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MD880LC Series
AC Drive (Multi-drive System)
Installation Guide

Industrial Automation | Intelligent Elevator | New Energy Vehicle | Industrial Robot | Rail Transit

Data code PS00005328A04

Legal Information

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Disclaimer of Liability

Due to continuous updates and improvements of products and technologies, the content of this documentation may not fully match the actual products. In the event of any discrepancies, the actual products shall prevail.

The contents are subject to change without notice due to product upgrade.

Waste Disposal

The storage, use, and disposal of this product (including optional accessories) must comply with local laws and regulations.

Qualified Personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions. Qualified personnel can identify the risks of the product/system and prevent possible dangers.

Proper Use of the Product

Proper transportation, storage, assembly, installation, commissioning, operation, and maintenance are required to ensure the safe operation of the product without any problems. The required ambient conditions must be met. All operations must follow the guidelines provided in this documentation.

Preface

Introduction

The MD880LC series water-cooled AC drive (multi-drive system) features high-performance speed and torque control, high reliability, flexible system integration, easy commissioning and maintenance, and high power density. The MD880 series AC drives support two system topologies (single-drive system and multi-drive system) and two cooling modes (air-cooled and water-cooled). The MD880LC series AC drive can be applied to a wide range of industries, including metallurgy, petroleum, paper making, cranes, vessels, shield machines, and test benches.

This guide describes installation preparation, unpacking and handling, mechanical installation, electrical installation, routine maintenance, and component replacement.

More information

Data name	Code	Description
MD880LC Series AC Drive (Multi-drive System) Hardware Guide	19012447	Presents system composition, technical specifications, components, dimensions, certifications, and standards.
MD880LC Series AC Drive (Multi-drive System) Installation Guide	PS00005328	Presents installation preparation, unpacking and transportation, mechanical installation, electrical installation, routine maintenance, and component replacement.
MD880-40 Series PCS Function Guide	19012449	Presents function applications, fault codes, and parameters of the AC drive.
MD880-40 Series PCS Commissioning Guide	19012450	Presents the commissioning tool, commissioning flow, commissioning procedure, and parameters of the product.
MD880 Series AC Drive Communication Guide	19012451	Presents specifications, networking, and communication configuration of the product.
MD880-40 Series Active Rectifier Function Guide	19012452	Presents function applications, fault codes, and parameters of the AC drive.
MD880-40 Series Active Rectifier Commissioning Guide	19012453	Presents the commissioning tool, commissioning flow, commissioning procedure, and parameters of the product.
MD880 Series AC Drive Function Guide (HCU-50S, HCU-51S, HCU-50S-CS, and HCU-51S-CS)	19012581	Presents function applications and troubleshooting of the product.

Data name	Code	Description
MD880 Series AC Drive Commissioning Guide (HCU-50S, HCU-51S, HCU-50S-CS, and HCU-51S-CS)	19012580	Presents the commissioning tool, commissioning flow, commissioning procedure, and parameters of the product.
MD880 Series AC Drive Parameter Guide (HCU-50S, HCU-51S, HCU-50S-CS, and HCU-51S-CS)	19012699	Presents parameters and fault codes.

Revision History

Revision date	Version	Revision
May 2025	A04	**Added:** • Section "Installing H6w Module" (*"4.3 Installing the H6w Module" on page 28*). • Section "Connecting H6w Module Cables" (*"5.3 Wiring of the H6w Module" on page 62*). • Section "Replacing H6w Module" *"6.5.6 Replacing the H6w module" on page 88*. **Updated:** • Section "Installing the Active Rectifier Filter Module" (*"4.6 Installing the Active Rectifier Filter Module" on page 43*). • Section "Wiring the Active Rectifier Filter Module" (*"5.6 Wiring of the Active Rectifier Filter Module" on page 70*). • Section "Ordering Instructions" (*" Ordering Instructions" on page 118*).
December 2024	A03	• Section "Installing the Active Rectifier Filter Module" (*"4.6 Installing the Active Rectifier Filter Module" on page 43*). • Section "Wiring the Active Rectifier Filter Module" (*"5.6 Wiring of the Active Rectifier Filter Module" on page 70*). • Section "Replacing the Fan of the Active Rectifier Filter Module" (*"6.5.9 Replacing the Fan of the Active Rectifier Filter Module" on page 109*). • Section "Ordering Instructions" (*" Ordering Instructions" on page 118*).

Revision date	Version	Revision
January 2024	A02	**Added:** • Section "Installing H8w Module" (*"4.5 Installing the H8w Module" on page 38*). • Section "Connecting H8w Module Cables" (*"5.5 Wiring of the H8w Module" on page 67*). • Section "Replacing the Bottom DC Fan of the H8w Module" (*"6.5.5 Replacing the Fan at the Bottom of the H8w Module" on page 86*). • Section "Replacing H8w Module" (*"6.5.8 Replacing the H8w Module" on page 102*). **Updated:** • Changed the guide name to MD880LC Series AC Drive (Multi-drive System) Installation and Maintenance Guide. • Section "Installation Space" (*"2.2 Installation Space" on page 19*). • Section "Installing H7w Module" (*"4.4 Installing the H7w Module" on page 32*). • Section "Installing H7w Module Cables" (*"5.4 Wiring of the H7w Module" on page 64*). • Section "Replacing H7w Module" (*"6.5.7 Replacing the H7w Module" on page 94*).
December 2022	A01	Made minor corrections.
May 2022	A00	Initial release.

Access to the Guide

This guide is not delivered with the product. You can obtain the PDF version in the following ways

- Do keyword search under Service and Support at www.inovance.com.
- Scan the QR code on the product with your smart phone.
- Scan the QR code below to install My Inovance app, where you can search for and download user guides.

Warranty Disclaimer

Inovance provides warranty service within the warranty period (as specified in your order) for any fault or damage that is not caused by improper operation of the user. Maintenance will be charged after the warranty expires.

Within the warranty period, maintenance will be charged for the following damage:

- Damage caused by operations not following the instructions in the user guide
- Damage caused by fire, flood, or unusual voltage

- Damage caused by unintended use of the product
- Damage caused by use beyond the specified scope of application of the product
- Damage or secondary damage caused by force majeure (natural disaster, earthquake, and lightning strike)

The maintenance is charged according to the latest Price List of Inovance. If otherwise agreed upon, the terms and conditions in the agreement shall prevail.

For details, see Product Warranty Card.

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Fundamental Safety Instructions

Safety Precautions

- This chapter provides essential safety instructions for proper use of the equipment. Before operating the equipment, read through the guide and comprehend all the safety instructions. Failure to observe the safety precautions may result in serious injuries or death of personnel or device damage.
- "DANGER", "WARNING", and "CAUTION" in this guide only indicate some of the precautions that need to be followed; they just supplement the safety precautions.
- Use this product according to the designated environment requirements. Damage caused by improper use is not covered by warranty.
- Inovance shall take no responsibility for any personal injury or property damage caused by improper usage.

Safety Levels and Definitions



Indicates that failure to comply with the notice can result in death or severe personal injury.



Indicates that failure to comply with the notice may result in death or severe personal injury.



Indicates that failure to comply with the notice may result in minor or moderate personal injury or equipment damage.

Safety Precautions

- Drawings in the guide are sometimes shown without covers or protective guards. Remember to install the covers or protective guards as specified first, and then perform operations in accordance with the instructions.
- The drawings in the guide are shown for illustration only and may be different from the product you purchased.
- Operators must take mechanical precautions to protect personal safety and wear protective equipment, such as anti-smashing shoes, safety clothing, safety glasses, protective gloves, and protective sleeves.

Unpacking
 • Do not install the equipment if you find damage, rust, or signs of use on the equipment or accessories upon unpacking. • Do not install the equipment if you find water seepage or missing or damaged components upon unpacking. • Do not install the equipment if you find the packing list does not conform to the equipment you received.
 • Check whether the packing is intact and whether there is damage, water seepage, dampness, and deformation before unpacking. • Unpack the package in sequence. Do not hit the package violently. • Check whether there is damage, rust, or signs of bumping on the surface of the equipment and equipment accessories before unpacking. • Check whether the package contents are consistent with the packing list before unpacking.

Storage and transportation



- Large-scale or heavy equipment must be handled by qualified professionals using specialized hoisting equipment. Failure to comply may result in personal injury or equipment damage.
- Before hoisting the equipment, ensure that components such as the front cover and terminal blocks are secured firmly with screws. Loosely-connected components may fall off and result in personal injury or equipment damage.
- Do not stand or stay below the equipment when it is being hoisted.
- When hoisting the equipment with a steel rope, ensure the equipment is hoisted at a constant speed without suffering from vibration or shock. Do not turn the equipment over or let the equipment stay hanging in the air. Failure to comply may result in personal injury or equipment damage.



- Handle the equipment with care during transportation and mind your steps to prevent personal injury or equipment damage.
- When carrying the equipment with bare hands, hold the equipment casing firmly with care to prevent parts from falling. Failure to comply may result in personal injury.
- Store and transport the equipment strictly based on the requirements. Failure to comply may result in equipment damage.
- Do not store or transport the equipment in environments with water splash, rain, direct sunlight, strong electric field, strong magnetic field, and strong vibration.
- Avoid storing the product for more than 3 months. Long-term storage shall require stricter protection and necessary inspections.
- Pack the equipment strictly before transportation. Use a sealed box for long-distance transportation.
- Do not transport the equipment with other devices or materials that may harm or have negative impacts on the equipment.

Installation



- Installation must be carried out by skilled personnel who have undergone specialized electrical training and possess comprehensive electrical expertise. Non-professionals are not allowed to install the equipment.



- Read through the guide and safety precautions before installation.
- Do not install the equipment in places with strong electric or magnetic fields.
- Before installation, check that the mechanical strength of the installation site can bear the weight of the equipment. Failure to comply will result in mechanical hazards.
- Do not wear loose clothes or accessories during installation. Failure to comply may result in electric shock.
- When installing the equipment in a closed environment (such as a cabinet or casing), use a cooling device (such as a fan or air conditioner) to cool the environment down to the required temperature. Failure to comply may result in equipment over-temperature or a fire.
- Do not retrofit the equipment.
- Do not fiddle with the bolts used to fix equipment components or the bolts marked in red.
- When the equipment is installed in a cabinet or final assembly, a fireproof enclosure providing both electrical and mechanical protections must be provided. The IP rating must meet IEC standards and local laws and regulations.
- Before installing equipments with strong electromagnetic interference, such as a transformer, install a shielding equipment for the equipment to prevent malfunction.
- Install the equipment on an incombustible object such as metal and do not touch or attach the equipment to combustibles. Failure to comply can result in fire.



- Cover the top of the equipment with a piece of cloth or paper during installation. This is to prevent unwanted objects such as metal chippings, oil, and water from falling into the equipment and causing faults. After installation, remove the cloth or paper to prevent over-temperature caused by poor ventilation due to blocked ventilation holes.
- Resonance may occur when the equipment operating at a constant speed switches to variable speed operations. In this case, install the vibration-proof rubber under the motor frame or use the vibration suppression function to reduce resonance.

Wiring



- Equipment installation, wiring, maintenance, inspection, or component replacement must be performed only by professionals.
- Before wiring, disconnect all the power supplies of the equipment. Wait for at least the time designated on the equipment warning label before further operations because residual voltage still exists after power-off. Measure the DC voltage of the main circuit and make sure that it is below the safety voltage. Failure to comply can result in electric shock.
- Do not perform wiring, remove the equipment cover, or touch the circuit board with power on. Failure to comply can result in electric shock.
- Ensure the equipment is grounded properly. Failure to comply can result in electric shock.



- Do not connect the input power supply to the output end of the equipment. Failure to comply will result in equipment damage or even a fire.
- When connecting a drive to the motor, check that the phase sequences of the drive and motor terminals are consistent to prevent reverse motor rotation.
- Cables used for wiring must meet cross sectional area and shielding requirements. The shield of the cable must be reliably grounded at one end.
- Tighten the terminal screws with the tightening torque specified in the user guide. Improper tightening torque may result in overheat, damage to the connecting parts, or a fire.
- After wiring, check that all cables are connected properly and no screws, washers or exposed cables are left inside the equipment. Failure to comply may result in electric shock or equipment damage.



- During wiring, follow proper electrostatic discharge (ESD) proceduresand wear an anti-static wrist strap. Failure to comply can result in damage to the equipment or internal product circuits.
- Use shielded twisted pairs for the control circuit. Connect the shield to the grounding terminal of the equipment for grounding. Failure to comply can result in equipment malfunction.

Power-on



- Before power-on, check that the equipment is installed properly with reliable wiring and the motor can be restarted.
- Check that the power supply meets equipment requirements before powering on to prevent equipment damage or a fire.
- When the equipment is powered on, do not open the cabinet door or protective cover, touch any wiring terminal, or disassemble any component of the equipment. Failure to comply can result in electric shock.



- After wiring and parameter setting, perform a trial run to ensure the equipment operates safely. Failure to comply may result in personal injury or equipment damage.
- Before power-on, check that the rated voltage of the equipment is consistent with that of the power supply. Failure to comply may result in a fire. Failure to comply may result in fire.
- Before powering on, check that no one is near the equipment, motor, or machine. Failure to comply may result in death or personal injury.

Operation



- The equipment must be operated only by professionals. Failure to comply can result in death or personal injury.
- During operation, do not touch any connecting terminals or disassemble any component of the equipment. Failure to comply can result in electric shock.



- Do not touch the equipment enclosure, fan, or resistor with bare hands. Failure to comply may result in burns.
- During operation, prevent metal or other objects from falling into the equipment. Failure to comply may result in fire or equipment damage.

Maintenance



- Equipment installation, wiring, maintenance, inspection, or component replacement must be performed only by professionals.
- Do not maintain the equipment with power ON. Failure to comply can result in electric shock.
- Before maintenance, disconnect all the power supplies of the equipment and wait for at least the time designated on the equipment warning label.
- When a permanent magnet motor is used, do not touch the motor terminals immediately after power-off because the motor terminals can generate induced voltage during rotation even after the equipment is powered off. Failure to comply can result in electric shock.



- Perform routine and regular inspection and maintenance on the equipment in accordance with maintenance requirements and keep a record.

Repair



- Equipment installation, wiring, maintenance, inspection, or component replacement must be performed only by professionals.
- Do not perform maintenance on the equipment with power on. Failure to comply can result in electric shock.
- Before inspection and maintenance, disconnect all the power supplies of the equipment and wait for at least the time designated on the equipment warning label.



- Submit a request for repair services in accordance with the product warranty agreement.
- When the fuse is blown or the circuit breaker or earth leakage current breaker (ELCB) trips, wait for at least the time designated on the equipment warning label before power-on or further operations. Failure to comply may result in death, personal injury, or equipment damage.
- Troubleshooting and repair must be performed by professionals according to the repair instructions, with repair records kept properly.
- Replace quick-wear parts of the equipment in accordance with the replacement instructions.
- Do not operate on damaged equipment. Failure to comply may result in death, personal injury, or equipment damage.
- After the equipment is replaced, check the wiring and set parameters again.

Disposal
WARNING • Dispose of retired equipment in accordance with local regulations and standards. Failure to comply may result in death, personal injury, or property damage. • Recycle retired equipment by observing industry waste disposal standards to avoid environmental pollution.

Safety label

To ensure safe operation, comply with equipment-related safety labels. See the following table for description of the safety labels.

Safety Label	Description
	• Read through the safety instructions before operating the equipment. Failure to comply may result in equipment damage, personal injury, or even death. • Do not touch the terminals or remove the cover with power on or within 10 min after power-off. Failure to comply can result in electric shock.

1 Installation flowchart

Mechanical installation

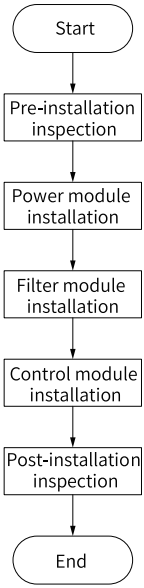


Figure 1-1 Mechanical installation flowchart of the active rectifier module

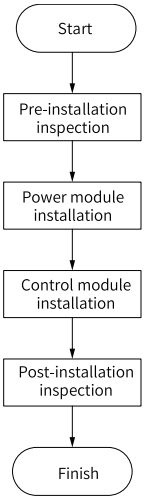


Figure 1-2 Mechanical installation flowchart of the inverter module

Electrical Installation

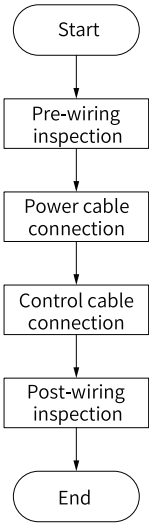


Figure 1-3 Electrical installation flowchart

2 Preparations Before Installation

2.1 Installation Environment

Table 2–1 Environment requirements

Item	Requirement
Heat dissipation and ventilation	As the drive dissipates a large amount of heat during operation, install the module on the surface of an incombustible object and leave sufficient space for heat dissipation.
Installation location	Install the drive in a place that meets the following requirements: • Free from direct sunlight • Free from water drops; relative humidity ⩽ 95% • Free from corrosive, inflammable, and explosive gases • Free from greasy dirt and dust
Vibration	Install the drive in a place with minimum risk of vibration. For vibration resistance performance, see section "Technical data" in *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.
Ambient temperature	The required environmental conditions must be fulfilled. For derating coefficient, see section "Derating" in *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.
Protective enclosure	The drive must be installed in a cabinet that is used in a final system. The final system must be equipped with a fireproof enclosure providing both electrical and mechanical protection. The installation must conform to local and regional laws and regulations, and relevant IEC standards.

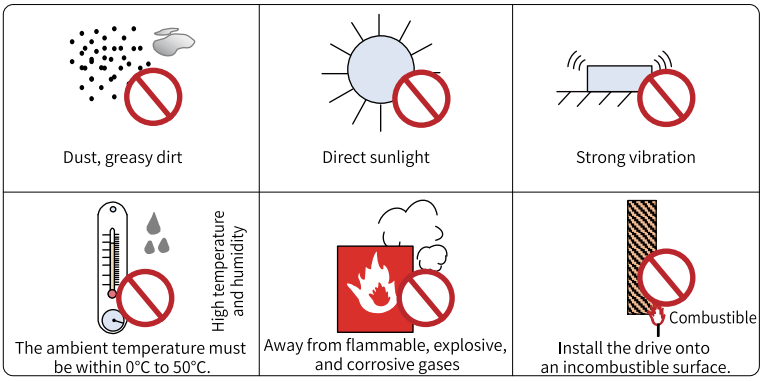


Figure 2-1 Environment requirements

2.2 Installation Space

H6w module

Reserve sufficient mounting space and clearance for the H6w module, as shown below.

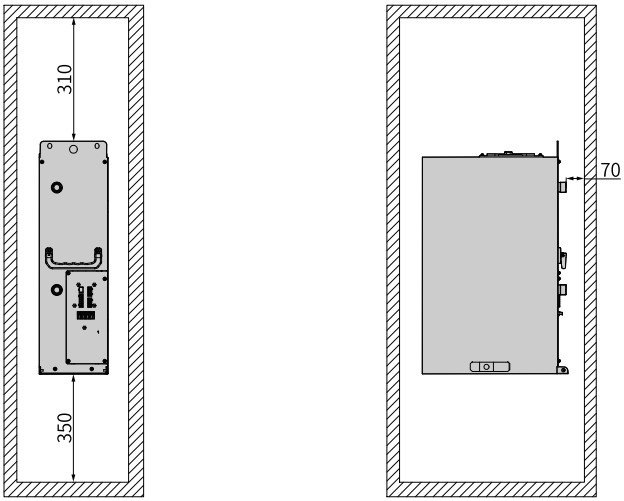


Figure 2-2 Clearance for the H6w module (in mm)

Note

The dimensions above represent the minimum space (mm) required.

H7w module

Reserve sufficient mounting space and clearance for the H7w module, as shown below.

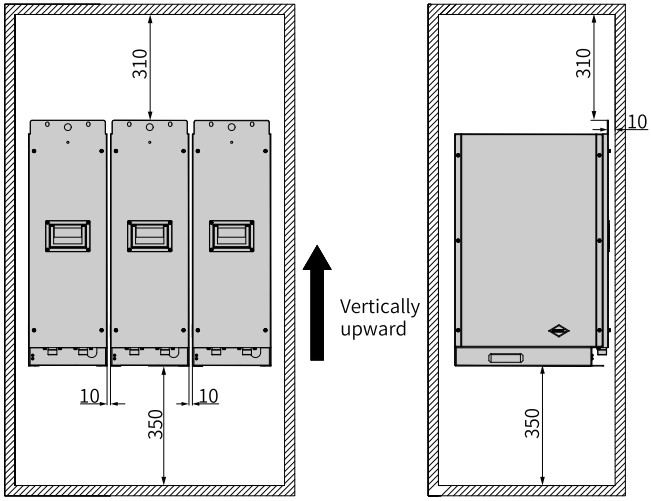


Figure 2-3 Clearance for the H7w module (in mm)

Note

The dimensions above represent the minimum space (mm) required.

H8w module

Reserve sufficient mounting space and clearance for the H8w module, as shown below.

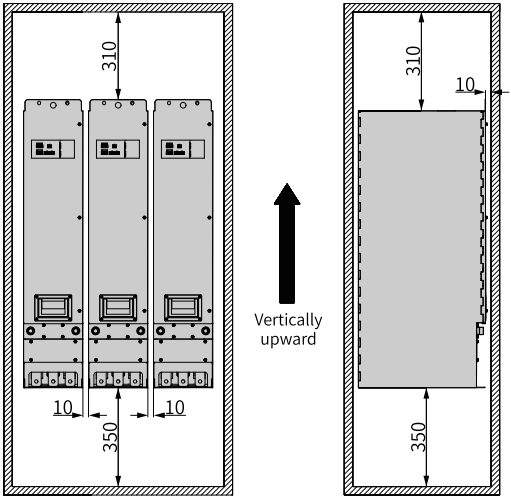


Figure 2-4 Clearance for the H8w module (in mm)

Note

The dimensions above represent the minimum space (mm) required.

2.3 Preparing Installation Tools

Prepare the following tools for moving, fixing, and fastening the module:

- Crane, forklift truck, pallet truck, and roller, which are used to move the module
- 13 mm wrench or socket wrench, which is used to fix the module
- 16 mm and 18 mm wrenches or socket wrenches, which are used to connect cables or copper busbars
- Straight screwdriver that used to connect the signal cable
- 32 mm open-end torque wrench, which is used to connect the water pipes

Tightening torque of common screws and bolts

Table 2–2 Electrical connection

Screw/Bolt	Property class	Maximum torque (N·m)
M3	4.8	0.55
M4	4.8	1.2
M5	4.8	2.8
M6	4.8	4.8
M8	4.8	13
M10	4.8	20
M12	4.8	35
M16	4.8	85

Table 2–3 Cable connector

Screw/Bolt	Property class	Maximum torque (N·m)
M8	4.8	13
M10	4.8	20
M12	4.8	35

3 Unpacking Inspection

3.1 Unpacking

Precautions for unpacking



- Check the equipment carefully upon reception.
- Check that you have received all the items specified on the delivery note. Notify the shipping company immediately of any missing or damaged items. Contact Inovance technical support or your local agent if necessary.

Note

- If the equipment is damaged during transportation, the electrical safety of the equipment can no longer be guaranteed. Do not connect the equipment before a professional high-voltage test is performed.
- Failure to comply with these instructions may cause property damage, physical injury, or even death.

Unpacking procedure

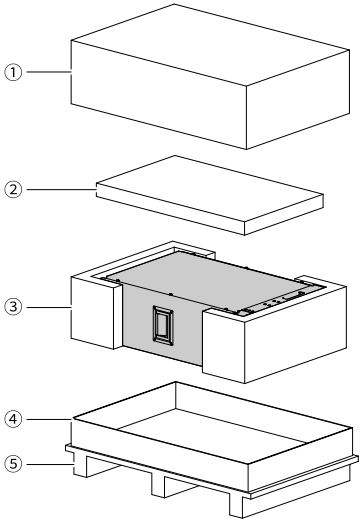


Figure 3-1 Layout of the package

No.	Name
①	Upper cover of the carton box
②	Filler plate of the carton box
③	Module
④	Bottom tray of the carton box
⑤	Pallet

Unpacking procedure:

1. Remove all the straps and open the upper cover of the carton box.
2. Remove all filler materials.
3. Take out the module and accessories.
4. Cut the plastic wrap film on the module and ensure that the module is intact.
5. Dispose of or recycle the packing material according to local regulations.

Post-unpacking inspection

Check the following items after unpacking.

Table 3–1 Post-unpacking checklist

No.	Item	Compliance
1	There is no sign of damage, scratching, or bumping on the surface of the product.	☐
2	All the optional parts ordered are in the packing box.	☐
3	The model of the product ordered is consistent with the nameplate.	☐
4	There is no sign of damage, scratch, or blur on the warning labels.	☐

Pack up the product again for storage or installation.

3.2 Storage

Store the module in a clean and dry room with ambient temperatures between -25°C and +55°C and temperature change rate lower than 1°C/min. For long-term storage, cover the module or take other appropriate measures to protect it against contamination and environmental pollutants.

For temporary and long-term storage of the module, observe the following precautions:



- During storage, pack the module in the original packing box provided by Inovance.
- Do not expose the module to moisture, high temperature, or direct sunlight for a long time.
- If the storage temperature is lower than 0°C, empty the coolant inside the module.

3.3 Handling

Precautions for handling



- Use a forklift truck to handle the well-packed module through the wooden pallets below the package. The operator must be well trained. When handling with a forklift truck, fix the module to the wooden pallet. When handling with a crane, hoist the module together with the wooden pallet.
- The load-carrying capacity of the handling device must be greater than the weight of the module.
- Use a proper hoisting tool for MD880 series models.

Pre-unpacking handling

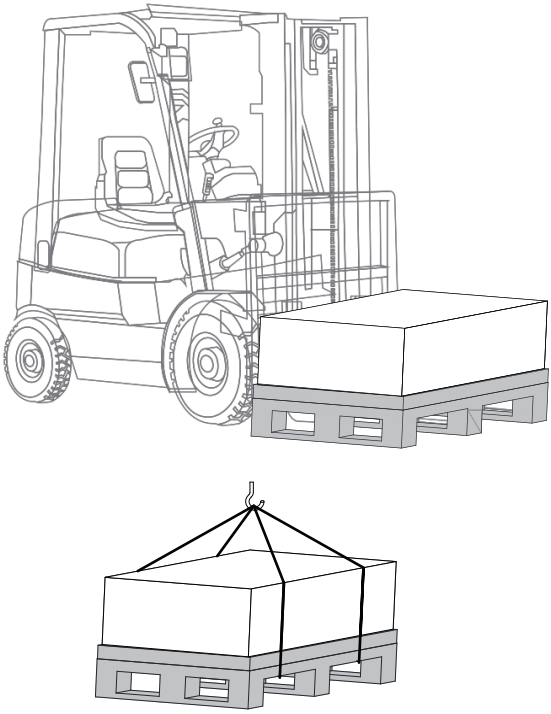


Figure 3-2 Handling before unpacking

Note

- Place the module on a flat surface that is firm enough to bear the weight of the module.
- The module is heavy with a high center of gravity. Therefore, avoid placing it on a slope with a tilt angle greater than 5 degrees.
- Handle the module in the method indicated on the packing box.

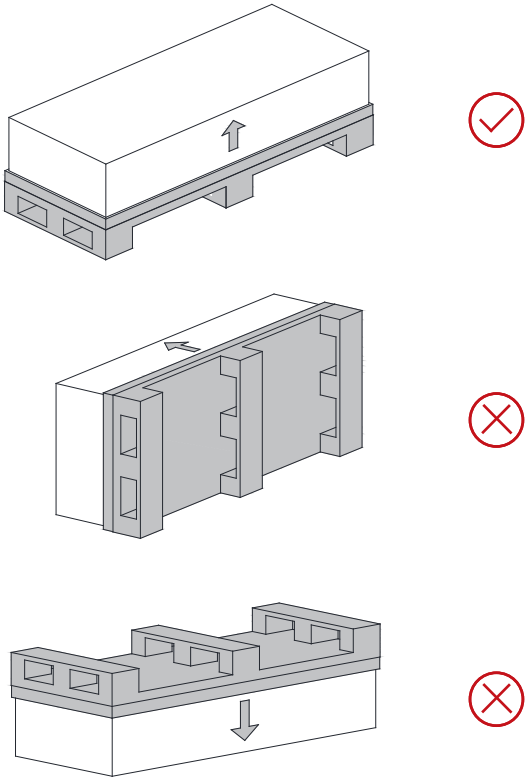


Figure 3-3 Handling method

Post-unpacking handling

- The load-carrying capacity of the crane must be greater than the weight of the module.
- Lift and transport the module through the auxiliary eyebolt on the top of the module, with the relief height not higher than 0.3 m.

4 Mechanical Installation

4.1 Safety Precautions

Note

- The module must be installed and operated only by qualified professionals in accordance with all warnings and precautions provided in the user guide. Failure to comply may result in major property loss, physical injury, or even death.



- The cabinet frame must be sturdy enough to bear the weight of the components, control circuit, and other equipment installed in it.
- The cabinet must protect the module against contact and meet the requirements for dust and humidity.
- To facilitate installation and maintenance, it is recommended to leave enough space around the equipment to allow adequate cooling air flow, necessary clearance, and space required for holding cables and cable supports. Do not install the control board near the main circuit or high-temperature parts.
- Make sure that spanning components or frames on which components are mounted are properly grounded and the coupling surfaces are left unpainted.
- Ensure that the module is grounded properly through the fixing points on the mounting baseplate.
- It is recommended to use nickel plated copper.
- If there is a risk of condensation in the cabinet, use a cabinet heater. Although the heater is mainly used to keep the air dry, it can also be used for heating at low temperatures. When placing the heater, follow the instructions provided by the manufacturer.
- Take care when installing coolant pipes. Ensure the pipe machineries are installed correctly without leakage.

4.2 Pre-installation Inspection

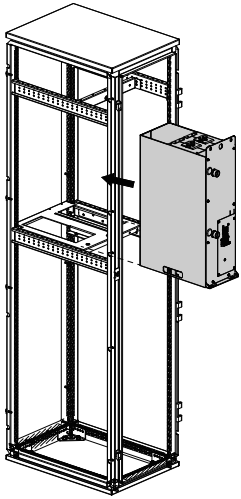
Perform pre-installation inspection according to the following table.

Table 4–1 Pre-inspection checklist

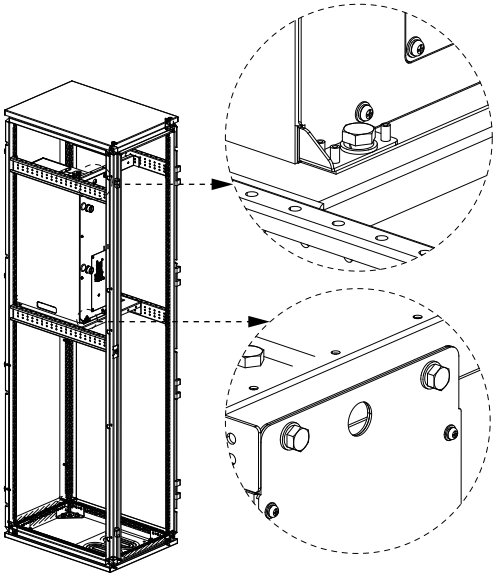
No.	Item	Checked
1	The packing box is intact and dry.	☐
2	The enclosure of the module is free of deformation, paint loss, crack, or water stain.	☐
3	All accessories and options ordered are delivered.	☐
4	The minimum space required for unblocked air passage is reserved around the module. Sufficient space is reserved at the air inlet and outlet to allow unblocked dissipation.	☐

4.3 Installing the H6w Module

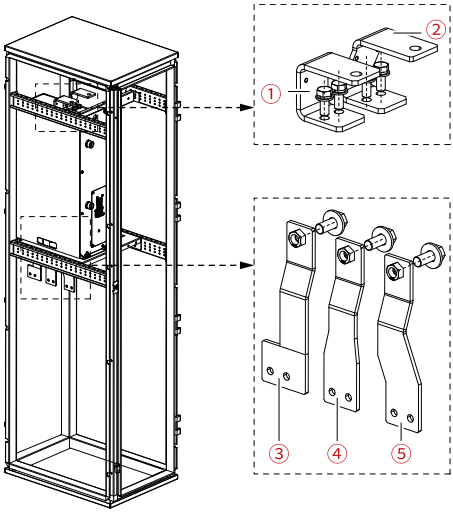
1. Push the module into the cabinet along the mounting limit slot.



2. After the module is pushed in place, use a 13 mm socket wrench (use an extension bar if necessary) to tighten the four M8x20 hexagon bolts on the top and bottom of the module with a tightening torque of 12 N·m, as shown in the following figure.

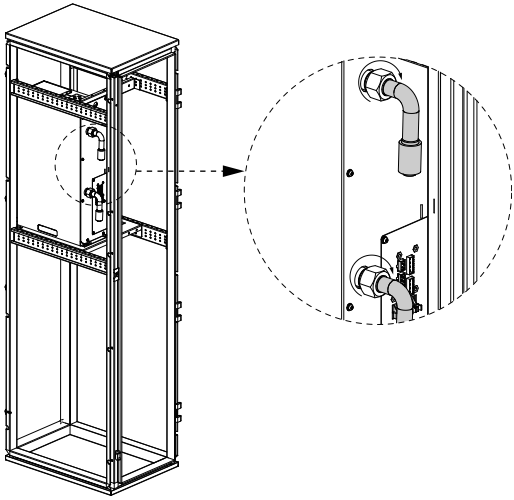


3. Use a 16 mm socket wrench (use an extension rod if necessary) to tighten the four M10x20 hexagon bolts with a tightening torque of 20 N·m to connect the two copper busbars ① and ② to the positive/negative copper busbars of the module. Use a 18 mm socket wrench (use an extension rod if necessary) to tighten the three M12x30 hexagon bolts with a tightening torque of 35 N·m to connect the three copper busbars ③, ④, and ⑤ to the three-phase AC copper busbar at the bottom of the module.

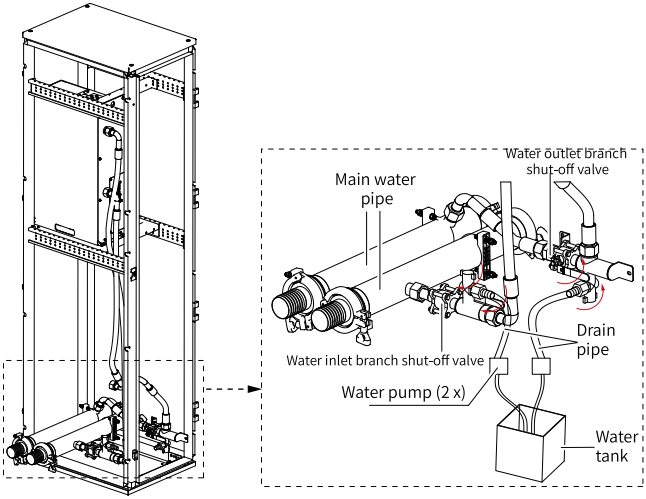


4. Lock the crimping pipes of the water inlet and outlet pipes to the water inlet and outlet of the module with a 32 mm open-end wrench at a tightening torque of 35 N·m, as

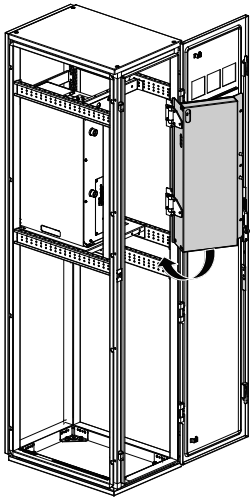
shown by the arrow direction in the figure. The water inlet/outlet connector has M26x1.5 metric thread and 24-degree internal taper, as shown below.



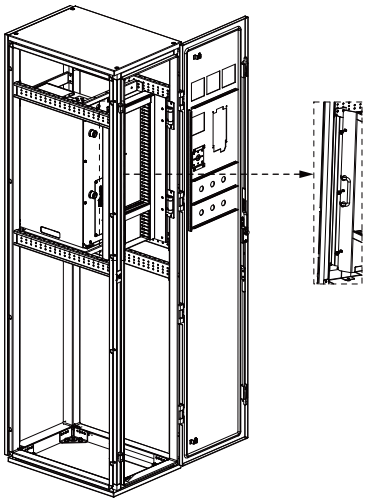
5. Close the two drain valves in the arrow direction shown in the figure, and then open the water inlet and outlet branch shut-off valves to ensure that the water circuit in the cabinet is connected to the main water circuit.



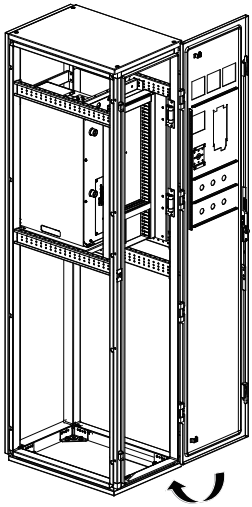
6. Hold the handle on the right side of the mounting panel and close it leftward, as shown in the following figure.



7. Install the M6 fixing nut of the mounting panel and open the panel.

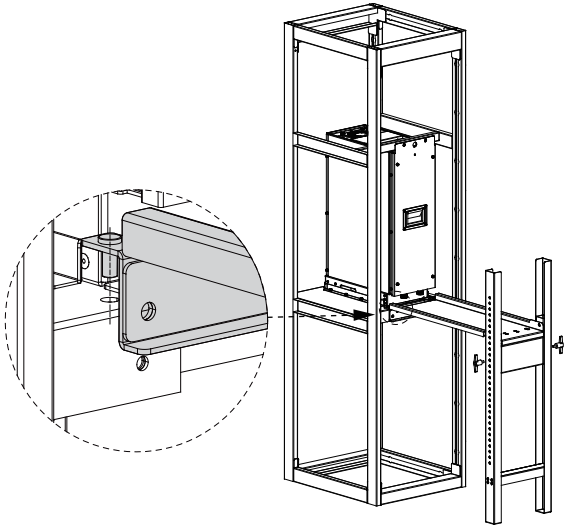


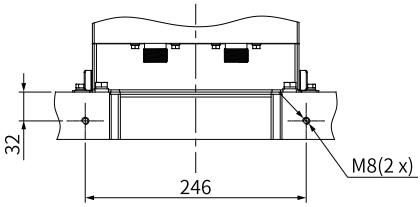
8. Close the cabinet door.



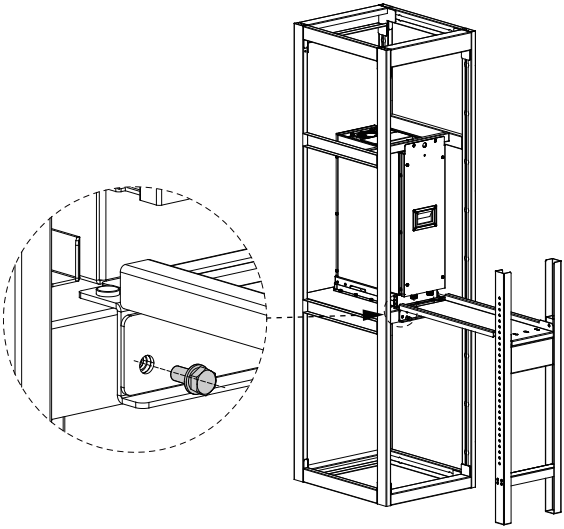
4.4 Installing the H7w Module

1. Install the maintenance stand for the module.
   a. Insert the maintenance stand limit pins into the positioning holes, as shown below (in mm).

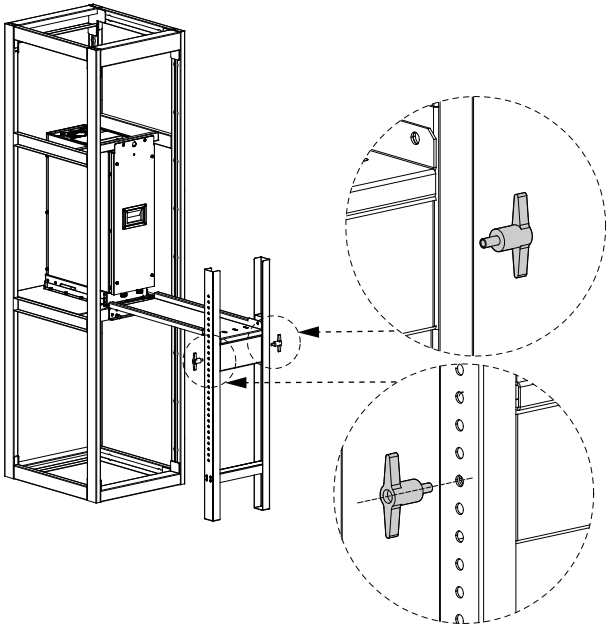




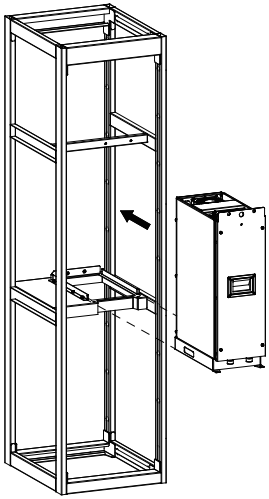
b. Fix the bracket with two M8 screws.



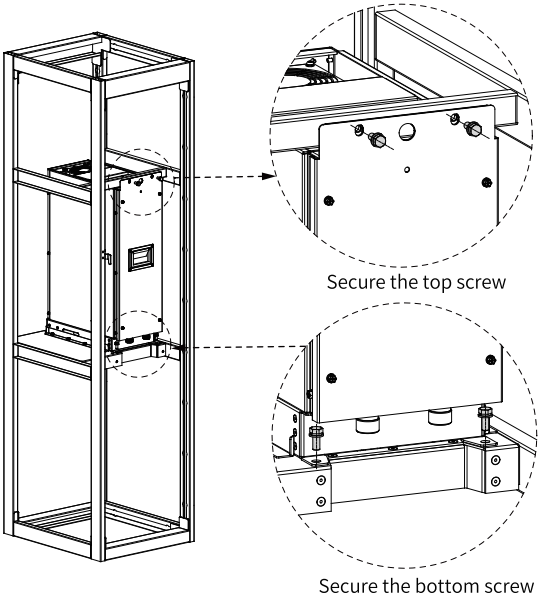
c. Adjust the foot height and fix it to the proper hole with thumb screws.



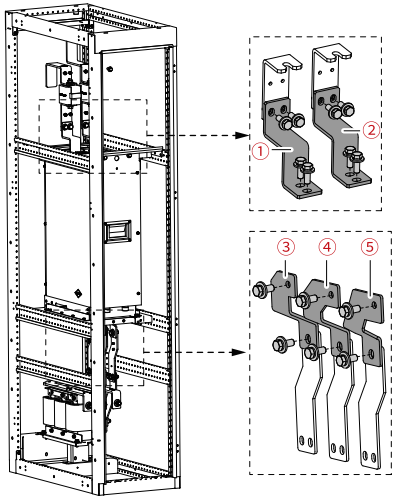
2. Push the module into the cabinet along the mounting limit slot.



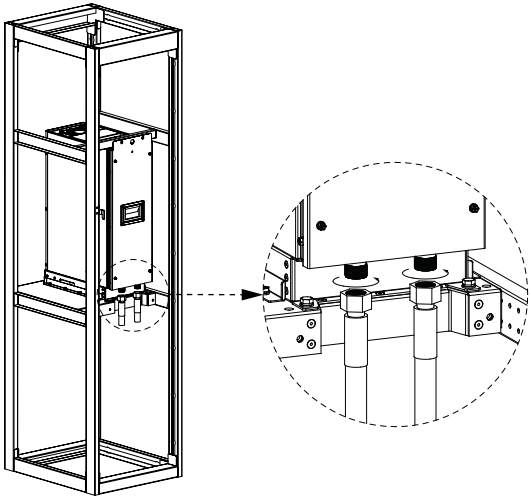
3. After the module is pushed in place, use a 13 mm socket wrench (use an extension bar if necessary) to tighten the four M8x20 hexagon bolts on the top and bottom of the module clockwise with a tightening torque of 12 N·m, as shown in the following figure.



4. Use a 16 mm socket wrench (use an extension rod if necessary) to tighten the eight M10x30 hexagon bolts with a tightening torque of 20 N·m to connect the two copper busbars ① and ② to the positive/negative copper busbars of the module. Use a 18 mm socket wrench (use an extension rod if necessary) to tighten the six M12x30 hexagon bolts with a tightening torque of 35 N·m to connect the three copper busbars ③, ④, and ⑤ to the three-phase AC copper busbars at the bottom of the module.



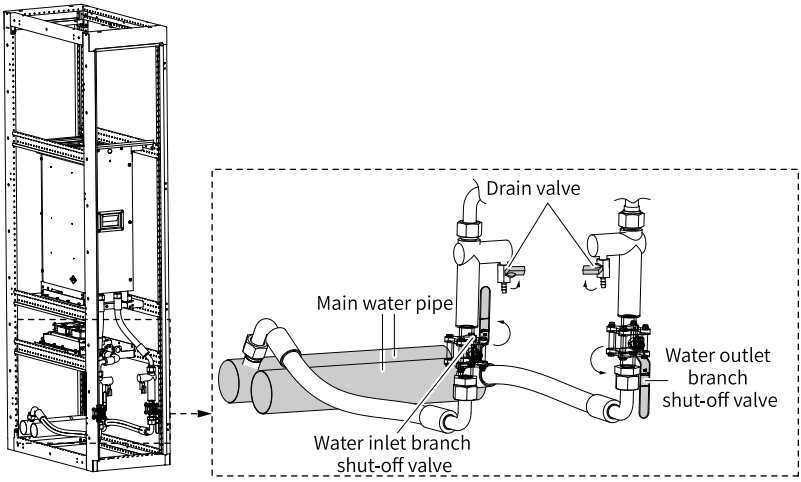
5. Lock the crimping pipes of the water inlet and outlet pipes to the water inlet and outlet of the module with a 32 mm open-end wrench at a tightening torque of 35 N·m, as shown by the arrow direction in the figure. The water inlet/outlet connector has M26x1.5 metric thread and 24-degree internal taper, as shown below.



6. Close the two drain valves in the arrow direction shown in the figure, and then open the water inlet and outlet branch shut-off valves to ensure that the water circuit in the cabinet is connected to the main water circuit.

Note

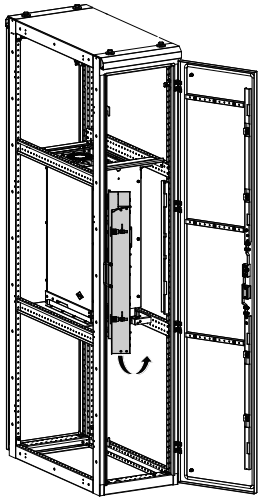
If the shut-off valve and drain valve handles are parallel to the water pipe, the shut-off valve and drain valve are opened. If they are vertical to the water pipe, they are closed. The following figure shows the handle status after valve commissioning is done.



Note

For water-cooled system, check the water first upon overtemperature.

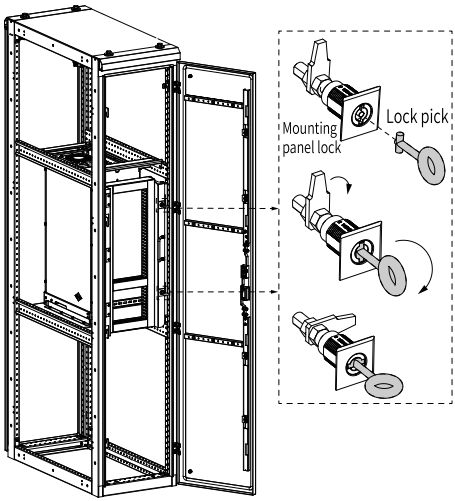
7. Hold the handle on the right side of the mounting panel and close it rightward, as shown in the following figure.



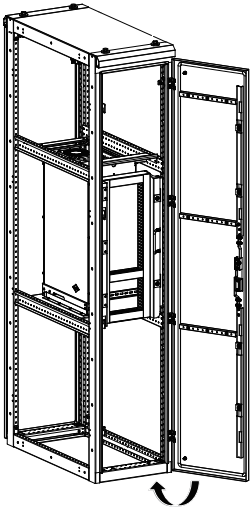
8. Fetch the lock pick equipped in the cabinet and insert the lock pick into the slot of the mounting panel lock as shown below. Rotate 90 degrees clockwise to close the mounting panel lock.

Note

The distribution plate has one upper lock and one lower lock on the right side.



9. Close the cabinet door.

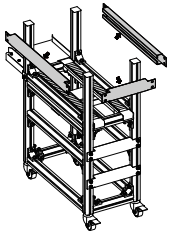


4.5 Installing the H8w Module

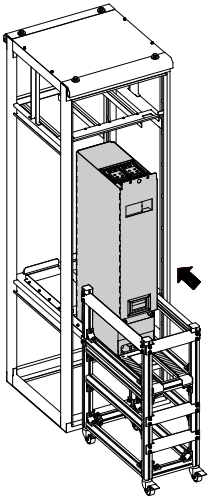
1. Place the new module on the trolley.

Note

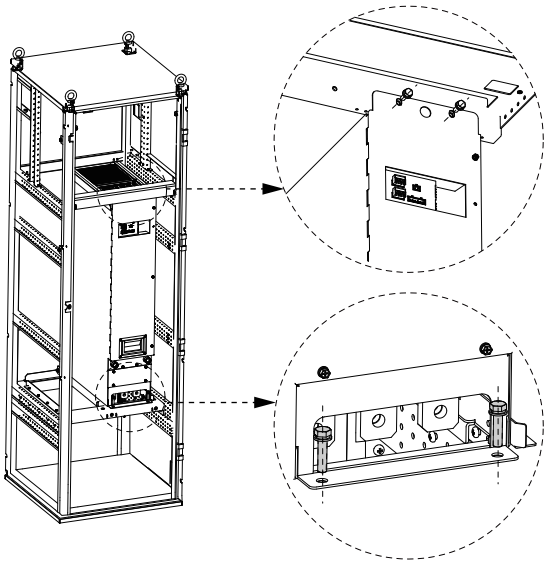
When moving the module from the trolley, you can remove the baffles around the trolley.



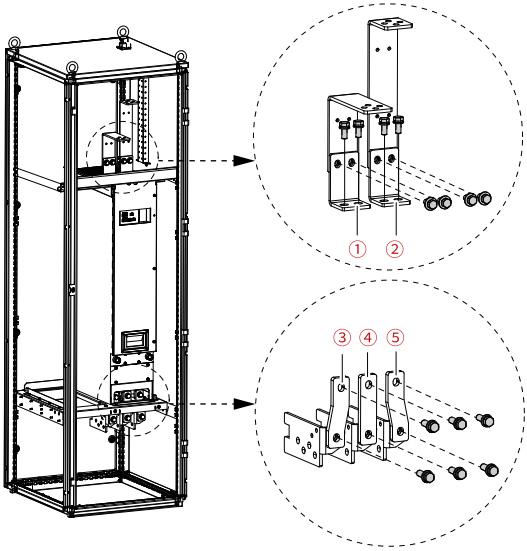
2. Lock the brake on the trolley wheel.
3. Push the module on the trolley into the cabinet along the limit slot.



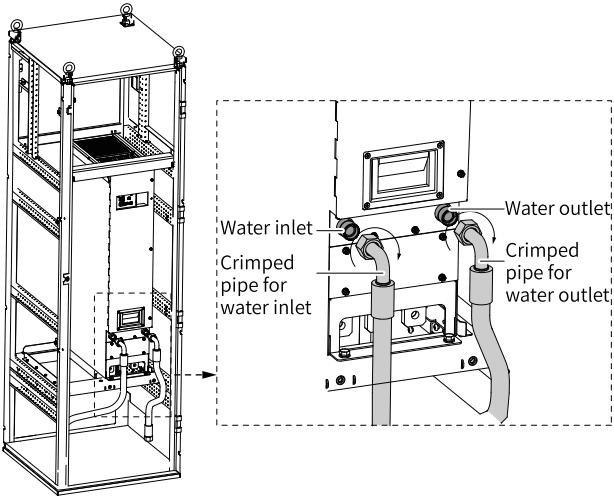
4. After the module is pushed in place, use a 13 mm socket wrench (use an extension bar if necessary) to tighten the four M8x20 hexagon bolts on the top and bottom of the module clockwise with the torque of 12 N·m. Secure the module in the cabinet, as shown in the following figure.



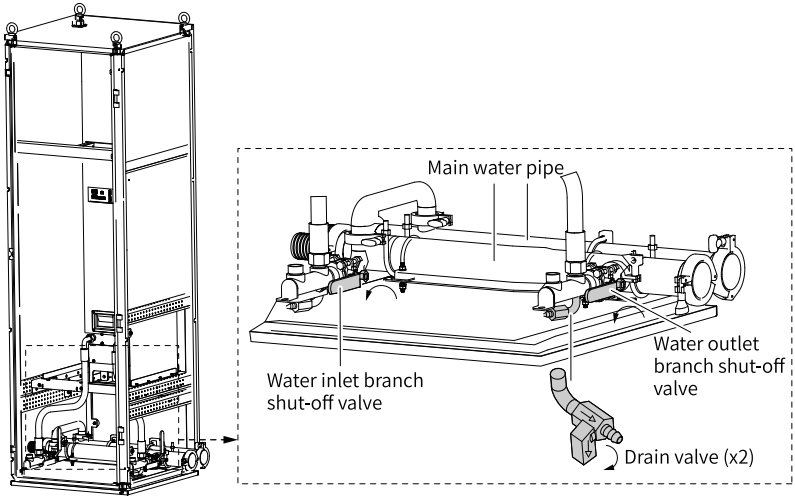
5. Use a 16 mm socket wrench (use an extension rod if necessary) to tighten the eight M10x25 hexagon bolts with a tightening torque of 20 N·m to connect the two copper busbars ① and ② to the positive/negative copper busbars of the module. Use a 18 mm socket wrench (use an extension rod if necessary) to tighten the six M12x40 hexagon bolts with a tightening torque of 35 N·m to connect the three copper busbars ③, ④, and ⑤ to the three-phase AC copper busbars at the bottom of the module.



6. After the main circuit of the module is connected, lock the crimping pipes of the inlet and outlet pipes to the water inlet and outlet of the module with a 32 mm open-end wrench at a tightening torque of 35 N·m, as shown in the arrow direction. The water inlet/outlet connector has M26x1.5 metric thread and 24-degree internal taper, as shown below.



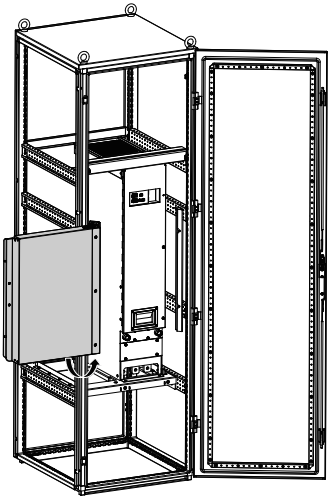
7. After installing the inlet and outlet pipes of the module, close the two drain valves in the arrow direction and open the water inlet and outlet branch shut-off valves to ensure that the water circuit in the cabinet is connected to the main water circuit (Note: If the shut-off valve and drain valve handle are in parallel with the water pipe, the shut-off valve and drain value are opened. If they are vertical to the water pipe, they are closed. After valve commissioning is done, the handle status is shown in the following figure.)



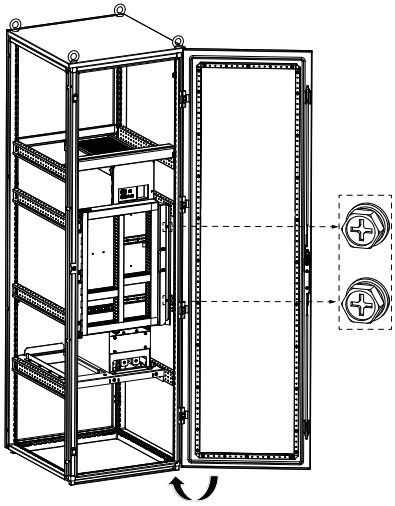
Note

For water-cooled system, check the water first upon overtemperature.

8. Hold the handle on the right side of the mounting panel and close it rightward, as shown in the following figure.



9. Tighten the two M5x16 screws on the mounting panel with an M5 screwdriver at a tightening torque of 2.5 N·m and close the cabinet door.



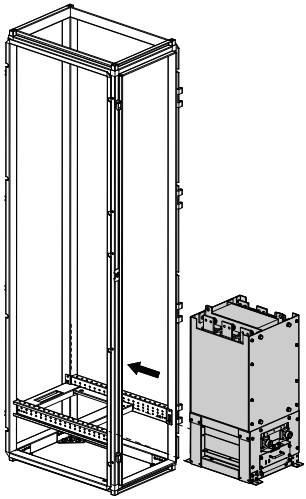
4.6 Installing the Active Rectifier Filter Module

Note

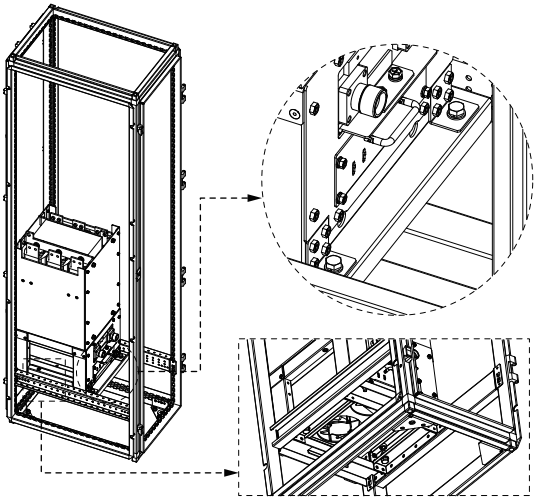
This section provides the method for installing the filter module into standard Inovance cabinets. The filter module can also be installed by other methods.

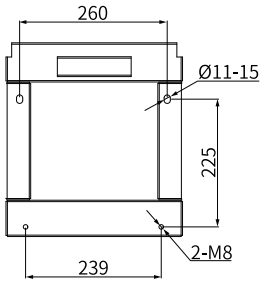
Installing 395 A active rectifier filter module (matching the H6w rectifier module)

1. Push the reactor module into the cabinet, as shown in the following figure.

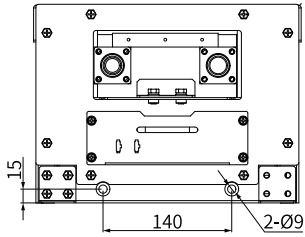


2. After placing the reactor module in place, fasten the two M8x20 screws in the front and two M10x25 screws at the bottom of the reactor module to fix the module into the cabinet. The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.

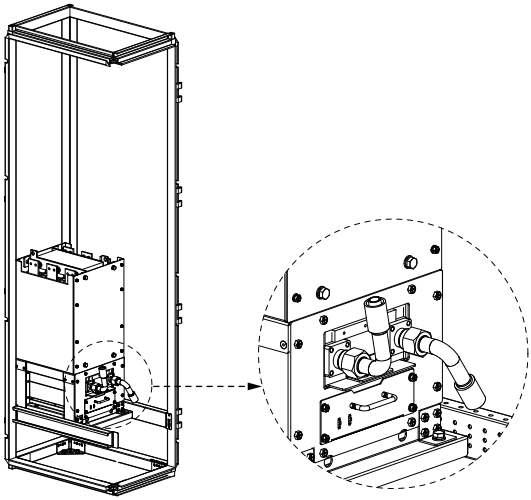




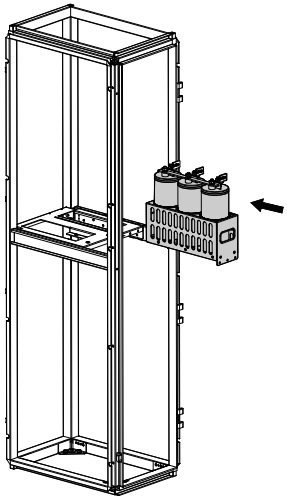
If no room is left for M10 screws at the bottom, you can also fix the module through the rear screws as shown below (in mm).



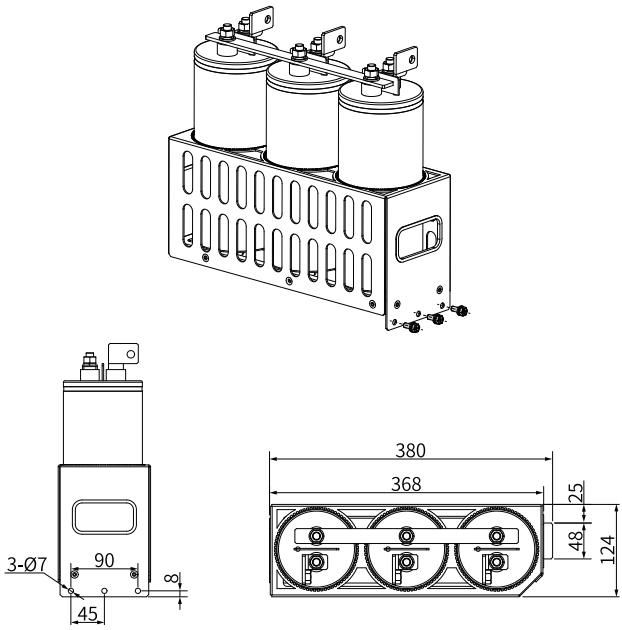
3. Install the inlet pipe and outlet pipe through the connector that has M26x1.5 metric external thread and 24-degree internal taper at a tightening torque of 35 N · m.



4. Install the capacitor module into the cabinet.

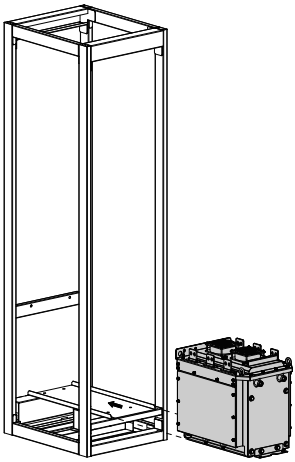


5. The capacitor is fixed by the three M6 screws in the front and the rear sheet metal clip. The dimensions are shown in the following figure (in mm).

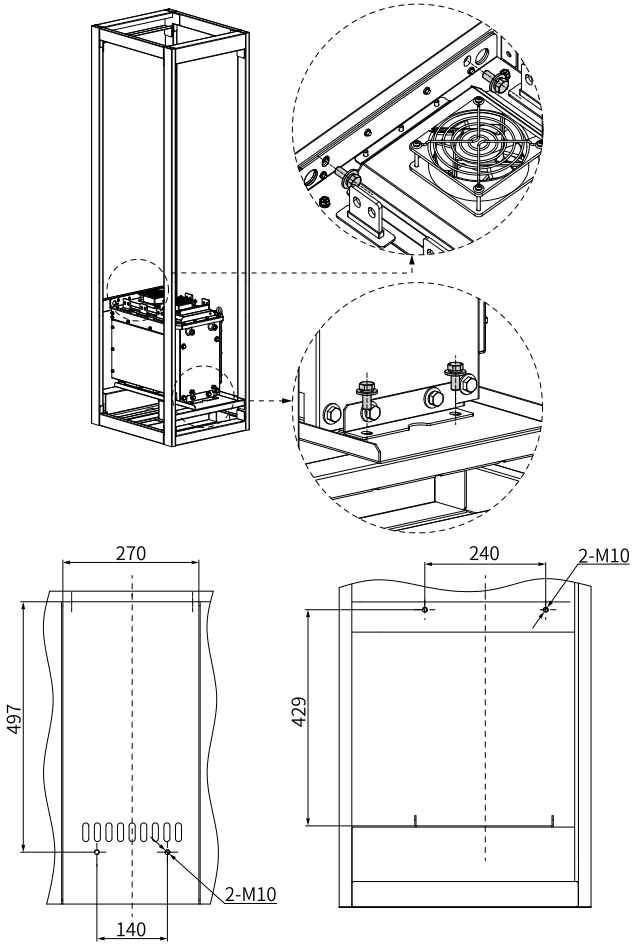


Installing 650 A active rectifier filter module (matching the H7w rectifier module)

1. Push the reactor module into the cabinet, as shown in the following figure.



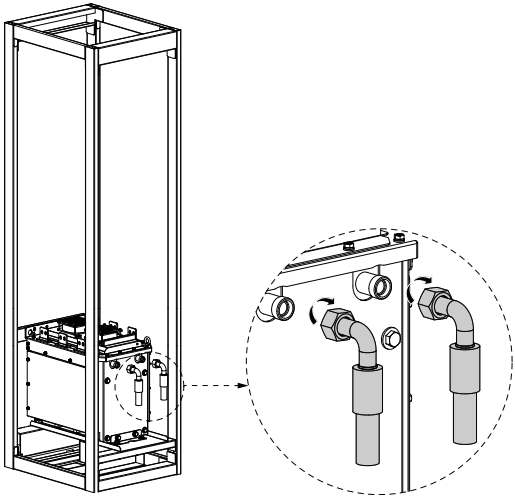
2. After placing the reactor module in place, fasten the four bolts (M10x25) at the top and bottom of the reactor module to fix the module into the cabinet. The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.



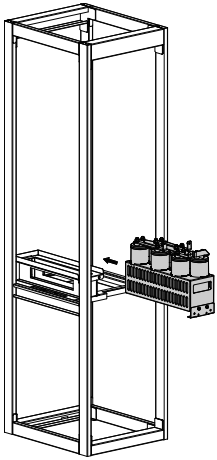
3. Install the inlet pipe and outlet pipe through the connector that has M26x1.5 metric external thread and 24-degree internal taper at a tightening torque of 35 N · m.

Note

It is recommended to install the inlet and outlet pipes after electrical connection on the top of the reactor module is done. It is recommended that the reactor module water circuit be connected in series to the front end of the rectifier module. For the recommended cabinet cooling circuit, see section "Internal Cooling Circuit" in *MD880LC Series AC Drive (Multi-drive System)Hardware Guide*.

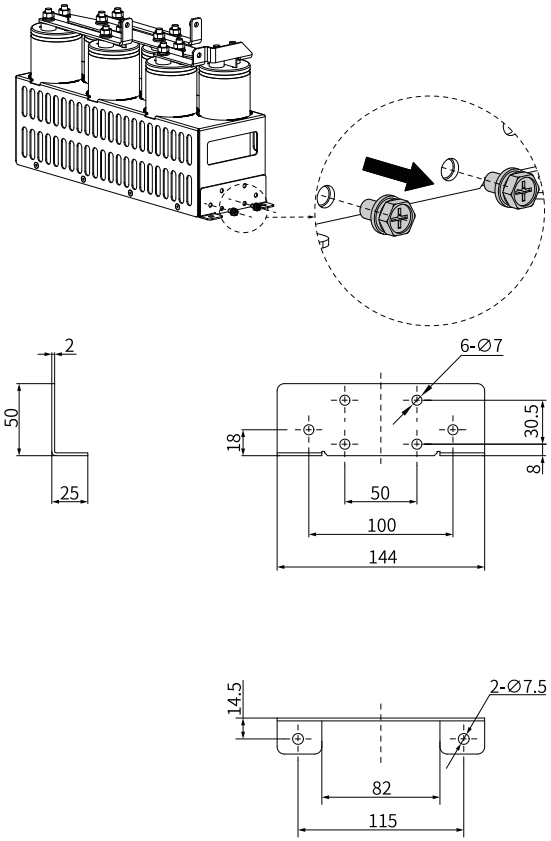


4. Install the capacitor module into the cabinet.

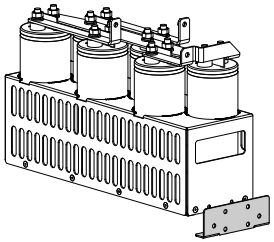


a. Change and adjust the front fixing bracket of the capacitor module according to the installation requirements. Remove the two M6 screws on the L-shaped board in the

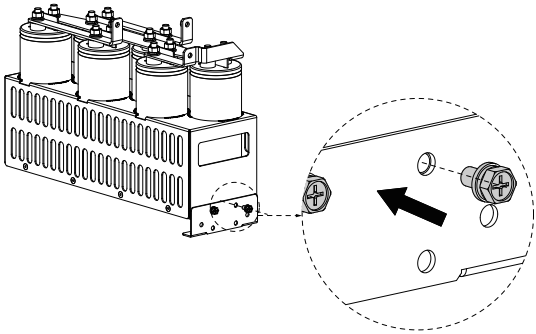
direction shown in the following figure. The following figure shows the dimensions (in mm) of the variable bracket of the capacitor module.



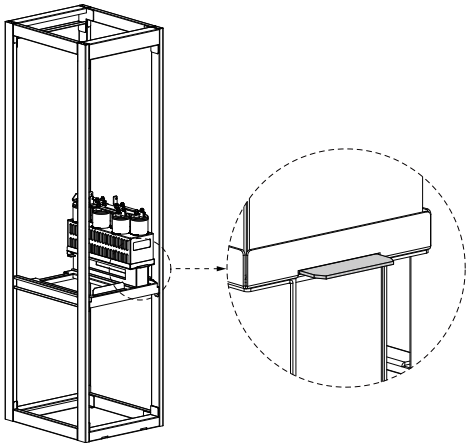
b. Place the L-shaped board according to the figure.



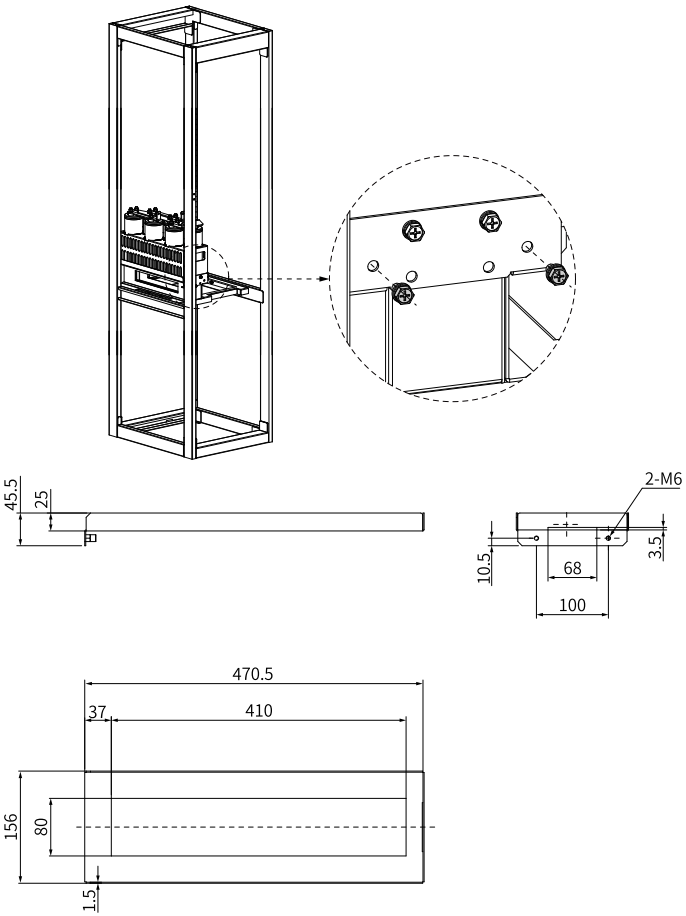
c. Secure the L-shaped board with two M6 screws with a tightening torque of 10 N·m.



d. The following figure shows the capacitor module with the L-shaped board changed in the cabinet.

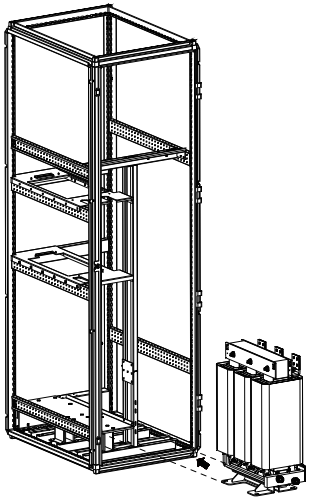


5. Fix the rear end of the capacitor module by limit plate or screw. Fix the front end of the capacitor module by two screws (M6 x 16). The recommended mounting hole dimensions (in mm) of the capacitor module inside standard Inovance cabinet are shown in the following figure.

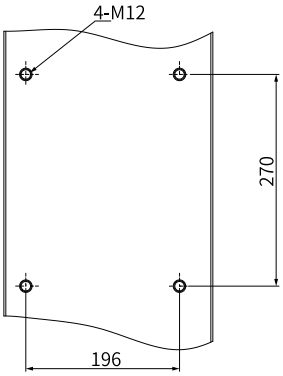


Installing 820 A active rectifier filter module (matching the H8w rectifier module)

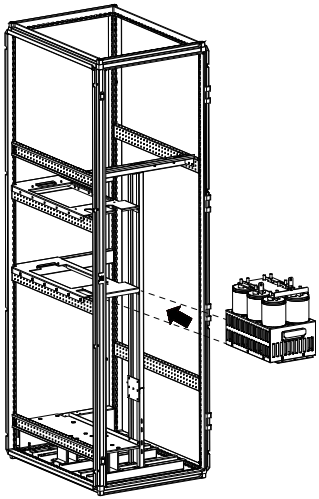
1. Push the reactor into the cabinet, as shown in the following figure.



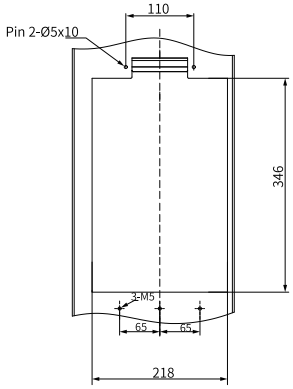
2. After placing the reactor in place, fasten the four bolts (M12x25) at the bottom of the reactor module to fix the reactor into the cabinet. The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.



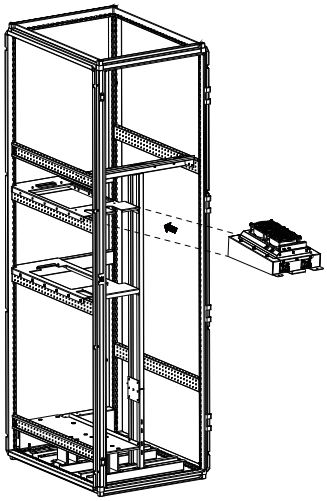
3. Push the capacitor module into the cabinet, as shown in the following figure.



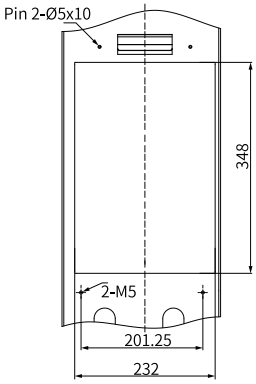
4. After placing the capacitor module in place, insert the pin into the rear fixing hole, and tighten the three fixing screws (M5x12) in the front. The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.



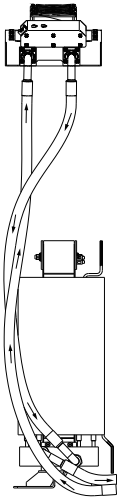
5. Push the water-to-air heat exchanger and the fan module into the cabinet, as shown in the following figure.



6. After placing the water-to-air heat exchanger and the fan module in place, insert the pin into the rear fixing hole and tighten the two fixing screws (M5x12). The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.



7. Install the inlet pipe and outlet pipe through the connector that has M26x1.5 metric external thread and 24-degree internal taper at a tightening torque of 35 N · m.

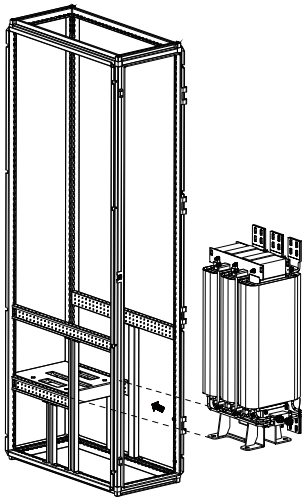


Note

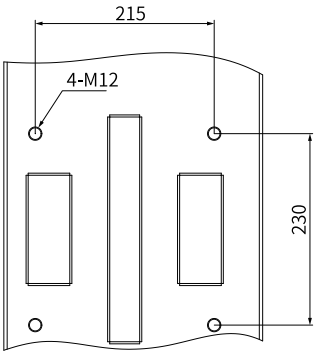
It is recommended to install the water circuit of the filter module after electrical connection of the filter module is done. The water-to-air heat exchanger is connected in series with the reactor water circuit. The water flows from the inlet pipe in the cabinet, passes through the reactor, and finally flows to the return pipe in the cabinet. The flow direction is shown in the following figure. For the recommended cabinet cooling circuit, see section "Internal Cooling Circuit" in *MD880LC Series AC Drive (Multi-drive System)Hardware Guide*. The water circuit of the filter module in the rectifier cabinet is in parallel with the water circuit of the rectifier module.

Installing 1558 A active rectifier filter module (matching the 2 x H8w rectifier module)

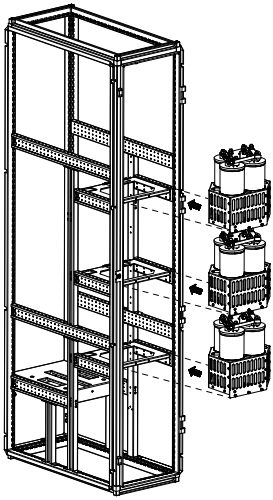
1. Push the reactor into the cabinet, as shown in the following figure.



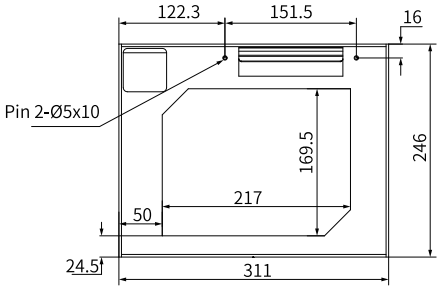
2. After placing the reactor in place, fasten the four bolts (M12x25) at the bottom of the reactor module to fix the reactor into the cabinet. The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.



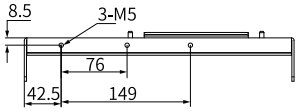
3. Push the reactor module (3 pcs) into the cabinet, as shown in the following figure.



4. After placing the capacitor module in place, insert the pin into the rear fixing hole, and tighten the three fixing screws (M5x12) in the front. The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.

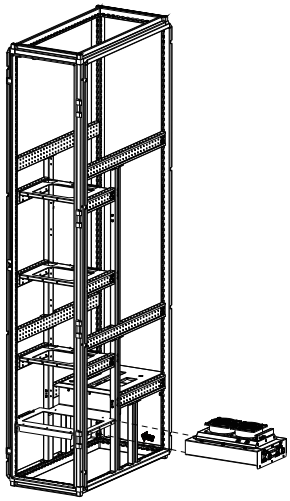


Top view

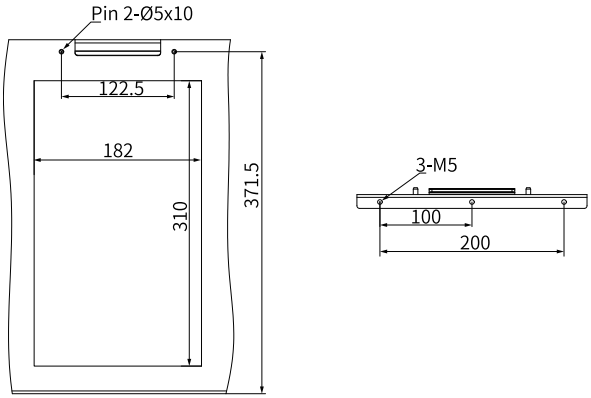


Front view

5. Push the water-to-air heat exchanger and the fan module into the cabinet, as shown in the following figure.

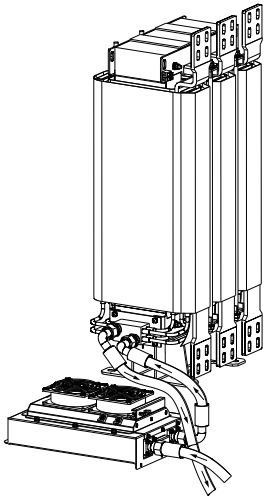


6. After placing the water-to-air heat exchanger and the fan module in place, insert the pin into the rear fixing hole and tighten the three fixing screws (M5x12). The following figure shows the recommended installation dimensions (in mm) of standard Inovance cabinets.



Top view Front view

7. Install the inlet pipe and outlet pipe through the connector that has M26x1.5 metric external thread and 24-degree internal taper at a tightening torque of 35 N · m.



Note

It is recommended to install the water circuit of the filter module after electrical connection of the filter module is done. The water-to-air heat exchanger is connected in series with the reactor water circuit. The water flows from the inlet pipe in the cabinet, passes through the reactor, and finally flows to the return pipe in the cabinet. The flow direction is shown in the following figure. For the recommended cabinet cooling circuit, see section "Internal Cooling Circuit" in *MD880LC Series AC Drive (Multi-drive System)Hardware Guide*. The water circuit of the filter module in the rectifier cabinet is in parallel with the water circuit of the rectifier module.

4.7 Installing the Control Module

For detailed installation procedures, see *HCU Control Module User Guide* and *HPCU Parallel Control Module User Guide*.

4.8 Post-installation Inspection

After installation, check the following items to avoid equipment damage and property loss.

Table 4–2 Post-inspection checklist

No.	Item	Checked
1	The drive cabinet has been fixed to the floor. In the case of vibration, fix the cabinet top to the wall or roof.	☐
2	The module has been fixed properly to the cabinet.	☐
3	There is no drilling debris, tools, or unwanted objects left inside the cabinet.	☐

No.	Item	Checked
4	The cooling circuits inside the cabinet are connected closely. The air tightness of the system has been checked.	☐
5	The cabinet cover has been installed properly with the door closed.	☐

5 Electrical Installation

5.1 Safety Precautions



- The equipment is typically used in industrial applications with high voltage. The equipment contains live and rotating components. Therefore, there is a risk of severe injury or significant material damage if the required covers are removed without authorization during operation, if it is used or operated incorrectly, or if it has not been properly maintained.
- Only professionals are allowed to operate the electrical devices according to the following "five safety rules" and safety precautions specified in the guide.
  - Power off the equipment
  - Ensure that the equipment cannot be energized again.
  - Make sure that the equipment is de-energized without residual voltage left.
  - Make sure that the equipment is grounded properly.
  - Cover or isolate the adjacent live components.

5.2 Pre-wiring Inspection

Take necessary protective measures during electrical installation to ensure personal safety. Comply with the following rules when perform electrical installation.

- The equipment runs with high voltage. The wiring work must be carried out only after the cabinet is powered off without any residual voltage.
- Only qualified professionals are allowed to operate the equipment.
- Take caution when operating the equipment that disconnected from the power supply as external supply voltage may still be present. The power terminals and control terminals may still be live even when the equipment is stopped.
- The equipment may still be live even 15 minutes after power-off due to the DC bus capacitor inside. Therefore, ensure that the voltage is about 0 V before opening the equipment.
- Ensure that the motors, cabinets, and other components are installed and connected in accordance with the national technical rules and other applicable regional regulations. Special attention must be paid to regulations concerning cable dimensions, fuses, grounding, open circuit, isolation, and overcurrent protection.
- If the fuse in a branch circuit trips, the fault current may have been disconnected. To reduce the risk of fire or an electric shock, check the conductive parts and other

components and replace the damaged parts. Find the cause of the tripped fuse and make sure the problem is solved.

5.3 Wiring of the H6w Module

Terminal layout

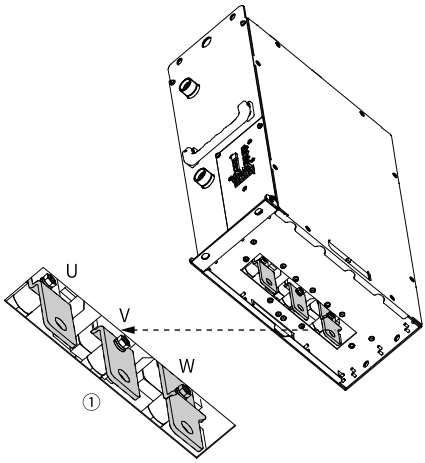


Figure 5-1 Terminals at the bottom of the H6w module

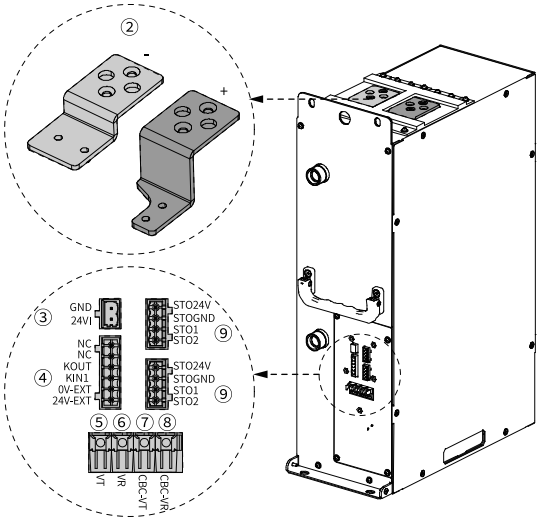


Figure 5-2 Terminals on the top of the H6w module

Table 5–1 Description of H6w module terminals

No.	Name	Description
①	U, V, and W terminals on the input copper busbar (for H6w active rectifier module and H6w inverter module)	Select proper cables and tightening torque according to the section "Power Cable Specifications" in the *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.
②	Bus terminals (+) and (-)	Select the proper cable and tightening torque.
③	2-pin power supply terminal	Input terminal for 24 VDC external power supply; 2-conductor twisted pair cables or single-conductor cable; cross-sectional area: 0.5–2.5 mm^2
④	6-pin control terminal	DC pre-charge module control terminals
⑤	VT optical fiber transmission terminal	Optical fiber connection terminal 1, which is connected to HCU or HPCU through the optical fiber
⑥	VR optical fiber reception terminal	
⑦	CBC-VT	Optical fiber connection terminal 2, which is used in pulse-by-pulse current limit
⑧	CBC-VR	
⑨	4-pin STO power supply terminal	STO terminal, 4-conductor shielded cable, cross–sectional area: 0.5–2.5 mm^2 The STO terminal is shorted to 24V by default. It must be installed according to the default mode for proper operation.

Wiring procedure

1. Remove the protective cover of the wiring terminal and connect the cable correctly to the AC input/output terminals (U, V, W) of the H6w module.
2. Connect the cable to the output terminals (+) and (-) of the H6w module with proper tightening torque.

Note

- Connect cables to output terminals based on the following sequence: U, V, and W, or (+) and (-).
- Secure the power cables to the cable rack to prevent tension applied on terminals.
- When shielded power cables are used, fix the shield to the shield plate as instructed by EMC requirements.

5.4 Wiring of the H7w Module

Terminal layout

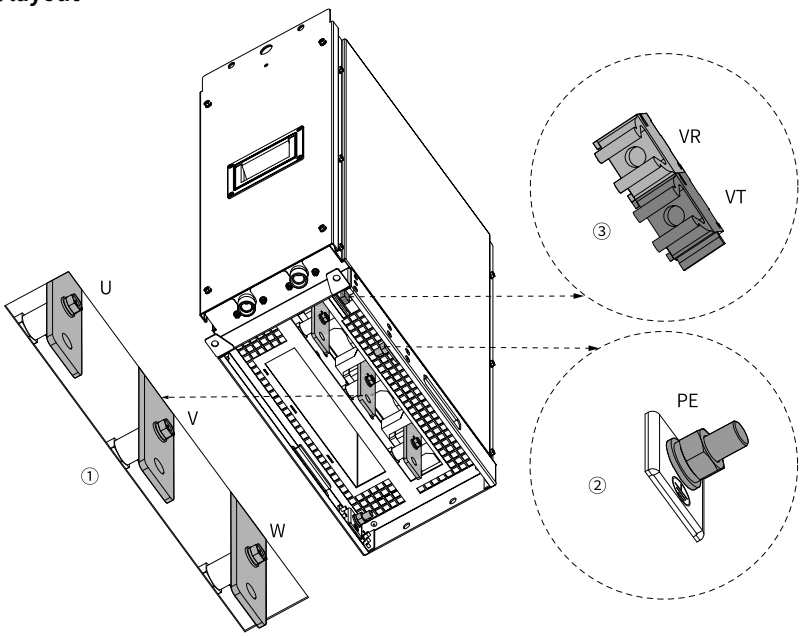


Figure 5-3 Terminals at the bottom of the H7w module

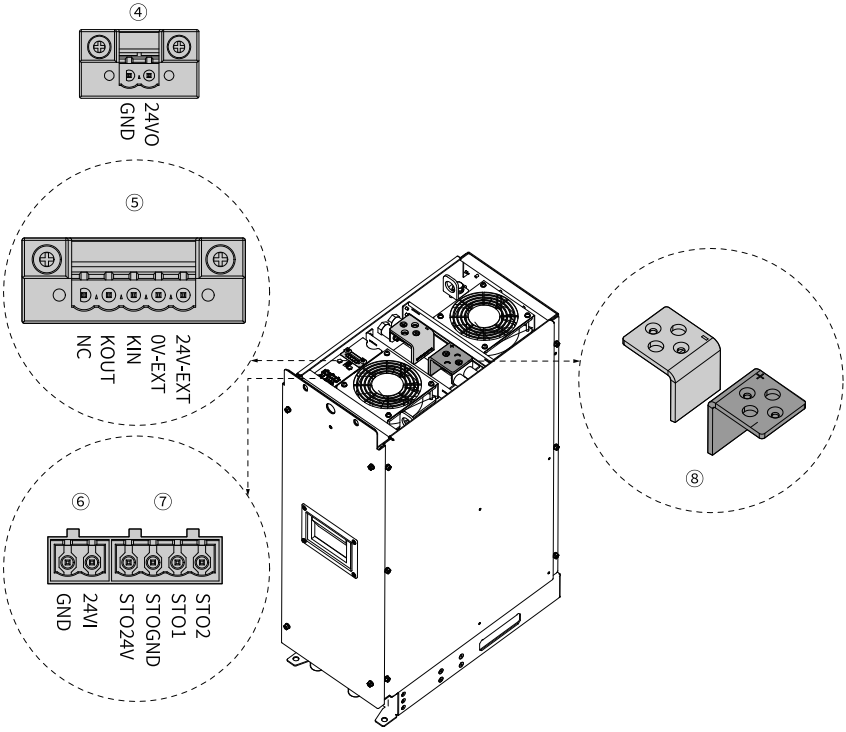


Figure 5-4 Terminals on the top of the H7w module

Table 5–2 Description of H7w module terminals

No.	Name	Description
①	U, V, and W terminals on the input copper busbar (for H7w active rectifier module and H7w inverter module)	Select proper cables and tightening torque according to the section "Power Cable Specifications" in the *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.
②	PE grounding terminal	Select the proper cable and tightening torque.
③	VR optical fiber reception terminal/ VT optical fiber transmission terminal	Connected to HCU or HPCU through optical fiber.
④	2-pin power supply terminal [1]	HCU redundant power supply output terminal

No.	Name	Description
⑤	5-pin DC pre-charge module control terminal [2]	Used to connect the DC pre-charge module.
⑥	2-pin power supply terminal	Input terminal for 24 VDC external power supply; 2-conductor twisted pair cables or single-conductor cable; cross-sectional area: 0.5–2.5 mm^2
⑦	4-pin STO power supply terminal	STO terminal, 4-conductor shielded cable, cross–sectional area: 0.5–2.5 mm^2 The STO terminal is shorted to 24V by default. It must be installed according to the default mode for proper operation.
⑧	Bus terminals (+) and (-)	Select the proper cable and tightening torque.

Note

- [1]: The old version of the H7w module provides the 2-pin HCU redundant power supply output terminal.
- [2]: The new version of the H7w module provides the 5-pin DC pre-charge control terminal.

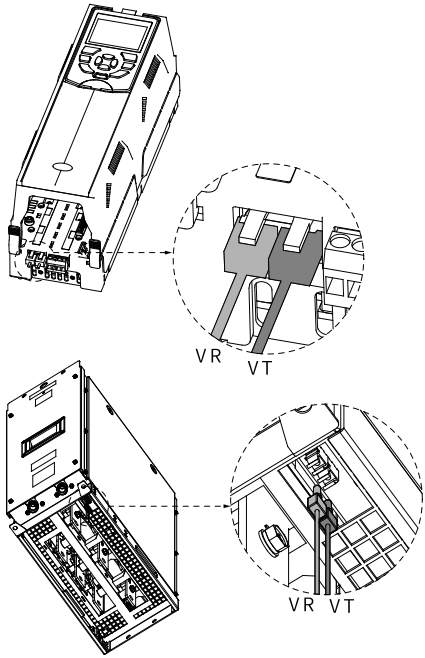


Figure 5-5 Optical fiber terminal

Wiring procedure

1. Remove the protective cover of the wiring terminal and connect the cable correctly to the AC input/output terminals (U, V, W) of the H7w module.
2. Connect the cable to the output terminals (+) and (-) of the H7w module with proper tightening torque.

Note

- Connect cables to output terminals based on the following sequence: U, V, and W, or (+) and (-).
- Secure the power cables to the cable rack to prevent tension applied on terminals.
- When shielded power cables are used, fix the shield to the shield plate as instructed by EMC requirements.

5.5 Wiring of the H8w Module

Terminal layout

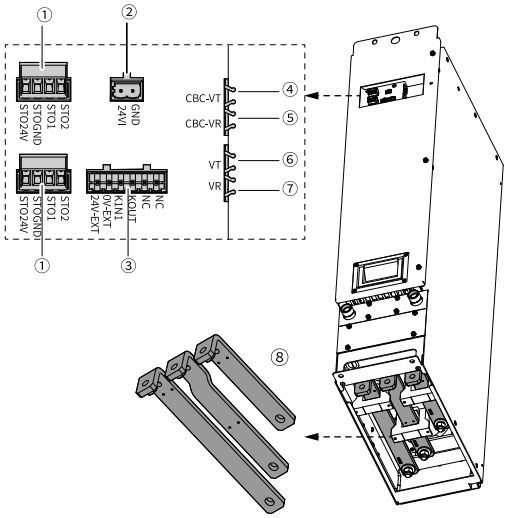


Figure 5-6 Terminals at the bottom of the H8w module and the upper wiring section

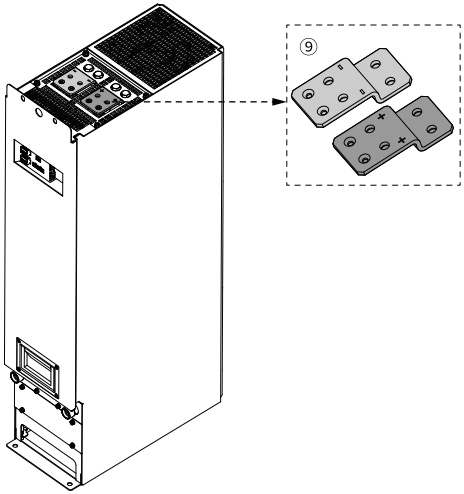


Figure 5-7 Terminals on the top of the H8w module

Table 5–3 Description of H8w module terminals

No.	Name	Description
①	STO wiring terminal	STO terminal, 4-conductor shielded cable, cross–sectional area: 0.5–2.5 mm^2
②	Input terminal for 24 VDC external power supply	2-conductor twisted pair, single-conductor cable, cross-sectional area: 0.5–2.5 mm^2
③	KINOUT	External I/O terminal
④	CBC-VT	Optical fiber interface 1
⑤	CBC-VR	
⑥	VT	Optical fiber interface 2
⑦	VR	
⑧	AC terminals U, V, and W on the output copper busbar (for H8w active rectifier module and inverter module)	Select the proper cable and tightening torque according to the recommended main circuit cable selection table in the following section.
⑨	Bus terminals (+) and (-)	Select the appropriate cable and tightening torque according to the main circuit cable selection table below.

Wiring procedure

1. Remove the protective cover from the terminal block area. Make sure that all inputs and outputs are correctly connected.
2. Connect cables to output terminals based on the following sequence: U, V, and W, or (+) and (-).
3. Secure the power cables to the cable rack to prevent tension applied on terminals.
4. When shielded power cables are used, fix the shield to the shield plate as instructed by EMC requirements.

5.6 Wiring of the Active Rectifier Filter Module

Wiring of the active rectifier filter module

Wiring of the 395 A active rectifier filter module (matching the H6w rectifier module)

Terminal layout

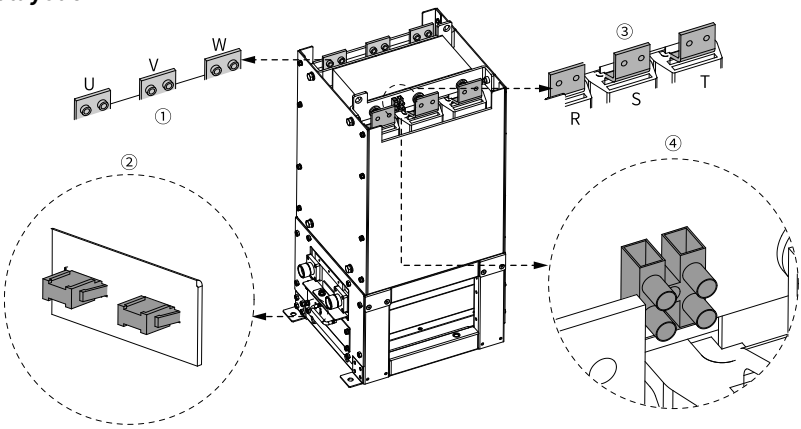


Figure 5-8 Installation of reactor module cables

No.	Name	Description
①	AC output terminal	Connected to the active rectifier module.
②	Fan terminal	24 VDC/2 A (x 2)
③	AC input terminal	Connected to the power grid.
④	Reactor temperature switch terminal	24 V, normally closed

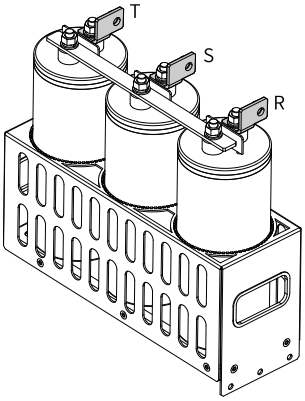


Figure 5-9 Installation of capacitor module cables

Wiring procedure

1. Connect the AC input terminals R, S, and T of the reactor to the input grid side in the correct phase sequence.
2. Connect the AC output terminals U, V, and W of the reactor to the active rectifier module in the correct phase sequence.
3. Connect the fan terminals of the reactor to the 24 V power supply cable.

Wiring of the 650 A active rectifier filter module (matching the H7w rectifier module)

Terminal layout

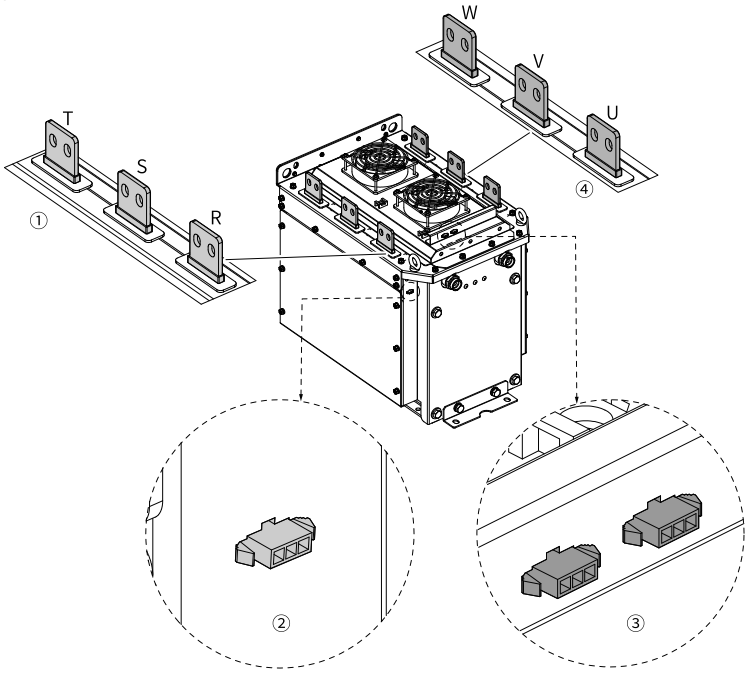


Figure 5-10 Installation of reactor module cables

Table 5–4 Description of reactor terminals

No.	Name	Description
①	AC input terminal	Connected to the power grid.
②	Reactor temperature switch terminal	24 V, normally closed
③	Top fan terminal	24 VDC/2 A (x 2)
④	AC output terminal	Connected to the active rectifier module.

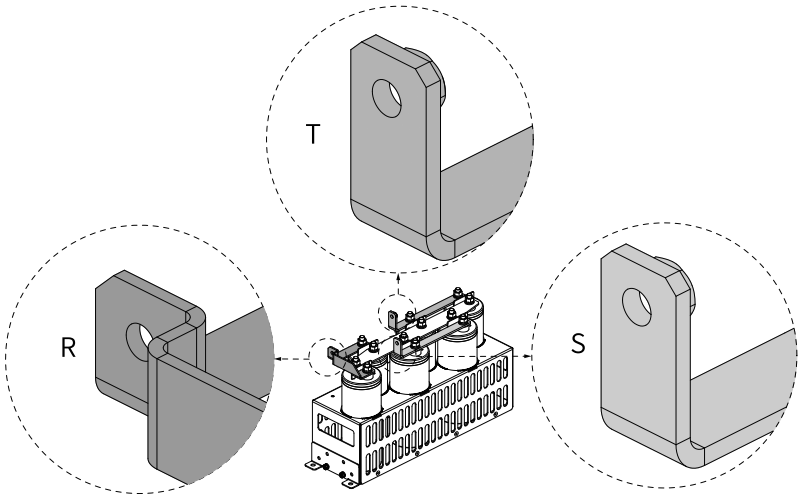


Figure 5-11 Installation of capacitor module cables

Wiring procedure

1. Connect the AC input terminals R, S, and T of the reactor to the input grid side in the correct phase sequence.
2. Connect the AC output terminals U, V, and W of the reactor to the active rectifier module in the correct phase sequence.
3. Connect the top fan terminal of the reactor to the 24 V power supply cable.

Note

- Keep the cable between the capacitor module and the bus as short as possible.
- Connect the input terminals of the capacitor according to the correct sequence: R, S, and T.

Wiring of the 820 A active rectifier filter module (matching the H8w rectifier module)

Terminal layout

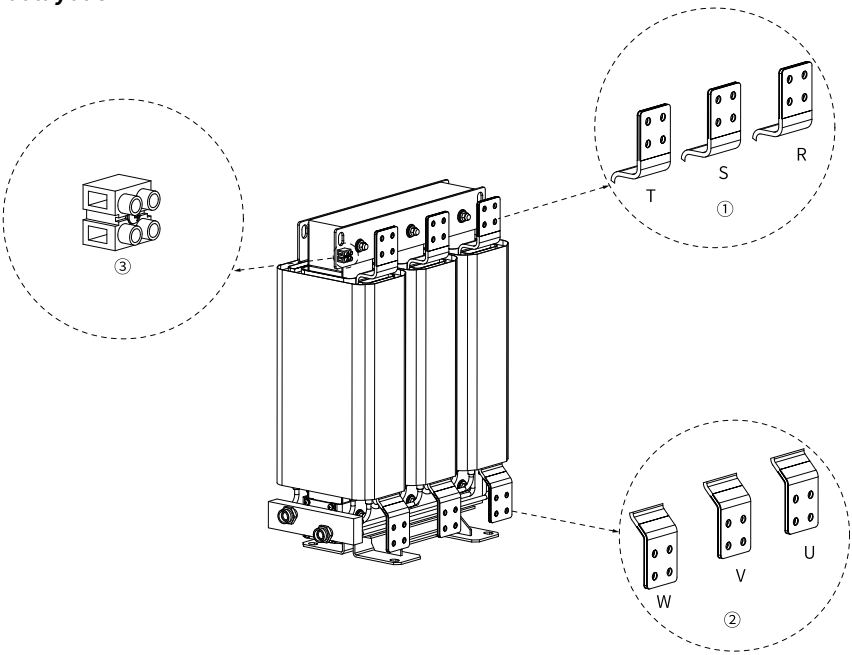


Figure 5-12 Installing reactor cables

Table 5–5 Description of reactor terminals

No.	Name	Description
①	AC input terminal	Connected to the power grid.
②	AC output terminal	Connected to the active rectifier module.
③	Reactor temperature switch terminal	24 V, normally closed

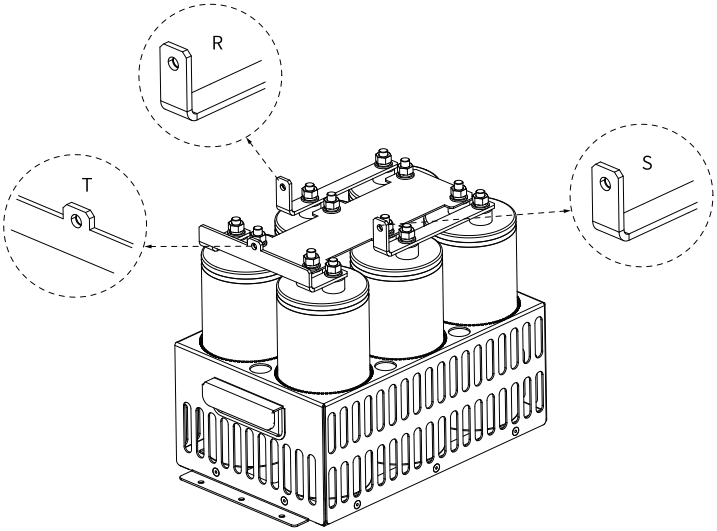


Figure 5-13 Installation of capacitor module cables

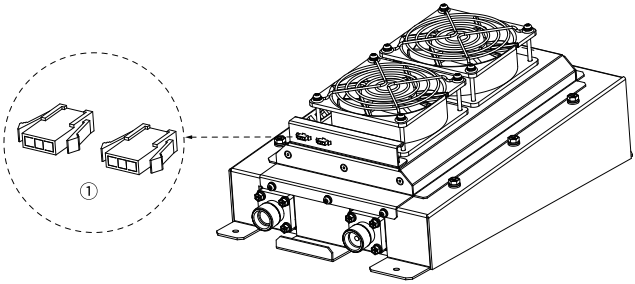


Figure 5-14 Installation of water-to-air heat exchanger and fan module cables

Table 5–6 Description of water-to-air heat exchanger and fan module terminals

No.	Name	Description
①	Fan terminal	24 VDC/2 A (x 2)

Wiring procedure

1. Connect the AC input terminals R, S, and T of the reactor to the input grid side in the correct phase sequence.
2. Connect the AC output terminals U, V, and W of the reactor to the active rectifier module in the correct phase sequence.
3. Connect the top fan terminals of the water-to-air heat exchanger and the fan module to the 24 V power supply cable.

Note

- Keep the cable between the capacitor module and the bus as short as possible.
- Connect the input terminals of the capacitor according to the correct sequence: R, S, and T.

Wiring of the 1558 A active rectifier filter module (matching the 2 x H8w rectifier module)

Terminal layout

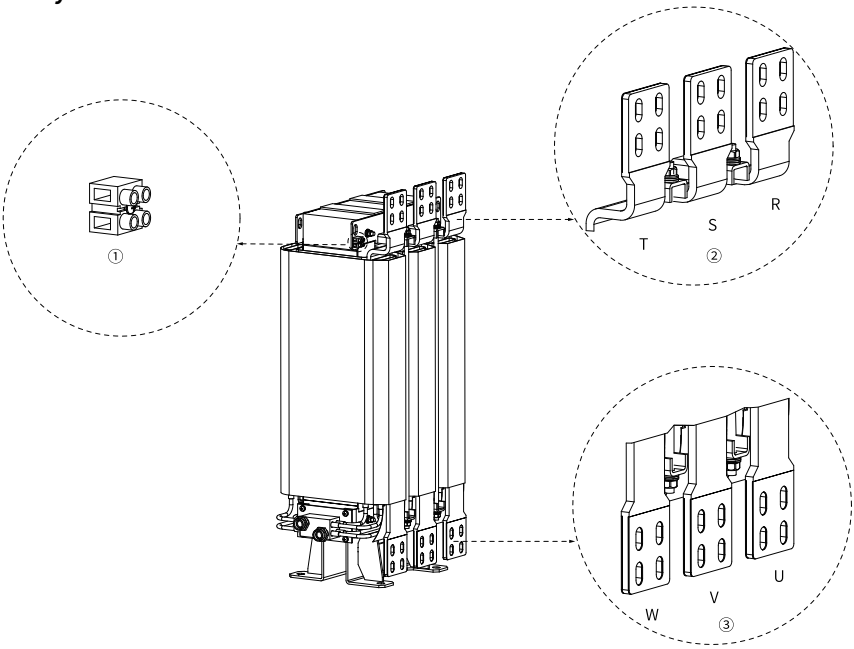


Figure 5-15 Installing reactor cables

Table 5–7 Description of reactor terminals

No.	Name	Description
①	Reactor temperature switch terminal	24 V, normally closed
②	AC input terminal	Connected to the power grid.
③	AC output terminal	Connected to the active rectifier module.

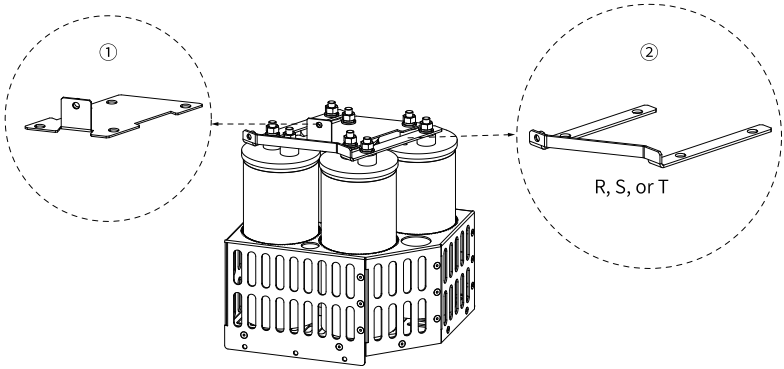


Figure 5-16 Installation of reactor module cables

Table 5–8 Description of the reactor module terminals

No.	Name	Description
①	Star-connection terminal block	Used to connect three modules through the wire harness in start connection mode.
②	R, S, T	Connected to the busbar (three modules: R, S, and T).

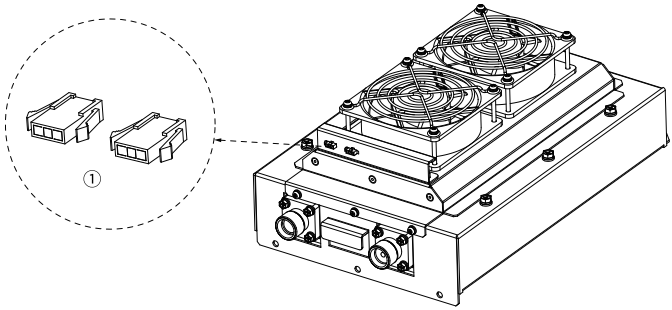


Figure 5-17 Installation of water-to-air heat exchanger and fan module cables

Table 5–9 Description of water-to-air heat exchanger and fan module terminals

No.	Name	Description
①	Fan terminal	24 VDC/2 A (x 2)

Wiring procedure

1. Connect the AC input terminals R, S, and T of the reactor to the input grid side in the correct phase sequence.

2. Connect the AC output terminals U, V, and W of the reactor to the active rectifier module in the correct phase sequence.
3. Connect the top fan terminals of the water-to-air heat exchanger and the fan module to the 24 V power supply cable.

Note

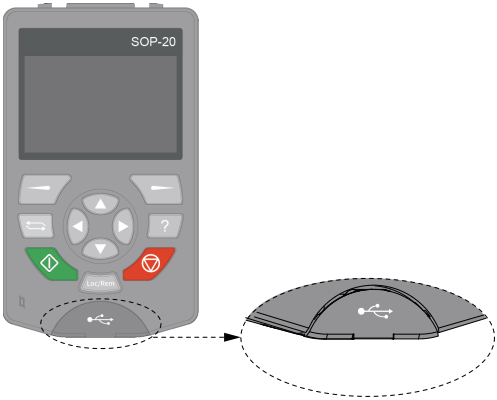
- Keep the cable between the capacitor module and the bus as short as possible.
- Keep the cable between the star-connection terminal blocks of the three capacitor modules as short as possible.
- Connect the input terminals of the capacitor according to the correct sequence: R, S, and T.

5.7 Connecting SOP-20-880 To the PC

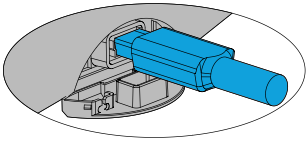
The USB mini-B terminal on SOP-20-880 is used to connect to the PC. The USB cable length cannot exceed 3 m.

The USB2.0 communication protocol is used between the SOP-20-880 and the PC.

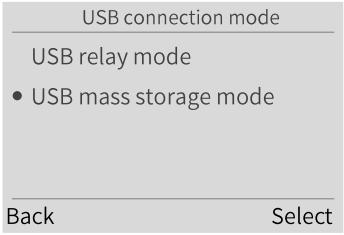
1. Open the cover of the USB port.



2. Plug in the USB shielded cable. It is recommended to use a cable with a ferrite core, as shown below.



3. Connect the cable to the PC.
   USB relay mode and USB mass storage mode are available when the USB cable is connected to the PC.



- In the USB relay mode, the SOP-20-880 is used for interaction between the PC tool and the drive.
- In the USB mass storage mode, the SOP-20-880 can be used as a memory.

5.8 Connecting SOP-20-880 To the Control Module

The RJ45 terminal is on the back of the SOP-20-880, which is connected to the HCU control board through a network cable that complies with EIA/TIA/568A or 568B standards. For details, see *HCU Control Unit Hardware Guide*. On the control board at the end of a communication network, set the jumper to connect the termination resistor. It is recommended to use the shielded twisted pair cable as the SOP-20-880 bus. The total maximum length is 100 m.

Table 5–10 SOP-20-880 bus transmission distance, number of nodes, and baud rate

Distance (m)	Baud rate (kbps)	Number of nodes	Cable specification	Remarks
100	1000	32	⩾ 0.5 mm^2	The maximum number of nodes is 128 when the repeater is used. The maximum number of nodes is 32 in the absence of the repeater. When there is polarity offset, the maximum number of nodes is reduced by 4.
50	2000	32	⩾ 0.5 mm^2	
25	4000	32	⩾ 0.5 mm^2	

5.9 Wiring the HCU Control Module

For the control cable connection of the HCU control module, see Wiring in *HCU Control Unit Hardware Guide*.

For the control cable connection of the HPCU parallel control module, see Electrical Connection in *HPCU Parallel Control Module User Guide*.

5.10 Post-wiring Inspection

After electrical installation of the module is done, check the following items. Read *" Fundamental Safety Instructions" on page 8* and *"5.1 Safety Precautions" on page 61* before operating the equipment.

Table 5–11 Post-wiring checklist

No.	Item	Compliance
1	Connect the input of the module to the power grid properly to ensure that the correct voltage is provided.	☐
2	The auxiliary power supply provides the correct voltage.	☐
3	Input/Output power cables are secured to the cable rack for strain relief.	☐
4	Cables are properly connected with the required tightening torque to the terminals provided.	☐
5	The cable shield is fixed to the shielding plate to meet the EMC requirement.	☐
6	The production date is indicated on the nameplate of the module. If the period from the production date to initial commissioning or the downtime of the power components is shorter than one year, the DC bus capacitors do not need to be pre-charged. If the downtime is longer than 1 years, pre-charge the capacitors first.	☐
7	The pre-charge circuit phase sequence of the module must be correct. Otherwise, the device can be damaged.	☐

6 Maintenance

6.1 Safety Instructions for Maintenance and Repair

Precautions for maintenance

Note

- Only professional technicians are allowed to perform maintenance on the module.
- Wait for at least 15 minutes after power-off and confirm that the DC bus voltage is approximately 0 V before maintenance. Failure to comply can result in personal injury due to residual voltage in the capacitor.
- Be aware of the possible rotation of the cooling fan caused by inertia.
- Perform maintenance and inspection on the module only after verifying that the module has been de-energized and cooled down.
- Install and wire the module in accordance with national standards, industry standards, and local safety codes. Use only instruments that comply with the voltage withstanding requirements and keep the enclosure of the instruments well grounded.
- Residual voltage is still present in the cabinet when you turn off the input breaker switch. Therefore, check that no residual voltage is present before maintenance and inspection.
- Be careful when measuring components in the cabinets. Prevent meter leads from coming into contact with each other or with other terminals.

Safety precautions

Take necessary protective measures before maintenance and inspection.

1. Obtain operation authorization from the person in charge of electrical installation.
2. Clearly mark the working site and equipment.
3. Disconnect all possible voltage sources, make sure that they cannot be reconnected, and lock and label them during maintenance.
   a. Disconnect the main disconnector or circuit breaker of the drive.
   b. Disconnect the disconnector of the power supply transformer.
   c. If the drive is connected to a permanent magnet motor, use a safety switch or similar to disconnect the motor from the drive.
   d. Disconnect the controlled circuit from the external hazardous voltage.
   e. Wait for at least 15 minutes after power-off and confirm that the DC bus voltage is approximately 0 V before maintenance.
4. Avoid contact with any live parts in the workplace during maintenance.
5. Take special measures when working near bare conductors.

6. Ensure that the equipment is powered off by measuring the voltage. If any shield or cabinet structure needs to be removed or dismantled during measurement, observe local laws and regulations concerning live operations (including but not limited to protection against electric shock and arcing).
   - Make sure that the voltage between the drive input terminals (U, V, and W) and the grounding (PE) busbar is close to 0 V.
   - Make sure that the voltage between the drive DC busbar (+ and –) and the grounding (PE) busbar is close to 0 V.
7. Install temporary grounding as required by local regulations.

Note

- Be aware that the module works with high voltage.
- Wiring is allowed only after the module has been powered off.
- Only trained professionals are allowed to perform maintenance on the module. Failure to comply may result in major property damage or severe physical injury or even death.
- As voltage generated by an external power supply may be present, take cautious when operating on a device with power on. Even if the device is not operating, residual voltage may be present in the power supply and terminals.
- The module must be handled by trained professionals. Incorrect handling may result in major property damage or severe physical injury or even death.

6.2 Maintenance Interval

To ensure a proper long-term operation of the module, perform regular maintenance and inspection on the electronic components inside the module according to their service life. The general service life of the internal components is listed in the following table.

Table 6–1 Service life of components

Name	Standard service life
Internal fan of the active rectifier module	5 years
Filter module fan	5 years

Note

The actual maintenance cycle is determined by the mounting environment and operating conditions of the equipment.

6.3 Routine Maintenance Items

- The module is mostly composed of electrical components. Therefore, it is necessary to perform inspection and maintenance on worn electrical components.
- Clean the dusts and pollutants regularly to keep the device in a proper state.
- Check the water quality of the drive cabinet regularly. For water quality requirements, see “Technical Data” in *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.

6.3.1 Routine Checklist

Check the following items during routine maintenance.

Table 6–2 Routine checklist

No.	Item	Checked
1	The water inlet temperature of the module is within the range of 0°C to 40°C. The relative humidity is within the range of 5% to 95% without condensation.	☐
2	There is no unusual vibration or noise.	☐
3	The power grid voltage is within the range of 525 VAC to 690 VAC.	☐
4	There is no strange smell.	☐
5	There are no fibers adhered to the air vent.	☐
6	There is no intrusion of unwanted objects on the load end.	☐

6.3.2 Routine Cleaning List

Take the following measures to clean the module.

Table 6–3 Routine cleaning list

No.	Routine cleaning list	Compliance
1	Clean the dust, especially the metallic dust on the surface of the equipment.	☐
2	Always keep the air vents of the cabinet for the module unobstructed and ensure that the cooling fan functions properly.	☐

Note

- Ensure that the dust inside the active rectifier module is cleared regularly and thoroughly by qualified professionals in compliance with relevant safety regulations.
- Clean the rectifier module at least once a year (or shorter according to the actual operating environment).
- A brush and vacuum cleaner must be used to clean the dust. For positions that cannot be easily reached, use dry compressed air (max. 1 bar) for cleaning.

6.4 Regular Checklist

Table 6–4 Regular checklist

No.	Item	Compliance
1	Check that cable terminals and screws are secured in place.	☐
2	Check that wiring is correct without fault.	☐
3	Check that there is no damaged component.	☐

6.5 Part Replacement

6.5.1 List of Maintainable Components

Table 6–5 List of maintainable components

No.	Name
1	DC fan
2	Power module
3	Filter module fan
4	SD card and battery of the HCU control module
5	SOP-20–880 battery

6.5.2 Maintenance Tools

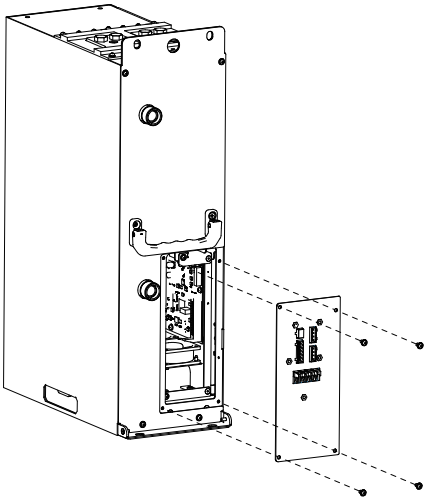
The following tools may be required during inspection and component replacement:

- 6 mm wrench or socket wrench
- 8 mm wrench or socket wrench

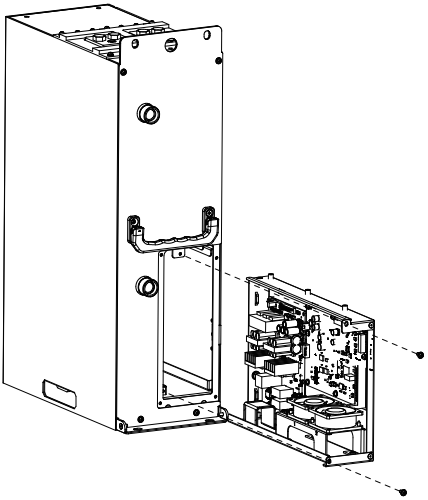
- 10 mm wrench or socket wrench
- 13 mm wrench or socket wrench
- 16 mm wrench or socket wrench
- 18 mm wrench or socket wrench
- 32 mm wrench or socket wrench
- Torque wrench
- PH1 and PH2 Phillips screwdriver
- A socket wrench equipped with two extension rods is recommended.

6.5.3 Replacing the DC Fan of the H6w Module

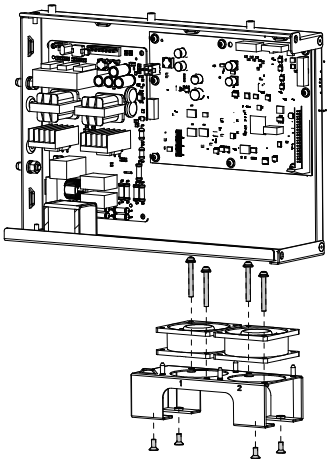
1. Take electrical safety measures before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Remove the four screws with a screwdriver and remove the small panel.



3. Remove the two M4 screws with a screwdriver and pull out the fan and interface board bracket assembly. Disconnect the wiring terminals on the interface board when pulling out the fan.



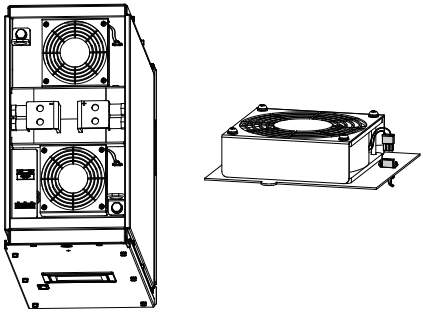
4. Remove the four M4 countersunk screws from the bottom of the assembly with a screwdriver, pull out the fan bracket assembly, and remove the four M4 long screws from the top with a screwdriver.



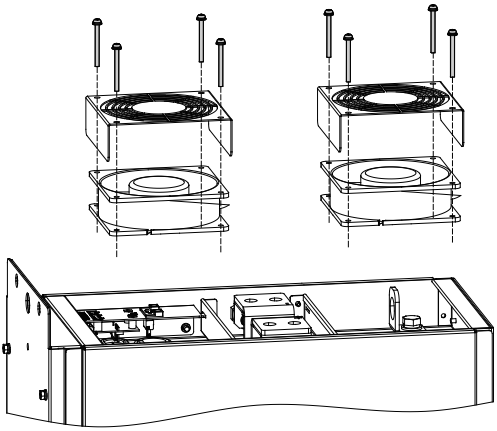
5. Install a new fan of the same specifications in the reverse order.

6.5.4 Replacing the DC Fan of the H7w Module

1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Unplug the power supply connector of the fan.



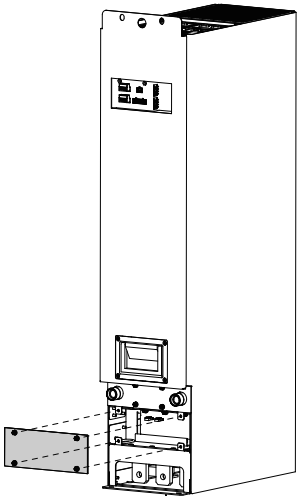
3. Remove the four M4 screws with a screwdriver to disassemble the fan components.



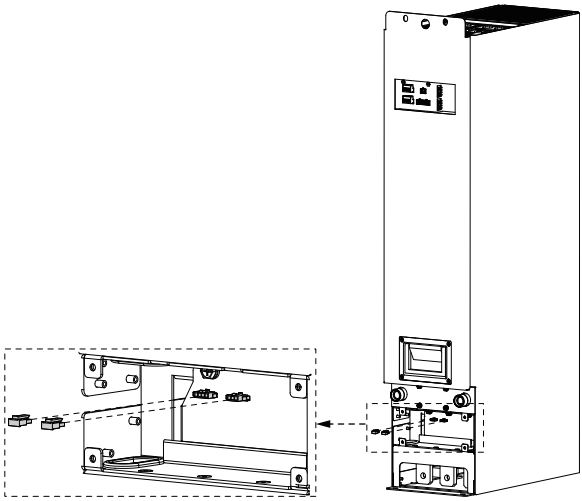
4. Install a new fan of the same specifications in the reverse order.

6.5.5 Replacing the Fan at the Bottom of the H8w Module

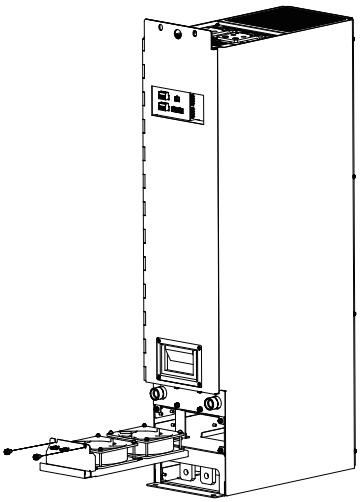
1. Take electrical safety measures before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Remove the four M5x12 SEMS screws with a screwdriver to remove the fan cover.



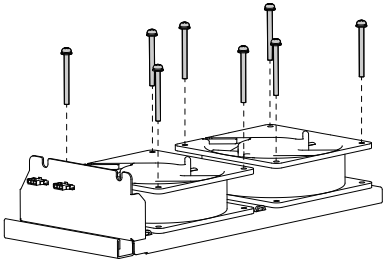
3. Unplug the power supply connector of the fan, as shown below.



4. Remove the two M6x12 SEMS screws with a screwdriver and pull out the fan module.



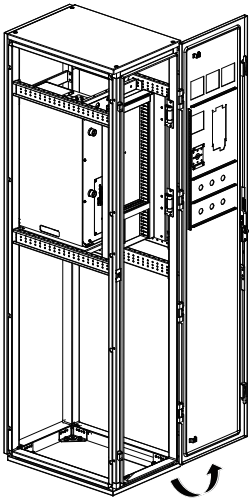
5. Remove the M4x45 SEMS screws (four for each fan) with a screwdriver and remove the DC fan.



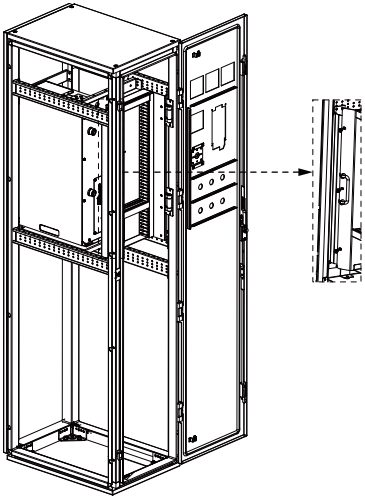
6. Install a new fan of the same specification based on the same procedure, but in the reverse order.

6.5.6 Replacing the H6w module

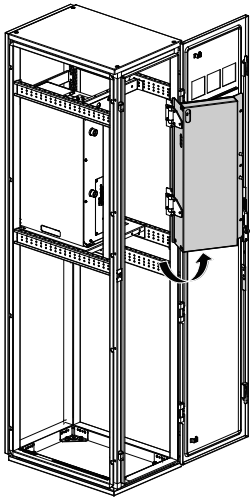
1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80.*
2. Open the cabinet door.



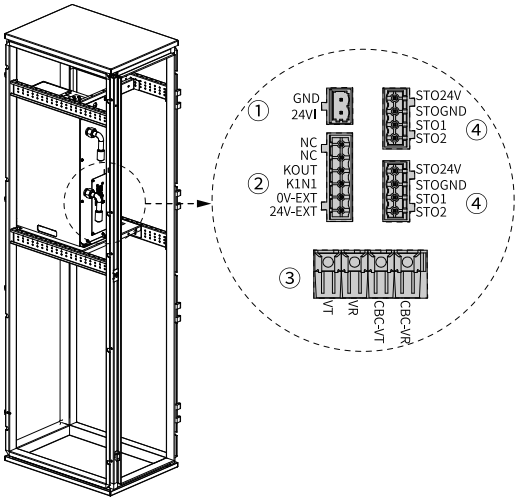
3. Remove the M6 fixing nut of the mounting panel and open the panel.



4. Hold the handle on the right side of the panel and open it rightward. The opening angle can be up to 150 degrees.

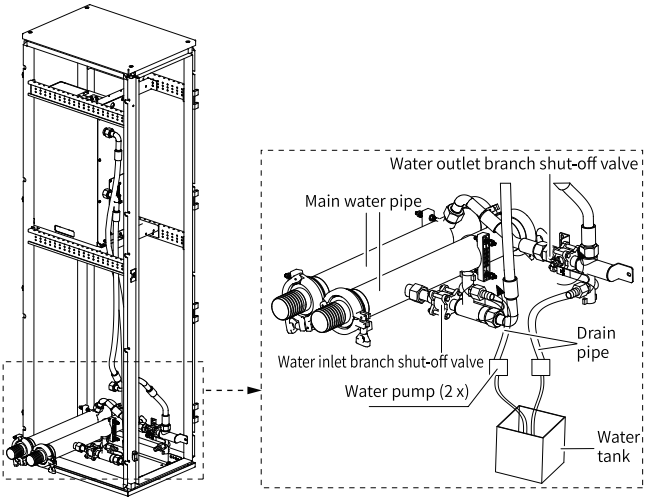


5. Remove the cables connecting to the control circuit terminals ①, ②, ③, and ④ on the top of the module. For details about the control circuit terminals, see section Description of Control Circuit Terminals in *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.



6. Close the water inlet and outlet valves of the cabinet to isolate the water circuit in the cabinet from that in the system and prepare a water container. Connect one end of the drain pipe to the drain valve outlet and the other end to the suction pump vent port. Next, connect one end of the drain pipe to the suction pump discharge port and the other end to the container. Finally, open the two drain valves and switch on the suction pump power supply to keep the suction pump working for at least 3 min until no coolant drips out. When the shut-off valve and drain valve handle are in parallel with the water

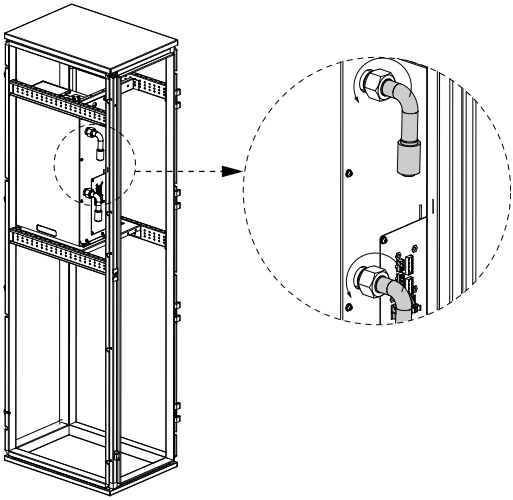
pipe, the shut-off valve and drain valve are opened. When they are vertical to the water pipe, they are closed.



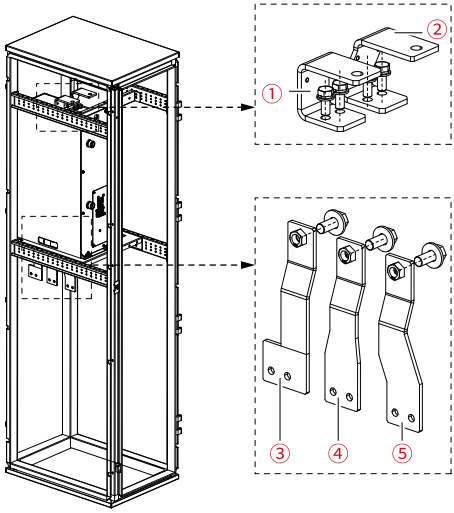
7. Remove the inlet and outlet pipes in the arrow direction shown in the following figure with a 32 mm open-end wrench.

Note

The water inlet/outlet connector has M26x1.5 metric thread and 24-degree internal taper. The tightening torque is 35 N·m.



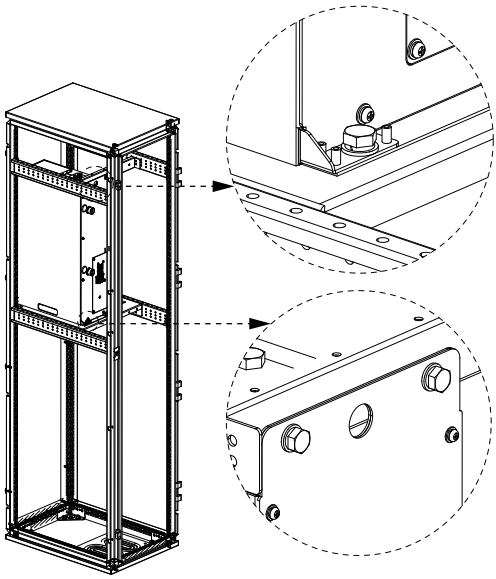
8. Remove the four M10x20 hexagon bolts with a 16 mm socket wrench (use an extension rod if necessary) and take out the two external copper busbars ① and ② connected to the positive/negative copper busbars on the top of the module. Remove the three M12x30 hexagon bolts with a 18 mm socket wrench (use an extension bar if necessary) and take out the three external copper busbars ③, ④, and ⑤ connected to the three-phase AC copper busbars at the bottom of the module.



Note

The tightening torque of M10 bolts is 20 N·m. The tightening torque of M12 bolts is 35 N·m.

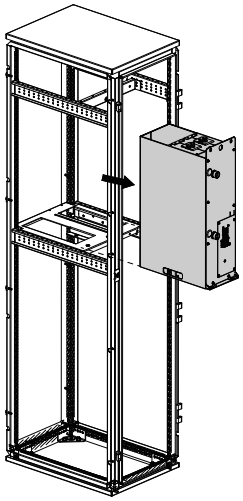
9. Remove the four M8x20 hexagon bolts on the top and bottom of the module with a 13 mm socket wrench (use an extension bars if necessary), as shown below.



Note

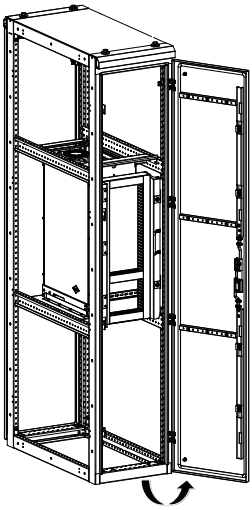
The tightening torque of the bolt is 12 N·m.

10. Pushing the module out of the cabinet.



6.5.7 Replacing the H7w Module

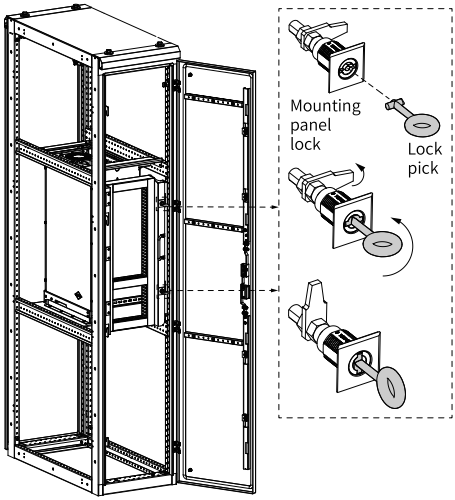
1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Open the cabinet door.



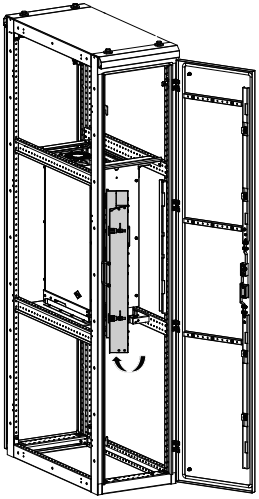
3. Fetch the lock pick equipped in the cabinet and insert the lock pick into the slot of the mounting panel lock as shown below. Rotate 90 degrees counterclockwise to open the mounting panel lock.

Note

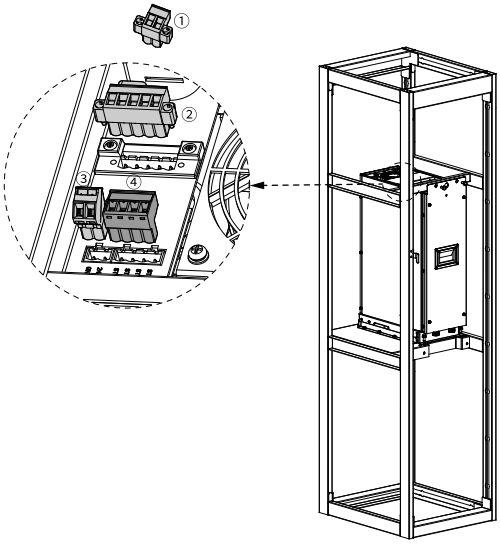
The mounting panel has one upper lock and one lower lock on the right side.



4. Hold the handle on the right side and open it leftward. The opening angle can be up to 120 degrees, as shown in the following figure.



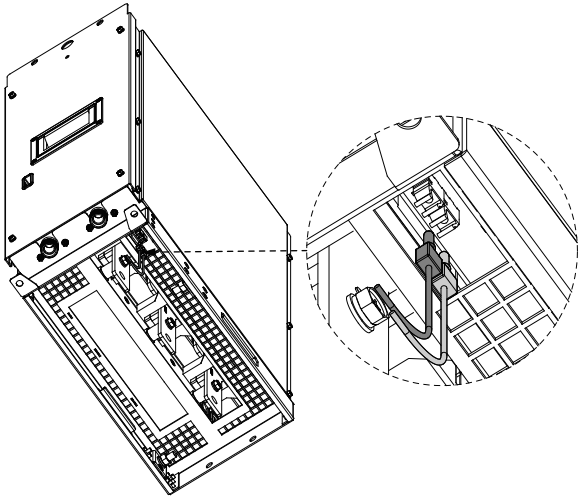
5. Remove the cables connecting control circuit terminals ①, ②, ③, and ④ on the top of the module. For details about the control circuit terminals, see section Description of Control Circuit Terminals in *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.



Note

- ①: The old version of the H7w module provides the 2-pin HCU redundant power supply output terminal.
- ②: The new version of the H7w module provides the 5-pin DC pre-charge control terminal.

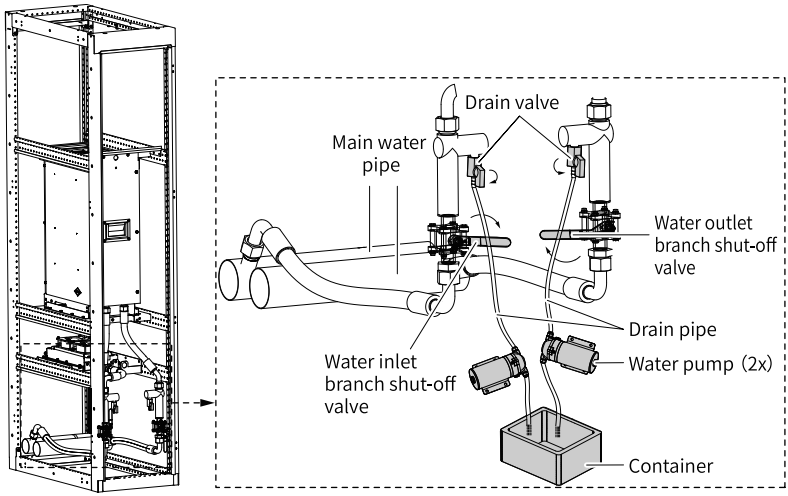
6. Unplug the optical fiber at the bottom of the module and put the optical fiber to a proper position to prevent it from being damaged during module disassembly.



7. Close the water inlet and outlet valves of the cabinet according to the arrow direction shown in the following figure to isolate the water circuit in the cabinet from that in the system. Prepare a water container. Connect one end of the drain pipe to the drain valve outlet and the other end to the suction pump vent port. Next, connect one end of the drain pipe to the suction pump discharge port and the other end to the container. Turn on the two drain valves and switch on the suction pump power supply to keep the suction pump working for at least 3 min until no coolant drips out.

Note

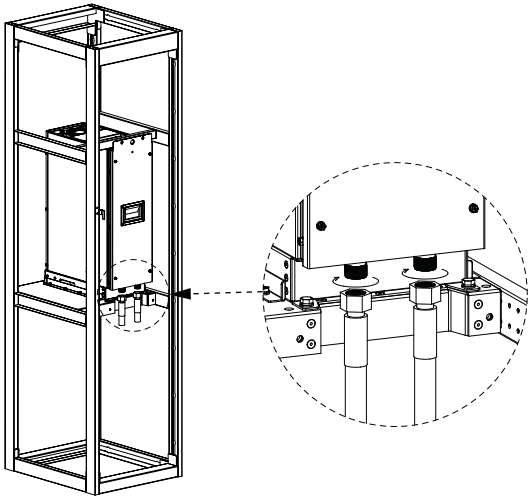
If the shut-off valve and drain valve handles are parallel to the water pipe, the shut-off valve and drain valve are opened. If they are vertical to the water pipe, they are closed. The following figure shows the handle status after valve commissioning is done.



8. Remove the inlet and outlet pipes in the arrow direction shown in the following figure with a 32 mm open-end wrench.

Note

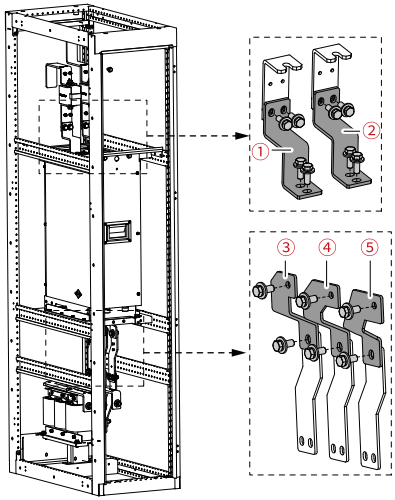
The water inlet/outlet fitting has M26x1.5 metric thread and 24-degree internal taper. The tightening torque is 35 N·m.



9. Remove the eight M10x30 hexagon bolts with a 16 mm socket wrench (use an extension rod if necessary) and take out the two external copper busbars ① and ② connected to the copper busbars of the positive and negative buses on the top of the module. Remove the six M12x30 hexagon bolts with a 18 mm socket wrench (use an extension bar if necessary) and take out the three external copper busbars ③, ④, and ⑤ connected to the three-phase AC copper busbars at the bottom of the module.

Note

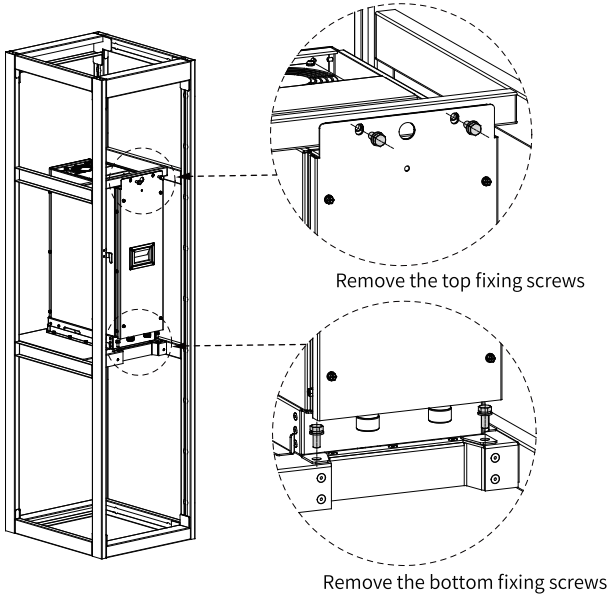
The tightening torque of M10 bolts is 20 N·m. The tightening torque of M12 bolts is 35 N·m.



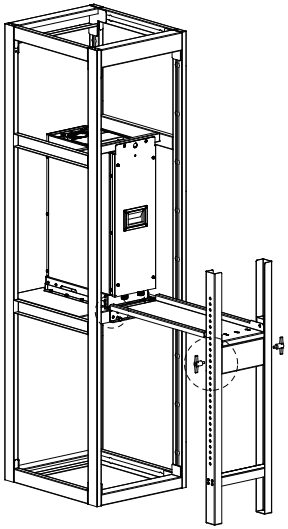
10. Remove the four M8x20 hexagon bolts on the top and bottom of the module with a 13 mm socket wrench (use an extension bars if necessary), as shown below.

Note

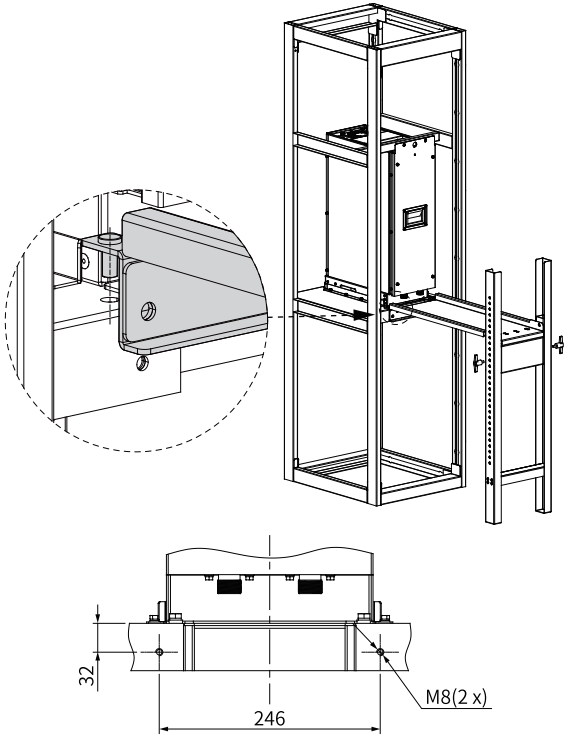
The tightening torque of the bolt is 12 N·m.



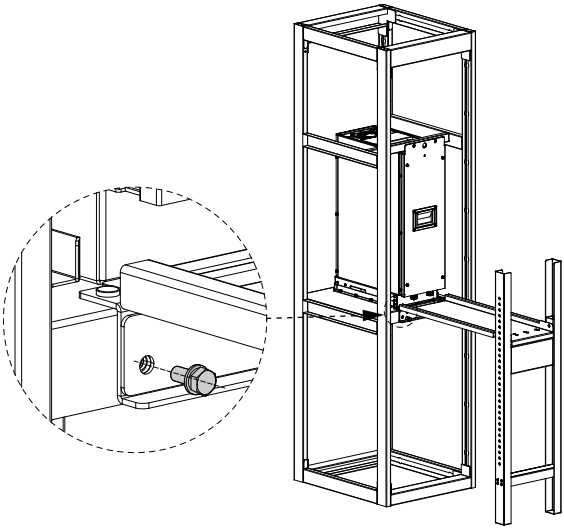
11. Install the maintenance stand for the module.



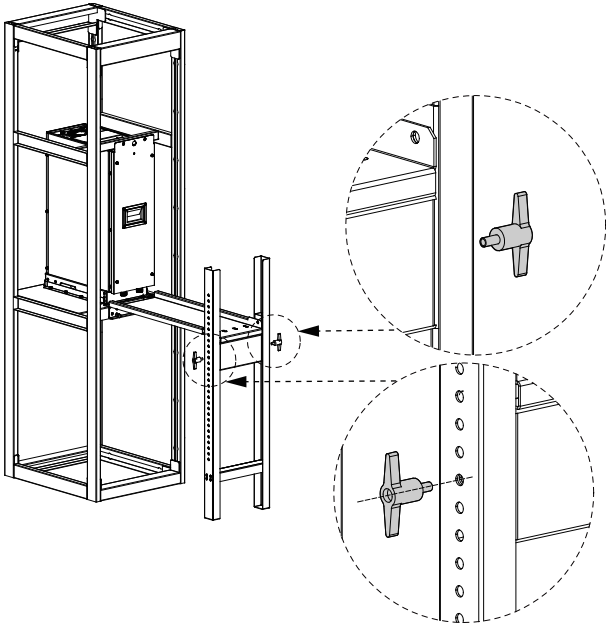
a. Insert the maintenance stand limit pins into the positioning holes, as shown below (in mm).



b. Fix the bracket with two M8 screws.

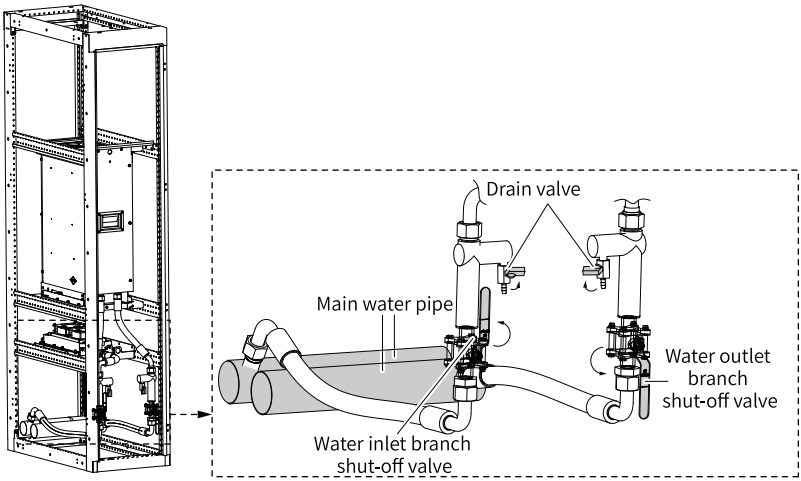


c. Adjust the foot height and fix it to the proper hole with thumb screws.



12. Pull the module out of the cabinet along the limit slot and place it on a trolley for transport.

13. Place a new module on the trolley and install the module in the cabinet in the reverse order.
14. After installing the new module, close the two drain valves in the arrow direction shown in the following figure, and then open the water inlet and outlet valves. Ensure that the water circuit in the cabinet is connected to that in the system. The status of the valve is shown in the following figure. Remove the drain pipe, suction pump, and container in step 7.

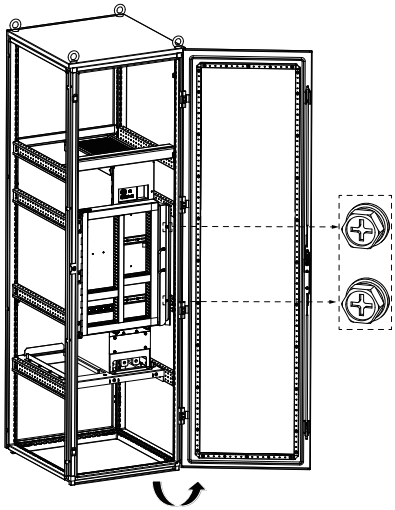


Note

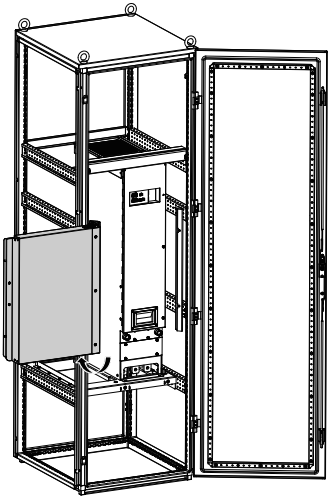
For water-cooled system, check the water first upon overtemperature.

6.5.8 Replacing the H8w Module

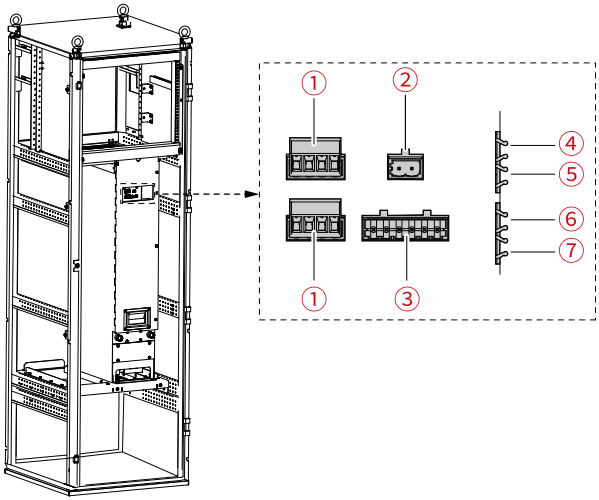
1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Open the cabinet door and remove the two M5x16 screws fixing the distribution plate with a screwdriver.



3. Hold the handle on the right side of the mounting panel and open it leftward. The opening angle can be up to 180°, as shown in the following figure.



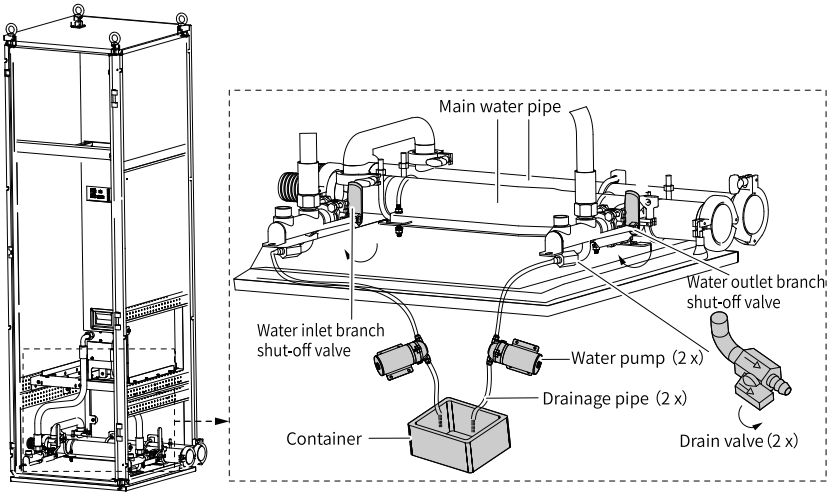
4. Disconnect the control circuit terminals ① to ⑦ on the top of the module. For description of control circuit terminals, see "Description of Control Circuit Terminals" in the *MD880LC Series AC Drive (Multi-drive System) Hardware Guide*.



5. Connect one end of the drain pipe to the drain valve outlet and the other end to the suction pump vent port. Next, connect one end of the drain pipe to the suction pump discharge port and the other end to the container. Close the water inlet and water outlet shut-off valves in the arrow direction shown below. Finally, open the two drain valves and switch on the suction pump power supply to keep the suction pump working for at least 3 min until no coolant drips out.

Note

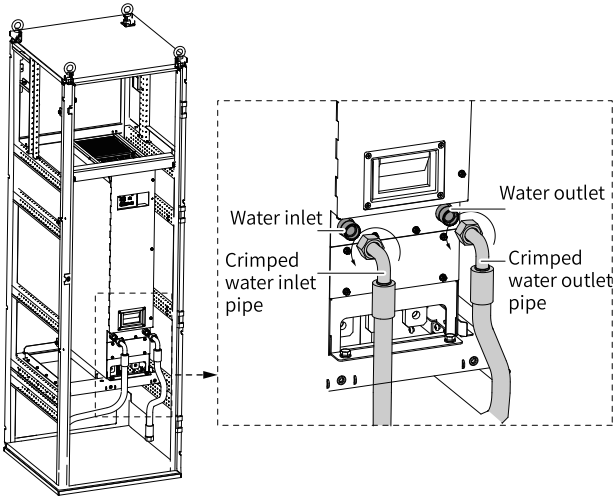
If the shut-off valve and drain valve handle are in parallel with the water pipe, the shut-off valve and drain valve are opened. If they are vertical to the water pipe, they are closed. The following figure shows the handle status after valve commissioning is done.



6. Remove the inlet and outlet pipes in the arrow direction shown in the following figure with a 32 mm open-end wrench.

Note

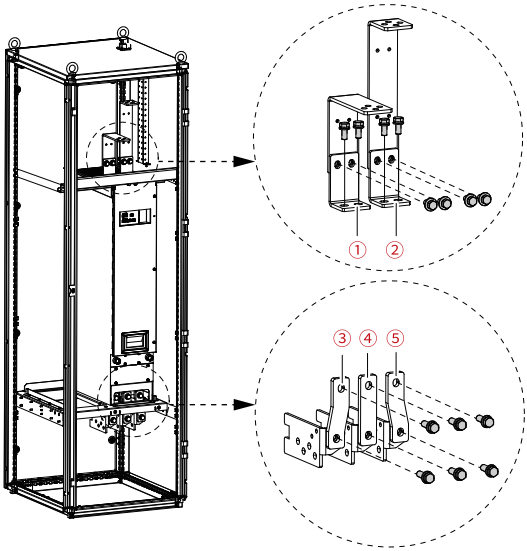
The water inlet/outlet fitting has M26x1.5 metric thread and 24-degree internal taper. The tightening torque is 35 N·m.



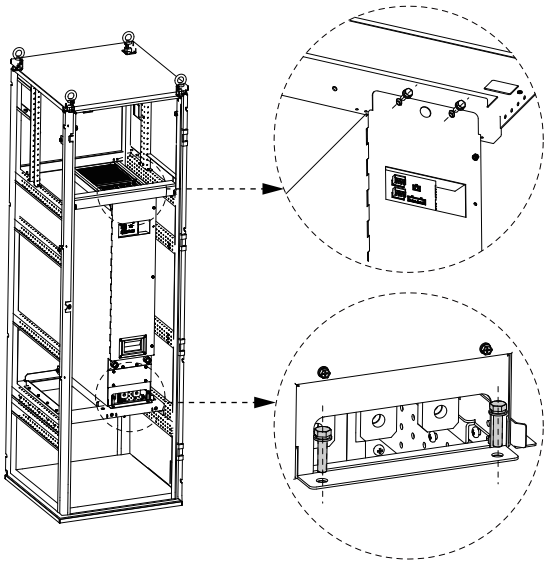
Note

Disassemble the coolant pipe. Use a container to hold the water, preventing the water from being splashed to live equipment inside the cabinet.

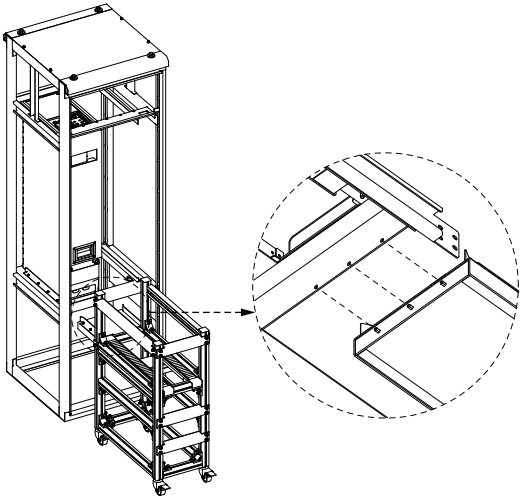
7. Remove the eight M10x25 hexagon bolts with a 16 mm socket wrench (use an extension rod if necessary) and take out the two external copper busbars ① and ② connected to the copper busbars of the positive and negative buses on the top of the module. Remove the six M12x40 hexagon bolts with a 18 mm socket wrench (use an extension bar if necessary) and take out the three external copper busbars ③, ④, and ⑤ connected to the three-phase AC copper busbars at the bottom of the module.



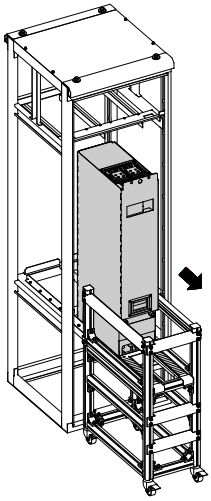
8. Remove the four M8x20 hexagon bolts on the top and bottom of the module with a 13 mm socket wrench (use an extension bars if necessary), as shown below.



9. Adjust the height of the trolley to align the trolley with the module mounting bracket. Insert the positioning pin in the front end of the trolley into the positioning hole of the bracket.



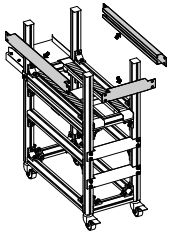
10. Lock the brake on the trolley wheel.
11. Pull the module out of the cabinet along the limit slot and place it on a trolley for transport.



12. Place the new module on the trolley.

Note

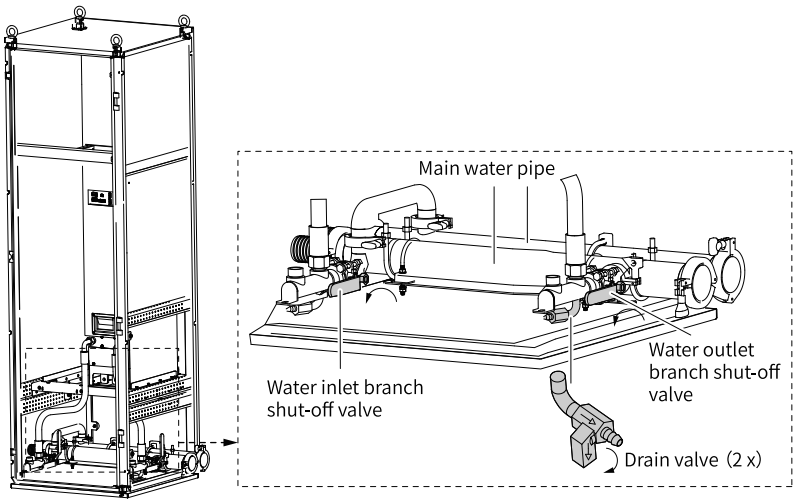
When moving the module from the trolley, you can remove the baffles around the trolley.



13. Install the module to the cabinet in the reverse order.
14. After installing the new module, close the two drain valves in the arrow direction shown in the figure, and then open the water inlet and outlet branch shut-off valves. Ensure that the water circuit in the cabinet is connected to that in the system. Remove the drain pipe, suction pump, and container in step 5.

Note

If the shut-off valve and drain valve handle are in parallel with the water pipe, the shut-off valve and drain valve are opened. If they are vertical to the water pipe, they are closed. The following figure shows the handle status after valve commissioning is done.



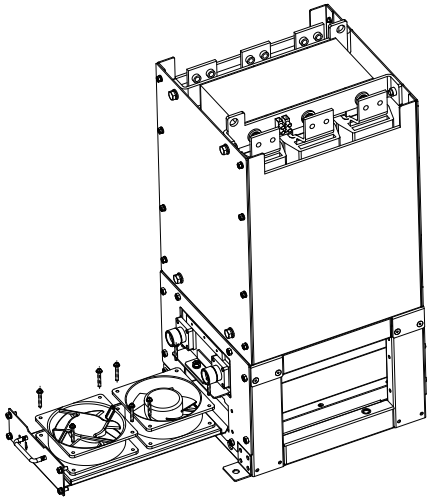
Note

For water-cooled system, check the water first upon overtemperature.

6.5.9 Replacing the Fan of the Active Rectifier Filter Module

Replacing the fan of the 395 A filter module (matching the H6w rectifier module)

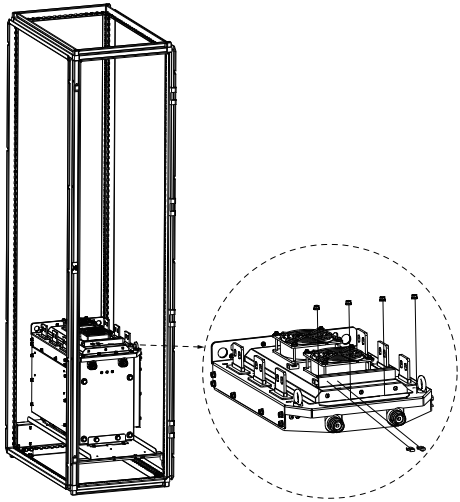
1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Disconnect the two power supply male plugs that used to power up the fan and remove the four M5x12 SEMS screws with an M5 screwdriver, as shown in the following figure.



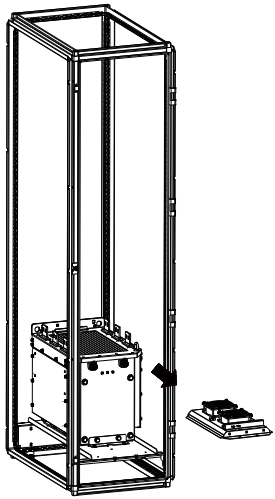
3. Remove the M4x50 SEMS screws (four for each fan) with an M4 screwdriver. Then pull out the fan.

Replacing the fan of the 650 A filter module (matching the H7w rectifier module)

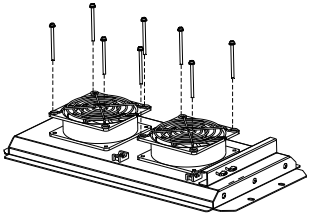
1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Disconnect the two power supply male plugs that used to power up the fan and remove the four M6x16 SEMS screws with an M6 screwdriver, as shown in the following figure.



3. Take out the sheet metal bend part and pull the fan box assembly out of the cabinet.

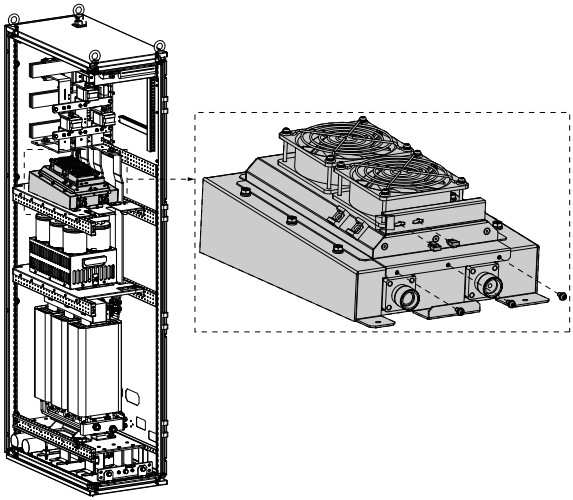


4. Remove the M4x50 SEMS screws (four for each fan) with an M4 screwdriver. Then pull out the fan.

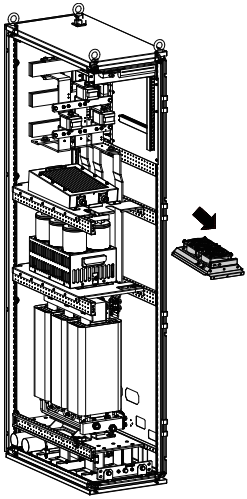


Replacing the fan of the 820 A filter module (matching the H8w rectifier module)

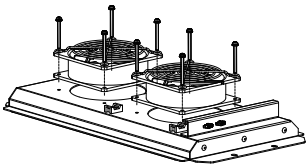
1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Disconnect the two power supply male plugs that used to power up the fan and remove the three M4x10 SEMS screws with an M4 screwdriver, as shown in the following figure.



3. Take out the sheet metal bend part and pull the fan box assembly out of the cabinet.



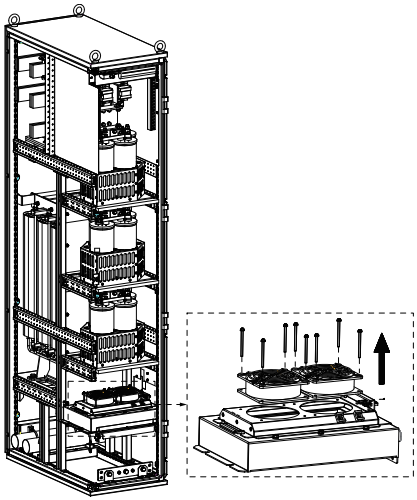
4. Remove the M4x50 SEMS screws (four for each fan) with an M4 screwdriver. Then pull out the fan.



5. Install a new fan of the same specifications in the reverse order.

Replacing the fan of the 1558 A filter module (matching the 2 x H8w rectifier module)

1. Take electrical safety precautions before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. The following figure shows the fan position of the 1558 A filter module. Sufficient space is revered over the fan. Therefore, there is no need to pull out the fan box assembly for replacement. Remove the M4x50 SEMS screws (four for each fan) with an M4 screwdriver. Then pull out the DC fan.

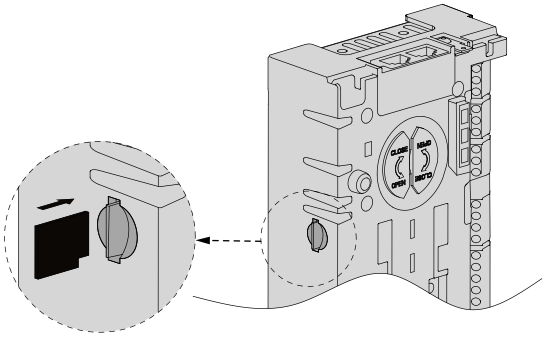


3. Install a new fan of the same specifications in the reverse order.

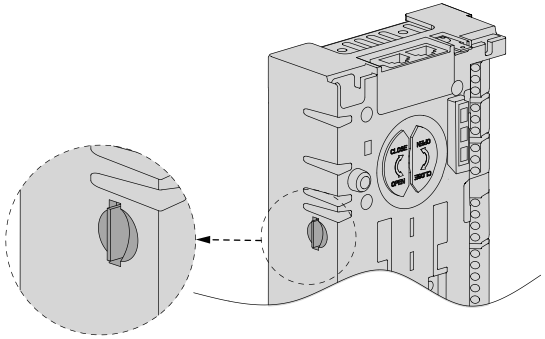
6.5.10Replacing the SD Card and Battery of the HCU Control Module

After replacing the HCU control module, you can reserve present parameter settings by inserting the original SD card from the faulty module to the new module. To install and remove the SD card, do as follows.

1. Take electrical safety measures before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Push the SD card into the SD card base of the HCU control module, as shown below.



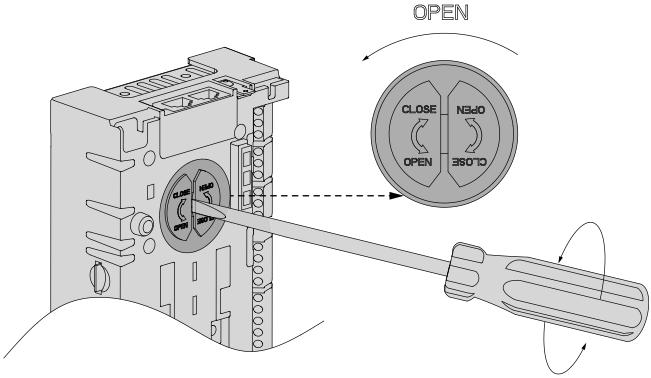
3. Ensure the SD card is inserted in place, and then check whether the SD card floats. Otherwise, an exception can occur due to poor contact.

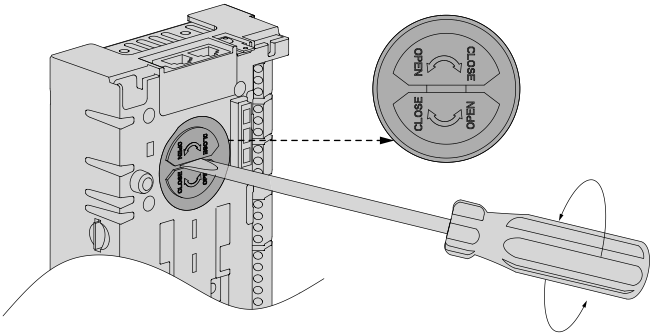


Replacing the battery

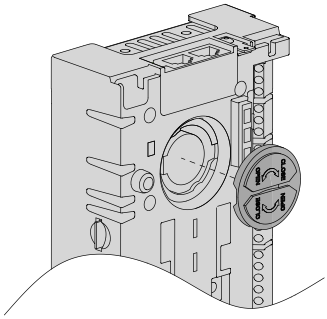
Replace the battery based on the following procedure.

1. Turn the battery cover 90° counterclockwise with a #2 straight screwdriver until the cover is released.

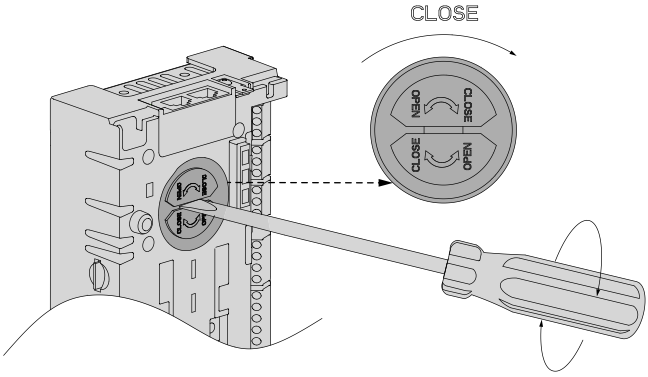


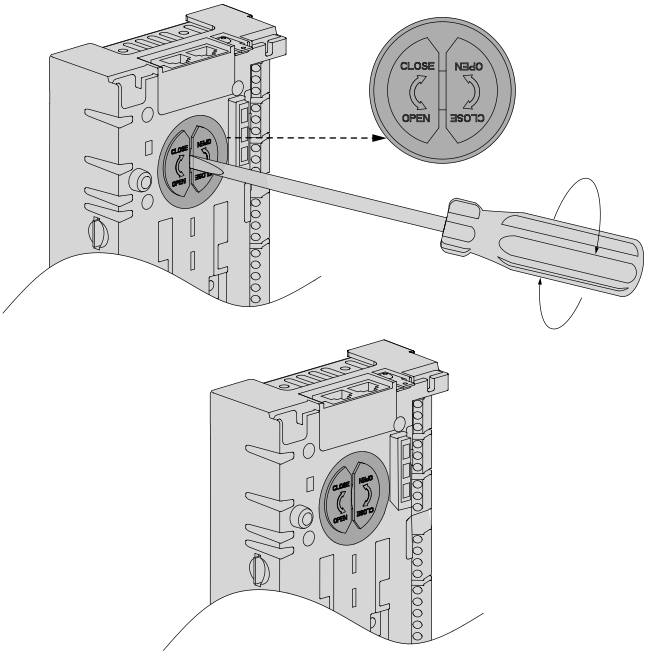


2. Remove the cover. Press one side of the battery with a screwdriver to remove the battery. Then, install a new battery.



3. Close the cover and rotate the cover 90 degrees clockwise to fasten the cover.

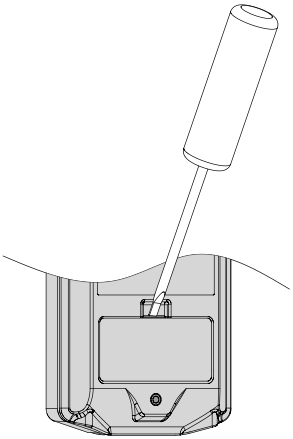




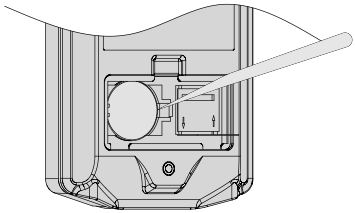
4. Dispose of the retired battery in accordance with local rules or applicable laws.

6.5.11Replacing the SOP-20-880 Battery

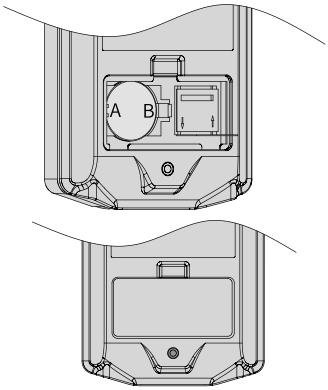
1. Take electrical safety measures before operation according to *" Safety Instructions for Maintenance" on page 80*.
2. Use straight screwdriver or fingers to open the battery rear cover, as shown below.



3. Pry the battery out with tweezers or a small straight screwdriver.



4. Insert the battery into the snap-fit joint on end A first, and then press down the battery on end B to install the battery in place.



5. Install the battery cover with a tool or your finger.

7 Ordering Instructions

Example of active rectifier model selection

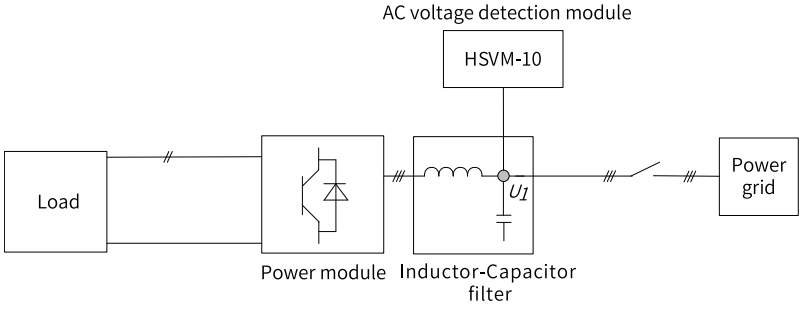


Figure 7-1 Active rectifier system topology

When two 530 A/690 V active rectifiers are connected in parallel, the derating coefficient is 0.95 and the derated rated current without overload is 1007 A. The following table shows the model list.

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1007-7	(ALC+H7w) x 2	1. MD880LC-40M-0530-7	2	Active rectifier module
		2. MD880LC-40F-0650-7	2	Active rectifier filter module
		3. HCU-40	1	Active rectifier control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		7. HOFM-10	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module

Example of power conversion system selection

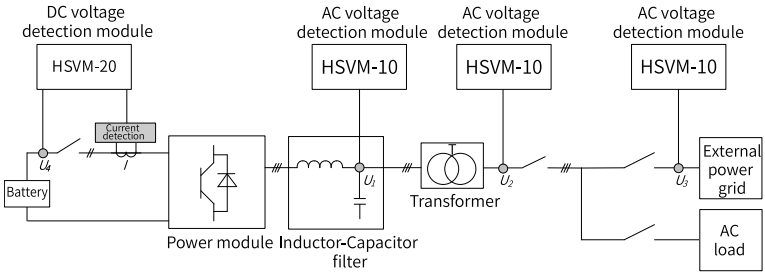


Figure 7-2 Topology of the integrated charger-inverter system

Take the 530 A/690 V power conversion system as an example. When two 530 A/690 V power conversion systems are connected in parallel, the derating coefficient is 0.95, and the derated rated current without overload is 1007 A. The topology is shown in the preceding figure, and the model list is shown in the following table. Three AC voltage detection modules are required for on-grid sampling. The sampling positions are the filter capacitor, load side, and point of interconnection. Two AC voltage detection modules are required for off-grid sampling. The sampling positions are the filter capacitor and load side. The number of AC voltage detection modules depends on the actual application requirements.

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1007-7	(ALC+H7w) x 2	1. MD880LC-40M-0530-7	2	Active rectifier module
		2. MD880LC-40F-0650-7	2	Active rectifier filter module
		3. HCU-40+Power conversion system	1	Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	3 ON-grid application	AC voltage detection module
			2 OFF-grid application	
		6. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		7. HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module

Example of inverter module model selection

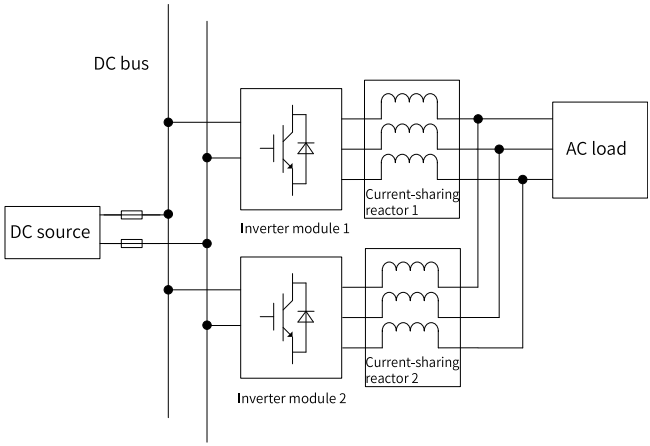


Figure 7-3 Topology of two paralleled inverter modules

When two 530 A/690 V inverters are connected in parallel, the derating coefficient is 0.95, and the derated current without overload is 1007 A. The system topology is shown in the following figure, and the order list is shown in the following table. The inverter modules 1 and 2 require two current-sharing reactors, one HPCU-40 (parallel expansion module) and one HCU-50 to allow parallel operation.

Model MD880LC-50...	Structure	Part No.	Quantity	Name
1007-7	H7w x 2	1. MD880LC-50M-0530-7	2	Inverter module
		2. MD880-OCL-008U-0900-7	2	Current-sharing reactor
		3. HCU-50S	1	Inverter control module
		4. HPCU-40	1	Parallel expansion module
		5. MD880LC-WAHE-1.5 kW	2	Water-to-air heat exchanger

The following table describes the product models and order list of the MD880 series high-performance water-cooled active rectifier and power conversion system.

Model MD880LC-40...	Structure	Part No.	Quantity	Name
0299-5	ALC+H6w	1. MD880LC-40M-0299-5	1	Active rectifier module
		2. MD880LC-40F-0395-5	1	Filter module
		3. HCU-40[1]/HCU-40+Power conversion system[2]	1	Active rectifier control module/Power conversion system control module
		4. HSVM-10 [3]	1	AC voltage detection module
		5. MD880LC-SR-7	1	AC pre-charge resistor (mandatory)
		6. HOFM-10[4]/HOFM-30 [5]	1	Optical fiber expansion module
		7. HFAN-10[6]	1	Fan fault detection module
0395-5	ALC+H6w	1. MD880LC-40M-0395-5	1	Active rectifier module
		2. MD880LC-40F-0395-5	1	Filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HSVM-10	1	AC voltage detection module
		5. MD880LC-SR-7	1	AC pre-charge resistor (mandatory)
		6. HOFM-10/HOFM-30	1	Optical fiber expansion module
		7. HFAN-10	1	Fan fault detection module
0530-5	ALC+H7w	1. MD880LC-40M-0530-5	1	Active rectifier module
		2. MD880LC-40F-0650-7	1	Filter module
		3. HCU-40[1]/HCU-40+Power conversion system [2]	1	Active rectifier control module/Power conversion system control module
		4. HSVM-10 [3]	1	AC voltage detection module
		5. MD880LC-SR-7	2	AC pre-charge resistor (mandatory)
		6. HOFM-10 [4]/HOFM-30 [5]	1	Optical fiber expansion module
		7. HFAN-10 [6]	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
0650-5	ALC+H7w	1. MD880LC-40M-0650-5	1	Active rectifier module
		2. MD880LC-40F-0650-7	1	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HSVM-10	1	AC voltage detection module
		5. MD880LC-SR-7	2	AC pre-charge resistor (mandatory)
		6. HOFM-10/HOFM-30	1	Optical fiber expansion module
		7. HFAN-10	1	Fan fault detection module
0820-5	ALC+H8w	1. MD880LC-40M-0820-5	1	Active rectifier module
		2. MD880LC-40F-0820-7	1	Filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module Power conversion system control module
		4. HSVM-10	1	AC voltage detection module
		5. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		6. HOFM-10/HOFM-30	1	Optical fiber expansion module
		7. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1007-5	(ALC+H7w) x 2	1. MD880LC-40M-0530-5	2	Active rectifier module
		2. MD880LC-40F-0650-7	2	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
1235-5	(ALC+H7w) x 2	1. MD880LC-40M-0650-5	2	Active rectifier module
		2. MD880LC-40F-0650-7	2	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1510-5	(ALC+H7w) x 3	1. MD880LC-40M-0530-5	3	Active rectifier module
		2. MD880LC-40F-0650-7	3	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	5	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
1558-5	ALC + 2 x H8w	1. MD880LC-40M-0820-5	2	Active rectifier module
		2. MD880LC-40F-1558-7	1	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module Power conversion system control module
		4. HSVM-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		5. MD880LC-SR-7	5	AC pre-charge resistor (mandatory)
		6. HOFM-10/HOFM-30	1	Optical fiber expansion module
		7. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1852-5	(ALC+H7 w) x 3	1. MD880LC-40M-0650-5	3	Active rectifier module
		2. MD880LC-40F-0650-7	3	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	5	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
2014-5	(ALC+H7 w) x 4	1. MD880LC-40M-0530-5	4	Active rectifier module
		2. MD880LC-40F-0650-7	4	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	6	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
2337-5	(ALC+H8w) x 3	1. MD880LC-40M-0820-5	3	Active rectifier module
		2. MD880LC-40F-0820-7	3	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	8	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
2470-5	(ALC+H7w) x 4	1. MD880LC-40M-0650-5	4	Active rectifier module
		2. MD880LC-40F-0650-7	4	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	6	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
2517-5	(ALC+H7 w) x 5	1. MD880LC-40M-0530-5	5	Active rectifier module
		2. MD880LC-40F-0650-7	5	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	8	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module
3021-5	(ALC+H7 w) x 6	1. MD880LC-40M-0530-5	6	Active rectifier module
		2. MD880LC-40F-0650-7	6	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	9	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
3087-5	(ALC+H7w) x 5	1. MD880LC-40M-0650-5	5	Active rectifier module
		2. MD880LC-40F-0650-7	5	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	8	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module
3116-5	(ALC+2 x H8w) x 2	1. MD880LC-40M-0820-5	4	Active rectifier module
		2. MD880LC-40F-1558-7	2	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	9	AC pre-charge resistor (mandatory)
		7. HOFM-10/ HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
3705-5	(ALC+H7w) x 6	1. MD880LC-40M-0650-5	6	Active rectifier module
		2. MD880LC-40F-0650-7	6	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	9	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module
0530-7	ALC+H7w	1. MD880LC-40M-0530-7	1	Active rectifier module
		2. MD880LC-40F-0650-7	1	Filter module
		3. HCU-40 [1]/HCU-40 + Power conversion system [2]	1	Active rectifier control module/Power conversion system control module
		4. HSVM-10 [3]	1	AC voltage detection module
		5. MD880LC-SR-7	2	AC pre-charge resistor (mandatory)
		6. HOFM-10 [4]/HOFM-30 [5]	1	Optical fiber expansion module
		7. HFAN-10 [6]	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
0650-7	ALC+H7w	1. MD880LC-40M-0650-7	1	Active rectifier module
		2. MD880LC-40F-0650-7	1	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HSVM-10	1	AC voltage detection module
		5. MD880LC-SR-7	2	AC pre-charge resistor (mandatory)
		6. HOFM-10/HOFM-30	1	Optical fiber expansion module
		7. HFAN-10	1	Fan fault detection module
0820-7	ALC+H8w	1. MD880LC-40M-0820-7	1	Active rectifier module
		2. MD880LC-40F-0820-7	1	Filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module Power conversion system control module
		4. HSVM-10	1	AC voltage detection module
		5. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		6. HOFM-10/HOFM-30	1	Optical fiber expansion module
		7. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1007-7	(ALC+H7w) x 2	1. MD880LC-40M-0530-7	2	Active rectifier module
		2. MD880LC-40F-0650-7	2	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
1235-7	(ALC+H7w) x 2	1. MD880LC-40M-0650-7	2	Active rectifier module
		2. MD880LC-40F-0650-7	2	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	3	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1510-7	(ALC+H7w) x 3	1. MD880LC-40M-0530-7	3	Active rectifier module
		2. MD880LC-40F-0650-7	3	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	5	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
1558-7	ALC + 2 x H8w	1. MD880LC-40M-0820-7	2	Active rectifier module
		2. MD880LC-40F-1558-7	1	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module Power conversion system control module
		4. HSVM‐40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		5. MD880LC-SR-7	5	AC pre-charge resistor (mandatory)
		6. HOFM-10/HOFM-30	1	Optical fiber expansion module
		7. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
1852-7	(ALC+H7 w) x 3	1. MD880LC-40M-0650-7	3	Active rectifier module
		2. MD880LC-40F-0650-7	3	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	5	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
2014-7	(ALC+H7 w) x 4	1. MD880LC-40M-0530-7	4	Active rectifier module
		2. MD880LC-40F-0650-7	4	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	6	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
2337-7	(ALC+H8w) x 3	1. MD880LC-40M-0820-7	3	Active rectifier module
		2. MD880LC-40F-0820-7	3	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	8	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module
2470-7	(ALC+H7w) x 4	1. MD880LC-40M-0650-7	4	Active rectifier module
		2. MD880LC-40F-0650-7	4	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	6	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
2517-7	(ALC+H7 w) x 5	1. MD880LC-40M-0530-7	5	Active rectifier module
		2. MD880LC-40F-0650-7	5	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	8	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module
3021-7	(ALC+H7 w) x 6	1. MD880LC-40M-0530-7	6	Active rectifier module
		2. MD880LC-40F-0650-7	6	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	9	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
3087-7	(ALC+H7w) x 5	1. MD880LC-40M-0650-7	5	Active rectifier module
		2. MD880LC-40F-0650-7	5	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	8	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module
3116-7	(ALC+2 x H8w) x 2	1. MD880LC-40M-0820-7	4	Active rectifier module
		2. MD880LC-40F-1558-7	2	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-40	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	9	AC pre-charge resistor (mandatory)
		7. HOFM-10/ HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	1	Fan fault detection module

Model MD880LC-40...	Structure	Part No.	Quantity	Name
3705-7	(ALC+H7w) x 6	1. MD880LC-40M-0650-7	6	Active rectifier module
		2. MD880LC-40F-0650-7	6	Active rectifier filter module
		3. HCU-40/HCU-40+Power conversion system	1	Active rectifier control module/Power conversion system control module
		4. HPCU-60	1	Parallel control module
		5. HSVM-10	1	AC voltage detection module
		6. MD880LC-SR-7	9	AC pre-charge resistor (mandatory)
		7. HOFM-10/HOFM-30	1	Optical fiber expansion module
		8. HFAN-10	2	Fan fault detection module

Note

- [1] and [2]: The models of the active rectifier model and the power conversion system control module are different. The active rectifier is HCU-40 and the power conversion system is HCU-40+PCS.
- [3]: For the active rectifier, one HSVM-10 can meet the requirements in most cases. The number of the power conversion systems needed depends on the number of AC and DC voltage sampling points and application scenarios.
- [4]: The HOFM-10 supports expansion of one HSVM-10 through optical fiber.
- [5]: The HOFM-30 supports expansion of three HSVM-10/HSVM-20 through optical fiber. Generally, one HOFM-10 is needed for the active rectifier. HOFM-30 is recommended for application of the power conversion system.
- [6]: A fan fault detection module supports six detection channels and filter fan fault detection for systems with three paralleled modules. It is recommended to use the fan fault detection module together with an HESD-10 function expansion module and HOFM-30 module.

Active rectifier and power conversion system integrated product (H6w module)

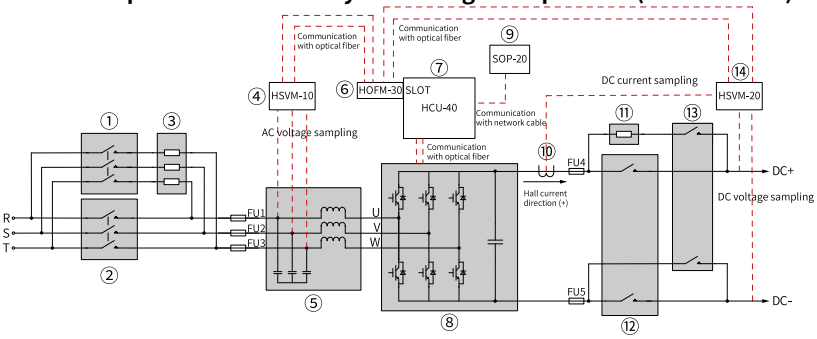


Figure 7-4 Topology of active rectifier and power conversion system integrated product (H6w module)

Table 7–1 Delivery list of power conversion system integrated product (H6w module)

No.	Name	Importance	Description
①	AC pre-charge contactor	Standard	Provides soft start circuit on the AC side.
②	Main contactor on the AC side	User-defined	You can configure the main contactor on the AC side based on actual operating conditions.
③	AC pre-charge resistor	Standard	Used to limit the inrush current on the AC side.
④	HSVM-10	Standard	Provides incoming voltage sampling on the AC side for the HCU-40 control module.
⑤	Power conversion system filter module	Standard	Used for current control on the AC side and filter out high frequency current harmonics on the AC side.
⑥	HOFM-30	Standard	Connect the HCU-40 control module through the slot to provide an optical fiber expansion interface.
⑦	HCU-40	Standard	Used to control the power conversion system power module through the optical fiber.
⑧	Power conversion system power module	Standard	Power conversion system power module
⑨	SOP-20-880	Standard	Used to connect to HCU-40 through a network cable to allow parameter setting, software programming, start/stop control, and communication relay.

No.	Name	Importance	Description
⑩	Hall components	Standard	Used to collect current on the DC side.
⑪	Pre-charge resistor for black start	Standard	Used to limit the pre-charge current upon black start on the DC side.
⑫	Main contactor on the DC side	User-defined	You can configure the main contactor on the DC side based on actual operating conditions.
⑬	Pre-charge contactor for black start	Standard	Provides pre-charge circuit upon black start on the DC side.
⑭	HSVM-20	Standard	Provides voltage and current sampling on the DC side for the HCU-40 control module.

Table 7–2 Delivery list of active rectifier integrated product (H6w module)

No.	Name	Importance	Description
①	AC pre-charge contactor	Standard	Provides soft start circuit on the AC side.
②	Main contactor on the AC side	User-defined	You can configure the main contactor on the AC side based on actual operating conditions.
③	AC pre-charge resistor	Standard	Used to limit the inrush current on the AC side.
④	HSVM-10	Standard	Provides incoming voltage sampling on the AC side for the HCU-40 control module.
⑤	Active rectifier filter module	Standard	Used for current control on the AC side and filter out high frequency current harmonics on the AC side.
⑥	HOFM-30	Standard	Connect the HCU-40 control module through the slot to provide an optical fiber expansion interface.
⑦	HCU-40	Standard	Used to control the power conversion system power module through the optical fiber.
⑧	Active rectifier power module	Standard	Active rectifier power module
⑨	SOP-20	Standard	Used to connect to HCU-40 through a network cable to allow parameter setting, software programming, start/stop control, and communication relay.
⑫	Main contactor on the DC side	User-defined	You can configure the main contactor on the DC side based on actual operating conditions.

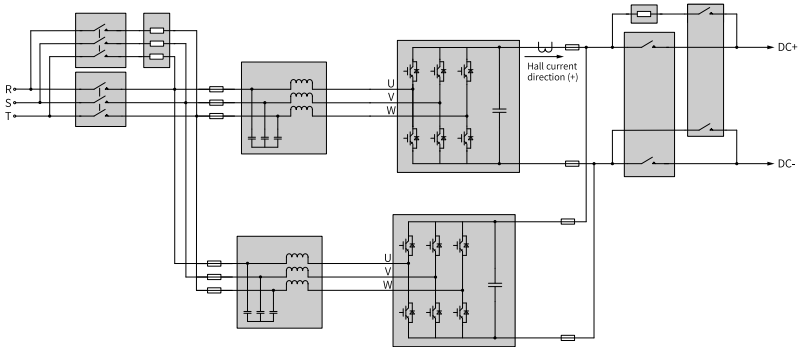


Figure 7-5 Topology of parallel operation of active rectifier products or power conversion system products (H6w module)

Note

In the parallel application, the position and quantity of the current sampling Hall on the DC side are consistent with that in the single module application, so there is no need to install additional current sampling Hall.

Inverter module

The following table describes the product models and order list of the MD880 series 690 VAC high-performance water-cooled inverter module.

Model MD880LC-50...	Structure	Part No.	Quantity	Name
0149-5	H6w	1. MD880LC-50M-0149-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0183-5	H6w	1. MD880LC-50M-0183-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0245-5	H6w	1. MD880LC-50M-0245-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0299-5	H6w	1. MD880LC-50M-0299-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0349-5	H6w	1. MD880LC-50M-0349-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller

Model MD880L C-50...	Structure	Part No.	Quantity	Name
0395-5	H6w	1. MD880LC-50M-0395-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0466-5	2 x H6w	1. MD880LC-50M-0245-5	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
0530-5	H7w	1. MD880LC-50M-0530-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0568-5	2 x H6w	1. MD880LC-50M-0299-5	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
0650-5	H7w	1. MD880LC-50M-0650-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0663-5	2 x H6w	1. MD880LC-50M-0349-5	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
0751-5	2 x H6w	1. MD880LC-50M-0395-5	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
0852-5	3 x H6w	1. MD880LC-50M-0299-5	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
0995-5	3 x H6w	1. MD880LC-50M-0349-5	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1126-5	3 x H6w	1. MD880LC-50M-0395-5	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
0900-5	H8w	1. MD880LC-50M-0900-5	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller

Model MD880L C-50...	Structure	Part No.	Quantity	Name
1007-5	H7w x 2	1. MD880LC-50M-0530-5	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1235-5	H7w x 2	1. MD880LC-50M-0650-5	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1510-5	H7w x 3	1. MD880LC-50M-0530-5	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1710-5	H8w x 2	1. MD880LC-50M-0900-5	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1852-5	H7w x 3	1. MD880LC-50M-0650-5	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
2014-5	H7w x 4	1. MD880LC-50M-0530-5	4	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
2470-5	H7w x 4	1. MD880LC-50M-0650-5	4	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
2517-5	H7w x 5	1. MD880LC-50M-0530-5	5	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
2565-5	H8w x 3	1. MD880LC-50M-0900-5	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
3021-5	H7w x 6	1. MD880LC-50M-0530-5	6	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module

Model MD880L C-50...	Structure	Part No.	Quantity	Name
3087-5	H7w x 5	1. MD880LC-50M-0650-5	5	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
3420-5	H8w x 4	1. MD880LC-50M-0900-5	4	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
3524-5	H7w x 7	1. MD880LC-50M-0530-5	7	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module
3705-5	H7w x 6	1. MD880LC-50M-0650-5	6	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
4028-5	H7w x 8	1. MD880LC-50M-0530-5	8	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module
4275-5	H8w x 5	1. MD880LC-50M-0900-5	5	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
4322-5	H7w x 7	1. MD880LC-50M-0650-5	7	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module
4940-5	H7w x 8	1. MD880LC-50M-0650-5	8	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module
0530-7	H7w	1. MD880LC-50M-0530-7	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0650-7	H7w	1. MD880LC-50M-0650-7	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
0900-7	H8w	1. MD880LC-50M-0900-7	1	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller

Model MD880L C-50...	Structure	Part No.	Quantity	Name
1007-7	H7w x 2	1. MD880LC-50M-0530-7	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1235-7	H7w x 2	1. MD880LC-50M-0650-7	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1510-7	H7w x 3	1. MD880LC-50M-0530-7	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1710-7	H8w x 2	1. MD880LC-50M-0900-7	2	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
1852-7	H7w x 3	1. MD880LC-50M-0650-7	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
2014-7	H7w x 4	1. MD880LC-50M-0530-7	4	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
2470-7	H7w x 4	1. MD880LC-50M-0650-7	4	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
2517-7	H7w x 5	1. MD880LC-50M-0530-7	5	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
2565-7	H8w x 3	1. MD880LC-50M-0900-7	3	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
3021-7	H7w x 6	1. MD880LC-50M-0530-7	6	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module

Model MD880L C-50...	Structure	Part No.	Quantity	Name
3087-7	H7w x 5	1. MD880LC-50M-0650-7	5	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
3420-7	H8w x 4	1. MD880LC-50M-0900-7	4	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-40	1	Parallel expansion module
3524-7	H7w x 7	1. MD880LC-50M-0530-7	7	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module
3705-7	H7w x 6	1. MD880LC-50M-0650-7	6	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
4028-7	H7w x 8	1. MD880LC-50M-0530-7	8	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module
4275-7	H8w x 5	1. MD880LC-50M-0900-7	5	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-60	1	Parallel expansion module
4322-7	H7w x 7	1. MD880LC-50M-0650-7	7	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module
4940-7	H7w x 8	1. MD880LC-50M-0650-7	8	Water-cooled inverter module
		2. HCU-50S	1	Inverter controller
		3. HPCU-A0	1	Parallel expansion module

8 Service and Support

Should you encounter a safety accident during the use or operation of the product, or face challenges in operating and maintaining the equipment, which remain unresolved after the relevant documentation is consulted, we provide multiple channels to ensure prompt resolution:

- Channel #1: Contact service@inovance.com.
- Channel #2: Visit https://www.inovance.com/global to access document downloads, after-sales support, spare parts ordering, repair applications, and authenticity verification services.
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