

Monet Series AC/DC Power Module

SPECIFICATION



1. Product Introduction

1.1. Model Description

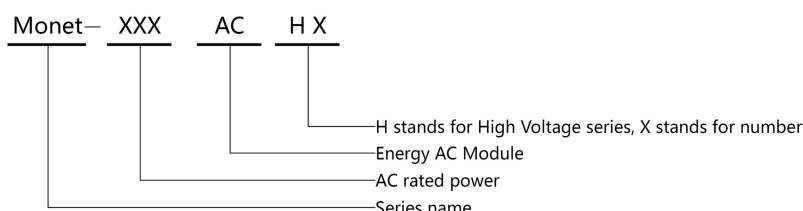


Figure 1-1 Model identification

1.2. Product characteristics

- Adopting a three-level topology, the maximum efficiency can reach 99% and the power quality is better.
- With an IP66 protection rating, it has stronger environmental adaptability.
- Standard rack-mounted modular design, flexible configuration, convenient maintenance, and easy expansion.
- It supports constant current, constant power, AC voltage source control, and has a black start function.
- Adopting a standard rack-mounted modular design, it is flexible in configuration, convenient in maintenance, and easy to expand.
- Adopting patented harmonic suppression technology, it is suitable for diversified scenarios such as industrial parks and microgrids.
- Cluster-by-cluster management eliminates inter-cluster circulation and improves battery availability.
- 1500V DC energy storage system suitable for 52s Pack, meeting various battery pack requirements.

1.3. Product parameters

The parameters of the power module of the energy storage converter are as follows:

Table 1-1 module parameters

Model	Monet-215AC-H6	Monet-215AC-H8	Monet-150AC-H4	Monet-125AC-H4
<i>DC Rated Voltage Range</i>	1000 - 1500Vdc	1150 - 1500Vdc	680 - 1500Vdc	680 - 1500Vdc
<i>DC full load Voltage Range</i>	1150 - 1500Vdc	1150 - 1500Vdc	728 - 1200Vdc	680 - 1500Vdc
<i>DC Max. Current</i>	206A	206A	206A	206A
<i>AC Rated Power</i>	215kW	215kW	150kW	125kW
<i>AC Rated Current</i>	180A	155.2A	216.5A	180.4A
<i>AC Rated Voltage</i>	690Vac, (3W+PE)	800Vac, (3W+PE)	400Vac, (3W+PE/3W+N+PE)	400Vac, (3W+PE/3W+N+PE)
<i>Overload Capacity</i>	110%, normal operation; 120%, 1 minute	110%, normal operation; 120%, 1 minute	110%, 1 minute	110%, normal operation; 120%, 1 minute
<i>Total current harmonic distortion (THD)</i>	<3% (rated power)			
<i>Power Factor Range</i>	1(leading) ~ 1(lagging)			
<i>Operating Temperature Range</i>	-30°C to +60°C (Derating above 45°C)			
<i>Cooling Method</i>	Forced air cooling			
<i>Relative Humidity</i>	0 to 100% (No condensation)			
<i>Altitude</i>	3000m (> 3000m derating)			
<i>Communication method</i>	RS485/CAN/Ethernet			
<i>Ingress Protection</i>	IP66			
<i>Corrosion Rating</i>	C4 (C5 customizable)			
<i>Max. Efficiency</i>	99%			
<i>Dimensions (W*D*H)</i>	700*800*280mm			
<i>Weight (approx.)</i>	83kg			

1.4. Product graphs

The following figure shows the ambient temperature derating curve:

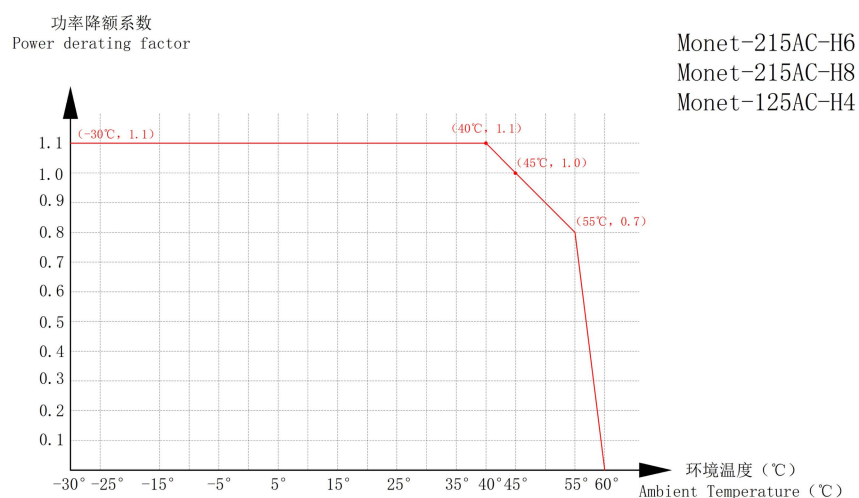


Figure 1-2 Ambient Temperature Derating Curve (Monet-215AC-H6、Monet-215AC-H8、Monet-125AC-H4)

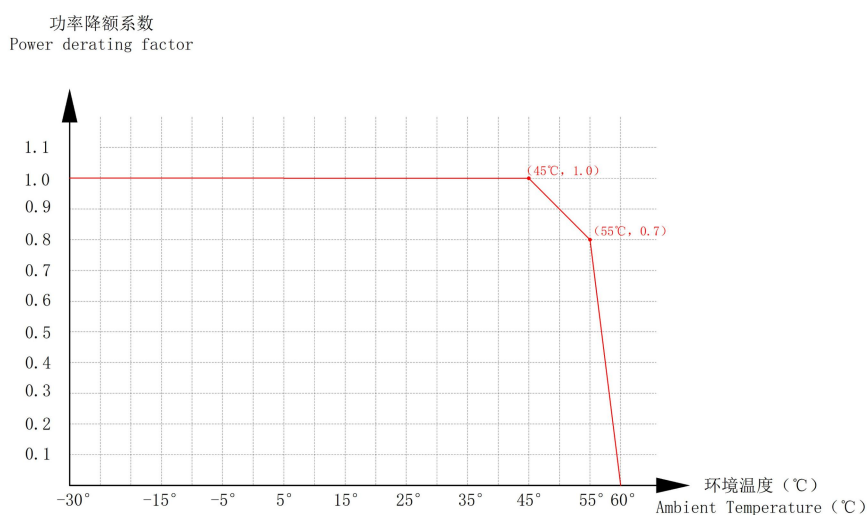


Figure 1-3 Ambient Temperature Derating Curve (Monet-150AC-H4)

As shown in the following figure, it is the derating curve of different altitude:

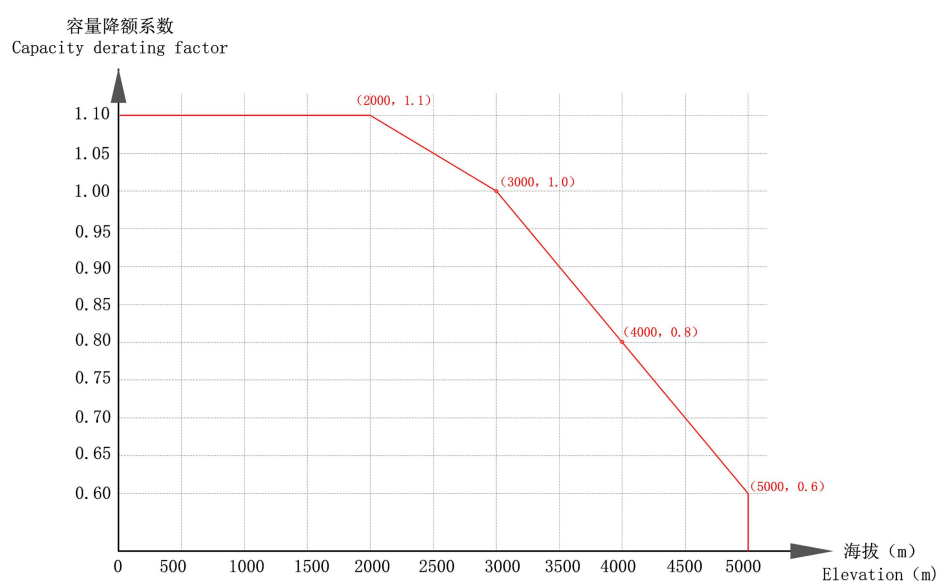
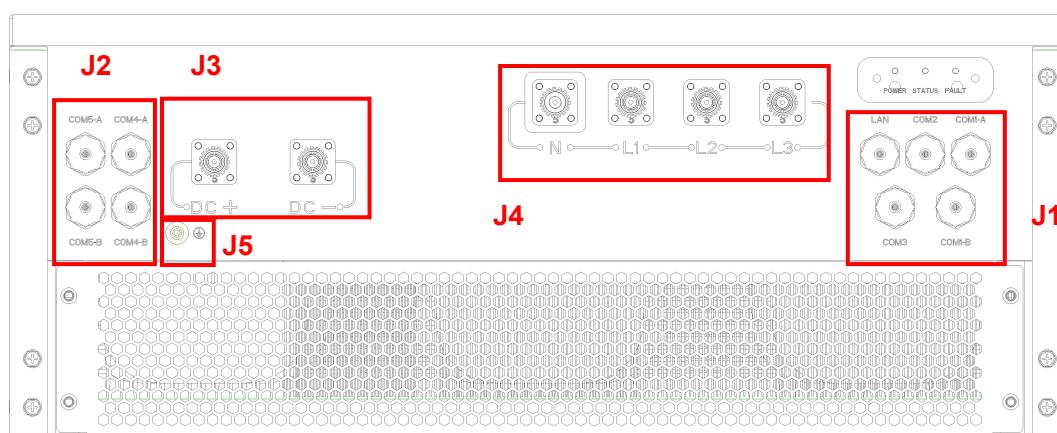


Figure 1-4 Altitude Derating Curve(Monet-215AC-H6、Monet-215AC-H8、Monet-125AC-H4)

1.5. Product appearance



J1-PCS communication secondary port

J2-PCS parallel port

J3-Module DC primary port

J4-Module AC primary port

J5-Ground port

Figure 1-5 Power module(front)

1.6. Interface instructions

1.6.1. PCS communication secondary port (J1)

It consists of EMS communication interface, BMS communication interface, Ethernet interface, dry contact interface.

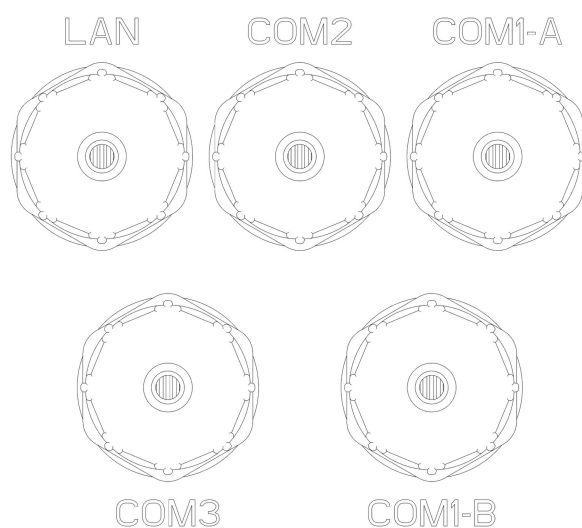


Figure 1-6 PCS communication secondary port

Table 1-2 PCS communication secondary port description

No.	Name	Description
1	LAN	PCS Ethernet port
2	COM1-A COM1-B	PCS and EMS Communication Port
3	COM2	PCS and BMS Communication Port
4	COM3	Dry contact port

Table 1-3 COM1-A, COM1-B Interface Description

<i>Signal Name</i>	<i>Standard network cable sequence 568B Colour</i>	<i>Pin Number</i>	<i>Function Description</i>
<i>CAN1_H</i>	<i>White Orange</i>	<i>1</i>	<i>Communication with EMS-CAN</i>
<i>CAN1_L</i>	<i>Orange</i>	<i>2</i>	
<i>RS485A1</i>	<i>White Green</i>	<i>3</i>	<i>Communication with EMS-RS485</i>
<i>+12V</i>	<i>Blue</i>	<i>4</i>	<i>EMS Power Supply (Provides power to EMS, 1A)</i>
<i>+12V</i>	<i>White Blue</i>	<i>5</i>	
<i>RS485B1</i>	<i>Green</i>	<i>6</i>	<i>Communication with EMS-RS485</i>
<i>GND</i>	<i>White Brown</i>	<i>7</i>	<i>Power Supply Ground</i>
<i>GND</i>	<i>Brown</i>	<i>8</i>	



Note

- COM1-A and COM1-B ports are connected in parallel. The module communicates externally through this interface. When multiple modules are connected in parallel, the corresponding interface of each energy storage module must be connected to the corresponding interface of another module via a parallel connection communication cable, with a matching resistor installed on the parallel connection.

Table 1-4 COM2 Interface Description

<i>Signal Name</i>	<i>Standard network cable sequence 568B Colour</i>	<i>Pin Number</i>	<i>Function Description</i>
<i>CAN2_H</i>	<i>White Orange</i>	<i>1</i>	<i>Communication with Battery Cluster BMS-CAN</i>
<i>CAN2_L</i>	<i>Orange</i>	<i>2</i>	
<i>RS485A2</i>	<i>White Green</i>	<i>3</i>	<i>Communication with Battery Cluster BMS-RS485</i>
<i>+12V</i>	<i>Blue</i>	<i>4</i>	<i>BMS Power Supply (Provides power to BMS, 1A)</i>
<i>+12V</i>	<i>White Blue</i>	<i>5</i>	
<i>RS485B2</i>	<i>Green</i>	<i>6</i>	<i>Communication with Battery Cluster BMS-RS485</i>
<i>GND</i>	<i>White Brown</i>	<i>7</i>	<i>Power Supply Ground</i>
<i>GND</i>	<i>Brown</i>	<i>8</i>	

Table 1-5 COM3 Interface Description

Signal Name		Standard network cable sequence 568B Colour	Pin Number	Function Description
<i>RS485A3</i>		<i>White Orange</i>	<i>1</i>	<i>RS485 Debugging (Reserved)</i>
<i>RS485B3</i>		<i>Orange</i>	<i>2</i>	
<i>2</i>	<i>OUT1_COM</i>	<i>White Green</i>	<i>3</i>	<i>Dry contact output port (Contact capacity 24VDC, 800mA)</i>
	<i>GND_OUT</i>	<i>Blue</i>	<i>4</i>	<i>Dry contact ground</i>
	<i>IN2</i>	<i>White Blue</i>	<i>5</i>	<i>Dry contact input port (Input port is passive dry contact, high resistance state or ground)</i>
<i>1</i>	<i>OUT1_NO</i>	<i>Green</i>	<i>6</i>	<i>Dry contact output port (Contact capacity 24VDC, 800mA)</i>
	<i>GND_OUT</i>	<i>White Brown</i>	<i>7</i>	<i>Dry contact ground</i>
	<i>IN1</i>	<i>Brown</i>	<i>8</i>	<i>Dry contact input port (Input port is passive dry contact, high resistance state or ground)</i>



Note

- The dry contact input is used for BMS faults and can be selected to be enabled or disabled, and the fault state can be selected to be either a high resistance state or ground.
- OUT_NO and OUT_COM contact voltage range 0~24VDC.

The indicator lights consist of the power indicator (POWER), status indicator (STATUS), and fault indicator (FAULT).

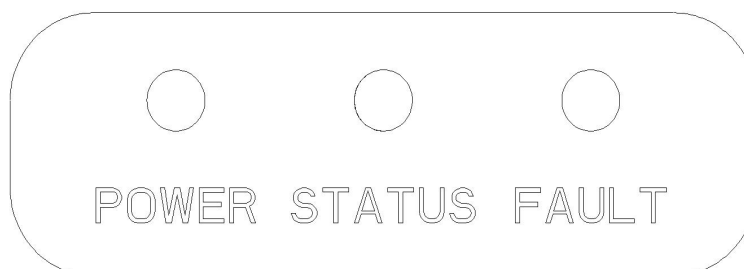


Figure 1-7 Indicator Light

Table 1-6 Indicator Light Description

Indicator Light	Status	Status Description
<i>Power Indicator (Red)</i>	<i>Constantly On</i>	<i>Module auxiliary power supply is normal</i>
	<i>Off</i>	<i>Abnormal module auxiliary power supply</i>

Status Indicator (Green)	Constantly On	Module operating normally
	Off	Module shutdown
	Blinking	Module entering program burning mode
Fault Indicator (Red)	Constantly On	The module has a shutdown fault (the module shuts down when the fault occurs), refer to the fault list for more details
	Blinking	The module has a non-stop alarm (the module does not shut down during the alarm), refer to the fault list for details
	Off	No module failures, no alarms

1.6.2. PCS parallel port (J2)

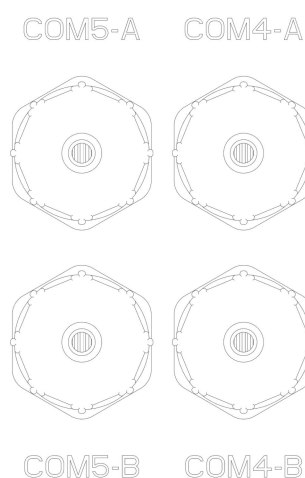


Figure 1-8 PCS parallel port

Multi-module paralleling requires the use of a paralleling cable to connect this interface of each module to this interface of another module.

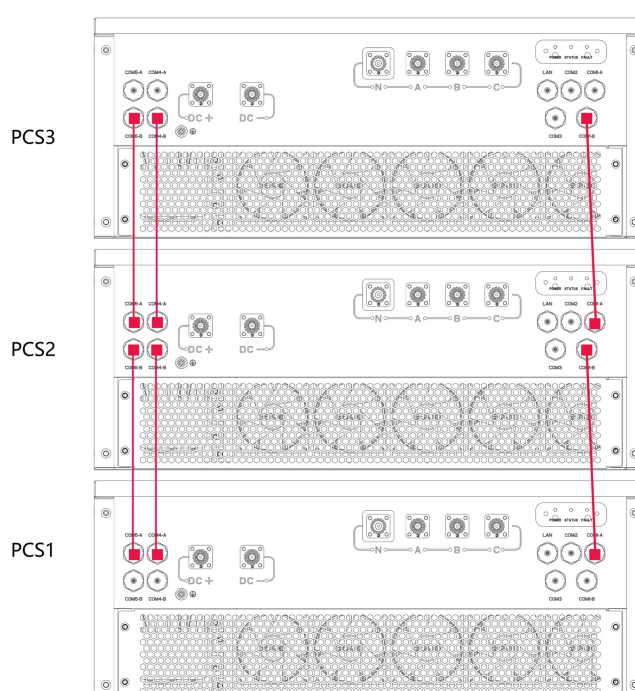


Figure 1-9 Schematic diagram of multi-module parallel connection and cabinet port connection



Note

- COM4-A and COM4-B serve as multi-module parallel operation interfaces, while COM5-A and COM5-B function as multi-cabinet parallel operation interfaces. These interfaces enable daisy-chain interconnection when operating in parallel with other modules.
- When building a modular system, only the parallel lines of the same type of modules need to be connected in parallel. For example, DC/AC is connected to the parallel lines of DC/AC modules.
- For specific modules, such as STS module, its parallel line should be connected to the parallel line of AC module.
- When multiple modules are connected in parallel, the parallel communication cables and matching resistors are shipped together with the energy storage modules.

1.6.3. Module DC primary port (J3)

The module DC primary ports are connected using plug-in cables. From left to right are Orange terminal DC+, black terminal DC-.

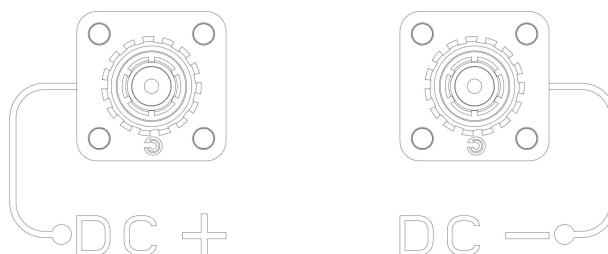


Figure 1-10 Module DC primary port



Note

- The positive and negative sides of the DC side must not be reversed, and they must be connected correctly according to the polarity of the module. Otherwise, the module will exhibit a low DC voltage fault.

1.6.4. Module AC primary port (J4)

The module AC primary ports are used for the power interface (see appendix for connector information). From left to right, they are N, L1, L2 and L3.

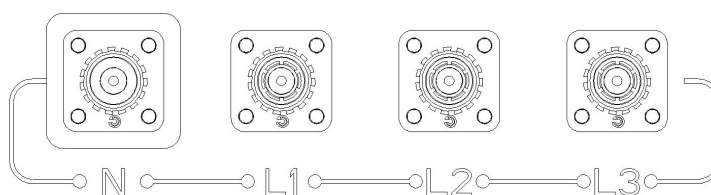


Figure 1-11 Module AC primary port



Note

- The phase sequence of the mains supply must not be reversed; it must be connected in accordance with the AC-side phase sequence of the module, otherwise a mains phase sequence error will occur in the module.
- For three-wire applications, in a single-unit system, the mains L1, L2 and L3 wires must be connected to the module's L1, L2 and L3 terminals, with the N wire left floating.
- For four-wire applications, in a single-unit system, the grid's N, L1, L2 and L3 wires must be connected to the module's N, L1, L2 and L3 terminals.
- For actual shipments, if four-wire modules are used, the N terminal must be configured; if three-wire modules are used, it is not configured by default.

1.7. Install the energy storage module

1.7.1. Air intake

Inlet air volume: $2.2 \times 6 \text{ m}^3/\text{min}$. (Wind pressure conditions: $P_{fa} [\text{Pa}] = 305$ or $P_{fa_1.44} [\text{IN H}_2\text{O}]$)



Note: It is recommended that the cabinet be equipped with an exhaust fan at the air outlet of the cabinet.

1.7.2. Installation Dimensions

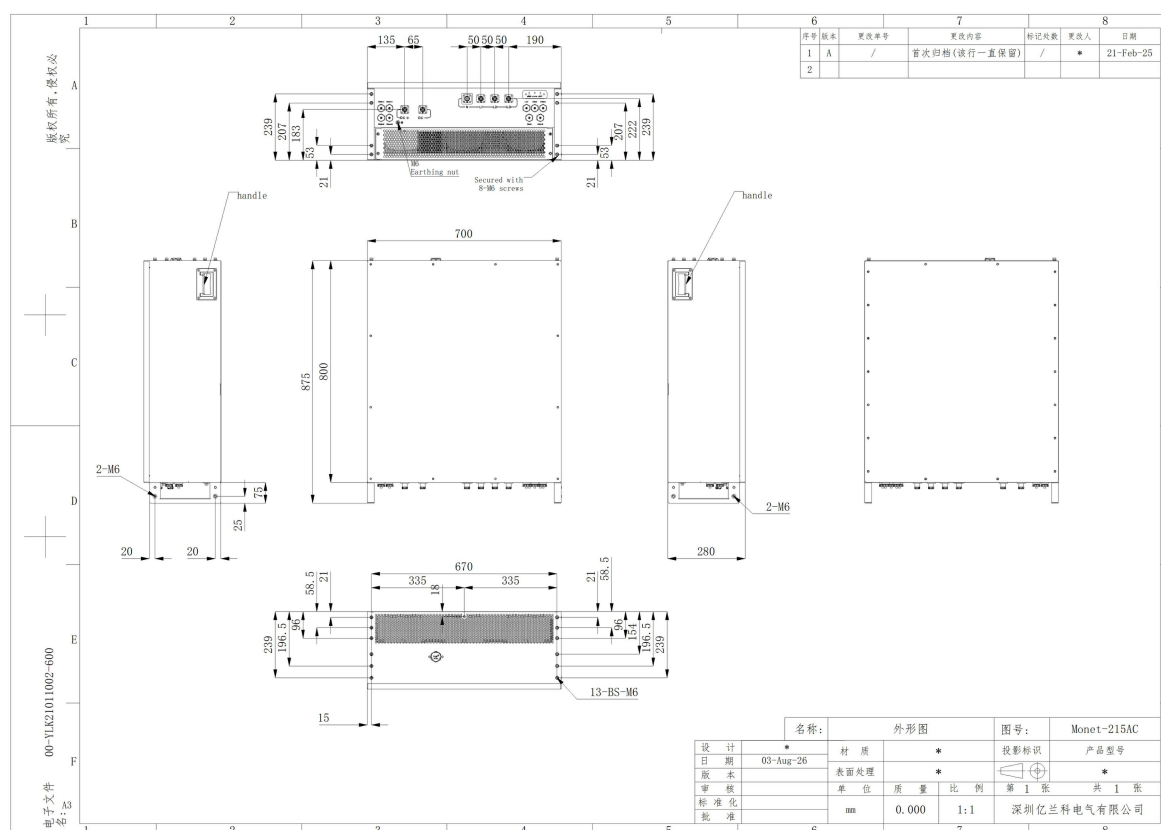
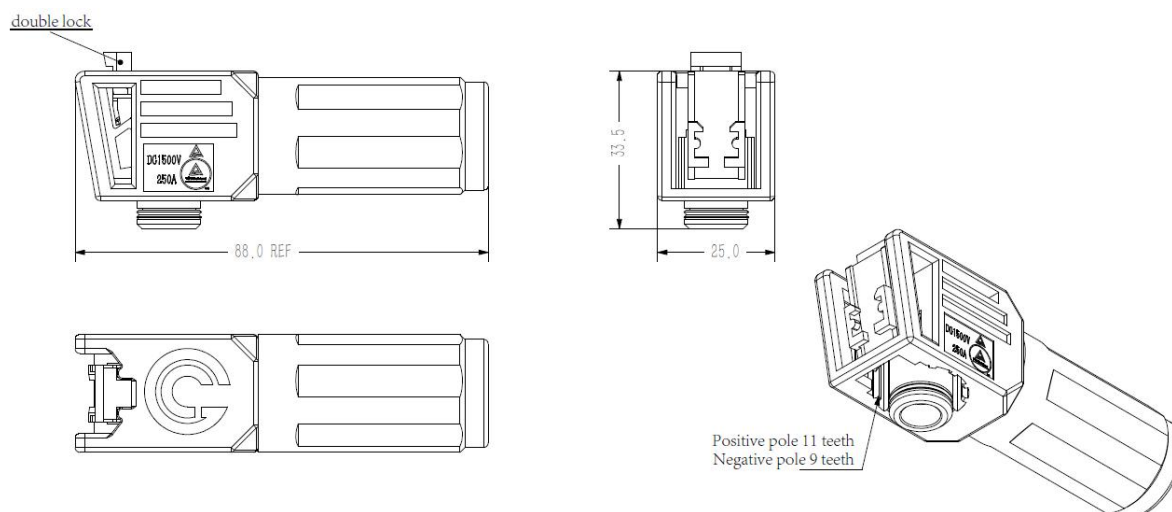


Figure 1-12 Product Installation Dimensions (Unit: mm)

Attachment

1. Terminal products Specification



1. Electrical performance:
 - 1.1 Rated current 250A, rated voltage 1500V DC, temperature rise $\leq 45K$; 1.2 Withstand voltage 6800V AC;
 - 1.3 Insulation resistance $> 5000 M\Omega$;
 - 1.4 Contact resistance $< 0.5 m\Omega$;
2. Mechanical properties:
 - 2.1 single core;
 - 2.2 Minimum 100 times of insertion and removal;

2.3 Insertion force 100N MAX;

2.4 Pulling force > 10N;

2.5 When plugging in, the plug and socket should not interfere with each other or get stuck.;

3. Environmental requirements:

3.1 Flame retardant rating: UL94V-0;

3.2 Protection rating: IP67 after male and female connectors are plugged together;

3.3 Operating environment: -40°C to +125°C;

3.4 Environmental protection: Compliant with RoHS requirements;

4. Materials and Surface Treatment:

4.1 Shell: PA66+25%GF;

4.2 Metal: Purple copper T2, silver-plated 120µm;

4.3 Rubber pad: Silicone rubber;

Monet Series

Energy Storage Converter

SPECIFICATION



1. Product Introduction

1.1. Model Description

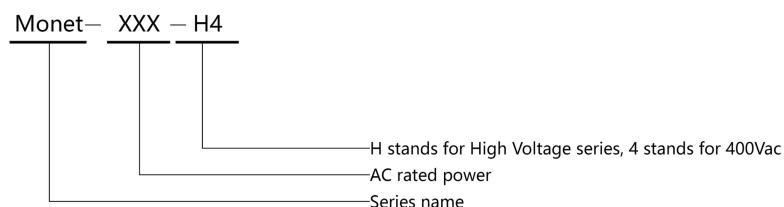


Figure 1-1 Model identification

1.2. Product Function

The Monet series of energy storage inverters integrates modular PCS units, an energy management and monitoring system, and a power distribution system. The use of modular PCS units facilitates maintenance and capacity expansion; a single cabinet can accommodate 7–12 module units as required, and the plug-and-play wiring design makes parallel operation easier.

Common application scenarios and operation strategies are as follows:

On-grid mode:

- Energy storage converter access to batteries, photovoltaic or other DC sources, through the AC / DC power module converted to AC power into the grid, can be realized: storage battery access to achieve peak shaving, tariff difference arbitrage. Photovoltaic power generation online to realize the profitability of power sales.

1.3. Electrical Wiring Diagram

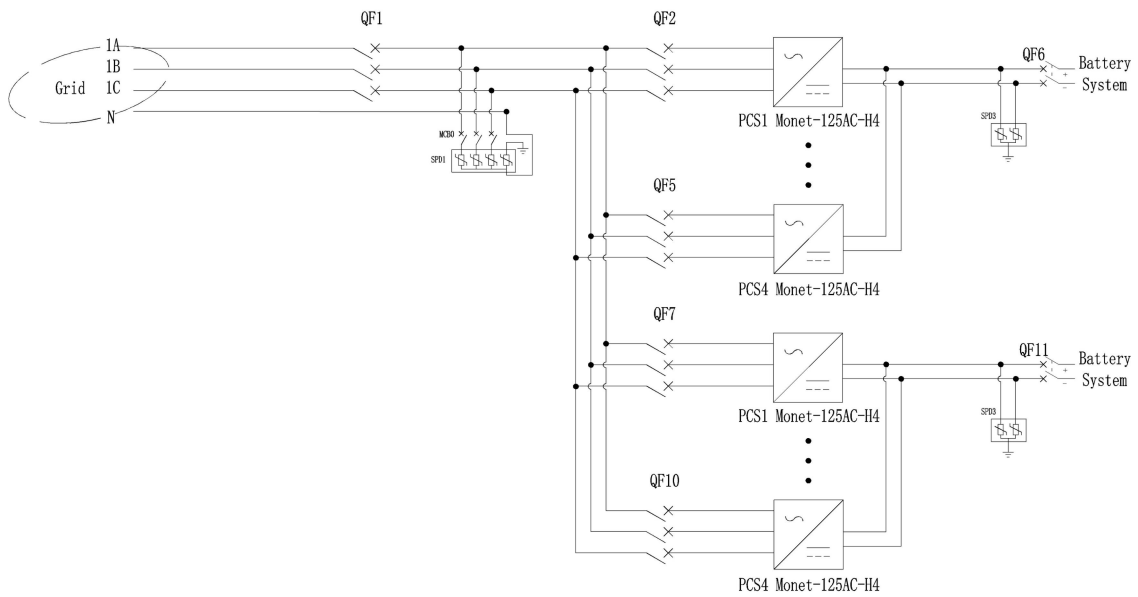


Figure 1-2 Monet-1000-H4 Electrical Primary Diagram

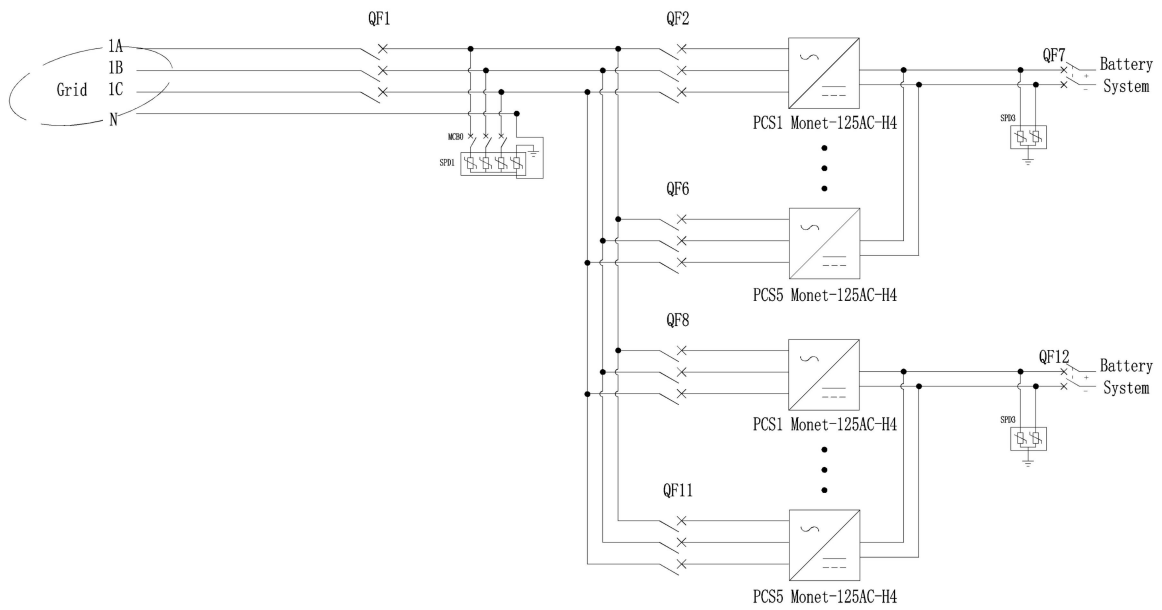


Figure 1-3 Monet-1250-H4 Electrical Primary Diagram

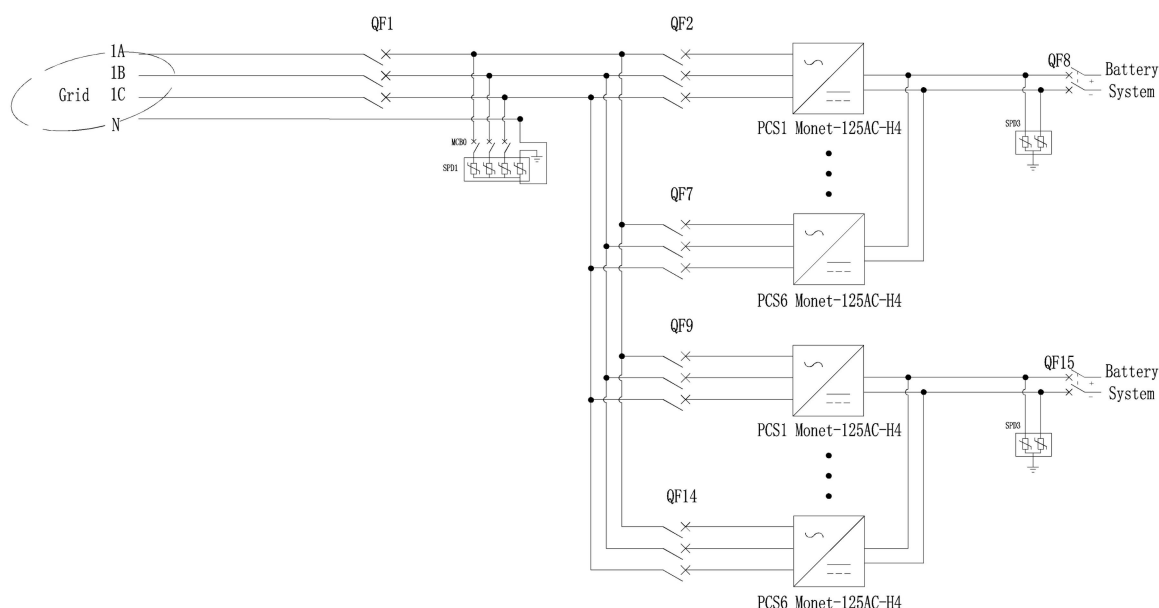


Figure 1-4 Monet-1500-H4 Electrical Primary Diagram



Description:

- **The system solution with grid-connected, input is equipped with different configurations for different projects, and the circuit may vary slightly. The actual drawings for shipment shall prevail.**

1.4. Product Features

The Monet series energy storage converters adopt advanced digital control technology and are equipped with the independently developed Lotus-Pcs microgrid management system, which optimizes control performance and improves system reliability to meet the needs of multiple application scenarios. Its performance characteristics are as follows:

- Meet the needs of various installation sites.
- Modular rack-mounted design, flexible configuration, easy expansion and maintenance.
- The power module adopts a three-level circuit design, which has high conversion efficiency and improves power utilization.
- The local control panel can achieve diversified functions such as converter operation monitoring, energy management strategy development, equipment remote upgrading, etc.

1.5. Product Parameters

The following are typical configuration parameters for the Monet series energy storage converters. Actual delivery shall be subject to technical agreement.

Table 1-1 Energy storage converter Parameter List

<i>Model</i>	<i>Monet-1000-H4</i>	<i>Monet-1250-H4</i>	<i>Monet-1500-H4</i>
<i>DC-side parameters</i>			
<i>Operate voltage range</i>	680~1500V	680~1500V	680~1500V
<i>Full-load voltage range</i>	680~1500V	680~1500V	680~1500V
<i>Maximum DC current</i>	206A*4*2	206A*5*2	206A*6*2
<i>AC-side parameters (On-grid)</i>			
<i>Rated AC power</i>	1000kW	1250kW	1500kW
<i>Rated AC current</i>	180.4A*4*2	180.4A*5*2	180.4A*6*2
<i>Rated AC voltage</i>	400V, 3W+PE/3W+N+PE	400V, 3W+PE/3W+N+PE	400V, 3W+PE/3W+N+PE
<i>Rated AC frequency</i>	50/60Hz±5Hz	50/60Hz±5Hz	50/60Hz±5Hz
<i>THDi</i>	< 3% (Rated power)	< 3% (Rated power)	< 3% (Rated power)
<i>Power Factor</i>	-1leading to+1 lagging	-1leading to+1 lagging	-1leading to+1 lagging
<i>General parameters</i>			
<i>Degree of protection</i>	IP55, C4 corrosion protection	IP55, C4 corrosion protection	IP55, C4 corrosion protection
<i>Isolation method</i>	Non-isolation	Non-isolation	Non-isolation
<i>Display</i>	LCD	LCD	LCD
<i>Relative humidity</i>	0 ~ 100% (no condensation)	0 ~ 100% (no condensation)	0 ~ 100% (no condensation)
<i>Noise</i>	< 78dB	< 78dB	< 78dB
<i>Ambient temperature</i>	-30°C to +60°C(derating above 45°C)	-30°C to +60°C(derating above 45°C)	-30°C to +60°C(derating above 45°C)
<i>Cooling mode</i>	Intelligent air-cooled	Intelligent air-cooled	Intelligent air-cooled
<i>Altitude</i>	3000m (> 3000m reduction)	3000m (> 3000m reduction)	3000m (> 3000m reduction)
<i>Communication interface</i>	RS485/CAN/Ethernet	RS485/CAN/Ethernet	RS485/CAN/Ethernet
<i>Dimensions (W * D * H)</i>	2000*1800*2300mm	2000*1800*2300mm	2000*1800*2300mm
<i>Weight (approx.)</i>	2250kg	2420kg	2500kg