

FusionDC1000A Prefabricated All-in-One Data Center

Quick Guide (2022, France, CD58)

Issue 01
Date 2022-08-31



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About This Document

Purpose

This document describes the initial configuration parameters of the data center as well as the precautions, processes, parameters, and drawings for installing the data center. It helps customers quickly get familiar with product configurations, and provides installation guidance and technical support for onsite installation personnel and technical support engineers.

Intended Audience

This document is intended for:

- Technical support engineers
- Hardware installation 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.
	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.

Symbol	Description
 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 updates made in previous issues.

Issue	Date	Description
01	2022-08-31	This issue is the first official release.

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Quick Guide Usage

This chapter describes the notes for using the quick guide.

- Before the installation, check whether the materials are complete and intact according to the packing list. If there is any problem, contact technical support.
- This document provides only the initial configuration parameters required for data center commissioning and O&M as well as the drawings and parameters required for onsite installation.
- Before using this document, read through and keep in mind the safety precautions and the cautions and notes for operations.
- Precautions provided in this document are only supplementary to the applicable local laws and regulations.
- The system configuration parameters are essential to reliable running of the system. Improper modifications of parameters may easily cause abnormal running status, or even damage to the system. You are not allowed to modify configuration parameters without permission when using the data center. If a modification is necessary, contact technical support. The relevant party will be liable for any loss caused by unauthorized configuration modification.
- Initial configurations can be modified only under the guidance of technical support. Otherwise, the relevant party will be liable for any loss caused by improper configuration modification.
- Some parameters mentioned in this document should be provided and configured by onsite technical support engineers based on the actual application of the data center.
- If parameters need to be modified during the running of systems, the operator should be a professional in this field and familiar with each system and its working principles.
- Before performing an operation, ensure that the prerequisites are met. Otherwise, the expected result may not be achieved. More seriously, equipment damage and personal injury may occur.
- Put on necessary protective equipment such as the safety helmet and gloves before entering the site.
- A data center can be powered on for commissioning only after it has been installed and passed the installation check.

- The figures provided in this document illustrate only installation and connection methods. The actual product appearance may vary.
- Unless otherwise specified, the unit for the dimensions in the figures provided in this document is millimeter (mm) by default.

Table 1-1 Reference documentation

Item	Document Name
FusionDC1000	<i>FusionDC1000A Prefabricated All-in-One Data Center V100R021C10 Installation Guide (ICT Scenario)</i>
	<i>FusionDC1000A Prefabricated All-in-One Data Center V100R021C10 Commissioning Guide (ICT Scenario)</i>
	<i>FusionDC1000A Prefabricated All-in-One Data Center V100R021C10 Maintenance Guide (ICT Scenario)</i>
Power supply product	<i>UPS2000-G-(15 kVA–20 kVA) Quick Guide</i>
Smart cooling product	<i>NetCol5000-A(025, 035) In-row Air Cooled Smart Cooling Product Quick Guide (300 mm Width)</i>
ECC	<i>ECC Data Center Controller V100R002C00 User Manual</i>
NetEco	<i>iMaster NetEco 6000 V600R021C00 Installation and Commissioning Guide</i>

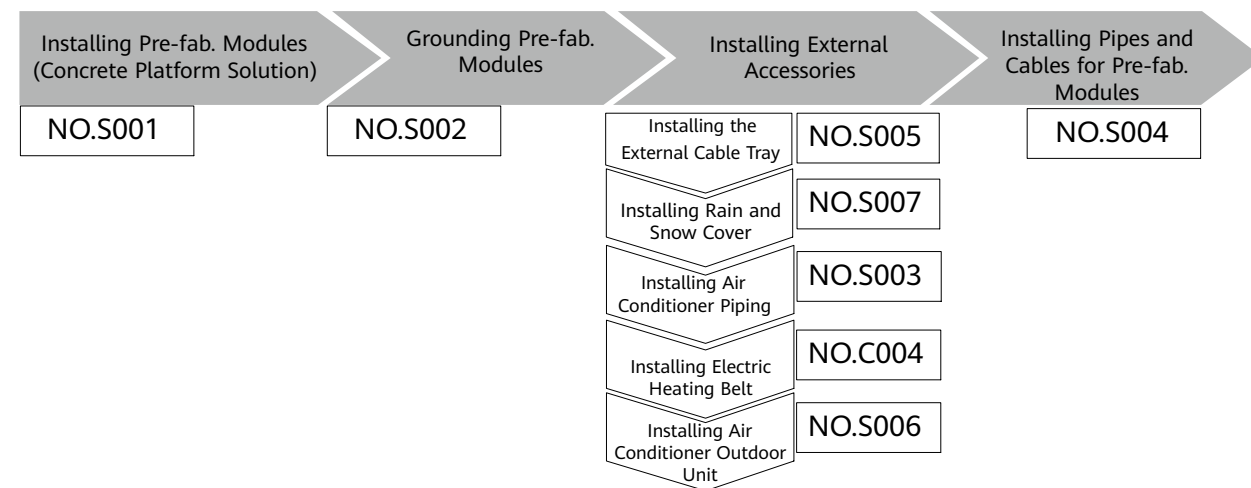
How to obtain:

- For enterprise users, log in to <https://support.huawei.com/enterprise/en/index.html>, enter a document name in the search box, and click the search icon to view the desired document.

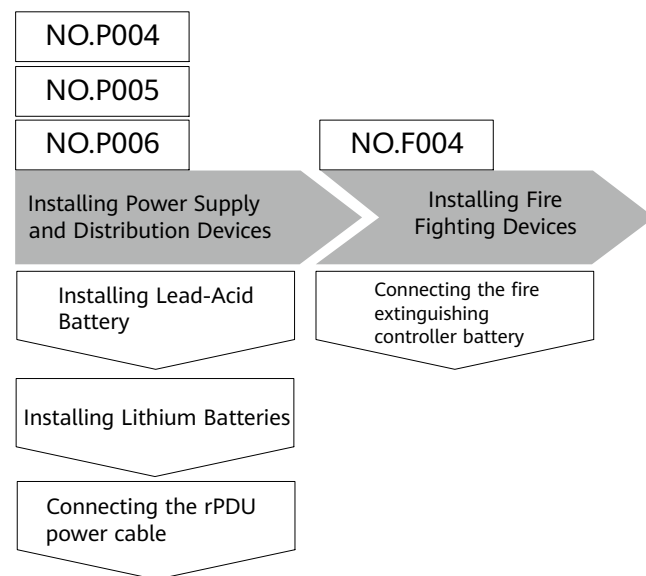
2

Installation Flowchart

1 Installing Pre-fab. Modules



2 Installing Devices in Prefabricated Modules



3 Connecting Cables



Precautions:

1. Before installing SmartLi battery modules, start the fire extinguishing system in the room or deploy fire extinguishing facilities that comply with laws and regulations.
2. Use a cable tie to secure one key of an outward-opening door to the lever behind the door, and hang the other keys of outward-opening door on the key plate of the packed materials in the container. The keys delivered with the key plate are placed in the engineering auxiliary materials.
3. The container number in the lower right corner of the drawing is the same as that in the bill of materials, which facilitates quick finding of materials.
4. For details about the material serial number, corner label (black text on a red background), container number (black text on a white background), and placement position, see the bill of materials.
5. Unless otherwise specified, the unit for the dimensions in the drawings provided in this document is millimeter (mm) by default.

Category	Diagram ID	Diagram Name	Detailed Initial Configuration Parameters
Initial Configurations for the Power Supply and Distribution System	NO.P001	Power Supply and Distribution Device Layout Diagram	N/A
	NO.P002	Power Supply and Distribution System Diagram	N/A
	NO.P003	Power-On Sequence Diagram	N/A
	Table 1	Initial Configuration Parameters for Power Supply and Distribution Devices	Initial Configuration Parameters for UPS2000G
Initial Configurations for the Cooling System	NO.C001	Cooling Device Layout Diagram	N/A
	Table 2	Initial Configuration Parameters for Cooling Devices	Initial Configuration Parameters of Remote Temperature and Humidity Sensor DIP Switches for 25 kW Smart Cooling Product
			Initial Configuration Parameters of Main Control Board DIP Switches for 25 kW Smart Cooling Product
			Initial Teamwork Configuration Parameters for 25 kW Smart Cooling Product
			Initial Temperature and Humidity Configuration Parameters for 25 kW Smart Cooling Product
Initial Configurations for the Management System	NO.M001	Monitoring Device Layout Diagram	N/A
	NO.M002	Monitoring System Network Diagram	N/A
	Table 3	Initial Configuration Parameters for the Management System	N/A
Initial Configurations for the Fire Extinguishing System	NO.F001	Fire Extinguishing Device Layout Diagram (CE)	N/A
	NO.F002	Fire Extinguishing System Conceptual Diagram (CE)	N/A
Other Systems	NO.L001	Lighting Device Layout Diagram	N/A
	NO.F003	Emergency Exit Diagram	N/A

REVISIONS		
NO.	DESCRIPTION	DATE
NOTE:		
PROJECT		
DRAWING TITLE		
CHECKED BY /DATE		
DRAWN BY /DATE		
DESIGNED BY /DATE		
CLIENT		
SCALE	STATUS	
DATE	DRAWING NO.	

3

Removing Transport Protection
Materials

Table 3-1 Protection materials to be removed

No.	Device	Protection Materials to Be Removed
1	Smart cooling product	Transport fastener for the compressor and liquid level detector
5	Light	Securing tape
6	Smoke detector	Securing tape and red cover
7	Heat detector	Securing tape and red cover
8	Fire alarm horn strobe	Securing tape and transport protective cover
9	Fire alarm bell	Securing tape
10	Emergency light	Securing tape
11	T/H sensor	Securing tape
12	Camera	Securing tape
13	Emergency door release button	Plastic cover

4

Precautions for Installing Lead-Acid Batteries

NOTICE

1. This section describes the general requirements for storing, recharging, and installing lead-acid batteries. Before operating batteries, read through the battery user manual provided by the manufacturer, especially the safety precautions and correct connection methods. If the methods specified in this manual conflict with the battery user manual, the latter shall prevail.
2. For details about how to recharge and activate batteries, contact technical support.

4.1 Important Safety Instructions

Basic Requirements

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

 DANGER

- Do not expose batteries to high temperatures or heat-generating sources, such as sunlight, fire sources, transformers, and heaters. Overheating may cause battery explosion.
 - 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 foreign objects into batteries or immerse batteries in water or other liquids.
-
- Wear goggles, rubber gloves, and protective clothing to avoid damage caused by electrolyte in the case of electrolyte overflow. If a battery overflows, protect the skin or eyes from the leaking liquid. If the skin or eyes come in

- contact with the leaking liquid, wash it immediately with clean water and go to the hospital for medical treatment.
- Use dedicated insulated tools.
- Move batteries in the correct 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 by the Company. The Company is not responsible for any battery faults caused by batteries not provided by it.

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.

Flammable Gas

NOTICE

- Do not use unsealed lead-acid batteries.
- To prevent fire or corrosion, ensure that flammable gas (such as hydrogen) is properly exhausted for lead-acid batteries.

Lead-acid batteries in use emit flammable gas. Ensure that batteries are kept in a well-ventilated area and take preventive measures against fire.

Battery Leakage

NOTICE

Battery overheating causes deformation, damage, and electrolyte overflow.

 WARNING

When the electrolyte overflows, absorb and neutralize the electrolyte immediately. When moving or handling a battery whose electrolyte leaks, note that the leaking electrolyte may cause damage.

- When the battery temperature exceeds 60°C, check whether the electrolyte overflows. If the electrolyte overflows, handle the leakage immediately.
- Electrolyte overflow may damage the equipment. It will corrode metal parts and boards, and ultimately damage the boards.
- If the electrolyte overflows, follow the instructions of the battery manufacturer or use sodium bicarbonate (NaHCO₃) or sodium carbonate (Na₂CO₃) to neutralize the electrolyte.

4.2 Storage Requirements

1. Batteries should be upright when being stored.

2. Battery packing cases should be stacked in accordance with the stacking requirements on the external package.

3. The storage environment requirements are as follows:

– Ambient temperature: 5°C–40°C

– Recommended ambient temperature: 20°C–30°C

– Recharge temperature: 5°C–40°C

– Relative humidity: ≤ 95%

– Dry and clean environment with proper ventilation

– Away from corrosive and organic substances (including gas)

- Away from direct sunlight

– At least 2 meters away from heat sources (such as a heater)

– The warehouse keeper should collect battery storage statistics every month. For batteries that have been stored for three months, the warehouse keeper should periodically report the battery storage status so that batteries can be recharged in a timely manner.

4.3 Recharge Requirements

-  NOTE

- Different manufacturers may have different requirements on the battery recharge interval. For details, see the battery documentation.
 - The recharge interval starts from the recharge date marked on the battery package.

Table 4-1 Recharge interval

Storage Duration/ Average Storage Temperature	< 6 Months	6–8 Months	8–12 Months	12–18 Months	18–24 Months	> 24 Months	> 30 Months
≤ 30°C	Use as soon as possible.		First recharge	Second recharge	Third recharge	Dispose of it; activation allowed if applicable	Dispose of it.
> 30°C	Use as soon as possible.	First recharge		Second recharge	Third recharge	Dispose of it.	

5 Cable Installation Techniques

5.1 Preparing Cable Terminals

Preparations

Tools: hydraulic pliers, heat gun, and crimping tool

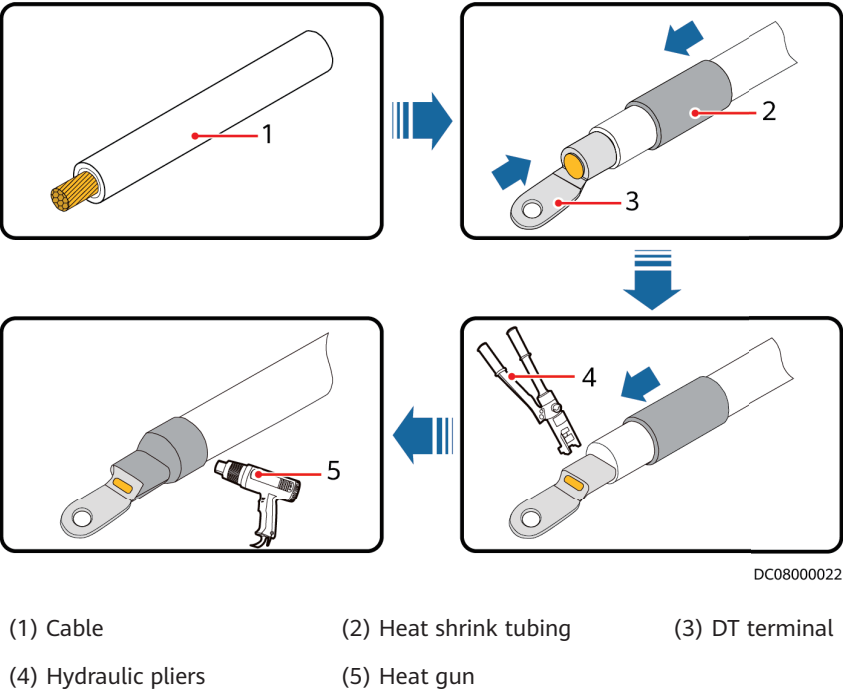
Materials: heat shrink tubing, DT terminal, OT terminal, and cord end terminal

Skill requirement: common technician

Procedure

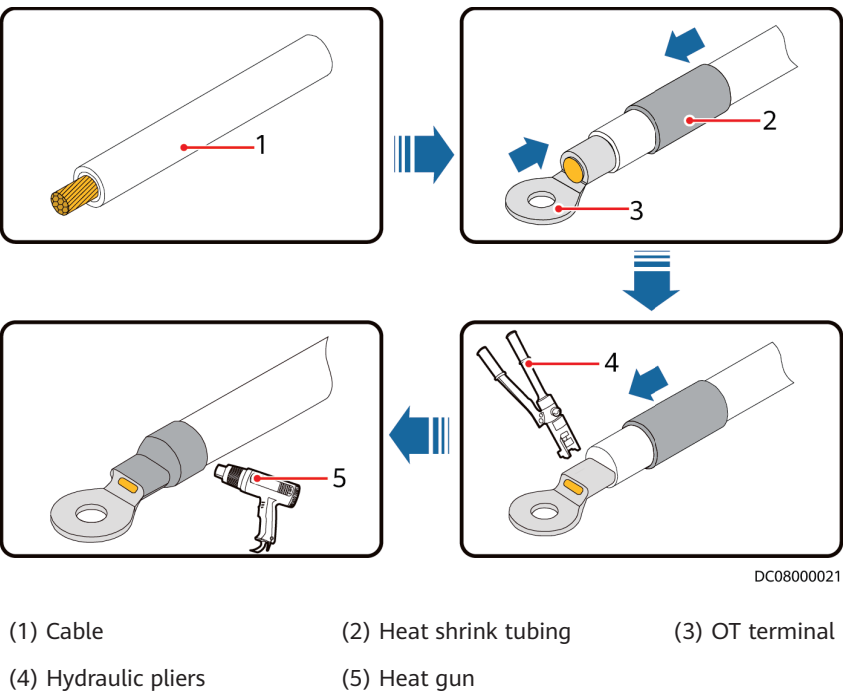
Step 1 The following figure shows how to prepare a DT terminal.

Figure 5-1 Preparing a DT terminal



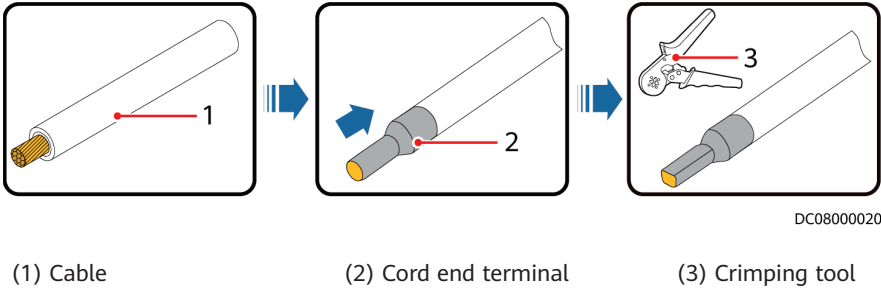
Step 2 The following figure shows how to prepare an OT terminal.

Figure 5-2 Preparing an OT terminal



Step 3 The following figure shows how to prepare a cord end terminal.

Figure 5-3 Preparing a cord end terminal



----End

5.2 Attaching Cable Labels

Prerequisites

- Cables have been connected.
- You are clear about the connections of cables to be labeled.

NOTE

Clear and specific label information facilitates future pre-fab. module maintenance work.

Preparations

Tool: pen

Material: label

Skill requirement: common technician

Procedure

Step 1 (Optional) Prepare labels based on site requirements.

NOTICE

- Label information must be clear and specific.
- Labels must be easy to attach and can be securely attached.
- Labels must be resistant to corrosion and deterioration.

Step 2 Select correct cable labels.

Step 3 Remove the simple labels attached to a cable during layout and attach the selected labels to both ends of the cable.

NOTICE

- Labels must be securely attached.
- Labels must be attached in eye-catching positions on cables for ease of maintenance.
- The labels on both ends of a cable must be the same.

----End

5.3 Cabling Rules

Cable Layout

When laying out cables, observe the following rules:

- Determine the cable specifications, route, cross-sectional area, and location according to the construction drawings.
- Cables must be neatly arranged and cable insulation layers must be intact.
- Different types of cables must be routed separately.
- Connection ports and cabling methods must facilitate maintenance, cable routing, and capacity expansion.
- Cable connectors prepared onsite must be secure, reliable, and neat, and conform to specifications.
- Power cables, ground cables, and signal cables must be securely connected. Adapters must be securely plugged or screwed.

Binding Cables

When binding cables, observe the following rules:

- Power cables and signal cables must be bound separately.
- Bind cables with a proper strength and do not pull the cables during binding.
- The labels on both sides of a cable must be concise, easy to understand, and face outwards.
- Cable ties must be neatly cut without sharp burs, evenly distributed, bound to a proper strength, and fastened towards the same direction, as shown in the figures.
- Cables must be bound closely and neatly. Each bundle must not exceed 15 cables.
- Extra cables must be coiled neatly and easy to find.

Figure 5-4 Cable ties without sharp burs

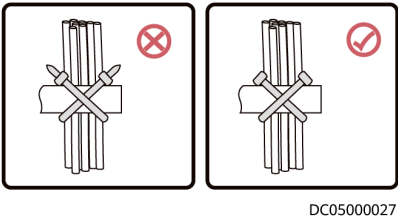
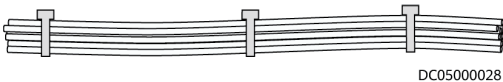


Figure 5-5 Cable ties in the same direction

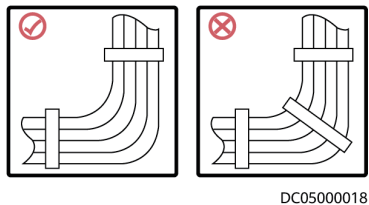


Bending Cables

When bending cables, observe the following rules:

- Cables must not be overly bent because over bending may damage the cable cores.
- The curvature radius of cables should meet the local requirements and standards.
- Cables must not be tied where they bend.

Figure 5-6 Binding cables at a turning point



5.4 Measuring Cables

Prerequisites

- The pre-fab. module has been installed.
- External cable trays have been installed.

Preparations

Tools: thin rope, protective gloves, and measuring tape
Material: cable
Skill requirement: common technician

Procedure

- Step 1

Select a cable to be connected between two devices. Measure the cable route length between the two devices using a thin rope or small cable (such as a signal cable or fire control cable) available on-site.
- Step 2

Add the length reserved for installing terminals and a tolerance to the cable length measured in [Step 1](#) to determine the required cable run length.

NOTE

- To improve installation efficiency, complete all cable measurements before you perform subsequent operations.
- Determine the length of the other cables between the devices based on the length of the cable measured.
- To facilitate installation, it is recommended that you lay out cables to the measured cable route length plus about 2 m.

----End

5.5 Laying Out Cables

Prerequisites

- Do not lay out cables outdoors under bad weather conditions if no shelter is available.
- Cables have been measured.

NOTICE

Some external cables for the FusionDC1000 are long and thick. Assign at least two persons to lay out cables especially armored cables if no assistant tool is available onsite.

Preparations

Tools: protective gloves and marker
Material: cable
Skill requirement: common technician

Procedure

- Step 1

Select the designed cables.
- Step 2

Lay out cables to the required run length.

NOTICE

To protect cable sheathings, do not press or stab cables with a hard object and do not drag cables on the ground at will during cable layout.

- Step 3

Attach labels to both ends of cables that you have laid out.

NOTICE

Ensure that the labels are clear, durable, and consistent between both ends.

----End

5.6 Mounting Cables on the Cable Tray

Prerequisites

- Do not mount cables on a cable tray outdoors under bad weather conditions if no shelter is available.
- The selected cables have been routed through a plastic-coated metal hose.

 NOTE

Some external cables for the FusionDC1000 are long and have a large diameter. Assign sufficient people to mount cables especially armored cables on cable trays if no assistant tool is available onsite.

Preparations

- Tools: step ladder, protective gloves, and safety helmet
- Materials: cable tie and rubber pad
- Skill requirement: skilled technician

Procedure

- Step 1

(Optional) Install a rubber pad in the position where external mains or diesel generator power cables will be mounted on a cable tray.
-  NOTE

A rubber pad is installed in the mounting position to prevent cable tray burrs from scraping cable sheathings.
- Step 2

Carry the cables routed into a plastic coated metal hose onto the cable tray, and bind them with cable ties.

NOTICE

- The cables are long. Assign sufficient people and ladders to carry the cables onto the cable tray.
- Before mounting cables on the cable tray, understand the installation precautions and the regulations for working at heights, and put on necessary protective equipment such as safety helmets and gloves.
- After mounting cables on the cable tray, lay out the cables horizontally without twists and bind the cables in proper positions with cable ties.
- Reserve sufficient cable length and bending space when turning an armored power cable.
- If possible, place armored cables and thick cables on the outside and lower layer of the cable tray.

Step 3 Cut the cable ties and adjust the cables.

NOTICE

The cable adjustment requirements are as follows:

- The cable bend radius must meet requirements.
- Fire control cables and monitoring cables must be placed in the inside on the upper layer of cable trays.
- Armored cables and power cables must be placed in the outside and bottom layer of cable trays.
- Cables must be level, without unevenness and deflection.

Step 4 After adjusting cables as required, bind them with cable ties.

NOTICE

Cables must be bound neatly, and cable ties must be secured evenly and properly in the same direction.

----End

5.7 Routing Cables Through a Plastic-coated Metal Hose

Prerequisites

- Do not route cables through a plastic-coated metal hose under bad weather conditions if no shelter is available.
- Cables have been labeled.

NOTICE

- In the FusionDC1000, external cables except armored cables must be routed through a plastic-coated metal hose.
- To prevent burrs on cable ends from hurting people and scraping the corrugated hose, wrap the cable ends properly before routing cables through a plastic-coated metal hose.
- To protect cable sheathings, do not drag the cables at will when routing cables through a plastic-coated metal hose.
- Wear a pair of protective gloves when pulling the thin copper cable. Ensure that protective treatment has been applied on the contact with the copper cable.
- Some external cables for the FusionDC1000 are long and thick. Assign sufficient people (at least three persons) to route cables especially armored cables through a plastic-coated metal hose if no assistant tool is available onsite.

Preparations

Tools: protective gloves

Material: plastic-coated metal hose

Skill requirement: skilled technician

Procedure

Step 1 Select an appropriate plastic-coated metal hose.

NOTE

Deduct the cable length of both ends in pre-fab. modules from the actual cable run length to determine the required length of the plastic-coated metal hose.

Step 2 Cut the plastic-coated metal hose to the required length.

NOTE

- To facilitate installation, it is recommended that you lay out cables to the measured cable route length plus about 1 m.
- Do not tread on the plastic-coated metal hose during cable layout and routing.

Step 3 Route cables through the plastic-coated metal hose.

NOTICE

All monitoring cables must be routed at the same time through the same plastic-coated metal hose.

1. Put a thin copper cable through a plastic-coated metal hose, with sufficient length reserved at both ends to facilitate subsequent operations.
2. Lay out the plastic-coated metal hose with the thin copper cable in a straight line.

3. When installing cables, bind all cables of the same category between two devices.
4. Tie a cable or a bundle of cables with the thin copper cable at one end of the plastic-coated metal hose. Pull the thin copper cable at the other end when another person is holding the plastic-coated metal hose to pull the cables through the hose.

----End

5.8 Routing Cables into Feeder Windows

DPJ end connectors and waterproof metal connectors are available on pre-fab. module feeder windows. When routing cables through a feeder window, follow the appropriate installation procedure.

NOTICE

- After cables are routed into feeder windows on the ends of pre-fab. modules, use Styrofoam to seal the hole inside the pre-fab. modules.
- The armored cables must be grounded.

External cables must be routed from bottom to top and have backwater bend.

Figure 5-7 Backwater bend



5.8.1 Installing DPJ End Connectors

Prerequisites

- Do not operate a feeder window outdoors under bad weather conditions if no shelter is available.
- Cables have been mounted on cable trays.
- Cables need to be routed into a feeder window using DPJ end connectors.

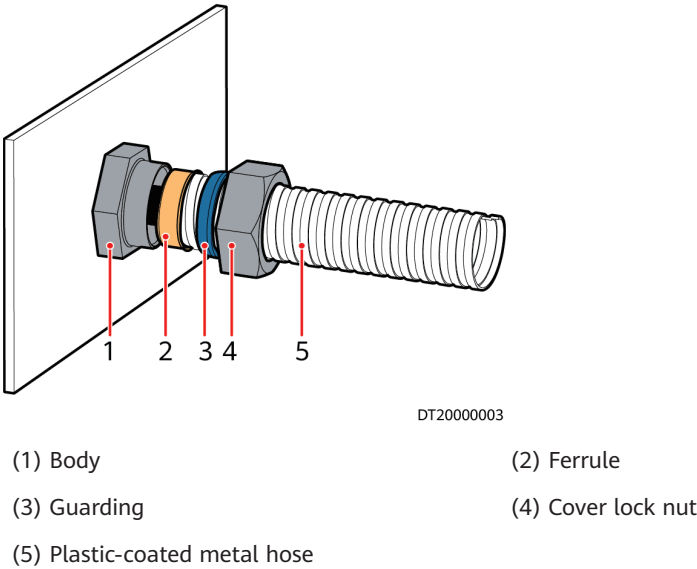
NOTE

Except armored power cables among FusionDC1000 external cables, the other cables must be routed through a feeder window using DPJ end connectors.

Context

A DPJ end connector consists of a body, ferrule, guarding, and cover lock nut.

Figure 5-8 DPJ end connector



Preparations

Tools: small cutter, scissors, wrench dedicated for feeder windows, glue gun

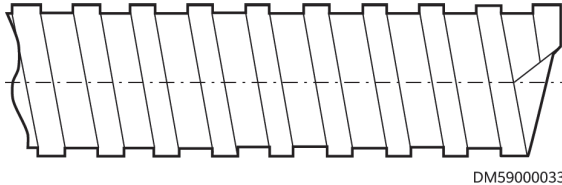
Material: sealant

Skill requirement: skilled technician

Procedure

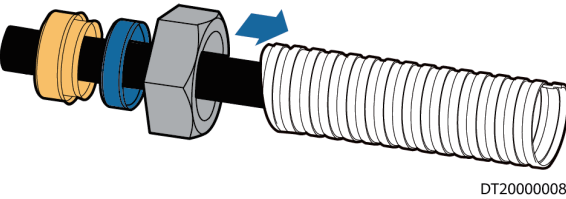
- Step 1** Cut the plastic-coated metal hose to facilitate connection between the metal hose and the ferrule.
1. Use a small cutter or a pair of scissors to cut the hose at the joint between the plastic-coated metal hose and the end connector at an angle of 30 to 45 degrees.

Figure 5-9 Cutting a hose



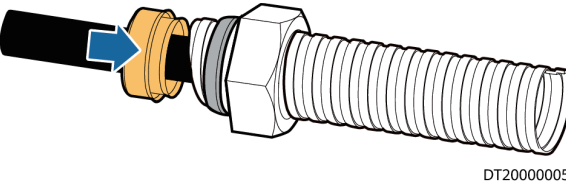
2. Trim any burrs on the cut.
- Step 2** Remove the sealant from the DPJ end connector.
- Step 3** Remove the cover lock nut, guarding, and ferrule from the DPJ end connector using the feeder window wrench shipped with pre-fab. modules.
- Step 4** Place the cover lock nut and guarding along a cable into the plastic-coated metal hose.

Figure 5-10 Connecting the hose to the DPJ end connector



- Step 5** Screw the ferrule into the plastic-coated metal hose.

Figure 5-11 Installing a DPJ end connector



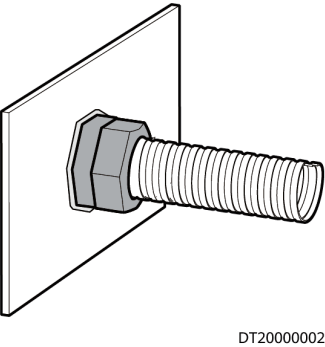
- Step 6** Route the cable into the pre-fab. module through the body of the DPJ end connector.

NOTICE

- People inside and outside the pre-fab. module should work together to route the cable to the specified connection position inside the pre-fab. module.
- To facilitate operation during internal routing, you can remove some top plate in the pre-fab. module aisle.

- Step 7** Connect the ferrule to the body and tighten the cover lock nut using the dedicated feeder window wrench.
- Step 8** Apply sealant on the joint between the end connector and the sheet metal on the pre-fab. module.

Figure 5-12 Applying sealant



- Step 9** Spray water to test the waterproof performance of the DPJ end connector.

----End

5.8.2 Installing Waterproof Metal Connectors

Prerequisites

- Do not operate a feeder window outdoors under bad weather conditions if no shelter is available.
- Cables have been mounted on cable trays.
- Cables need to be routed into a feeder window using waterproof metal connectors.

Preparations

Tool: wrench dedicated for the feeder window

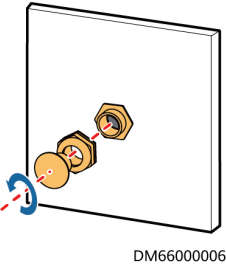
Materials: transparent sealant, sealing rubber strip

Skill requirement: skilled technician

Procedure

- Step 1** Disassemble a waterproof metal connector using the dedicated feeder window wrench shipped with the pre-fab. module, and take the plug out of the connector.

Figure 5-13 Disassembling a waterproof metal connector

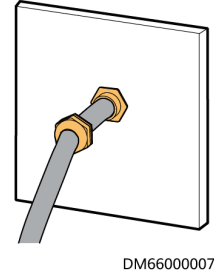


- Step 2** Route a cable into the pre-fab. module through the waterproof metal connector.

NOTICE

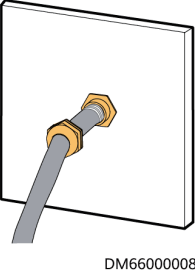
- People inside and outside the pre-fab. module should work together to route the armored power cable to the specified connection position inside the pre-fab. module.
- To facilitate operation during internal routing, you can remove some top plate in the pre-fab. module aisle.

Figure 5-14 Routing a cable



- Step 3** Wrap four circles of waterproof sealing tape around the joint between the cable and the waterproof metal connector.

Figure 5-15 Wrapping sealing tape

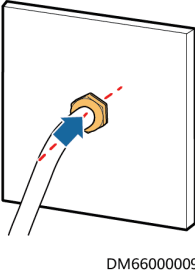


NOTE

If the cable is not regular or the size does not meet the requirements, wrap waterproof sealing tape.

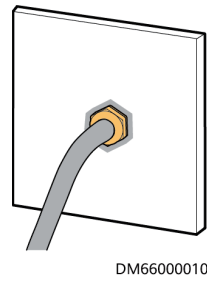
- Step 4** Secure the waterproof metal connector using the dedicated feeder window wrench by tightening the nut to a torque of 100 N·m.

Figure 5-16 Securing the waterproof metal connector



- Step 5** Apply transparent sealant onto the joint between the waterproof metal connector and the sheet metal on the pre-fab. module.

Figure 5-17 Applying sealant



Step 6 Spray water to test the waterproof performance of the waterproof metal connector.

----End

6

Cleaning Pre-fab. Modules

Prerequisites

Pre-fab. modules have been installed.

Preparations

Tools: long-handled soft brush, barrel, vacuum cleaner, cotton cloth

Materials: detergent and clean water

Skill requirement: common technician

Procedure

Step 1 Clean the interior of a pre-fab. module.

1. Clean metal scraps in all holes drilled inside the pre-fab. module.
2. Clear all smudges inside the pre-fab. module.
3. Clean visible rubbish and dust inside the pre-fab. module.

Step 2 Clean the exterior of a pre-fab. module.

1. Clean up sundries (such as iron scraps) on the pre-fab. module exterior.
2. Clear dust, rain marks, or stains on the outer panels of the pre-fab. module using a long-handled soft brush dipped with alkaline or neutral detergent.
3. Wash the pre-fab. module with clean water.

 NOTE

It is recommended that you clean the pre-fab. modules once every quarter.

----End

7

Cleaning PVC Veneers

Prerequisites

The pre-fab. modules have been installed and combined.

Context

When installing pre-fab. modules, protect the ESD veneers of the floor. Prevent veneer scratches, damage, abrasion, and dirt during installation. After the pre-fab. modules are installed, clean the ESD veneers.

NOTICE

- When the pre-fab. modules are delivered to the site, the veneer surface of the modules is protected by two layers of protective film. Check that the protection is complete and effective. During installation, do not remove the protective film except for the raised floor that needs to be opened onsite.
- Do not place heavy or sharp objects on the veneer surface. Protect it with protective boards.
- Do not scratch or drag sharp or rough objects on the floor.
- Do not walk on the floor with shoes. Wear shoe covers if there is no protection.
- Prevent adhesives, black sulfides, rubber wheels, paints, and fireworks from contaminating the veneer surface.
- Prevent water from entering the data center and soaking the veneer surface during installation. Keep the veneers dry. Do not soak them in water for a long time. Otherwise, the veneers will be unglued.
- Keep the floor surface smooth and tidy.

Preparations

Tools: polishing machine, bucket, vacuum cleaner, cotton cloth

Materials: detergent, clean water, ESD floor finish

Skill requirement: common technician

Procedure

- Step 1** Remove the protective film and check whether there is any dirt or scratch.
- Step 2** If there are oil stains on the floor surface, clean the floor with detergent, and then wipe the floor with dry cloth.
- Step 3** If the floor surface is dusty, wet the cotton cloth with clean water, clean the floor surface, and then wipe the floor with dry cloth.
- Step 4** If dust on the floor surface cannot be cleaned up with clean water, use anhydrous alcohol to wet the cotton cloth and wipe the floor surface. Then, wipe the floor surface with dry cloth.
- Step 5** Thoroughly clean the floor if there are stains that are difficult to remove due to improper protection.
- Use a polishing machine and floor stripper to polish and clean the floor.
 - Clean the floor surface with neutral detergent.
 - Clean the floor surface with clean water and dry the floor quickly by suctioning.
 - After the floor is dry, apply ESD floor finish evenly to the floor surface.
-  **NOTE**
- The floor can be used 8 hours after floor finish treatment.
- Step 6** If there are only minor scratches on the floor surface, polish the surface with fine sandpaper.
- Step 7** If there is unrecoverable damage such as tearing and break on the floor surface, contact technical support to replace the veneer.

----End

8 Repairing Rock Wool Panels

8.1 Repairing Dirty Areas

Preparations

Tools: industrial alcohol, n-Heptane $\text{CH}_3(\text{CH}_2)_5\text{CH}_3$
Material: cleaning cloth

Procedure

- Step 1

Pour industrial alcohol or n-Heptane onto cleaning cloth and wipe off dirt such as common dust and stains on the surface of a rock wool panel.
- Step 2

Pour n-Heptane onto cleaning cloth and wipe off adhesive on the rock wool panel.
- End

8.2 Repairing Scratched Areas

Preparations

Tools: industrial alcohol (n-Heptane), cleaning cloth, small scraper, utility knife
Material: PVC veneer

Procedure

- Step 1

Clean the surface of the rock wool panel to be repaired using industrial alcohol or n-Heptane.
- Step 2

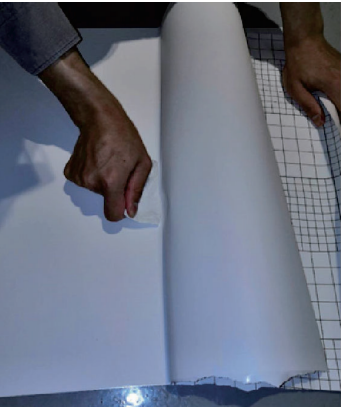
Cut a PVC veneer that is slightly larger than the repair area.
- 📖 NOTE

It is recommended that the whole scratched rock wool panel on any of side walls be repaired.

- Step 3

Peel a small part of the adhesive backing from the PVC veneer, align the veneer with the wall panel, and use a scraper to slowly scrape the veneer from the top down to expel air and neatly attach the veneer.

Figure 8-1 Attaching a PVC veneer



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- Step 4

Use a utility knife to cut off the extra part of the veneer.

📖 NOTE

If there is a bubble with a diameter less than 10 mm, use a needle to puncture the bubble, expel air, and then attach the veneer neatly.

----End

8.3 Repairing Punctured Areas

Preparations

Tools: white sealant or poly-putty base, industrial alcohol or n-Heptan
Materials: utility knife, cleaning cloth, small scraper

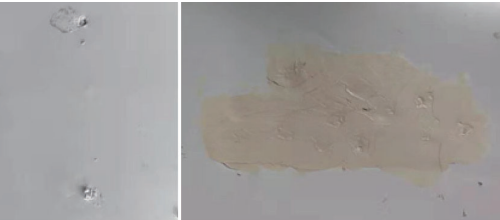
Procedure

- Step 1

Use white sealant to seal holes.
- 📖 NOTE

If a hole is large, use poly-putty base.

Figure 8-2 Sealing holes



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Step 2 After the white sealant or poly-putty base is dry, use polishing paper to polish it.

Figure 8-3 Polishing the hole area



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Step 3 Use alcohol or n-Heptane to clean the area.

Step 4 Cut a PVC veneer to the same size as the repair area and compare them. (It is recommended that the entire rock wool panel be repaired.)

Step 5 Peel a small part of the adhesive backing from the PVC veneer, align the veneer with the wall panel, and use a scraper to slowly scrape the veneer from the top down to expel air and neatly attach the veneer.

Step 6 Use a utility knife to cut off the extra part of the veneer.

NOTE

If there is a bubble with a diameter less than 10 mm, use a needle to puncture the bubble, expel air, and then attach the veneer neatly.

----End

9 Repainting Pre-fab. Modules

Prerequisites

- Before repainting, communicate with the customer and inform the customer that the front, left, and right surfaces of the data center exterior are level A surfaces, and that the rear, bottom, and top surfaces are level B surfaces.
 - The color may be slightly different when level A surfaces are repainted. Reach an agreement with the customer before repainting.
 - Acceptance criteria for repainting of level B surfaces: The repainted area should have the same color as surrounding areas. The color difference ΔE should not be greater than 3. (Use a colorimeter to measure the color difference. If a colorimeter is not available, check that no obvious deviation exists between the repainted area and its surrounding.) The paint should also be free from bulges, scratches, flake-off, and cracks.
- The outdoor area without shelters is not subject to bad weather conditions such as rain, sandstorm, strong wind, or snow during paint repair.
- Paint that meets the requirements has been prepared based on the color cards.

 NOTE

- Color card check methods:
- See the color cards delivered with the containers.
 - Ask the customer to search for the color codes and types required.
 - If no color card is found, contact technical support to query the archived painting solution (color codes and types used in the project).

Context

The FusionDC1000 pre-fab. module exterior should be intact. If the pre-fab. module surface is bumped, scratched, or rusted, the paint should be repaired.

 NOTE

Check the damage to the pre-fab. module paint and prepare appropriate tools and materials. The number of materials depends on site requirements.

Table 9-1 Paint repair

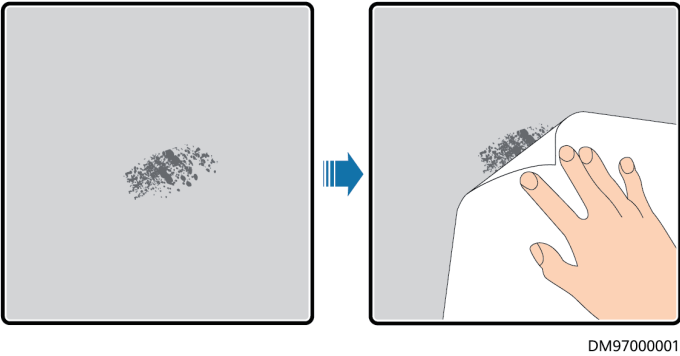
Paint Damage	Tools and Materials	Procedure	Description
Slight scratch (steel base material not exposed)	Spray paint or paint, brush (required for repainting a small area), fine sandpaper, anhydrous alcohol, cotton cloth, and spray gun (required for repainting a large area)	Steps 1, 2, and 4	1. For the color of the finish coat (polyurethane paint), see the delivered color palette and pantone No. specified on it. 2. For a few smudges, scratches or rusts, Huawei recommends manual paint spraying or paint brushing.
Smudges and rust that cannot be wiped off			
Deep scratch (primer damaged, steel base material exposed)	Spray paint or paint, zinc-rich primer, brush (required for repainting a small area), fine sandpaper, anhydrous alcohol, cotton cloth, and spray gun (required for repainting a large area)	Steps 1, 2, 3, and 4	3. For many scratches or large-area smudges and rusts, use a spray gun to spray paint. 4. The paint coating should be thin and even. Paint drops are prohibited on the coating. The surface should be smooth. 5. Leave the repainted area for about 60 minutes before performing any further operation.
Logo and pattern damage	Seek help from Huawei headquarters for a detailed painting solution. Frontline personnel can turn to local advertisement coating suppliers.		

Paint Damage	Tools and Materials	Procedure	Description
Dent		1. If a dent is less than 100 mm² in area and less than 3 mm in depth, fill the dent with Poly-Putty base and then perform the same operations as those for processing deep scratches. 2. If a dent is greater than 100 mm² in area or greater than 3 mm in depth, ask the local supplier for an appropriate repainting solution.	

Procedure

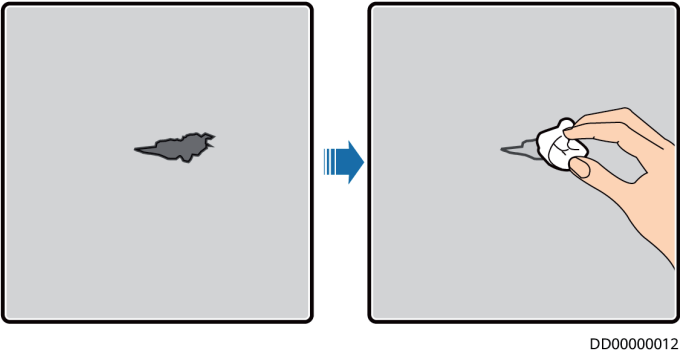
Step 1 Gently polish the damaged area using fine sandpaper to remove smudges or rust.

Figure 9-1 Polishing a damaged area using sandpaper



Step 2 Dip a piece of cotton cloth into anhydrous alcohol and wipe the polished or damaged area to remove the dirt and dust. Then wipe off the alcohol with a clean and dry cotton cloth.

Figure 9-2 Wiping a polished or damaged area using anhydrous alcohol



Step 3 Apply one layer of zinc-rich primer on the damaged coating using a brush or painting gun.

Figure 9-3 Applying zinc-rich primer



Step 4 Apply two layers of paint on the damaged finish coat based on the damage degree of the paint using an aerosol spray, a brush, or a spray gun.

NOTE

In the case that a pre-fab. module pattern has different colors, to prevent undamaged areas and those with different colors as the damaged area from being contaminated during repainting, cover such areas using white paper and adhesive tape before repairing paint.

Figure 9-4 Painting using an aerosol spray



Figure 9-5 Painting using a brush



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Figure 9-6 Painting using a spray gun



DC02H00023

----End

Follow-up Procedure

Check whether the surface meets the requirement after repainting.

10

Common Torque Selection Table

NOTE

This table lists only the recommended torque for common screws, bolts, and pipe connectors. The torques you choose should meet project requirements.

Table 10-1 Common torque selection table (for reference)

Item		Tightening Torque (Tolerance: ±10%)/(Unit: N·m)			
Thread Type	Name	Structural Connection (Common Steel Connector)	Electrical Connection		
			OT/DT Terminal	Cord End Terminal Block	Positive/ Negative Battery Wiring Terminal
M3	Cross recessed small pan head screw assembly	0.6	-	0.6	-
M4	Cross recessed countersunk head screw; cross recessed pan head screw assembly	1.2	1.2	1.4	-
M5	Cross recessed pan head thread forming screw	3	-	-	-
M5	Cross recessed countersunk head wood screw	5	-	-	-

Item		Tightening Torque (Tolerance: ±10%)/(Unit: N·m)			
M6	Cross recessed hexagon head screw assembly	3	5	3	5
M8	Cross recessed hexagon head screw assembly	20	13	-	-
	Cross recessed countersunk head screw	8	-	-	-
M10	Hexagon head screw assembly	40	27	-	-
M12	Hexagon head screw assembly	60	47	-	-
M16	Common bolt	160	120	-	-
ST4.8	Cross recessed pan head self-drilling tapping screw	3 (for checking, not for tightening)	-	-	-
ST6.3	Cross recessed hexagon flange self-drilling tapping screw	5 (for checking, not for tightening)	-	-	-
G1/2"	1/2" pipe connector	35	-	-	-
G3/4"	3/4" pipe connector	60	-	-	-
G1"	1" pipe connector	60	-	-	-