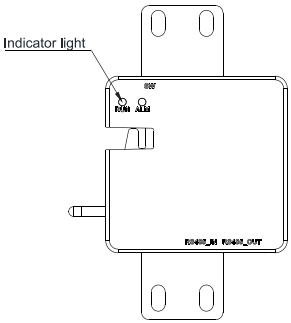
The smoke sensor is used to detect smoke or fire that may occur in the system. If a component in the system is damaged and catches fire, a smoke alarm will be triggered and displayed on the HMI. The internal contact of the smoke sensor must be set to NO, otherwise alarms will be reported by mistake.

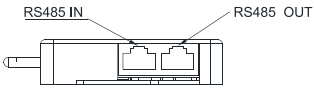
The water leakage detector is installed at the bottom of the cooling unit cabinet and is used to detect water leakage in the cooling unit drainage system. If water leakage occurs, a water leakage alarm will be displayed on the HMI.

The temperature and humidity sensor is installed in the cold storage of the cabinet, and the detected temperature and humidity are displayed on the HMI. If the temperature exceeds the acceptable range, an alarm is generated.

A. Electronic lock DS635-6







Both doors (front / rear) of the rack are equipped with electronic dampers. These can be operated either manually (key) or automatically via the monitoring unit/ application or when situations arise that require it (smoke). They also signal the closed/open status of the doors.

Technical characteristics:

Supply voltage: 9 - 16V DC.

Power consumption: <1.6W.

Communication interface: RS485.

Status signaling: green LED / red LED.

B. Temperature and humidity sensor

This sensor monitors and communicates information about temperature and humidity in the MDC.

Technical Data:

Supply voltage: 12V DC.

Power consumption: <1.6W.

Communications: RS485.

Status signaling: green / red flashing LED.

C. Smoke sensor

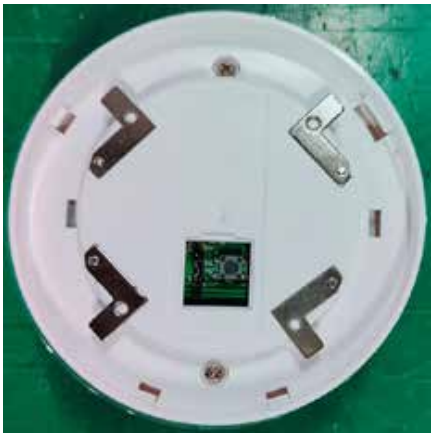
Technical characteristics:

Supply voltage: 9 - 35V DC

Standby current: 12m

Status signaling: Red LED

Connections: 1-2 power supply, 3-4 alarm signal



D. Leak sensor

Via the metal-inserted wire, this sensor signals if liquids are leaking inside the MDC.

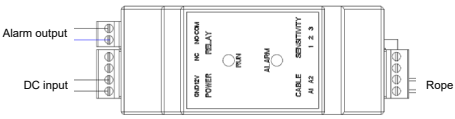
Technical characteristics

Supply voltage: 12V DC

Response time <2

Sensor wire length: 5

Status signaling: green / red LED



9 Maintenance

This chapter introduces how to maintain the MDC, including safety notes and the maintenance of major components such as the power distribution unit, the cooling unit, and the monitor.

⚠ CAUTION

- **System maintenance must be completed by authorized technical and professional personnel.**
- **All maintenance must be subject to local electrical, cooling and manufacturing laws and regulations. Otherwise, no warranty will be given.**
- **Unsuitable parts may cause degradation or damage to the MDC. It is recommended to use original parts when a replacement is required.**

9.1 Periodic maintenance of the power distribution system

9.1.1 Periodic cleaning

Clean the vents regularly on the front and back of the UPS to keep the airflow inside the UPS unobstructed and confirm that nothing is obstructing the ventilation of the UPS.

9.1.2 Fan maintenance

With the UPS, check every six months to see if all fans are working properly (users should check if the fans are spinning and if there is a fan error information on the LCD of the UPS panel) and replace faulty fans promptly.

9.1.3 Battery maintenance

If the UPS is equipped with battery, the battery must be maintained regularly. Note that:

- Battery life is greatly affected by the ambient temperature and the environment temperature should be kept from 15°C to 25°C.
- When the battery is not used for a long time (more than three months), it needs to be charged once every three months for at least 10 hours.
- If you find that the battery backup time is short, contact the supplier in time to determine whether the battery needs to be replaced.
- Use the same brand and model for battery replacement. If you want to replace with another brand or model, consult our customer service.

9.1.4 Check the UPS status

Perform regular checks on the status of the UPS, including:

• Check whether the UPS faulty light is up, and whether a faulty alarm is generated.

• Check whether the UPS is working in a bypass mode. Under normal circumstances, the UPS will operate in the online mode. If the UPS is operating in a bypass mode, confirm the cause.

Possible causes may include:

– Manual switching
– UPS overload
– UPS error

• Check whether the battery is in an electrical discharge state. Under normal circumstances with mains power, the battery should not be discharging. If the UPS is operating in battery discharge mode, confirm the cause. Possible causes may include:

– Mains power failure
– Manual switching
– Battery test
– UPS failure

9.2 Periodic maintenance of the cooling system

Recommended maintenance periods of the cooling system are listed in the following table.

Classification	Parts	Monthly	Each quarter	6 months	Yearly
Refrigerant circuit	High pressure/low pressure	✔	☐	☐	☐
	Pipeline system	☐	☐	✔	☐
Air circuit	Indoor fan	☐	☐	☐	✔
	Filter	☐	✔	☐	☐
	Outdoor condenser and fan	☐	☐	✔	☐
Water line	Drainpipe	✔	☐	☐	☐
General maintenance	Power connection	☐	☐	☐	✔
	Structural fixation	☐	☐	☐	✔

The filter needs to be cleaned every three months. For details about how to take out and install the filter, see 10.2.1 Replace a filter of the cooing unit.

NOTE!

For more information, contact our service personnel.

9.3 Periodic maintenance of monitoring system

It is recommended to periodically check the working status of the monitoring module and sensors. This includes the following steps:

Step 1 Check whether alarms are reported on the alarm page. If yes, check the corresponding device to clear the alarm.

Step 2 Check that information such as UPS operating status, cooling unit working status, environment, and running parameters are properly displayed on the HMI.

Step 3 Check that input and output parameters, battery and other parameters of the UPS are displayed normally on the UPS page.

Step 4 Check whether the air temperature and humidity of the input and output on the A/C page are displayed normally and whether an overheating alarm occurs. If an alarm is reported, locate and rectify the cause to clear the alarm.

Step 5 Check whether water leakage, smoke and other alarms are displayed on the Environment page. If yes, locate and rectify the cause to clear the alarm.

Step 6 Check whether access control alarms are displayed on the Door page. If yes, locate and rectify the cause to clear the alarm.

Step 7 Check whether the temperature sensor is connected to the cabinet securely.

Step 8 Check whether the location of the water leakage sensor is moved.

Step 9 Check whether the smoke sensor operates normally and the interface functions normally.

Step 10 Check whether the electronic door locks can be opened normally.

10 Troubleshooting

This chapter introduces how to maintain the MDC, including safety notes and the maintenance of major components such as the power distribution unit, the cooling unit, and the monitor.

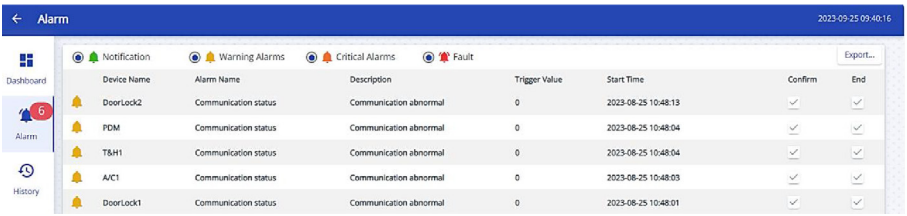
10.1 Alarms and solutions

You can check alarms and faults on the HMI. This chapter describes some alarms and corresponding solutions for your inspection and troubleshooting. If the problem persists, contact our customer service center.

If you need to report bugs, errors, or issues to our customer service center, please take note of and report the following information:

- Serial numbers of the monitoring module, UPS, and cooling unit
- Date of the incident
- Complete problem description

To check alarms on the HMI, refer to section 7.2 to log in to the system, and tap Alarm in the left menu bar.



See the following table for common faults and possible solutions. After the faults are rectified, the alarms will be automatically cleared, and the MDC will continue working properly.

Alarm	Possible cause	Solution
Output overload	The load exceeds the allowed range.	Reduce the load.
Door ban alarm	The cabinet door is not closed properly.	Check and close the cabinet door.
	The door lock is not connected properly.	Connect the door lock properly.
	The door is opened due to the high temperature of the air inlet.	Locate and rectify the cause and close the door manually.
Water leakage detector alarm	Leakage occurs in the drainpipe of the cooling unit or the connection part.	Repair the drainpipe or interface of the cooling unit.
	The water intrusion sensor is shortcircuited.	Locate and rectify the cause.
Smoke sensor alarm	The load is damaged, which generates smoke.	Repair the load.
	Smoke occurs in the engine room.	Eliminate the source of smoke in the engine room.
	The smoke sensor is faulty and generates the alarm by mistake.	Refer to 9.2.5 Replace a smoke sensor.
Temperature too high (temperature and humidity)	The cabinet load exceeds allowed range.	Reduce or balance the cabinet load.
	There is no shield installed in the cabinet's spare parts.	Assembly the shield in the spare parts of the cabinet.

Alarm	Possible cause	Solution
High humidity in hot chamber	The ambient humidity is too high.	Reduce the ambient humidity.
	The engine room is not sealed properly.	Seal the engine room properly.
	There is a humidifier in the engine room.	Turn off the humidifier in the engine room.
	High humidity alarm threshold of the cooling unit's returned air is set too low.	Increase the high humidity alarm threshold (80% by default) of the cooling unit.
Cooling unit's air supply temperature too high	The system is overloaded.	Reduce the system load.
	High temperature alarm threshold of the cooling unit's outlet is set too low.	Increase the high temperature alarm threshold (35°C by default) of the cooling unit's outlet by referring to 7.8.4 Set temperature.
	Outlet temperature of the cooling unit is set too high.	Reduce the outlet temperature setting (10°C by default) of the cooling unit by referring to 7.8.4 Set temperature.
Cooling unit's air supply temperature too low	The temperature of cooling unit is set too low.	Increase the temperature setting to 29°C or above by referring to 7.8.4 Set temperature.
	The cabinet load is too low.	Increase the load.
Abnormal communication with the UPS	The UPS's communication cable is not connected properly.	Check the communication interfaces at both ends of the monitoring module and UPS and connect the communication cable properly.
Abnormal communication with the cooling unit	The communication cable of the cooling unit is not connected properly.	Check the communication interfaces at both ends of the monitoring module and cooling unit and connect the communication cable properly.
Abnormal communication with the temperature and humidity sensor	The temperature and humidity sensor is not connected properly.	Check and connect the temperature and humidity sensor properly.
	The address of the temperature and humidity sensor is set incorrectly.	Check and set the DIP switch of the temperature and humidity sensor properly.
Abnormal communication with the door lock	The door lock is not connected properly.	Check and connect the door lock properly.
	The address of the door lock is set incorrectly.	Check and set the DIP switch of the door lock properly.

10.2 Typical alarms and faults

To check the Event log:
1. By pressing ↵ on the menu of “Event log”.
2. Scroll through the listed events or faults.
3. The following table describes typical conditions.

WARNING		
Problem Displayed	**Possible cause**	**Remedy**
On Maintain Bypass	Maintain bypass switch is open	Check the maintain bypass switch
Site Wiring Site Wiring alarm	Phase and neutral conductor at input of UPS system are reversed	Reverse mains power wiring.
No battery	Battery pack is not connected correctly	Do the battery test to confirm. Check the battery bank is properly connected to the UPS. Check the battery breaker is turn on or fuse OK.
Battery low	Battery voltage is low	When audible alarm sounding every second, battery is almost empty.
End battery life	The battery has reached the end of its life	Consult dealer if replace the battery
Power overload	Power requirements exceed the UPS capacity	Check the loads and remove somenoncritical loads. Check if some loads are failed
Overload pre-alarm	The load exceeds the preset value	Check the loads or reset the pre-alarm value
Fan Lock	Fan abnormal	Check if the fan is running normally or fan detection cable disconnected
UPS temp. alarm	Inside temperature of UPS is too high	Check the ventilation of UPS and the ambient temperature
Amb. temp. alarm	The ambient temperature is too high	Check the environment ventilation
Imminent shutoff	Insufficient battery backup time	Protect load equipment in time
FAULT		
Problem Displayed	**Possible cause**	**Remedy**
Inverter overload	Overload	Check the loads and remove some noncritical loads. Check if some loads are failed.
Bypass overload	Overload	Check the loads and remove some noncritical loads. Check if some loads are failed.
Out. short circuit	abnormally low impedance placed on its output and considers it a short circuit	Remove all the loads. Turn off the UPS. Check if UPS output and loads is short circuit. Ensure short circuit is removed before turning on again.

UPS temp. fault	Inside temperature of UPS is too high	Check the ventilation of UPS and the ambient temperature.
DC bus + or - too high	UPS internal fault, the + or -DC BUS voltage is too high	Consult dealer.
DC bus + or - too low	UPS internal fault, the + or -DC BUS voltage is too low	Consult dealer.
DC bus unbalanced	UPS internal fault, the voltage difference between DC Bus+ and DC bus- is too large	Consult dealer.
DC bus short circ	UPS internal fault	Consult dealer.
Max inverter volt	UPS internal fault, the inverter voltage is too high	Consult dealer.
Min inverter volt	UPS internal fault, the inverter voltage is too low	Consult dealer.
ELSE CASES		
Problem Displayed	**Possible cause**	**Remedy**
No indication, no warning tone even though system is connected to mains power supply	No input voltage	Check the building wiring and input cable. Check if the input breaker is closed.
Green LED is not on even though the power supply is available	Inverter not switched on	Press On-Switch to turn on UPS.
Emergency supply period shorter than nominal value	Batteries are not fully charged / batteries defect	Charge the batteries for at least 12 hours and then check capacity

A/C Communication abnormal for cooling unit

Communication abnormal between cooling unit and HMI: The factory default address of the cooling unit is 1, if the address of the cooling unit is changed to other, it will cause abnormal communication.

Check the historical operation records to confirm which address is modified, and then set the cooling unit address to the modified address by setting.

Operating pressure range for cooling unit -- The two most important parameters to judge whether the condition of the cooling unit is normal.

High pressure (condensing pressure):22~30bar(affected by the environment)
Low pressure (evaporating pressure):8~12bar(affected by load) Superheat:2~15°
If the pressure is too high, it is generally due to poor heat dissipation on the condensation side, such as failure of the outdoor fan, excessive refrigerant charge, etc.

If the pressure is too low, it is generally due to poor heat dissipation on the evaporating side, such as failure of the indoor fan, insufficient refrigerant charge, copper pipe leakage, etc.

Cooling temperature setting for lower IT Load
If the initial customer load is relatively low, the return air temperature setting value can be appropriately lowered, but it cannot be lower than 25°, and the cabinet is easy to high humidity alarm.

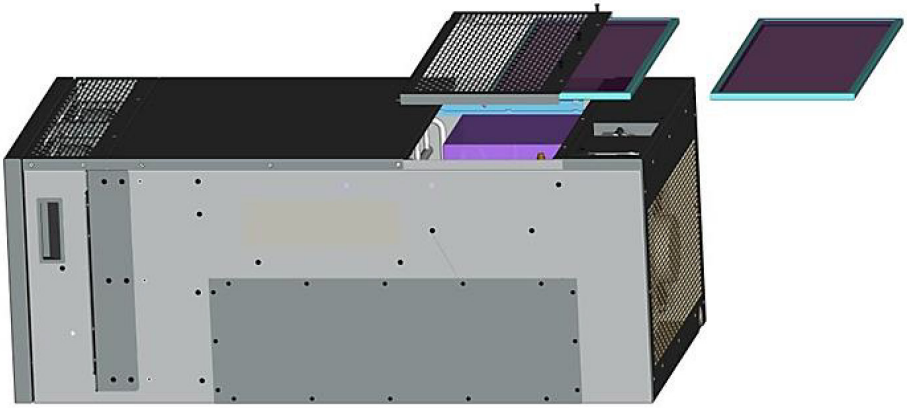
Click “Return air temperature setting”→change the temperature value → Click“Send”.

10.2.1 Replacement of common parts

If a common part is damaged, you can replace the part by yourself by following the description in the following sections. Original components are recommended for replacement.

10.2.2 Replace a filter of the cooing unit

Step 1 Loosen the screws on the upper cover panel and remove the cover panel.
Step 2 Remove the filter and replace it with a new one.
Step 3 Install the upper cover panel by fixing the screws on it.



10.2.3 Replace a temperature and humidity sensor

The temperature and humidity sensor is installed in the cold aisle in front of the cabinet. The temperature and humidity sensor is magnetically attached to the metal sheet without screws. It is hot swappable.

To replace a temperature and humidity sensor:

Step 1 Unplug the network cable connected to the temperature and humidity sensor and remove the sensor.

Step 2 Connect the network cable to the new temperature and humidity sensor and attach the sensor to the sheet metal.

10.2.4 Replace a water leakage detector

The water leakage detector is placed at the bottom of the main cabinet's rear rail. When disassembling it, press down on the rail buckle.

To replace a water leakage detector:

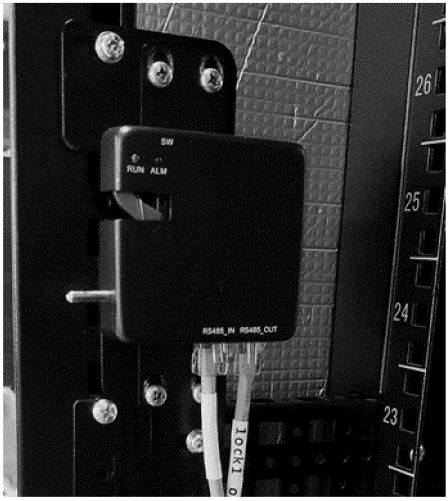
Step 1 Unplug the terminal connected to the water leakage detector.

Step 2 Press down the rail buckle to remove the water leakage detector.

Step 3 Press down the rail buckle and install the new water leakage detector, then connect the terminal to it.

10.2.5 Replace an electronic door lock

The electronic locks are installed on the front and rear doors with Pozidriv screws. A dedicated spanner is provided in the accessory kit for removing and fixing them.



To replace an electronic door lock:

Step 1 Unplug the network cables connected to the door lock.

Step 2 Loosen the fixing screws of the door lock.

Step 3 Replace the original door lock with a new one, adjust its position, and fix it with screws.

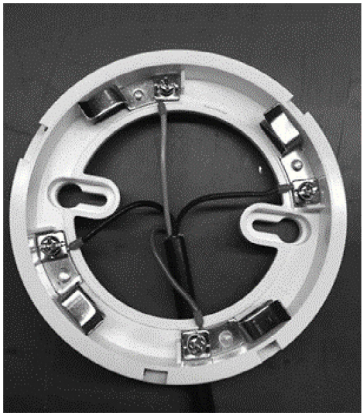
Step 4 Connect the network cables with the new lock.

NOTE!

Check the cable labels to ensure that the cables are connected correctly.

10.2.6 Replace a smoke sensor

The smoke sensor is installed inside of the top of the cabinet. It consists of a wiring base and a sensor body.



To replace a smoke sensor body:

Step 1 Turn the smoke sensor body by 30° counterclockwise in the arrow direction shown on the senor body to remove it from the base.

Step 2 Fit a new smoke sensor body to the base and rotate it clockwise to fix it.

To replace a smoke sensor base:

Step 1 Loosen the screws on the base to disconnect the cables and remove the base.

Step 2 Connect the cables to a new sensor base by referring to the cable labels and fix the screws.

If the indicator on the smoke sensor blinks green every 9 seconds, the smoke sensor is installed successfully.

10.2.7 Replace illuminating lights

The lights are installed on the top of cabinet and fixed by locking pins.

To replace the illuminating light:

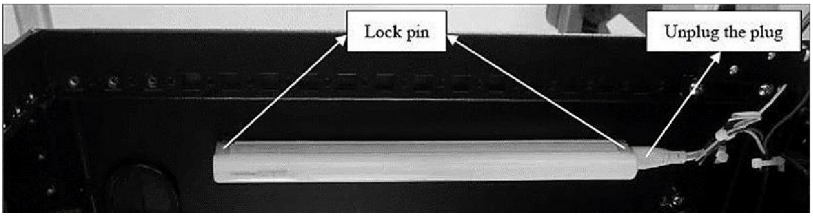
Step 1 Disconnect the power plug on the PDU.

Step 2 Disconnect the power plug on the light.

Step 3 Replace the illuminating light with a new one.

Step 4 Connect the power plug on the light.

Step 5 Connect the power plug on the PDU to turn it on.



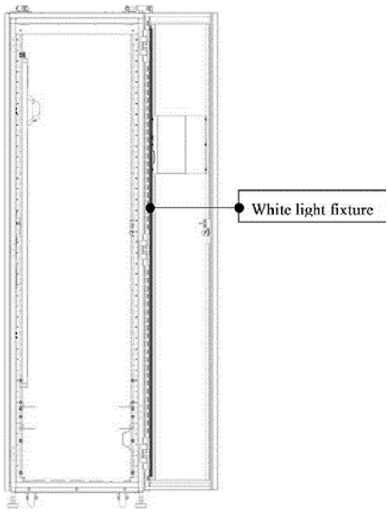
10.2.8 Replace ambient lights

The ambient lights are installed in a white light fixture on the right inside the front door of the cabinet. All the lights are hot swappable.

Step 1 Disconnect the power plug on the PDU.

Step 2 Disconnect the power plug on the light.

Step 3 Replace the illuminating light with a new one.

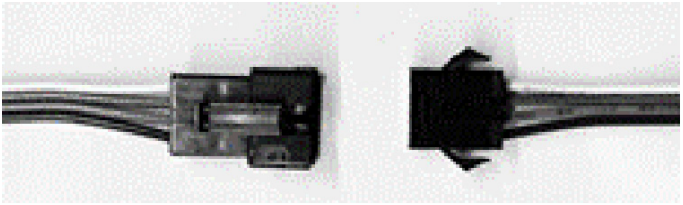


To replace ambient lights:

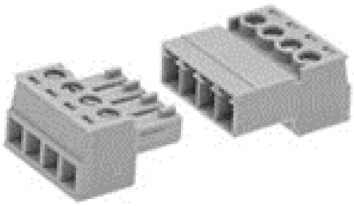
Step 1 Remove the light cover plate.

Step 2 Remove the cover of the monitoring host inside the front door.

Step 3 Disconnect the plug pairs of the ambient light.



Plug pairs for IT cabinet



Plugs for single cabinet and main cabinet in multiple cabinet system

Step 4 Remove the ambient lights and cables and replace them with the new ones.

Step 5 Connect the plug pair and install the covers.

Step 3 Disconnect the plug pairs of the ambient light.

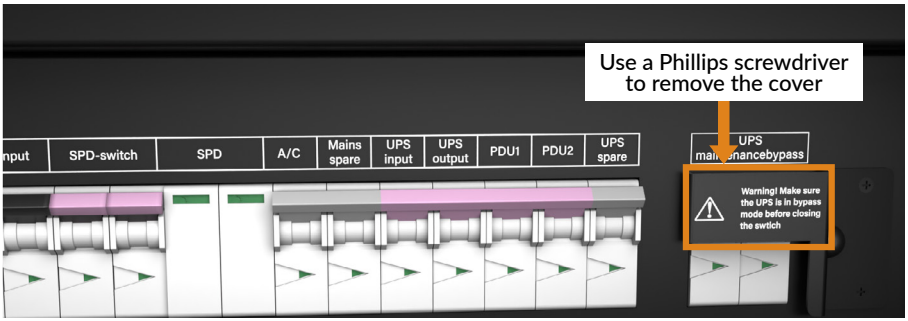
10.2.9 Replace the UPS

NOTE!

Replacing the UPS cannot interrupt the power supply to backend loads.

A generic UPS is used as an example in this section. The replacement steps for other types of UPS are similar.

Step 1 Keep all switches stationary, and use a Phillips screwdriver to remove the maintenance bypass cover on the PDM.



Step 2 Check the UPS by indicator or HMI to see whether the UPS has switched to the bypass mode.

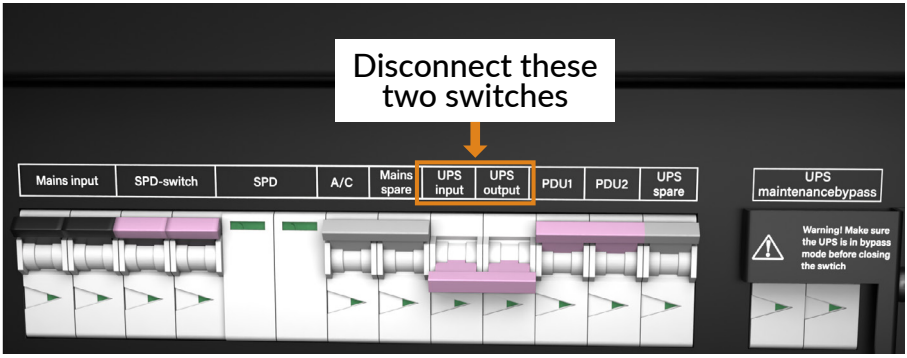
NOTE!

This step cannot be skipped. If the UPS does not work in the bypass mode, stop the operation and rectify the cause. Otherwise, the UPS may be damaged.

Step 3 Close the UPS maintenance bypass switch on the PDM.

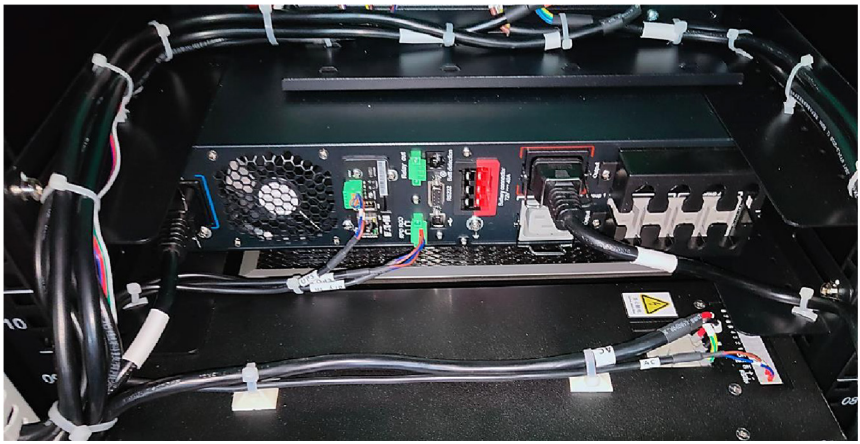
This switch is exposed after the cover is removed.

Step 4 Disconnect the UPS output switch on the PDM and the UPS input switch.



Step 5 Press the UPS shutdown button to turn off the UPS.

Step 6 Remove the input and output cables and other signal cables at the rear of the UPS, bundle them briefly, and then take out the UPS.



Step 7 Install a new UPS, connect the incoming and outgoing cables and signal cables in accordance with the cable marks at the rear, and restore the rear wiring to the original state.

Step 8 Close the UPS input switch on the PDM, and then start the UPS.

Step 9 Check that the UPS works in the bypass state.

NOTE!

This step cannot be skipped. If the UPS does not work in the bypass mode, stop the operation and rectify the cause. Otherwise, the UPS may be damaged.

Step 10 Close the UPS output switch.

Step 11 Disconnect the PDM panel bypass switch and install the cover.

10.2.10 Replace internal components of the PDM

10.2.10.1 Replace the DC module

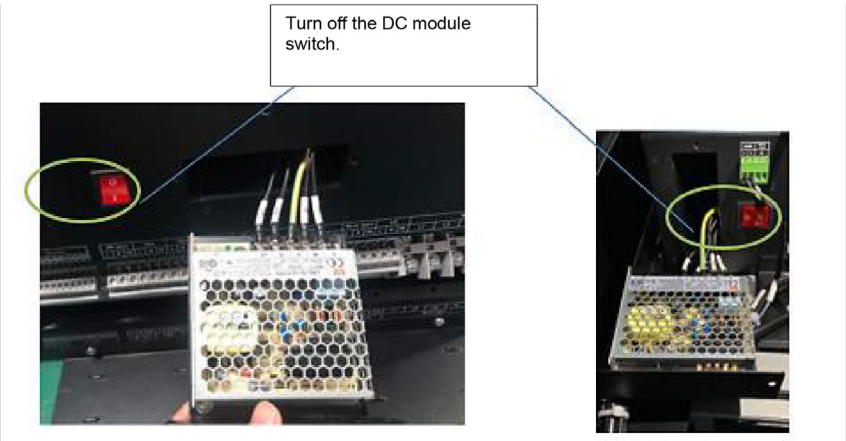
In this section, the replacement of the DC module is described with PDM-6K as an example.

The replacement steps for other models are similar.

NOTE!

Replacing the DC module does not require disconnecting the main power supply, and the customer's back-end equipment continues to operate normally.

To replace the DC module:



Example figure

Step 1 Turn off the DC module switch.

Step 2 Loosen the screws that fix the DC module.

Step 3 Pull out the DC module and disconnect the cables.

Step 4 Connect the cables with a new DC module.

Step 5 Push in the PDM and fix the screws on it.

Step 6 Turn on the DC module switch.
If the MDC is powered on successfully, the DC module switch is replaced successfully.

10.2.10.2 Replace a PDM switch

⚠ CAUTION

Before replacing a PDM switch, disconnect the main power supply and input power supply of the PDM to avoid electronic shocks.

To replace a PDM switch:

Step 1 Disconnect the main power supply and input power supply of the PDM.

Step 2 Remove the front panel. Disconnect cables on the switch, and open the buckle to remove the switch.

Step 3 Connect cables to the new switch by referring to the original cable connection.

Step 4 Install the front panel and connect power supply again.

A Acronyms and abbreviations

Abbreviation/Acronym	Full Form
HMI	human machine interface
MDC	micro data center
PDU	power distribution unit
PDM	power distribution module
PUE	power usage effectiveness
UPS	uninterruptible power systems

Multumim pentru ca ati ales produsele noastre!

Va rugam cititi manualul de utilizare inainte de a pune in functiune acest produs.

nJoy este un brand de solutii UPS dedicate protectiei si rezervei de energie din diferite medii de utilizare, de la rezidential la industrial

Despre acest manual

Va multumim ca ati ales micro data center-ul nostru (MDC). Acest manual de utilizare prezinta modul de instalare a cabinetelor MDC, a componentelor si a unitatilor de racire, precum si modul de control al MDC utilizand interfata web. De asemenea, sunt furnizate informatii despre punerea in functiune si depanare.

NOTA!
Interfata web poate varia in functie de versiuni. Interfata web afisata va fi prioritara.

Norme

Simbolurile care pot fi gasite in acest manual de utilizare sunt definite astfel.

Simbol	Definitie
⚠ AVERTISMENT	Indica un pericol cu un nivel mediu de risc care, daca nu este evitat, poate duce la deces sau raniri grave.
⚠ ATENŢIE	Indica un pericol cu un nivel scazut de risc care, daca nu este evitat, poate duce la rani minore sau moderate.
NOTA!	Notele informative atrag atentia asupra caracteristicilor sau instructiunilor importante. Ignorarea acestui tip de nota poate duce la o configurare ineficienta, pierderea datelor sau deteriorarea dispozitivului.

1 Avertizari de siguranta

Cerinte generale

• Cititi cu atentie acest manual inainte de a utiliza produsul.

• Sectiunile „precautie” si „avertizare” din acest manual nu reprezinta toate masurile de siguranta.
Aceste sectiuni evidentiaza doar unele puncte pentru precautiile de siguranta.

• Acest produs este recomandat pentru utilizari comerciale sau alte utilizari profesionale.

• Acest produs trebuie utilizat numai in scopurile pentru care a fost proiectat si nu vom accepta nicio responsabilitate in cazul utilizarii necorespunzatoare.

• Zonele din interiorul dulapului produsului sunt zone cu acces restrictionat. Recomandam ca accesul la zonele restrictionate sa fie acordat numai angajatilor autorizati.

• Parola produsului trebuie pastrata de persoana responsabila desemnata.

• Pentru precautiile de siguranta ale sistemelor de alimentare neintreruptibila (UPS) si ale aparatelor de aer conditionat, consultati manualele de utilizare si manualele de intretinere ale acestora.

Siguranta electrica

• Pentru conexiunile electrice, trebuie utilizate unelte izolante.

• Dupa ce produsul emite un avertisment prin monitor, localizati si eliminati prompt cauza pentru a evita alte probleme sau defectiuni.

Risc de soc electric

Un soc electric poate provoca vatamari corporale sau chiar deces. Prin urmare, acordati atentie urmatoarelor puncte:

• Inainte de a lucra la componentele din interiorul produsului, deconectati cutia de comanda si sursa de alimentare.

• Inainte de instalare, cititi toate instructiunile de utilizare, verificati daca toate componentele sunt primite la locul de instalare si verificati placuta de identificare pentru a va asigura ca tensiunea corespunde retelei de alimentare.

• Respectati legile si reglementarile de la fata locului sau locale.

Siguranta unitatii de racire

• Utilizati numai agent frigorific R410A.

• Alama trebuie sa suporte o presiune de lucru minima de 55bar.

• This product is recommended for commercial or other professional use.

• Sunt necesare cel putin doua persoane pe un santier de sudura. Un sudor trebuie sa aiba un permis de lucru.

• La locul de sudare trebuie evitate substantele inflamabile si trebuie sa fie disponibile un extinctor, un stergator umed si un recipient cu apa.

• O torta de sudura aprinsa nu trebuie sa fie plasata pe o componenta sau pe podea si nu trebuie sa fie plasata intr-un recipient metalic cu acetilena si oxigen. In caz contrar, gazul se poate scurge si poate provoca un incendiu.

• Conductele cu temperaturi ridicate dupa sudare trebuie racite rapid.

• Nu sudati sau taiati pe recipiente sau tevi sub presiune. Dispozitivele electrice trebuie sa fie oprite inainte de sudare.

Precautii de siguranta

• La intretinerea sau inlocuirea componentelor, acordati atentie componentelor cu temperatura ridicata (cum ar fi compresorul, conducta de agent frigorific si incalzitorul electric) pentru a preveni arsurile si pentru a preveni fisurarea sau explozia sistemului de agent frigorific din cauza unor operatii gresite.

• Scurgerile de agent frigorific pot provoca degeraturi. Luati masuri de protectie (de exemplu, purtati manusi antigel) atunci cand manipulati agentul frigorific.

Cerinte privind mediul de instalare

Acordati atentie urmatoarelor aspecte atunci cand lucrati la cel putin 2 metri deasupra solului:

• Respectati legile si reglementarile locale.

• Operatorul trebuie sa fie instruit si calificat.

• Inainte de a lucra la inaltime, verificati instrumentele de catarare si echipamentele de siguranta, cum ar fi castile de protectie, centurile de siguranta, scarile, trambulinele, schelele si echipamentele de ridicare. Daca acestea nu indeplinesc cerintele, luati masuri corective sau interziceti lucrul la inaltime.

• Purtati echipamentul individual de protectie, cum ar fi casca de protectie si centura de siguranta sau franghia de talie si fixati-l pe o structura solida. Nu il montati pe un obiect mobil nesigur sau pe un obiect metalic cu margini ascutite. Asigurati-va ca carligele nu vor aluneca.

• Stabiliti o zona restrictionata si semne atragatoare pentru lucrul la inaltime pentru a avertiza personalul nerelevant.

• Purtati utilajele si uneltele de lucru in mod corespunzator pentru a preveni caderea acestora si ranirea lor.

• Personalul implicat in lucrul la inaltime nu are voie sa arunce obiecte de la inaltime la sol sau invers. Obiectele trebuie sa fie transportate cu ajutorul

2 Prezentare generala a produsului

2.1 Introducere In MDC

Ca solutie de infrastructura convergenta pentru centre de date, noua noastra generatie de Micro Data Center are urmatoarele caracteristici:

- Integrarea subsistemelor, cum ar fi UPS, distributie de energie, racire, monitorizare a mediului si iluminat.

- Disponibil ca un singur dulap sau ca mai multe dulapuri pentru a se potrivi diferitelor aplicatii.

- Sisteme pre-proiectate cu validare din fabrica.

- Implementarea rapida a dulapului si configuratii flexibile.

MDC-ul este proiectat pentru utilizarea in medii care necesita microcentre de date, calculatoare sau camere de servere pentru intreprinderi mici si mijlocii. Acesta vine cu o alegere de sistem cu un singur dulap sau cu mai multe dulapuri. Toate dispozitivele care indeplinesc standardele EIA-310-D pot fi instalate in cabinet. Acesta vine standard cu un ecran tactil de 10,1 inch, iluminare LED cu lumini colorate pentru atmosfera, senzor de temperatura si umiditate, senzor de fum, detector de scurgeri de apa, incuietori electrice electronice etc.

Un MDC (Micro Data Center) este o unitate de procesare de date care include toate resursele necesare (atat informatice cat si de infrastructura) pentru satisfacerea unor nevoi de natura informatica. Astfel, daca luam in considerare nevoile informatice ale unei intreprinderi mici / medii, aceasta ar presupune

existenta a unor servere (de domeniu, de fisiere, de internet pentru site-ul intreprinderii), eventual mijloace de stocare a datelor si echipamente de retelistica. Acestea ar trebui plasate intr-o camera cu temperatura controlata, asigurate impotriva penelor de curent cu un sistem tip UPS (Uninterruptible Power Source), eventual asigurate si impotriva unor situatii neprevazute care poate afecta functionarea serverelor (incendiu, inundatie sau infiltarea de lichide). Un MDC cuprinde toate aceste functionalitati, mai mult, permite monitorizarea in timp real a conditiilor de functionare a componentelor si notificarea prin diferite mijloace atunci cand apar evenimente ce ar putea afecta in mod negativ componentele informatice.

Constructiv, un MDC se prezinta sub forma unui rack obisnuit cu rame pentru montarea diferitelor unitati informatice (servere, unitati de stocare etc.). In plus, mai poate cuprinde:

- unitate de climatizare (A/C) pentru mentinerea unei temperaturi scazute a echipamentelor.

- UPS pentru asigurarea functionarii in timpul penelor de curent.

- cabinet de baterii pentru a extinde timpul de back-up

- senzori (de temperatura, umiditate, scurgeri de lichid, fum).

- unitate de management si monitorizare cu posibilitate de conectare la retea (wired sau wireless).
- unitate de distributie a curentului electric prevazuta cu sigurante automate.

- iluminare interioara

In consecinta, avantajele folosirii unui MDC sunt:

- Latenta scazuta: avand toate modulele informatice (servere, module de stocare, conexiune de retea etc.) intr-un singur loc, se va reduce semnificativ timpul de raspuns si de acces la date.

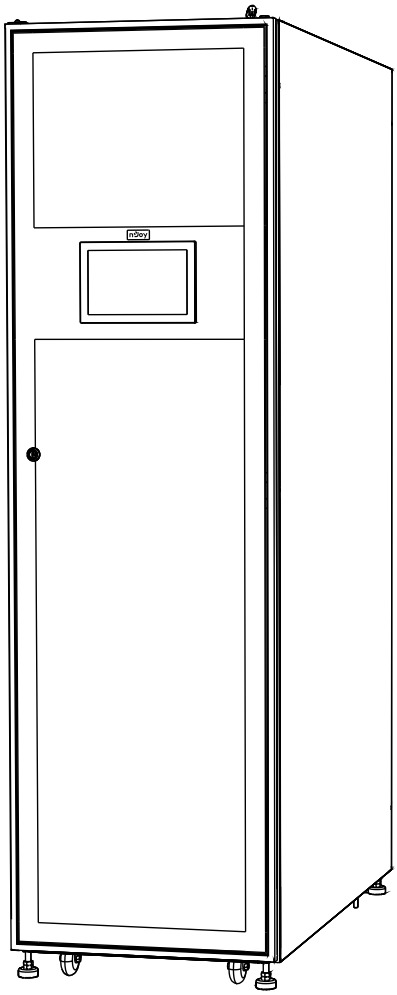
- Fiabilitate crescuta: ca urmare a prezentei subansamblelor de infrastructura (aer conditionat, UPS, senzori etc.) in aceeasi incinta cu subansamblele informatice, conditiile de functionare ale acestora vor fi mult imbunatatite si disfunctionalitatile vor fi in mare parte preintampinate, crescand fiabilitatea sistemului.

- Scaderea timpului de instalare si punere in functiune, ca urmare a faptului ca MDC-ul poate fi livrat asamblat in totalitate sau partial.

- Scalabilitate: pe masura ce nevoile informatice cresc, folosirea MDC-urilor

permite adaugarea de noi unitati la cele preexistente si integrarea naturala a acestora in sistemul informatic.

- Costuri reduse: folosirea MDC-urilor, prin natura lor standardizata si modulara, exclude necesitatea desemnarii si echiparii unei locatii specializate pentru instalarea sistemelor informatice, in acelasi timp pastrand toate avantajele acesteia (climatizare, monitorizare, fiabilitate etc.)



Forge MDC 6K 42U

NOTA!

1. Cabinetele standard simple (Forge MDC 6K-42U) sunt echipate cu o usa batanta. Cand sistemul functioneaza normal, usa este inchisa. Cand sistemul se supraincalzeste (temperatura de intrare a rackului mai mare de 35°C) sau apare o alarma de fum, usa se deschide automat, iar sistemul intra in modul de functionare de urgenta.

2. Capacitatea de racire este masurata in aceasta stare de functionare:

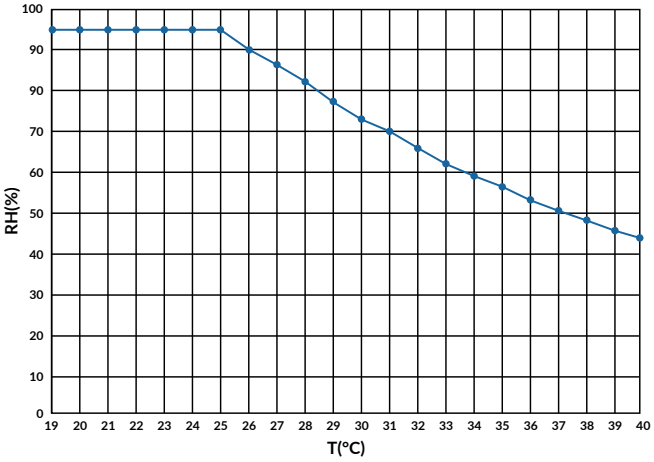
- *Aer retur din interior: @37,8°C/20%RH*
- *Temperatura mediului exterior: 35°C*

3. Toate unitatile de racire sunt unitati de racire integrate fara agent frigorific, acestea trebuie sa fie alimentate cu agent frigorific.

4. Unitatile de racire de 3,5 kW, au modulul de evacuare a condensului prin kit de evaporare cu drenaj.

5. Este prevazuta o scurgere gravitationala de urgenta pentru a preveni alarmele de preaplin. Drenaj gravitational se poate realiza prin deschiderea manuala a robinetului manual de apa al unitatii de racire.

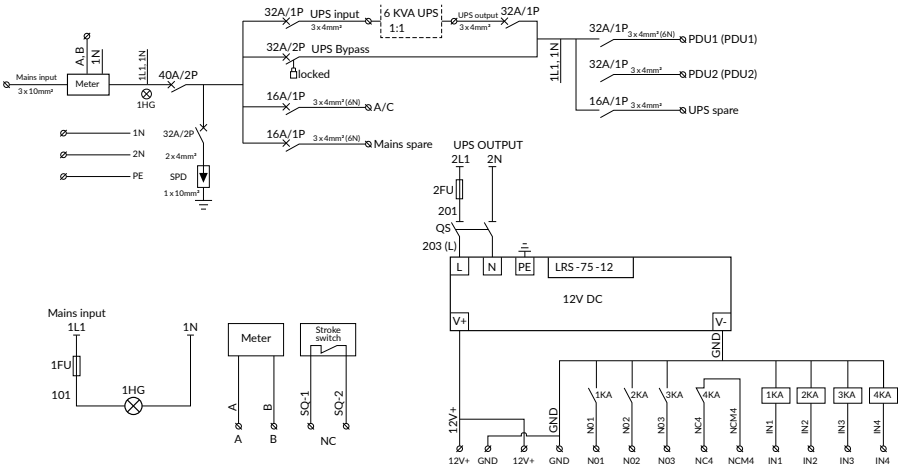
Ambient temperature (°C)	Ambient umidity (%)
19	95
20	95
21	95
22	95
23	95
24	95
25	95
26	90
27	87
28	83
29	78
30	74
31	70
32	66
33	63
34	59
35	56
36	53
37	51
38	48
39	46
40	43



Temperatura si umiditatea unitatii de racire integrate de 3,5 kW (cu kit autoevaporant)

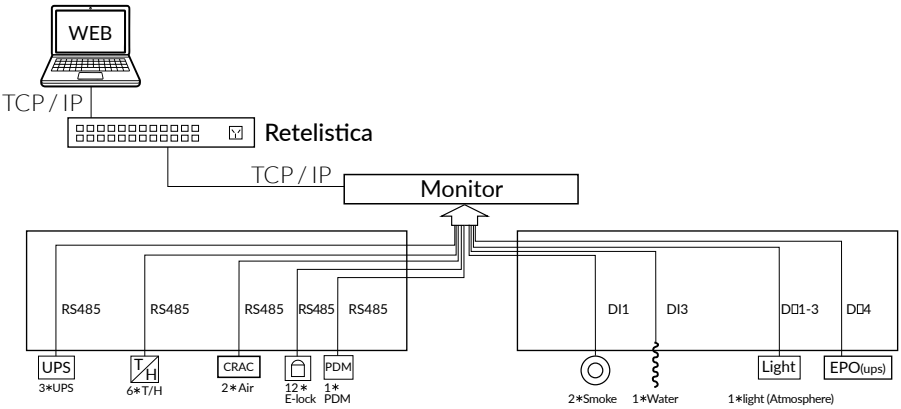
2.2 Schema electrica a sistemului

Figura urmatoare prezinta un exemplu de circuit al unui singur Forge MDC 6K-42U. Circuitele altor modele sunt similare.



Schema Electrica a lui Forge MDC 6K-42U

2.3 Sistemul de monitorizare



Circuitul de monitorizare

2.4 Cerinte de mediu

- Echipamentul se va instala in interior, suprafata unde se instaleaza sa fie plana si orizontala, ferita de raze directe de soare, cu temperaturi de 0 – 40 grade, umiditate mai mica de 90% (fara condensare) si cu suficient spatiu de operare. Infrastructura locatiei trebuie sa suporte o greutate de 800Kg.

- Conexiunea la reteaua de alimentare si cablul electric utilizat trebuie sa reziste la un curent de minim 40A si sa fie corect realizate (conexiunile L, N, PE la blocul de borne de alimentare al PDM trebuie sa corespunda fazei, nulului si impamantarii retelei).

- Nu se recomanda folosirea acestui echipament in mediu rezidential.

- Instalarea echipamentului se va face de numai de personal specializat / autorizat cu respectarea normelor de protectia muncii si folosirea echipamentului de protectie electrica (manusi izolatoare, etc.)

- Nu executati operatiuni de instalare sau mentenanta cu echipamentul conectat la reteaua electrica.

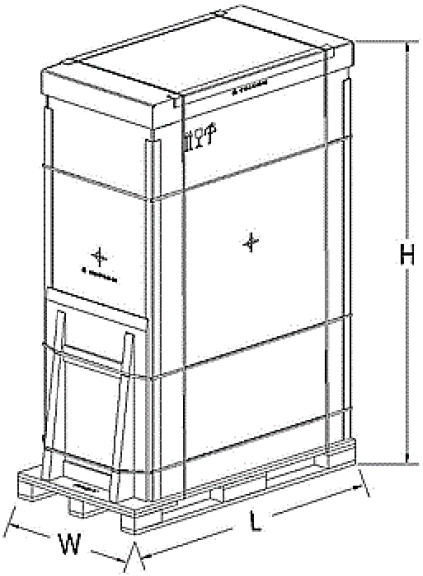
Mediul de operare si de stocare recomandat este cel prezentat mai jos.

Temperatura de depozitare	-25°C la +55°C (fara baterie)
Mediu de depozitare	Interior/curat (fara praf, etc.)
Temperatura de functionare	0°C pana la 40°C
Umiditate ambientala	5%RH pana la 95% RH (fara condens)
Altitudine	≤ 3000 m (consultati-ne pentru utilizare peste 1000 m)

3 Pregatirea instalarii

3.1 Ambalaj

Figura de mai jos arata pachetul MDC.



Pachet Cabinet

3.2 Transport si despachetare

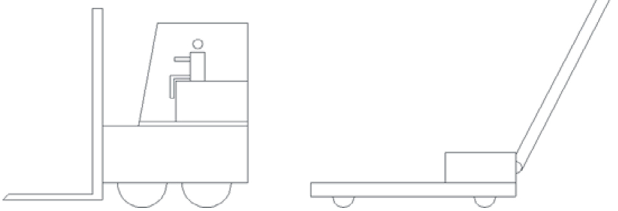
Figura de mai jos arata pachetul MDC.

⚠ ATENTIE

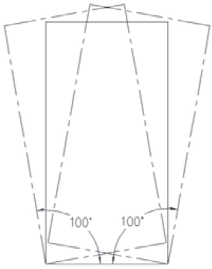
Solicitati unui tehnician calificat sa instaleze infrastructura camerei centrului de date.

3.2.1 Transport

Deoarece dulapurile si unitatile exterioare de racire sunt grele, se recomanda un stivuitor electric sau un stivuitor manual pentru manipularea si mutarea acestora la locul de instalare. La transport, asigurati-va ca unghiul de inclinare al incarcaturii nu depaseste 10 grade.



Transportul sculelor



Unghiul maxim de inclinare

NOTA!

- Toate dispozitivele trebuie mentinute tot timpul in pozitie verticala.

- Deoarece dispozitivul este greu, centrul de greutate al dispozitivului trebuie sa fie echilibrat in timpul transportului.

- Unitatea exterioara de racire trebuie sa fie mentinuta in pozitie verticala. Nu asezati unitatea cu susul in jos, in caz contrar aceasta va fi deteriorata.

Verificati integritatea ambalajului la momentul receptiei, transportati MDC-ul numai in ambalajul original pentru a-l proteja impotriva socurilor si a deteriorarilor, doar in pozitie verticala.

Inainte de instalare, verificati produsul. Asigurati-va ca nu prezinta deteriorari fizice. Nu porniti aparatul si informati imediat transportatorul si distribuitorul daca constatati defectiuni sau componente ori accesorii lipsa. Pastrati ambalajul original pentru utilizare ulterioara. Se recomanda pastrarea fiecarui echipament in ambalajul original deoarece au fost proiectate sa ofere maximum de protectie in timpul transportului si depozitarii.

3.2.2 Despachetarea

Pentru confortul despachetarii si transportului MDC, puteti muta unitatea pe cel mai apropiat teren plat inainte de despachetare.

Procedura de despachetare este urmatoarea:

Pasul 1 Transportati dispozitivul ambalat pe un teren deschis, plat si ferm. Indepartati materialele de ambalare si de amortizare.

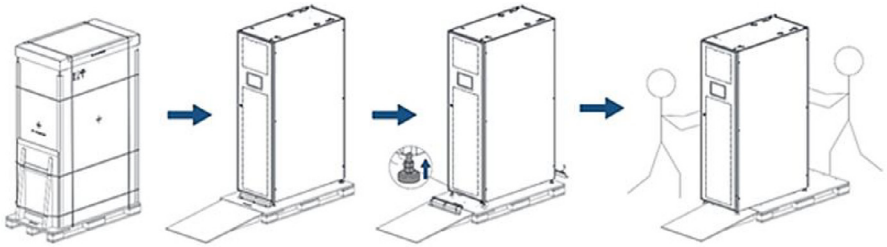
Pasul 2 Asezati rampa in partea din fata a dulapului, asa cum se arata in figura de mai jos.

Pasul 3 Deschideti usile din fata si din spate, indepartati suportul unghiular si insurubati picioarele pentru a asigura miscarea lina a rotilor.

Pasul 4 Inchideti usile din fata si din spate. Impingeti incet dulapul in jos de-a lungul paletului.

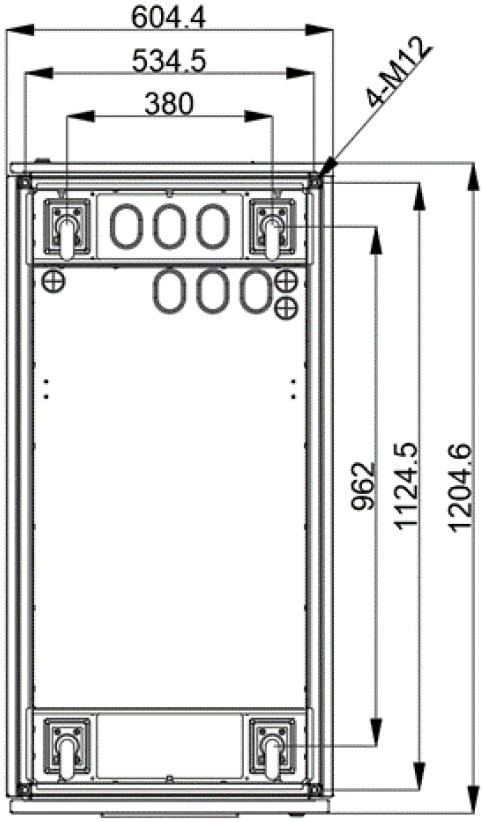
Este recomandat ca cel putin doi operatori sa efectueze acest pas pentru a asigura siguranta.

Pregatirea instalarii



3.3 Cerinte privind locul de instalare

MDC poate fi instalat pe pardoseala de ciment sau pe pardoseli ridicate. Asigurati-va ca exista suficient spatiu sau inaltime intre partea inferioara a dulapului si tavan. A se vedea dimensiunile de jos ale dulapului MDC in figurile urmatoare.



(unit: mm)

Partea inferioara a unui cabinet 42U de 600 mm

NOTA!

• Dispunerea cabinetului si datele etichetate prezentate in figura sunt doar pentru explicatii si valori recomandate si nu pot fi utilizate direct ca referinta pentru desenele de proiectare.

• Distanta dintre dulap si perete nu trebuie sa fie mai mica de 1 m.

• Daca lungimea dulapurilor pe rand (multiple) depaseste 6m, se recomanda sa lasati pasaje la ambele capete.

• Latimea pasajului nu trebuie sa fie mai mica de 1 m.

• Daca condiţiile reale ale amplasamentului nu indeplinesc cerinţele site-ului, contactaţi centrul nostru de servicii pentru clienţi.

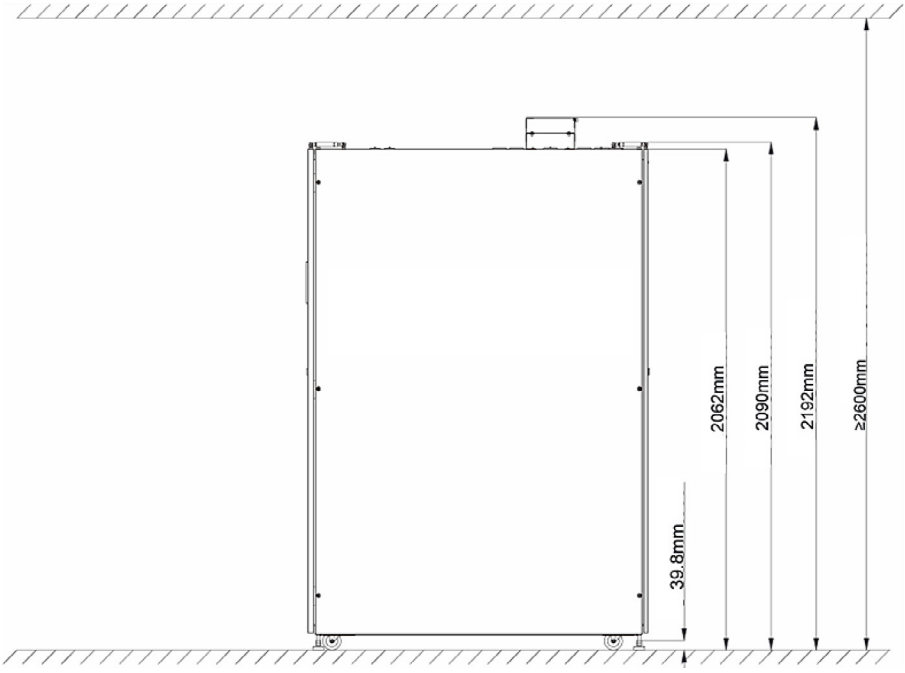


Diagrama de planificare a locului de instalare (vedere laterala)

4 Instalarea si cablajul electric

Se dezambaleaza cele doua echipamente si se verifica continutul pachetelor.

Se ridica picioarele de sustinere a MDC-ului pentru a permite deplasarea acestuia pe roti si, folosind rampa furnizata in pachet, se coboara MDC-ul de pe platforma de transport.

Se incarca cu agent de racire modulul A/C de climatizare.

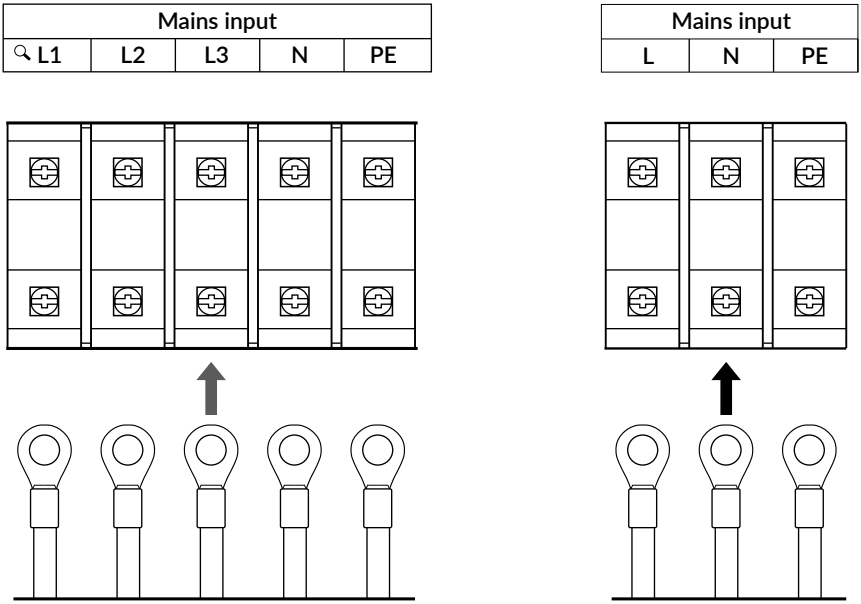
NOTA!

Toate cablurile sunt furnizate, cu exceptia unui cablu de intrare extern.

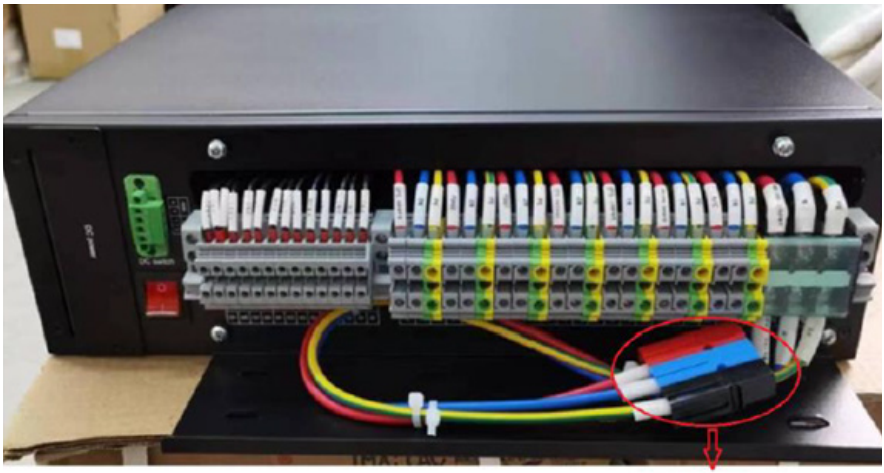
4.1 Conectarea cablurilor externe

Pentru cabinetele MDC (Forge MDC 6K-42U) cablurile de intrare externe (monofazate cu trei fire) sunt necesare pentru a conecta puterea de utilitate cu pre-asamblat intern.

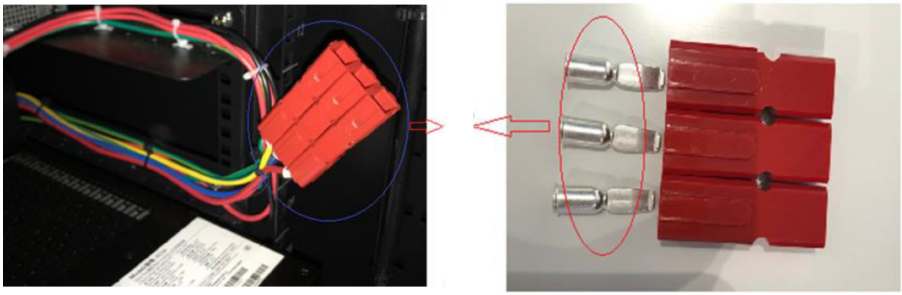
Pentru a se conecta cu PDM, cablurile de intrare trebuie configurate cu terminale OT, asa cum se arata In cifrele de mai jos. Terminalele OT sunt disponibile In kitul de accesorii furnizat sau puteti utiliza dispozitivul dvs proprii.



Pentru cabinetele MDC (Forge 6K-42U) echipate cu unitate de racire integrata de 3,5 kW, un cablu prelungit cu terminalele rosii pentru o conexiune usoara la curentul de utilitate sunt furnizate pe PDM. Puteti sertizare a Terminal de cap furnizat in trusa de accesorii sau pregatit de dvs. pe cablul de intrare si conectati-l la bornele rosii.



Terminalele corespunzatoare sunt furnizate in kitul de accesorii PDM.
Puteti sertiza cablurile de intrare in terminale si le puteti conecta cu acestea.



For single rack MDC with 3.5 kW cooling unit

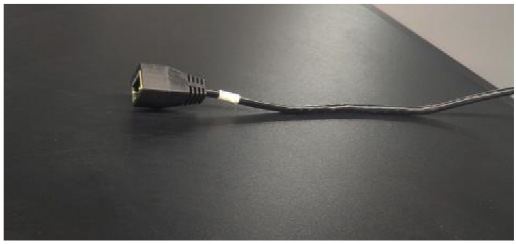
Specificatiile cablului de intrare:
PMSS6K4S 3,5 kW 1 40A/2P RVV3*10 mm²/AWG8#.

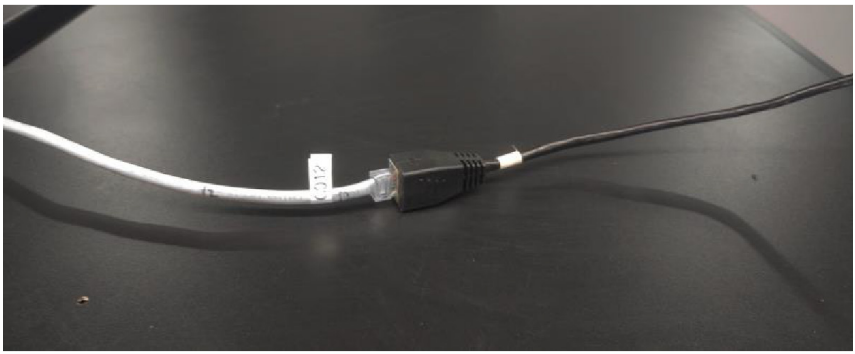
Se pregateste cablul de alimentare de la retea; se recomanda folosirea unui cablu monofazic cu 3 fire capabil sa suporte 40A si de lungime minim 2m (sau sa acopere distanta pana la bransamentul de retea).

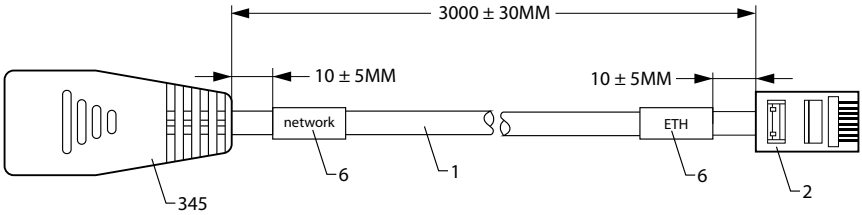
Varianta 1 (recomandata): se trece cablul prin presetupa din spatele rack-ului cea mai apropiata de conexiunile Main Input din spatele unitatii PDM; se dezizoleaza firele si se monteaza papuci inelari M6; se demonteaza cablul preexistent (cel cu mufa rosie) de pe intrarea Main Input a PDM-ului si se monteaza noul cablu astfel: firul maro – L, firul albastru – N, firul galben/verde – PE. Celalalt capat se pregateste conform bransamentului de retea.

Varianta 2: se trece cablul prin presetupa din spatele rack-ului cea mai apropiata de conexiunile Main Input din spatele unitatii PDM; se dezizoleaza firele si se monteaza cupla cu 3 contacte furnizata in cutia cu accesorii astfel incat aceasta sa se cupleze corect cu cablul similar de alimentare preinstalat, pastrand semnificatia culorilor firelor (maro – L, albastru – N, galben/verde – PE). Celalalt capat al cablului se pregateste conform bransamentului de retea.

Cu ajutorul unui cablu de retea (patchcord) se conecteaza MDC-ul la reteaua locala, conectand un capat al cablului la mufa RJ45 de pe cablul de retea ce iese prin partea superioara a MDC-ului, iar celalalt capat la priza de retea (sau un router wireless cu posibilitati de bridge-ing).





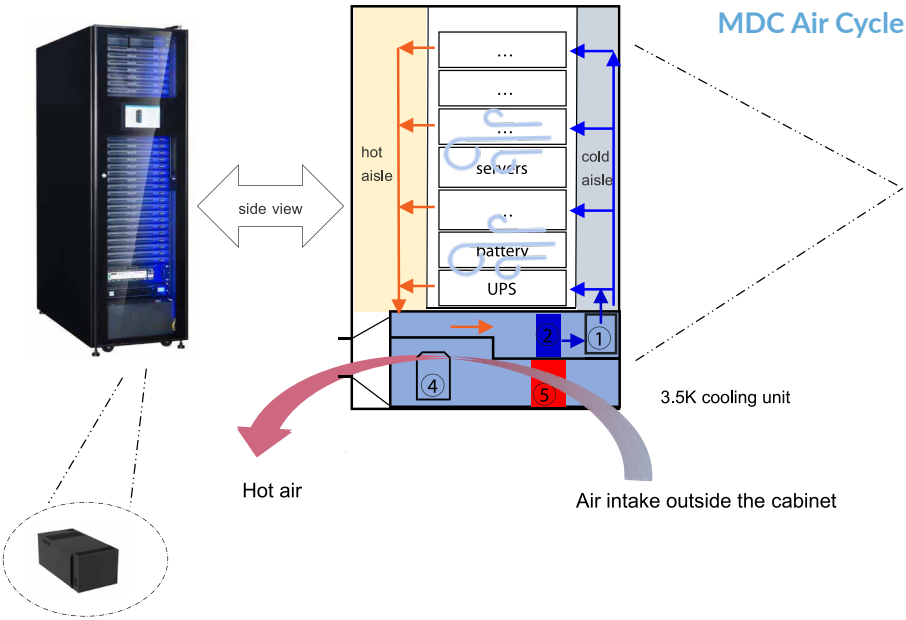


5 Instalarea unitatii de racire

Unitate de racire integrata de 3,5 kW (cu tava de autoevaporare prin incalzire). Fara unitate exterioara, usor de instalat.

Racire	**3,5 kW**
Intrare	220~240V +- 10%, 1PH, 50/60Hz
Capacitate de racire kW	3.5
Volumul aerului m3/h	≧ 600
Capacitate de incalzire kW	1.2
Curentul maxim de functionare A	13.5
Zgomot acustic db	≤ 65
Dimensiune (L × A × H) mm	440 × 900 × 351
NW kg	55
Agent frigorific	R410A

Air flow circle



Materialele de instalare

Agent frigorific: R410A

Conducta de drenaj gravitational (pentru unitatea de racire integrata): teava din PVC dur, diametru interior ≥ 12 mm.

5.1 Instalati unitatea de racire integrata

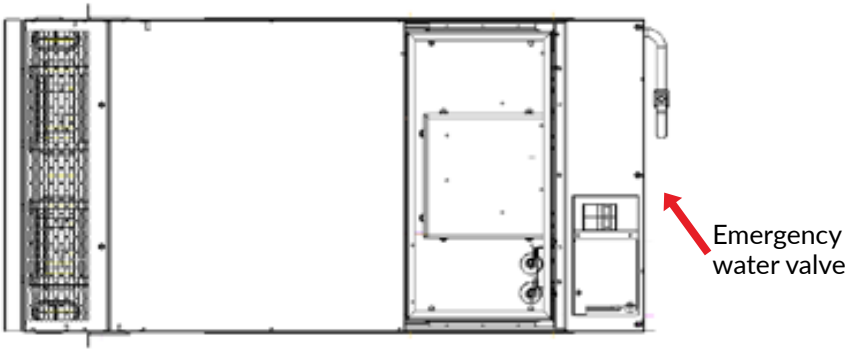
Pentru racirea integrata, nu este necesara nicio unitate exterioara si doar conducta de scurgere si conducta de aer trebuie instalate la fata locului. Unitatile de racire sunt livrate fara agent frigorific. Consultati 5.2.Incarcati agentul frigorific pentru vidare si incarcarea cu agent frigorific.

5.1.1 Conectati conducta de scurgere

• Puterea nominala pentru kitul de evaporare este de 500 W, iar rata de evaporare este de 0,85 L/h. Pentru a utiliza aceasta optiune, utilizati o conducta de scurgere gravitationala de 1 m cu 12 mm OD impreuna cu supapa de apa de urgenta. Supapa de apa este oprita implicit. Puteti deschide manual supapa de apa pentru a porni drenajul gravitational atunci cand apare o depasire sau o defectiune a trusei de evaporare.

NOTA!

Se recomanda conectarea conductei de scurgere gravitationala la fata locului pentru utilizare in caz de urgenta atunci cand apare o defectiune a kit-ului de auto-evaporare, scurgeri de apa sau alarma de nivel ridicat al apei.



5.2 Incarcati agentul frigorific

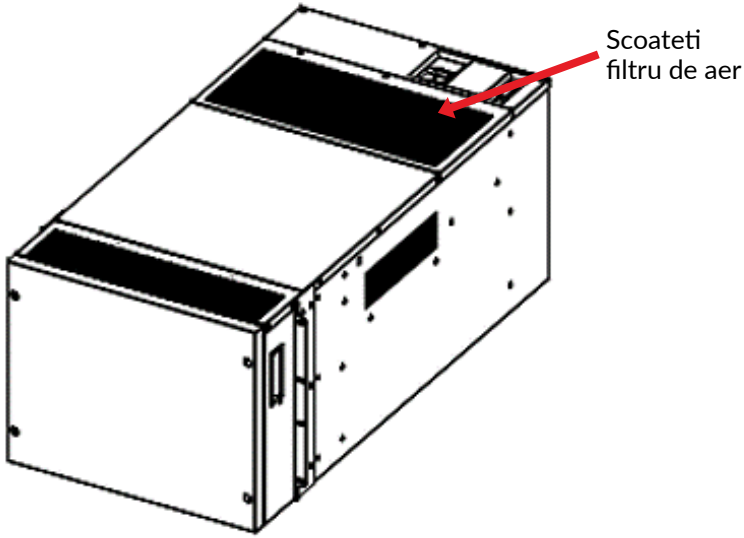
5.2.1 Vidare

Unitatea nu contine agent frigorific si trebuie incarcata cu agent frigorific dupa cum este necesar inainte de utilizarea normala. Cantitatea recomandata de incarcare este de 600 g.

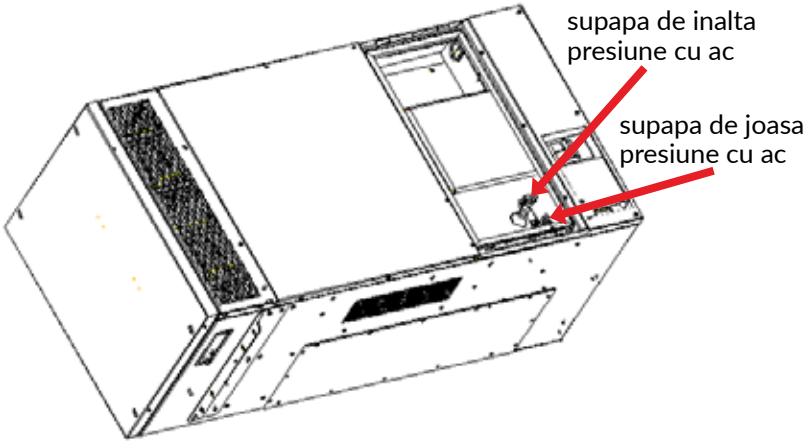
NOTA!

Incarcarea cu agent frigorific nu necesita tragerea dispozitivului de racire din carcasa inainte de aspirare si incarcare cu agent frigorific. Asigurati-va ca unitatea de racire este oprita in timpul vacuumarii si incarcarii cu agent frigorific. Vezi pasii de mai jos:

Pasul 1: Folositi o surubelnita Phillips pentru a scoate cele trei suruburi de la filtrul din spate al unitatii, scoateti panoul de acoperire si scoateti filtrul de aer.



Pasul 2: Localizati supapele cu ac de inalta si joasa presiune a sistemului.



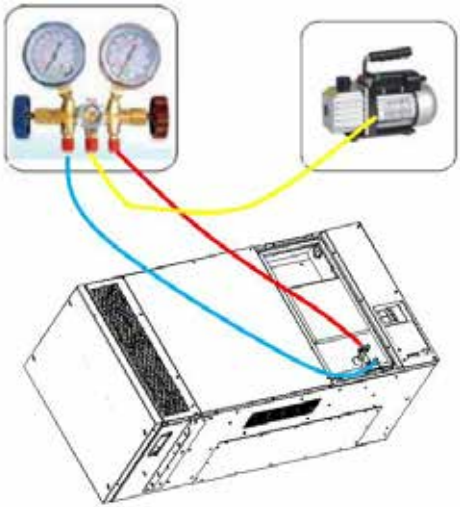
Pasul 3: Conectati manometrul la ambele supape cu ac de inalta si joasa presiune si conducta din mijloc la pompa de vid. Manometrul este conectat la supapele cu ac de inalta si joasa presiune in acelasi timp:

NOTA!

Manometrul de inalta presiune trebuie conectat la supapa cu ac de inalta presiune, iar manometrul de joasa presiune trebuie conectat la supapa cu ac de joasa presiune. Conectati teava rosie la manometrul de inalta presiune si teava albastra la manometrul de joasa presiune.

Operatiunea de vidare trebuie efectuata de la presiune inalta si joasa in acelasi timp.

Vidul este aspirat doar dintr-o parte, unitatea de racire din sistem nu este epuizata si este usor de oprit datorita alarmei de inalta presiune.



Pasul 4: Porniti pompa de vid pentru a incepe aspirarea. Gradul de vid al sistemului trebuie sa fie sub 0 Pa. Dupa ce ati confirmat ca conexiunea conductei este intacta, porniti pompa de vid pentru a incepe aspirarea, iar gradul de vid al sistemului trebuie sa fie sub 0 Pa.

NOTA!

Daca nu exista un vacuummetru la fata locului, puteti continua sa aspirati mai mult de 1 ora cu o pompa de vid de 3L pentru a indeplini cerintele. Aceasta durata este obtinuta pe baza experimentelor anterioare. Daca utilizati o pompa de vid mai mica de 3L, prelungiti timpul de aspirare in mod corespunzator.

Pasul 5: Mentineti presiunea in sistem.

1. Opriti manometrele si apoi pompa de vid.

2. Observati daca indicatorul manometrului ramane nemiscat (la -0,1 MPa) in interval de 10 minute pana la 20 de minute. Daca da, sistemul este bine sigilat si gata pentru incarcarea cu agent frigorific.

Mentinerea presiunii sistemului. Dupa ce vidul este pompat, opriti pompa de vid, opriti toate manometrele si strangeti manometrul pentru a se conecta la pompa de vid. Efectuati 20-30 de minute de impachetare sub presiune a sistemului si observati daca indicatorul manometrului ramane nemiscat, daca acul manometrului ramane neschimbat (mentinut la -0,1 MPa), dovedeste ca sistemul are o etansare buna si poate fi incarcat la frigider.

5.2.2 Incarcati agent frigorific R410A

Dupa ce presiunea sistemului este mentinuta, scoateti pompa de vid din conducta si conectati rezervorul de agent frigorific pentru incarcarea agentului frigorific. Cantitatea totala de incarcare a agentului frigorific R410A este de 600 g.

Procesul de incarcare a agentului frigorific este urmatorul:

Pasul 1: Mutati conducta de gaz conectata la pompa de vid la rezervorul de agent frigorific si strangeti.

Pasul 2: Slabiti conducta din mijloc conectata la manometrul cu doua capete pentru 4 pana la 5 ture.

Pasul 3: Porniti comutatorul rezervorului de agent frigorific, lasati gazul sa se toarne in conducta si sa iasa in graba din conexiune, procesul dureaza aproximativ 10 secunde, apoi strangeti conexiunea manometrului pentru a elimina aerul din interiorul conductei in exterior.

Pasul 4: Asezati rezervorul de agent frigorific cu susul in jos pe cantar.

NOTA!
In timpul incarcarii, rezervorul de agent frigorific trebuie rasturnat, iar cele cu tuburi sifon nu trebuie sa fie rasturnate.

Pasul 5: Strangeti conexiunea manometrului si deschideti supapele de inalta si joasa presiune. Dupa golirea conductei, agentul frigorific este incarcat. Asteptati pana la finalizarea incarcarii.

Pasul 6: Dupa terminarea umplerii, inchideti supapele de inalta si joasa presiune ale manometrului, mentineti conductele conectate si porniti pentru functionarea frigorifica.

Pasul 7: Daca nu poate fi incarcat in stare statica, porniti unitatea de racire si deschideti supapa de joasa presiune pentru a permite incarcarea lenta din tubul de aspiratie (supapa de joasa presiune).

Puteti porni unitatea de racire prin oricare dintre urmatoarele instrumente:

- HMI: See Consultati 7.8.2 Porniti/opriti unitatea de racire pentru detalii.

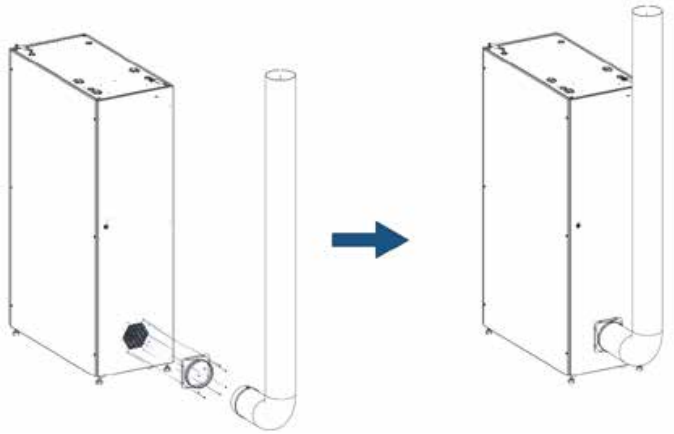
Pasul 8: Scoateti manometrul.

Conectati conducta de drenaj:
Diametru exterior: Φ12mm
Lungime: 1M

NOTA!
Iesirea conductei de drenaj gravitational nu poate fi mai mare decat orificiul de evacuare a racirii.

5.2.3 Conectati conducta de aer

Pentru cabinetele echipate cu unitati de racire integrate de 3,5 kW, sunt furnizate o conducta de aer si un adaptor de teava patrat spre rotund. Conectati-le la orificiul de evacuare a aerului cald de la usa din spate pentru a evacua aerul cald in mediul ambiant. Figura urmatoare arata conexiunea.



NOTA!

Se recomanda ca aerul cald sa fie evacuat afara, altfel temperatura interioara va creste treptat, iar capacitatea de racire a unitatii de racire va fi redusa.

5.3 Functionare si punere in functiune

5.3.1 Verificati inainte de operare

Operarea si gestionarea zilnica a unitatii trebuie efectuate de personal special in conformitate cu reglementarile relevante. Inspectia trebuie efectuata inainte de pornire.

• Verificati daca specificatiile intreruptorului sunt in conformitate cu cerintele de alimentare de pe placuta de identificare a unitatii.

• Utilizati un multimetru pentru a verifica cu atentie daca toate cablurile electrice sunt conectate corect. Utilizati un megaohmmetre pentru a verifica daca carcasa este scurtcircuitata. Verificati daca cablul de impamantare este conectat corect si ca rezistenta de izolatie la pamant este mai mare de 2 mΩ. Verificati daca cablul de alimentare indeplineste cerintele de capacitate.

• Verificati cablul de alimentare si cablul de comunicatie al unitatilor interioare si exterioare.

5.3.2 Punerea in functiune

Pasul 1 Setati temperatura aerului de retur mai mica decat temperatura ambientala actuala.

NOTA!

Daca se gaseste orice situatie anormala in timpul pornirii compresorului, opriti imediat unitatea si eliminati defectiunile.

Pasul 2 Porniti compresorul si unitatea exterioara pentru a porni refrigerarea sistemului. Pornirea unitatii exterioare nu este necesara pentru unitatea de racire integrata.Turning on the outdoor unit is not required for the integrated cooling unit.

Pasul 3 Observati schimbarea manometrului de inalta si joasa presiune.
In timpul pornirii compresorului, presiunea scazuta ar trebui sa scada, iar presiunea ridicata ar trebui sa creasca. Daca nu exista nicio modificare a presiunii, opriti imediat dispozitivul.

Pasul 4 Folositi o clema ampermetru pentru a masura curentul de functionare al unitatii de racire integrata sau al unitatii exterioare divizate. Curentul de functionare trebuie sa fie mai mic decat curentul nominal.

6 Pornire/oprire MDC

6.1 Verificare Inainte de pornirea MDC

Inainte de a porni MDC, verificati si confirmati cateva aspecte, cum ar fi setarile sistemului, conectarea cablului de distributie a energiei si instalarea unitatii de racire.

6.1.1 Verificarea setarilor sistemului

• Verificati daca cabinetele sunt instalate (inclusiv suportul pentru cabluri si panoul lateral) si fixate In succesiune In locatia corecta. Puteti deschide usa dulapului si gasi numarul dulapului In coltul din dreapta jos al fundului dulapului. Asigurati-va ca picioarele de nivelare ale dulapului sunt reglate si nivelate.

• Verificati daca dulapurile sunt imbinate la aceeasi inaltime, daca suruburile dintre dulapuri sunt stranse si daca dulapurile sunt etansate fara goluri.

• Verificati daca bobina de protectie de pe dulap nu este slabita sau cazuta.

• Verificati daca placa goala a fost instalata In partea de rezerva a dulapului In care nu este instalat niciun echipament.

6.1.2 Verificarea conexiunilor electrice

• Verificati daca toate dulapurile (inclusiv dulapurile pentru baterii) sunt Impamantate si daca cablul de Impamantare dintre usa dulapului si corp este conectat.

• Verificati daca numarul de celule ale bateriei este corect, daca conexiunile dintre baterii sunt corecte si daca conexiunile pozitive si negative ale bateriei sunt corecte.

• Verificati daca cablajul PDM este fixat si nu este slabit.

• Confirmati ca tensiunea si frecventa sursei de alimentare Indeplinesc conditiile si verificati daca ordinea fazelor sursei trifazate este corecta utilizand un multimetru.

• Verificati daca PDU-ul din fiecare dulap este conectat corect la PDM.

6.1.3 Verificati instalarea unitatii de racire

• Verificati daca tevile unitatilor de racire sunt conectate si fixate corect si daca au fost luate masuri corecte de izolare a tevilor.

• Verificati daca tevile unitatii de racire au fost vidate si daca au fost luate masuri de mentinere a presiunii si de detectare a scurgerilor.

• Verificati daca teava de scurgere a unitatii de racire este instalata si fixata corespunzator, iar scurgerea functioneaza corect.

• Verificati daca iesirea tevilor de cupru din partea superioara sau inferioara a dulapului este sigilata si protejata.

• Verificati daca supapele globale de pe conductele de agent frigorific sunt deschise si daca circuitul de agent frigorific a fost configurat.

• Verificati daca cablurile de alimentare si de comunicare catre unitatea exterioara/unitatea interioara/unitatea de racire integrata sunt conectate corect.

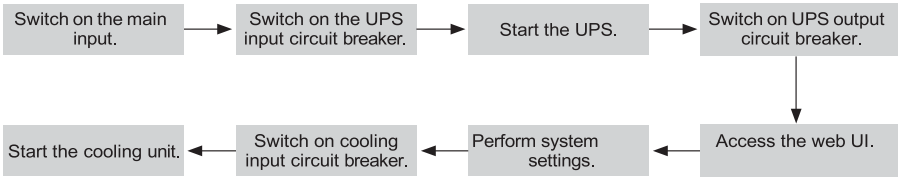
• Pentru unitatea exterioara, verificati daca este fixata la locul ei si daca nu exista obstacole care sa afecteze ventilatia acesteia.

6.2 Pornirea MDC

⚠ ATENŢIE

Instalarea sau punerea in functiune a MDC trebuie efectuata de catre inginerii nostri de serviciu clienti sau specialisti autorizati.

Pasii de pornire:



Pasul 1 Conectati intrarea principala a sistemului.

Pasul 2 Porniti Intrerupatorul de circuit pentru intrarea UPS de pe PDM.

Pasul 3 Conectati Intrerupatorul de circuit pentru bateria UPS-ului.

Pasul 4 Porniti UPS-ul urmand ghidul sau de utilizare.

Pasul 5 Porniti Intrerupatoarele de circuit de iesire ale UPS-ului pe PDM.

Pasul 6 Porniti intrerupatoarele de circuit de intrare PDU pe PDM pentru a porni PDU-urile.

Pasul 7 Verificati daca ecranul utilizatorului este pornit.
Daca este oprit, porniti comutatorul modulului DC de pe partea din spate a PDM.

Pasul 8 Accesati interfata utilizatorului pentru a seta limba, ora si adresa sistemului pe pagina de setari utilizator si pentru a seta ora instalarii, numarul de serie, tipul sistemului pe pagina de intretinere.

Numele de utilizator/parola implicita pentru administrator este admin/admin. Pentru detalii, consultati 7 Operatiuni generale pe HMI sau computer.
Pasul 9 Porniti Intrerupatoarele de intrare pentru racire pe PDM.

Pasul 10 Pe HMI, mergeti la **A/C > Detalii** si atingeti butonul **ON** al unitatii de racire pentru a porni unitatea de racire.

Daca pe ecranul monitorului este afisata o defectiune a unitatii de racire, stergeti mai intai defectiunea.

Pasul 11 Atingeti **UPS** In bara de meniu de jos pentru a verifica daca UPS functioneaza corect.

Pasul 12 Atingeti **Environment (Mediu)** In bara de meniu de jos pentru a verifica daca sunt raportate defectiuni de blocare a usii si scurgeri de apa. Atingeti A/C In bara de meniu inferioara pentru a verifica daca functionarea unitatilor de racire si temperatura fiecarui dulap sunt normale.

Pasul 13 Atingeti **Alarma** In bara de meniu din stanga pentru a verifica daca este raportata vreo alarma.
Daca da, localizati cauza si eliminati alarma.

6.3 Oprirea MDC

⚠ ATENŢIE

- **Inainte de oprire, asigurati-va ca incarcarea utilizatorului a fost oprita cu autorizare.**
- **Nu opriti MDC-ul oprind direct alimentarea pentru a evita deteriorarea unitatii de racire.**

Pentru oprirea MDC:

Pasul 1 Opriti Intrerupatorul de circuit PDU de pe PDM.

Step 2 Atingeti butonul OFF al unitatii de racire **(A/C > Detalii > OFF)**. Asteptati pana cand compresorul opreste iesirea si apoi opriti comutatorul de intrare al unitatii de racire de pe PDM.

Step 3 Opriti comutatorul UPS si deconectati comutatoarele de intrare si iesire ale UPS-ului de pe PDM. Opriti comutatorul bateriei.

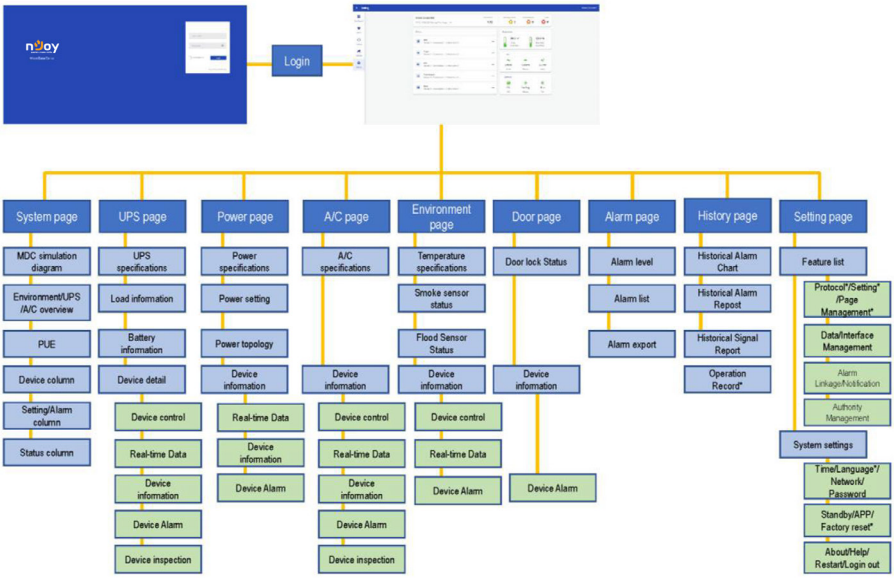
Step 4 Deconectati Intrerupatorul principal care controleaza intrarea sistemului.

7 Operatiuni generale pe HMI sau computer

Acest capitol prezinta metoda de monitorizare si interfata de utilizator a MDC, inclusiv monitorizarea si afisarea locala si la distanta.

7.1 Prezentare generala a interfetei cu utilizatorul

Prezentare generala a interfetei cu utilizatorul.



*indica faptul ca meniul poate fi accesat numai de catre conturi autorizate.

7.2 Conectarea la/iesirea din sistemul MDC

Va puteti conecta la MDC prin intermediul HMI de pe dulap sau al unui computer conectat la acelasi LAN cu MDC.

NOTA!

Un cont poate fi utilizat pentru a va conecta la MDC pe un singur client.

7.2.1 Conectati-va la MDC prin HMI

Consultati sectiunea 6.2 pentru a porni MDC, introduceti numele de utilizator si parola pe pagina de conectare si atingeti **Login/Conectare**.

NOTA!

- Vi se va solicita sa modificati parola implicita atunci cand va conectati pentru prima data la sistemul MDC.

- Daca uitati parola, contactati personalul nostru de service.

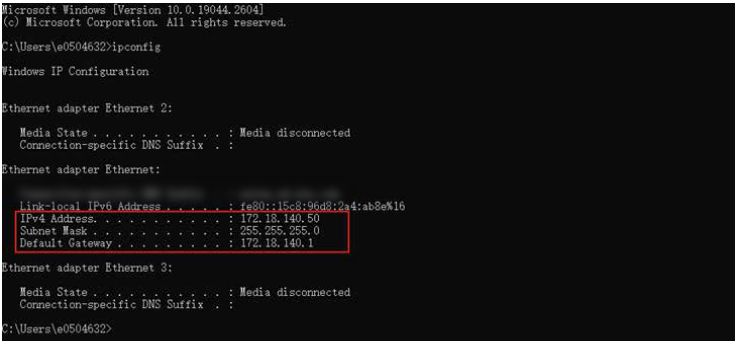
7.2.2 Conectati-va la MDC prin intermediul unui computer (conexiune fara fir)

Pasul 1 Obtineti adresa IP care va fi utilizata pentru MDC In LAN.

1. Obtineti adresa IP care va fi utilizata pentru MDC In LAN.

2. Apasati Win+R, introduceti cmd si apasati Enter.

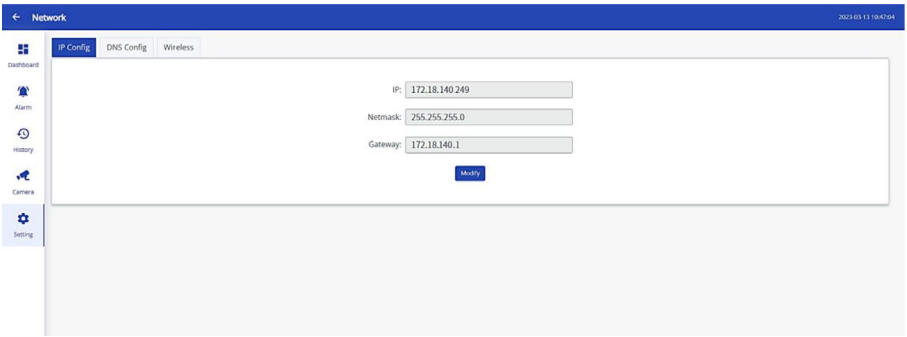
3. Introduceti ipconfig si apasati Enter. Inregistrati valorile adresei IPv4, mastii de subretea si gateway-ului implicit. Figura urmatoare prezinta un exemplu.



Pasul 2 Setati adresa IP pentru MDC.

1. Consultati 7.2.1 pentru a va conecta la HMI a MDC, si mergeti la **Setting > Network > IP Config pe HMI**.

2. Setati IP, Mask si Gateway la valorile Inregistrate In Pasul 1 si atingeti Modify.



Pasul 3 Conectati MDC si computerul dvs. la acelasi LAN.

1. Deconectati cablul de retea de la computerul dvs. si conectati cablul de retea la **portul de retea** din partea superioara a dulapului.

2. Conectati computerul dvs. la acelasi LAN cu MDC.

Pasul 4 Porniti un browser (recomandat Google Chrome) pe computer, introduceti adresa IP a MDC pe care ati setat-o In Pasul 2 In bara de adrese si apasati **Enter**.

Pasul 5 Introduceti numele de utilizator si parola si faceti clic pe **Login.**

NOTA!

- Numele de utilizator/parola implicit pentru administrator este admin/admin, iar numele de utilizator/parola implicit pentru utilizatorul obisnuit este user/user. Vi se va cere sa schimbati parola implicita cand va conectati pentru prima data la sistemul MDC.

– Daca ati uitat parola, contactati personalul nostru de service.

7.2.3 Conectati-va la MDC prin intermediul unui computer (conexiune prin cablu)

Pasul 1 Utilizati un cablu de retea pentru a va conecta computerul la portul de retea din partea superioara a dulapului.

Pasul 2 Schimbati adresa IP a computerului dvs. la una neocupata In acelasi segment de retea cu MDC.

1. Accesati **Start > Settings > Retea si internet (Network & Internet.)**

2. Click pe **Schimbare setari adaptor (Change adapter settings.)**

3. Faceti clic dreapta pe adaptorul de retea si selectati optiunea **Properties (Proprietati)**.

4. Selectati **Internet Protocol Version 4 (TCP/IPv4)** si faceti clic pe **Properties (Proprietati).**

5. Select **Use the following IP address**, and specify **IP address, Subnet mask**, and **Default gateway.**

In mod implicit, adresa IP a MDC este 192.168.100.100, masca de subretea este 255.255.255.0, iar gateway-ul este 192.168.100.1. In acest caz, puteti seta adresa IP a computerului dvs. la **192.168.100.X** (**X** indica orice numar Intreg cuprins Intre 2 si 254, cu exceptia lui 100).

Daca ati schimbat adresa IP a MDC anterior, consultati sectiunea 7.2.1 pentru a va conecta la HMI a MDC si accesati **Setting > Network > IP Config** pentru a obtine adresa IP.

6. Faceti clic pe **OK.**

Pasul 3 Porniti un browser (recomandat Google Chrome) pe computer, introduceti adresa IP a MDC (de exemplu, **192.168.100.100**) In bara de adrese si apasati Enter.

NOTA!
*Verificati daca **https://** este adaugat automat Inaintea adresei IP introduse. Daca nu, adaugati manual **https://** Inaintea adresei **IP**.*

Pasul 4 Introduceti numele de utilizator si parola si faceti clic pe **Login**.

– Daca ati uitat parola, contactati personalul nostru de service.

7.2.4 Deconectarea din MDC

Dupa ce va conectati la MDC, puteti atinge Setari In bara de meniu din stanga si apoi atingeti Iesire pentru a va deconecta de la MDC.

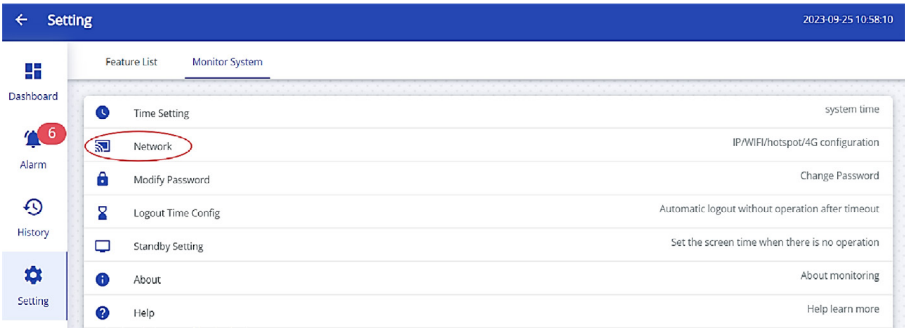
7.3 Modificarea adresei IP a sistemului

NOTA!

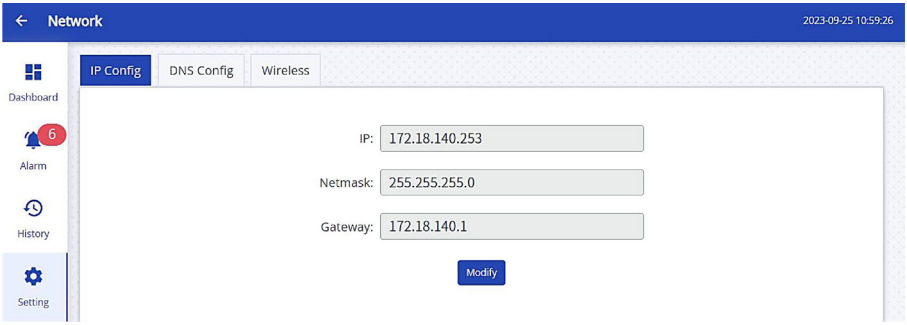
Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem..

Pasul 2 Atingeti **Settings** In bara de meniu din stanga si apoi atingeti **Monitor System > Network**, dupa cum se arata mai jos.



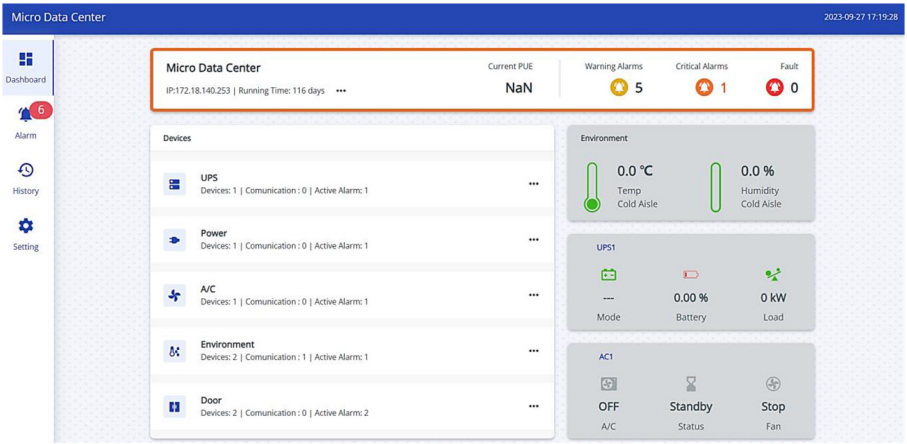
Pasul 3 Atingeti Configurare IP, introduceti adresa IP si gateway-ul, apoi Atingeti Modificare. Asteptati aproximativ 10 secunde pentru ca configuratia sa intre In vigoare.



Pasul 4 Opriti si reporniti serverul de monitorizare.

7.4 Vizualizati informatiile despre sistem

Dupa ce va conectati la sistem, este afisata urmatoarea pagina principala a sistemului.



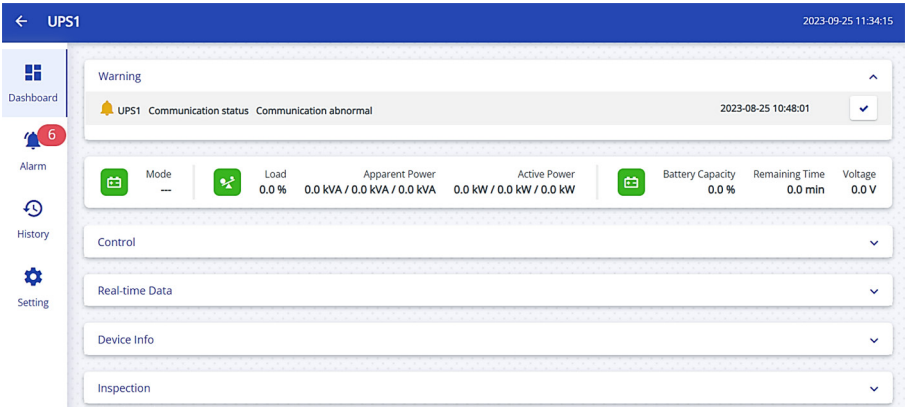
Pe aceasta pagina, puteti vedea urmatoarele informatii.

Pagina principala a sistemului

Informatii MDC	Afiseaza numele sistemului, adresa IP, timpul de functionare, eficienta consumului curent de energie (PUE) si numarul de alarme ale MDC. Puteti atinge ... pentru a vizualiza mai multe date MDC, inclusiv numele produsului, modelul, numarul de serie, numarul de material si timpul de instalare.
Informatii despre dispozitiv	Afiseaza lista dispozitivelor, care include numarul total de dispozitive, numarul de dispozitive online si numarul de alarme active. Puteti atinge ... pentru a vizualiza mai multe date despre dispozitive si pentru a le controla.
Environment	Afiseaza temperatura si umiditatea curente ale culoarului rece.
UPS	Afiseaza modul de functionare curent, nivelul bateriei si starea de Incarcare a UPS-ului.
A/C	Afiseaza starea de functionare a unitatii de racire si starea de functionare a ventilatorului.
Bara de meniu	Include tabloul de bord, alarma, istoricul si setarile In succesiune.

7.5 Vizualizati detaliile UPS si controlati UPS

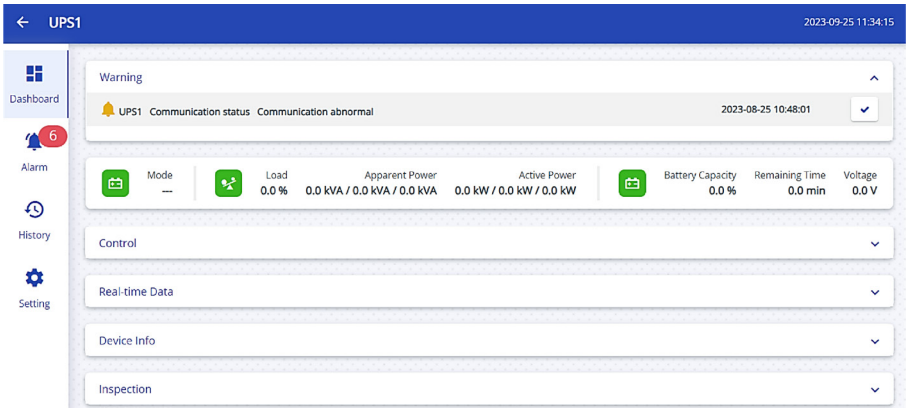
Pentru a vizualiza informatii generale despre UPS, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti UPS pe pagina principala Tablou de bord pentru a accesa pagina UPS, dupa cum se arata mai jos.



Pe aceasta pagina, puteti vedea modul de lucru, sarcina, puterea aparenta, puterea activa, capacitatea bateriei, timpul ramas de utilizare a bateriei si tensiunea bateriei UPS-ului.

7.5.1 Vizualizarea alarmelor UPS

Pentru a vizualiza alarmele UPS, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti UPS pe pagina de pornire Dashboard. Apoi puteti vedea alarmele In modulul Warning (Avertizare), dupa cum se arata In figura urmatoare.



7.5.2 Opriti UPS-ul cu ajutorul butonului EPO

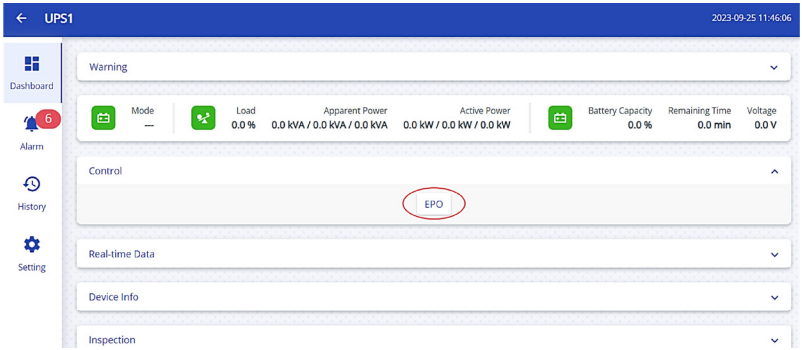
NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Puteti opri UPS-ul de la distanta utilizand butonul EPO In caz de urgenta.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti UPS pe pagina de pornire Dashboard.

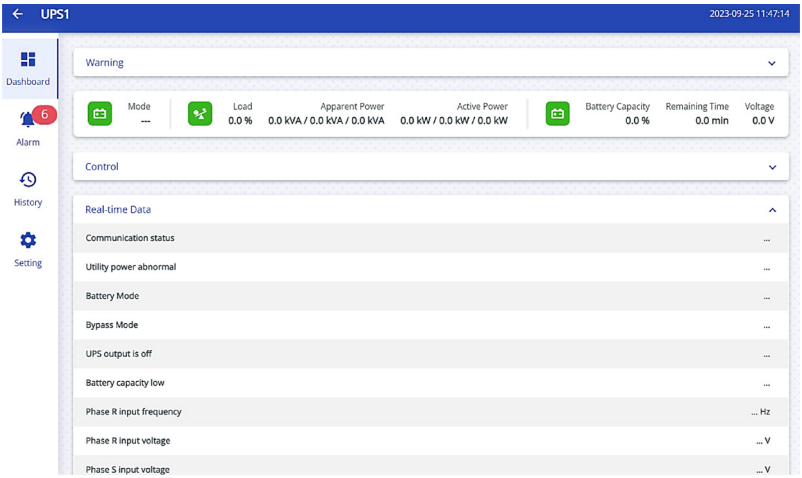
Pasul 2 Atingeti **Control** si apoi **EPO**.

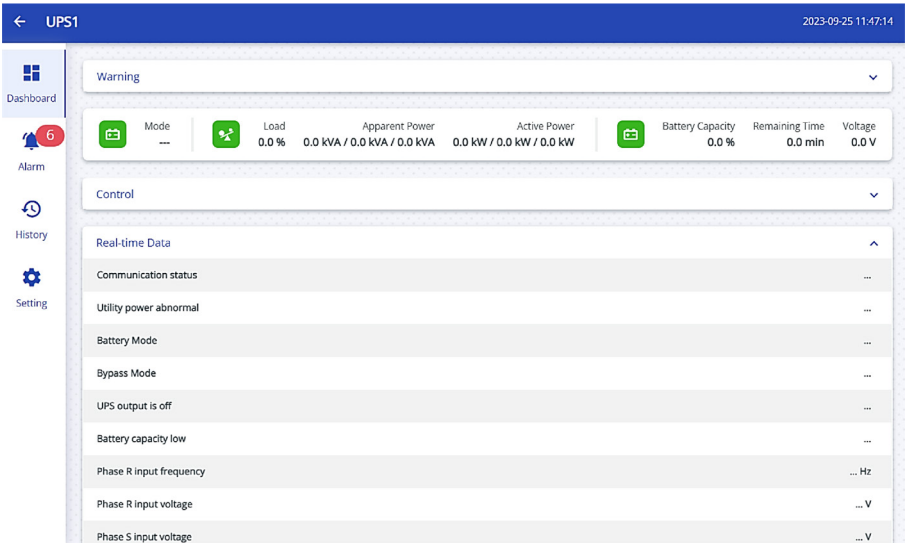


7.5.3 Vizualizarea datelor UPS In timp real

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti UPS pe pagina de pornire Dashboard.

Pasul 2 Atingeti **Real-time Data.**
Acum puteti vedea datele In timp real ale UPS. Urmatoarea figura prezinta un exemplu.





7.5.4 Vizualizati informatiile UPS

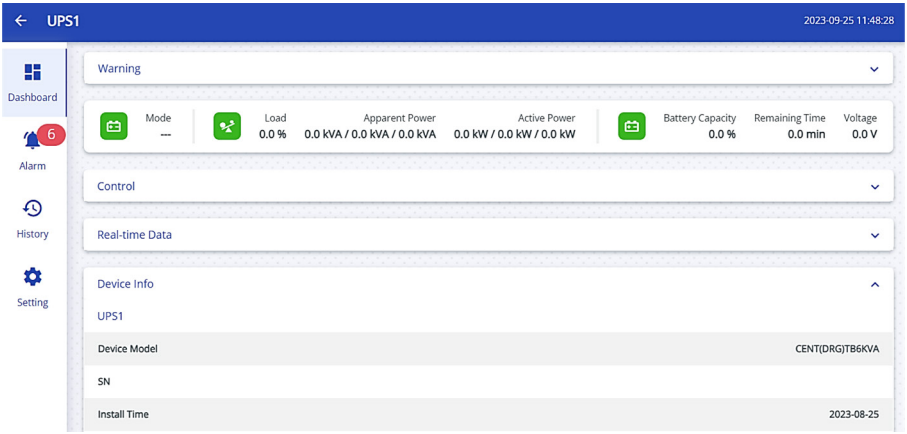
Pentru a vizualiza informatii despre UPS, inclusiv modelul, numarul de serie, timpul de instalare si timpul de functionare:

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti UPS pe pagina de pornire Dashboard.

Pasul 2 Atingeti **Device Info (Info dispozitiv).**

NOTA!

Informatiile despre dispozitiv pot varia In functie de presetari. Figura urmatoare prezinta un exemplu.



7.5.5 Efectuati inspectia UPS-ului

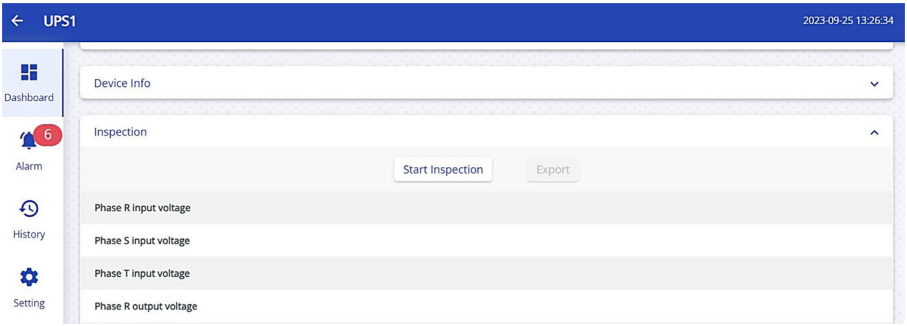
NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Daca apare o defectiune a UPS-ului, puteti efectua o inspectie a UPS-ului si exporta rezultatul pentru a localiza datele defecte.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti UPS pe pagina de pornire Dashboard.

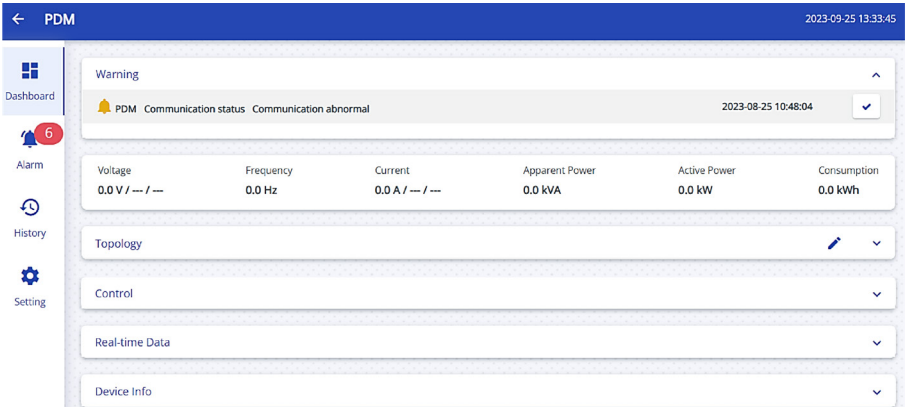
Pasul 2 Atingeti **Inspection** si apoi **Start Inspection.**



Daca va conectati la MDC utilizand un computer, puteti face clic pe **Export** pentru a descarca rezultatele inspectiei ca fisier Excel pe computerul dumneavoastra.

7.6 Vizualizati detaliile PDM si controlati PDM

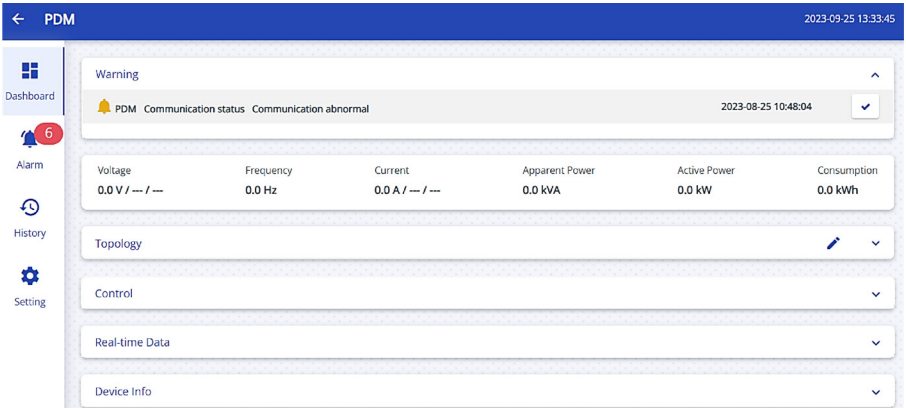
Pentru a vizualiza informatii generale despre PDM, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Power** pe pagina de pornire Dashboard pentru a accesa pagina **PDM**, dupa cum se arata mai jos.



Pe aceasta pagina, puteti vedea tensiunea, frecventa, curentul, puterea aparenta, puterea activa si consumul de energie al PDM.

7.6.1 Vizualizarea alarmelor PDM

Pentru a vizualiza alarmele PDM, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Power** pe pagina de pornire Dashboard. Apoi puteti vedea alarmele In modulul **Warning (Avertizare)**, dupa cum se arata In figura urmatoare.



7.6.2 Verificarea topologiei PDM

Pentru a verifica topologia PDM, consultati sectiunea 7.2 pentru a va conecta la sistem, atingeti **Power** pe pagina principala **Dashboard**, apoi atingeti **Topology**.

7.6.3 Setati adresa PDM

NOTA!

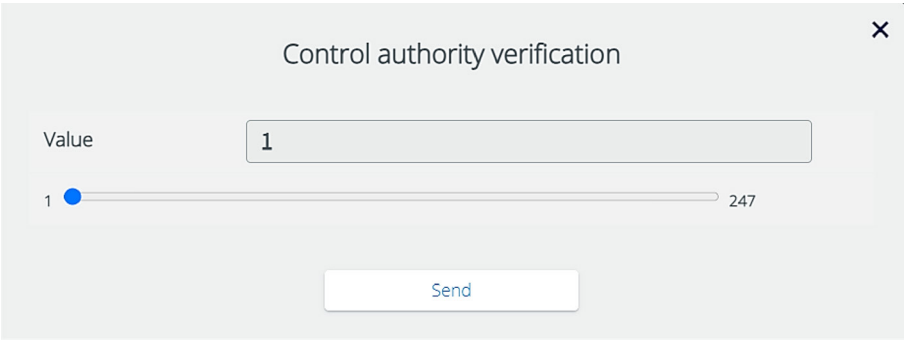
Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pentru a seta adresa PDM:

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Power** pe pagina de pornire **Dashboard**.

Pasul 2 Atingeti **Control** si apoi **Address setting (Setare adresa)**.

Pasul 3 Setati o valoare a adresei si atingeti **Send (Trimitere).**

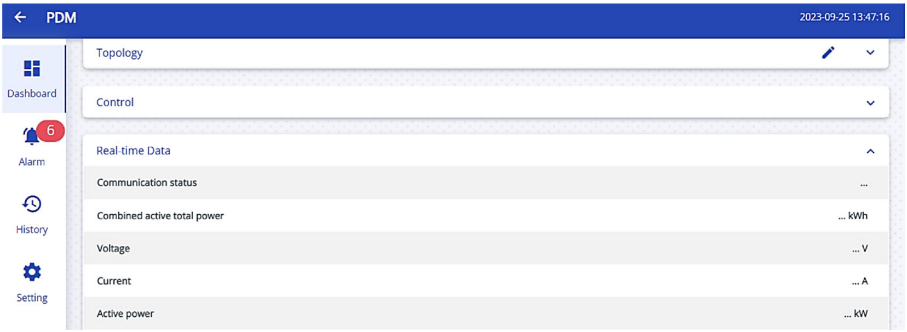


7.6.4 Vizualizati datele PDM In timp real

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Power** pe pagina de pornire Dashboard.

Pasul 2 Atingeti **Real-time Data (Date In timp real).**

Acum puteti vedea datele In timp real ale PDM. Urmatoarea figura prezinta un exemplu.



7.6.5 Vizualizati informatiile PDM

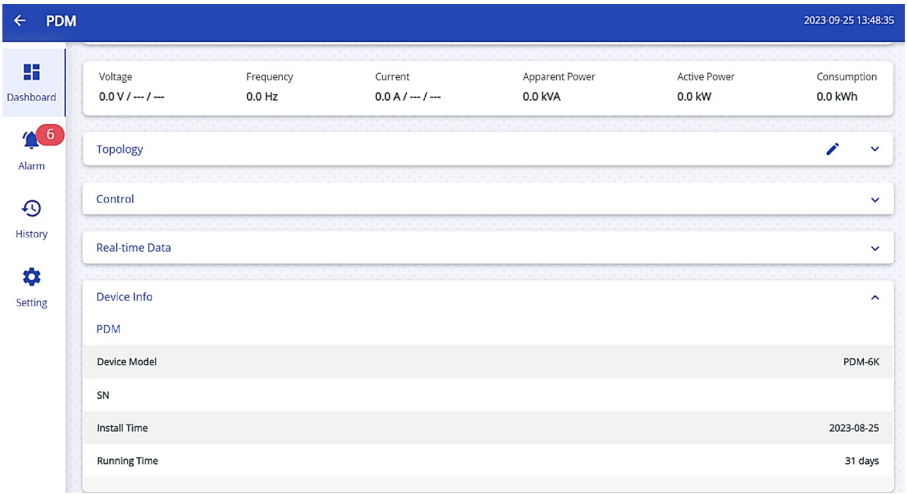
Pentru a vizualiza informatii despre PDM, inclusiv modelul, numarul de serie, timpul de instalare si timpul de functionare:

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Power** pe pagina de pornire Dashboard.

Pasul 2 Atingeti **Device Info (Info dispozitiv).**

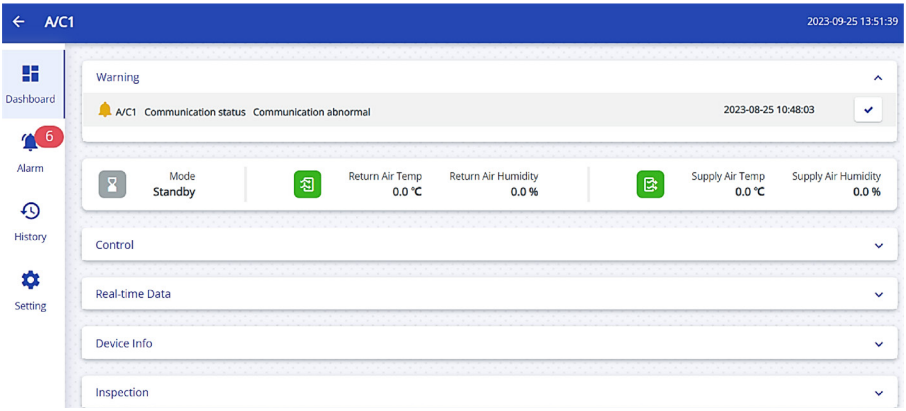
NOTA!

Informatiile despre dispozitiv pot varia in functie de presetari. Figura urmatoare prezinta un exemplu.



7.7 Vizualizati detaliile unitatii de racire si controlati unitatea de racire

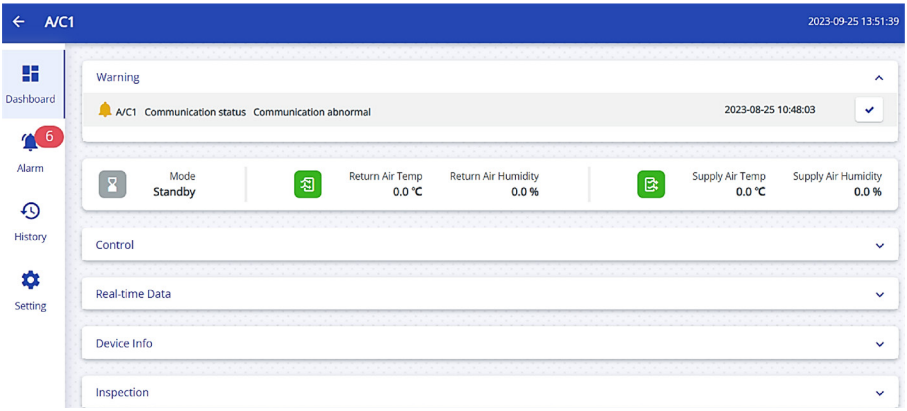
Pentru a vizualiza informatii generale despre unitatea de racire, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina principala Tablou de bord pentru a accesa pagina **A/C**, dupa cum se arata mai jos.



Pe aceasta pagina, puteti vedea informatiile generale ale unitatii de racire, inclusiv modul sau de lucru, temperatura si umiditatea aerului returnat si temperatura si umiditatea aerului furnizat.

7.7.1 Vizualizarea alarmelor unitatii de racire

Pentru a vizualiza informatii generale despre unitatea de racire, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina principala Tablou de bord pentru a accesa pagina **A/C**, dupa cum se arata mai jos.



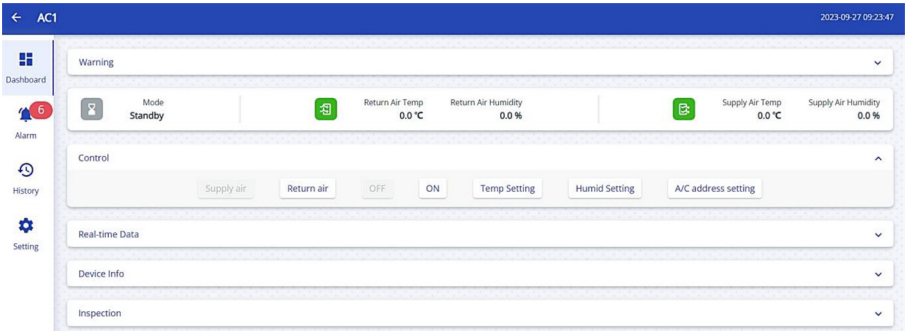
7.7.2 Porniti/opriti unitatea de racire

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina de pornire **Dashboard.**

Pasul 2 Atingeti **Control** si apoi **ON** pentru a porni sau **OFF** pentru a opri unitatea de racire.



7.7.3 Sursa aer alimentare

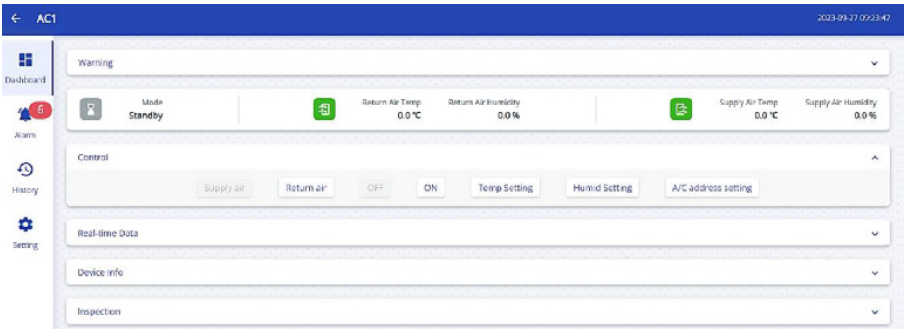
NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

In mod implicit, este utilizat modul de aer de retur. Daca doriti sa activati modul de alimentare cu aer urmati pasii de mai jos. Modul implicit este recomandat.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina de pornire Dashboard.

Pasul 2 Atingeti **Control** > **Supply air(Aer de alimentare).** Apoi, atingeti **Start**.



7.7.4 Setati temperatura

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

In mod implicit, este utilizat modul aer retur. Daca doriti sa activati modul de alimentare cu aer, urmati pasii de mai jos. Se recomanda modul implicit.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina de pornire Dashboard.

Pasul 2 Atingeti **Control** si apoi **Temp setting.**

Pasul 3 Setati o valoare a temperaturii si atingeti **Send (Trimitere).**

7.7.5 Setati umiditatea

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina de pornire **Dashboard**.

Pasul 2 Atingeti **Control** si apoi **Humid setting.**

Pasul 3 Setati o valoare a umiditatii si atingeti **Send (Trimitere).**

7.7.6 Setarea adresei unitatii de racire

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina de pornire **Dashboard**.

Pasul 2 Atingeti Control si apoi setarea adresei **A/C**.

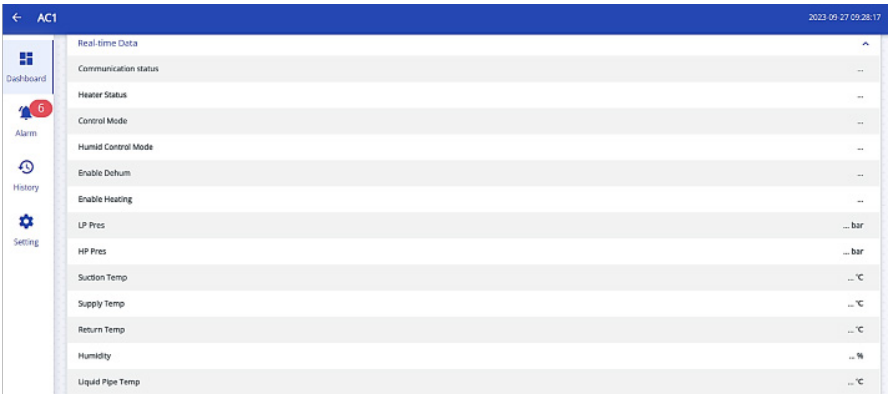
Pasul 3 Setati o valoare In intervalul de la 1 la 255 si atingeti **Send (Trimitere)**.

7.7.7 Vizualizarea datelor In timp real ale unitatii de racire

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina de pornire **Dashboard**.

Pasul 2 Atingeti **Real-time Data (Date In timp real)**.

Acum puteti vedea datele In timp real ale unitatii de racire. Urmatoarea figura prezinta un exemplu.



7.7.8 Vizualizarea informatiilor despre unitatea de racire

Pentru a vizualiza informatii despre unitatea de racire, inclusiv modelul, numarul de serie, timpul de instalare si timpul de functionare:

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina principala **Dashboard**.

Pasul 2 Atingeti **Device Info (Info dispozitiv).**

7.7.9 Efectuati inspectia unitatii de racire

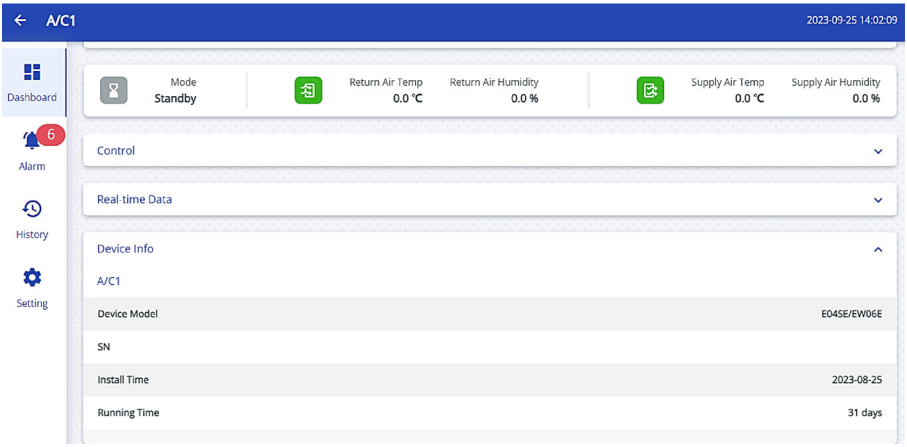
NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Daca apare o defectiune a unitatii de racire, puteti efectua o inspectie a unitatii de racire.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **A/C** pe pagina de pornire **Dashboard**.

Pasul 2 Atingeti **Inspection (Inspectie)** si apoi **Start Inspection (Start inspectie).**

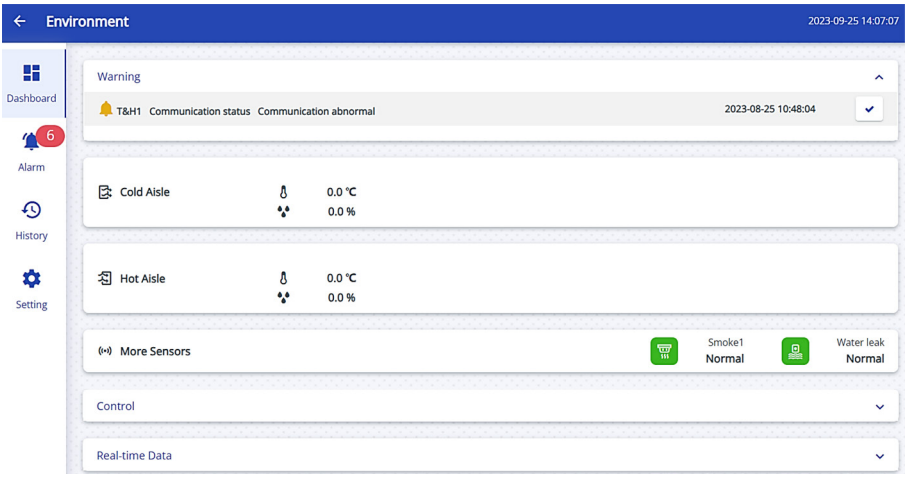


Daca va conectati la sistem utilizand un computer, puteti face clic pe Export pentru a descarca rezultatele inspectiei sub forma de fisier Excel pe computerul dvs. pentru analize ulterioare.

7.8 Vizualizarea detaliilor de mediu

Pentru a vizualiza informatii generale despre mediu, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti Mediu pe pagina principala Tablou de bord pentru a accesa pagina Mediu, dupa cum se arata mai jos.

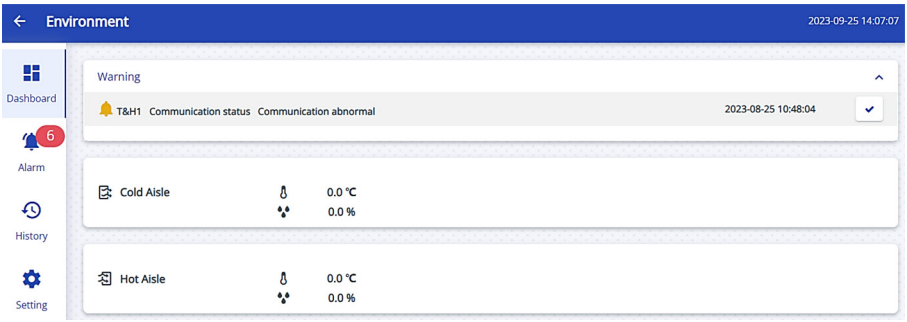
Pe aceasta pagina, puteti vedea temperatura si umiditatea culoarului rece/cald si starea de functionare a senzorului de fum si a detectorului de scurgeri de apa.



Pe aceasta pagina, puteti vedea temperatura si umiditatea culoarului rece/cald si starea de functionare a senzorului de fum si a detectorului de scurgeri de apa.

7.8.1 Vizualizarea alarmelor de mediu

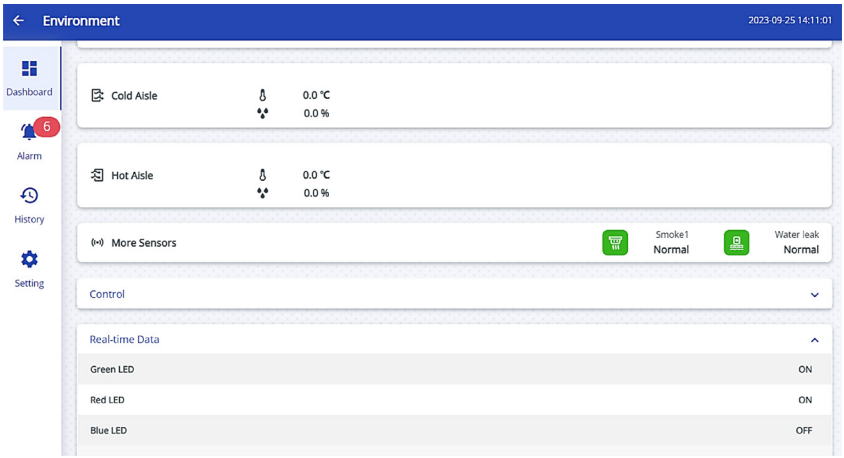
Pentru a vizualiza alarmele de mediu, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti Environment (Mediu) pe pagina de pornire Dashboard (Tablou de bord). Apoi puteti vedea alarmele In modulul Warning (Avertizare), dupa cum se arata In figura urmatoare.



7.8.2 Vizualizati datele In timp real ale luminilor ambientale

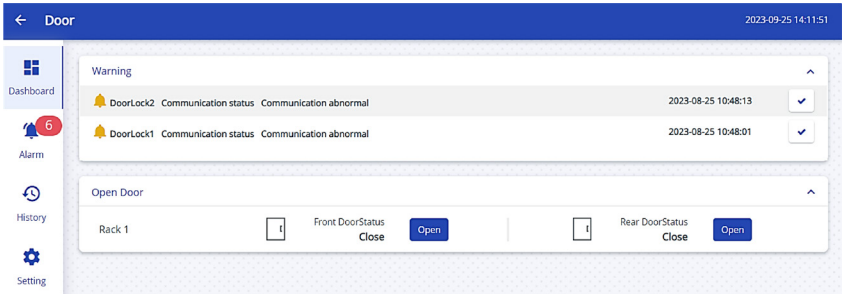
Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti Environment (Mediu) pe pagina de pornire Dashboard (Tablou de bord).

Pasul 2 Tap **Real-time Data**.
Acum puteti vedea datele In timp real ale luminilor ambientale. Urmatoarea figura prezinta un exemplu.



7.9 Vizualizati detaliile Incuietorii usii si controlati Incuietorile usii

Pentru a vizualiza informatii generale despre Incuietorile usilor, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Door (Usa)** pe pagina principala Dashboard pentru a accesa pagina **Door (Usa)**, dupa cum se arata mai jos.



Pe aceasta pagina, puteti vedea starea usilor din fata si din spate ale fiecarui dulap.

7.9.1 Vizualizarea alarmelor de blocare a usii

Pentru a vizualiza alarmele de blocare a usii, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Door (Usa)** pe pagina principala Dashboard (Tablou de bord). Apoi puteti vedea alarmele In modulul **Warning (Avertizare)**, dupa cum se arata In figura urmatoare.

7.9.2 Deschiderea unei usi de dulap

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Door (Usa)** pe pagina de pornire a tabloului de bord.

Pasul 2 Atingeti **Open** pentru a deschide o usa.

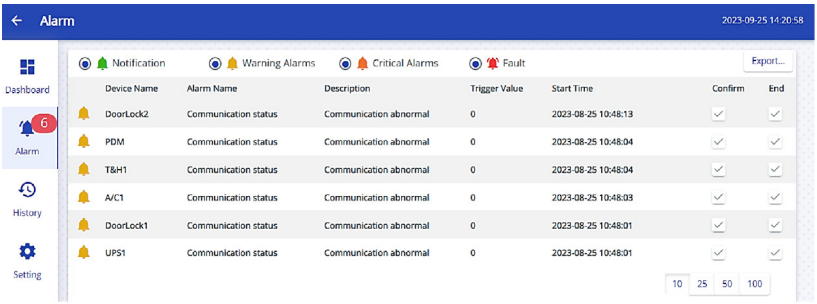
7.10 Vizualizarea si exportul alarmelor

Vizualizarea si exportul alarmelor curente
Pentru a vizualiza alarmele curente, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti **Alarma** In bara de meniu din stanga pentru a accesa pagina **Alarma**, dupa cum se arata mai jos.

In mod implicit, toate nivelurile de alarme sunt afisate pe aceasta pagina. Puteti selecta Notificare, Alarme de avertizare, Alarme critice si Defectiune pentru a vizualiza alarmele pe niveluri.
Daca va conectati la sistem utilizand un computer, puteti face clic pe **Export.** pentru a descarca alarmele afisate.

7.10 Vizualizarea si exportul alarmelor istorice

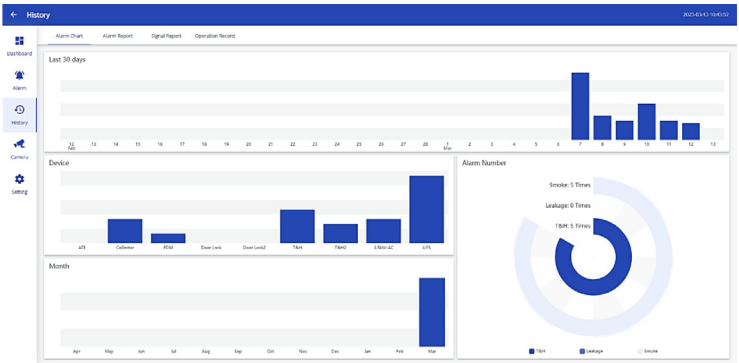
7.10.1 Vizualizarea graficelor de alarme istorice



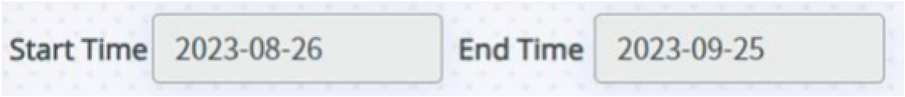
Pentru a vizualiza graficele de alarme istorice, consultati sectiunea 7.2 pentru a va conecta la sistem, atingeti Istoric In bara de meniu din stanga si selectati fila Grafic de alarme, dupa cum se arata mai jos.

7.10.2 Vizualizarea si exportul raportului istoric al alarmelor

Pentru a vizualiza raportul istoric al alarmelor, consultati sectiunea 7.2 pentru a va conecta la sistem, atingeti Istoric In bara de **meniu** din stanga si selectati fila **Raport alarma**, dupa cum se arata mai jos.

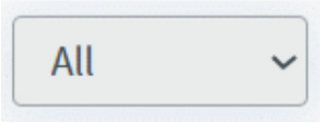


In mod implicit, pe aceasta pagina sunt afisate informatii despre toate alarmele, inclusiv numele alarmei, numele dispozitivului, descrierea, valoarea declansatorului, ora de Inceput si ora de sfarsit. Puteti seta filtre pentru a afisa anumite alarme.



Specifica ora la care au fost generate alarmele.

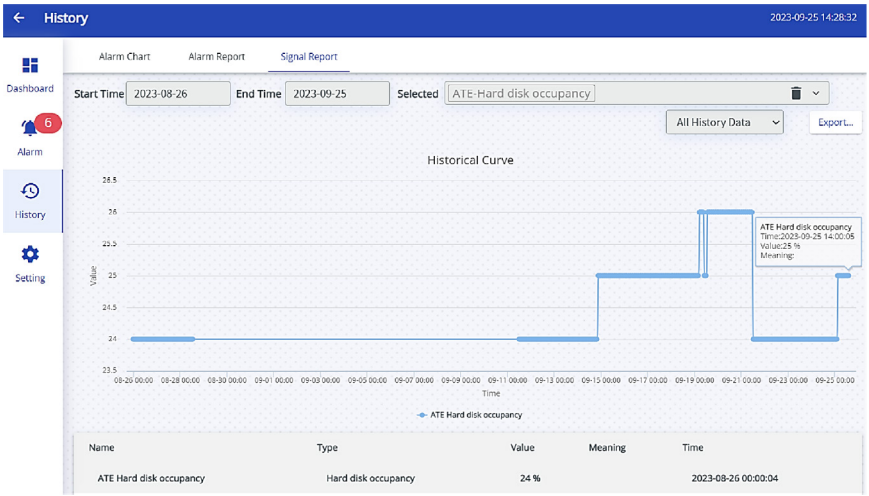
Specifica tipul de alarme care urmeaza sa fie afisate.



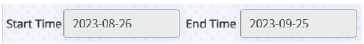
Specifica tipul de dispozitive pe care sunt generate alarmele.
Daca va conectati la sistem utilizand un computer, puteti face clic pe **Export** pentru a descarca alarmele afisate ca fisier **Excel**.

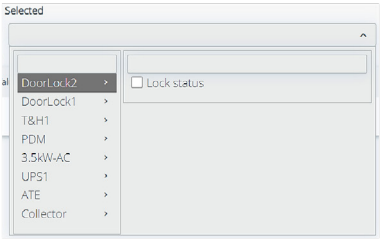
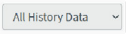
7.10.3 Vizualizarea si exportul raportului istoric al semnalelor

Pentru a vizualiza raportul istoric al semnalului, consultati sectiunea 7.2 pentru a va conecta la sistem, atingeti Istoric In bara de meniu din stanga, selectati fila **Raport semnal** si setati filtrele dupa cum este necesar.



Tabelul urmator descrie filtrele disponibile pe aceasta pagina.

Filter	Description
	Specifica ora la care au fost generate semnalele.

Filter	Description
	Specifica ora la care au fost generate semnalele.
	Specifica tipul semnalelor care urmeaza sa fie afisate In functie de valoarea semnalului. - Toate datele istorice: Sunt afisate toate datele istorice ale semnalelor. - Maximum zilnic: Sunt afisate numai datele istorice ale semnalului cu valoarea maxima din fiecare zi. - Daily Minimum (Minim zilnic): Sunt afisate numai datele istorice ale semnalului cu valoarea minima din fiecare zi. - Daily Average (Medie zilnica): Sunt afisate datele medii pe fiecare zi.

Daca va conectati la sistem utilizand un computer, puteti face clic pe **Export** pentru a descarca alarmele afisate ca fisier **Excel**.

7.11 Gestionarea conturilor

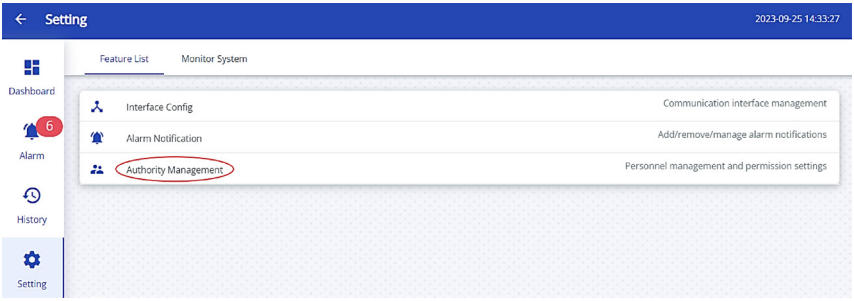
7.11.1 Creati un cont

NOTA!

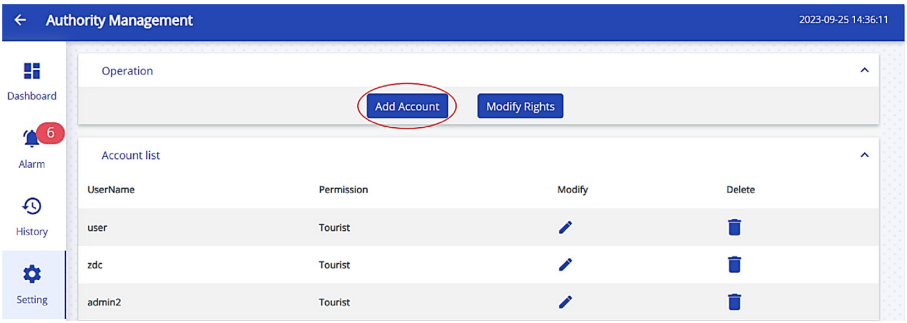
Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

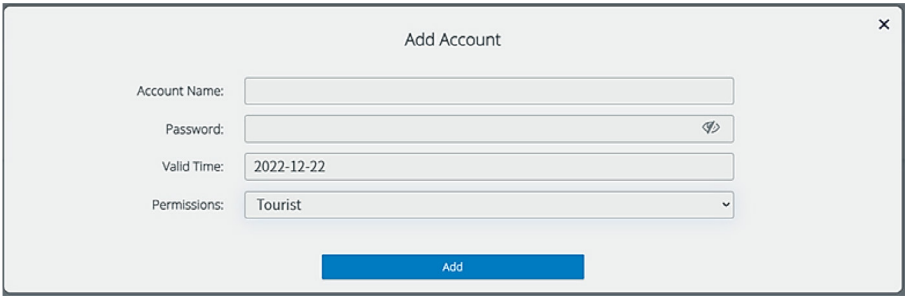
Pasul 2 Atingeti **Setari** in the left menu bar and then tap **Authority Management.**



Pasul 3 Atingeti **Add Account.**



Pasul 4 Introduceti numele de cont si parola, alegeti timpul valabil si nivelul de permisiune si **Atingeti Add.**



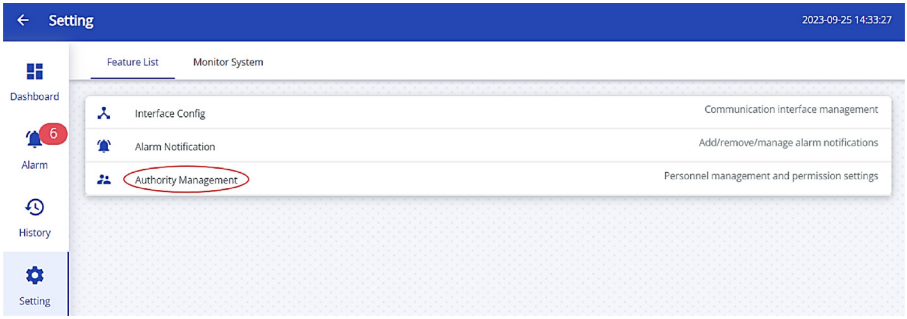
7.11.2 Modificarea permisiunilor contului

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

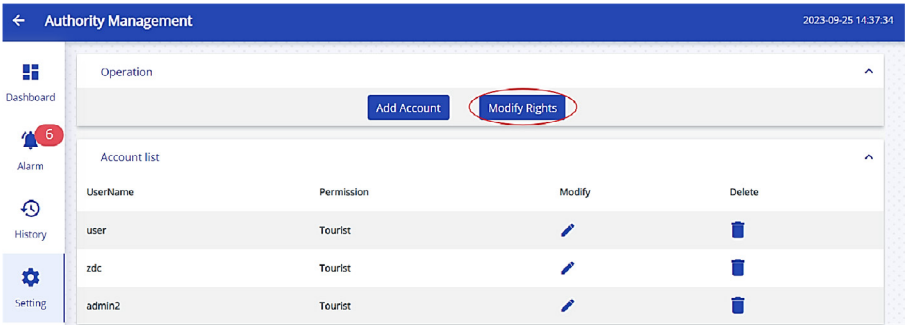
Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti Setari In bara de meniu din stanga si apoi atingeti **Management autoritate**.

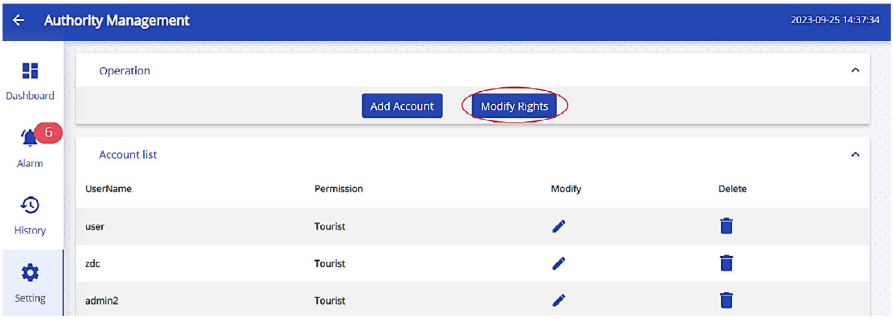


English
Română

Pasul 3 Atingeti **Modify Rights (Modificare drepturi).**



Pasul 4 Selectati un cont, apoi selectati permisiunile necesare pentru cont si atingeti **Save(Salvare).**



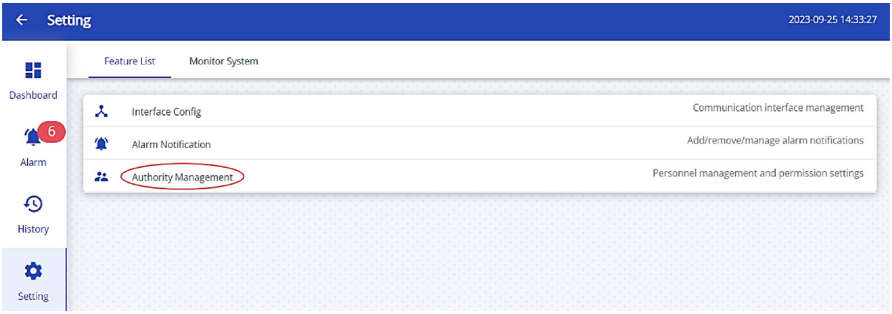
7.11.3 Modificarea unui cont

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** In bara de meniu din stanga si apoi atingeti **Authority Management.**



7.11.3 Modificarea unui cont

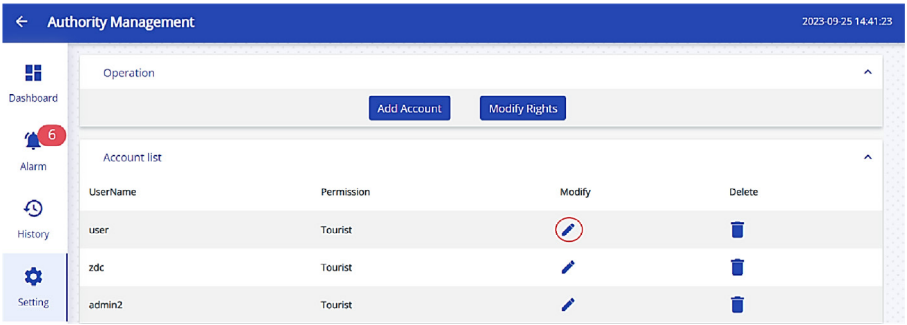
NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

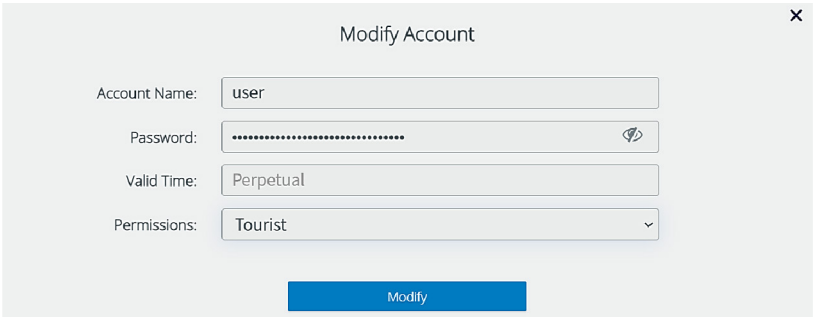
Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** In bara de meniu din stanga si apoi atingeti **Authority Management.**

Pasul 3 Atingeti linia contului care urmeaza sa fie modificat.



Pasul 4 Modificati numele contului, parola si timpul de valabilitate, dupa cum este necesar, si atingeti **Modify(Modificare).**



7.11.4 Stergeti un cont

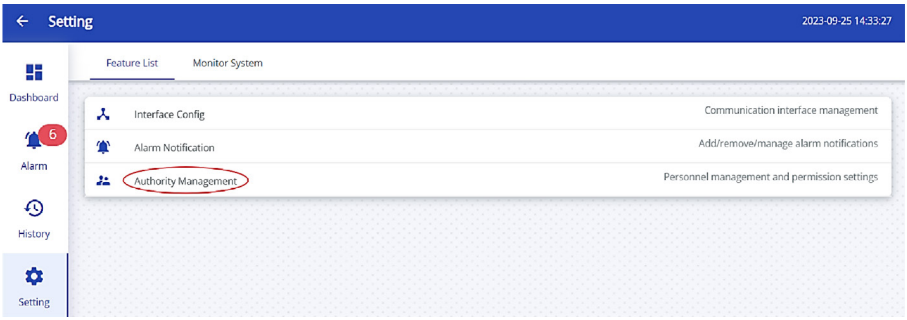
NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

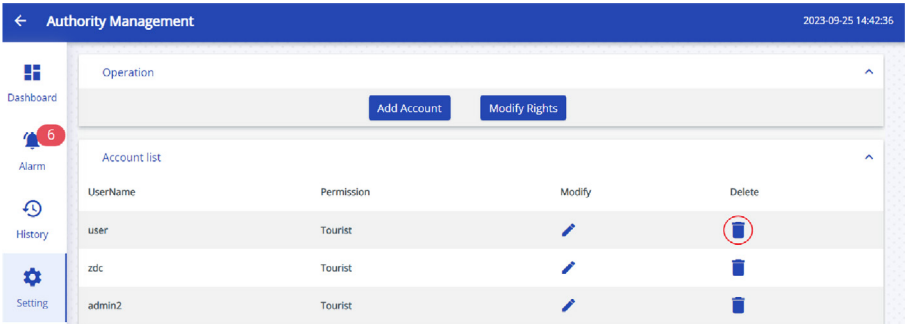
After an account is created, you can delete it as required by following the steps below.

Step 1 Refer to section 7.2 to log in to the system.

Step 2 Tap **Setting** in the left menu bar and then tap **Authority Management.**



Pasul 3 Atingeti linia contului care urmeaza sa fie modificat.



7.12 Configurati interfata SNMP

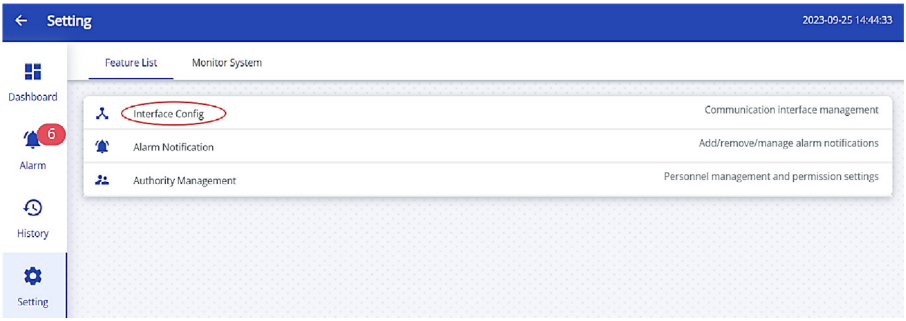
NOTA!

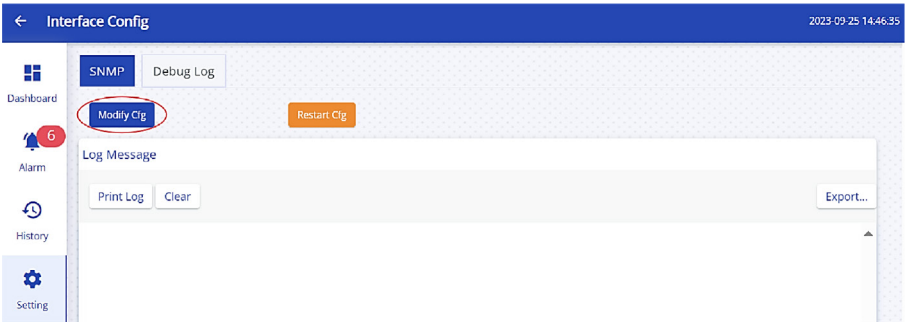
Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** In bara de meniu din stanga si apoi atingeti **Interface Config**.

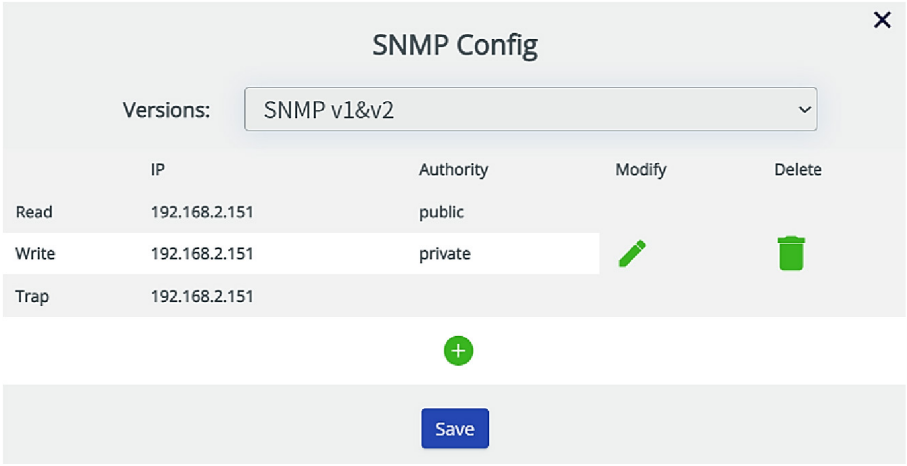
Pasul 3 Atingeti **Modify Cfg** pentru a accesa pagina **SNMP Config**.





Pasul 4 Selectati o versiune **SNMP** (V1&V2, V3).

V1&V2 sunt utilizate In principal, In timp ce V3 ofera o securitate mai ridicata. Puteti selecta una In functie de necesitati. In acest exemplu, este selectat **SNMP v1&v2**. Daca selectati **SNMP v3**, trebuie setati parametrii de securitate, cum ar fi parolele.



Pasul 5 Atingeti pentru a modifica adresele IP si permisiunile dupa cum este necesar si atingeti **Salvare**. Sau, atingeti pentru a adauga un alt grup de adrese **IP de citire/scriere/Trap** si **Atingeti Adaugare**. Apoi, atingeti **Salvare.**

Pasul 6 Atingeti **Restart Cfg**.

7.13 Setarea notificarilor de alarma

Notificarile de alarma pot fi trimise prin SMS si e-mail. Puteti seta canalul de notificare a alarmei dupa cum este necesar.

7.13.1 Setati numerele de telefon mobil pentru primirea notificarilor de alarma prin SMS

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate

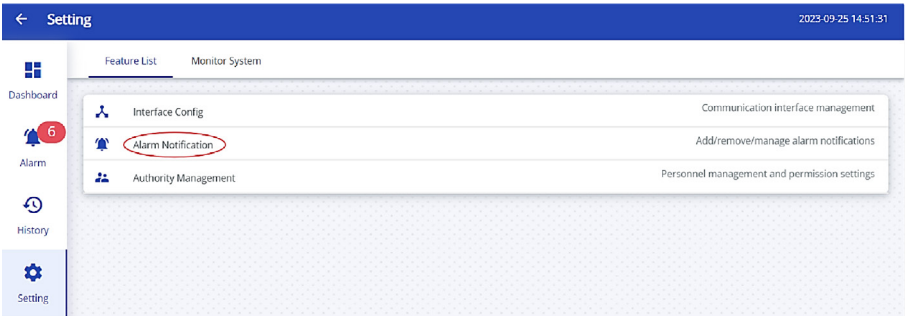
Pasul 1 Introduceti o cartela **Micro SIM** In slotul pentru cartela din partea superioara a **HMI** urmand directia afisata de serigrafia de langa slotul pentru cartela.

NOTA!

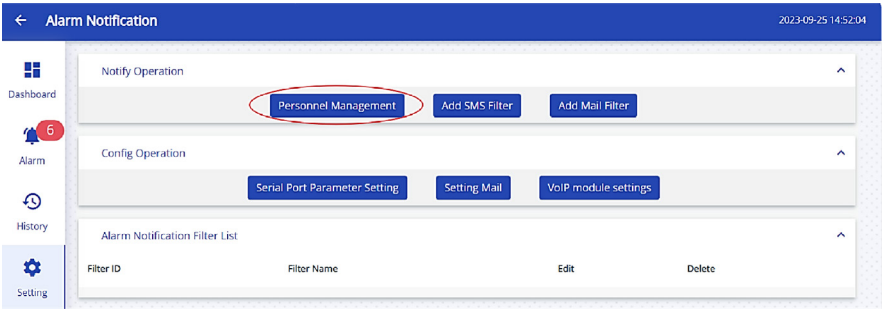
Daca doriti sa scoateti cartela SIM, apasati-o usor pentru a o scoate.

Pasul 2 Consultati sectiunea 7.2 pentru a va conecta la sistem.

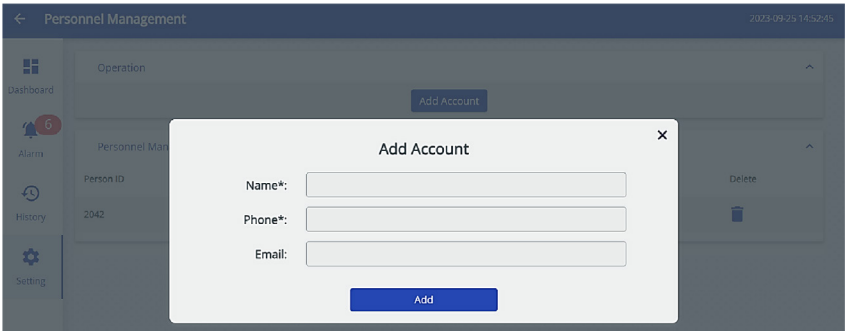
Pasul 3 Atingeti **Setting (Setare)** In bara de meniu din stanga si apoi atingeti **Alarm Notification (Notificare alarma).**



Pasul 4 Atingeti **Personnel Management.**



Pasul 5 Atingeti **Add Account (Adaugare cont)**. Apoi, setati **Name (Nume)** si **Phone (telefon)** si atingeti **Add.**



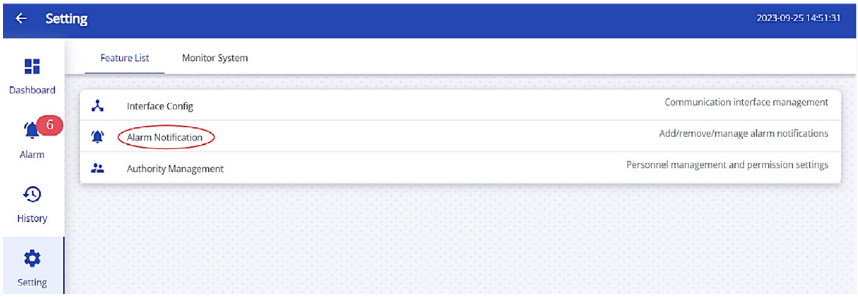
7.13.2 Setarea notificarilor prin e-mai

NOTA!

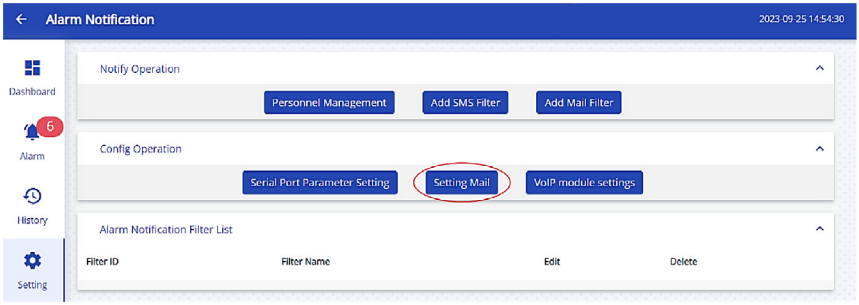
Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting (Setari)** In bara de meniu din stanga si apoi atingeti **Alarm Notification (Notificare alarma).**



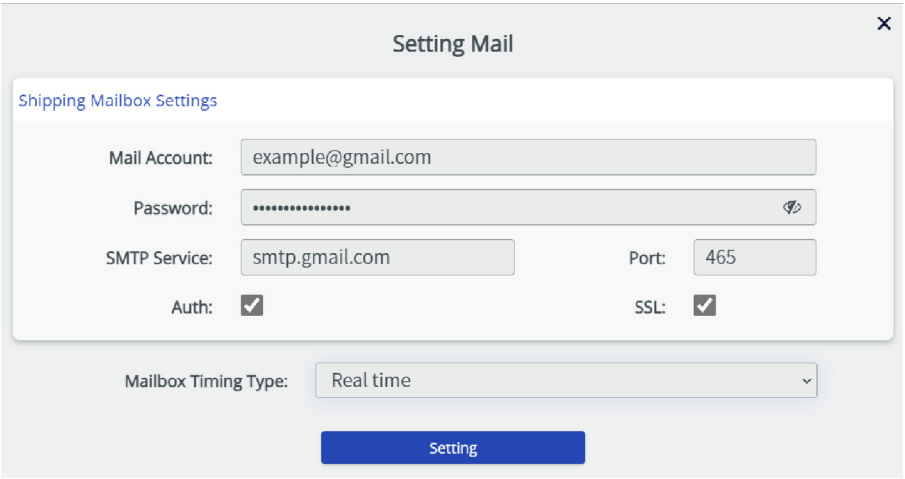
Pasul 3 Atingeti **Setting Mail (Setare Mail).**



English

Română

Pasul 4 Setati parametrii necesari In caseta de dialog **Setting Mail** si atingeti **Setting.**

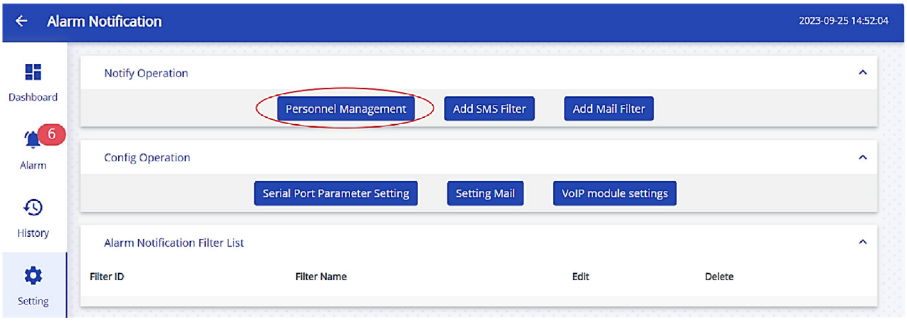


Descrierea parametrilor

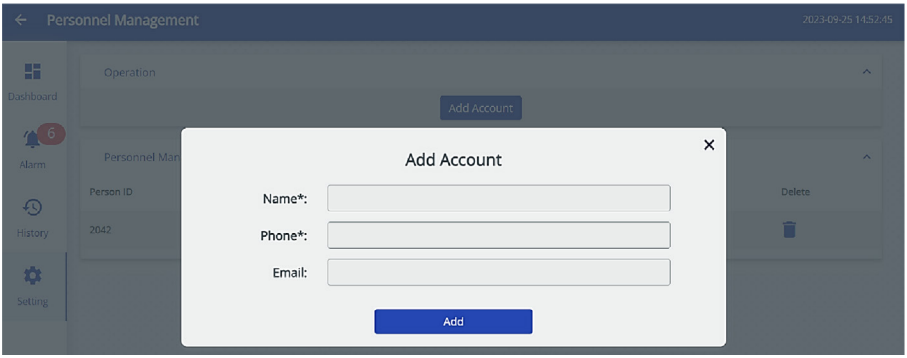
Parametru	Descriere
Mail Account	Specifica adresa de e-mail utilizata pentru trimiterea notificarilor prin e-mail.
Password	Specifica parola de e-mail (parola de autorizare pentru unele adrese de e-mail).
SMTP Service	Specifica numele de domeniu sau adresa IP a serverului utilizat pentru trimiterea e-mailurilor. Daca Il setati la un nume de domeniu, verificati daca adresa **DNS** implicita a gazdei de monitorizare (8.8.8.8) este acceptata. Daca nu, configurati serverul **DN**S care accepta rezolvarea numelui de domeniu In **Setting > Network > DNS Config.** NOTA! *Severul SMTP este utilizat pentru trimiterea de e-mailuri. Prin urmare, acest parametru trebuie sa fie setat.*
Port	In general, acest parametru este setat la 25 pentru comunicarea necriptata. Pentru criptarea SSL, acest parametru este de obicei setat la 465 si trebuie selectat SSL. NOTA! *Pentru portul specific, consultati parametrii de e-mail reali.*
Auth	Specifica daca este necesara autorizarea. Il puteti bifa pentru a activa autorizarea.
SSL	Specifica daca este necesara criptarea SSL. Atunci cand este selectata, criptarea SSL este activata, iar portul este de obicei setat la 465. Atunci cand nu este selectata, criptarea SSL este dezactivata, iar portul este setat de obicei la 25. NOTA! *Pentru portul specific, consultati parametrii de e-mail reali.*

Mailbox Timing Type	Specifica frecventa de trimitere a e-mailurilor. – **Timp real:** E-mailurile de notificare a alarmelor sunt trimise In timp real. – **Zile:** E-mailurile de notificare a alarmelor sunt trimise o data pe zi.. – **Saptamana:** E-mailurile de notificare a alarmelor sunt trimise o data pe saptamana. – **Lunar:** E-mailurile de notificare a alarmelor sunt trimise o data pe luna.

Pasul 5 Apasati **Personnel Management (Managementul personalului).**



Pasul 6 Atingeti **Add Account(Adaugare cont).** Apoi, setati **Nume, telefon,** si **Email,** si atingeti **Add(Adaugare).**



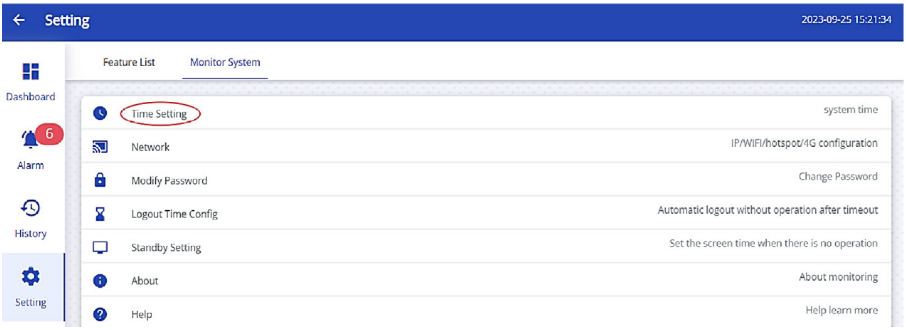
7.14 Setarea orei sistemului

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** In bara de meniu din stanga si apoi atingeti **Monitor System > Logout Time Config.**



Pasul 3 Selectati un interval de timp si atingeti **Modify (Modificare).**

7.15 Setarea intervalului de deconectare automata

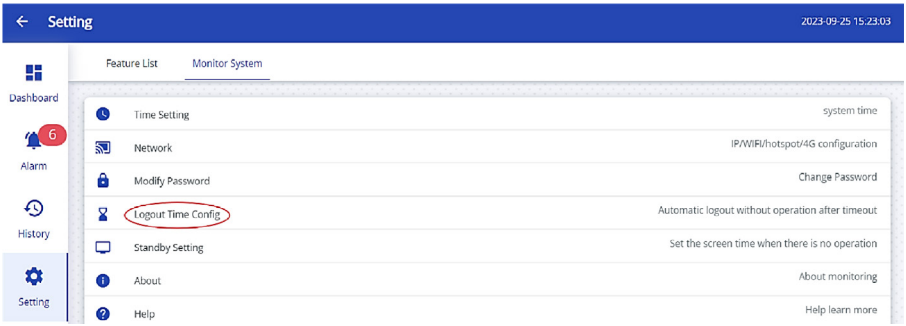
NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

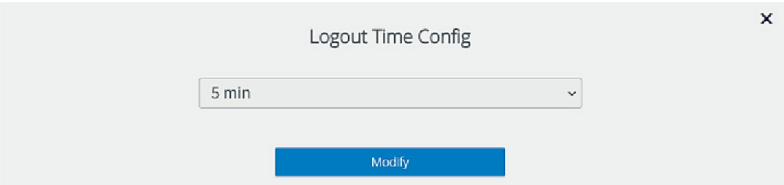
Pentru a deconecta automat utilizatorii dupa ce acestia nu efectueaza operatiuni dupa un interval:

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** In bara de meniu din stanga si apoi atingeti **Monitor System > Logout Time Config.**



Pasul 3 Selectati un interval de timp si atingeti **(Modificare).**
Daca doriti ca utilizatorii sa ramana conectati, selectati Fara deconectare.



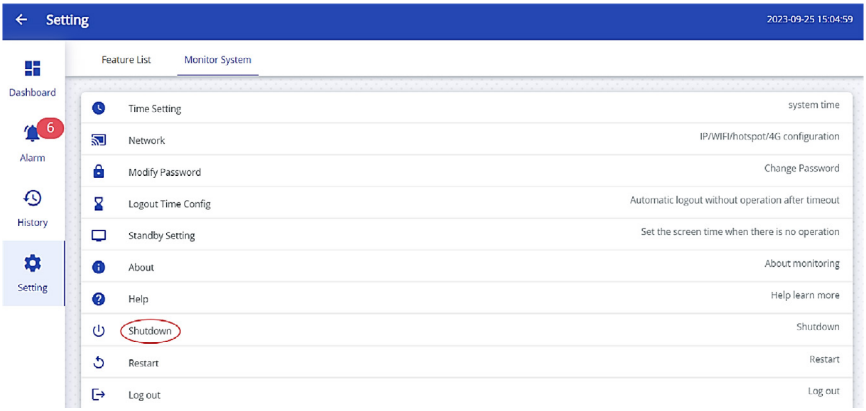
7.16 Oprirea MDC

NOTA!

Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** In bara de meniu din stanga si apoi atingeti **Monitor System > Shutdown.**

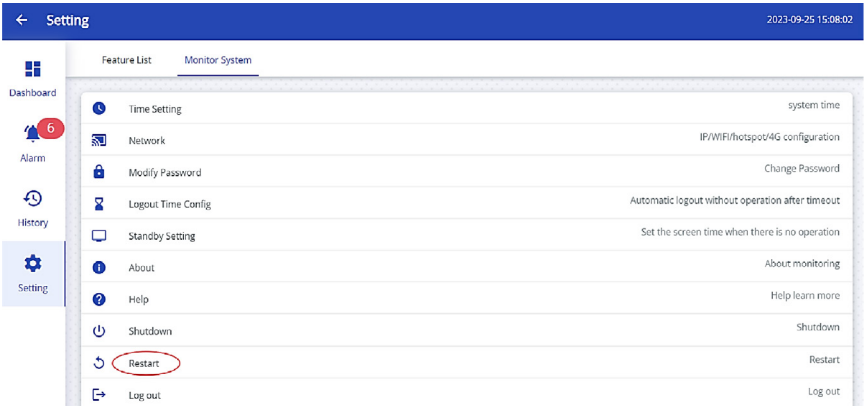


Pasul 3 Atingeti **OK** In caseta de dialog pop-up.

7.17 Repornirea MDC

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** in the left menu bar and then tap **Monitor System > Restart.**

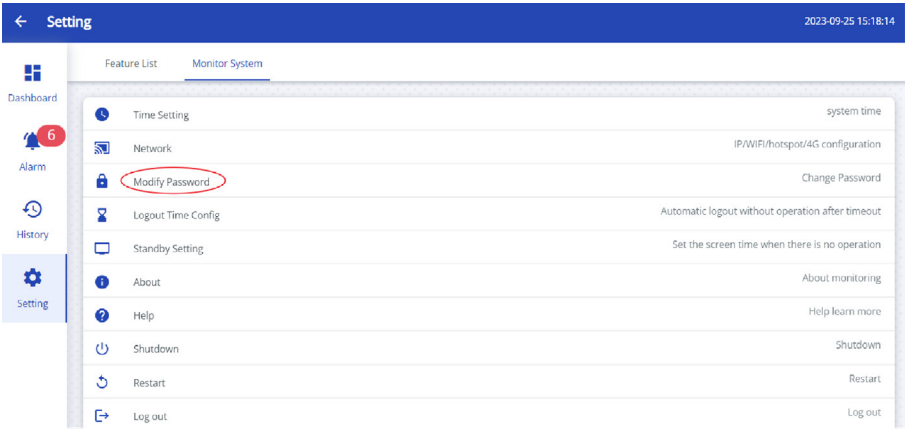


Pasul 3 Atingeti **OK** In caseta de dialog pop-up.

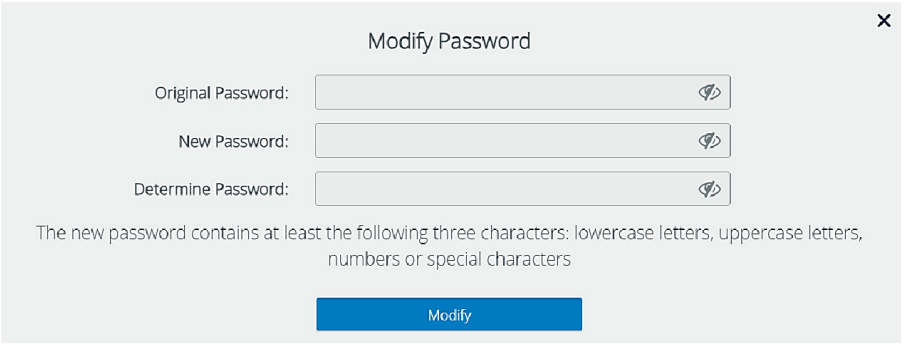
7.18 Modificarea parolei

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti Setting (Setare) In bara de meniu din stanga si apoi atingeti Modify Password (Modificare parola).



Pasul 3 Specificati parola originala, parola noua si parola de determinare. Apoi, atingeti Modify (Modificare).



7.19 Setarea intervalului de deconectare automata

NOTA!

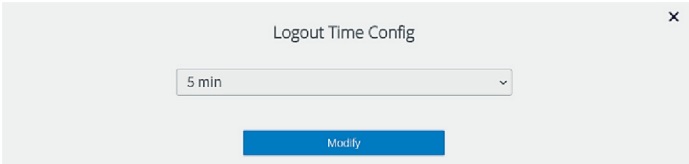
Aceasta operatiune este disponibila numai pentru conturile autorizate.

Pentru a deconecta automat utilizatorii dupa ce acestia nu efectueaza operatiuni dupa un interval:

Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Apasati **Setting** In bara de meniu din stanga si apoi atingeti **Monitor System > Logout Time Config.**

Pasul 3 Selectati un interval de timp si atingeti **Modify (Modificare).**
Daca doriti ca utilizatorii sa ramana conectati, selectati Fara deconectare.

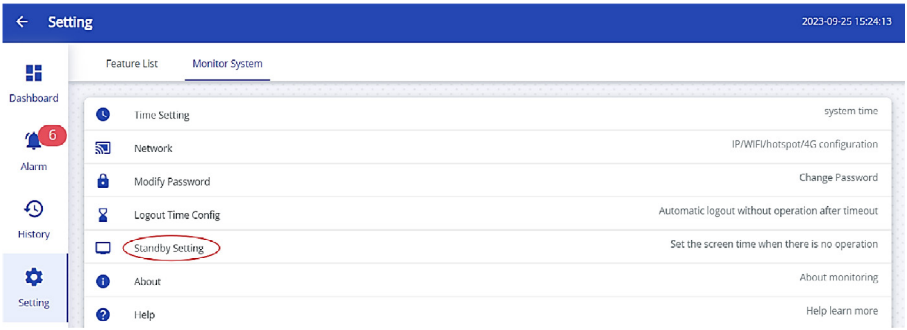


7.20 Setarea intervalului de dezactivare a ecranului

Pentru a opri automat ecranul dupa ce nu se efectueaza nicio operatiune pe ecran dupa un interval:

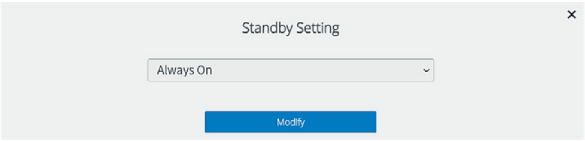
Pasul 1 Consultati sectiunea 7.2 pentru a va conecta la sistem.

Pasul 2 Atingeti **Setting** in bara de meniu din stanga si apoi atingeti **Monitor System > Standby Setting.**



Pasul 3 Selectati un interval de timp si atingeti **Modificare.**

Daca doriti sa pastrati ecranul pornit, selectati Mereu pornit.



7.21 Verificarea versiunii MDC si a SN

Pentru a verifica versiunea produsului, versiunea firmware si numarul de serie al MDC, consultati sectiunea 7.2 pentru a va conecta la sistem, atingeti **Setting** In bara de meniu din stanga si apoi atingeti **Monitor System > About.**

7.22 Backup/restaurare

7.22.1 Copie de rezerva locala (USB stick)

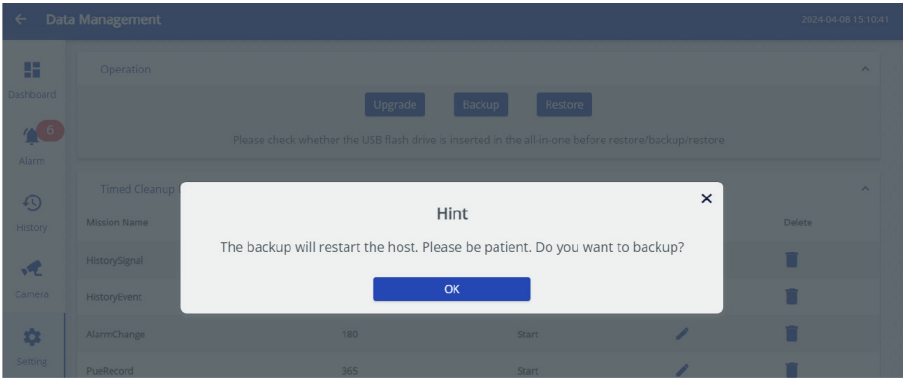
NOTA!

- Aceasta operatiune este disponibila numai pentru contul de super administrator.
- Stickul USB este pregatit de utilizator, iar numele USB stick trebuie sa fie schimbat In IVIEW.
- Daca stickul USB nu este introdus, se va afisa o solicitare.
- Daca MDC nu reuseste sa detecteze stickul USB introdus, reporniti monitorul si introduceti din nou stickul USB.

Pasul 1 Creati un folder numit backup sub stickul USB (format: FAT32, nume: IVIEW) si introduceti stickul USB pe monitor.

Pasul 2 Atingeti Setting In bara de meniu din stanga si apoi atingeti, Data Management.

Pasul 3 Atingeti Backup si apoi OK.



Pasul 4 Introduceti parola si atingeti OK.
Se va afisa Sistemul este In curs de backup si va reporni automat, va rugam sa asteptati.... MDC va fi repornit automat In 7 pana la 8 minute.
Dupa ce MDC este repornit, se va afisa din nou The system is backing up and will restart automatically, please wait... (Sistemul face backup si va reporni automat, va rugam sa asteptati). Dupa finalizarea backup-ului, se va afisa The backup is successful, calea fisierului este in/backup, fisierul de backup este app.zip si fisierul **MD5** este **fp.app.chksum.**

Pasul 5 Scoateti stickul USB si reporniti monitorul.

NOTA!

Dupa finalizarea backup-ului, copiati fisierele din folderul de backup pe computer.

7.22.2 Restaurare locala (USB disk)

NOTA!

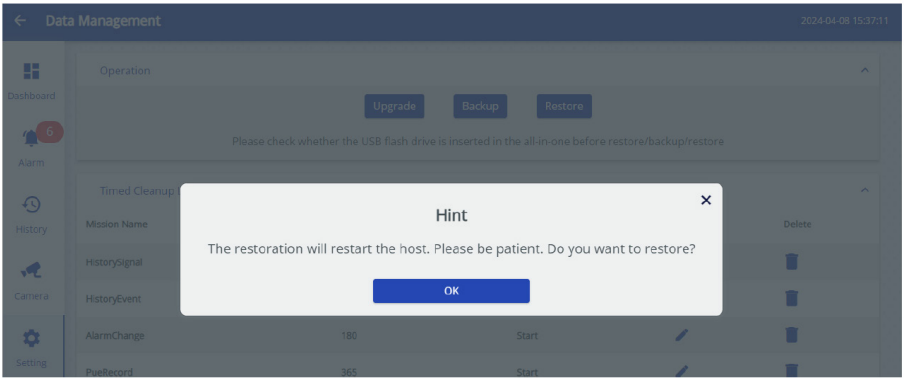
- Aceasta operatiune este disponibila numai pentru contul de super administrator.
- Discul U este pregatit de utilizator, iar numele discului U trebuie sa fie schimbat In IVIEW.
- Daca discul U nu este introdus, se va afisa o solicitare.
- Daca MDC nu reuseste sa detecteze discul U introdus, reporniti monitorul si introduceti din nou discul U.

Pasul 1 Creati un folder numit **backup** pe discul U (format: FAT32, nume: IVIEW) si salvati **app.zip** (utilizat pentru restaurare) si **fp.app.chksum** (fisier de eticheta pentru restaurare) In folderul **backup**.

Pasul 2 Introduceti discul U pe monitor.

Pasul 3 Atingeti Setting In bara de meniu din stanga si apoi atingeti **Data Management**.

Pasul 4 Atingeti **Restore** si dupa **OK.**



Pasul 5 Introduceti parola si atingeti **OK.**

Sistemul se restabileste si va reporni automat, va rugam sa asteptati... va fi afisat. **MDC va fi repornit automat.**

Dupa ce MDC este repornit, se va afisa din nou **The system is restoring and will restart automatically, please wait...** Dupa finalizarea restaurarii, se va afisa **The restore is successful, please pull off the USB stick and reboot the system!**

Pasul 6 Scoateti discul U si reporniti monitorul.

8 Module functionale

Dimensiuni: 600(W) x 1200(D) X 2060(H)
Alimentare: 230V a.c. monofazic (L+N+PE)
Constructiv, MDC-ul se prezinta sub forma unui rack metalic care asigura montarea diferitelor unitati informatice (servere, unitati de stocare etc.) si cuprinde:

- UPS pentru asigurarea functionarii in timpul penelor de curent.

- Cabinet extern de baterii pentru a extinde timpul de back-up.

- senzori (de temperatura, umiditate, scurgeri de lichid, fum).

- unitate de management si monitorizare de la distanta prin conectare la retea (wired sau wireless).

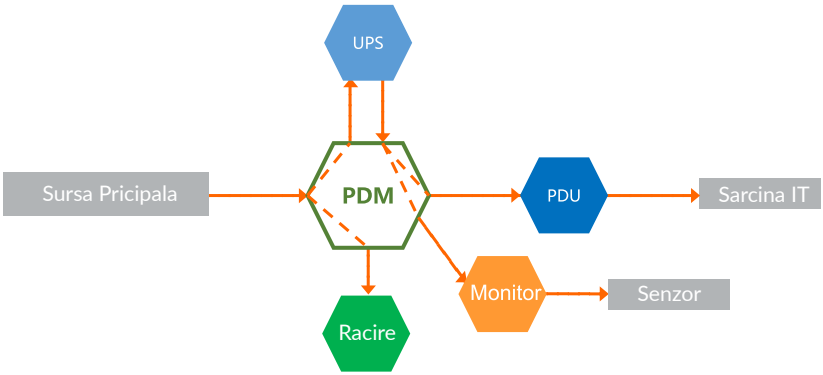
- unitate de distributie a curentului electric prevazuta cu sigurante automate.

- iluminare interioara.

Partile componente ale MDC-ului Forge 6K-42U sunt: UPS, EBM, PDM, Monitor, PDU si este prevazut cu iluminat interior, senzori de fum, detector scurgeri lichide, detector de temperatura si umiditate.

Din punct de vedere al circulatiei energiei electrice, aceste module sunt interconectate electric astfel incat sa se asigure un control cat mai precis al distribuirii curentului intre ele.

English
Română

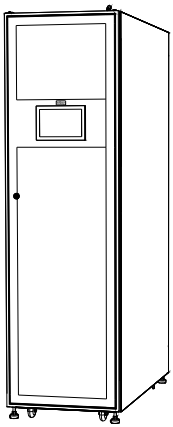


8.1 Dulap

Structura de sustinere si montare este scheletul care asigura integritatea structurala si permite montarea celorlalte componente. Constructiv, este un rack cu dimensiunile 600(W) x 1200(D) X 2060(H), cu un spatiu pentru echipamente de 42U (o parte din acest spatiu este deja ocupat de modulele de infrastructura). Accesul in interior este asigurat de 2 usi; cea frontala este din sticla permitand supravegherea echipamentelor si cu usa inchisa, de asemenea este prevazuta si cu ecranul tactil LCD care permite configurarea si monitorizarea MCD-ului. Ambele usi sunt prevazute cu sistem de inchidere atat mecanic cat si electronic.

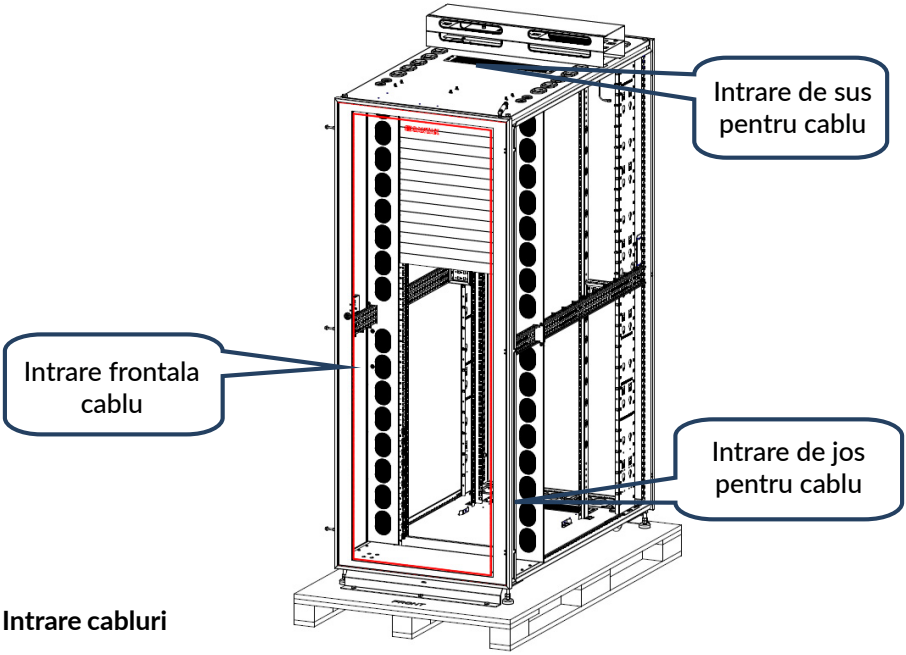
Dulapul este potrivit pentru sistemul standard de dulap unic MDC cu culoare inchise calde si reci. Acesta este utilizat pentru a gazdui unitati de racire montate pe rack, UPS, PDM si alte componente necesare in sistem. In plus, spatiul sau ramas poate fi utilizat pentru a plasa echipamente de 19″ care respecta standardul industrial (EIA-310-E) si se potrivesc dulapului. Usa din fata a dulapului este o usa din sticla cu deschidere simpla, iar usa din spate este o usa din tabla cu deschidere simpla.

Dimensiunea cabinetului (H*L*P) este de 2060mm*600mm*1200mm.



MDC-ul are urmatoarele caracteristici:
- Cabinet de 19 inchi cu o capacitate de incarcare de pana la 1860 kg. Nu are usa laterala.
- Se utilizeaza tabla laminata la rece din otel carbon de inalta rezistenta, clasa A, cu grosimea de 1,2-2,0 mm.
- Design etans. O usa din sticla cu deschidere simpla este utilizata ca usa frontala, iar o usa din tabla cu deschidere simpla este utilizata ca usa din spate.
- Accesoriile de retinere a aerului sunt instalate in dulap pentru a raci echipamentele IT cu tot aerul rece.
- PDU AC vertical poate fi instalat in partea din spate a dulapului.
- Doua rafturi pentru cabluri sunt prevazute in partea din fata si din spate a dulapului.
- Locatia exacta a fiecarei unitati (U) este marcata pe montantii verticali ai dulapului.
- Usile din fata si din spate ale dulapului sunt echipate cu incuietori electronice, care pot fi deblocate cu ajutorul cheilor sau al operatiunii de pe ecranul de monitorizare. Starea de deschidere si inchidere a usii poate fi monitorizata.
- In partea superioara a dulapului este montat un arc cu gaz. In caz de urgenta, acesta poate fi deschis automat cu incuietoarea electronica pentru a asigura disiparea caldurii.
- Partea din spate a dulapului este echipata cu o lumina care se aprinde atunci cand usa este deschisa.
- Dulapurile pot fi unite rapid pentru a realiza instalarea dulapului pe doua sau trei randuri.
- Usa din fata a dulapului este echipata cu o lumina ambientala RGB in trei culori, care poate fi conectata la dulapul principal pentru a afisa starea de functionare a centrului de date.
- Dulapul este echipat standard cu un raft de cablare superior, care poate realiza cabluri separate de inalta tensiune si de joasa tensiune.

Dimensiuni (H x L x P): 2060mm×600mm×1200mm
Spatiu disponibil: 42U
Placa orb: 15 placi orb din plastic 1U (configuratie standard)
Suport de incarcare: > 1860 kg
Structura: Usa din sticla cu deschidere simpla ca usa din fata, usa din tabla cu deschidere simpla ca usa din spate
Suprafata: Suprafata pulverizata electrostatic pentru a indeplini cerintele de mediu de clasa A
Culoare: negru
Material: Placa de otel carbon laminata la rece de inalta calitate, clasa A, de inalta rezistenta (0,8-2,0 mm)
Clasificare IP: IP50
Impamantare si antistatic: Surub de impamantare rezervat
Cerinte de mediu: RoHS



Intrare cabluri

8.2 Unitate de racire

Unitatea de aer conditionat (A/C) R03A.
Acest subansamblu asigura climatizarea interioara a MDC-ului, lucru necesar pentru a preveni supraincalzirea echipamentelor montate in interiorul acestuia.

Unitatea de racire montata pe raft este proiectata pentru a furniza racire prin recirculare in interiorul dulapului. Acesta este integrat cu echipamentul principal din dulap pentru a forma un centru de date independent. Unitatea de racire este instalata in partea inferioara a dulapului si functioneaza adaptiv la schimbarile de sarcina din dulap. Unitatea de racire adopta disiparea caldurii racite cu aer, compresor cu frecventa variabila DC, supapa de expansiune electronica si ventilator EC de inalta eficienta pentru a obtine un raport de eficienta energetica ridicat si un raport de caldura sensibila ridicat al functionarii intregului sistem.

Aceasta serie de unitati de racire de precizie racite cu aer sunt potrivite pentru centre de date medii si mici, camere de calculatoare si camere de echipamente. In conformitate cu cerintele de temperatura si umiditate ale echipamentelor electronice, unitatea de racire mentine temperatura si umiditatea constante ale camerei calculatorului.

Unitatea de racire integrata este usor de instalat fara conectarea unitatilor interioare si exterioare, ci doar conectarea la fata locului a conductei de condens.

Unitatea de racire interioara include ventilatorul EC, supapa de expansiune electronica, regulatorul (optional), filtrul, detectorul de scurgeri de apa, pompa de condens, senzorul de temperatura si alte componente.

Ventilator EC
Ventilatorul EC permite ajustarea continua a volumului de aer, iar viteza ventilatorului se modifica rapid in functie de sarcina. Acesta are avantajele unui volum mare de aer, performante ridicate, durata lunga de viata si zgomot redus.

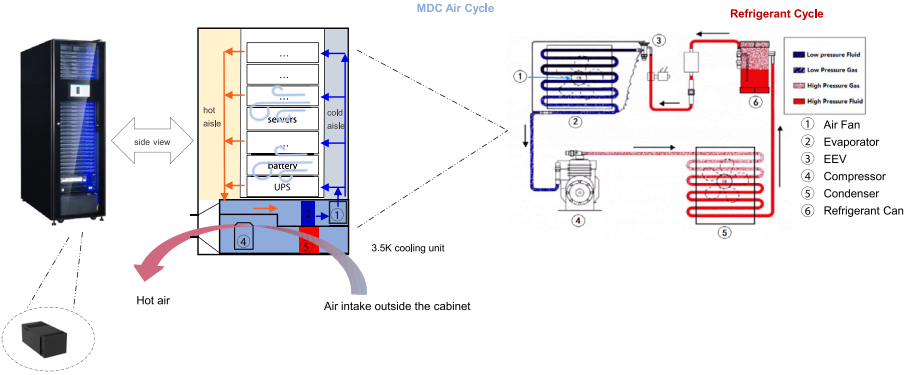
Supapa de expansiune electronica
Cu ajutorul supapei electronice de expansiune, acuratetea controlului si viteza de raspuns sunt imbunatatite. Aceasta asigura o racire precisa, un control stabil al sistemului si o precizie ridicata de adaptare la sarcina, oferind astfel o performanta excelenta de economisire a energiei.

Detector de scurgeri de apa
Unitatea de racire este echipata cu un detector electronic de scurgeri de apa, care monitorizeaza unitatea de racire si camera calculatorului si genereaza o alarma atunci cand apar scurgeri de apa. Alarmele vor fi incarcate in sistemul de monitorizare centralizat prin protocolul de comunicare standard.
Este alimentat de la PDM pe iesirea A/C (intrerupatorul A/C).

Caracteristici tehnice

Tensiunea de alimentare	220V±15% to 50/60Hz
Putere maxima (KW)	3.0
Curent maxim (A)	13.5
Capacitatea nominala de racire (kW) (35/35°C)	≧3.5[1]
Dimensiuni (W x D x H, mm)	440±2×900±2×351±2
Volumul nominal de aer al unitatii interioare (m3/h)	≧600
Zgomot [dB(A)]	≤65
Modul de alimentare cu aer	Top air supply
Tava de incalzire electrica (kit de evaporare (kW)	1.2
Rata de eficienta energetica (EER)	2.8
Agent frigorific	R410A, eco-friendly refrigerant
Inaltimea unitatii interioare	8U
Functie	Racirea, Incalzirea, dezumidificarea, temperatura/ umiditatea si setarile parametrilor de control, memoria de oprire, pornirea automata la pornire, pornirea/oprirea de la distanta, setarile de la distanta, etc.
Mod de control	Controlul temperaturii aerului de retur/alimentare
Comunicare	Modbus protocol, RS485 port
Temperatura de functionare (°C)	-40 °C pana la +50 °C
Certificare	CE, RoHS

[1] Capacitatea de racire se masoara In urmatoarele conditii de lucru: admisie si retur de aer interior de 37,8°C/20%RH, temperatura uscata a bulbului aerului exterior de admisie de 35°C.



8.3 PDM - Power Distribution Module(Modul de distributie a energiei)

PDM-ul asigura distribuirea energiei electrice la toate celelalte module montate in MDC. In partea din spate are conexiunile electrice pentru alimentarea modulelor, iar in partea frontala are breaker-e corespunzatoare fiecarei conexiuni, astfel incat toate celelalte module se pot conecta sau deconecta individual. In interior se afla si o sursa stabilizata de 12V pentru alimentarea senzorilor si a altor echipamente care necesita aceasta tensiune.

In continuare sunt descrise elementele de pe panoul frontal, de la stanga la dreapta:

Mains Indicator: indicator luminos, verde atunci cand MDC-ul este alimentat de la retea.

Meter: smart-meter care afiseaza valorile curentului electric de la retea (tensiune, putere consumata, etc.)

Mains Input: intrerupatorul general (bipolar, 40A). Se conecteaza la reteaua AC.

SPD (Surge Protection Device): activeaza protectia la varfuri de tensiune (spike). Compus dintr-un breaker bipolar de 32A si dispozitivele de protectie pe care se va putea vedea daca au fost activate.

A/C: intrerupator monopolar, 16A. Se conecteaza la intrarea de 230Vc.a. a aerului condionat.

Mains spare: intrerupator monopolar, 16A. Reprezinta o conexiune de alimentare suplimentara. De aici se poate alimenta un UPS suplimentar sau un alt echipament. Neconectat in configuratia standard.

UPS Input: intrerupator monopolar, 32A. Controleaza alimentarea cu energie electrica a UPS-ul MDC-ului. Se conecteaza la intrarea AC IN a UPS-ului.

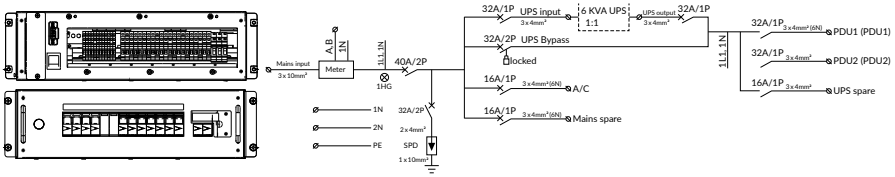
UPS Output: intrerupator monopolar, 32A. Controleaza transferul de energie electrica de la iesirea UPS-ului la celelalte module din MDC. Se conecteaza la iesirea AC OUT a UPS-ului.

PDU1: intrerupator monopolar, 32A. Controleaza alimentarea PDU-ului (Power Distribution Unit) preexistent in MDC.

PDU2: intrerupator monopolar, 32A. Controleaza alimentarea unui PDU suplimentar care se poate monta in MDC.

UPS Maintenance Bypass: intrerupator bipolar, 32A. Acest comutator e folosit in cazul in care din diferite motive UPS-ul trebuie oprit (activitati de intretinere sau reparatii, inlocuire etc.) fara a intrerupe alimentarea celorlalte module si a echipamentelor montate in MDC.

Spatiu ocupat in rack: 3U



English

Română

8.4 UPS - Summit 6KR (Uninterrupted Power Source)

Unitatea UPS asigura functionarea neintrerupta a echipamentelor instalate in MDC in cazul unor intreruperi ale curentului de la retea, precum si furnizarea unei tensiuni de alimentare cat mai curata si stabila. UPS-ul este alimentat pe iesirea UPS Input a PDM-ului (controlata de comutatorul UPS Input), iar iesirea UPS-ului e conectata la PDM pe intrarea UPS Output (controlata de comutatorul UPS Output) astfel incat curentul stabilizat si filtrat poate ajunge mai departe la consumatori.

8.4.1 Caracteristici tehnice

- Topologie: UPS on-line cu conversie dubla si unda sinusoidala pura.
- Control digital complet.
- PF de iesire = 1.
- Capacitate mare de incarcare, curentul de incarcare este de pana la 4A.
- Metoda de incarcare inteligenta pentru a extinde durata de viata a bateriei.
- Detectarea automata a cantitatii EBM.
- Porturi de comunicare: EPO, Dry in, Dry out, intelligent slot, USB, RS232.
- IoT: Ethernet (implicit) si fara fir (optional).
- LCD cu matrice de puncte, suporta mai multe limbi.
- Modul ECO.
- Se poate porni fara baterie.

TCO mai mic decat solutia plumb-acid.

Factorul de putere maxim de iesire este 1, VA=W.

Nivel 3 Conexiune baterie litiu incorporata, sincronizare cu UPS (SOC, SOH, comportament, echilibrare externa).

Design compact: 2U UPS + 2U EBM.

Timp de rezerva lung cu pana la 4 cabinete EBM optionale, cu detectare automata.

Configuratie dubla rack/tower cu panou LCD rotativ.

USB, port RS232, contacte uscate, conectori EPO & ROO, SNMP/Modbus.

Port Ethernet incorporat pentru conectarea la cloud.

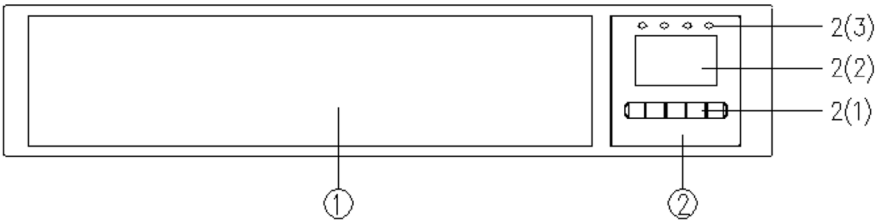
Accesoriu pentru bypass de intretinere cu control al segmentului de sarcina.

Certificare: UN38.3, IEC62019, CE, IEC62040.

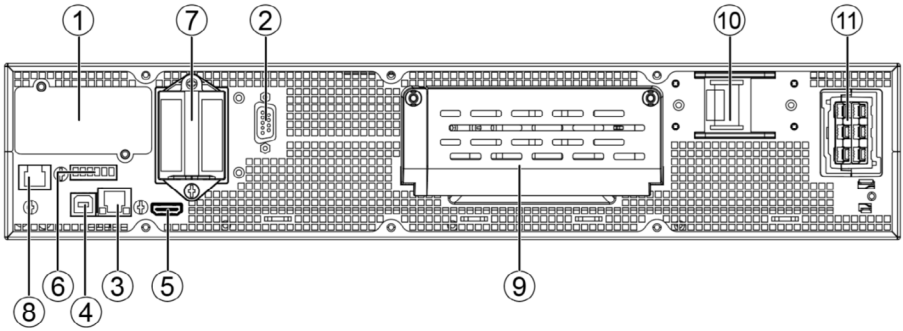
Tehnologii cheie

- Sistem de baterii cu litiu LFP de nivel 3 cu BMS avansat.
- Design de fiabilitate BMS lider in industrie.
- Conexiune cloud incorporata.
- Pana la 4 module de baterii externe.
- UPS si baterie cu litiu certificare UL, IEC, certificat de securitate cibernetica.

Vedere frontala



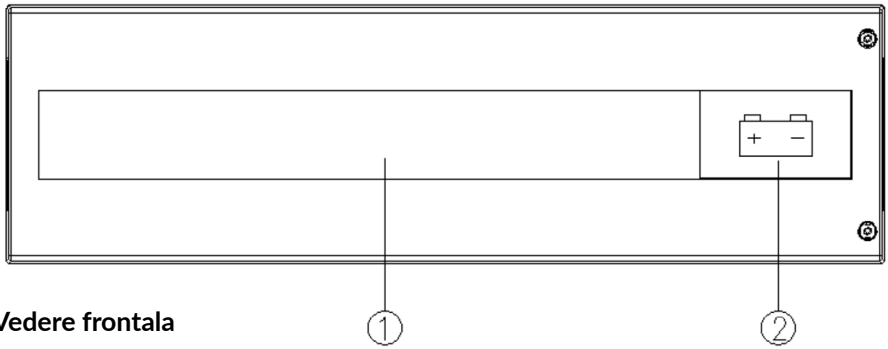
1. Zona de ventilatie
2. LCD modular, incluzand: 2(1)---Buton, 2(2)---Ecran LCD, 2(3)---Indicator LED.



UPS (1-1)

Vedere din spate
1. Card CMC-G2.
2. RS232.
3. Ethernet port (RJ45, pentru functia IoT).
4. Port USB.
5. Wireless (HDMI, pentru functia IoT).
6. EPO & DRY in/out.
7. Slot paralel (optional).
8. RJ45 (detectare EBM).
9. AC Input /Output.
10. Input breaker (optional)
11. Conector EBM.

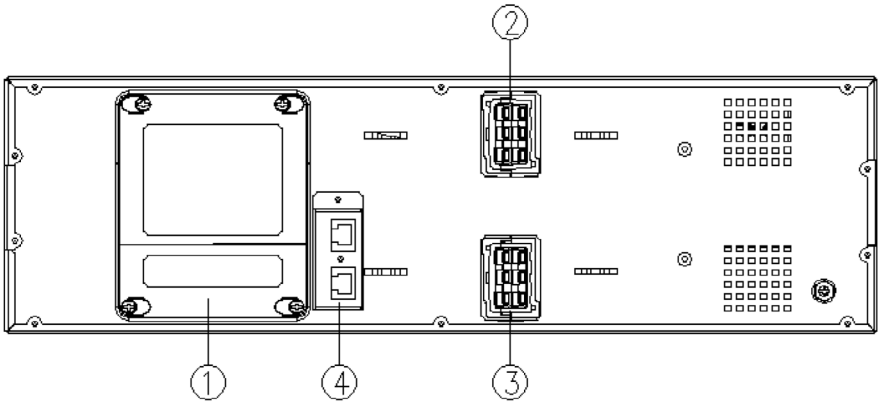
• EBM (Cabinet extern de baterii 3U):



Vedere frontala

1. Zona de eticheta EBM.
2. Eticheta EBM.

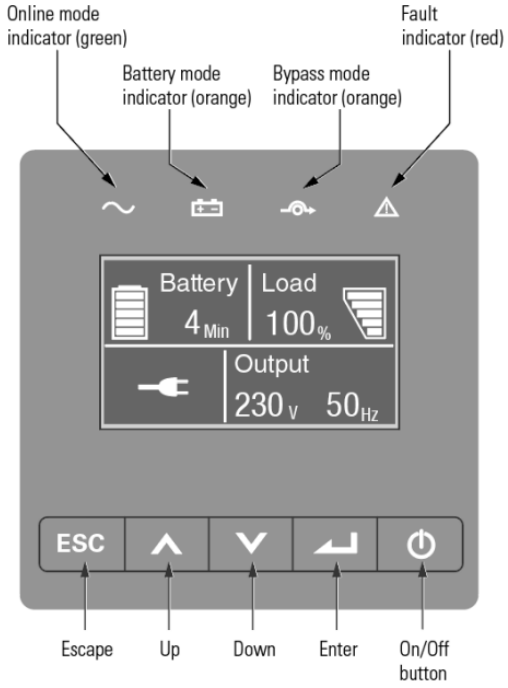
Vedere din spate



1. Siguranta fuzibila
2. Conector EBM
3. Conector EBM
4. Conector RJ45 detectie EBM

Panoul de control LCD

UPS-ul are un ecran LCD grafic cu cinci butoane. Prin panoul de control, UPS-ul ofera informatii utile despre UPS-ul in sine, starea incarcarii, evenimente, masuratori si setari.



The following table shows the indicator status and description:

Indicator	Stare	Descriere
Verde	Pornit	UPS-ul functioneaza normal in modul Online sau in mod de inalta eficienta.
Galben	Pornit	UPS-ul este in modul Baterie.
Galben	Pornit	UPS-ul este in modul Bypass
Rosu	Pornit	UPS-ul are o alarma activa sau o defectiune. Vezi cap. X pentru detalii.

Descrierea butoanelor:

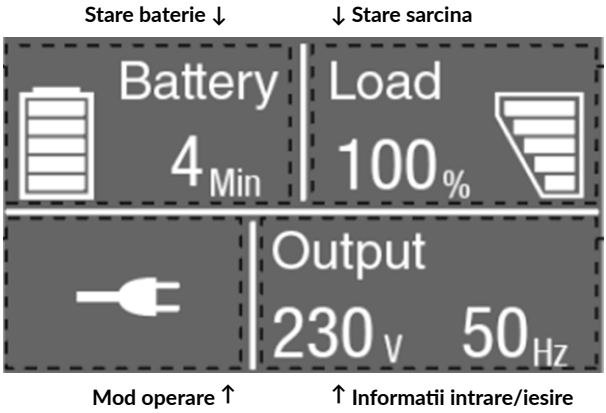
Buton	Functie	Descriere
	Pornire initiala	Apasati butonul timp de sub 100ms si mai putin de 1 sec. pentru pornire initiala cu conditia ca bateria sa fie conectata.
	Pornire UPS	Apasati butonul timp de mai mult de 3 sec. pentru a porni efectiv UPS-ul.
	Oprire UPS	Apasati butonul timp de mai mult de 4 sec pentru a opri efectiv UPS-ul.
	Derulare in sus	Derulare in sus pentru optiunile din meniu
	Derulare in jos	Derulare in jos pentru optiunile din meniu
	Intrare in meniu	Selectati/Confirmati selectia curenta
	Iesire din meniul actual	Apasati pentru a iesi din meniul actual in meniul principal sau pe meniu de nivel superior fara a modifica o setare
	Opreste alarma sonora	Apasati butonul pentru a opri temporar sunetul, odata ce noua avertizare sau eroare este activa, soneria va functiona din nou

Descriere alarme sonore

Alarma	Descriere
1 alarma la fiecare 2 minute	Sarcina alimentata in mod bypass
1 alarma la fiecare 4 secunde	Sarcina alimentata din baterie , cu bateria aproape descarcata alarma la fiecare 1 secunda
1 alarma la fiecare secunda	Alarma generala activa
1 alarma la fiecare secunda	Suprasarcina
Alarma continua	Fault active

Lumina din spate:

Lumina de fundal LCD isi diminueaza intensitatea automat dupa 10 minute de inactivitate. Apasati orice buton pentru a restabili intensitatea luminoasa.



Stare Functionare	Status	Descriere
	Mod Standby	UPS-ul este oprit fara tensiune la iesire.
	Mod Online	UPS-ul functioneaza normal si protejeaza echipamentele conectate.
1 beep la 4 secunde	Mod Baterie	In caz de lipsa tensiune de alimentare UPS-ul alimenteaza echipamentele din baterie. Pregatiti echipamentele pentru oprire.
1 beep la 1 secunde	Mode Baterie cu bateria aproape descarcata	Acest avertisment este aproximativ, iar timpul real pana la oprire poate varia semnificativ.

	Mod Eficienta Inalta	Daca tensiunea de retea lipseste sau este in afara tensiunii acceptate, UPS-ul va functiona in modul Linie sau in modul Baterie si alimenteaza sarcina continuu.
	Mod Convertor	UPS-ul functoineaza cu o frecventa de iesire fixa (S0Hz sau 60Hz}. Sarcina ar trebui sa fie redusa la 60% in modul convertor.
	Mod Bypass	A aparut o suprasarcina sau o defectiune sau a fost primita o comanda, iar UPS-ul este in modul Bypass.
	Test Baterie	UPS executa un test de baterie.
	Baterie Defecta	UPS-ul detecteaza baterie defecta sau baterie deconectata.
	Suprasarcina	Unele sarcini inutile ar trebui deconectate pentru a reduce sarcina.
	Defect	Defect de functionare.
	Mod paralel	UPS-ul functioneaza in modul paralel.

8.4.2 Functii de afisare

Utilizati cele doua butoane (si) pentru a parcurge structura meniului. Apasati butonul Enter ( ) button to select an option. Apasati butonul ESC (ESC) pentru a anula sau a reveni la meniul anterior.

La pornirea UPS-ului, afisajul este in ecranul implicit de rezumat al starii UPS.

Meniu Principal	Submeniu	Afiseaza informatii sau functia din meniu
Stare UPS		Modul UPS, starea IoT, data/ora, starea bateriei si alarmele curente
Jurnal de date		Afiseaza evenimentele si erorile stocate
Masuratori		[Incarcare] W VA A P%, [Intrare/Iesire] V Hz, [Baterie] % min V EBM, [DC Bus] V, [Temperatura] ° C
Control	Load segment	Load segment on/off
	Start battery test(single mode). Single battery test(parallel).	Test baterie in mod nonparalel. Test cu o singura baterie in mod paralel.
	Parallel UPS battery test (single mode).	Porneste un test manual al bateriei in modul paralel
	Single UPS turn off (parallel mode).	Porneste un test manual al bateriei in modul paralel
	Reset fault state	Operati acest UPS pentru a iesi din conexiunea paralela
	Reset event list	Reseteaza lista cu evenimente si erorile stocate
	Reset com card / Reset IoT	Resetati functia IoT si Modbus TCP in UPS
	Reset com card /Reset IoT	Reveniti la setarile implicite din fabrica
Settings		Vezi tabelul **X** pentru detalii
Identification		[Nume produs], [Numarul de serie], [Versiune firmware], [Adresa IP/MAC]

8.4.3 Setari utilizator

Submeniu	Setari disponibile	Setari implicite
Password	Poate fi modificata de utilizator	4732
Language	English, Italiano, Français, Deutsch, Español, Русский, Polski, 简体中文.	English
User password	[Enabled, ****], [Disabled]	Enabled
Audible alarms	[Enabled], [Disabled]	Enabled
Output voltage	[220V], [230V], [240V]	[230V] [240V] for AU
Output frequency	[Autosensing], [converter 50Hz, 60Hz]	Autosensing
High efficiency	[Disabled], [Enabled]	Disabled
Auto bypass	[Disabled], [Enabled]	Enabled
Start/Restart	Cold start: [Disabled], [Enabled] Enabled. Auto restart: [Disabled], [Enabled].	[Enabled]
Site wiring fault	[Disabled], [Enabled]	Disabled]
Overload pre-alarm	[50% ~105%]	105%
External battery	[Auto detection], [Manual EBM: 0~6], [Manual Ah: 0~300Ah]	Auto detection 0 EBM 0 Ah
Charger current	4A pentru Forge MDC 6K-42U	4A pentru Forge MDC 6K-42U
Dry in signal	[Disabled], [Remote on], [Remote off], [Forced bypass].	Disabled
Dry out signal	[Load powered], [On bat], [Low bat], [Bat open], [Bypass], [UPS OK].	Bypass
Ambient temerature alarm	[Enabled], [Disabled	Enabled
Battery remaining time	[Enabled], [Disabled]	Enabled
Date and time	dd/mm/yyyy hh:mm	01/01/2020 00:00
LCD contrast	[0-100%]	50%
Modbus TCP	[Enabled], [Disabled]	Disabled
IoT Enable	[Yes], [No]	No

NOTA!

Daca alimentarea de la utilitate este un sistem IT, functia de eroare a cablajului locatiei ar trebui sa fie dezactivata.

8.5 EBM - RA2011BX Cabinetul de baterii externe

Unitatea EBM gazduieste bateriile necesare functionarii UPS-ului, acesta folosind bateriile pentru a produce tensiune 230V c.a. in situatiile in care tensiunea de la retea lipseste sau e in afara parametrilor normali. Cand tensiunea de retea revine la parametri normali, UPS-ul va incarca bateriile.

Caracteristici tehnice:
Tip baterii: Pb-Acid sau AGM, 12 V / 240Vdc (20 batteries) 151 x 65 x 95mm
Numar de baterii: 20
Spatiu ocupat in rack: 3U

Instalarea bateriilor

1. Scoateti panoul frontal, scoateti capacul superior indepartand suruburile de pe partea de sus, din spate si din lateral, conform Fig 2-1:

Fig 2-1

2. Puneti bateria in sasiu, consultati Fig 2-2:

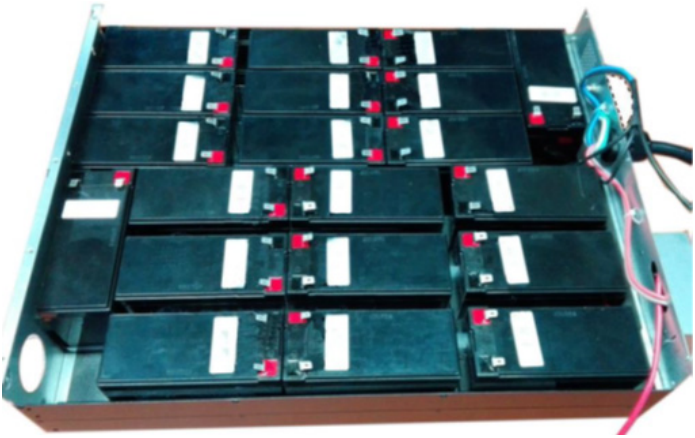


Fig 2-2

3. Conectati bateria cu W11, W12, W13, W14, W15, W16, consultati Fig: 2-3:

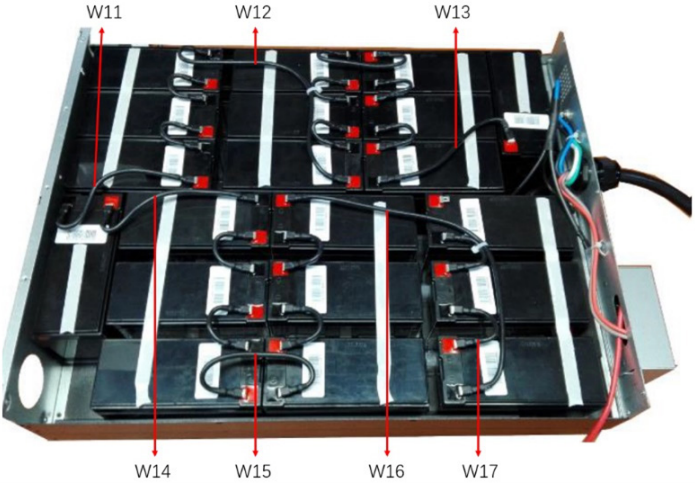


Fig 2-3

4. Instalati capacul din plastic al bateriei si conectati firul bateriei +, apoi conectati firul bateriei - consultati Fig: 2-4:

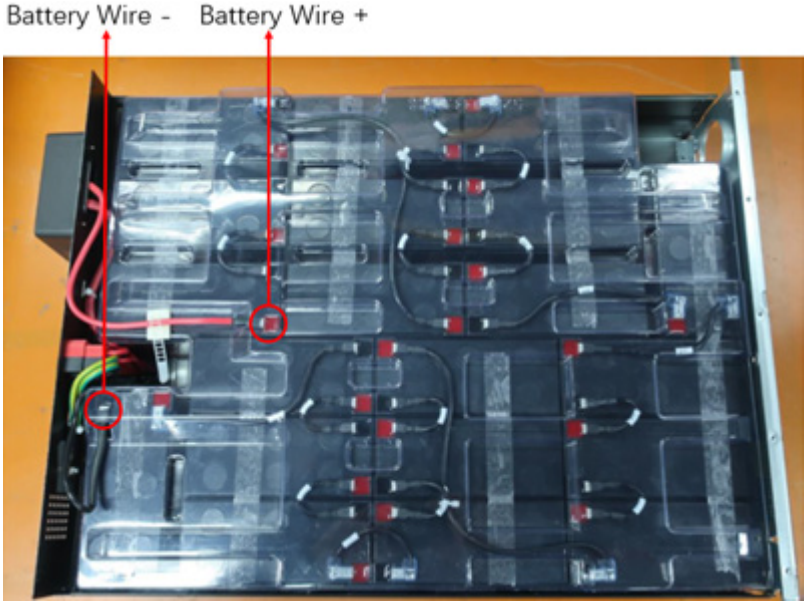
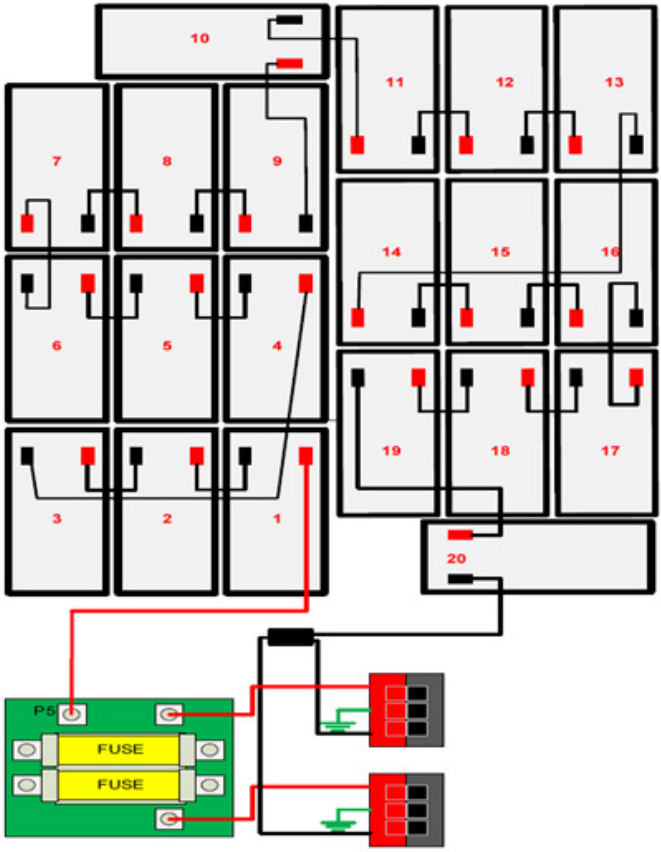


Fig 2-4

5. Instalati capacul superior cu suruburi, consultati Fig: 2-5:

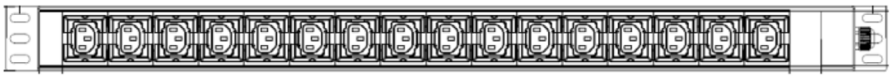
Fig 2-5

Diagrama cablajului intern



8.6 PDU - Power Distribution Unit

Modulul PDU distribuie tensiunea venita de la UPS la echipamentele care sunt instalate in MDC (servere, retelistica, unitati de stocare etc.). Constructiv se prezinta ca o priza multipla echipata 12 prize C13 si 4 prize C19, precum si o siguranta automata de 32A, pozitionata in partea din spate a rack-ului in pozitie verticala. Se alimenteaza din iesirea PDU1 a modulului PDM si se controleaza alimentarea lui din comutatorul PDU1 de pe fata frontala.



8.7 Monitor

Echipat cu un ecran LCD de 10,1 inchi si un software de monitorizare incorporat, monitorul inteligent integrat IVIEWS este potrivit pentru un dulap standard cu un singur rand de dulapuri. Acesta poate fi conectat la dispozitive complete de monitorizare a mediului energetic, inclusiv UPS, unitate de racire, PDM, senzor de temperatura/umiditate, detector de scurgeri de apa si senzori de fum. Software-ul de monitorizare bazat pe structura B/S poate fi afisat local sau la distanta prin web. O interfata standard SNMP northbound este furnizata pentru DCIM sau integrarea sistemelor terte.

Modulul de monitorizare culege toate datele venite de la celelalte module precum si de la senzori, si prin intermediul interfetei grafice instalate se poate configura functionarea MDC-ului sub diferite aspecte (monitorizare, notificari etc.)

Toate conexiunile electrice ale monitorului sunt realizate implicit din fabrica, In interiorul MDC-ului sunt montati mai multi senzori care furnizeaza diverse informatii cu privire la starea diferitelor componente, conditii de mediu (temperatura, umiditate) etc. Astfel se pot monitoriza diversi parametri in vederea imbunatatirii conditiilor de functionare ale echipamentelor, si se vor emite alerte sau notificari in cazul aparitiei unor situatii potential periculoase.

Date tehnice:

Tensiune alimentare: 12V c.c. 5A.

Porturi Data Out (DO): 2, semnal normal deschis sau inchis.

Porturi Data In (DI): 9, pentru UPS Dry Contact, senzori de fum, infrarosu, scurgere lichid, deschidere usi.

Porturi Data Out (DO) alimentate: 4, pentru comanda lumini de alarmare, zavoarele automate de usi, etc.

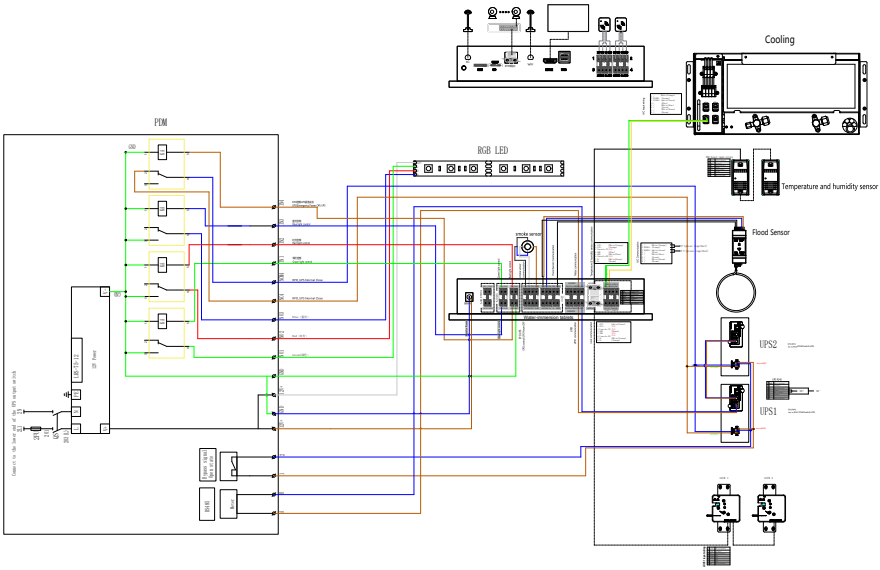
Porturi RS485: 8. Porturile 1 si 2 suporta si RS232. Porturile 3 si 4 au conexiune RJ45.

Porturi USB: 2, tip A. Ofera suport pentru camera USB, flash drive, tastatura si mouse.

Slot MicroSD: 1, suporta max. 64GB.
Slot MicroSIM: 1.
Port Ethernet: 1, RJ45, 100/1000Mbp.s
Port HDMI: 1, pentru display suplimentar.

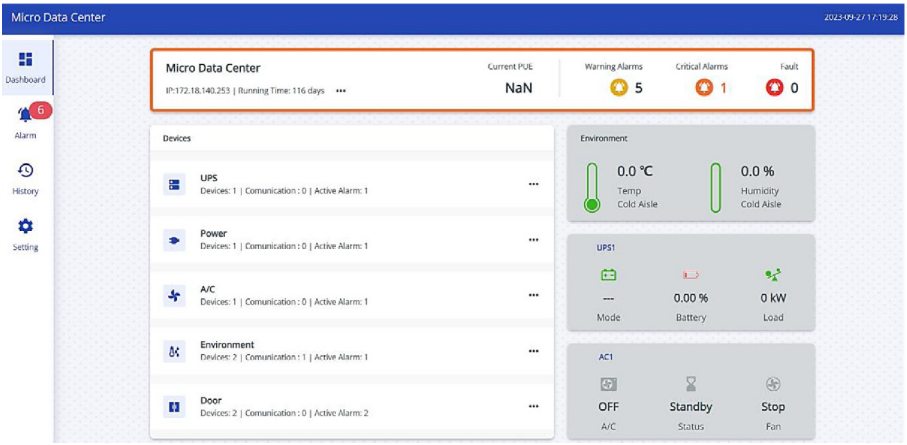
Interfata inferioara

Interfata superioara



8.8 HMI - Human Machine Interface

HMI usor de utilizat (ecran tactil LCD de 10,1 inchi) este echipat pe usa din fata a cabinetului, dupa cum se arata in figura urmatoare.

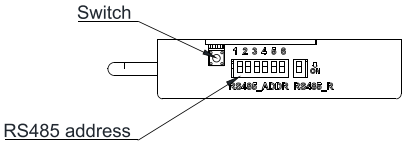


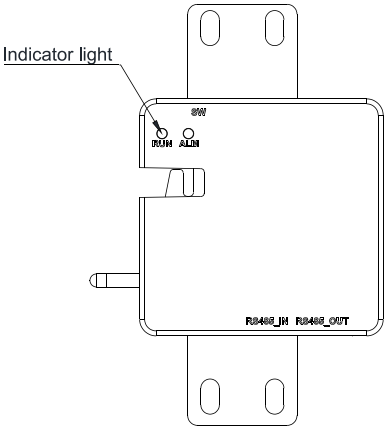
8.9 Senzori

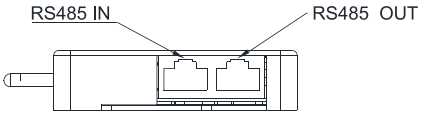
Sistemul integrat de monitorizare poate controla usile dulapurilor si monitoriza starea de functionare a unitatilor de racire si a UPS-urilor, parametrii de putere de intrare si parametrii de mediu, cum ar fi temperatura aerului de intrare si de iesire din dulap si starea usilor, scurgerile de apa, fumul si incendiile.Un senzor de temperatura si umiditate este instalat In partea frontala a fiecarui dulap IT, un senzor de fum este instalat In partea superioara a partii din spate a dulapului unitatii de racire, iar un detector de scurgeri de apa este instalat In partea inferioara a partii din spate a dulapului unitatii de racire.Urmatoarele figuri prezinta senzorii.

In interiorul MDC-ului sunt montati mai multi senzori care furnizeaza diverse informatii cu privire la starea diferitelor componente, conditii de mediu (temperatura, umiditate) etc. Astfel se pot monitoriza diversi parametri in vederea imbunatatirii conditiilor de functionare ale echipamentelor, si se vor emite alerte sau notificari in cazul aparitiei unor situatii potential periculoase.

A. Zavor electronic DS635-6







Ambele usi (fata / spate) a rack-ului sunt echipate cu zavoare electronice. Acestea pot fi actionate fie manual (cheie) fie automat prin unitatea / aplicatia de monitorizare sau la aparitia de situatii care impun acest lucru (fum). De asemenea, aceste zavoare semnalizeaza starea de inchis / deschis a usilor.

Caracteristici tehnice:

Tensiune alimentare: 9 – 16V c.c.

Putere consumata: <1.6W

Interfata comunicatie: RS485

Semnalizare stare: LED verde / LED rosu

B. Senzor de temperatura si umiditate

Acest senzor monitorizeaza si comunica informatii despre temperatura si umiditatea din MDC.

Date tehnice:

Tensiune alimentare: 12V c.c.

Putere consumata: <1.6W

Comunicatii: RS485

Semnalizare stare: LED verde / rosu intermitent

C. Senzor de fum

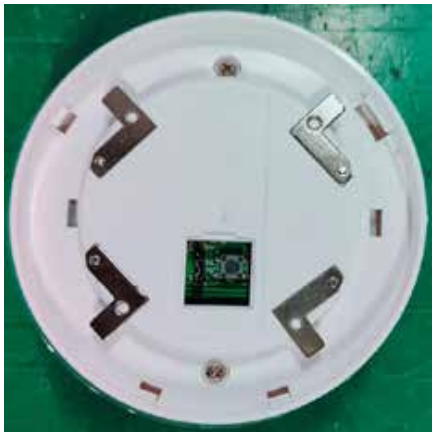
Caracteristici tehnice:

Tensiune de alimentare: 9 – 35V c.c.

Curent de repaus: 12mA.

Semnalizare stare: LED Rosu.

Conexiuni: 1-2 alimentare, 3-4 semnal alarma.



D. Senzor de scurgere

Caracteristici tehnice

Tensiune alimentare: 12V c.c.

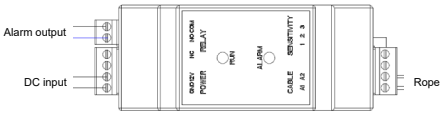
Timp de raspuns: <2s

Lungime fir senzor: 5m

Semnalizare stare: LED verde / rosu

Lungimea firului senzorului: 5

Semnalizare stare: verde / rosu



9 Intretinere

⚠ ATENŢIE

• Intretinerea sistemului trebuie efectuata de personal tehnic si profesional autorizat.

• Toata intretinerea trebuie sa fie supusa legilor si reglementarilor locale privind electricitatea, racirea si productia. In caz contrar, nu se va acorda nicio garantie.

• Piesele necorespunzatoare pot cauza degradarea sau deteriorarea MDC. Se recomanda utilizarea pieselor originale atunci cand este necesara o inlocuire.

9.1 Intretinerea periodica a sistemului de distributie a energiei electrice

9.1.1 Curatarea periodica

Curatati regulat gurile de aerisire din partea din fata si din spate a UPS-ului pentru a mentine fluxul de aer in interiorul UPS-ului fara obstructii si confirmati ca nimic nu obstructioneaza ventilatia UPS-ului.

9.1.2 Intretinerea ventilatorului

Cu UPS-ul, verificati la fiecare sase luni daca toate ventilatoarele functioneaza corect (utilizatorii trebuie sa verifice daca ventilatoarele se rotesc si daca exista o informatie privind eroarea ventilatorului pe ecranul LCD al panoului UPS) si Inlocuiti prompt ventilatoarele defecte.

9.1.3 Intretinerea bateriei

Daca UPS-ul este echipat cu baterie, bateria trebuie intretinuta in mod regulat. Retineti ca:

• Durata de viata a bateriei este afectata In mare masura de temperatura ambientala, iar temperatura mediului trebuie mentinuta Intre 15°C si 25°C.

• Atunci cand bateria nu este utilizata pentru o perioada lunga de timp (mai mult de trei luni), aceasta trebuie sa fie Incarcata o data la trei luni timp de cel putin 10 ore.

• Daca constatati ca timpul de rezerva al bateriei este scurt, contactati furnizorul In timp util pentru a stabili daca bateria trebuie Inlocuita.

• Utilizati aceeasi marca si acelasi model pentru Inlocuirea bateriei. Daca doriti sa Inlocuiti cu o alta marca sau model, consultati serviciul nostru pentru clienti.

9.1.4 Verificati starea UPS-ului

Efectuati verificari regulate ale starii UPS-ului, inclusiv:

• Verificati daca lumina de defectiune a UPS-ului este aprinsa si daca este generata o alarma de defectiune.

• Verificati daca UPS-ul functioneaza In modul bypass. In conditii normale, UPS-ul va functiona In modul online. Daca UPS-ul functioneaza Intr-un mod bypass, confirmati cauza.

Cauzele posibile pot include:

– Comutare manuala.
– Suprasarcina UPS.
– Eroare UPS.

• Verificati daca bateria este In stare de descarcare electrica. In conditii normale cu alimentare de la retea, bateria nu ar trebui sa se descarce. Daca UPS-ul functioneaza In modul de descarcare a bateriei, confirmati cauza.

Cauzele posibile pot include:

- Intreruperea alimentarii de la retea.
- Comutare manuala.
- Testul bateriei.
- Defectiune UPS.

9.2 Intretinerea periodica a sistemului de racire

Perioadele de Intretinere recomandate ale sistemului de racire sunt enumerate In tabelul urmator.

Clasificare	Piese	Lunar	Trimestrial	Semestrial	Anual
Refrigerant circuit	Presiune ridicata/presiune scazuta	✔	☐	☐	☐
	Sistem de conducte	☐	☐	✔	☐
Air circuit	Ventilator interior	☐	☐	☐	✔
	Filtru	☐	✔	☐	☐
	Condensator si ventilator exterior	☐	☐	✔	☐
Conducta de apa	Conducta de scurgere	✔	☐	☐	☐
Intretinere generala	Conexiune electrica	☐	☐	☐	✔
	Fixare structurala	☐	☐	☐	✔

Filtrul trebuie curatat la fiecare trei luni. Pentru detalii despre cum sa scoateti si sa instalati filtrul, consultati 9.2.1 Inlocuirea unui filtru al unitatii de racire.

NOTA!

Pentru mai multe informatii, contactati personalul nostru de service.

9.3 Intretinerea periodica a sistemului de monitorizare

Intretinerea periodica a sistemului de monitorizare. Se recomanda verificarea periodica a starii de functionare a modulului de monitorizare si a senzorilor. Aceasta include urmatorii pasi:

Pasul 1 Verificati daca alarmele sunt raportate pe pagina de alarme. Daca da, verificati dispozitivul corespunzator pentru a sterge alarma.

Pasul 2 Verificati daca informatiile precum starea de functionare a UPS, starea de functionare a unitatii de racire, mediul si parametrii de functionare sunt afisate corect pe HMI.

Pasul 3 Verificati daca parametrii de intrare si iesire, bateria si alti parametri ai UPS sunt afisati In mod normal pe pagina UPS.

Pasul 4 Verificati daca temperatura si umiditatea aerului de intrare si iesire de pe pagina A/C sunt afisate normal si daca apare o alarma de supraIncalzire. Daca este raportata o alarma, localizati si remediati cauza pentru a sterge alarma.

Pasul 5 Verificati daca pe pagina Environment sunt afisate alarme de scurgere de apa, fum si alte alarme. Daca da, localizati si remediati cauza pentru a sterge alarma.

Pasul 6 Verificati daca alarmele de control al accesului sunt afisate pe pagina Usa. Daca da, localizati si remediati cauza pentru a elimina alarma.

Pasul 7 Verificati daca senzorul de temperatura este conectat In siguranta la dulap.

Pasul 8 Verificati daca locatia senzorului de scurgere a apei este mutata.

Pasul 9 Verificati daca senzorul de fum functioneaza normal si daca interfata functioneaza normal.

Pasul 10 Verificati daca Incuietorile electronice ale usilor pot fi deschise In mod normal.

10 Depanarea

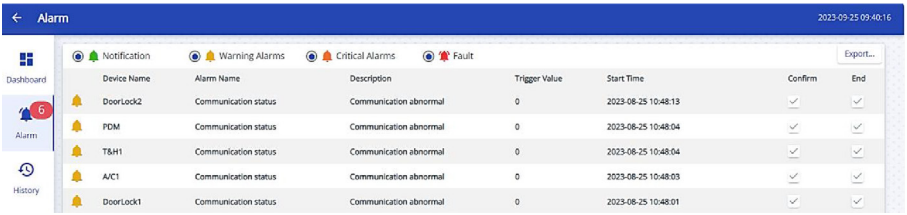
Puteti verifica alarmele si defectiunile pe HMI. Acest capitol descrie unele alarme si solutiile corespunzatoare pentru inspectia si depanarea dumneavoastra. Daca problema persista, contactati centrul nostru de servicii pentru clienti.

10.1 Alarme si solutii

Daca trebuie sa raportati bug-uri, erori sau probleme centrului nostru de servicii pentru clienti, va rugam sa notati si sa raportati urmatoarele informatii:

- Numerele de serie ale modulului de monitorizare, ale UPS-ului si ale unitatii de racire.
- Data incidentului
- Descrierea completa a problemei

Pentru a verifica alarmele pe HMI, consultati sectiunea 7.2 pentru a va conecta la sistem si atingeti Alarma in bara de meniu din stanga.



Consultati tabelul urmator pentru defectiuni frecvente si solutii posibile.Dupa remedierea defectiunilor, alarmele vor fi sterse automat, iar MDC va continua sa functioneze corect.

Alarma	Cauza posibila	Solutia
System overload	Sarcina depaseste intervalul permis	Reduceti sarcina
Door ban alarm	Usa dulapului nu este inchisa corespunzator.	Verificati si inchideti usa dulapului.
	Incuietoarea usii nu este conectata corect.	Conectati corect incuietoarea usii.
	Usa este deschisa din cauza temperaturii ridicate a prizei de aer.	Localizati si remediati cauza si inchideti usa manual.
Water leakage detector alarm	Se produc scurgeri in teava de scurgere a unitatii de racire sau in partea de conectare.	Reparati teava de scurgere sau interfata unitatii de racire.
	Detectorul de scurgeri de apa este scurtcircuitat.	Localizati si remediati cauza.
	Alarma de scurgere a apei nu este eliminata.	Dupa ce scurgerea este eliminata, stergeti manual alarma de pe panoul de operare al unitatii de racire.
Smoke sensor alarm	The load is damaged, which generates smoke.	Reparati incarcatura.
	Se produce fum in sala masinilor.	Eliminati sursa de fum din sala masinilor.
	Senzorul de fum este defect si genereaza alarma din greseala.	Consultati 10.2.5 Inlocuiti un senzor de fum.
High temperature at the air inlet of the cabinet	Puterea sarcinii depaseste specificatiile.	Reduceti sau echilibrati incarcatura dulapului.
	Nu exista niciun scut instalat in piesele de schimb ale dulapului.	Asamblati scutul in piesele de schimb ale dulapului.

Alarm	Possible cause	Solution
High humidity in hot chamber	Umiditatea ambientala este prea mare.	Reduce the ambient humidity.
	Camera serverelor nu este bine etansata.	Etansati camera serverelor in mod corespunzator.
	Exista un umidificator in sala serverelor.	Opriti umidificatorul din camera serverelor.
	Pragul de alarma de umiditate ridicata a aerului returnat de unitatea de racire este setat prea jos.	Cresteti pragul de alarma de umiditate ridicata (80% implicit) al unitatii de racire.
Cooling unit's air supply temperature too high	Sistemul este supraincarcat.	Reduceti incarcarea sistemului.
	Pragul de alarma pentru temperatura ridicata a aerului de retur al unitatii de racire este setat la o valoare scazuta.	Cresteti pragul de alarma de temperatura ridicata (35°C in mod implicit) al iesirii unitatii de racire.
	Temperatura de iesire a aerului din unitatea de racire este setata la o valoare ridicata.	Reduceti valoarea temperaturii de iesire a aerului (22°C implicit, alte valori nu sunt recomandate).
Cooling unit's air supply temperature too low	Temperatura ambientala este prea scazuta.	Porniti incarcaturile pentru a incalzi camera serverului inainte de a porni unitatea de racire.
	Camera serverului nu este bine etansata.	Etansati camera serverului.
Abnormal communication with the UPS	Cablul de comunicare al UPS-ului nu este conectat corect.	Verificati interfetele de comunicare de la ambele capete ale modulului de monitorizare si UPS si conectati corect cablul de comunicare.
Abnormal communication with the cooling unit	Cablul de comunicare al unitatii de racire nu este conectat corect.	Verificati interfetele de comunicare la ambele capete ale modulului de monitorizare si ale unitatii de racire si conectati corect cablul de comunicare.
Abnormal communication with the temperature and humidity sensor	Senzorul de temperatura si umiditate nu este conectat corect.	Verificati si conectati corect senzorul de temperatura si umiditate.
	Adresa senzorului de temperatura si umiditate este setata incorect.	Verificati si setati corect comutatorul DIP al senzorului de temperatura si umiditate.
Abnormal communication with the door lock	Incuietoarea usii nu este conectata corect.	Verificati si conectati corect incuietoarea usii.
	Adresa incuietorii usii este setata incorect.	Verificati si setati corect comutatorul DIP al incuietorii usii.

10.2 Alarme si defectiuni tipice

Pentru a consulta raportul de evenimente:
1. Apasand butonul ↵ in meniul “Event log”.
2. Deruleaza prin evenimentele sau erorile listate.
3. Urmatorul tabel descrie conditiile tipice.

AVERTIZARI		
Stare	**Cauze posibile**	**Solutii**
On Maintain Bypass	Intrerupatorul de bypass este cuplat	Verifica starea intrerupatorului de bypass
Site Wiring Site Wiring alarm	Cablul de faza faza si cablul neutru la intrarea sistemului UPS sunt inversate	Inversati cablarea retelei de alimentare
No battery	Bateriile nu sunt conectate corect	Faceti testul bateriei pentru a confirma. Verificati daca bateriile sunt este conectate corect la UPS. Verificati daca intrerupatorul bateriei este pornit sau daca siguranta este OK.
Battery low	Tensiunea bateriei este scazuta	Cand alarma sonora suna la fiecare secunda, bateria este aproapedescarcata.
End battery life	Bateria a ajuns la sfarsitul duratei de viata	Consultati distribuitorul pentru a inlocui bateria
Power overload	Cerintele de alimentare depasesc capacitatea UPS-ului	Verificati sarcinile si indepartati unele sarcini necritice. Verificati daca unele sarcini nu sunt defecte
Overload pre-alarm	Sarcina depaseste valoarea prestabilita	Verificati sarcinile sau resetati valoarea de pre-alarma
Fan Lock	Ventilatorul nu functioneaza corect sau deloc.	Verificati daca ventilatorul functioneaza normal sau daca cablul de detectare a ventilatorului este deconectat
UPS temp. alarm	Temperatura interioara a UPS-ului este prea ridicata	Verificati ventilatia UPS-ului si mediul ambiant ambientala.
Amb. temp. alarm	Temperatura mediului ambiant este prea mare	Verificati ventilatia mediului ambiant
Imminent shutoff	Timp foarte scurt ramas de backup al bateriei	Protejati sarcina la timp
DEFECTE		
Problema afisata	**Cauze Posibile**	**Solutii**
Inverter overload	Suprasarcina	Verificati sarcina si deconectati unele sarcini necritice. Verificati daca unele sarcini nu sunt defecte.
Bypass overload	Suprasarcina	Verificati sarcina si deconectati unele sarcini necritice. Verificati daca unele sarcini nu sunt defecte.

Out. short circuit	Rezistenta anormal de scazuta detectata pe iesirea sa si il considera un scurtcircuit	Deconectati toate sarcinile. Opriti UPS-ul. Verificati daca iesirea din UPS si sarcinile sunt scurtcircuitate. Asigurati-va ca scurtcircuitul este eliminat inainte de a porni din nou.
UPS temp. fault	Temperatura interioara a UPS-ului este prea ridicata	Verificati ventilatia UPS-ului si temperatura ambianta.
DC bus + or - too high	Defectiune interna UPS, tensiunea + sau - DC BUS este prea mare	Contactati furnizorul
DC bus + or - too low	Defectiune interna UPS, tensiunea + sau - DC BUS este prea mare	Contactati furnizorul
DC bus unbalanced	Defectiune interna UPS, diferenta de tensiune intre DC Bus+ si DC Bus- este prea mare	Contactati furnizorul
DC bus short circ	Defectiune interna UPS	Contactati furnizorul
Max inverter volt	Defectiune interna UPS, tensiunea invertorului este prea mare	Contactati furnizorul
Min inverter volt	Defectiune interna UPS, tensiunea invertorului este prea mica	Contactati furnizorul
ALTE CAZURI		
Problem Displayed	**Possible cause**	**Remedy**
Ecranul LCD nu afiseaza nimic, nici un sunet de avertizare, chiar daca sistemul este conectat la sursa de alimentare	Nu se alimenteaza cu tensiune	Verificati cablul de intrare si sigurantele de la panoul electric al cladirii Verificati daca intrerupatorul de intrare este oprit
LED-ul verde nu este aprins chiar daca sursa de alimentare este disponibila	UPS-ul nu este pornit.	Apasati butonul On/Off pentru a porni UPS-ul
Perioada de functionare in mod baterie mai mica decat valoarea obisnuita.	Bateriile nu sunt complet incarcate sau bateriile sunt defecte	Incarcati bateriile timp de cel putin 12 ore si apoi verificati daca timpul de backup a revenit la parametrii normali

Comunicare A/C anormala pentru unitatea de racire

Comunicare anormala intre unitatea de racire si HMI: Adresa implicita din fabrica a unitatii de racire este 1, daca adresa unitatii de racire este schimbata la alta, aceasta va provoca o comunicare anormala.

Verificati inregistrarile istorice de functionare pentru a confirma care adresa este modificata, apoi setati adresa unitatii de racire la adresa modificata setand.

Interval de presiune de functionare pentru unitatea de racire -- Cei doi parametri cei mai importanti pentru a evalua daca starea unitatii de racire este normala.

Presiune inalta (presiune de condensare): 22 ~ 30 bar (afectata de mediu).
Presiune joasa (presiune de evaporare): 8 ~ 12 bar (afectata de sarcina)
Supraincalzire: 2 ~ 15 °C.

Daca presiunea este prea mare, aceasta se datoreaza, in general, unei slabe disipari a caldurii pe partea de condensare, cum ar fi defectiunea ventilatorului exterior, incarcarea excesiva a agentului frigorific etc.

Daca presiunea este prea scazuta, aceasta se datoreaza, in general, unei slabe disipari a caldurii pe partea de evaporare, cum ar fi defectiunea ventilatorului interior, incarcare insuficienta de agent frigorific, scurgeri de conducte de cupru etc.

Daca sarcina initiala a clientului este relativ scazuta, valoarea de setare a temperaturii aerului de retur poate fi redusa in mod corespunzator, dar nu poate fi mai mica de 25°C, iar dulapul este usor de alarma de umiditate ridicata.

Faceti clic pe „Setarea temperaturii aerului de retur" → schimbati valoarea temperaturii → Faceti clic pe „Trimitere".

10.2.1 Inlocuirea pieselor comune

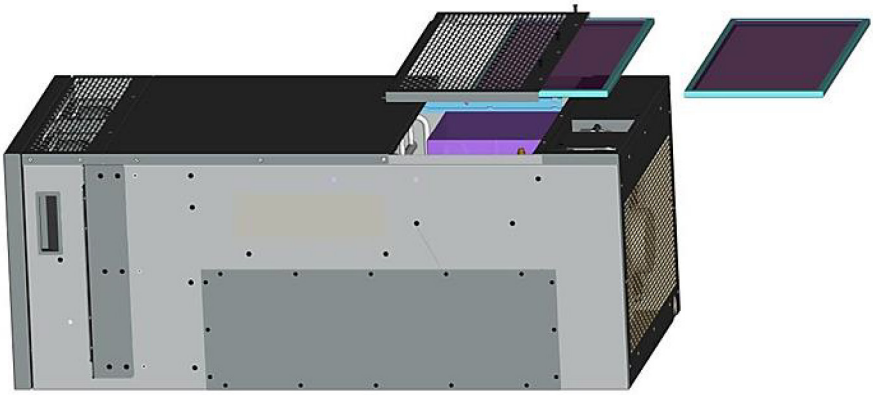
Daca o piesa comuna este deteriorata, o puteti inlocui singur urmand descrierea din sectiunile urmatoare. Componentele originale sunt recomandate pentru inlocuire.

10.2.2 Inlocuirea unui filtru al unitatii de racire

Pasul 1 Slabiti suruburile de pe panoul de acoperire superior si scoateti panoul de acoperire.

Pasul 2 Scoateti filtrul si inlocuiti-l cu unul nou.

Pasul 3 Instalati panoul de acoperire superior prin fixarea suruburilor de pe acesta.



10.2.3 Inlocuirea unui senzor de temperatura si umiditate

Senzorul de temperatura si umiditate este instalat in culoarul rece, in fata dulapului. Senzorul de temperatura si umiditate este atasat magnetic la placa metalica, fara suruburi.

Acesta poate fi inlocuit la cald.

Pentru a inlocui un senzor de temperatura si umiditate:

Pasul 1 Deconectati cablul de retea conectat la senzorul de temperatura si umiditate si scoateti senzorul.

Pasul 2 Conectati cablul de retea la noul senzor de temperatura si umiditate si fixati senzorul pe tabla.

10.2.4 Inlocuirea unui detector de scurgeri de apa

Detectorul de scurgeri de apa este amplasat in partea inferioara a sinei din spate a dulapului principal. Atunci cand il dezasamblati, apasati in jos pe catarama sinei.

Pentru a inlocui un detector de scurgeri de apa:

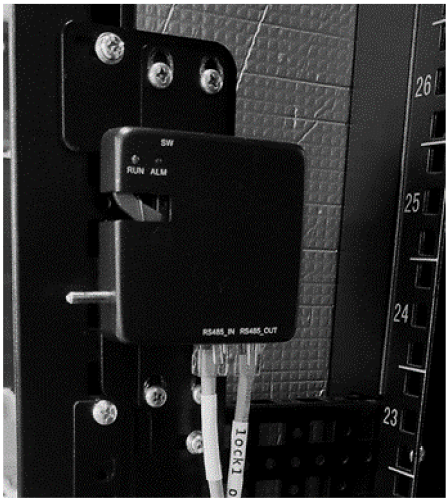
Pasul 1 Deconectati terminalul conectat la detectorul de scurgeri de apa.

Pasul 2 Apasati in jos catarama sinei pentru a scoate detectorul de scurgeri de apa.

Pasul 3 Apasati in jos catarama sinei si instalati noul detector de scurgeri de apa, apoi conectati terminalul la acesta.

10.2.5 Inlocuirea unei incuietori electronice a usii

Incuietoarele electronice sunt instalate pe usile din fata si din spate cu suruburi Pozidriv. In kitul de accesorii este prevazuta o cheie dedicata pentru demontarea si fixarea acestora.



Pentru a inlocui o incuietoare electronica a usii:

Pasul 1 Deconectati cablurile de retea conectate la incuietoarea usii.

Pasul 2 Slabiti suruburile de fixare ale incuietorii usii.

Pasul 3 Inlocuiti incuietoarea originala a usii cu una noua, reglati-i pozitia si fixati-o cu suruburi.

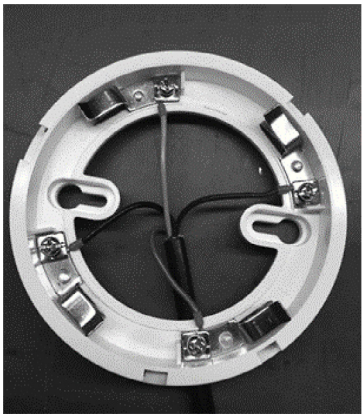
Pasul 4 Conectati cablurile de retea cu noua incuietoare.

NOTA!

Verificati etichetele cablurilor pentru a va asigura ca acestea sunt conectate corect.

10.2.6 Inlocuirea unui senzor de fum

Senzorul de fum este instalat in interiorul partii superioare a dulapului. Acesta este format dintr-o baza de cablare si un corp al senzorului.



Pentru a inlocui un corp al senzorului de fum:

Pasul 1 Rotiti corpul senzorului de fum cu 30° in sens antiorar, in directia sagetii indicate pe corpul senzorului, pentru a-l scoate din baza.

Pasul 2 Montati un corp nou al senzorului de fum la baza si rotiti-l in sensul acelor de ceasornic pentru a-l fixa.

To replace a smoke sensor base:

Pasul 1 Slabiti suruburile de pe baza pentru a deconecta cablurile si scoateti baza.

Pasul 2 Conectati cablurile la o noua baza a senzorului facand referire la etichetele cablurilor si fixati suruburile.

Daca indicatorul de pe senzorul de fum clipeste in verde la fiecare 9 secunde, senzorul de fum este instalat cu succes.

10.2.7 Inlocuirea luminilor de iluminare

Luminile sunt instalate pe partea superioara a dulapului si fixate cu pini de blocare.

Pentru a inlocui lumina de iluminare:

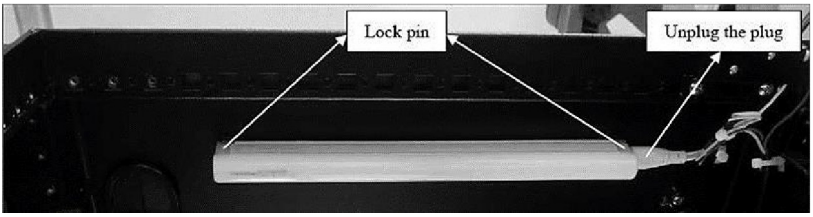
Pasul 1 Deconectati fisa de alimentare de la PDU.

Pasul 2 Deconectati fisa de alimentare de pe lumina.

Pasul 3 Inlocuiti lumina de iluminare cu una noua.

Step 4 Conectati fisa de alimentare la lumina.

Step 5 Conectati fisa de alimentare la PDU pentru a-l porni.



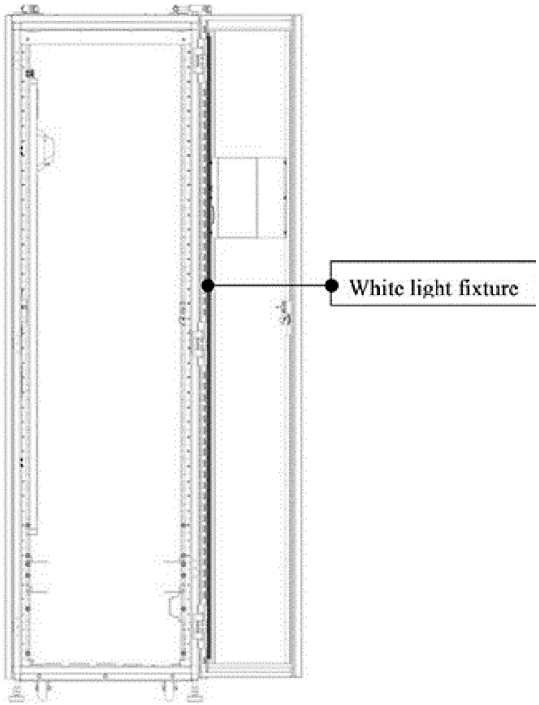
10.2.8 Inlocuirea luminilor ambientale

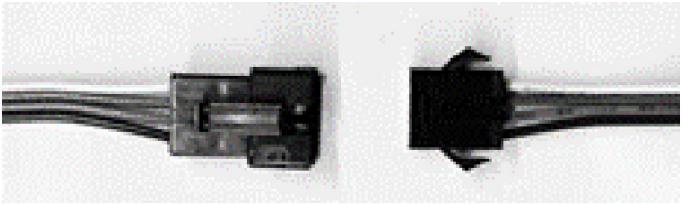
Luminile ambientale sunt instalate intr-un corp de iluminat alb pe partea dreapta din interiorul usii din fata a dulapului. Toate luminile sunt interschimbabile la cald.

Pasul 1 Indepartati placa de acoperire a luminii.

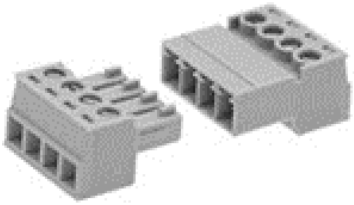
Pasul 2 Indepartati capacul gazdei de monitorizare din interiorul usii din fata.

Pasul 3 Deconectati perechile de fise ale luminii ambientale.





Perechi de prize pentru dulap IT



Mufe pentru dulapul unic si dulapul principal in sistemul cu mai multe dulapuri

Pasul 4 Remove the ambient lights and cables and replace them with the new ones.

Pasul 5 Conectati perechea de prize si instalati capacele.

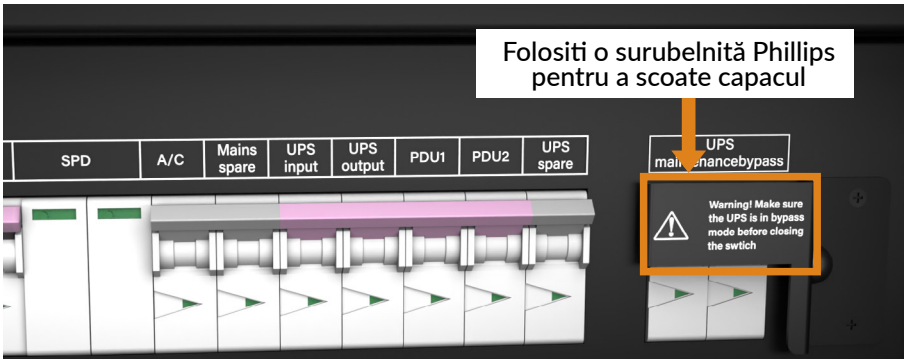
10.2.9 Inlocuiti UPS-ul

NOTA!

Inlocuirea UPS-ului nu poate intrerupe alimentarea cu energie a sarcinilor backend.

In acest caz a fost utilizat un UPS generic pentru a afisa exemplul in aceasta sectiune. Pasii de inlocuire pentru alte tipuri de UPS sunt similari.

Pasul 1 Pastrati toate comutatoarele stationare si utilizati o surubelnita Phillips pentru a indeparta capacul bypass de intretinere de pe PDM..



English

Română

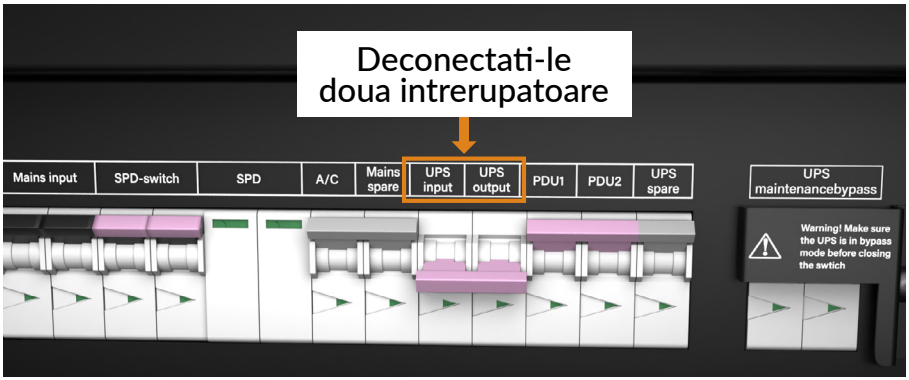
Pasul 2 Verificati UPS-ul prin indicator sau HMI pentru a vedea daca UPS-ul a trecut in modul bypass.

NOTA!

Acest pas nu poate fi sarit. Daca UPS-ul nu functioneaza in modul bypass, opriti operatiunea si remediati cauza. In caz contrar, UPS-ul poate fi deteriorat.

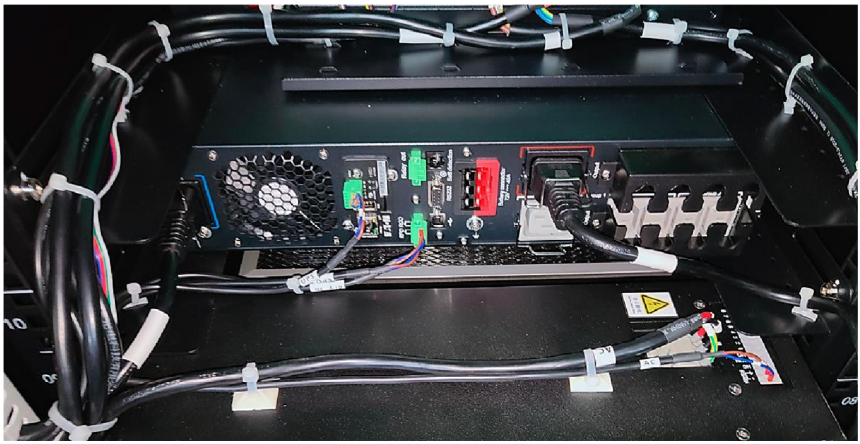
Pasul 3 Inchideti comutatorul de bypass pentru intretinerea UPS de pe PDM. Acest comutator este expus dupa ce capacul este indepartat.

Pasul 4 Deconectati comutatorul de iesire UPS de pe PDM si comutatorul de intrare UPS.



Pasul 5 Apasati butonul de oprire UPS pentru a opri UPS-ul.

Pasul 6 Scoateti cablurile de intrare si iesire si alte cabluri de semnal din partea din spate a UPS-ului, impachetati-le scurt si apoi scoateti UPS-ul.



Pasul 7 Instalati un UPS nou, conectati cablurile de intrare si iesire si cablurile de semnal in conformitate cu marcajele cablurilor din spate si readuceti cablajul din spate la starea initiala.

Pasul 8 Inchideti comutatorul de intrare UPS de pe PDM, apoi porniti UPS-ul.

Pasul 9 Verificati daca UPS-ul functioneaza in starea de bypass.

NOTA!
Acest pas nu poate fi sarit. Daca UPS-ul nu functioneaza in modul bypass, opriti operatiunea si remediati cauza. In caz contrar, UPS-ul poate fi deteriorat.

Pasul 10 Inchideti comutatorul de iesire al UPS.

Pasul 11 Deconectati comutatorul de bypass al panoului PDM si instalati capacul.

10.2.10 Inlocuiti componentele interne ale PDM

10.2.10.1 Inlocuirea modulului DC

In aceasta sectiune, inlocuirea modulului DC este descrisa cu PDM-6K ca exemplu.

Pasii de inlocuire pentru alte modele sunt similari.

NOTA!
Inlocuirea modulului DC nu necesita deconectarea sursei principale de alimentare, iar echipamentul back-end al clientului continua sa functioneze normal.

Pentru a inlocui modulul DC:

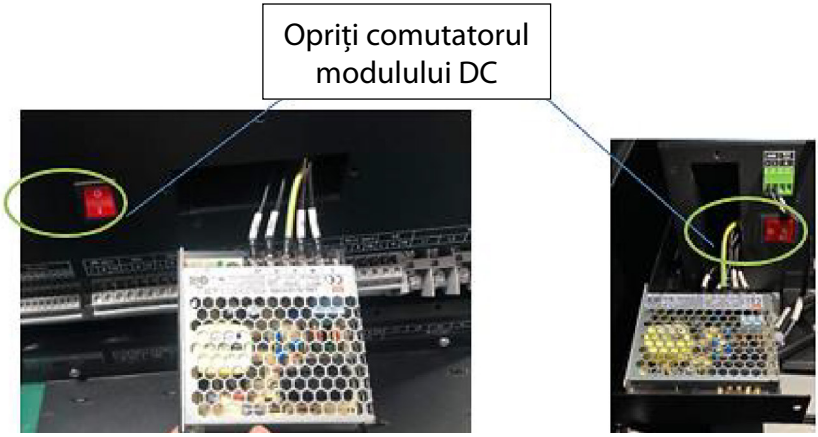


Figura exemplu

Pasul 1 Opriti comutatorul modulului DC.

Pasul 2 Slabiti suruburile care fixeaza modulul DC.

Pasul 3 Scoateti modulul DC si deconectati cablurile.

Pasul 4 Conectati cablurile cu un modul DC nou.

Pasul 5 Introduceti PDM si fixati suruburile pe acesta.

Pasul 6 Porniti comutatorul modulului DC.
Daca MDC este pornit cu succes, comutatorul modulului DC este inlocuit cu succes.

10.2.10.2 Inlocuirea unui comutator PDM

⚠ ATENŢIE

Inainte de a inlocui un comutator PDM, deconectati sursa de alimentare principala si sursa de alimentare de intrare a PDM pentru a evita socurile electronice.

Pentru a inlocui un comutator PDM:

Pasul 1 Deconectati sursa de alimentare principala si sursa de alimentare de intrare a PDM.

Pasul 2 Scoateti panoul frontal. Deconectati cablurile de pe comutator si deschideti catarama pentru a scoate comutatorul.

Pasul 3 Conectati cablurile la noul comutator facand referire la conexiunea originala a cablurilor.

Pasul 4 Instalati panoul frontal si conectati din nou sursa de alimentare.

A Acronime si abrevieri

Abrevieri/acronime	Forma intreaga
HMI	interfata de acces
MDC	micro data center
PDU	unitate de distributie a energiei
PDM	modul de distributie a energiei
PUE	consumul de energie eficienta
UPS	sursa de alimentare neintreruptibila