

**FusionDC1000A Prefabricated All-in-One Data
Center
V100R021C10**

**Commissioning Guide (ICT
Scenario)**

Issue 01
Date 2021-07-21



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About This Document

Purpose

This document describes how to power on and commission the FusionDC1000A prefabricated all-in-one data center solution (FusionDC1000 for short) in terms of safety precautions, preparations, power-on check, power-on commissioning, joint commissioning, power-off, and core device commissioning. It provides you a quick grasp of how to commission the prefabricated all-in-one data center.

Intended Audience

This document is intended for:

- Maintenance engineers
- Technical support engineers
- System engineers
- Commissioning engineers

Symbol Conventions

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

Symbol	Description
	Indicates a hazard with a high level of risk which, if not avoided, will result in death or serious injury.
	Indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Indicates a hazard with a low level of risk which, if not avoided, could result in minor or moderate injury.

Symbol	Description
 NOTICE	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance deterioration, or unanticipated results. NOTICE is used to address practices not related to personal injury.
 NOTE	Supplements the important information in the main text. NOTE is used to address information not related to personal injury, equipment damage, and environment deterioration.

Change History

Changes between document issues are cumulative. The latest document issue contains all the changes made in earlier issues.

Issue 01 (2021-07-21)

This issue is the first official release.

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1 Safety Information

1.1 General Safety

Statement

Before installing, operating, and maintaining the equipment, read this document and observe all the safety instructions on the equipment and in this document.

The "NOTICE", "CAUTION", "WARNING", and "DANGER" statements in this document do not cover all the safety instructions. They are only supplements to the safety instructions. Huawei will not be liable for any consequence caused by the violation of general safety requirements or design, production, and usage safety standards.

Ensure that the equipment is used in environments that meet its design specifications. Otherwise, the equipment may become faulty, and the resulting equipment malfunction, component damage, personal injuries, or property damage are not covered under the warranty.

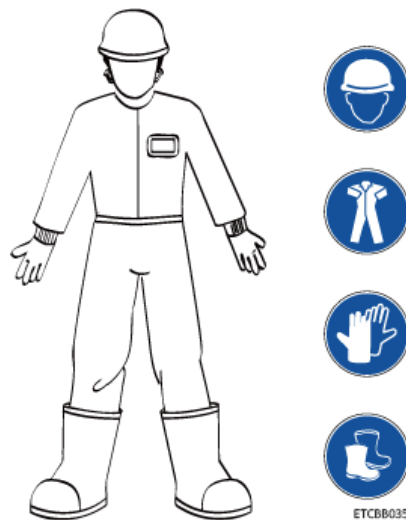
Follow local laws and regulations when installing, operating, or maintaining the equipment. The safety instructions in this document are only supplements to local laws and regulations.

Huawei will not be liable for any consequences of the following circumstances:

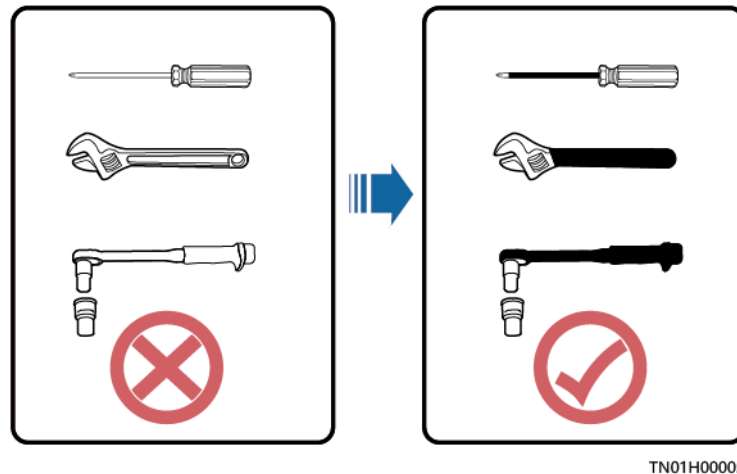
- Operation beyond the conditions specified in this document
- Installation or use in environments which are not specified in relevant international or national standards
- Unauthorized modifications to the product or software code or removal of the product
- Failure to follow the operation instructions and safety precautions on the product and in this document
- Equipment damage due to force majeure, such as earthquakes, fire, and storms
- Damage caused during transportation by the customer
- Storage conditions that do not meet the requirements specified in this document

General Requirements

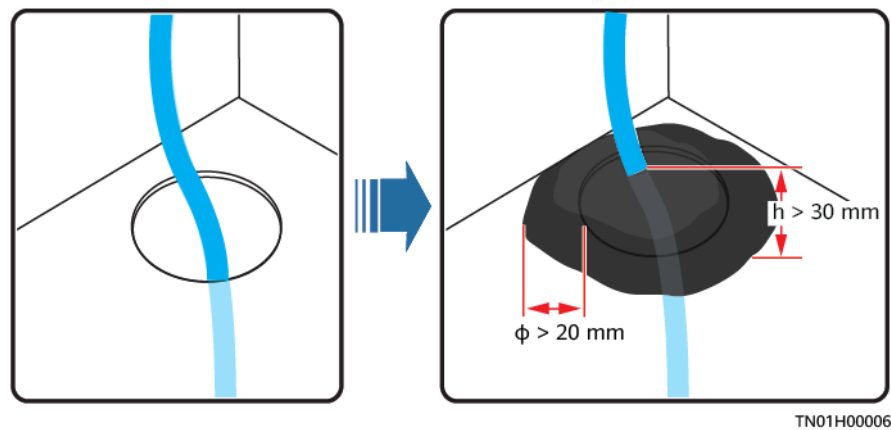
- Do not install, use, or operate outdoor equipment and cables (including but not limited to moving equipment, operating equipment and cables, inserting connectors to or removing connectors from signal ports connected to outdoor facilities, working at heights, and performing outdoor installation) in harsh weather conditions such as lightning, rain, snow, and level 6 or stronger wind.
- Before installing, operating, or maintaining the equipment, remove any conductive objects such as watches or metal jewelry like bracelets, bangles, and rings to avoid electric shock.
- When installing, operating, or maintaining the equipment, wear dedicated protective gears such as insulation gloves, goggles, and safety clothing, helmet, and shoes, as shown in the following figure.



- Follow the specified procedures for installation, operation, and maintenance.
- Before handling a conductor surface or terminal, measure the contact point voltage and ensure that there is no risk of electric shock.
- After installing the equipment, remove idle packing materials such as cartons, foam, plastics, and cable ties from the equipment area.
- In the case of a fire, immediately leave the building or the equipment area, and turn on the fire alarm bell or make an emergency call. Do not enter the building on fire in any case.
- Do not stop using protective devices. Pay attention to the warnings, cautions, and related precautionary measures in this document and on the equipment. Promptly replace warning labels that have worn out.
- Keep irrelevant people away from the equipment. Only operators are allowed to access the equipment.
- Use insulated tools or tools with insulated handles, as shown in the following figure.



- All cable holes should be sealed. Seal the used cable holes with firestop putty. Seal the unused cable holes with the caps delivered with the cabinet. The following figure shows the criteria for correct sealing with firestop putty.



- Do not scrawl, damage, or block any warning label on the equipment.
- When installing the equipment, use a torque wrench with a proper range to tighten the screws. When using a wrench to tighten the screws, ensure that the wrench does not tilt and the torque error does not exceed 10% of the specified value.
- Do not work with power on during installation.
- Repaint any paint scratches caused during equipment transportation or installation in a timely manner. Equipment with scratches cannot be exposed to an outdoor environment for an extended period of time.
- Before operations, ensure that the equipment is firmly secured to the floor or other solid objects, such as a wall or an installation rack.
- Do not use water to clean electrical components inside or outside of a cabinet.
- Do not change the structure or installation sequence of equipment without permission.
- Do not touch a running fan with your fingers, components, screws, tools, or boards before the fan is powered off or stops running.

Personal Safety

- If there is a probability of personal injury or equipment damage during operations on the equipment, immediately stop the operations, report the case to the supervisor, and take feasible protective measures.
- To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telecommunication network voltage (TNV) circuits.
- Do not power on the equipment before it is installed or confirmed by professionals.

1.2 Personnel Requirements

- Personnel who plan to install or maintain Huawei equipment must receive thorough training, understand all necessary safety precautions, and be able to correctly perform all operations.
- Only qualified professionals or trained personnel are allowed to install, operate, and maintain the equipment.
- Only qualified professionals are allowed to remove safety facilities and inspect the equipment.
- Personnel who will operate the equipment, including operators, trained personnel, and professionals, should possess the local national required qualifications in special operations such as high-voltage operations, working at heights, and operations of special equipment.
- Professionals: personnel who are trained or experienced in equipment operations and are clear of the sources and degree of various potential hazards in equipment installation, operation, maintenance
- Trained personnel: personnel who are technically trained, have required experience, are aware of possible hazards on themselves in certain operations, and are able to take protective measures to minimize the hazards on themselves and other people
- Operators: operation personnel who may come in contact with the equipment, except trained personnel and professionals
- Only professionals or authorized personnel are allowed to replace the equipment or components (including software).

1.3 Electrical Safety

Grounding

- For the equipment that needs to be grounded, install the ground cable first when installing the equipment and remove the ground cable last when removing the equipment.
- Do not damage the ground conductor.
- Do not operate the equipment in the absence of a properly installed ground conductor.
- Ensure that the equipment is connected permanently to the protective ground. Before operating the equipment, check its electrical connection to ensure that it is reliably grounded.

General Requirements

Use dedicated insulated tools when performing high-voltage operations.

AC and DC Power

DANGER

Do not connect or disconnect power cables with power on. Transient contact between the core of the power cable and the conductor will generate electric arcs or sparks, which may cause fire or personal injury.

- If a "high electricity leakage" tag is attached on the equipment, ground the protective ground terminal on the equipment enclosure before connecting the AC power supply; otherwise, electric shock as a result of electricity leakage may occur.
- Before installing or removing a power cable, turn off the power switch.
- Before connecting a power cable, check that the label on the power cable is correct.
- If the equipment has multiple inputs, disconnect all the inputs before operating the equipment.
- A circuit breaker equipped with a residual current device (RCD) is not recommended.
- A damaged power cable must be replaced by the manufacturer, service agent, or professionals to avoid risks.
- High voltage operations and installation of AC-powered facilities must be performed by qualified personnel.

Cabling

- When routing cables, ensure that a distance of at least 30 mm exists between the cables and heat-generating components or areas. This prevents damage to the insulation layer of the cables.
- Do not route cables behind the air intake and exhaust vents of the equipment.
- Ensure that cables meet the VW-1 or ZB and higher flame spread rating requirements.
- Bind cables of the same type together. When routing cables of different types, ensure that they are at least 30 mm away from each other.
- If an AC input power cable is connected to the cabinet from the top, bend the cable in a U shape outside the cabinet and then route it into the cabinet.
- When the temperature is low, violent impact or vibration may damage the plastic cable sheathing. To ensure safety, comply with the following requirements:
 - Cables can be laid or installed only when the temperature is higher than 0°C. Handle cables with caution, especially at a low temperature.
 - Cables stored at subzero temperatures must be stored at room temperature for at least 24 hours before they are laid out.

- Do not perform any improper operations, for example, dropping cables directly from a vehicle.
- When selecting, connecting, and routing cables, follow local safety regulations and rules.

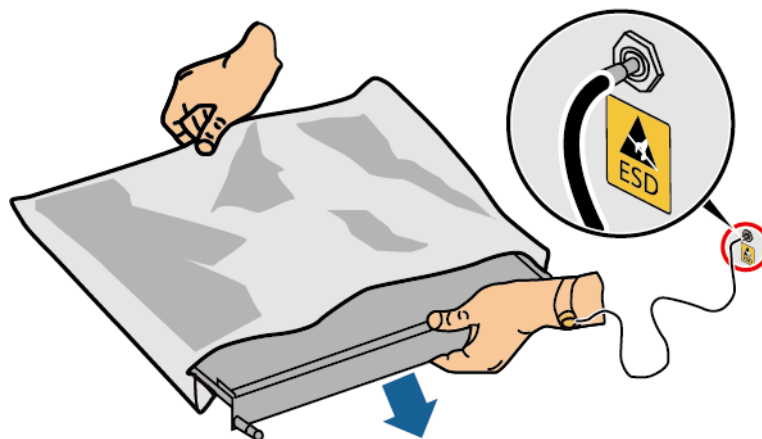
ESD

NOTICE

The static electricity generated by human bodies may damage the electrostatic-sensitive components on boards, for example, the large-scale integrated (LSI) circuits.

- Wear ESD gloves or a well-grounded ESD wrist strap when touching the device or handling boards or application-specific integrated circuits (ASICs).
- When holding a board, hold its edge without touching any components. Do not touch the components with your bare hands.
- Package boards with ESD packaging materials before storing or transporting them.

Figure 1-1 Wearing an ESD wrist strap



DC15000001

Neutral-Ground Voltage

It is recommended that the three-phase loads be equalized and the neutral-ground voltage be kept at less than 2 V to meet power distribution requirements.

1.4 Installation Environment Requirements

- To prevent fire due to high temperature, ensure that the ventilation vents or heat dissipation system are not blocked when the equipment is running.
- Install the equipment in an area far away from liquids. Do not install it under areas prone to condensation, such as under water pipes and air exhaust vents, or areas prone to water leakage, such as air conditioner vents, ventilation

vents, or feeder windows of the equipment room. Ensure that no liquid enters the equipment to prevent faults or short circuits.

- If any liquid is detected inside the equipment, immediately disconnect the power supply and contact the administrator.
- Do not expose the equipment to flammable or explosive gas or smoke. Do not perform any operation on the equipment in such environments.
- Ensure that the equipment room provides good heat insulation, and the walls and floor are dampproof.
- Install a rat guard at the door of the equipment room.

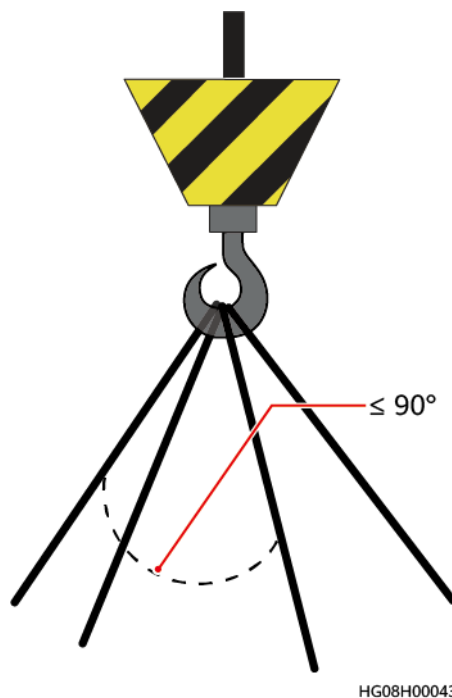
Installation at Heights

- Working at heights refers to operations that are performed at least 2 meters above the ground.
- Do not work at heights if the steel pipes are wet or other potential danger exists. After the preceding conditions no longer exist, the safety director and relevant technical personnel need to check the involved equipment. Operators can begin working only after obtaining consent.
- When working at heights, comply with local relevant laws and regulations.
- Only trained and qualified personnel are allowed to work at heights.
- 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.

1.5 Mechanical Safety

Hoisting Devices

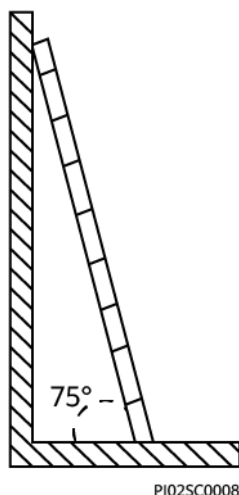
- Do not walk under hoisted objects.
- Only trained and qualified personnel should perform hoisting operations.
- Check that hoisting tools are available and in good condition.
- Before hoisting objects, ensure that hoisting tools are firmly secured onto a load-bearing object or wall.
- Ensure that the angle formed by two hoisting cables is no more than 90 degrees, as shown in the following figure.



- Do not drag steel ropes and hoisting tools or bump hoisted objects against hard objects during hoisting.

Using Ladders

- Use wooden or fiberglass ladders when you need to perform live working at heights.
- When a step ladder is used, ensure that the pull ropes are secured and the ladder is held firm.
- Before using a ladder, check that it is intact and confirm its load bearing capacity. Do not overload it.
- Ensure that the ladder is securely positioned. The recommended angle for a ladder against the floor is 75 degrees, as shown in the following figure. An angle rule can be used to measure the angle. Ensure that the wider end of the ladder is at the bottom, or protective measures have been taken at the bottom to prevent the ladder from sliding.



- When climbing a ladder, take the following precautions to reduce risks and ensure safety:
 - Keep your body steady.
 - Do not climb higher than the fourth rung of the ladder from the top.
 - Ensure that your body's center of gravity does not shift outside the legs of the ladder.

Drilling Holes

When drilling holes into a wall or floor, observe the following safety precautions:

NOTICE

Do not drill holes into the equipment. Doing so may affect the electromagnetic shielding of the equipment and damage components or cables inside. Metal shavings from drilling may short-circuit boards inside the equipment.

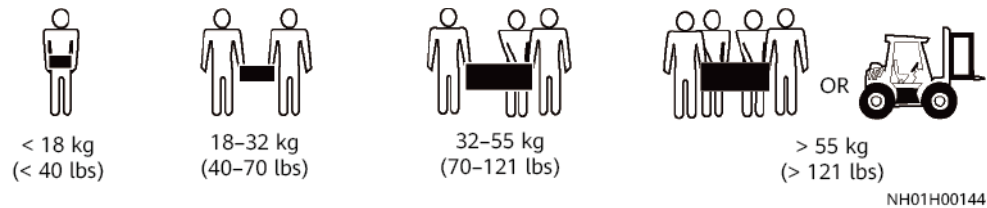
- Obtain consent from the customer and contractor before drilling holes.
- Wear goggles and protective gloves when drilling holes.
- When drilling holes, protect the equipment from shavings. After drilling, clean up any shavings that have accumulated inside or outside the equipment.

Moving Heavy Objects

DANGER

When pulling the equipment out of a cabinet, be aware of unstable or heavy objects on the cabinet to prevent injury.

- Be cautious to avoid injury when moving heavy objects.



- When moving the equipment by hand, wear protective gloves to prevent injuries.
- Move or lift the equipment by holding its handles or lower edges. Do not hold the handles of modules (such as power supply units, fans, and boards) that are installed in the equipment because they cannot support the weight of the equipment.
- Avoid scratching the cabinet surface or damaging cabinet components and cables during equipment transportation.
- When transporting the equipment using a forklift truck, ensure that the forks are properly positioned so that the equipment does not topple. Before moving the equipment, secure it to the forklift truck using ropes. When moving the equipment, assign dedicated personnel to take care of it.
- Choose railways, sea, or a road with good conditions for transportation to ensure equipment safety. Avoid tilt or jolt during transportation.
- Move the cabinet with caution. Any bumping or falling may damage the equipment.

1.6 Cooling System Safety

Storage and Recycling

- Do not store devices near a heat source or under direct sunshine.
- Keep devices away from fire or high-temperature objects, especially devices injected with pressurized nitrogen or refrigerant; otherwise, explosion or refrigerant leakage may occur, causing personal injury.



-  The sign indicates that the product cannot be disposed of with other wastes that have a shell in European Union (EU) areas. To avoid environment pollution and harm to human health, wastes must be classified and recycled. This also promotes resource reuse. When recycling a device, fill in the device information in the recycling collection system or contact your dealer for help. The dealer can help you recycle devices in a safe and environment-friendly way.

1.7 Pre-fab. Module Safety

- Ensure that the installation environment meets the following requirements:
 - The ground must be solid without spongy or soft soil, and is not prone to subsidence.
 - The site must be clean and far away from dust, oil fume, and harmful gas.

- The site must be far away from corrosive, flammable, and explosive materials.
- The site must be far away from sources of strong variation, loud noises, and strong electromagnetic interference.
- The site must not be located in a low-lying land or an area prone to water accumulation. It must be above the highest water level of the local area.
- Do not install other equipment on the top of a pre-fab. module without evaluation by Huawei.
- When performing operations (such as installing an awning or outdoor unit) over the top of a pre-fab. module, take measures to protect the top of the pre-fab. module against damage. Do not perform operations such as arc welding, drilling, and cutting on the top of a pre-fab. module.
- Do not smoke or use open flame inside a pre-fab. module.
- Before performing fire operations inside a pre-fab. module, obtain the customer's approval and the required work permit and fully evaluate risks.

1.8 Battery Safety

Basic Requirements

Before operating batteries, carefully read the safety precautions for battery handling and master the correct battery connection methods.



DANGER

- Do not expose batteries at high temperatures or around heat-generating devices, such as sunlight, fire sources, transformers, and heaters. Overheating may cause the batteries to explode.
 - Do not burn batteries. Otherwise, the batteries may explode.
 - To avoid leakage, overheating, fire, or explosions, do not disassemble, alter, or damage batteries, for example, insert sundries into batteries or immerse batteries in water or other liquids.
-
- Wear goggles, rubber gloves, and protective clothes.
 - Move batteries in the required direction. Do not place a battery upside down or tilt it.
 - Keep the battery loop disconnected during installation and maintenance.
 - Use batteries of specified models. Using batteries of other models may damage the batteries.
 - Dispose of waste batteries in accordance with local laws and regulations. Do not dispose of batteries as household waste. If a battery is disposed of improperly, it may explode.
 - The site must be equipped with qualified fire extinguishing facilities, such as firefighting sands and powder fire extinguishers.

NOTICE

To ensure battery safety and battery management accuracy, use batteries provided with the DC power system by Huawei. Huawei is not responsible for any battery faults caused by batteries not provided by Huawei.

Battery Installation

Before installing batteries, observe the following safety precautions:

- Install batteries in a well-ventilated, dry, and cool environment that is far away from heat sources, flammable materials, moisture, extensive infrared radiation, organic solvents, and corrosive gases. Take fire prevention measures.
- Place and secure batteries horizontally.
- Note the polarities when installing batteries. Do not short-circuit the positive and negative poles of the same battery or battery string. Otherwise, the battery may be short-circuited.
- Check battery connections periodically, ensuring that all screws are securely tightened.
- When installing batteries, do not place installation tools on the batteries.

Battery Short Circuit

** DANGER**

Battery short circuits can generate high instantaneous current and release a great amount of energy, which may cause equipment damage or personal injury.

To avoid battery short circuit, do not maintain batteries with power on.

Lithium Battery

The safety precautions for lithium batteries are similar to those for lead-acid batteries except that you also need to observe the following precautions.

** WARNING**

There is a risk of explosion if a battery is replaced with an incorrect model.

- A battery can be replaced only with a battery of the same or similar model recommended by the manufacturer.
- When handling a lithium battery, do not place it upside down, tilt it, or bump it with other objects.
- Keep the lithium battery loop disconnected during installation and maintenance.

- Do not charge a battery when the ambient temperature is below the lower limit of the operating temperature (charging is forbidden at 0°C). Low-temperature charging may cause crystallization, which will result in a short circuit inside the battery.
- Use batteries within the allowed temperature range; otherwise, the battery performance and safety will be compromised.
- Do not throw a lithium battery in fire.
- When maintenance is complete, return the waste lithium battery to the maintenance office.

1.9 Others

- Exercise caution when shutting down the smart cooling product. Doing so may cause equipment and room overheating, which will damage the equipment.
- Exercise caution when setting battery parameters. Incorrect settings will affect the power supply and battery lifespan.

2 Commissioning Guide Usage

- Verify that the configurations of various systems in the FusionDC1000 are consistent with the initial configuration tables.
- This manual describes how to perform power-on commissioning. For details about drawings and initial configuration parameters required during operations, see the appendix.
- Conduct power-on commissioning only after the hardware is installed for the FusionDC1000 and the installation is verified.
- Power-on commissioning for each specific system must be performed under instructions by qualified engineers.
- The initial configuration parameters are essential to the reliable running of all systems. Improper modifications of parameters may cause abnormal running status, or even damage to systems.
- The initial parameters of the FusionDC1000 are configured before delivery. For details about how to modify the parameters, see the documents delivered with the components and the actual solution configuration.
- Prior to power-on commissioning, remove all the protective materials installed for transporting the FusionDC1000, such as the protective pads for smart cooling products and the securing tape for smoke and heat detectors.
- Before power-on commissioning, ensure that the aisle temperature is within the normal range.
- Do not perform power-on commissioning during a thunderstorm.
- Verify that the upstream power supply is continuous during power-on commissioning.
- Operations marked as optional in chapters, sections, or procedures can be performed depending on the actual situation.

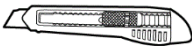
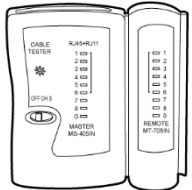
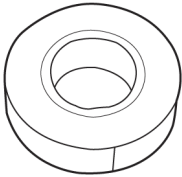
Huawei assumes no liability for any loss caused by unauthorized changes to the initial configuration parameters.

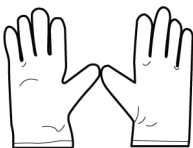
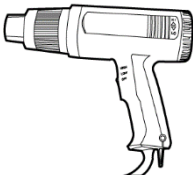
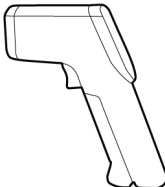
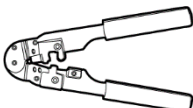
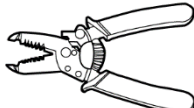
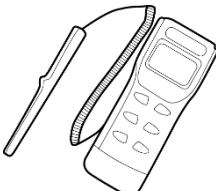
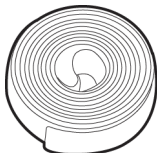
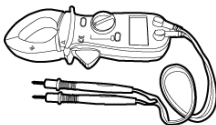
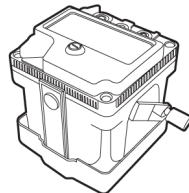
3 Preparations for Power-On Commissioning

3.1 Tools

The following table lists the tools required for power-on commissioning.

Table 3-1 Tools

Tools		
Phillips screwdriver 	Flat-head screwdriver 	Utility knife 
Multimeter 	Electroprobe 	Network cable tester 
Cable tie 	Insulation tape 	Marker 

Tools		
ESD gloves 	Step ladder (2 m) 	ESD wrist strap 
Heat gun 	Point thermometer 	Adjustable wrench 
RJ45 crimping tool 	Wire stripper 	Flashlight 
Hand-held thermometer 	Heat shrink tubing 	Phase-sequence meter 
Clamp meter 	Insulation megohmmeter 	

NOTE

- This table may not list some tools required at specific sites. Onsite installation personnel and technical support personnel should prepare tools based on site requirements.
- Some dedicated tools and installation materials provided with the equipment may not be listed in this table.

3.2 Reference Documentation

Table 3-2 Required documentation

Item	Document Name
AC/DC power system	<i>MTS9600B V100R002C20 Telecom Power Installation Guide</i>
	<i>MTS9600B V100R002C20 Telecom Power User Manual (MTS9606B, 36 kW)</i>
ECC800-Pro	<i>ECC800 Data Center Controller V100R003C00 User Manual (for ECC800-Pro)</i>
NetEco	<i>iMaster NetEco V600R021C10 Device Installation and Commissioning Guide (Data Center)</i>

 NOTE

The ECC800-Pro/NetEco version depends on the version in use. Click  on the ECC800-Pro/NetEco WebUI to obtain the current version.

3.3 Commissioning Personnel Skill Requirements

Table 3-3 Skill requirements for the FusionDC1000 commissioning personnel

Field	Personnel Skill Requirement
Power supply and distribution system	Familiar with the power supply and distribution system configurations and the operations for each core device in the FusionDC1000 With power distribution engineer qualifications
Cooling system	Familiar with the cooling system configurations and the operations for each core device in the FusionDC1000 With cooling engineer qualifications
Management system	With knowledge in the hardware and software of the prefabricated data center, familiar with basic communications protocols, familiar with equipment interfaces in extra-low voltage (ELV) systems, and proficient in operating the NetEco management system With ELV engineer qualifications
Fire extinguishing system	Familiar with the fire extinguishing system configurations and the operations for each core device in the FusionDC1000 With fire protection engineer qualifications

Field	Personnel Skill Requirement
Lighting and structural systems	Familiar with the overall configurations and layout of the FusionDC1000 Experienced in data center maintenance

3.4 (Optional) Auxiliary Heating for Extra Low Temperatures

Prerequisites

The system requires heating for proper running.

Context

Operating temperature ranges of core devices of the FusionDC1000 are as follows:

- Battery charging: -15°C to +40°C
- CO power system (MTS9606B-N20C2): -10°C to +45°C
- Servers: 5°C to +40°C
- PDB: -5°C to +40°C
- Smart cooling product: -30°C to +55°C

NOTICE

If the pre-fab. module interior temperature is beyond the normal operating range, condition the air to ensure that the temperature meets the operating requirements.

Table 3-4 Auxiliary heater configuration requirements

Position	Recommended Power	Quantity	Deployment	Prerequisite
Pre-fab. module	2 kW	2 PCS	Distributed evenly in the aisle.	The ambient temperature is lower than 5°C.

Procedure

- Step 1** Use a hand-held thermometer to measure the temperature inside the pre-fab. module. If the temperature reading is lower than 5°C in the pre-fab. module, perform [Step 2](#).

- Step 2** Start the auxiliary heater to increase the pre-fab. module interior temperature until it reaches the required normal operating range, otherwise, no heating is required.

 NOTE

When the auxiliary heater is heating the pre-fab. module, ensure that all pre-fab. module doors are closed to avoid heat loss and improve the temperature rising speed.

----End

3.5 Checking Before Power-On

Preparations

Tools required: multimeter, Phillips screwdriver, flat-head screwdriver, step ladder, insulation megohmmeter, and pressure gauge

Skill requirement: power distribution engineer

Checking Before Power-On

Before powering on the FusionDC1000, check the items listed in the following table.

Table 3-5 Items to be checked before power-on

System	Check Item	Operation Method	Expected Result
Integrated cabling	Cable connection	- Check the cable connections. - Check the cable layout. - Check the cable labels. - Check the fastening status.	- Cables are neat, tidy, not coiled, and excessive parts are cut. - Power cables are at least 20 mm away from signal cables. - Power cables are bound at intervals of at most 200 mm. For thicker cables, the intervals can be greater. - Cable ties do not overlap, and the joints are evenly cut without burrs. - Cables are placed properly and not tense at turning points. - Cable routes are straight and smooth, and do not intersect inside a cabinet. - All PE cables, AC input cables, and intra-cabinet cables are connected correctly according to the power system circuit diagram, and all screws are fastened. The input and output cables are not short-circuited.
Power supply and distribution system	ATS status	Verify ATS settings and remove the ATS handle.	- The ATS handle has been removed. - The motor operation mechanism is set to .
	Power cable insulation	Measure the insulation of the power cables using an insulation megohmmeter.	There is no electricity leakage in the power supply and distribution system.
	Circuit breaker status	- Verify the circuit breaker labels by referring to the power supply and distribution system diagram. - Verify that circuit breakers can be smoothly switched on and off. - Check the circuit breaker status.	- Circuit breaker labels are correct, clear, complete, and attached properly. - Ensure that all load circuit breakers are reliable and controllable. - All PDF, PDB, and PDU circuit breakers are in the OFF state, and all SPD circuit breakers are in the ON state.

System	Check Item	Operation Method	Expected Result
	Phase sequence	Verify the phase sequences of upstream and downstream power distribution devices for the FusionDC1000 using a phase sequence meter.	The phase sequences are consistent.
	Voltage	Measure the voltage at the ATS input end using a multimeter.	• Voltage range for the 380 V scenario: 342–418 V
	Frequency	Measure the frequency at the ATS input end using a multimeter.	• Frequency range for the 50 Hz scenario: 49–51 Hz • Frequency range for the 60 Hz scenario: 59–61 Hz
	Lithium battery	• Check the number of lithium batteries. • Check lithium battery connection. • Measure the lithium battery cell voltage using a multimeter. • Measure the lithium battery string voltage using a multimeter.	• The lithium batteries are correct in quantity and intact. • lithium batteries are connected based on the design requirements and installed securely. Lithium battery electrodes are correctly connected. • The voltage is within the rated voltage range of lithium batteries. The lithium battery string voltage is the single lithium battery voltage multiplied by the number of lithium batteries. • The voltage measurement result meets the requirement of system power backup.
Cooling system	Smart cooling product device installation and cable connections	Check the smart cooling product device installation and cable connections.	• The phase sequence is correct. • Screws are tightened. • The air intake and exhaust vents of the internal and external fans are not blocked. • The fans rotate smoothly without noise when you rotate the blades. • The power cables and alarm signal cables are connected correctly. • The power supply voltage is within the normal range specified on the nameplate.

System	Check Item	Operation Method	Expected Result
Management system	Component installation and connection	Check the monitoring device installation and connection.	• Devices are installed securely as shown in the monitoring device layout diagram. • Cables are correctly connected.
Fire extinguishing system (CE)	Device installation and cable connections	Check the fire extinguishing device installation and cable connections.	• The pressure pointer of the fire cylinder is in the green zone. • The dowel of the fire cylinder is properly installed and intact. • All cables are correctly and securely connected.
Lighting system	Component installation and connection	Check the lighting device installation and connection.	• Devices are installed in positions shown in the lighting device layout diagram. • Cables are correctly connected.

4 Power-On Commissioning

Prerequisites

- You have prepared for the power-on commissioning.
- You have verified all the specifications for the power-on.
- You have put on protective articles.

NOTICE

- Prepare a portable lighting device before powering on the lighting system.
 - Circuit breakers of various specifications are reserved in the power supply system. If any of these circuit breakers are used, conduct proper operations on them for the commissioning.
-

Preparations

Tool: multimeter

Documents: power supply and distribution drawings and parameters

Skill requirement: power distribution engineer

Procedure

Step 1 Switch on the external input circuit breaker.

Step 2 Switch on all SPD circuit breakers in the Main PDB.

NOTE

Understand the layout and configuration by referring to the power supply and distribution drawings and parameters.

Step 3 Use a multimeter to check that the load circuit breakers in the Main PDB are properly energized.

Step 4 Check whether the rectifier circuit breakers are switched on. After the circuit breakers are switched on, the panel indicators are green.

Step 5 Check that the rectifier monitoring unit is powered on properly.

----End

5 Commissioning Core Devices

5.1 Commissioning Power Distribution Devices

5.1.1 Commissioning the PDF

Prerequisites

- You have verified all the specifications for the power-on.
- You have put on protective articles.

Preparations

Tool: multimeter

Documents: power supply and distribution drawings and parameters

Skill requirement: power distribution engineer

Procedure

Step 1 Switch on the upstream input power circuit breaker to power on the PDF.

 NOTE

- If the power indicators (if configured) on the PDF have turned on, the PDF has been powered on.

Step 2 Commission the ATS.

 NOTE

For details about how to commission the ATS, see [5.1.1.1 Commissioning the ATS](#).

Step 3 Switch on the SPD circuit breaker in the PDF to power on the SPD. The SPD indicator becomes steady green.

- Step 4** Switch on the output circuit breakers in the PDF level by level as required to supply power to downstream equipment.

----End

5.1.1.1 Commissioning the ATS

Context



CAUTION

Perform system commissioning and power-on strictly according to the system manual and ATS instructions. For any changes in operations and parameters, consult Huawei engineers. Otherwise, system commissioning or power-on may fail, or even the cabinet is damaged.

Procedure

- Step 1** Switch on all SPD circuit breakers in the PDF.
- Step 2** Switch on the upstream input circuit breaker to power on the PDF. If the power indicator is on, the PDF is powered on properly.
- Step 3** Check whether the ATS controller has alarms. If an alarm exists, rectify the fault first.
- Step 4** Press the locking latch on the ATS panel, pull out the handle, and insert it into the slot.
- Step 5** Check the ATS Motor/Manual selection lever, and flip it to the Motor (M) mode.
- Step 6** Check the input and configuration status of the ATS by referring to the initial configuration table for the corresponding scenario in the power supply and distribution drawings and parameters. After the AC input starts properly, the ATS controller starts.

----End

5.1.2 Commissioning the MTS9606B

5.1.2.1 Connecting the AC Power Supply

Procedure

- Step 1** Measure the input voltage on the AC input circuit breaker. The value should range from 85 V AC to 300 V AC.
- Step 2** Switch on the AC input circuit breaker and measure the output voltage of the AC input circuit breaker. The value should range from 85 V AC to 300 V AC.
- Step 3** Check that the Run indicators on the rectifiers are steady on.

Step 4 Measure the voltage between the -48 V busbar and the RTN+ busbar. The value should be in the range of -42 V DC to -58 V DC.

----End

5.1.2.2 Choose a language

After powering on the SMU, select the target language by pressing  or  on the language selection screen , and then press  to enter the system information screen.

NOTE

- If you select an incorrect language, remove and then insert the SMU. Select a language again after you restart the SMU.
- The preset password is **000001**.

5.1.2.3 Setup Wizard

After the **Setup Wizard Init** screen is displayed, set parameters according to the following table.

Table 5-1 Setting parameters

Item	Settings
Setting the time zone.	Set this parameter to the local time zone.
Set the date and time	Set this parameter to the local date and time.
Battery 1 Connected	Yes/No NOTE • If battery routes 1 and 2 are respectively connected to a battery string (a battery string consists of four 12 V, 150 Ah batteries in series), set Battery 1 Connected and Battery 2 Connected to Yes and others to No, and set Single-string capacity to 150 Ah. • If battery route 1 is connected to two battery strings (one battery string consists of four 12 V, 150 Ah batteries in series), set Battery1 Connected to Yes and others to No, and set Single-string to 300 Ah.
Battery 2 Connected	
Battery manufacturer	Set the parameters based on site requirements. NOTE • If the battery model is set to ESM-A, you do not need to set battery parameters after the monitoring unit is restarted. • If the battery model is set to Lead-Acid Battery, you need to set battery parameters after the monitoring unit is restarted.
Battery model	

Item	Settings
Single-string capacity	Rated capacity of each battery string NOTE The batteries controlled by one circuit breaker or fuse are called a battery string.
The SMU may restart.	Yes

5.1.2.4 Setting the Date and Time

NOTE

- The LCD screen becomes dark if no button is pressed for 30 seconds.
- You need to log in again if no button is pressed for 1 minute.

Set the date and time as required.

Table 5-2 Date and time settings

Main menu	Second-level Menu	Third-Level Menu	Default Value	Settings
Setting Wizard	Date and Time NOTE The date and time vary with time zones. Set the time zone, date, and time based on the local situation.	Time Zone	UTC +08:00 Beijin	Set this parameter to the local time zone.
		Date and Time	-	Set this parameter to the local date and time.
		NTP Enable	No	Yes/No NOTE Set the parameter to Yes if you need to synchronize the SMU time and the site network server time.

5.1.2.5 Setting 57 V Constant Voltage Output Parameters

Table 5-3 Setting 57 V constant voltage output parameters

Main Menu	Second-level Menu	Third-Level Menu	Fourth-Level Menu	Setting
Setting Parameters	Li Battery	Basic Parameters	Work Mode	48V Mode/57V Mode NOTE Set the output voltage for the lithium battery as required.

5.1.2.6 Connecting the Battery Supply (Lithium Battery)

Procedure

- Step 1** Switch on the battery circuit breakers in the power cabinet and lithium battery cabinet.
- Step 2** Check whether the lithium batteries communicate properly. If the run indicator on a lithium battery is steady on, the battery communicates properly with the monitoring device. If it blinks fast (4 Hz), the communication between them is interrupted. If so, check whether the communications cable is properly connected.
- Step 3** Observe the lithium batteries for 15 minutes. The lithium batteries are running properly if the alarm indicators are off.

----End

5.2 Commissioning Cooling Devices

5.2.1 Commissioning a 13.5 kW Integrated Air Conditioner

Prerequisites

The power-on commissioning for the upstream power distribution equipment of the 13.5 kW integrated air conditioner is completed, and the integrated air conditioner has been powered on. You understand the power-on commissioning process.

Procedure

Table 5-4 User password and permission

Scenario	Password	Permission Description
Common user password	0001	You can change the temperature and humidity setpoint and alarm threshold, view alarm records and alarm history, and check the system running status.
Maintenance password	6656	The maintenance personnel or administrators can start or stop the compressor, internal circulation fan, and external circulation fan to rectify component faults.
Administrator password	8866	
Manufacturer password	888666	Used to modify parameters such as the compressor frequency and low pressure alarm threshold.

NOTICE

- Confirm with Huawei before using the maintenance password, administrator password, or manufacturer password to log in to the integrated air conditioner. Huawei will not be liable for any consequence caused by password change by the customer.
- If you do not enter a password before entering a parameter, the password screen is displayed after you tap the corresponding parameter text box. The parameter can be modified only after you enter the correct password.

Step 1 Turn on the general switch.

Step 2 After the device is powered on, the screen is displayed after the system is initialized for 10s.

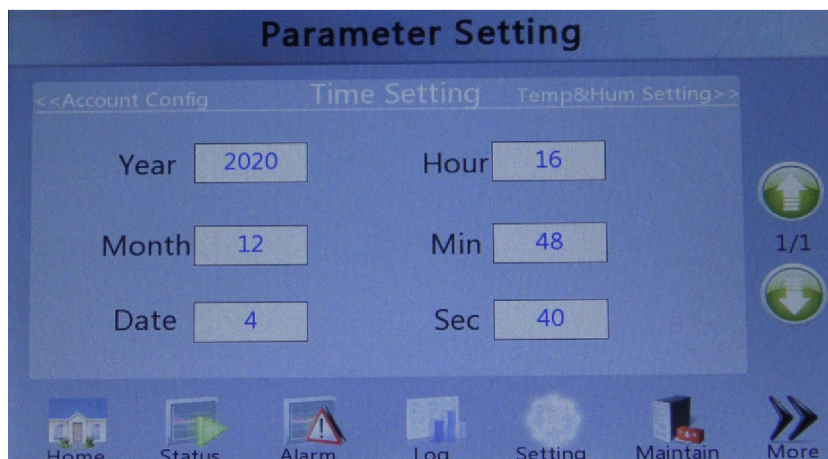
Step 3 System settings include: time setting, temperature and humidity setting, teamwork setting, system setting, and account management setting (password change).

NOTE

Only the common user password can be changed.

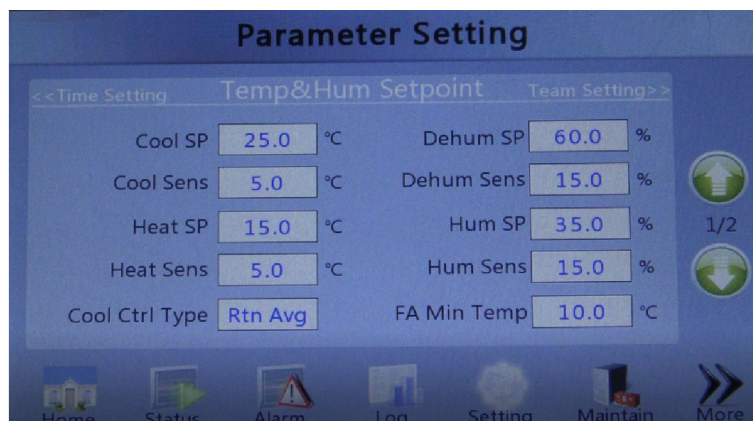
1. Choose **Setting > Time Setting** on the main menu to set the current time.

Figure 5-1 Setting time



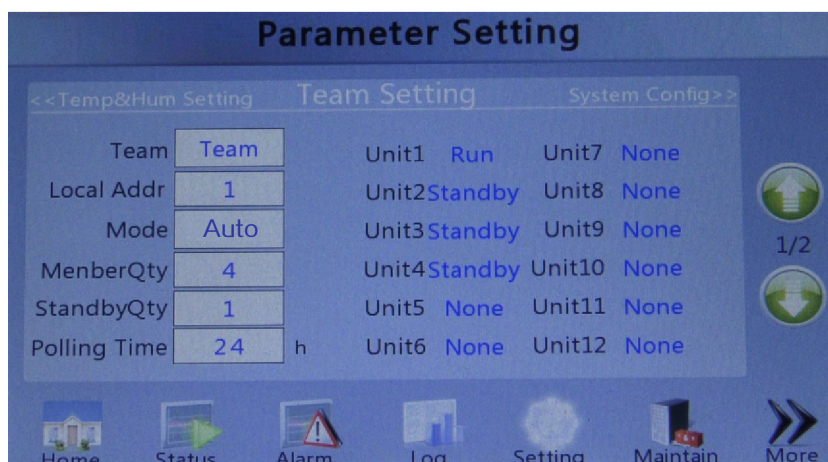
2. On the **Setting** screen, tap **Set** to set the ambient temperature and humidity.

Figure 5-2 Setting temperature and humidity



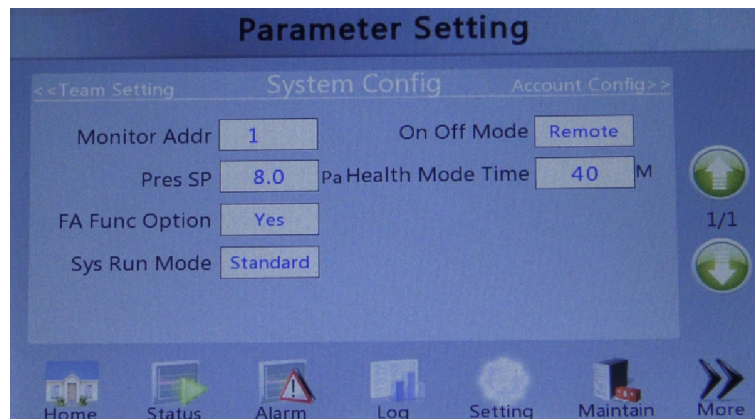
3. On the **Setting** screen, tap **Team Setting** to set teamwork parameters for multiple devices.

Figure 5-3 Setting teamwork parameters



4. On the **Setting** screen, tap **System Config** to set monitoring address parameters for multiple devices.

Figure 5-4 Setting monitoring address parameters



----End

5.3 Commissioning Fire Extinguishing Devices

5.3.1 Commissioning the Emergency Light Escape Sign (CE)

Prerequisites

The socket of the emergency light escape sign has been powered on.

Preparations

Tools: step ladder, Phillips screwdriver

Documents: drawings and parameters for power supply and distribution as well as fire extinguishing

Skill requirement: fire engineer

Procedure

- Step 1** Switch off the upstream circuit breaker for the power cable of the emergency light escape sign. The emergency light escape sign lights up.

Figure 5-5 Emergency light escape sign



DC01W00338

Step 2 Switch on the upstream circuit breaker for the emergency light escape sign.

 NOTE

The emergency light escape sign is off, and the power indicator is on.

Step 3 Press the test button in the emergency light escape sign. The emergency light escape sign lights up. Release the test button. The emergency light escape sign turns off.

Figure 5-6 Test button in the emergency light escape sign



(1) Test button in the emergency light escape sign

 NOTE

- The test button is located inside the emergency light escape sign.
- If the result expected for each step appears, the emergency light escape sign works properly.

----End

5.3.2 (Optional) Commissioning the ASD

Preparations

Tool: smoke pistol

Documents: drawings and parameters for power supply and distribution as well as fire extinguishing, documents delivered with the ASD

Skill requirement: fire engineer

Procedure

Step 1 Switch on the input power circuit breaker for the ASD power box for the protected area and connect the ASD battery based on the power supply and distribution system diagram.

Step 2 (Optional) Perform power-on commissioning by following instructions in documents delivered with the ASD.

 NOTE

The ASD is commissioned before delivery. The ASD that is used as a replacement must be commissioned as instructed by the delivered documents.

Step 3 Reset the ASD.

1. Rotate the knob switch **Mode** to position **0**.

2. Press the **Set/Res** button to start the reset.
3. Wait until the two airflow LEDs in the middle turn on.
4. Rotate the knob switch **Mode** to position **1**.
5. Press the **Set/Res** button to finish the reset.

Step 4 Release smoke in the protected area using the smoke pistol. Verify that the ASD alarm indicator lights up, and that an alarm is generated in the management system.

 NOTE

After the operation is complete, press the reset button to reset the ASD

----End

5.4 (Optional) NetEco Management

5.4.1 Preparations and WebUI Login

Prerequisites

- Supported operating system: Windows 7 and later versions
- It is recommended that the screen resolution be 1366 x 768 or higher.
- Browser: Chrome, Firefox 32, Internet Explorer 11 or later

Procedure

Step 1 Connect a network cable between the PC network port and the WAN1 port (protected by a security mechanism) on the ECC800-Pro.

Table 5-5 Default IP addresses for the WAN and LAN ports on the ECC800-Pro

Port	Default IP Address
WAN1	192.168.8.10
WAN2	192.168.0.10 192.168.248.10 (FusionModule500/800)
LAN1 and LAN2	192.168.248.10

NOTICE

- In ECC800 V100R002C10 and earlier versions, the default IP address of port WAN_1 is 192.168.1.10.
- The WAN1 port IP address cannot be set to an IP address in any of the following network segments: 192.168.0.x, 192.168.245.x, 192.168.246.x and 192.168.248.x.
- IP addresses for the WAN1 and WAN2 ports should not be set in the same network segment.
- In some customized scenarios, the default IP address for the WAN2 port is 192.168.248.10. The default value may vary.
- WAN ports support the Internet access and LAN ports support the intranet access. Connect the PC network port to the WAN1 port or LAN port on the ECC800-Pro based on the access network.

Step 2 Configure the PC IP address and the WAN1 IP address in the same network segment.

If the WAN1 port IP address is 192.168.8.10, subnet mask is 255.255.255.0, and default gateway is 192.168.8.1, set the PC IP address to 192.168.8.12, subnet mask to 255.255.255.0, and default gateway to 192.168.8.1.

Step 3 Set LAN parameters.

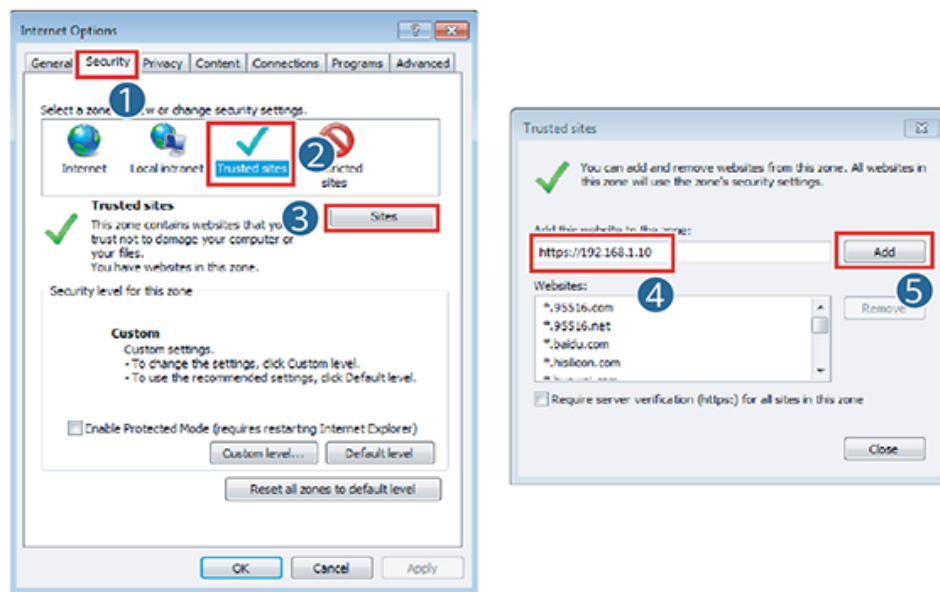
NOTE

- If the ECC800-Pro connects to a LAN and a proxy server has been selected, perform [Step 3.3](#) and [Step 3.4](#).
 - If the ECC800-Pro connects to the Internet, and the PC in a LAN accesses the Internet over a proxy server, do not perform [Step 3.3](#) and [Step 3.4](#). Otherwise, you will fail to access the ECC800-Pro.
1. Open the Internet Explorer and choose **Tools > Internet Options**.
 2. Click the **Advanced** tab and select **Use TLS1.1** and **Use TLS1.2**.
 3. (Optional) Click the **Connections** tab and select **LAN settings**.
 4. (Optional) On **Proxy server**, clear **Use a proxy server for your LAN**.
 5. Click **OK**.

Step 4 Set Internet Explorer parameters.

1. When you use Internet Explorer for access, set Internet Explorer to ensure the normal display of and operations on the WebUI. Choose **Tools > Compatibility View**, and add the web access address to the compatibility view.
2. Choose **Tools > Internet options > Security**, choose **Add the ECC800-Pro IP address** to the list of trusted sites.

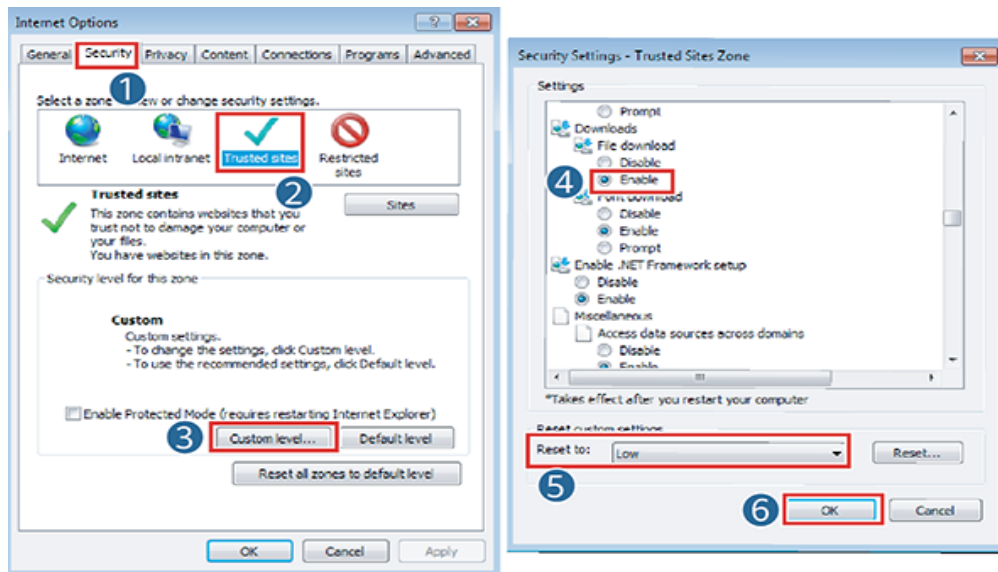
Figure 5-7 Adding an address



DM25H00070

3. Enable file download and set the security level of the trusted site to low.

Figure 5-8 Setting parameters



DM25H00071

NOTE

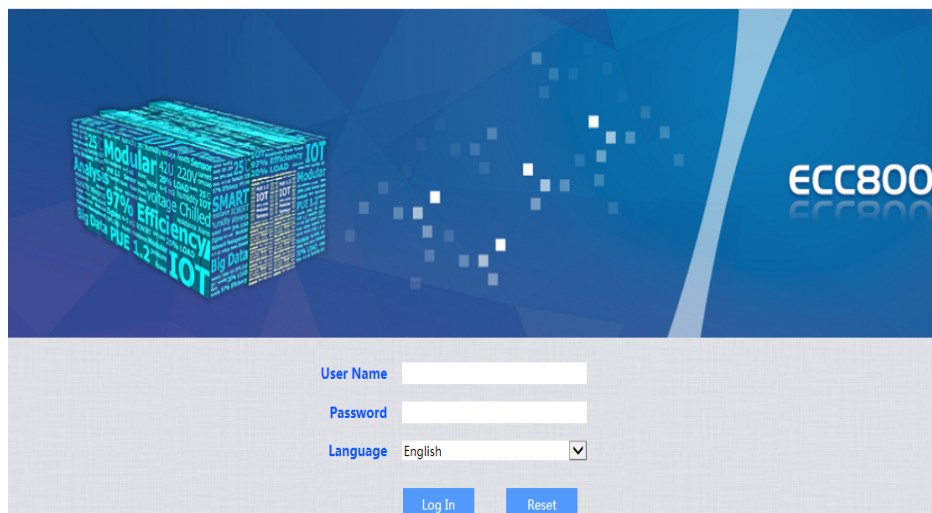
When switching between different versions of the ECC800-Pro on your PC, you are advised to clear the historical Internet Explorer cache. Failing to do so may cause some information missed or exception after login. The following provides the details:

1. Open Internet Explorer and choose **Tools > Internet Options > General**.
2. Select **Delete browsing history on exit** and click **Delete**.
3. In the **Delete Browsing History** dialog box, select all options except **Password**, and click **Delete**.

Step 5 Log in to the ECC800-Pro WebUI.

1. Enter **https://monitoring IP address** (such as monitoring IP address **https://192.168.8.10**) in the address box of the browser, and then press **Enter** to enter the WebUI login page.

Figure 5-9 WebUI login page



2. On the login page, enter the preset user name **admin** and preset password **Changeme**, set the language, and click **Log In**.

NOTE

- After the first login, change the password in time to ensure account security and prevent unauthorized network attacks, such as data tampering. Huawei will not be liable for any security issues caused by your failure to change the preset password in time or password loss after changing.
- Change the password of the user account periodically.
- Record and keep the password properly. If you forgot the password, you will be unable to log in to the WebUI.
- When the event notification is configured and the password retrieval mode is configured under user management, the password can be retrieved.
- An account is logged out due to timeout if no operation is performed within 10 minutes after system login.
- A maximum of three users can log in to the ECC800-Pro WebUI at the same time.

----End

5.4.2 Performing Basic Operations Before Adding Devices

Software installation and commissioning are required before the device commissioning, collector commissioning, and NetEco commissioning. For details, see "Software Installation and Commissioning" in *iMaster NetEco Product Documentation (DC) (V600R021C10_xx)*.

5.4.2.1 IP Address Preinstallation Planning

The IP address must be in compliance with the following requirements:

- The static IP address must be used.

- The IP address must be unique on the live network.
- You can plan only one IP address for one network interface. It is not allowed to plan or set multiple IP addresses for the same network interface.
- The NetEco server can communicate with managed devices.
- The NetEco server can communicate with Web clients.

 NOTE

The subnet mask of all IP addresses is **255.255.255.0**.

Table 5-6 IP address list

Item	Preinstallation Setting	Description
Server IP address	192.168.8.11	Used for logging in to the NetEco and PowerEcho.

5.4.2.2 Obtaining the NetEco Software License

The NetEco software license is not provided together with software to the customer. Therefore, obtain the NetEco software license in advance.

Obtain the license from the Huawei's enterprise support website.

- For enterprise users:
 - a. Log in to Huawei's enterprise support website <https://support.huawei.com/enterprise>.
 - b. Browse or search for **iMaster NetEco License Application Guide**, and apply for the license of the NetEco software by referring to the guide.
- For carriers:
 - a. Log in to Huawei's carrier support website <https://support.huawei.com>.
 - b. Browse or search for **iMaster NetEco License Application Guide**, and apply for the license of the NetEco software by referring to the guide.

5.4.2.3 Obtaining the Adapter Software Installation Packages

Obtaining the Adapter Software Installation Packages

This section describes how to obtain the adapter software installation package.

- For enterprise users:
 - a. [Log in to the iMaster NetEco Huawei enterprise technical support website.](#)
 - b. Obtain the **iMaster NetEco V600R021C10SPCXXX ReleaseDoc_EN (Data Center).zip** and **DP_V600R021C10SPCXXX_XXAdapters.zip** packages, decompress the packages, and search for the adapter software installation package in the **DP_V600R021C10SPCXXX_XXAdapters** based on the NE types and versions in the *iMaster NetEco V600R021 Version Mapping (Data Center)*.

- For carriers:
 - a. [Log in to the iMaster NetEco Huawei technical support website.](#)
 - b. Obtain the **iMaster NetEco V600R021C10SPCXXX ReleaseDoc_EN (Data Center).zip** and **DP_V600R021C10SPCXXX_XXAdapters.zip** packages, decompress the packages, and search for the adapter software installation package in the **DP_V600R021C10SPCXXX_XXAdapters** based on the NE types and versions in the *iMaster NetEco V600R021 Version Mapping (Data Center)*.

On the **Software** tab page, download the NetEco software and digital signature files.

Verifying Software Packages

To prevent software packages from being maliciously tampered with during transmission or storage, you need to download the corresponding signature file during the software package download for integrity verification.

After the software package is downloaded, verify its PGP digital signature according to the *OpenPGP Signature Verification Guide*. If the software package fails to pass the verification, do not use the software package and contact Huawei technical support.

Before a software package is used in installation, its digital signature also needs to be verified according to the *OpenPGP Signature Verification Guide* to ensure that the software package is not tampered with.

- For carrier users, visit <https://support.huawei.com/carrier/digitalSignatureAction>.
- For enterprise users, visit <https://support.huawei.com/enterprise/zh/tool/pgp-verify-TL1000000054..>

5.4.2.4 Powering On a Server

This topic describes how to power on a server.

Procedure

- Step 1** Check that the power cables and ground cables of the upstream components of the server are securely connected with correct polarity and in good contact.
- Step 2** Ensure that the upstream input power supply is not connected. Use a multimeter to measure the resistance between the upstream output power supplies and between the working ground and the protection ground. It is required that short circuit not occur between power outputs or between the BGND and PGND.
- Step 3** Turn on the switch for the upstream power supply of the server.
- Step 4** Press the power button on the chassis of the server to power on the server.

NOTE

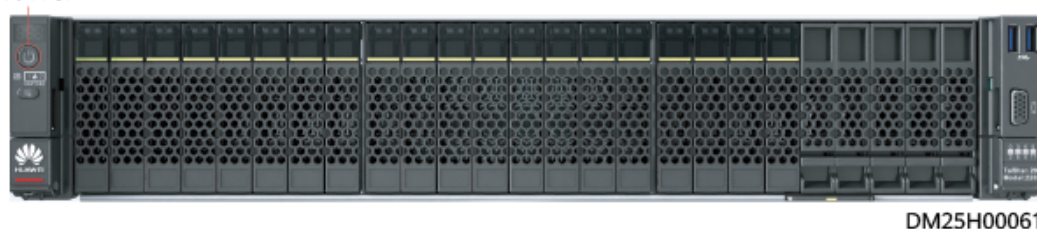
After the server is started properly, the button/indicator of its power switch is displayed green.

Figure 5-10 Power button on the 2288X V5 server



Figure 5-11 TaiShan 200 server power button

Power



----End

5.4.2.5 Logging In to the NetEco Client

This section describes how to log in to the NetEco client using a web browser.

Prerequisites

- The network connection between your PC and the client IP address of the NetEco is normal and the function of the O&M plane are running properly.
- You have obtained the user name and password for login.

Procedure

- Step 1** In the browser address box, enter `https://IP address of the NetEco server:31943`, and then press **Enter**.

NOTE

- 192.168.8.11 is the default IP address of the NetEco.
- Latest Chrome (Stable Channel) and Firefox (ESR Release) are recommended.
- You are advised to set the display resolution as 1920 x 1080 or higher.
- Make sure that the IP address of the NetEco server is not contained in the compatibility view website.

- Step 2** Enter the **User Name**, **Password**, and click **Login**.

 NOTE

- The preset user of NetEco is **admin**, the preset password is **Changeme_123**. This user has all the operation rights on the managed objects. After the first login, change the password in time to ensure account security and prevent unauthorized network attacks, such as data tampering. Huawei will not be liable for any security issues caused by your failure to change the preset password in time or password loss after changing.
- If the number of online users reaches the maximum number supported by the system, a message is displayed, indicating that you cannot log in. In this case, contact the system administrator.
- After you enter the incorrect password for three consecutive times, you must enter the verification code upon the fourth login. After you enter the incorrect password for five consecutive times, the user account or the IP address is locked for 10 minutes.

----End

5.4.2.6 Loading the NetEco Software License

The NetEco license file is used to control the functions and management capabilities of the NetEco. Before using NetEco, you need to load a commercial license.

Prerequisites

- You have obtained a license.
- You have logged in to the NetEco client using a web browser.

Procedure

Step 1 Click **Import License file** when you log in to the NetEco at the first time.

Step 2 Click  next to the **License** text box and select a license file.

Step 3 Click **Upload**.

The information about the imported license file is displayed.

Step 4 Click **Apply**.

----End

5.4.2.7 Installing NE Adapters

Install the NE adapters on the NetEco.

Prerequisites

You have obtained the adapter software installation packages.

Procedure

1. Choose **Device Management > Configuration > Device Integration**.
2. In the navigation tree on the left, choose **Adapter Management** and click **Upload**.
3. On the page that is displayed, click + to select the file to be uploaded.

4. Click **Upload** to upload the files.
5. Select the NE adapter packages to be installed on the **Adapter Management** page, and click **Install**. Then, click **Yes** in the displayed dialog box.

The time required for the installation is related to the number of adapters.
Wait for the installation to complete.

5.4.2.8 Adding a Management Domain

5.4.2.8.1 General Operation: Adding a Management Domain

This section describes how to create a management domain.

Prerequisites

The management domain adapter has been preconfigured or installed.

Context

- The management domains include **Park**, **Building**, **Room**, **ContainerDC**, **Subnet**, **NetecoSite**, **FusionModule500**, **Modular**, **Room-ShapeNode**, and **Building-ShapeNode**. You are advised to plan the subordinate relationship between management domains and devices before performing operations.
- The NetEco is preconfigured with management domains such as cabinets, battery cabinets, buildings, containers, floors, FusionModule500, smart modules, NetEco sites, parks, PDUs, equipment rooms, and subnets. To use more management domains, you need to install the corresponding adapter software package on the NetEco.

Procedure

- Step 1** Log in to the NetEco client.
- Step 2** On the main menu, choose **Device Management > Configuration > Planning Configuration**.
- Step 3** Choose the upper-layer node of the management domain to be added in the navigation tree on the left.
- Step 4** In the **Domain** area on the lower left of the page, drag a management domain icon to the required position in the planning configuration area.

NOTE

You can adjust the shape of **Room**, **Room-ShapeNode**, **Building-ShapeNode**, **Floor-ShapeNode**, **Container-ShapeNode**, and **NetecoSite** by:

1. Hold down **Shift** and click the frame to add a yellow dot.
2. Click and move the yellow dot to design an irregular polygon.
3. To delete a management domain, click the domain icon and select **Delete** under .

- Step 5** In the right side of the view area, set **Management Info**.

NOTE

You can configure **Management Info**, **Electricity Info**, and **Refrigeration Info** for the equipment room management domain.

Step 6 Click  on the toolbar to save the settings.

Step 7 Repeat steps **Step 3** to **Step 6** until the configuration is complete.

----End

5.4.2.8.2 Example: Adding a Smart Module

This section describes how to create a module in the root node, subnet, equipment room, container, or site management domain.

Prerequisites

You have created management domains in **Planning Configuration**.

Procedure

Step 1 Log in to the NetEco client.

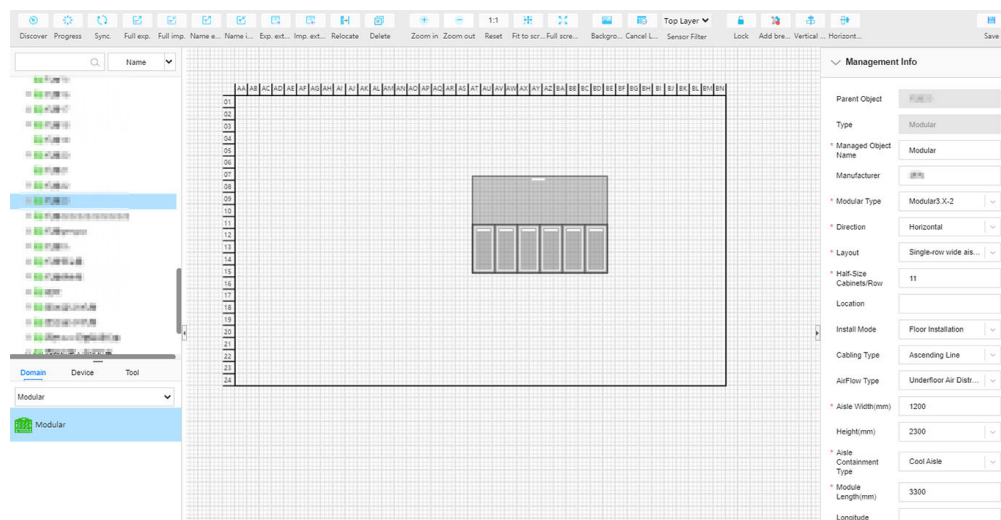
Step 2 On the main menu, choose **Device Management > Configuration > Planning Configuration**.

Step 3 Choose the management domain where you want to add a smart module from the navigation tree on the left.

Step 4 In the **Domain** area on the lower left of the page, select **Modular** from the drop-down list box.

Step 5 Select the **Modular** to be added and drag the modular icon to the management domain area.

Figure 5-12 Adding the smart module in the room area



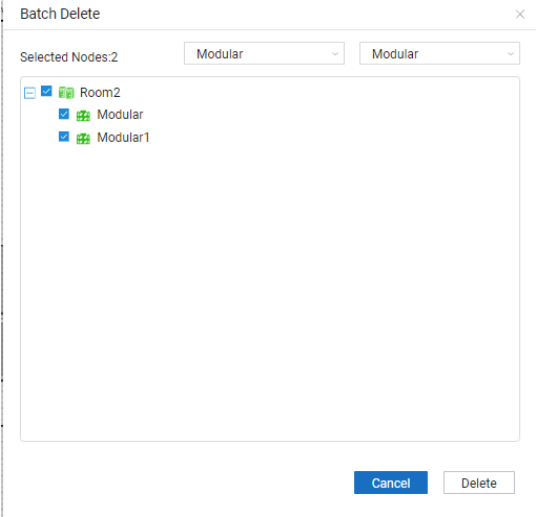
Step 6 Modify **Management Info** of the smart module as required or retain the default values.

Step 7 Click  on the toolbar to save the settings.

----End

Follow-up Procedure

Perform the following operations on the **Planning Configuration** page as required.

Related Operations	Procedure
Delete modules	You can delete one module or multiple modules in batches on the current page. NOTE If a module contains subdevices, you cannot delete it. You can delete the module only after you delete subdevices in the module. • Delete one module. 1. Right-click Modular and click Delete under . 2. In the displayed Confirm dialog box, click Yes. • Delete multiple modules in batches. 1. Click  on the toolbar. The Batch Delete dialog box is displayed. Figure 5-13 Deleting multiple modules in batches  2. In the filter box, set filter criteria to filter required modules. 3. Select the smart module to be deleted and click Delete. 4. In the displayed Confirm dialog box, click Yes.

Related Operations	Procedure
Add tools	1. Select the module for which you want to add a pillar. 2. In the lower-left corner of the current page, click Tool. 3. Select the Pillar component to be added and drag it to the planning configuration area. NOTE After the component is added, you can set attributes for the component in the Component Info list in the right pane. The system automatically displays values for Parent Name and Control Type, and you do not need to manually set them, you only need to set Name. 4. In the upper area of the current page, click .

5.4.2.8.3 Example: Adding a Container

This section describes how to create a module in the root node, subnet, equipment room, container, or site management domain.

Prerequisites

You have created management domains in **Planning Configuration**.

Procedure

- Step 1** Log in to the NetEco client.
- Step 2** On the main menu, choose **Device Management > Configuration > Planning Configuration**.
- Step 3** Choose the management domain where you want to add a container from the navigation tree on the left.
- Step 4** In the **Domain** area on the lower left of the page, select **Container** from the drop-down list box.
- Step 5** Select the **Container** to be added and drag the modular icon to the management domain area.
- Step 6** Modify **Management Info** of the container as required or retain the default values.
- Step 7** Click  on the toolbar to save the settings.

----End

Follow-up Procedure

Perform the following operations on the **Planning Configuration** page as required.

Operation	Description
Adding a text	1. Select the management domain to which you want to add a text comment. 2. In the lower-left corner of the current page, click Tool and choose the text tool. 3. You can select the text style, font size, color, and text background in the Component Info area on the right. 4. In the upper area of the current page, click .
Deleting a container	You can delete one container or multiple containers in batches on the current page. NOTE If a container contains subdevices, you cannot delete it. You can delete the container only after you delete subdevices in the container. • Delete one container. 1. Select a container and click Delete under . 2. In the displayed Confirm dialog box, click Yes. • Delete multiple containers in batches. 1. Click  on the toolbar. 2. Add filter conditions, select multiple containers, and click Delete. 3. In the displayed Confirm dialog box, click Yes.

5.4.2.9 Adding Devices

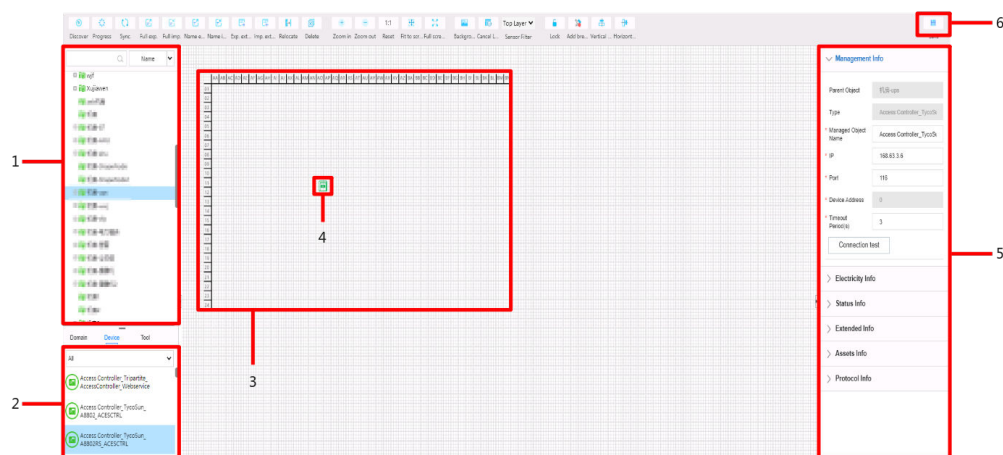
This section describes the process of adding devices.

Prerequisites

You have the operation rights for **Planning Configuration**.

Procedure

1. Log in to the NetEco client.
2. On the main menu, choose **Device Management > Configuration > Planning Configuration**.



3. In area 1, select the management domain to which the device to be added belongs.
4. In area 2, click the **Device** tab, select a device type from the drop-down list box, and select the device to be added.
5. Drag the selected device icon to area 3.
6. In area 5, set device parameters.
7. In area 6, click  to save the settings.

5.4.3 Setting and Adding the ECC800 Collector

The requirements for ECC800 WebUI login are as follows.

Computer operating system: Windows 7 or later supported

Browser: Chrome, Firefox, Internet Explorer 11 or later

5.4.3.1 Setting NetEco Parameters

When the smart module can be connected to the NetEco, perform the following steps to configure parameters.

Procedure

- Step 1** Apply for a fixed IP address to the equipment room network administrator.
- Step 2** Set the IP address, subnet mask, and default gateway on the ECC800-Pro WebUI.

Table 5-7 IP parameters

Path	Parameter	Default Value	Setting
System Settings > System Parameters >	IP	192.168.8.1 0	Set this parameter based on the IP address assigned by the network administrator.

Path	Parameter	Default Value	Setting
Monitor IP > WAN_1	Subnet mask	255.255.255.0	Set this parameter based on the subnet mask assigned by the network administrator.
	Default gateway	192.168.8.1	Set this parameter based on the default gateway address assigned by the network administrator.

Step 3 Click **Submit**.

Step 4 Set NetEco communications parameters and authentication password on the ECC800-Pro WebUI.

Table 5-8 NetEco parameters

Path	Parameter	Default Value	Setting
System Settings > NMS Application > NetEco > Communication Parameters	NetEco Location	Local	Set this parameter based on the type of the connected NetEco management system. Local: NetEco Cloud: CloudOpera NetEco
	Server IP	192.168.8.11	IP address of the primary NetEco server NOTE The NetEco IP address and the ECC800-Pro IP address must be configured in the same network to ensure normal connection between the NetEco and the ECC800-Pro.
	Port number	31220	31220
	Network port for link setup	WAN_1	WAN_1

Table 5-9 Setting an authentication password

Path	Parameter	Default Value	Setting
System Settings > NMS Application > NetEco > Set Authentication Password	Authentication Password	Modify me _123	Set this parameter based on customer requirements. NOTE Requirements for setting passwords: 'a~z','A~Z','0~9','~!@#^*_={};,./?~` \$(8-32 characters that include at least three of the following types: lowercase letters, uppercase letters, digits, and special characters)
	Confirm authentication password	-	-

Step 5 Click **Submit**.

----End

5.4.3.2 Setting the Transparent Transmission Function for the ECC800-Pro Collector

This section describes how to set the transparent transmission function for the ECC800-Pro collector.

Context

- Using the transparent transmission function, the NMS can directly manage southbound components that are not monitored by the ECC800-Pro.
- A device connected to the COM port on the ECC800-Pro or UIM20A expansion module can be connected to the NetEco using the transparent transmission function.
- In this example, the COM2 port of the ECC800-Pro is used for transparent transmission.

Procedure

Step 1 Log in to the ECC800-Pro WebUI as an administrator.

Step 2 Choose **System Settings > NMS Application > Transparent Transmission Channel**.

Step 3 In the **Transparent Transmission of Local COM Ports** area, set **COM2(Port: 3212)** to **Enable** and click **Submit**.

 **NOTE**

Mapping relationship: COM1 corresponds to port 3211, COM2 port 3212, COM3 port 3213, and COM4 port 3214.

- If the port is set for the first time, you are prompted to set an authentication password. In the **Set Authentication Password** area, set **Authentication password** and **Confirm authentication password** and click **Submit**.

 NOTE

- **Enable Security Authentication** is set to **Enable** by default. If so, an authentication password must be set. If **Enable Security Authentication** is set to **Disable**, there is no need to set an authentication password but this is risky.
- If the port has been used, you will be prompted that the transparent transmission function cannot be enabled and you need to select an idle port.

Step 4 Log in to the NetEco WebUI as an administrator.

Step 5 Choose **Device Management > Configuration > Planning Configuration**.

Step 6 Choose the management domain where you want to create a device from the navigation tree on the left.

 NOTE

- Ensure that the ECC800-Pro connected to the device has been synchronized to the NetEco.
- Ensure that the management domain to add the device is the management domain or sub-management domain of the ECC800-Pro.

Step 7 (Optional) If the management domain is a rack, click the management domain and choose **Design** under . The page for adding a device is displayed. Otherwise, skip this step.

Step 8 In the lower-left corner of the page, click the **Device** tab.

Step 9 In the **Device** area, select **Sensor** from the drop-down list box.

In this example, a Polymer temperature and humidity (T/H) sensor is added in the equipment room of the root node. Select the device to be added and drag its icon to the management domain.

Step 10 Click the device. In the device parameter area on the right, set device parameters.

- **IP Address** indicates the ECC800-Pro login IP address.
- **Port** indicates the ECC800-Pro COM2 port (3212).
- **Device Address** indicates the Polymer T/H sensor address.

Step 11 Click  on the toolbar to save the device information.

Step 12 On the main menu, choose **Device Management > Configuration > Device Integration**.

Step 13 In the navigation tree on the left, choose **Transparent Transmission Channel Management**.

Step 14 Click **Modify** after selecting the IP address of the ECC800-Pro connected to the NMS.

Step 15 In the **Modify** dialog box, set **Connection Mode**.

Table 5-10 Connection modes

Connection Mode	Description
Compatible	• On the ECC800-Pro WebUI, set Enable Security Authentication to Disable. • In transparent transmission channel management settings, the compatibility mode has security risks. You are advised to select the security protocol mode.
Security protocol	Enter the authentication password set on the ECC800-Pro WebUI.

Step 16 After the setting is complete, click **OK**.

----End

6 System Commissioning

6.1 Switching Between Two Power Supplies

Prerequisites

- The FusionDC1000 has been powered on and commissioned, and is running properly.
- Two power supplies are normal.

Procedure

- Step 1** Ensure that the two external power supplies are normal.
- Step 2** Disconnect the primary external power supply.
- Step 3** Check whether the power supply to the downstream devices is normal.
- Step 4** Connect the primary external power supply.
- Step 5** Check whether the power supply to the downstream devices is normal.
- Step 6** Disconnect the backup external power supply.
- Step 7** Check whether the power supply to the downstream devices is normal.
- Step 8** Connect the backup external power supply.
- Step 9** Check whether the power supply to the downstream devices is normal.

NOTE

During the operation, if the power supply to the downstream devices is normal, the switchover between the two power supplies is successful.

----End

6.2 Fire Extinguishing System Commissioning (CE)

Prerequisites

- The extinguishant control panel has been powered on.
- The management system is working properly.

DANGER

- Before commissioning the fire extinguishing system, remove the electrical actuator from the container valve of the fire cylinder. This prevents the extinguishant release due to misoperations, and prevents accidental damage during the commissioning. After the commissioning of the fire extinguishing system, reinstall the container valve to the electrical actuator.
 - To avoid damage to the heat detector, keep a proper distance between the heating device and the heat detector during the commissioning.
-

Preparations

Tools: multimeter, smoke pistol, heat gun, flat-head screwdriver, Phillips screwdriver, step ladder

Documents: fire extinguishing drawings and parameters

Skill requirement: fire engineer

Procedure

Step 1 Remove the electrical actuator from the fire cylinder.

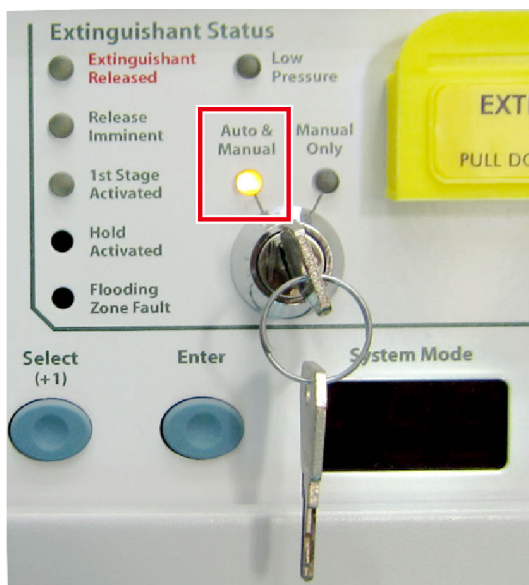
NOTE

If the electrical actuator is installed on the fire cylinder, remove the electrical actuator from the container valve of the fire cylinder.

Step 2 Switch on the input circuit breaker of the extinguishant control panel, and connect the battery cables to the extinguishant control panel.

Step 3 Flip the key leftward to **Auto & Manual**, and set the extinguishant control panel to **Auto & Manual**.

Figure 6-1 Auto & Manual indicator position



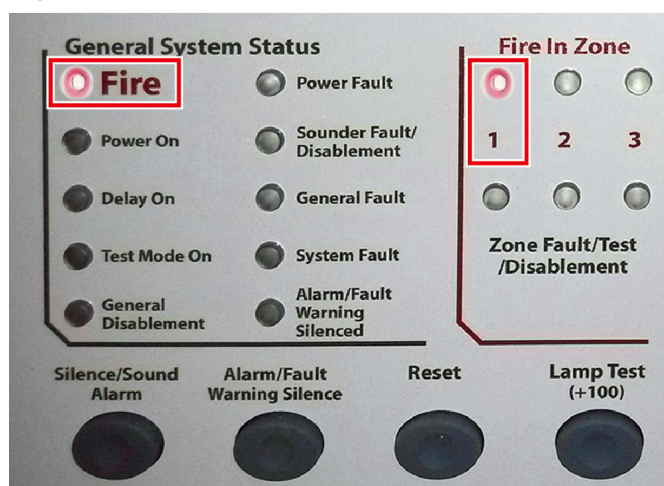
DF11W00007

- Step 4** Check whether the fire alarm control panel displays any alarm. If an alarm is displayed, clear the alarm before performing follow-up operations.
- Step 5** Blow smoke towards the smoke detector using a smoke pistol until the smoke detector indicator changes from blinking once every 6s to steady on to trigger a smoke detector fire alarm.

NOTE

- A smoke detector loop alarm is triggered, and the loop 1 fire alarm indicator on the extinguishant control panel is steady on. The fire alarm bell rings.
- Do not clear the alarm and proceed to the alarm simulation for the smoke detector.

Figure 6-2 Loop 1 FIRE RELAY indicator on



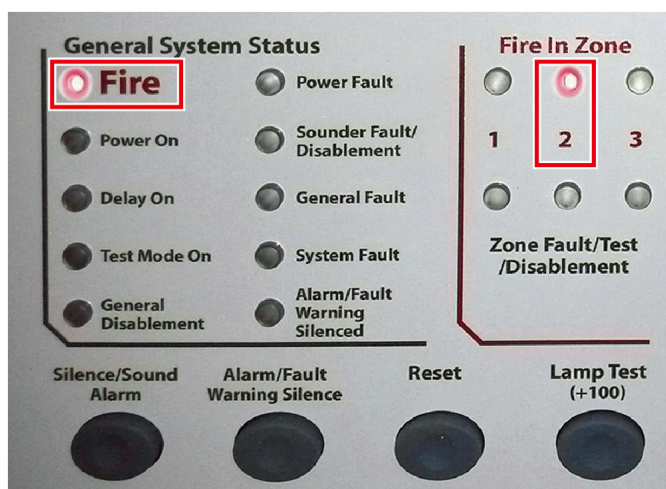
DF06W00001

- Step 6** Heat the heat detector using a heat gun until the heat detector indicator changes from blinking once every six seconds to steady on to trigger a heat detector FIRE RELAY alarm.

 NOTE

A heat detector loop alarm is triggered, and the loop 2 fire alarm indicator on the extinguishant control panel is steady on. The horn strobe is triggered, and the warning sign blinks. The **Release Imminent** indicator on the extinguishant control panel turns on, and the release countdown starts. When the countdown ends, the ejector of the electrical actuator pops up.

Figure 6-3 Loop 2 FIRE RELAY indicator on



DF06W00002

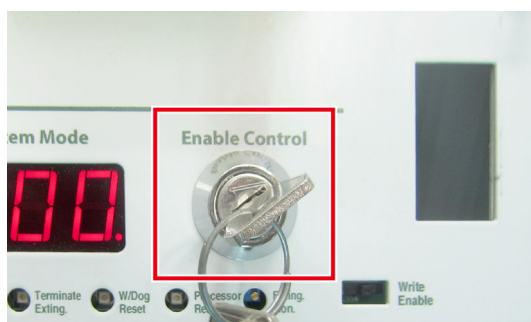
- Step 7** Reset the ejector of the electrical actuator.

- Step 8** Reset the extinguishant control panel.

 NOTE

Wait for one minute and turn the **Enable Control** key rightward. After the LCD changes from **EEE** to **Ad**, press **Reset** on the extinguishant control panel to reset the extinguishant control panel.

Figure 6-4 Enable Control position

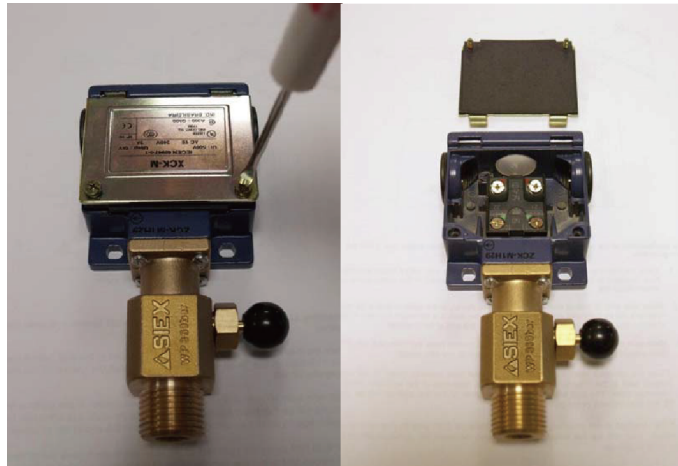


DF11W00008

- Step 9** Commission the pneumatic switch.

1. Open the cover of the pneumatic switch.

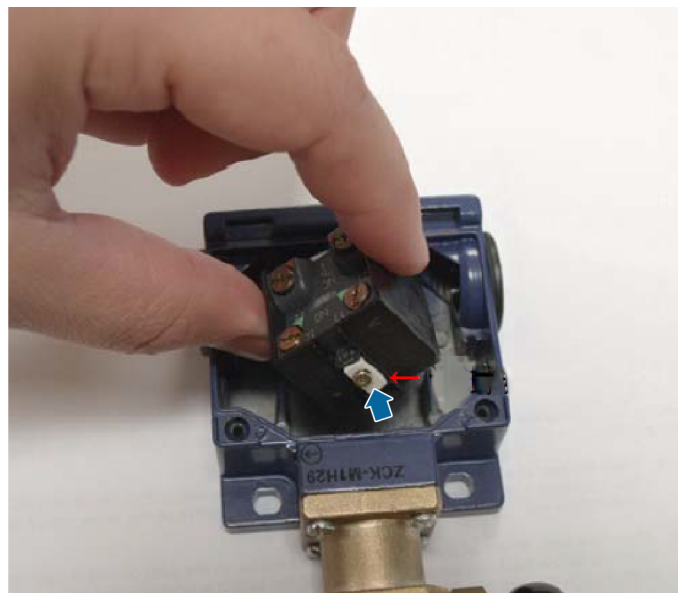
Figure 6-5 Opening the cover



DF13H00007

2. Press the test button on the pneumatic switch to short-circuit the cables inside to simulate an extinguishant release.

Figure 6-6 Pneumatic switch



DC00S00492

NOTE

- The extinguishant control panel generates a LOCAL FIRE alarm, and **Extinguishant Release** indicator turns on. The warning sign is steady on.
- **LOCAL FIRE** terminal generates a LOCAL FIRE alarm signal.

Figure 6-7 Extinguishant Released indicator on



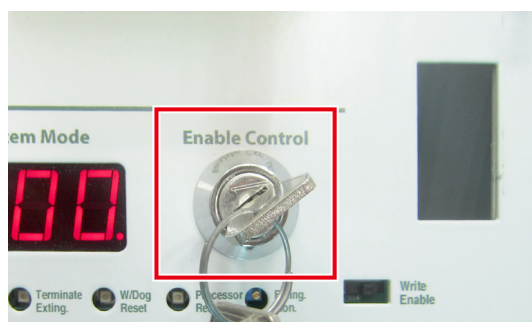
DF15000005

3. Reset the extinguishant control panel.

 NOTE

Wait for one minute and turn the **Enable Control** key rightward. After the LCD changes from **EE** to **Ad**, press **Reset** on the extinguishant control panel to reset the extinguishant control panel.

Figure 6-8 Enable Control position



DF11W00008

4. Reset the ejector of the electrical actuator.
5. Press **Reset** again to check whether all fire alarms are cleared. After the alarms are cleared, turn the **Enable Control** key leftward.

Step 10 (Optional) Check whether the fire alarm signals are reported to the management system.

Step 11 Reinstall the electrical actuator on the container valve.

----End

6.3 System Power-Off

Prerequisites

The FusionDC1000 is powered on, commissioned, and working properly.

Preparations

Tools: none

Documents: power supply and distribution drawings and parameters

Skill requirement: power distribution engineer

Procedure

Step 1 Power off the FusionDC1000.

NOTICE

- Save parameters before power-off.
 - Power off the devices in the normal power-off logic sequence.
 - During the power-off process, there is no fire or other exceptions, but the extinguishant control panel displays a power failure alarm. Ignore the alarm.
 - After power-off, all circuit breakers should be OFF.
-

1. Shut down the loads connected to the rPDU.
2. Shut down the ECC800-Pro.
3. Shut down smart cooling products.

CAUTION

After the load temperature becomes normal, power off the smart cooling products.

4. Switch off the circuit breakers from the end to start of the power supply and distribution system to power off devices. For details, see the power supply and distribution system diagram.
5. Switch off the external input power circuit breaker for the FusionDC1000.

-----End

A Acronyms and Abbreviations

A

ASD	aspirating smoke detector
ATS	automatic transfer switch

C

CE	Conformite Europe
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P

PDF	power distribution frame
PDU	power distribution unit

I

IVS	intelligent video system
-----	--------------------------

R

rPDU	rack power distribution unit
------	------------------------------

U

UPS

uninterruptible power system