

Introduction

Thank you very much for your use of our products.

We are a company specializing in the development and production of uninterruptible power supply (UPS) products. Our UPS system is a high quality power supply product that can meet all performance requirements.



Attention

This manual provides the introduction and use and operation instructions of the UPS products. Please read this manual carefully before installing the system. Do not operate the UPS until you have read all safety instructions and operation instructions. This manual provides important information. Please strictly follow all warnings and operating instructions provided in this manual and on the machine and keep this manual properly.



Caution

The UPS must be grounded before use.

The batteries must be replaced by qualified maintenance personnel. The batteries are classified as toxic waste according to laws, so the batteries must be sorted and recycled according to green and environmental protection.



Warning

This product is only limited to the partners who have a basic understanding of the UPS products. It is necessary for accident prevention to fully understand other installation requirements or measures.

Rights reserved. Any part of this manual shall not be modified without the authorization of the company. The company reserves the right of final interpretation.

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Chapter 1 Product Description

1.1. Model description

This manual is applicable for the following product models:

➤ 200kVA

This model include 4 versions: 50kVA, 100kVA, 150kVA and 200kVA.

➤ 300kVA

This model include 6 versions: 50kVA, 100kVA, 150kVA , 200kVA, 250kVA and 300kVA.

➤ 400kVA

This model include 8 versions: 50kVA, 100kVA, 150kVA , 200kVA, 250kVA , 300kVA, 350kVA and 400kVA.

➤ 500kVA

This model include 10 versions: 50kVA, 100kVA, 150kVA , 200kVA, 250kVA , 300kVA, 350kVA, 400kVA, 450kVA and 500kVA.

➤ 600kVA

This model include 12 versions: 50kVA, 100kVA, 150kVA , 200kVA, 250kVA , 300kVA, 350kVA, 400kVA, 450kVA, 500kVA, 550kVA and 600kVA.

1.1.1. Product appearance

200kVA and 300kVA UPS have same appearance, as shown in Fig. 1-1.

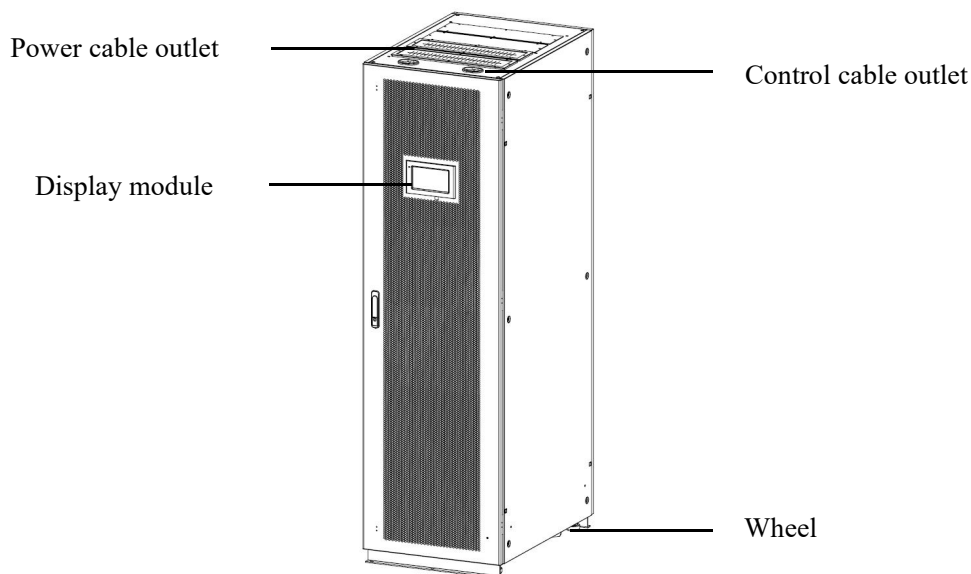


Fig. 1-1 Appearance of 300kVA UPS

2) 400kVA and 500kVA UPS have same appearance, as shown in Fig. 1-2:

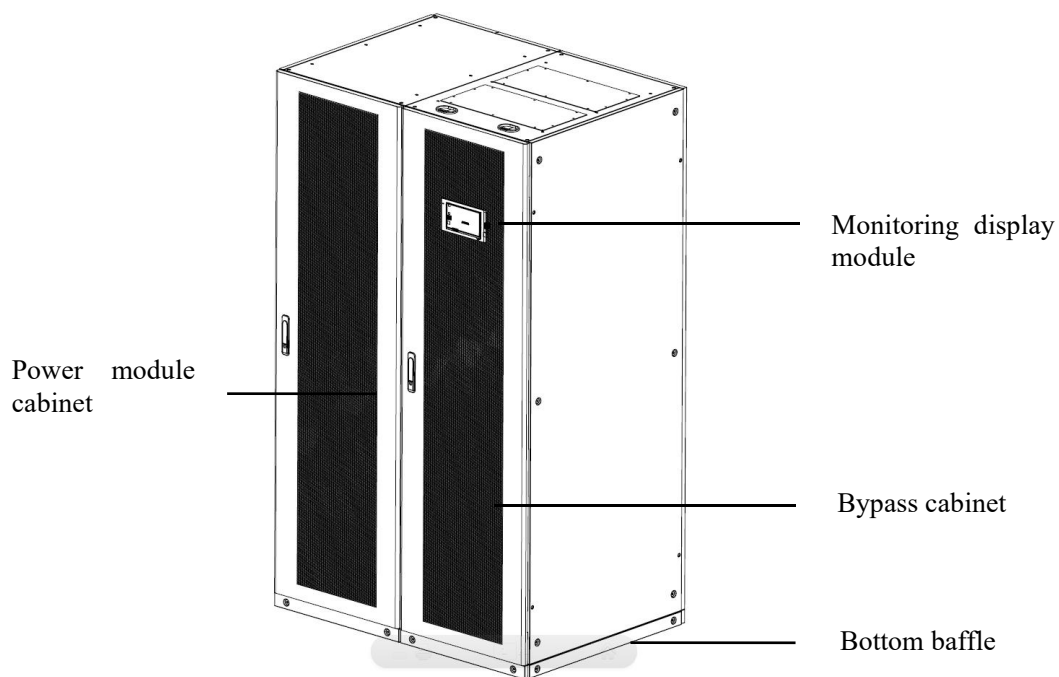


Fig. 1-2 Appearance of 500kVA UPS

3) 600kVAUPS has the appearance as shown in Fig. 1-3:

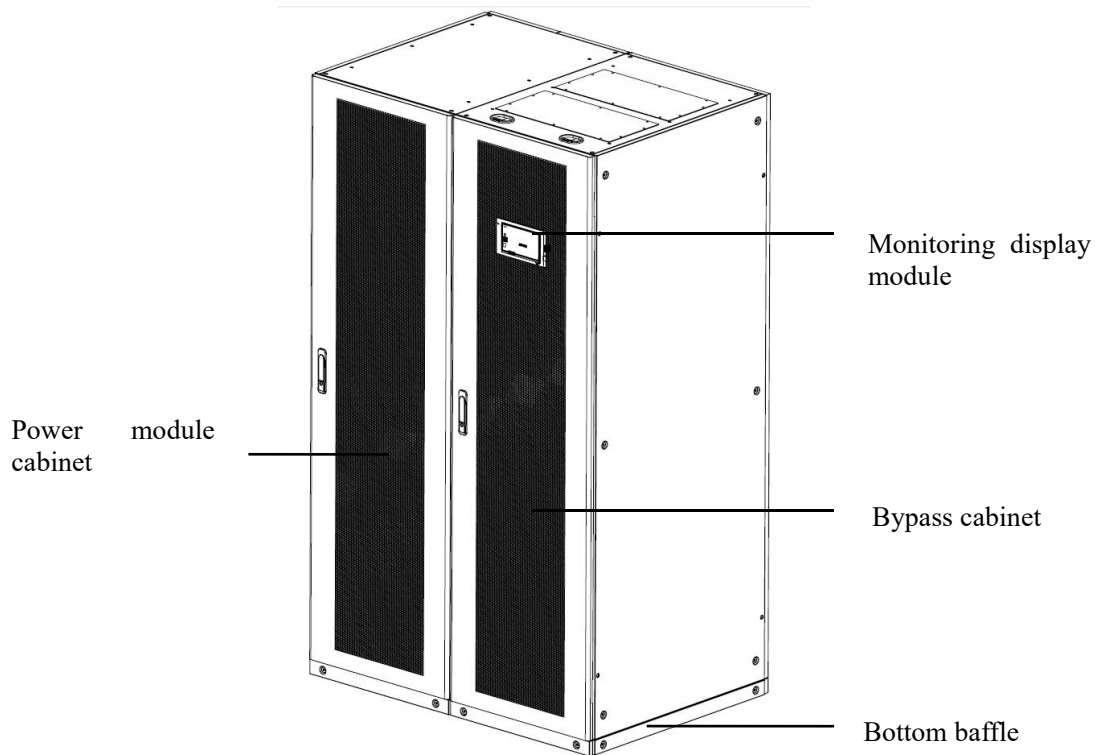


Fig. 1-3 Appearance of 600kVA UPS

1.1.2. Product structure

1) The standard structure of 200kVA UPS is shown in Fig. 1-4 in which the front door of the UPS is opened.

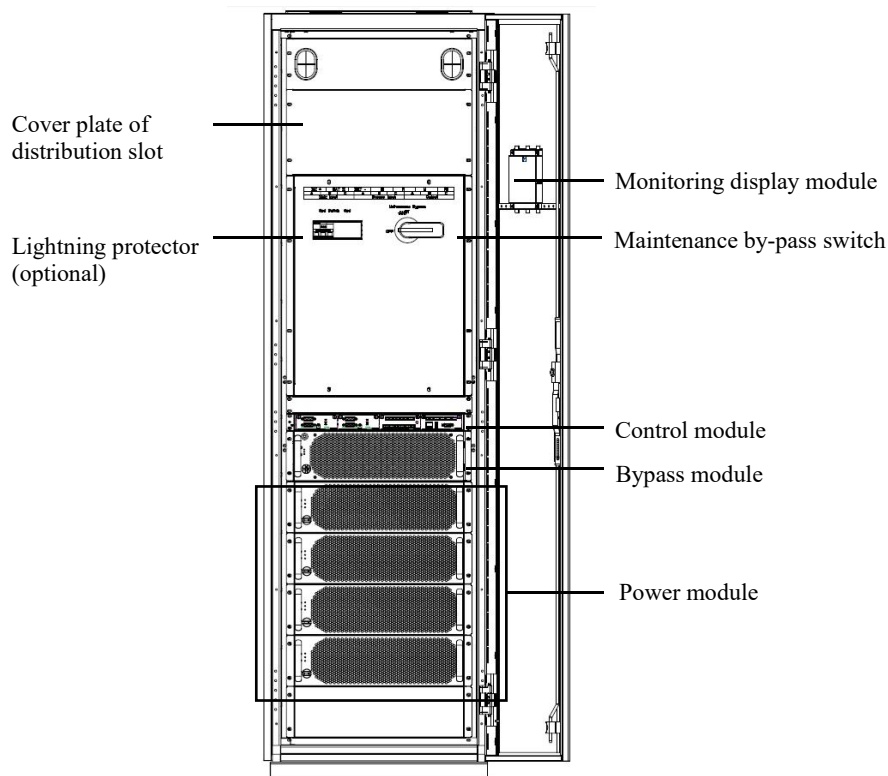


Fig. 1-4 Structure of 200kVA UPS (standard)

2) The full-load structure of 200kVA UPS is shown in Fig. 1-5 in which the front door of the UPS is opened.

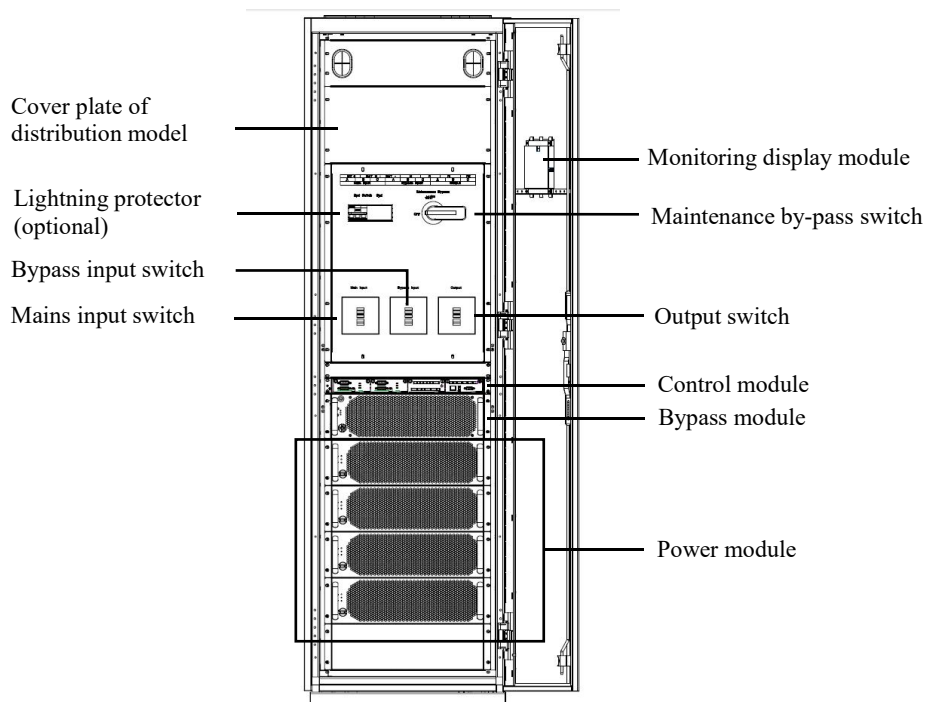


Fig. 1-5 Structure of 200kVA UPS (full-load)

3) The structure of 300kVA UPS (top cable inlet) is shown in Fig. 1-6 in which the front door of the UPS is opened.

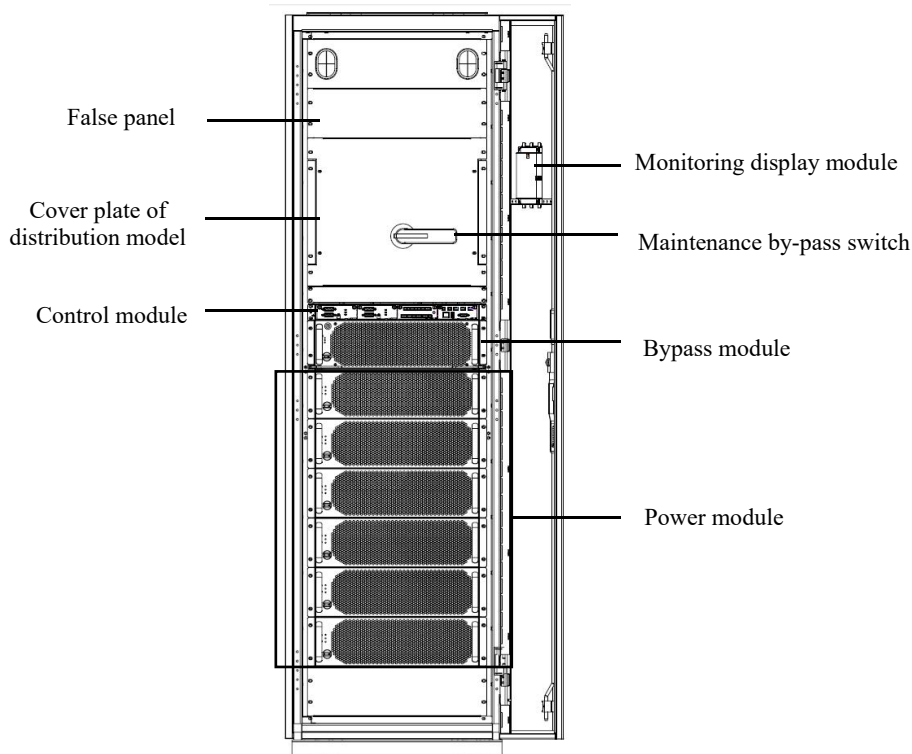


Fig. 1-6 Structure of 300kVA (top cable inlet)

4) The structure of 300kVA UPS (bottom cable inlet) is shown in Fig. 1-7 in which the front door of the UPS is opened.

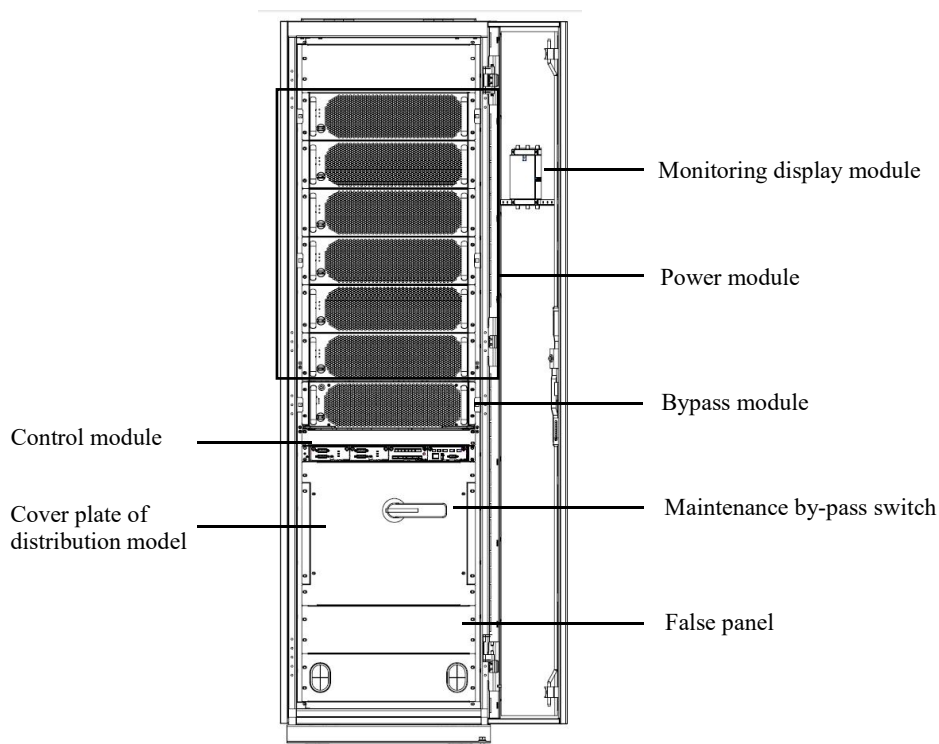


Fig. 1-7 Structure of 300kVA (bottom cable inlet)

5) The full-load structure of 300kVA UPS is shown in Fig. 1-8 in which the front door of the UPS is opened.

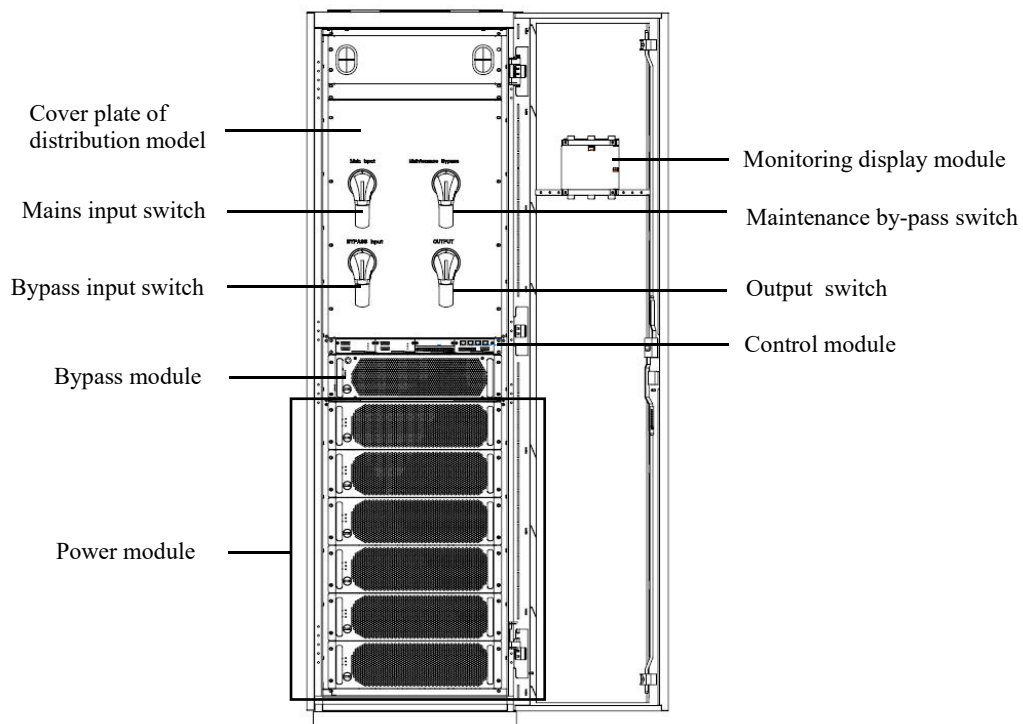


Fig. 1-8 Structure of 300kVA UPS (full-load)

5) The full-load structure of 400kVA UPS is shown in Fig. 1-9 in which the front door of the UPS is opened.

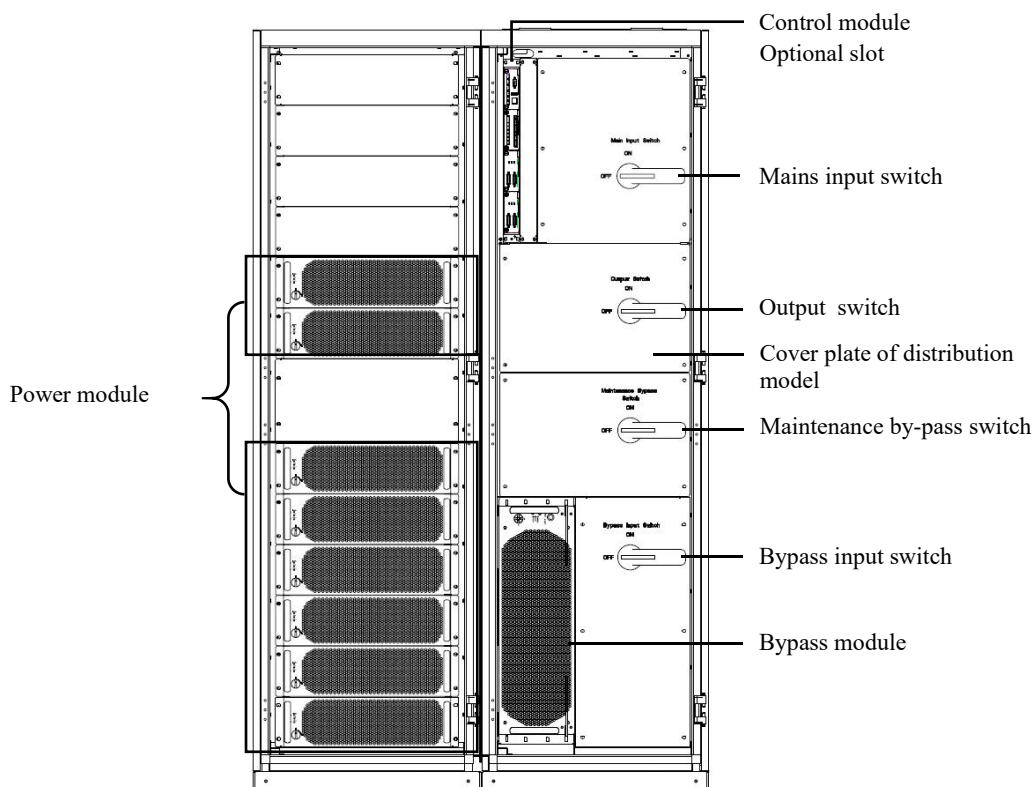


Fig. 1-9 Structure of 400kVA UPS (full-load)

6) The full-load structure of 500kVA UPS is shown in Fig. 1-10 in which the front door of the UPS is opened.

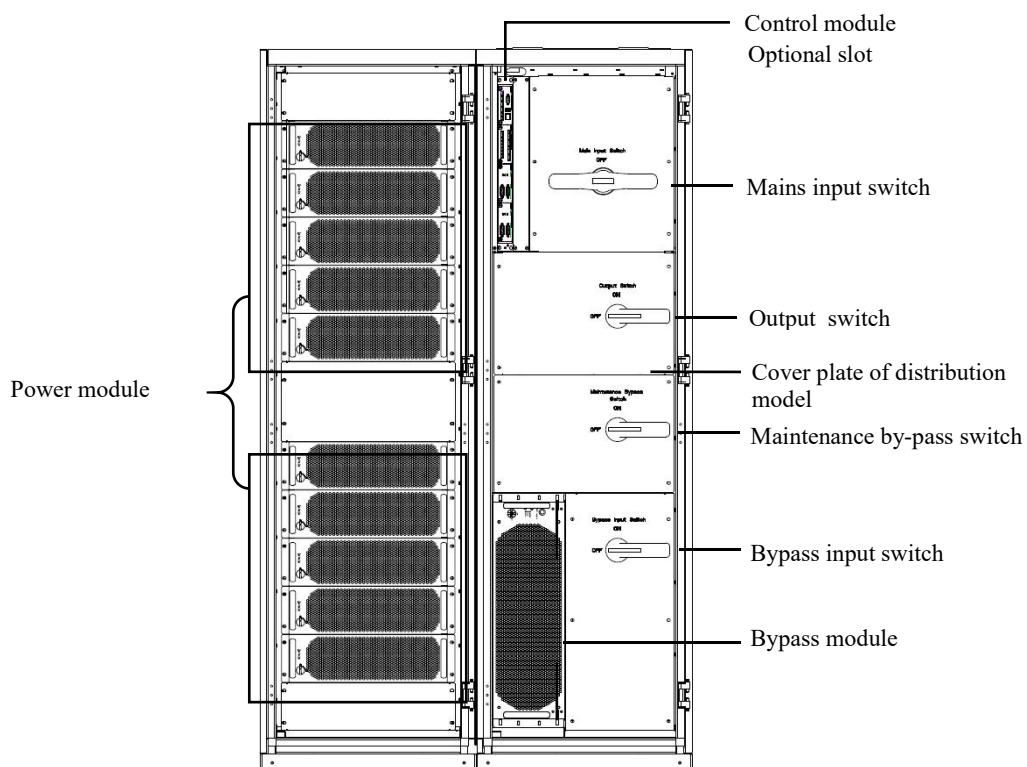


Fig. 1-10 Structure of 500kVA UPS (full-load)

7) The full-load structure of 600kVA UPS is shown in Fig. 1-11 in which the front door of the UPS is opened.

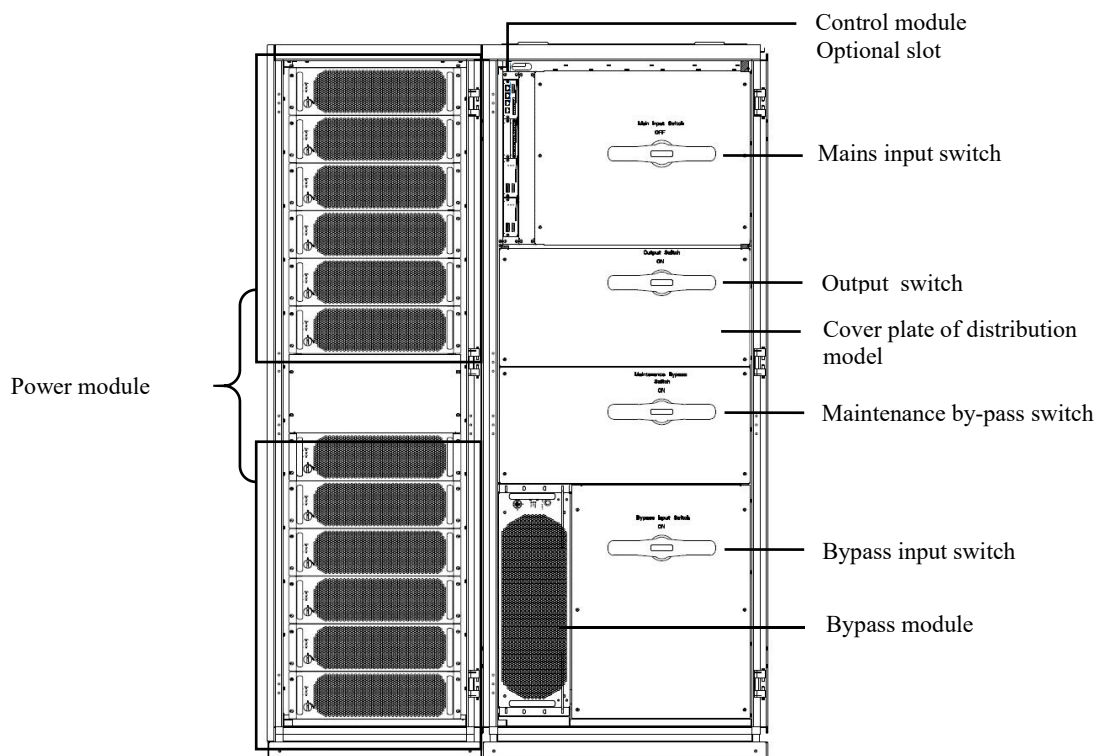


Fig. 1-11 Structure of 600kVA UPS (full-load)

1.1.3. Control module

1.1.3.1. General

The control module is located in the upper left top of the bypass cabinet.

The communication signal structure of the standard 50kVA-600kVA series UPS system is integrated in the system control module, including a system board, a dry contact board, and a monitoring board. The system control module interface is shown in Fig. 1-12.

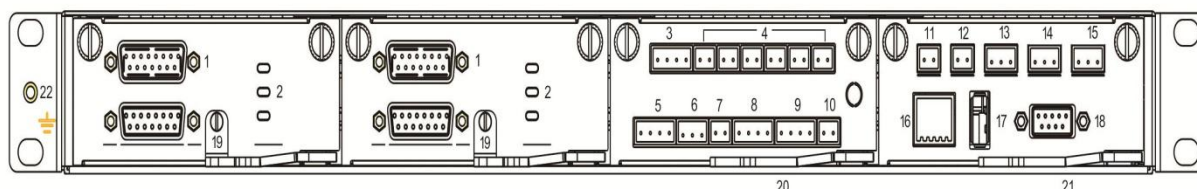


Fig. 1-12 Control module signal panel

Table 1-1 Control module signal panel

1	Parallel operation port	2	LED indicator light of system	3	Input dry contact
4	Output dry contact	5	Battery ground fault (BTG) interface/ generator (GEN) interface	6	Battery air switch (BCB) interface
7	Trip signal of battery air switch (BCB)	8	Emergency stop (EPO) interface	9	Status interface of distribution cabinet switch
1	Lightning protector (SPD) interface	1	Ambient temperature interface	1	Battery temperature compensation interface
1	CAN interface	1	RS485 communication interface 1	1	RS485 communication interface 2
3		4		5	
1	Ethernet (ETH) cable interface (ETH)	1	USB interface	1	LCD display interface
6		7		8	
1	Plug switch of system board	2	Plug switch of dry contact board	2	Plug switch of monitoring board
9		0		1	

Wiring diagram of 485 and CAN communication interface:

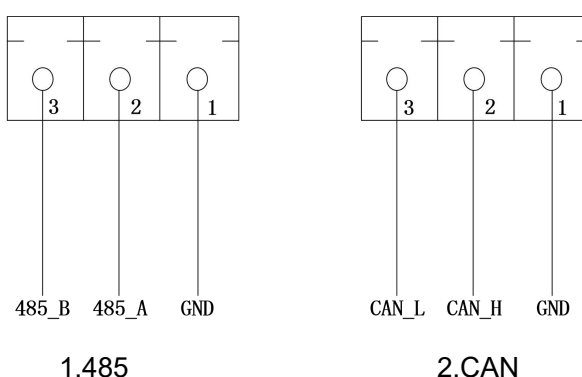


Fig. 1-13 Wiring diagram of communication interface

1.1.3.2. Parallel operation interface and LBS interface

The parallel operation interface of each single UPS is annularly connected by the parallel operation control cable for the parallel operation, and the connection is not required for single operation. LBS is used in the double bus system to process the communication information of two UPS systems. The specific functions are shown in Table 1-2.

Table 1-2 Functions of parallel operation interface and LBS interface

Panel silk-screen	Description
Parallel operation interface/ PARALLEL PORT	The parallel operation signal interface between the main machines. The parallel operation interface of each UPS is annularly connected by the parallel operation control cable for the parallel operation of two single UPSs. Two parallel operation control cables is required for connection of two UPSs, so as to ensure that each UPS is connected by two parallel operation control cables to improve the reliability of parallel operation.
LBS	LBS is used in the double bus system for balancing the output frequency and phase of each system in the double bus system to ensure that two buses can be switched mutually.

1.1.3.3. Dry contact interface

The UPS dry contact interface is used to the state monitoring of external devices, the management of battery system, the provision of alarm signals to external devices and the realization of remote emergency stop and other functions. The dry contact interface of the machine can be user-defined, and its default status is none. The user-defined dry contacts and corresponding functions are shown in Table 1-3.

Table 1-3 Dry contacts and their functions

Dry contact	Single description	Status description	Function description
Input dry contact (DRY CONTACT INPUT) DI_1~DI_2	Door magnetism alarm	The initial status is disconnection. The disconnection indicates the door closed, and the connection indicates the door opened.	Status detection. If the door is opened, an alarm is given.
	Water logging alarm	The initial status is disconnection. The disconnection indicates there is the water logging, and the connection indicates there is the water logging.	Status detection. If there is the water logging, an alarm is given by the UPS
Output dry contact (DRY CONTACT OUTPUT) DO_1~DO_6	Emergency alarm	The initial status is connection. The connection indicates there is no emergency alarm in UPS, and the disconnection indicates there is the emergency alarm in UPS	It is used to indicate whether failure alarm statue information is provided on the UPS.
	Secondary alarm	The initial status is connection. The connection indicates there is no secondary alarm in UPS, and the disconnection indicates there is secondary alarm in UPS	It is used to indicate whether those other than failure alarm statue information are provided on the UPS.
	Bypass supply	The initial status is connection. The connection indicates those other than the bypass supply of UPS, and the disconnection indicates the bypass supply of UPS.	It is used to indicate whether the power is supplied by the bypass.

Dry contact	Single description	Status description	Function description
	Battery supply	The connection indicates those other than the battery supply of UPS, and the disconnection indicates the battery supply of UPS.	It is used to indicate whether the power is supplied by the battery.
	Battery under-voltage DOD	The initial status is connection. The connection indicates the battery voltage of UPS is normal, and the disconnection indicates the battery voltage is low.	It is used to indicate whether the battery voltage is low.
	Battery under-voltage EOD	The initial status is connection. The connection indicates the battery of UPS operates normally, and the disconnection indicates the battery is fully discharged.	It is used to indicate whether the battery is fully discharged.
	Diesel generator control	The initial status is connection. The connection indicates those other than the diesel generator control of the UPS, and the disconnection indicates the diesel generator control of the UPS.	Abnormal mains input. The starting single of the diesel generator is output in the battery mode.
Battery ground fault (BTG)	Battery ground fault	The initial status is disconnection. The disconnection indicates there is no battery ground fault, and the connection indicates there is battery ground fault.	Battery ground status detection. In case of the ground fault, an alarm is given on the UPS.
Diesel generator mode (GEN)	Diesel generator mode	The initial status is disconnection. The disconnection indicates those other than the diesel generator mode, and the connection indicates the diesel generator mode.	Operation status detection of diesel generator. The adaptation of the UPS is improved in the diesel generator mode.
Battery air switch status (BCB)	BCB status detection single interface	The initial status is disconnection. The disconnection indicates the battery switch is disconnected, and the connection indicates the battery switch is connected.	Status detection. If the battery switch is disconnected, an alarm is given on the UPS.
Battery air switch trip (BCB)	BCB trip driving single	The initial status is connection. The connection indicates the battery switch is connected, and the disconnection indicates the battery switch trips.	Trip driving signal. The disconnection indicates the driving battery switch trips.

Dry contact	Single description	Status description	Function description
Output switch status of distribution cabinet	Status detection of output switch of distribution cabinet	The initial status is connection. The connection indicates the output switch of the distribution cabinet is connected, and the disconnection indicates the output switch of the distribution cabinet is disconnected.	Status detection. If the output switch of the distribution cabinet is disconnected, an alarm is given on the UPS.
Maintenance switch status of distribution cabinet	Status detection of maintenance switch of distribution cabinet	The initial status is disconnection. The disconnection indicates the maintenance switch of the distribution cabinet is disconnected, and the connection indicates the maintenance switch of the distribution cabinet is connected.	Status detection. If the maintenance switch of the distribution cabinet is connected, an alarm is given on the UPS.
Bypass switch status of distribution cabinet	Status detection of bypass switch of distribution cabinet	The initial status is connection. The connection indicates the bypass switch of the distribution cabinet is connected, and the disconnection indicates the bypass switch of the distribution cabinet is disconnected.	Status detection. If the bypass switch of the distribution cabinet is disconnected, an alarm is given on the UPS.
Status of AC lightning protector	Status detection of AC lightning protector	The initial status is disconnection. The disconnection indicates the AC lightning protector operates normally, and the connection indicates the AC lightning protector fails.	Status detection. If the lightning protector fails, an alarm is given on the UPS.
Emergency stop (EPO)	Emergency stop NC single interface	The initial status is connection. The emergency stop is triggered by disconnection with EPO.	Emergency stop status detection
	Emergency stop NO single interface	The initial status is disconnection. The emergency stop is triggered by connection with EPO.	

 Note

- DI_1~DI_2 represent the input dry contact interfaces 1~2 and DO_1~DO_6 represent the output dry contact interfaces 1~6.
- NO represents open end, and NC represents the close end.
- When the dry contact signal cable of external equipment is connected to the dry contact interface of the UPS, it is necessary to ensure that the silk-screen names of the dry contacts are exactly the same at both ends of the cable.
- If the remote EPO is connected, it is recommended to use NO single end to avoid the UPS

failure resulting from the improper cable connection. In order to avoid misoperation, the emergency stop button shall be protected by an anti-misoperation cover plate, and the connecting cable shall be protected by an electric conduit. The diameter of the connecting cable is recommended to be 0.5~1mm².

1.1.3.4. Communication single interface

The communication signal interface is used for communication with external devices, so that the UPS can be monitored and managed, as well as interaction with other functions. The function of the communication signal interface is shown in Table 1-4.

Table 1-4 Functions of communication signal interface

Signal interface	Panel silk-screen	Function description
RS485_1 interface	RS485_1	The local host is connected via RS485 for local monitoring and communication
Battery inspection device interface/ lithium battery pack BMS interface	RS485_2	The battery inspection device is connected by RS485 to achieve the status detection of each cell. Or the lithium battery pack is connected through RS485 to achieve the communication management of the lithium battery pack.
	CAN	The battery inspection device is connected by CAN to achieve the status detection of each cell. Or the lithium battery pack is connected through CAN to achieve the communication management of the lithium battery pack.
Ethernet cable interface	ETH	The local host is connected by the Ethernet cable for the debugging and configuration of the UPS. The local area network is connected by the Ethernet cable for the network monitoring and communication in the local area network.
Ambient temperature sensor interface	ENV_TEMP	The ambient temperature sensor is connected by Phoenix interface for ambient temperature detection.
Battery temperature sensor interface	B_TEMP	The battery temperature sensor is connected by Phoenix interface for battery temperature detection.
USB device interface	USB	A USB device (USB flash disk) is connected with USB to online upload and upgrade the program, or download the historical record.
Monitoring display unit interface	MDU	The display unit is connected by DB9 interface to display the control and status of the UPS.

Connection of temperature compensation

One end of the Ethernet cable is connected with "BAT_TEMP" interface, and another end is connected with the temperature compensation sampling device. During actual use, the temperature compensation sampling device is installed in the battery cabinet and settable to 0~6.0mV/°C·cell and defaults to 3.3 mV/°C·cell.

The reference value is 25°C for the temperature compensation.

The system can automatically perform the temperature compensation and correction for the floating charge voltage according to the battery temperature.

temperature compensation and correction formula for the floating charge voltage: $V = V_0 - (T - 25)p$, where:

- V: the floating charge voltage of cell after the temperature compensation
- V0: the floating charge voltage of cell at 25°C (subject to the value provided by the manufacturer , defaulting to 2.25V/cell)
- T: Ambient temperature of battery
- ρ : temperature compensation coefficient of floating charge voltage (subject to the value provided by the manufacturer , defaulting to 3.3mV/°C·cell)
- Low temperature alarm limit and high temperature alarm limit

The battery temperature can be monitored in time. When the battery overtemperature alarm is detected, the charging current limit value can be reduced to 0.03C A. When the battery overtemperature protection alarm (high temperature alarm limit +3°C) is detected, battery charging is stopped.

Optional intelligent function module

Optional intelligent function module: GPRS module, WIFI module

The intelligent module is installed in the UPS monitoring module and easy to install. The operation steps are as follows:

Step 1: Remove the dry contact board from the monitoring module in standby state

Step 2: Insert the required intelligent module onto the dry contact board;

Step 3: Reinstall the dry contact board on the monitoring module.

GPRS module: the UPS may be connected with the server for the data communication by GPRS data (local SIM card is required) and online UPS monitoring may be achieved by a computer or a mobile. See corresponding operation manual for details.

WIFI module: the UPS may be connected with the server for the data communication by WIFI and online UPS monitoring may be achieved by a computer or a mobile. See corresponding operation manual for details.

Chapter 2 Installation of UPS

2.1. Preparation before installation

2.1.1. Site planning

2.1.1.1. Weight and dimension of UPS

Ensure that the ground or installation platform can bear the weight of the UPS, the battery and battery stands. The weight of the battery and battery stands is calculated according to the actual use. The weight of each full-load UPS model is shown in Table 2-1.

Table 2-1 Weight of UPS (kg)

Model	Configuration	Weight
200kW	200kVA (standard)	343kg
200kW	200kVA (full-load)	363kg
300kW	300kVA (standard)	437kg
300kW	300kVA (full-load)	467kg
400kW	400kVA (full-load)	675kg
500kW	500kVA (full-load)	725kg
600kW	600kVA (full-load)	1007kg

1) 200kVA and 300kVA UPSs have same cabinet dimensions, as shown in Fig. 2-1.

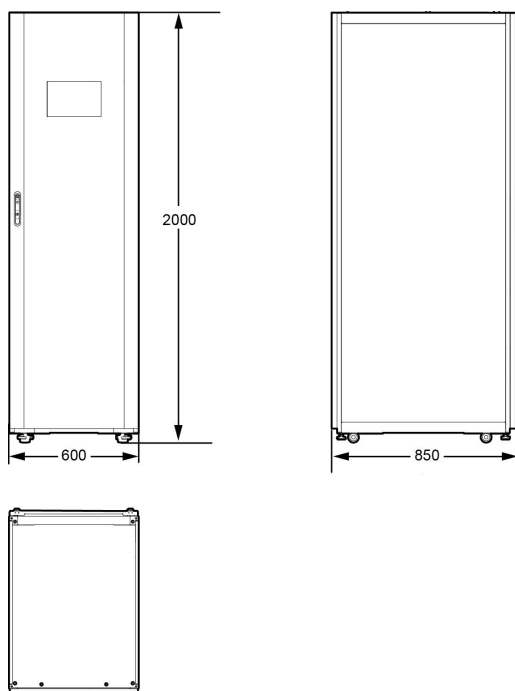


Fig. 2-1 Cabinet dimensions of 200kVA and 300kVA UPSs. (unit: mm)

2) 400kVA and 500kVA VA UPSs have same cabinet dimensions, as shown in Fig. 2-2.

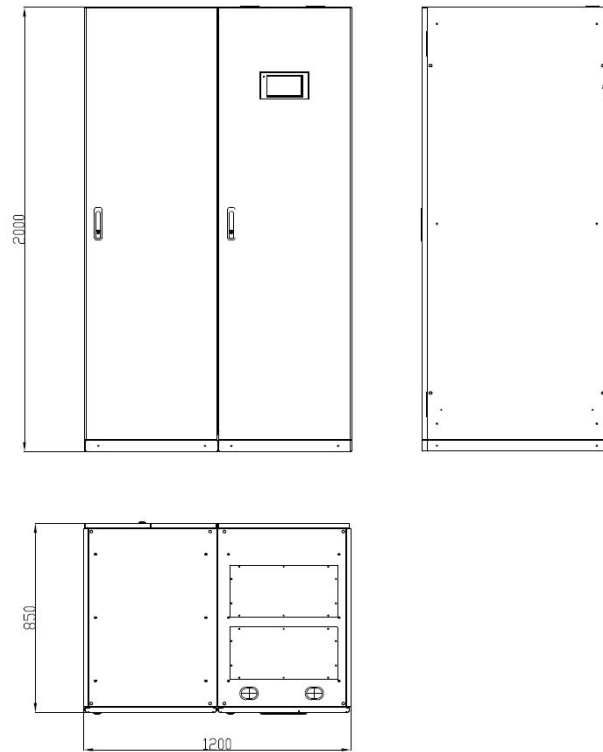


Fig. 2-2 Cabinet dimension of 400kVA and 500kVA UPS s (unit: mm)

3) The overall dimensions of 600kVA UPS is shown in Fig. 2-3.



Fig. 2-3 Cabinet dimension of 600kVA UPS (unit: mm)

2.1.1.2. Installation environment

Do not install the UPS in high or low temperature or humid locations beyond the "environmental characteristics" criteria.

Table 2-2 Environmental characteristics

Environmental characteristics	
Operating temperature	0°C-40°C
Storage temperature	-40°C-+70°C
RH	0% RH-95% RH (no condensation)
Altitude	0m-1000m, not derated Derated at 1000m-3000m according to IEC62040-3
Noise	< 70dB

- Keep the UPS away from water sources, heat sources and flammable and explosive items. Do not install the UPS in environments with direct sunlight, dust, volatile gases, corrosive substances, and excessive salt content.
- Do not install the UPS in the working environment with metal conductive dust.
- The best operating temperature is 20°C ~ 30°C for the valve-controlled sealed lead-acid battery. The service life of the battery may be reduced at higher than 30°C temperature, and the standby time of the battery may be shortened at lower than 20°C.

2.1.1.3. Reserved space

Some space should be reserved around the cabinet for operation and ventilation:

- At least 800mm should be reserved in the front for operation and ventilation.
- At least 500mm should be reserved at the top for operation.
- At least 500mm should be reserved in the rear for ventilation. In case of operation in the rear, at least 800mm should be reserved.
- The reserved space is shown in Fig. 2-4 and Fig. 2-5.

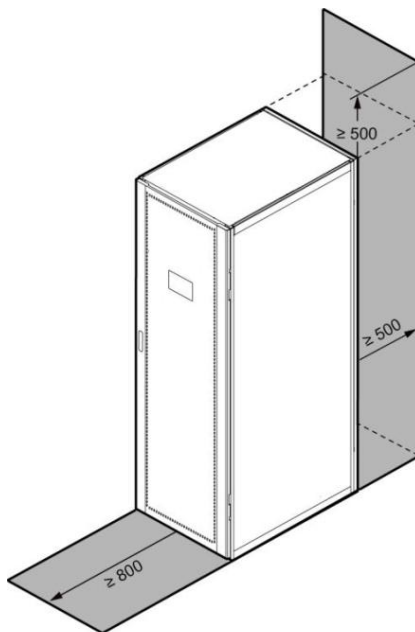


Fig. 2-4 Reserved space of 200 and 300KVA UPS (unit: mm)

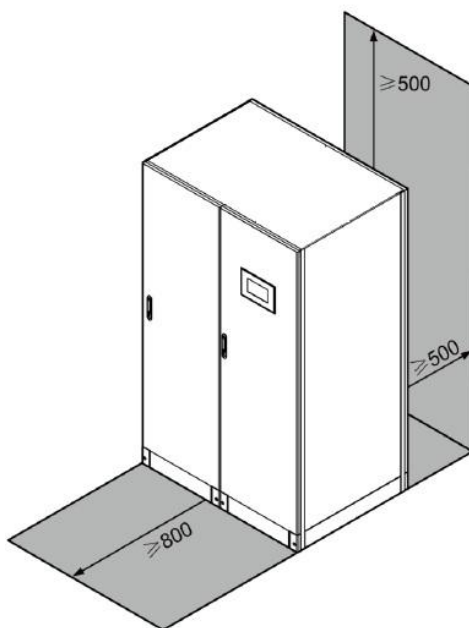



Fig. 2-5 Reserved space of 400kVA, 500kVA and 600kVA UPSs (unit: mm)

2.1.2. Preparation of power cable

Note	
	1. As the UPS is the equipment with large leakage current, it is not recommended to use the air switch with leakage protection function.
	2. If multiple UPSs are connected for parallel operation, length and specification should be same for their input and output power cables.

The recommended diameter of the power cables of the UPS is shown in Table 2-3.

Table 2-3 Recommended diameter of power cables

Item			200kVA	300kVA	400kVA	500kVA	600kVA
Mains input	Mains input current (A)		352	528	704	880	1056
	Recommend ed diameter (mm ²)	A (1L1)	2× (4×70)	2× (4×95)	2× (4×185)	2× (4×240)	4× (4×240)
		B (1L2)					
		C (1L3)					
		N					
Bypass input	Bypass input current (A)		304	456	608	760	912
	Recommend ed diameter (mm ²)	A (2L1)	2× (4×70)	2× (4×70)	2× (4×95)	2× (4×185)	4× (4×240)
		B (2L2)					
		C (2L3)					
		N					
Output	Output current (A)		304	456	608	760	912
	Recommend ed diameter (mm ²)	A (U)	2× (4×70) (section to be increased if nonlinear)	2× (4×70) (section to be increased if nonlinear)	2× (4×95) (section to be increased if nonlinear)	2× (4×185) (section to be increased if nonlinear)	2× (4×240) (section to be increased if nonlinear)
		B (V)					
		C (W)					
		N					
Battery input	Nominal discharge current of battery (current value at 480 V voltage when 40 x 12V cells are equipped as standard configuration) (A)		439	658	877	1096	1316
	Maximum discharge current of battery (current value at the termination of discharge of 40 x 12V cells as standard configuration, namely the discharge current of 240 x 2V cells, 1.67V/cell) (A)		526	789	1053	1316	1579
	Recommend ed diameter (mm ²)	+	2× (3×150)	3× (3×150)	4× (3×150)	4× (3×240)	4× (3×240)
		N					
		-					
Ground wire	Recommend ed diameter (mm ²)	PE	240	240	240	240	240


	Note
	<ol style="list-style-type: none"> 1. The selection, connection and installation of the cables must comply with local laws and regulations. 2. In case of the change in external conditions, such as installation method or ambient temperature, verification should be performed according to IEC-60364-5-52 or local relevant codes. 3. The current value provided in the table is based on the data obtained at 380V rated voltage. The current value should be multiplied by 0.95 at 400V rated voltage, and 0.92 at 415V rated voltage. 4. When the main load is nonlinear, the cross section of N-line should be increased to 1.5 ~ 1.7 times. 5. If same power supply is shared between the main circuit and the bypass, the input cable is configured according to the main input cable. In addition, the cables recommended in Table 2-3 are only applicable for use under the following conditions : <ul style="list-style-type: none"> ◆ Installation method: installation in a ladder assembly or a plywood (F of IEC60364-5-52). ◆ Ambient temperature: 30℃ ◆ AC voltage loss is less than 3% and DC voltage loss is less than 1%. ◆ 90℃flexible copper conductor cable. ◆ It is recommended that the length is not be greater than 30 meters for the AC cables and 50 meters for the DC cable.

Table 2-4 Terminal requirement of power cables for 200/300kVA model and below

Interface description	Connection type	Bolt specification	Bore diameter of bolt
Main input	OT crimp cable terminal	M10/M12	10.5/13.5mm
Bypass input	OT crimp cable terminal	M10/M12	10.5/13.5mm
Battery input	OT crimp cable terminal	M10/M12	10.5/13.5mm
Output	OT crimp cable terminal	M10/M12	10.5/13.5mm
Protective grounding	OT crimp cable terminal	M10/M12	10.5/13.5mm


Table 2-5 Terminal requirement of power cables for 400kVA, 500kVA and 600kVA model

Interface description	Connection type	Bolt specification	Bore diameter of bolt
Main input	OT crimp cable terminal	M16	18mm
Bypass input	OT crimp cable terminal	M16	18mm

Interface description	Connection type	Bolt specification	Bore diameter of bolt
Battery input	OT crimp cable terminal	M16	18mm
Output	OT crimp cable terminal	M16	18mm
Protective grounding	OT crimp cable terminal	M12	12mm


Table 2-6 Recommended configuration of switch for front end of input


Front end of input	200kVA	300kVA	400kVA	500kVA	600kVA
Front end of mains input	400A/3P	630A/3P	800A/3P	1000A/3P	1250A/3P
Front end of bypass input	400A/3P	630A/3P	630A/3P	800A/3P	1000A/3P

	Note
	<p>1. The recommended input front-end switch is for reference only.</p> <p>2. The specification of the circuit breaker for the branch does not exceed the recommended specification of the air switch in case of multistage load at the output rear end.</p> <p>3. The circuit breaker is selected based on the protection load and the cable, and the principle of its cascading is to realize selective protection.</p>

2.1.3. Handling and open-case inspection


Background information

	Note
	<p>1. The UPS must be handled by specially trained personnel. A forklift truck can be used to unload the packing box containing the UPS fixed on the board from the vehicle before installation.</p> <p>2. To avoid tipping over, fasten the packing box containing the UPS to the electric forklift with a rope before moving.</p> <p>3. Care must be taken to move the equipment as any impact or drop may cause damage to the UPS. After the box is unloaded, remove the package carefully to avoid scratching the UPS. It is necessary to maintain the stability of UPS during disassembly and assembly.</p> <p>4. If the installation environment of UPS is poor and long-term storage is needed after removal of the package, please take measures for dustproof treatment. It is recommended to wrap the UPS by the original plastic jacket of UPS.</p>

	Note
	<p>Upon shipment, the power cabinet and bypass cabinet are packed and transported separately. Therefore, the following operation steps should be performed for both power cabinet and bypass cabinet.</p>

Operation steps

- Step 1: Confirm that the package of UPS is not damaged (inform the carrier immediately in case of any damage during the transport).
- Step 2: Handle the power cabinet and bypass cabinet by the forklift to the vicinity of the installation location.

	Note
	<p>In order to prevent UPS from toppling during transportation, the pallet is specially designed. If the electric forklift is used, the forklift shall be inserted from the front of the pallet; if a manual forklift is used, the forklift shall be inserted from the side of the pallet, as shown in Fig. 2-6.</p>

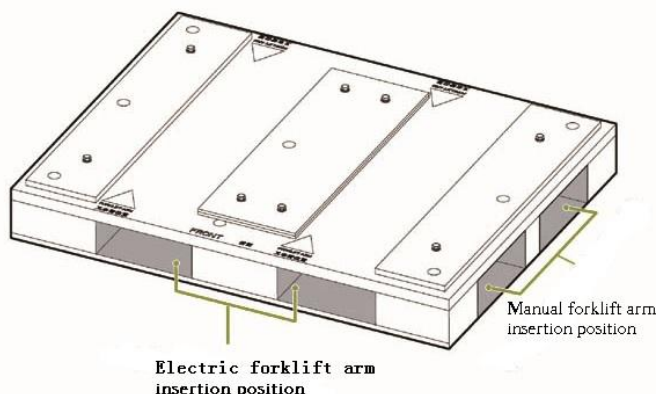


Fig. 2-6 Pallet appearance

- Step 3: Remove the strapping tape and the outer packing plastic bag, take out and keep the accessory box properly.
- Step 4: Check UPS for integrity.
 1. Visually inspect UPS appearance for the damage caused to the UPS during transportation. If any damage is found, please inform the carrier immediately.
 2. Check whether the attached accessories are complete and correct according to the shipping packing list. In case of storage of any accessories and error model, please make a record on site and contact us or our local office immediately.
- Step 5: After confirming that the equipment is intact, remove the screws fixing the cabinet and pallet. Take the power cabinet as an example, as shown in Fig. 2-7.

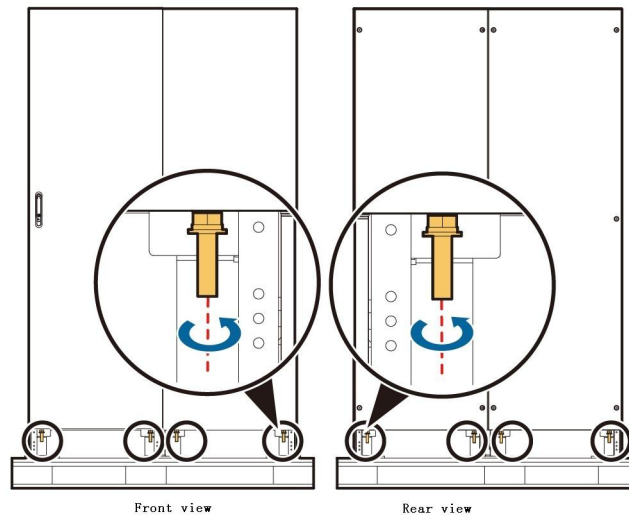


Fig. 2-7 Removal of screws fixing cabinet and pallet

2.2. Installation of power module

The 50KVA-600KVA series UPS supports the hot plugging of modules, and all modules can be hot plugged online. The UPS can monitor the connection of the modules in real time, and automatically open or close the modules according to the connection of the modules.

Module installation

The power modules can be installed on the rack from bottom to top. The user should set the "number of basic modules in the rack" in the "advanced parameters" of the system to the actual number of power modules. The modules can be installed at any location of the rack and the system can automatically identify the modules.

Insertion of modules

1. Turn the module ready switch to the unlocking state, then lift the UPS module into the corresponding idle slot of the cabinet by two persons, and push the module into the cabinet along the slot until the module is completely inserted into the cabinet.
2. Install the special crown screw in the screw positioning holes on the left and right sides of the module to fix the module. Turn the module ready switch counterclockwise to the locking state with the upward direction.
3. The UPS detects the new module. If other modules in the rack are not in the state of inverter output, click the "On" button in the panel to start the module. If other modules in the system are already in the state of inverter output, it is not required to click the "On" button for the new module, and the module will automatically start and enter the state of inverter output.


Removal of module

1. Turn the module ready switch clockwise to the unlocking state with right direction while the module stops.
2. After the module fan stops, remove the screws on both sides of the panel of the UPS module and remove the module.

2.3. Installation of single UPS

Background information

As same installation procedure and wiring principle are used for the standard and full-load versions of the UPS, the installation procedure and the wiring principle are described by the full-load versions of the UPS in this section.

	Note
	In the process of installation and wiring, do not step on the front panel at the bottom of the cabinet and the door support structure in order to prevent paint shedding and deformation which leading to the front door unable to be closed, as shown in Fig. 2-8.

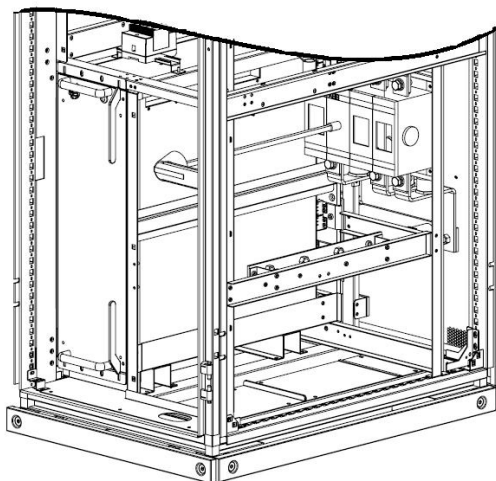



Fig. 2-8 Front door baffle

2.3.1. Installation of UPS

2.3.1.1. System installation (200kVA-600kVA)

	Note
	<ol style="list-style-type: none"> 1. Ensure the installation location is flat. 2. The marking template is shipped with UPS and is located on top of the UPS.

Step 1: Define the installation location of the cabinet (installed on ground and channel steel) according to the location of the cabinet fixing hole on the marking template, and drill the hole, as shown in Fig. 2-9, Fig. 2-10 and Fig. 2-11.

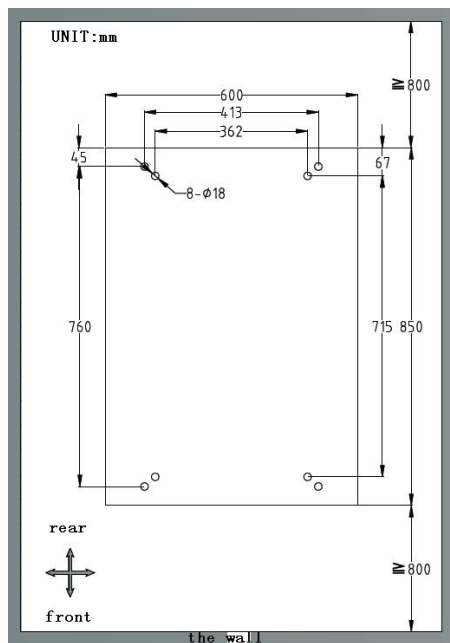


Fig. 2-9 Marking for 200kVA and 300kVA

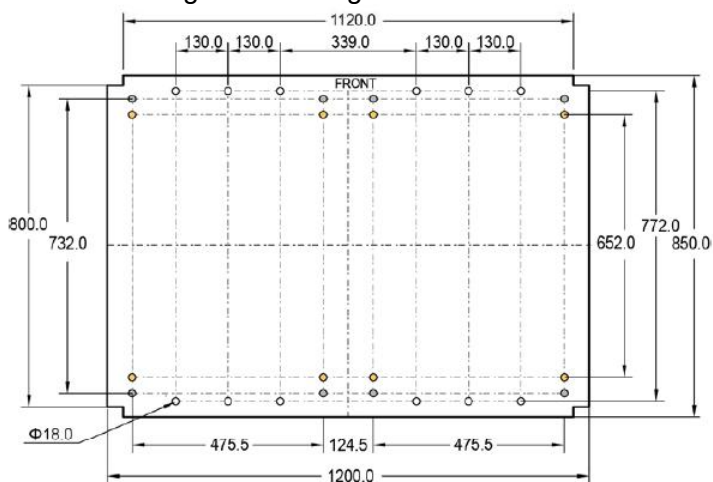


Fig. 2-10 Marking for 400kVA and 500kVA

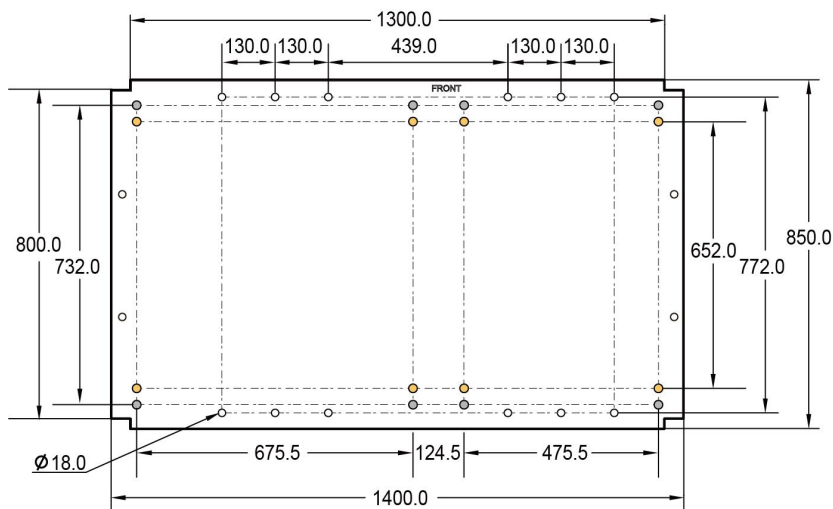




Fig. 2-11 Marking for 600kVA

	Note
	<ol style="list-style-type: none"> 1. We do not provide the channel steel, and the expansion bolts required for fixing the channel steel, which should be bought by the user. It is recommended to use 50mm or higher wide channel steel. 2. Make sure the distance between the outer end faces of the channel steel is 800mm. Fix the channel steel on the ground with expansion bolts. 3. Make sure the surface of channel steel is smooth.

Step 2: Drill the holes in the mounting hole location of the expansion bolts with a percussion drill, and then install the expansion pipe into the mounting holes.

	Note
	The expansion bolt shall be tapped till the expansion tube is wholly tapped into the hole. The expansion tube shall not be above the ground, so as not to affect the subsequent cabinet installation.

Step 3 Move the cabinet to the installation location and install the expansion bolt according to the hole location.

Take the 500kVA system cabinet as an example, as shown in Fig.2-12.

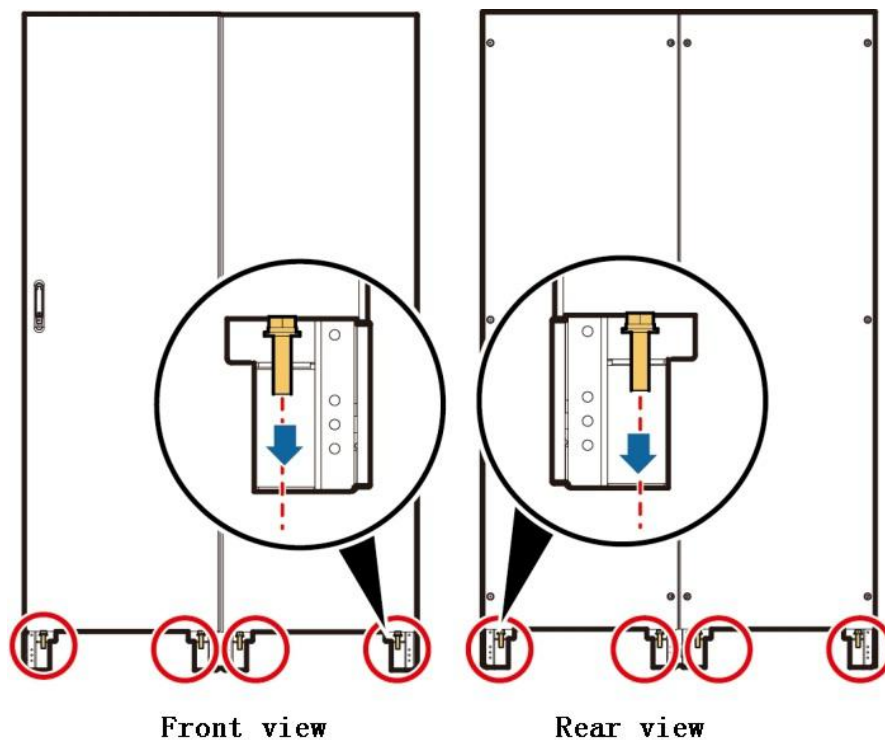


Fig. 2-12 Installation of expansion bolt

Step 4: Install front and rear foot baffles and left and right foot baffles, taking 500KVA model as an example, as shown in Fig. 2-13.

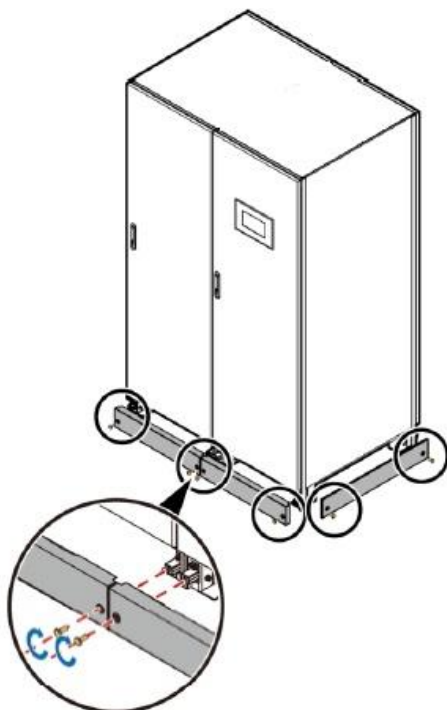



Fig. 2-13 Installation of front and rear foot baffles

2.3.2. Cable installation

2.3.2.1. Top incoming and outgoing

Background information

	Note
	<ol style="list-style-type: none"> 1. Top incoming and outgoing are recommended as the bottom incoming and outgoing are only applicable for ground installation by cable duct and support. 2. If a hole is drilled for installation of the cable, the wiring cover plates of the power cables, the standby power cables and the battery cables should be removed from the bypass cabinet for drilling the hole. A cable protector is attached on the edge of the holes to protect the cables. The cover plates are reinstalled on the cabinet. 3. After installation of the cables, fireproof cement gum is used to fill the gap between the cables and the cabinet.

Operation steps

- ✧ Step 1: Open the front door of the bypass cabinet, remove the front power distribution cover and top wiring board of the bypass cabinet, as shown in Fig. 2-14 and Fig. 2-15 for each model.

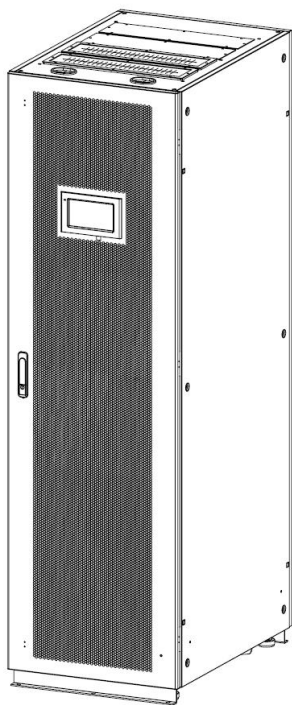


Fig. 2-14 Removal of top wiring cover plate (300kVA)

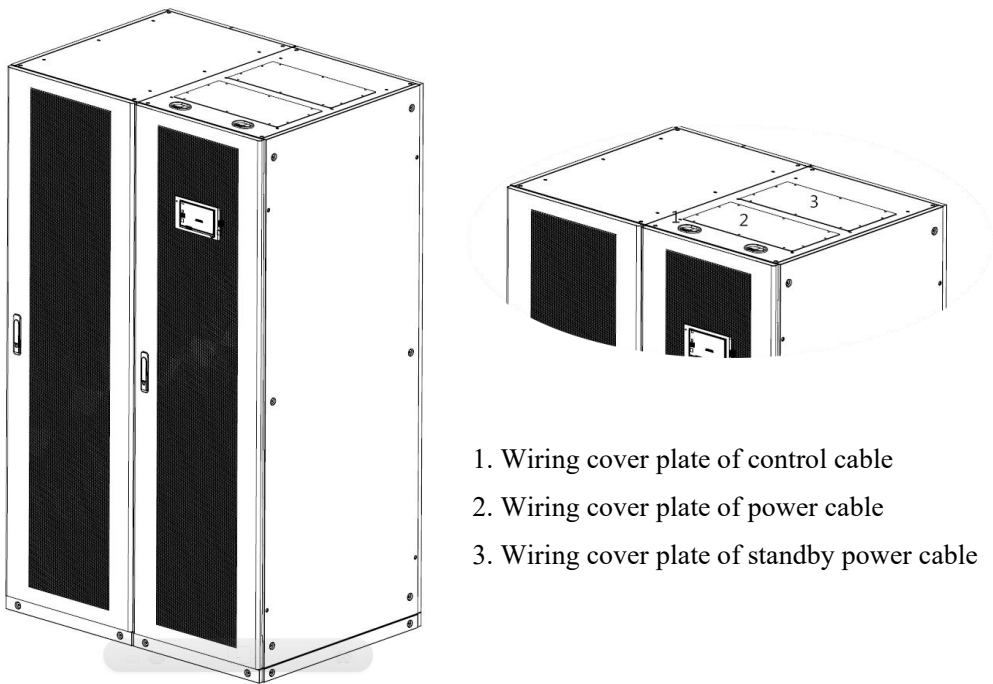



Fig. 2-15 Removal of front power distribution cover and top wiring board (400kVA)

✧ Step 2: install the power cable.

	Note
	<p>1. Connect the cables from top to bottom, namely connect the main input cable, the output cable, the bypass input cable, and finally the battery input cable.</p> <p>2. During connecting the cable each phase, fix the cables by the bolts from interior to exterior.</p>

The wiring cover plates of the power cables, the control cables and the battery cables are removed from the cabinet. The hole is drilled by a taper on the wiring cover plates of the power cable, and attached with the cable protector on its edge to protect the cables. The wiring cover plate of the power cable is reinstalled on the cabinet.

	Note
	<ol style="list-style-type: none"> 1. The aperture size and quantity are for reference only. 2. The main input, bypass input, output and battery cables are installed in same hole.

The wiring location and path of the power cable at the top are shown in Fig. 2-16, Fig. 2-17 and Fig. 2-18.

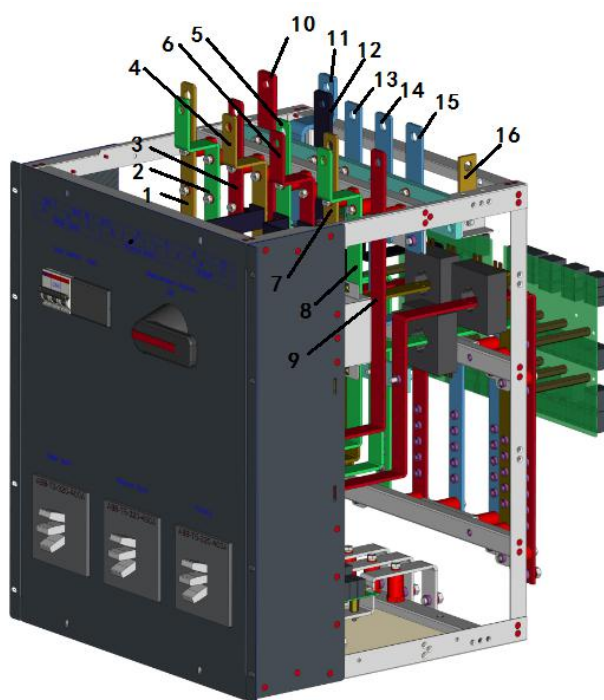


Fig. 2-16 Top wiring diagram for power cable of 200kVA cabinet

1. Main input A (1L1)	2. Main input B (1L2)	3. Main input C (1L3)	4. Bypass input A (2L1)	5. Bypass input B (2L2)	6. Bypass input C (2L3)
7. Output A (U)	8. Output B (V)	9. Output C (W)	10. Positive electrode of battery input	11. Battery input N	12. Negative electrode of battery input
13. Main input N	14. Bypass input N	15. Output N	16. PE		

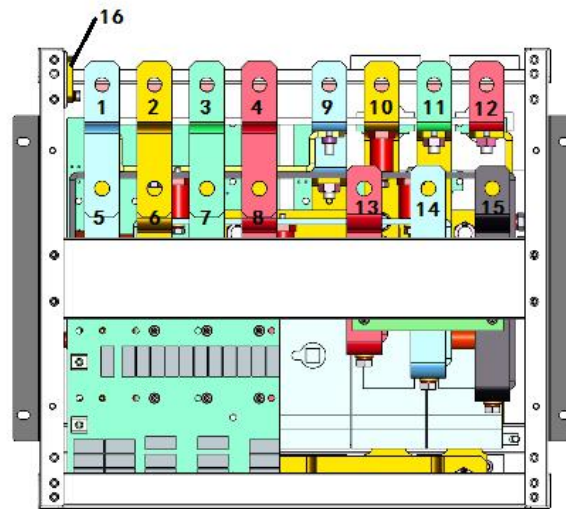


Fig. 2-17 Top wiring diagram for power cable of 300kVA cabinet

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)	5. Bypass input N	6. Bypass input A (2L1)
7. Bypass input B (2L2)	8. Bypass input C (2L3)	9. Output N	10. Output A (U)	11. Output B (V)	12. Output C (W)
13. Positive electrode of battery input	14. Battery input N	15. Negative electrode of battery input	16. PE		

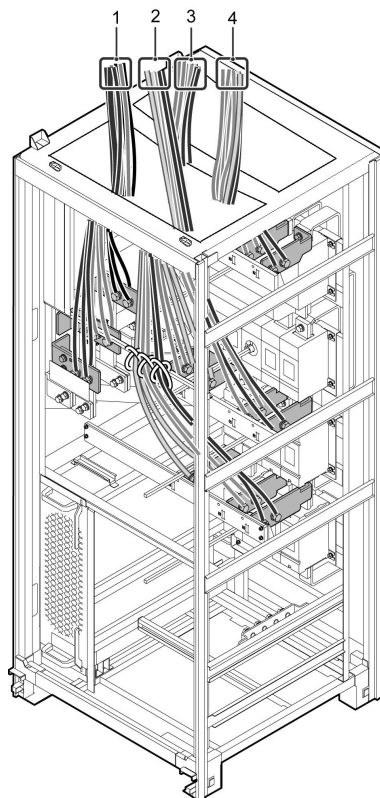



Fig. 2-18 Top wiring route and binding location of power cables (400kVA, 500kVA, 600kVA)

1 Battery input cable	2 Output cable	3 Bypass input cable	4 Main input cable
-----------------------	----------------	----------------------	--------------------

	Note
	The control cable should not be tied together with the power cable.

◇ Step 3: install the control cable.

The cables are tied and fixed on the cabinet. The same installation method is used for 200KVA and 300KVA, and same installation method is used for 400KVA, 500KVA and 600KVA. 300KVA and 500KVA are taken as examples to illustrate the installation method. The top wiring location and route of the control cable are shown in Fig. 2-19 and Fig. 2-20.

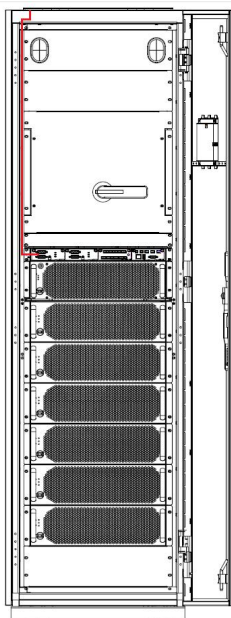


Fig. 2-19 Top wiring route of control cable (300kVA single cabinet)

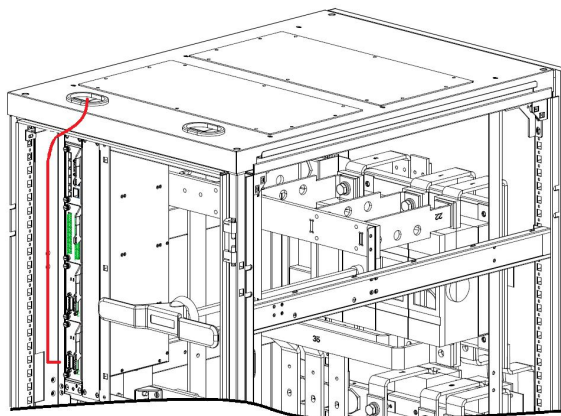




Fig. 2-20 Top wiring route of control cable (500kVA)

	Note
	The number and color of the control cables in above figures are only schematic.

2.3.2.2. Bottom incoming and outgoing

Precondition

Note	
	1. If bottom incoming and outgoing are selected, make sure that there is enough wiring space at the bottom.
	2. If a hole is drilled for wiring, the wiring cover plate of the power cables should be removed from the bypass cabinet for drilling the hole. The cable protector is attached on the edge of the holes to protect the cables. The cover plates are reinstalled on the cabinet.
	3. After installation of the cables, fireproof cement gum is used to fill the gap between the cables and the cabinet.

Operation steps

- Step 1: Open the front door of the cabinet, remove the front distribution cover plate of the distribution plug box (the front distribution cover plate of the bypass cabinet), and remove the wiring cover plate of the power cable and the control cable at the bottom of the cabinet from the cabinet, as shown in Fig. 2-21 and Fig. 2-22.

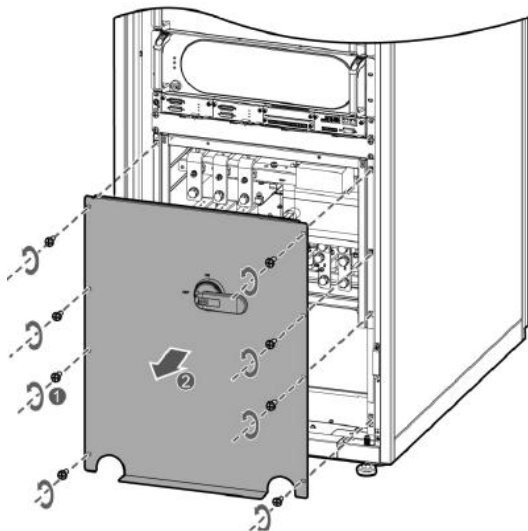


Fig. 2-21Removal of distribution cover plate (bottom incoming, 300kVA)

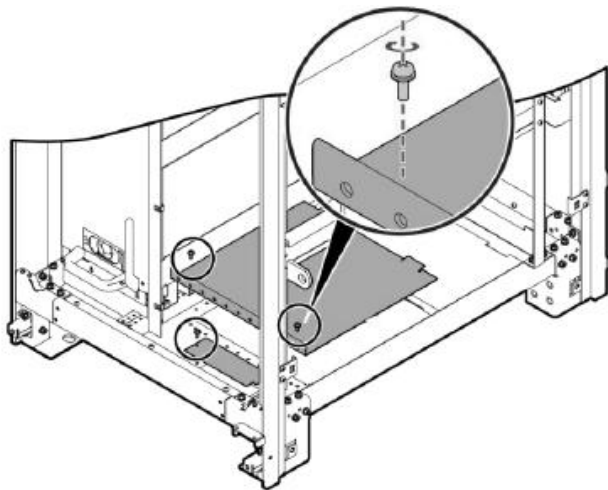




Fig. 2-22 Removal of bottom wiring cover plate (500kVA)

➤ Step 2: install the power cable

	Note
	<ol style="list-style-type: none"> 1. Connect the cables from top to bottom, namely connect the bypass input cable, the output cable, the main input cable, and finally the battery input cable. 2. During connecting the cable each phase, fix the cables by the bolts from interior to exterior.

	Note
	<ol style="list-style-type: none"> 1. The aperture size and quantity are for reference only. 2. The main input, bypass input, output and battery cables are installed in same hole.

-
- The bottom wiring location and route of the power cable are shown in Fig. 2-23 and Fig. 2-24.
- The bottom wiring diagram for the power cable of 300kVA is given below:

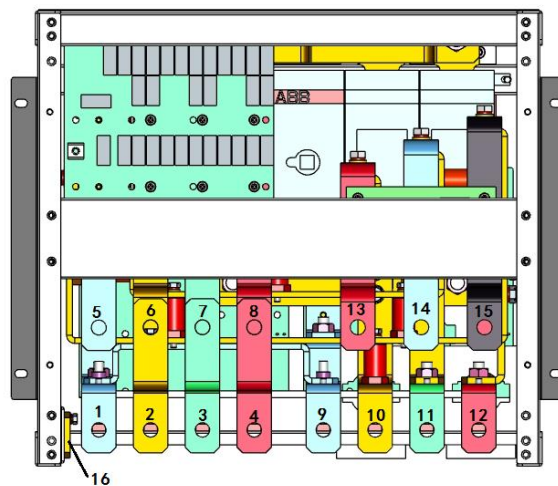


Fig. 2-23 Bottom wiring of power cable (bottom incoming, 300kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)	5. Bypass input N	6. Bypass input A (2L1)
7. Bypass input B (2L2)	8. Bypass input C (2L3)	9. Output N	10. Output A (U)	11. Output B (V)	12. Output C (W)
13. Positive electrode of battery input	14. Battery input N	15. Negative electrode of battery input	16. PE		

- Same wiring method is used for 400kVA, 500kVA and 600kVA, and described by taking 500kVA as an example.

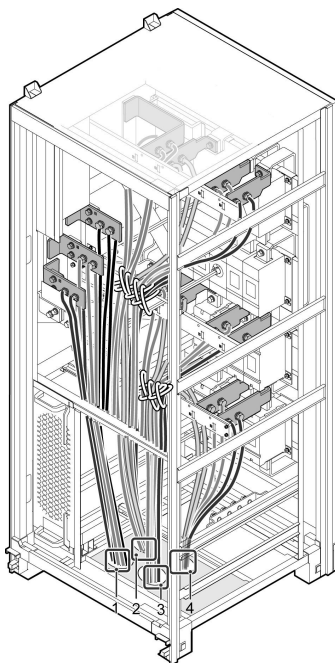


Fig. 2-24 Bottom wiring route and binding location of power cables (500kVA)

1. Battery input cable	2. Main input cable	3. Output cable	4. Bypass input cable
------------------------	---------------------	-----------------	-----------------------

	Note
	The number and color of the control cables in above figures are only schematic.

- Install the control power. The cables are tied and fixed on the cabinet. The bottom wiring location and route are shown in Fig. 2-25 and Fig. 2-26.

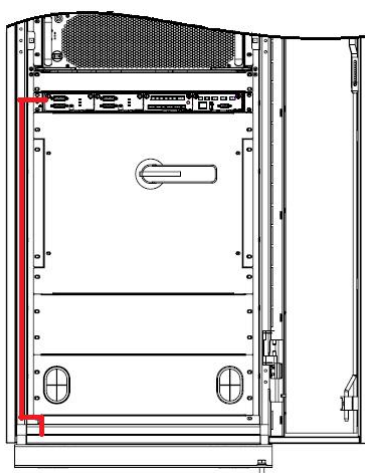


Fig. 2-25 Bottom wiring location and route of control cable (bottom incoming, 300kVA)

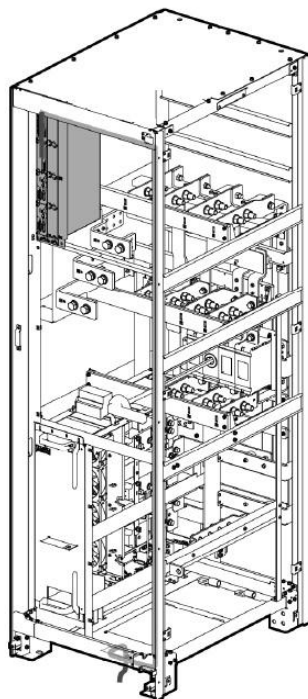




Fig. 2-26 Bottom wiring route of control cable (500kVA)

2.3.3. Connection of ground lead

Caution	
	Failure to install the ground lead as required can result in electromagnetic interference, electric shock and fire hazards.

Note	
	<ol style="list-style-type: none"> 1. Before wiring, make sure all input switches of the UPS are disconnected, and attach a warning mark, so as not to allow others to operate the switch; 2. During wiring, first connect the input distribution cable on the UPS side, and then the power supply and distribution cable on the user side; 3. Determine the diameter and quantity of the ground lead according to Table 2-3 and site requirement. The figures are only schematic. 4. For top incoming, the ground lead is installed in the top incoming mode.

Connect the ground lead of the UPS. The connection is described by exemplifying 200kVA and 500kVA. The wiring diagram is shown in Fig. 2-27 and Fig. 2-28.

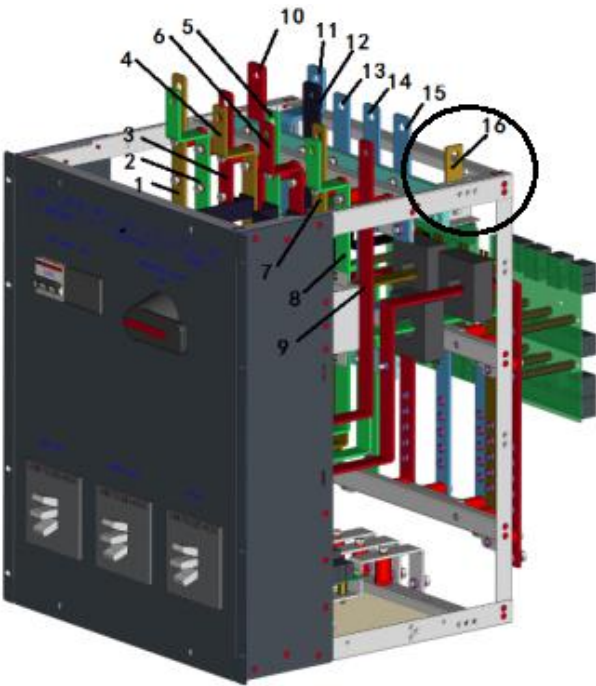


Fig. 2-27 Ground lead connection (200kVA)

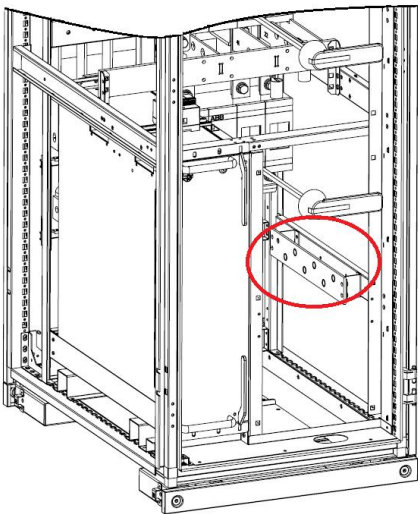



Fig. 2-28 Ground lead connection (500kVA)

2.3.4. Connection of AC input cable

2.3.4.1. Same power supply for mains and bypass

	Note
	<div>1. Determine the diameter and quantity of the AC input cable lead according to Table 2-3 and site requirement. The figures are only schematic.</div> <div>2. After the cable is connected, check that the extension rod of the built-in switch (if any) can not rub against the power cable during the rotation.</div>

Orderly connect the AC input cable to the wiring terminals A (1L1) , B (1L2) , C (1L3) and N of the main input cables, as shown in Fig. 2-29, Fig. 2-30, Fig. 2-31 and Fig. 2-32.

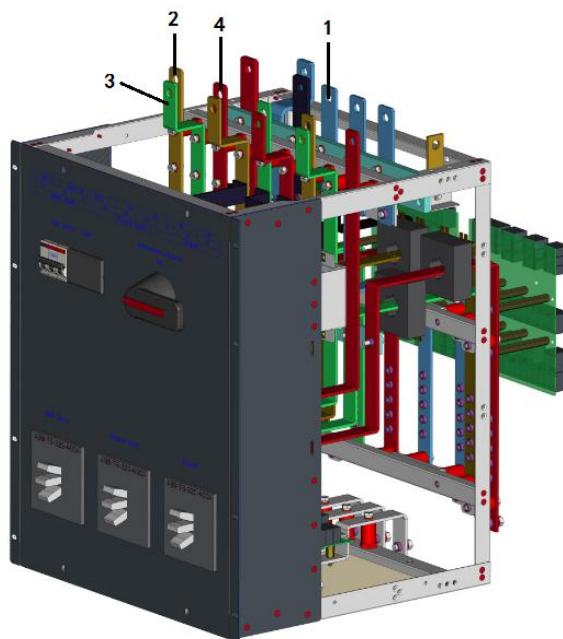


Fig. 2-29 Connection of AC input cable (200kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)
-----------------	-----------------------	-----------------------	-----------------------

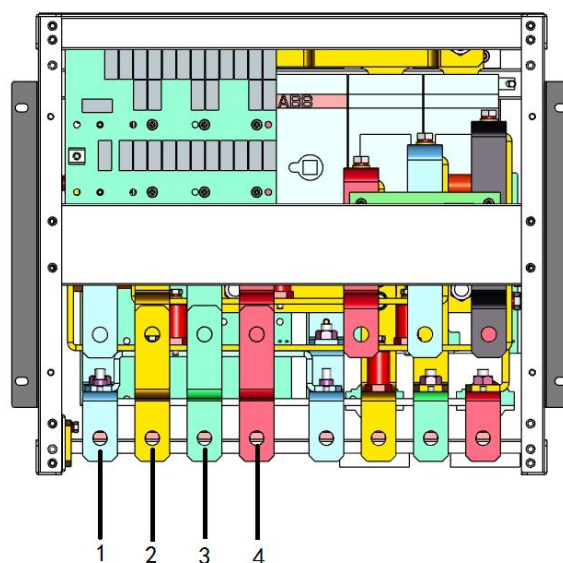


Fig. 2-30 Connection of AC input cable (bottom incoming, 300kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)
-----------------	-----------------------	-----------------------	-----------------------

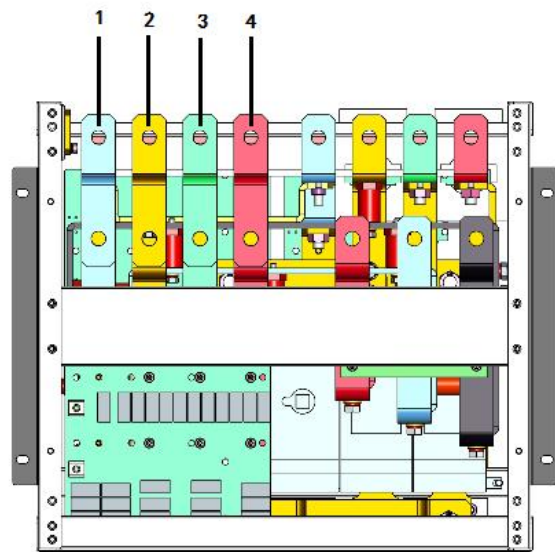


Fig. 2-31 Connection of AC input cable (top incoming, 300kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)
-----------------	-----------------------	-----------------------	-----------------------

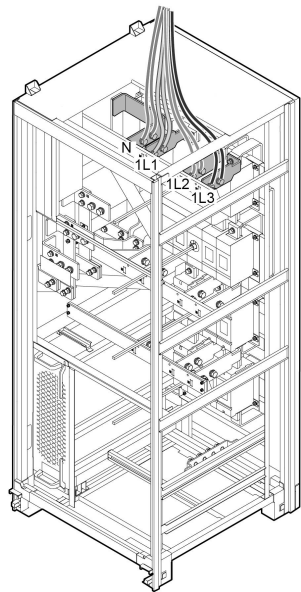



Fig. 2-32 Connection of AC input cable (500kVA)

2.3.4.2. Different power supply for mains and bypass

Operation steps

- Step 1: Remove the power distribution panel of the UPS and the rear cover of the bypass cabinet, then remove the connecting copper bar of the mains and the bypass.

	Note
	It is recommended to remove the side plate of the bypass cabinet before connecting the cable.

Remove the connecting copper bar of the mains and the bypass of 200kVA and 300kVA system cabinets, and connect the main and the bypass respectively after removal, as shown in Fig. 2-33, Fig. 2-34 and Fig. 2-35.

Please keep the removed copper bars and bolts properly.

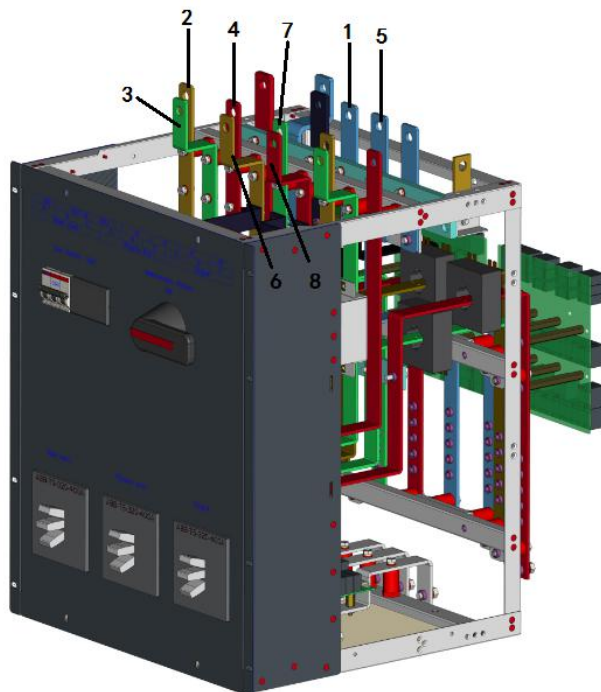


Fig. 2-33 Connection method for different power supply for mains and bypass (200kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)
5. Bypass input N	6. Bypass input A (2L1)	7. Bypass input B (2L2)	8. Bypass input C (2L3)

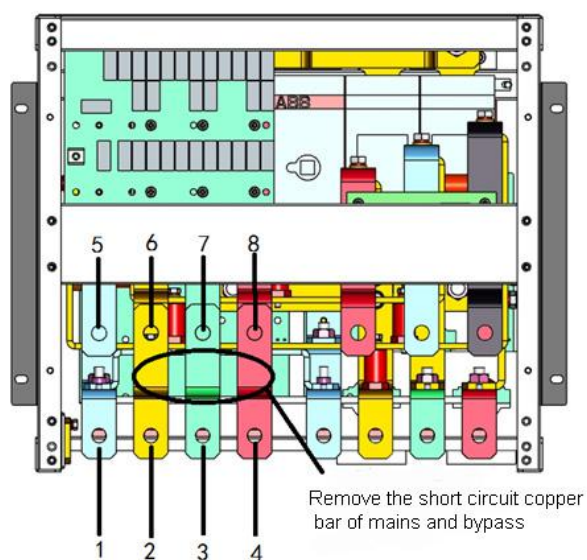


Fig. 2-34 Connection method for different power supply for mains and bypass (bottom incoming, 300kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)
5. Bypass input N	6. Bypass input A (2L1)	7. Bypass input B (2L2)	8. Bypass input C (2L3)

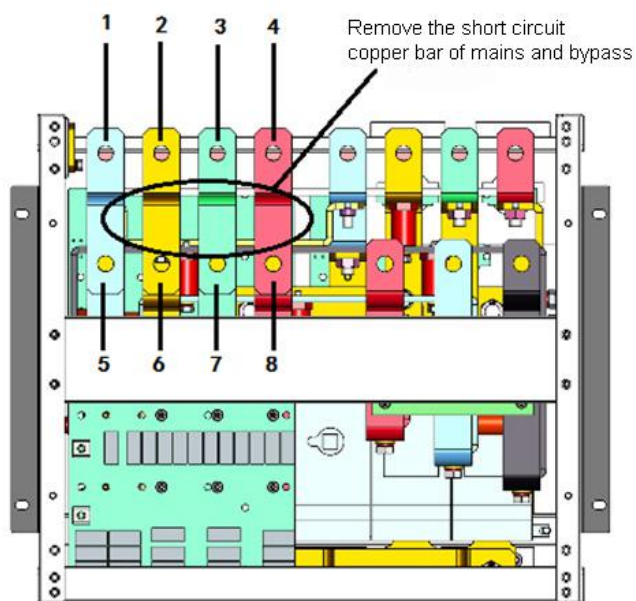


Fig. 2-35 Connection method for different power supply for mains and bypass (top incoming, 300kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)
5. Bypass input N	6. Bypass input A (2L1)	7. Bypass input B (2L2)	8. Bypass input C (2L3)

400kVA, 500kVA and 600kVA have similar structure which is described by exemplifying 500kVA.

Remove the rear cover plate of the bypass cabinet of the 500kVA system cabinet, and then the connecting copper bar of the mains and the bypass, as shown in Fig. 2-36.

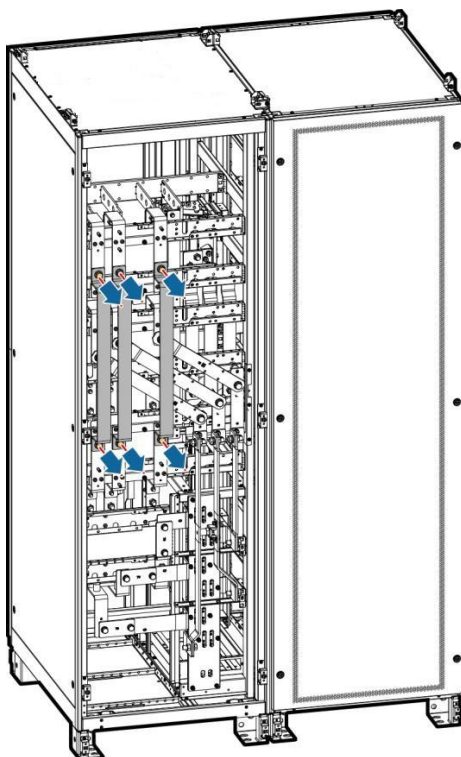


Fig. 2-36 Removal of rear cover plate of bypass cabinet and connecting copper bar of mains and bypass

Please keep the removed copper bar and bolt properly. See Fig.2-37 for its connection method for same power supply for the mains and the bypass.

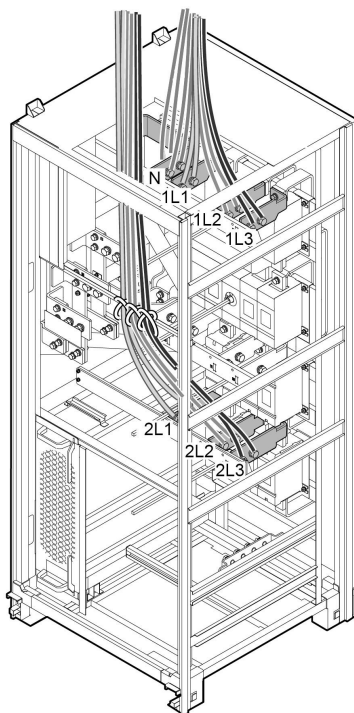


Fig. 2-37 Connection of AC input cable (500kVA)

1. Main input N	2. Main input A (1L1)	3. Main input B (1L2)	4. Main input C (1L3)
	5. Bypass input A (2L1)	6. Bypass input B (2L2)	7. Bypass input C (2L3)

- Step 2: orderly connect the main input cable to the distributing wiring terminals A (1L1), B (1L2) and C (1L3) of the main input; connect the N wire of the main and bypass input cables to the terminal of the input N wire.
- Step 3: orderly the bypass input cable to the wiring terminals A (2L1), B (2L2) and C (2L3) of the bypass input.
- Step 4: reinstall the distribution cover plate and the rear cover plate on the cabinet.

2.3.5. Connection of AC output cable

	Note
	If the load is not ready for power supply after connection of the output cable, properly process the safe insulation of the output cable of the system.
	Note
	<p>1. Determine the diameter and quantity of the AC output cable lead according to Table 2-3 and site requirement. The figures are only schematic.</p> <p>2. After the cable is connected, check that the extension rod of the built-in switch (if any) can not rub against the power cable during the rotation.</p>

Orderly connect the output cable with the wiring terminal N and A (U), B (V) and C (W) of the output, s shown in Fig. 2-38, Fig. 2-39, Fig. 2-40 and Fig. 2-41.

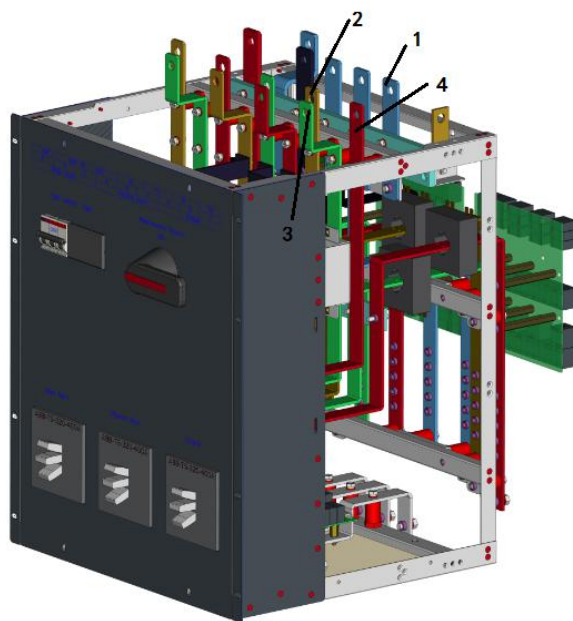


Fig. 2-38 Connection of AC output cable (200kVA)

1. Output N	2. Output A (U)	3. Output B (V)	4. Output C (W)
-------------	-----------------	-----------------	-----------------

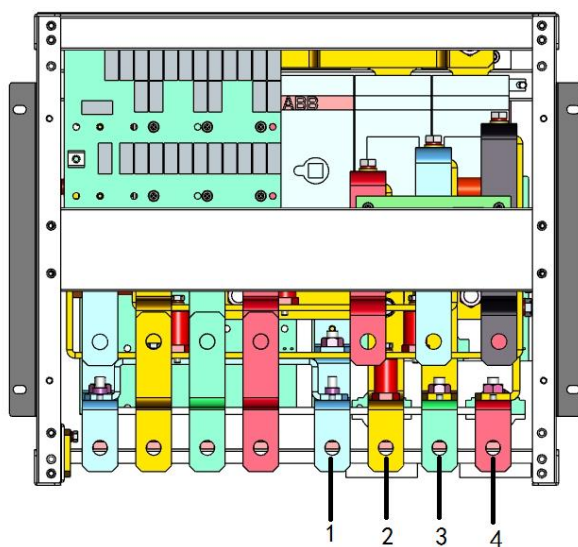


Fig. 2-39 Connection of AC output cable (bottom incoming, 300kVA)

1. Output N	2. Output A (U)	3. Output B (V)	4. Output C (W)
-------------	-----------------	-----------------	-----------------

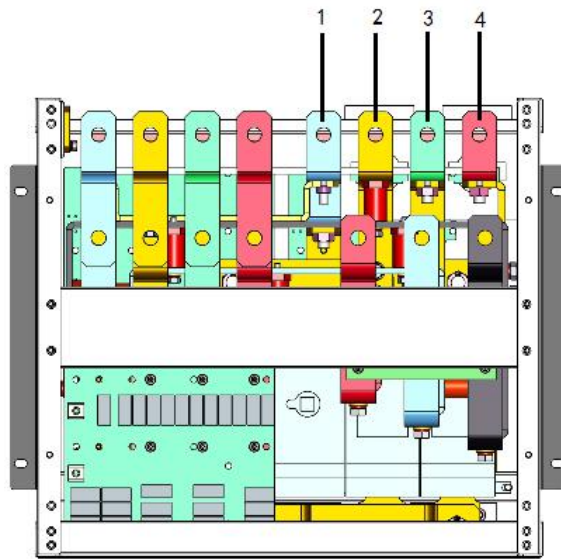


Fig. 2-40 Connection of AC output cable (top incoming, 300kVA)

1. Output N	2. Output A (U)	3. Output B (V)	4. Output C (W)
-------------	-----------------	-----------------	-----------------

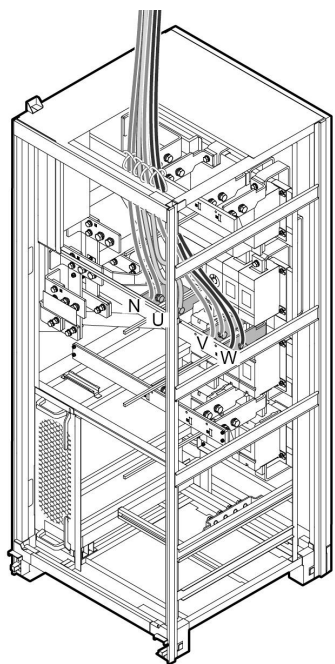




Fig. 2-41 Connection of AC output cable (500kVA)

2.3.6. Connection of battery cable

Symbol	Danger
	<p>1. Battery voltage can cause fatal danger. Please observe safety instruction during connecting cables.</p> <p>2. During wiring, ensure the correct polarity connection between the battery terminal and the battery switch, the battery switch and the UPS terminal, and do not reversely connect them.</p>

Symbol	Note
	Determine the diameter and quantity of the battery cable lead according to Table 2-3 and site requirement. The figures are only schematic.

Connect the battery cable of the terminals -, N and + of the battery, as shown in Fig. 2-42, Fig. 2-43, Fig. 2-44 and Fig. 2-45.

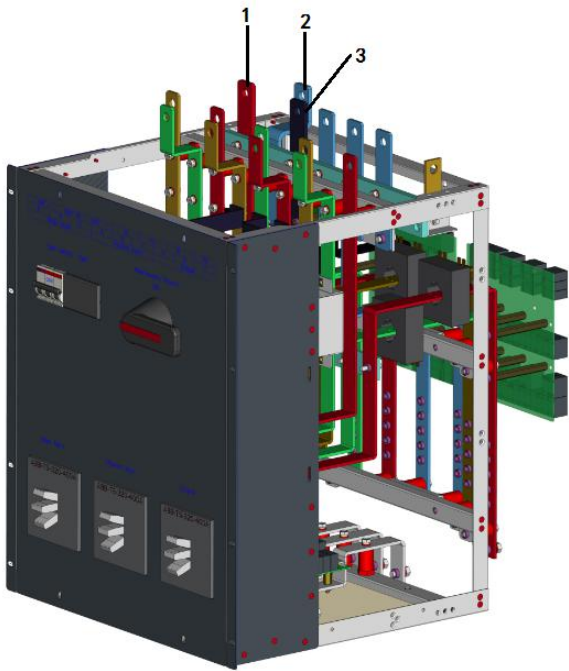


Fig. 2-42 Connection of battery cable (200kVA)

1. Battery input +	2. Battery input N	3. Battery input -
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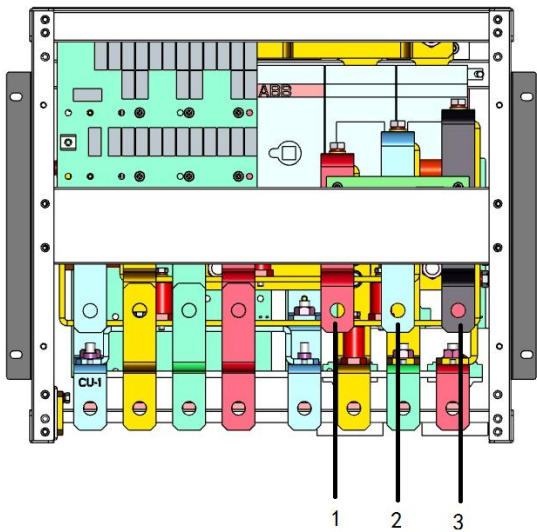


Fig. 2-43 Connection of battery cable (bottom incoming, 300kVA)

1. Battery input +	2. Battery input N	3. Battery input -
--------------------	--------------------	--------------------

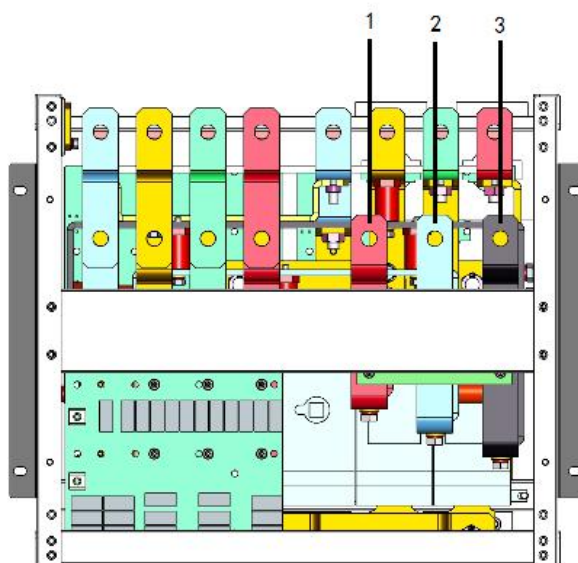


Fig. 2-44 Connection of battery cable (top incoming 300kVA)

1. Battery input +	2. Battery input N	3. Battery input -
--------------------	--------------------	--------------------

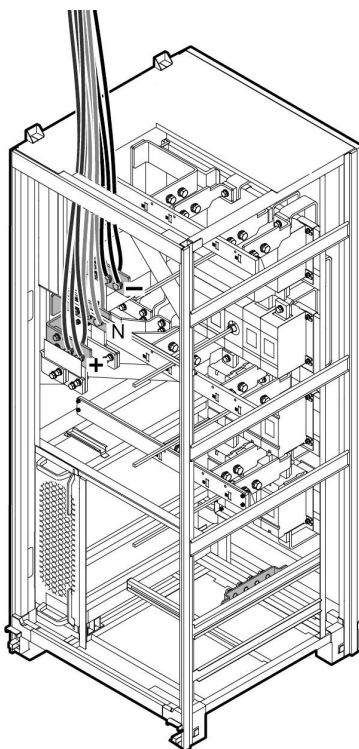


Fig. 2-45 Connection of battery cable (500kVA)

The N wire of the battery is the reference potential leading from the connection point between the positive and negative battery packs.

For example, a battery pack consisting of 40 cells, the cells are averagely distributed to the positive and negative battery packs with 20 cells each, and the reference potential, namely the N wire of the battery, is led from the connection point between the positive and negative battery packs, as shown in Fig. 2-46.

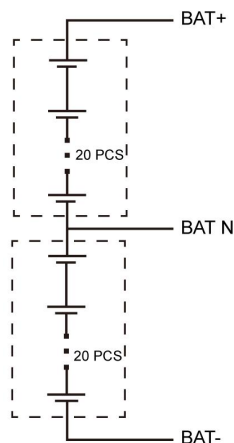


Fig. 2-46 N wire of battery

	Note
	After connection of the cables, reinstall the beam, the extension rod of the switch (if removed), the front distribution cover plate and the side panel of the bypass cabinet onto the cabinet

2.3.7. Connection of remote EPO

	Note
	<ol style="list-style-type: none"> 1. We do not provide emergency stop button and its cable, which should be prepared by the user before installation. 22AWG cable is recommended for the connecting cable. 2. In order to avoid misoperation, the emergency stop button shall be protected by an anti- misoperation cover plate, and the connecting cable shall be protected through the cable duct. 3. If the emergency stop of the UPS is triggered, the rectifier and the inverter are stopped, and the UPS will operate according to the EPO action set on the monitoring panel: switching to bypass, or output disconnection, defaulting to the switching to bypass. However, in this case, the mains input of the UPS is not disconnected internally. If the power of the UPS is fully disconnected, when the EPO is triggered, the mains input switch is disconnected.

Connect the emergency stop button with the dry contact interface of the UPS by the cable. The EPO dry contact interface includes normal-open and normal-close interfaces.

	Note
	<ol style="list-style-type: none"> 1. When the normal- close state of EPO is used, the jumper wire connecting EPO_NC and EPO_12V shall be removed first. When the EPO switch is disconnected, an emergency stop will be triggered. 2. When the normal-open state of EPO is used, the jumper between EPO_NC and EPO_12V shall be retained. When the EPO switch is connected, the emergency stop will be triggered.

2.4. Installation of UPS for parallel operation

This series of products support the expansion of same versions for parallel operation of maximum 4 UPSs.

2.4.1. Connection of power cable

Operation steps

- Step 1: respectively ground the single UPS of the parallel system in the ground connection method provided in 2.2.3 Connection of Ground Lead
- Step 2: connect the power cable of each UPS in the parallel system according to 2.2.4 Connection of AC Input Cable and 2.2.5 Connection of AC Output Cable.
- Step 3: connect the battery cable of each UPS according to 2.2.6 Connection of Battery Cable.
- Step 4: according to the site configuration, select a parallel operation mode for the cable connection of the parallel system.

Exampling typical scenario, the functional block diagram and wiring diagram of the 1+1 parallel system are respectively shown in Fig. 2-47 and Fig. 2-48.

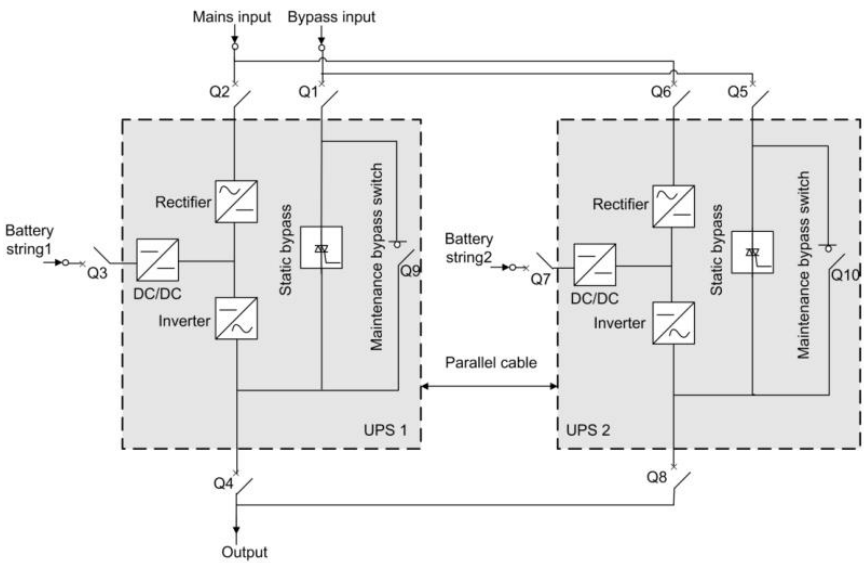


Fig. 2-47 1+1 Functional block diagram and wiring diagram of 1+1parallel system

Note	
	1. In order to simply, clearly and aesthetically describe the connection relationship of the parallel system, the cable expressing method of the circuit diagram, namely the “number of oblique lines”, is used to represent the number of the power cables of the same nature in this Installation Manual.
	2. During wiring, the terminal of the distribution cable of each UPS is connected by the power cable according to silk-screen.

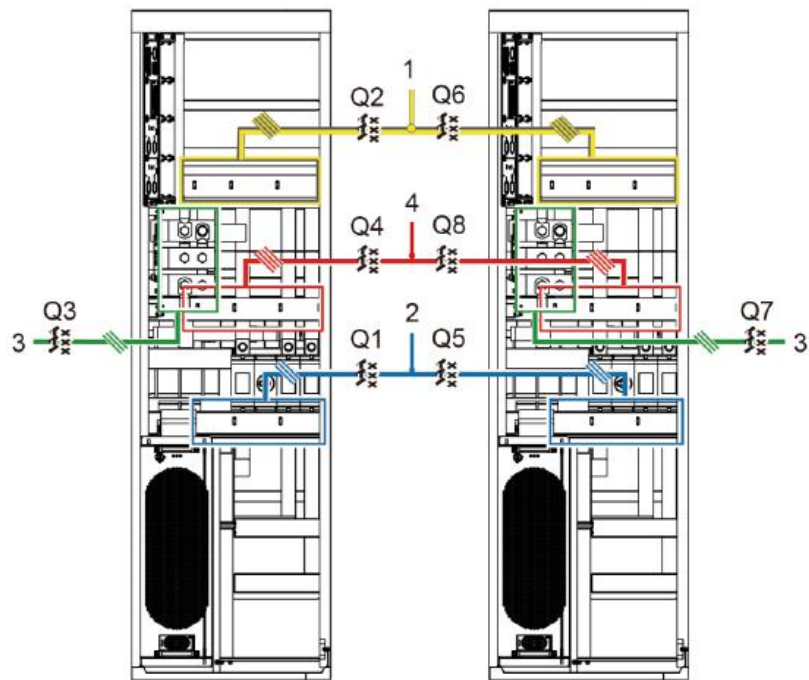


Fig. 2-48 1+1 Wiring diagram of 1+1parallel system (500kVA)

1. Main input cable	2. Bypass input cable	3. Battery cable	4. Output cable
---------------------	-----------------------	------------------	-----------------

Examplng 2 bus subsystems, the functional block diagram and wiring diagram of the double bus parallel system are respectively shown in Fig. 2-49 and Fig. 2-50.

	Note
	Same length and specification are required for the power cables of the single UPSs, including the bypass input cables and the output cables, to ensure uniform current in the bypass mode.

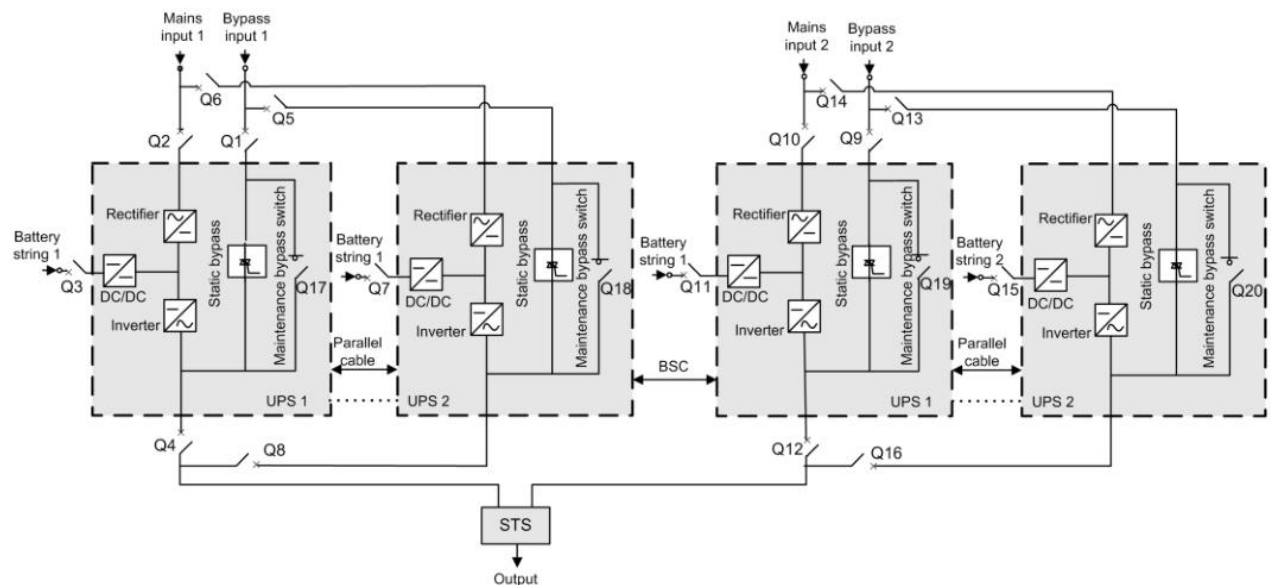


Fig. 2-49 Functional block diagram of double bus parallel system

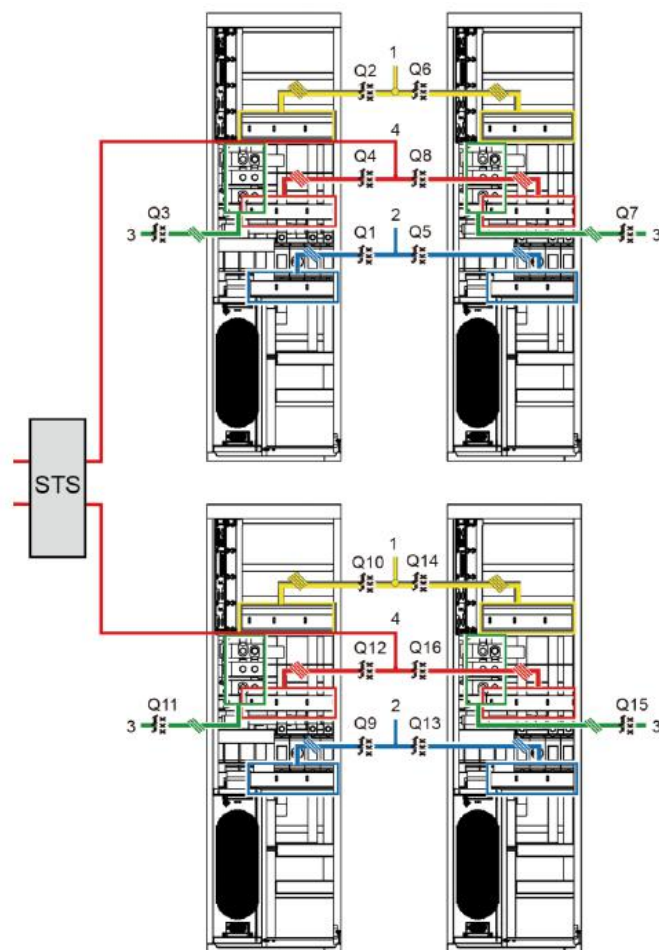


Fig. 2-50 Wiring diagram of double bus parallel system (500kVA)

1. Main input cable	2. Bypass input cable	3. Battery cable	4. Output cable
---------------------	-----------------------	------------------	-----------------

2.4.2. Connection of control cable

The parallel operation interfaces of two single UPSs of the parallel system are connected to a circuit by the parallel control cable.

For the 1+1 parallel system, the wiring diagram of the control cable is shown in Fig. 2-51.

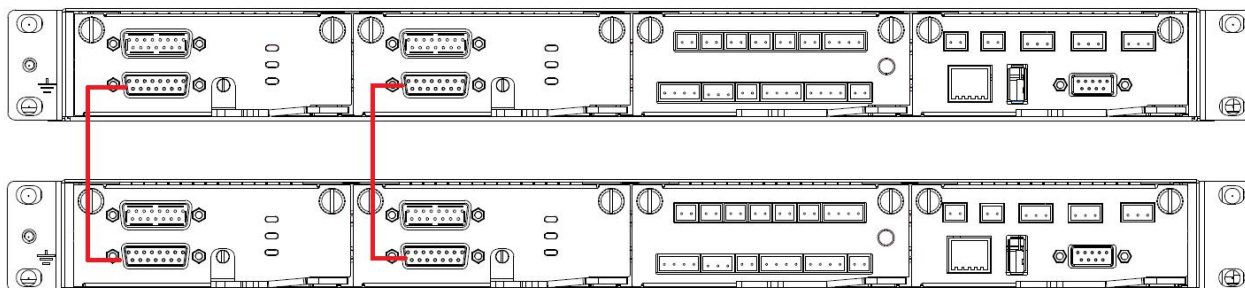


Fig. 2-51 Wiring diagram of the control cable for 1+1 parallel system

For the double bus parallel system, the LBS cable of the master-slave system is added, and exemplifying the parallel operation of 2 main systems, the wiring diagram is shown in Fig. 2-52.

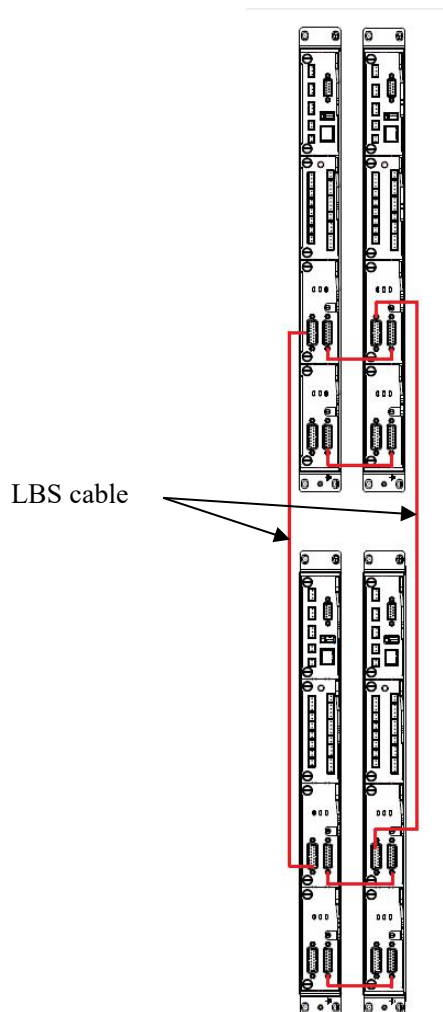



Fig. 2-52 Connection of control cable for double bus parallel system

Other control cables are connected as above, and the control cable of each UPS in the parallel system is connected.

2.5. Installation of optional accessories

2.5.1. Installation of anti-seismic assembly

	Note
	<p>The anti-seismic assembly is only suitable for ground installation.</p>

- Step 1 Mark the mounting holes on the mounting ground according to the marking template. The hole sizes of the anti-seismic assembly are shown in Fig. 2-53, Fig. 2-54, and Fig. 2-55

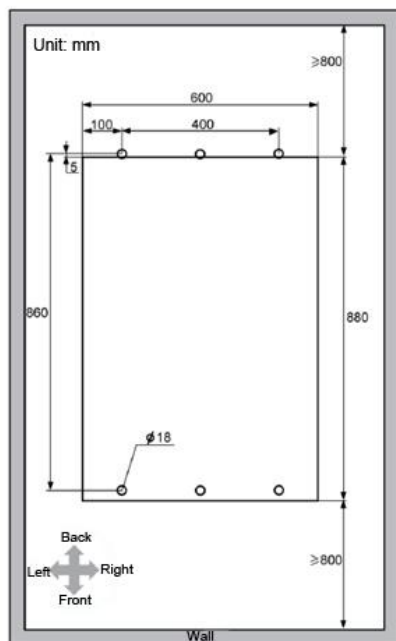


Fig. 2-53 Installing hole size of anti-seismic assembly (200/300kVA, unit: mm)

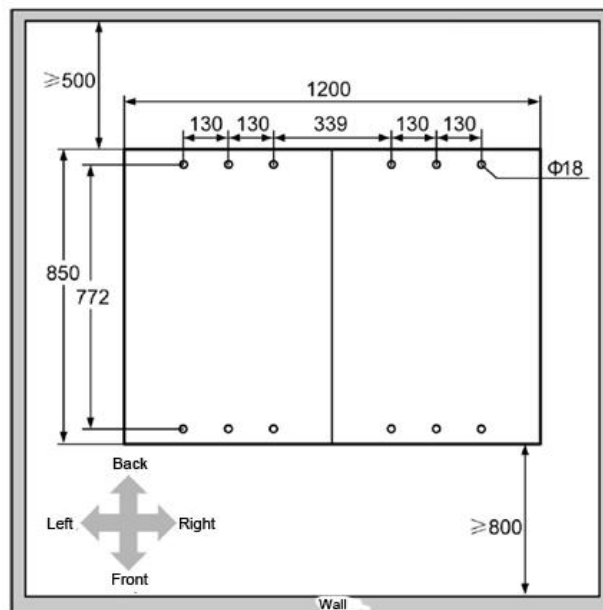


Fig. 2-54 Installing hole size of anti-seismic assembly (400/500kVA, unit: mm)

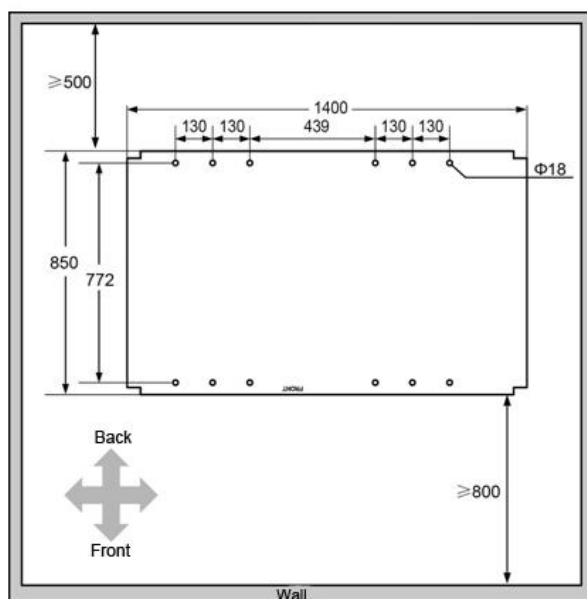


Fig. 2-55 Installing hole size of anti-seismic assembly (600kVA, unit: mm)

- Step 2: Drill the expansion bolt holes and install the expansion pipe according to the procedures provided in the ground installation section.
- Step 3: Open the front door of the cabinet, remove the support baffle in front of the cabinet, as shown in Fig. 2-56, and remove the rear cover.

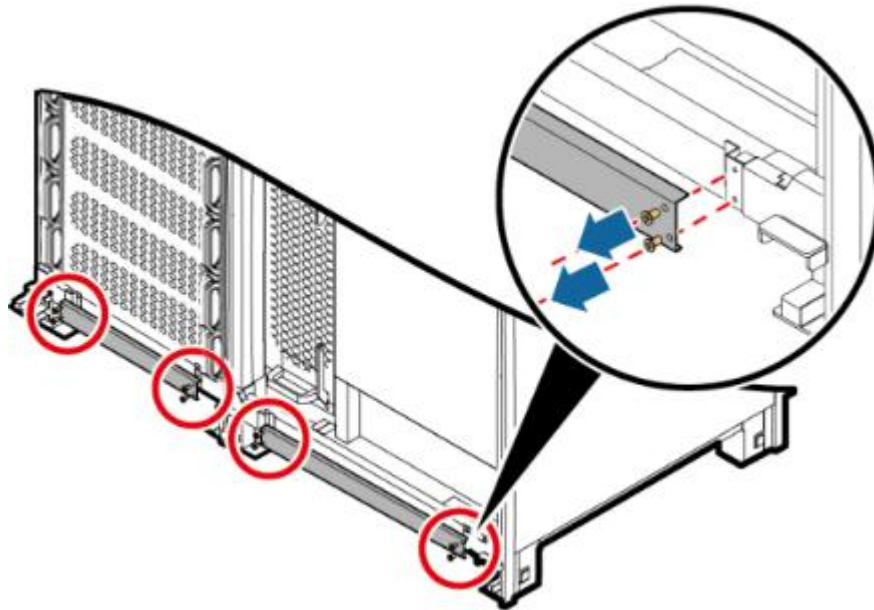


Fig. 2-56 Removal of support baffle (500kVA)

- Step 4: Use the screws M6 to fix the anti-seismic assembly on the front and rear of the cabinet respectively by at the tightening moment $3\text{N}\cdot\text{m}$. Exemplifying the front of the cabinet as an example, the specific operation is shown in Fig. 2-57 and Fig. 2-58.

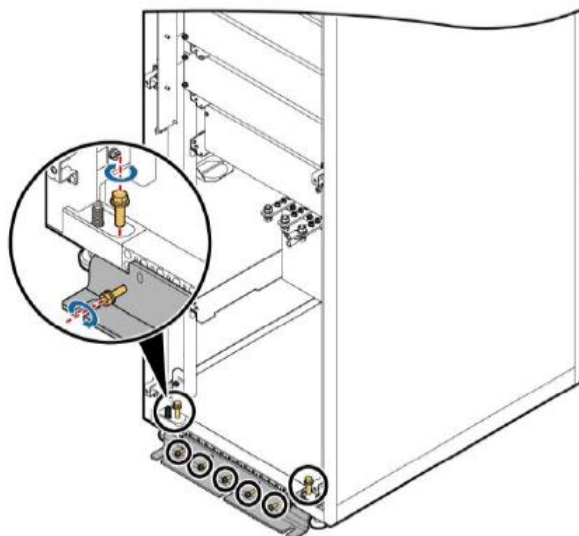


Fig. 2-57 Fixation of anti-seismic assembly on cabinet (300kVA)

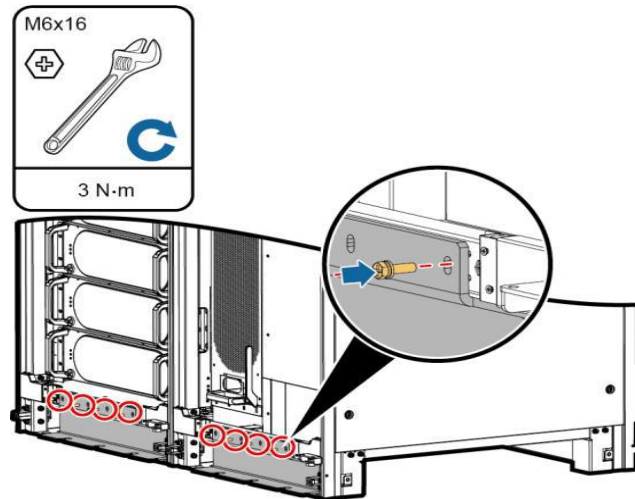


Fig. 2-58 Fixation of anti-seismic assembly on cabinet (500kVA)

- Step 5 Trim the cabinet so that the mounting hole of the expansion bolt is aligned with the lower half of the hole.
- Step 6: Use M12×60 expansion bolts to lock the anti-seismic components to the ground in front and rear of the cabinet. For example the front of the cabinet, and the specific operation is shown in Fig. 2-59 and Fig. 2-60.

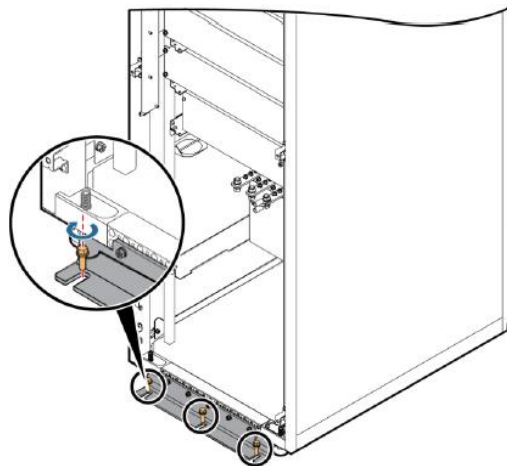


Fig. 2-59 Locking anti-seismic components to ground (300kVA)

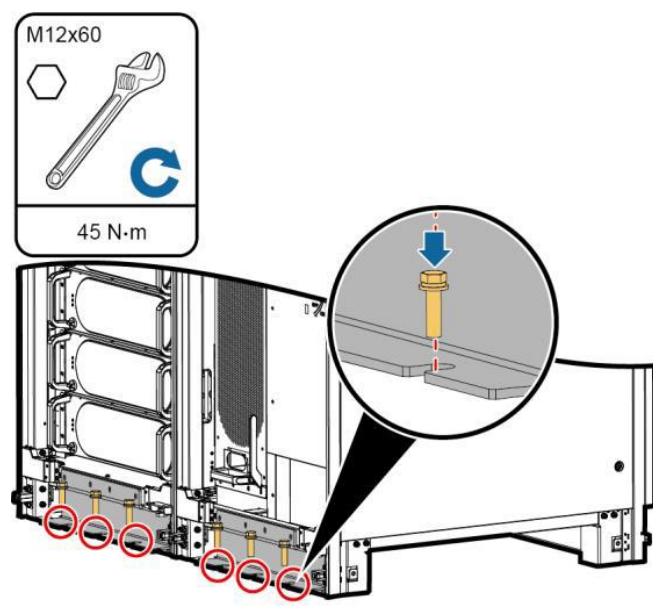


Fig. 2-60 Locking anti-seismic components to ground (500kVA)


- Step 7. Reinstall the support baffle and the rear cover rear into the cabinet.
- Step 8: Install front and rear foot baffles and left and right foot baffles

2.5.2. Installation of ambient temperature sensor

Connect one end of the connecting cable to the "ENV_TEMP" interface, as shown in Fig. 1-11 and Table 1-4 for the specific location. Connect other end is the "temperature compensation sampling device".

2.5.3. Installation of near-range battery temperature sensor

Connect one end of the connector to the "BAT_TEMP" interface, as shown in Fig. 1-11 and Table 1-4 for the specific location. Connect other end to the "temperature compensation sampling device", which is installed inside the battery cabinet during actual use. The range of 0 ~ 6.0mV/°C • cell can be set, the default is 3.3mV/°C • cell, and the temperature reference value of temperature compensation is 25°C.

	Note
	After installation of the battery, check the voltage of each cell, which is normally 10.5V-13.5V; check the voltage difference of the each cell of the series battery, which is generally 5%. If the above requirements are not met, charge or replace the battery.

2.6. Inspection item after installation

The inspection items and acceptance criteria are shown in Table 2-7.



	Note
	The items 09 and 10 in Table 2-7 must be carefully inspected. If two items fails in the inspection, it is possible to cause damage to the UPS.

Table 2-7 Inspection items and acceptance criteria

NO.	Inspection item	Acceptance criteria
01	Check whether the system configuration is consistent with ordered configuration	The system model and the module quantity shall be same those specified in the contract
02	Check whether the wiring of other system is considered during cable installation.	The wiring is reasonable and meets construction requirement.
03	Check whether the cables are connected firmly.	The input cables, the output cables, and the battery cables must be connected firmly. All cable connections shall not be loose. The screws shall be properly provided with the spring gasket to prevent falling or safety accidents, and no open circuit and hidden danger exit on the cables.
04	For the remote management equipment, check whether relevant serial ports are properly connected (the port supports safety protection mechanism).	The control cables must be properly connected and tightened.
05	Check whether the cable mark is clear and accurate	Two ends of the cables should be attached with concise and pellucid label.
06	Check whether the ground lead of the UPS is reliably connected with the ground lead of the machine room,	The r the ground lead of the UPS is reliably connected with the ground lead of the machine room. The resistance between the ground lead of the UPS and the ground lead of the machine room must be less than 1Ω.
07	Check whether the distance between the binding tapes is even	The binding tapes are even and free of sharp corner at cut location.
08	Check the connection of all cables	Check whether the cables are properly connected according to the wiring diagram.
09	Check whether the live and null lines of input and output is connected properly	The live line and the null line must be properly connected. Main input A (1L1) , B (1L2) , C (1L3) and N, the bypass input A (2L1) , B (2L2) , C (2L3) and N, as well as the output A (U) , B (V) , C (W) and N must be properly connected.

NO.	Inspection item	Acceptance criteria
10	Check the phase sequence of the live lines of the input and output	For the single UPS, the phase sequence of the live line of the main input, the bypass input and the output must be correct. For parallel operation, the phase sequence of the live line of the main input, the bypass input and the output of each UPS must be correct
11	Check whether the positive and negative electrodes of the battery input and the battery N are properly connected	Check by the multimeter whether the voltage is correct between the positive and negative electrodes of the battery input and the battery N
12	Check the operation environment	Clean electrical conductivity dust and other sundries inside and outside cabinet.
13	Check the copper bars for short circuit	Use a multimeter to measure whether the copper bars are open-circuit.
Note		
	All inspection items must pass the inspection to before the UPS is started carried out according to the instructions on the manual.	