

DYNESS

C&I Product Training

 Product Management Department

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01 Product Introduction



C&I EnerCore Outdoor Series

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Product model	DH200F	DH100F	DH200Y	DH800Y	BF100	BF200
Appearance						
Name	Air-cooling PV+ESS cabinet	Air-cooling PV+ESS cabinet	Liquid-cooling on-gird cabinet	Liquid-cooling on-gird cabinet	Air-cooling battery cabinet	Air-cooling battery cabinet
Function	On-gird, off-grid, DC PV, DG control	On-gird, off-grid, DC PV, DG control	400V on-grid product	690V on-grid product	Match third-party PCS	Match third-party PCS
Specification	100kW/215kWh	35/40/50kW / 71/86/100kWh	100kW/232kWh	2H: 420kW/836kWh 4H: 210kW/836kWh	86/100kWh	215kWh
AC parallel	On-grid: 12 unit Off-grid: 5 unit	On-grid: 8 unit Off-grid: 4 unit	On-grid: 10 unit	2H: on-grid 10 unit 4H: on-grid 20 unit	Follow with PCS	Follow with PCS
Cell	280Ah	280Ah	280Ah	314Ah	280Ah	280Ah
Protection grade	IP55, C3	IP55, C3	IP55, C3/C5	IP55, C4	IP55, C3/C4	IP55, C4

DH200F Air-cooling System

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Product Orientation :

The DH200F Outdoor Air-Cooled PV-ESS features an integrated multi-functional design **that supports photovoltaic integration and off-grid switching(< 20ms), covering full-scenario applications for solar storage and diesel systems.** It can support up to 12 AC parallel-connected units with expandable capacity up to 2.58MWh. Equipped with intelligent high-efficiency STS, the system achieves off-grid switching in under 20ms, ensuring stable power supply. This provides users with peak shaving, valley filling, emergency backup power, and ancillary services.

Flexible Expansion

Supports up to 12 AC parallel machines, which can be expanded to 2.58MWh; reserved DC external interface for easy adaptation to expansion needs

Ultimate Safety

Third-level fire detection, explosion-proof ventilation design, combined aerosol and water fire fighting double fire fighting, full stack safety protection system

DC Couples with PV

Supports up to 3 MPPT photovoltaic tributary access, up to 150kW, easily adapt to all kinds of photovoltaic access needs

Stable Power Supply

Equipped with intelligent and efficient STS, and off-grid switching time is less than 20ms, to ensure stable power supply

Flexible Wiring

Support multiple wiring methods, reduce site restrictions, reduce installation difficulty and cost

All-scenario Applications

Support photovoltaic, diesel generator, charging pile and other AC coupling full scenario applications



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Suitable for applications such as DC PV systems & DG control

DH200F Model & Parameter

No.	Model	Description
1	DH200F -S000L00	All-in-One Cabinet, no photovoltaic, on-grid only
2	DH200F -S000L01	All-in-One Cabinet, no photovoltaic, on-and-off-grid
3	DH200F -S150L01	All-in-One Cabinet, 150kW PV, on-and-off-grid

Model rules:

DH: Dyness high pressure series

200: Product battery capacity

F: Air cooling system

S: PV, the number after S is pv power, 000 means no PV configuration, 150 means access to 150kW PV

L: Off-grid, L followed by the number 00 is a on-grid version, 01 is on-and-off-grid version

Model	DH200F
Battery	
Battery Type	LFP (LiFePO ₄)
Battery Capacity	280Ah
PACK Configuration	1P16S
PACK Quantity	15 PACK/Cluster
Rated Current	140A
Max. Current	160A
Voltage Range	672~864Vdc
Nominal Capacity	215kWh
AC (On-grid):	
Rated Power	100kW
AC Maximum Current	167A
AC Rated Voltage	400Vac
Wiring Method	3P4L+PE
Frequency	50Hz/60Hz
Power Factor	1(Leading)~1(Lagging)
THDi	≤3% (Rated power)
Max. Number Of Parallel Expansions	12
AC(Off-grid):	
Rated Power	100kW
AC Rated Voltage	400Vac
AC Maximum Current	167A
Wiring method	3P4L+PE
Frequency	50Hz/60Hz
Unbalanced Load	100%
THDv	< 3% (Liner load)
Max. Number Of Parallel Expansions	5
Photovoltaic	
Max. Input Power	50kW (Power 1.1 times overload)
Max. Input Current	100A
Short-circuit Current	150A
Max. Voltage	670Vdc
Input Voltage	200-670Vdc
Start-up Voltage	250Vdc
MPPT Path	0~3
System	
Weight	2800±100kg
Dimension (W*D*H)	1850*1265*2250mm
Max. Efficiency	≥87% (TBD)
Air Conditioner Power	3kW (Cooling), 1kW (Heating)
Temperature	-20~50°C(Derating above 40°C)
Humidity	0~95%RH (Non-condensing)
Ingress Protection	IP55
Anti-corrosion Grade	C3
Cooling Method	Air cooling
Noise	≤75dB
Elevation	3000m (Derating above 2000m)
Display	Touch screen
Fire Protection	Aerosol
Communication	Ethernet/4G/RS485
Certification	CQC, CE, TUV

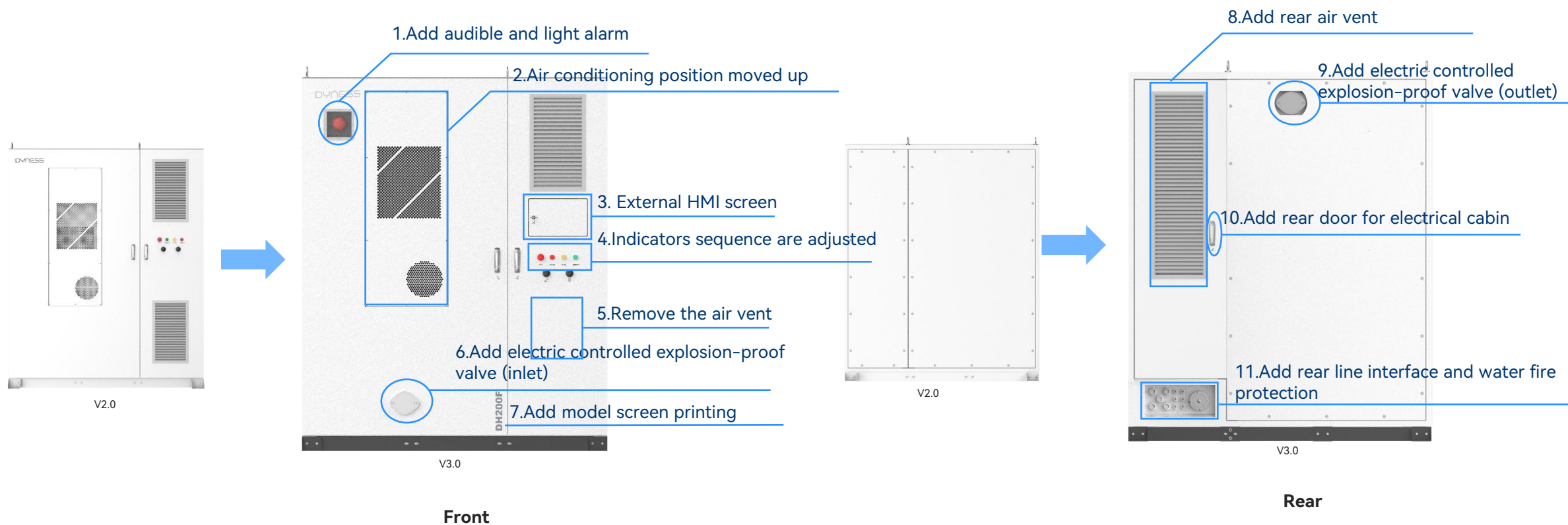
DH200F V3.0 Update —— Parameter Differences

Update Points:

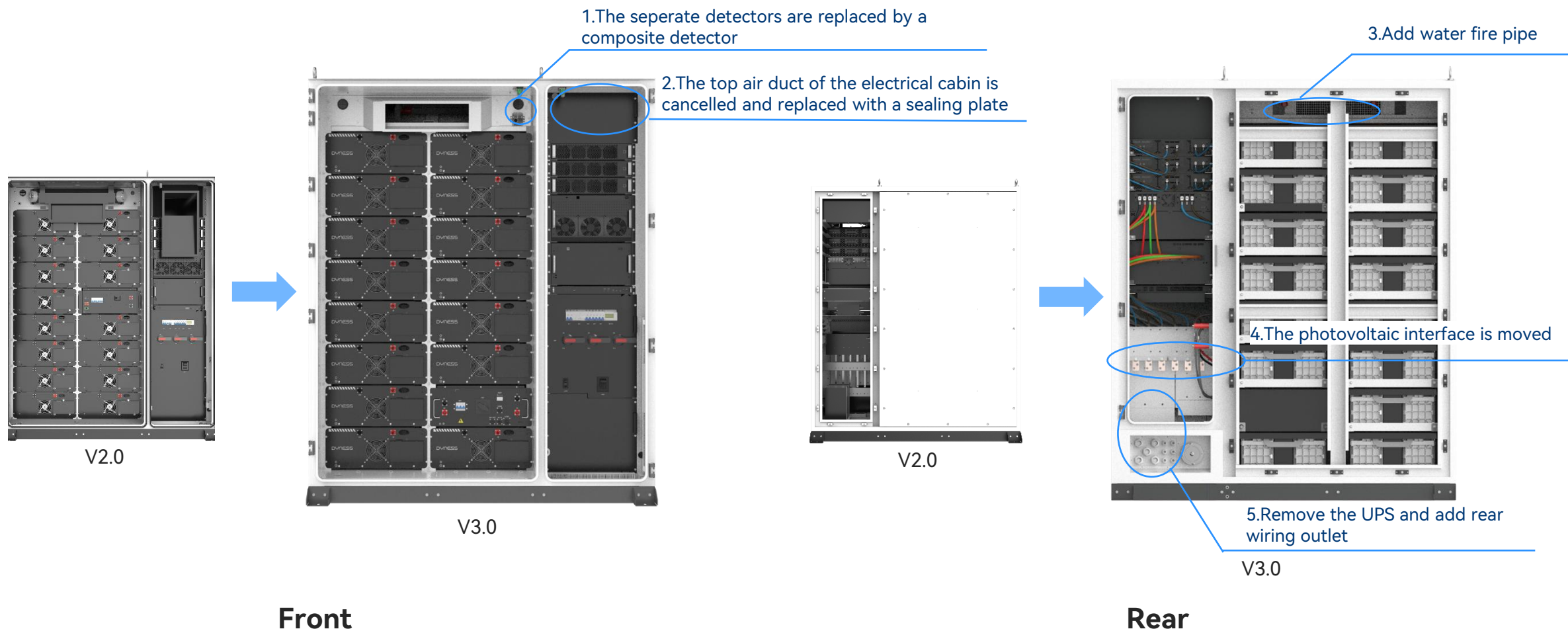
- Battery Voltage: 672~864Vdc → 696~864Vdc
- PV Configuration: PV optional 1~3 channels → PV optional 0/3 channels (1-2 MPPT is cancelled)
- Working Temperature: -20~50°C (derating above 40°C) → -20~50°C (derating above 45°C)
- Noise: ≤ 75dB → ≤ 70dB
- Fire Control: increase water fire, audible and visual alarm, explosion-proof ventilation system
- Model Configuration: 16 domestic and European versions → 3 European versions (European version is also available in domestic)

DH200F-S000L00 (no MPPT, no STS)
DH200F-S000L01 (no MPPT, with STS)
DH200F-S150L01 (with MPPT, with STS)

DH200F Updates-Appearance Difference

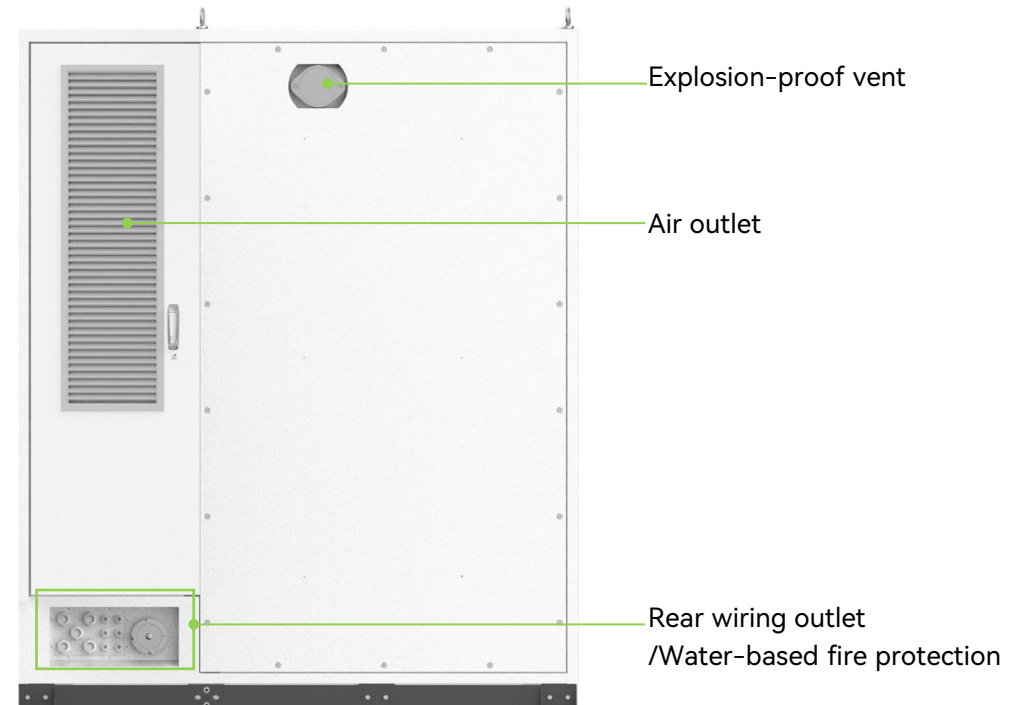
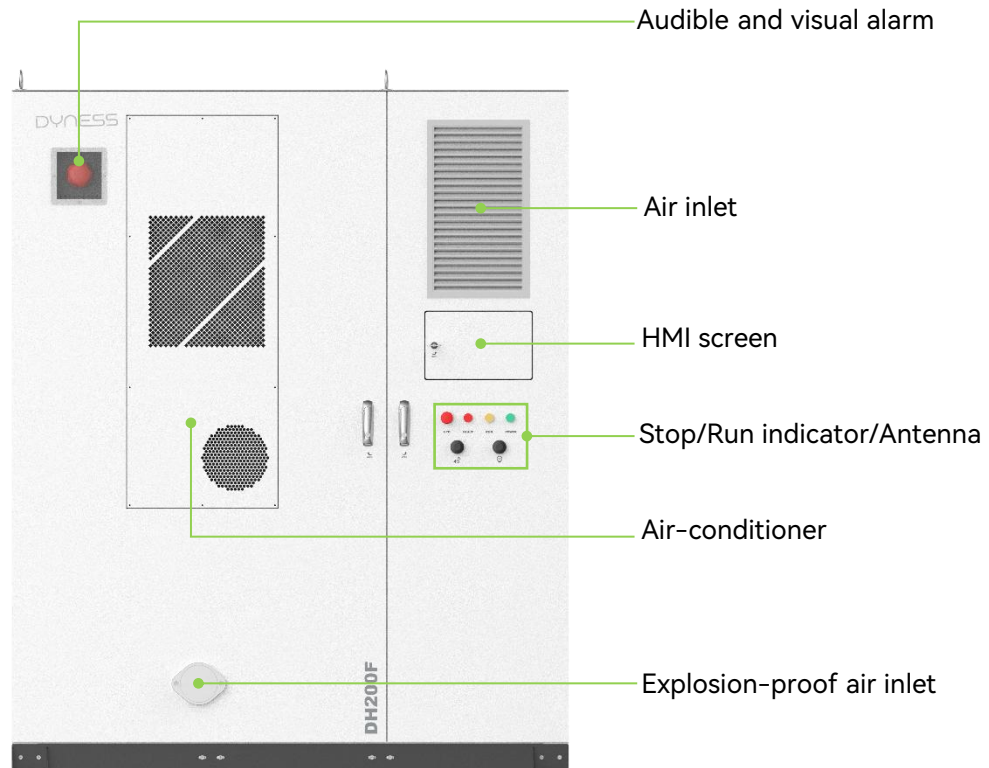


DH200F Updates-Internal Difference



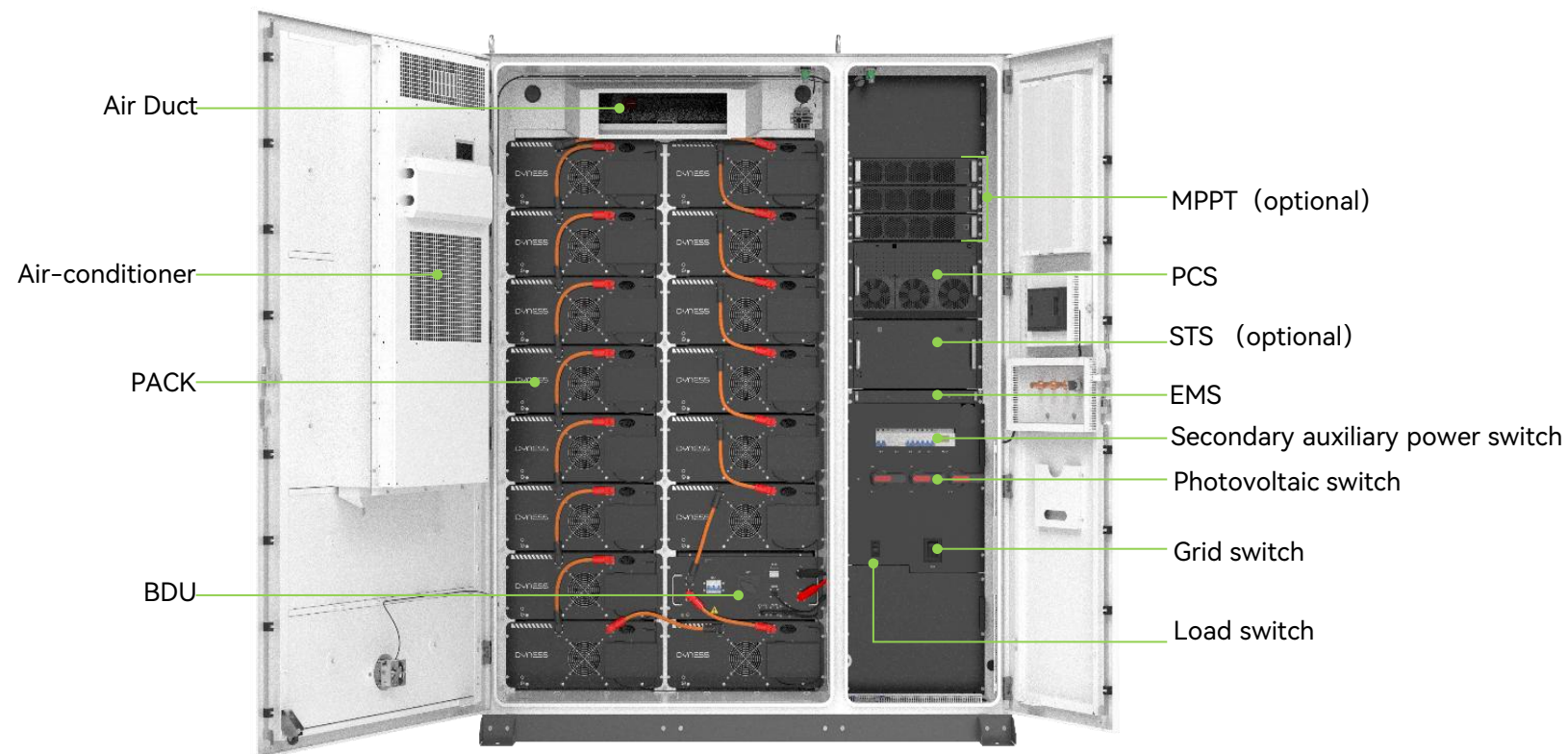
DH200F V3.0 External Design

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DH200F V3.0 Internal Design

- All-In-One
- Modular Design
- IP55 Protection Grade
- C3 Anti-corrosion Grade
- Rear/Bottom Wiring Outlet

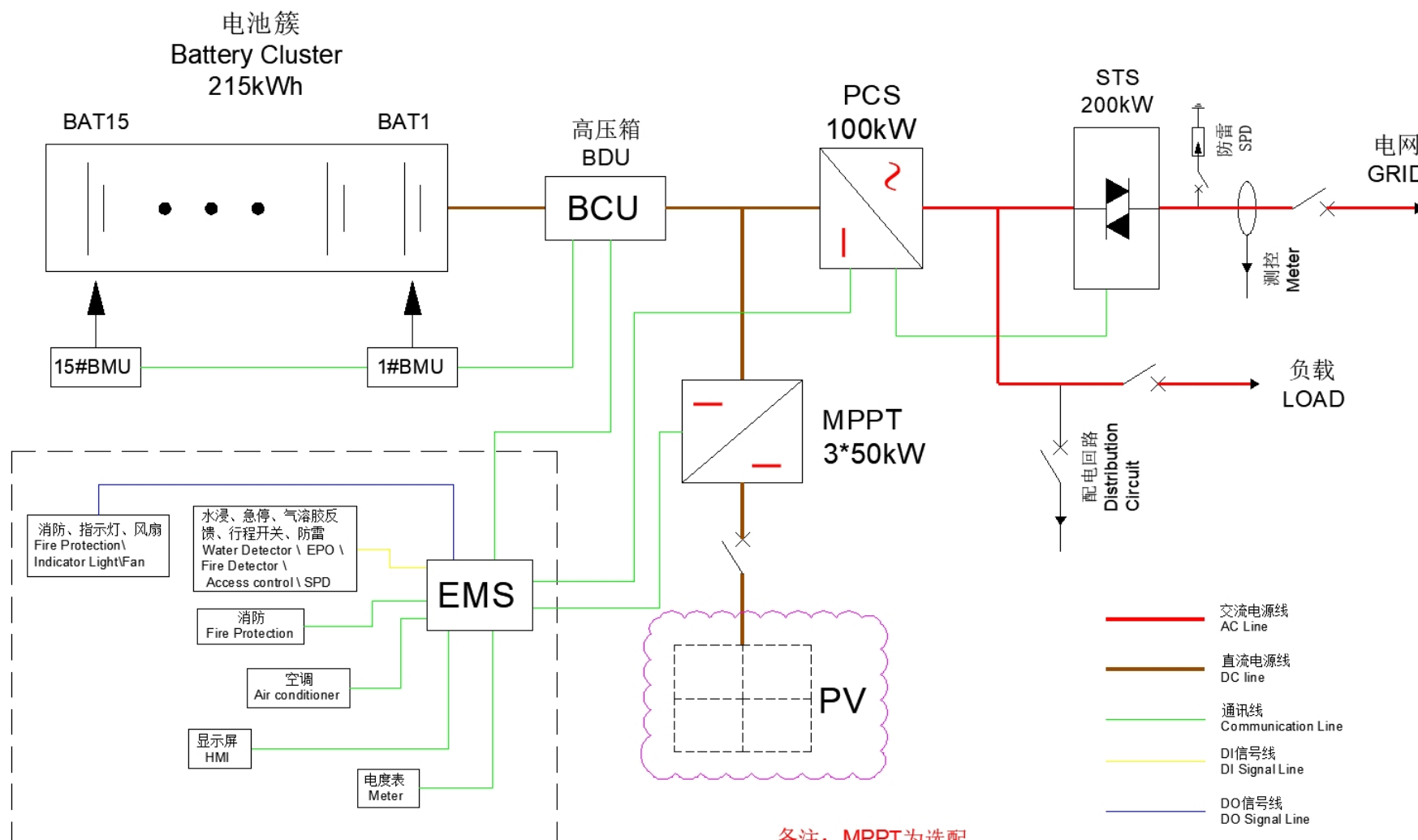




Product Module List of DH200F

Module Name	Function	Qty.	Config.
PACK	Used for electric energy storage to provide stable and continuous power output for the system	15	standard
PCS	Realize the conversion between DC and AC	1	standard
EMS	System energy management and control	1	standard
BDU	Battery control unit and power distribution	1	standard
MPPT	The input power of photovoltaic can be dynamically adjusted to improve the power generation efficiency of the photovoltaic storage system	3	optional
STS	On-and-off-grid switch	1	optional
Security & Fire Fighting Systems	Provide access protection, emergency response, fire prevention, effective fire fighting, etc.	1	standard
Air Conditioning system	Adjust the working temperature of the battery to ensure that the battery operates at the most suitable temperature	1	standard

DH200F System Topology Diagram



备注: MPPT为选配
Note: MPPT are optional



DH100F Air-cooling System

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DH100F supports DC PV access and on-grid to off-grid switching. It encompasses the whole scenario of photovoltaic, storage and diesel generator. The single cabinet capacity of 71/86/100kWh optional, allowing for customization based on electricity consumption needs. This system is ideal for office parks, commercial buildings, charging stations, and other small industrial and commercial applications.

Flexible Expansion

Single cabinet capacity of 71/86/100kWh optional, supports on-grid & off-grid operation.

Safe & Reliable

Three-level fire detection + active exhaust + passive explosion-proof ensure safe operation

IP55+C3

Fearless of outdoor installation, strong environmental adaptability

Simple O&M

Modular design, rear outlet and lower outlet mode, easy to install, easy to layout, easy to maintain

Full Scenario

Supports AC-coupled integration with PV, diesel generators, EV chargers, and all energy scenarios



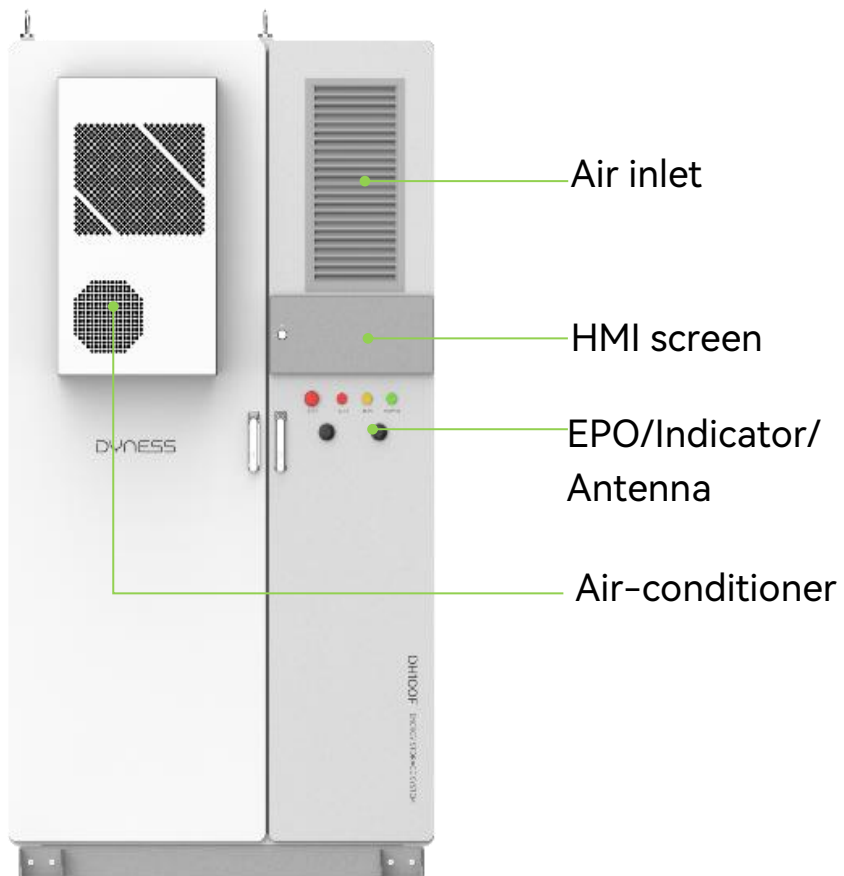
DYNES

Suitable for applications such as DC PV systems & DG control

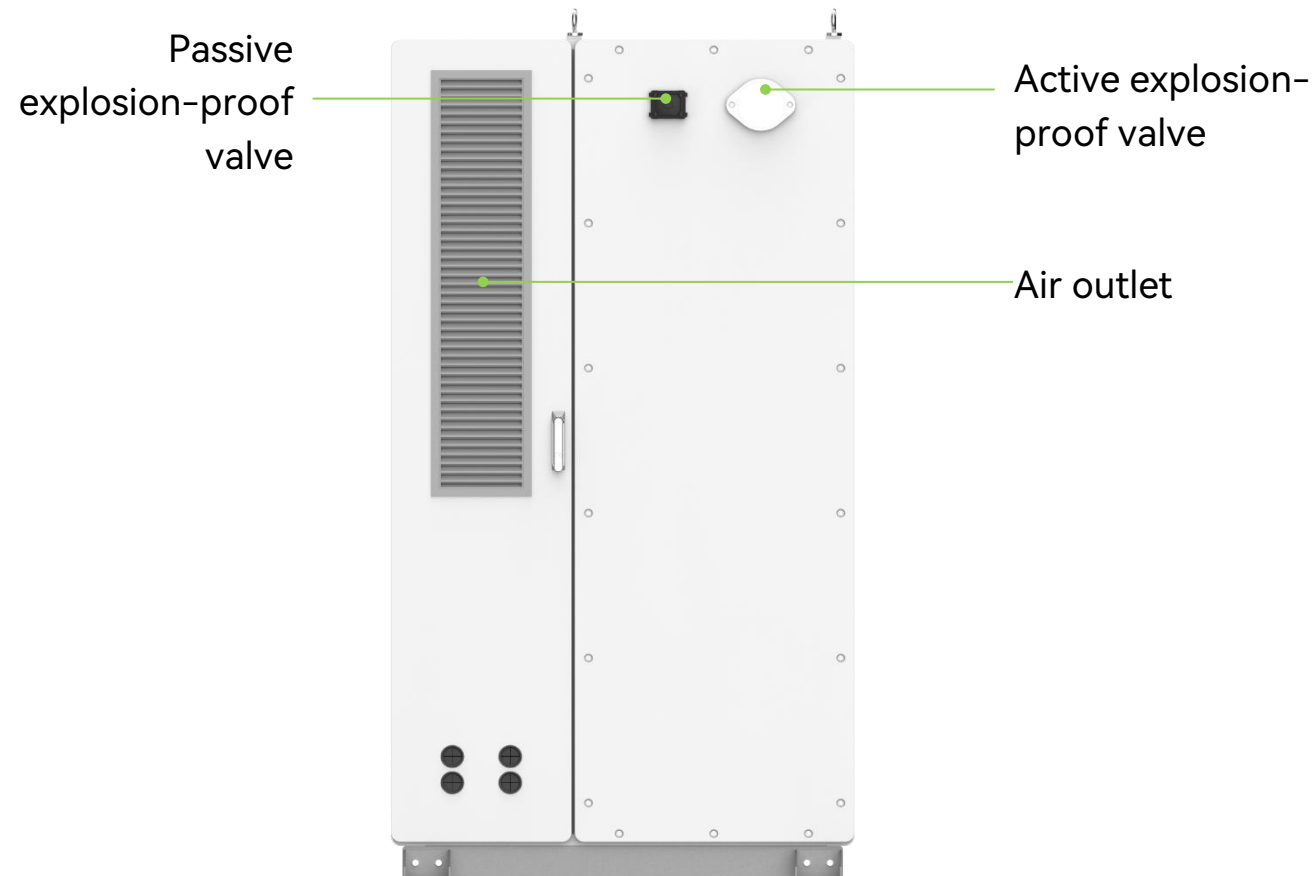


DH100F External Design

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Front



Rear

DH100F Internal Design

- All-in-One
- Modular Design
- IP55 Protection Grade
- C3 Anti-Corrosion Grade



DH100F Model & Parameter

No.	Model	Description
1	DH100F-S00L01C70	PV+ESS cabinet, no MPPT, system capacity 71kWh
2	DH100F-S02L01C70	PV+ESS cabinet, 2 MPPT, system capacity 71kWh
3	DH100F-S00L01C80	PV+ESS cabinet, no MPPT, system capacity 86kWh
4	DH100F-S02L01C80	PV+ESS cabinet, 2 MPPT, system capacity 86kWh
5	DH100F-S00L01C100	PV+ESS cabinet, no MPPT, system capacity 100kWh
6	DH100F-S02L01C100	PV+ESS cabinet, 2 MPPT, system capacity 100kWh

Model rules

DH: Dyness high voltage series

100: Battery capacity of standard model

F: Fan/air-cooling system

S: Solar, the number after “S” is MPPT channels, “00” means no MPPT, “02” means 2 MPPT

L: On&off-grid, the number 01 after L is on&off-grid version

C: System capacity, the number after “C” means the system capacity of different model, unit: kWh

Model	DH100F-C70		DH100F-C80	DH100F-C100
Battery				
Battery Type	LFP (LiFePO ₄)			
Battery Capacity	280Ah			
Rated Current	140A			
Max. Current	160A			
PACK Configuration	1P16S*5	1P16S*6	1P16S*7	
Voltage Range	232~288Vdc	278.4~345.6Vdc	324.8~403.2Vdc	
Nominal Capacity	71kWh	86kWh	100kWh	
On-grid AC Side				
Rated Power	35kW	40kW	50kW	
AC Maximum Current	60A	74A	86A	
AC Rated Voltage	400Vac			
Wiring Method	3P4L+PE			
Frequency	50Hz/60Hz			
Power Factor	0.8 (Leading)~0.8 (Lagging)			
THDi	< 5% (Rated power)			
Off-grid AC Side				
Rated Power	35kVA	40kVA	50kVA	
AC Maximum Current	60A	74A	86A	
AC Rated Voltage	400Vac			
Wiring Method	3P4L+PE			
Frequency	50Hz/60Hz			
Unbalanced Load	100%			
THDv	< 3% (Liner load)			
Photovoltaic (Optional)				
Max. Input Power	25kW*2	30kW*2	35kW*2	
Max. Input Current	80A*2			
Short-circuit Current	100A			
Input Voltage Range	300~1000Vdc	350~1000Vdc	400~1000Vdc	
Start-up Voltage	375Vdc	440Vdc	500Vdc	
MPPT Path	2			
System				
Weight	1500±100kg	1600±100kg	1700±100kg	
Dimension (W*D*H)	1200*1205*2260mm			
Max. Efficiency	84%			
Air Conditioner Power	2kW (Cooling), 1kW (Heating)			
Operating Temperature	-20~50℃ (Derating above 45℃)			
Operating Humidity	0~95%RH (Non-condensing)			
Ingress Protection	IP55			
Anti-corrosion Grade	C3			
Cooling Method	Air-cooling			
Noise	≤70dB			
Elevation	3000m (Derating above 2000m)			
Display	Touch screen			
Fire Protection	Aerosol, Multi-sensor/Water ingress, Explosion-proof ventilation			
Communication	Ethernet/4G/RS485			
Certification	CE, LVD, UN38.3			

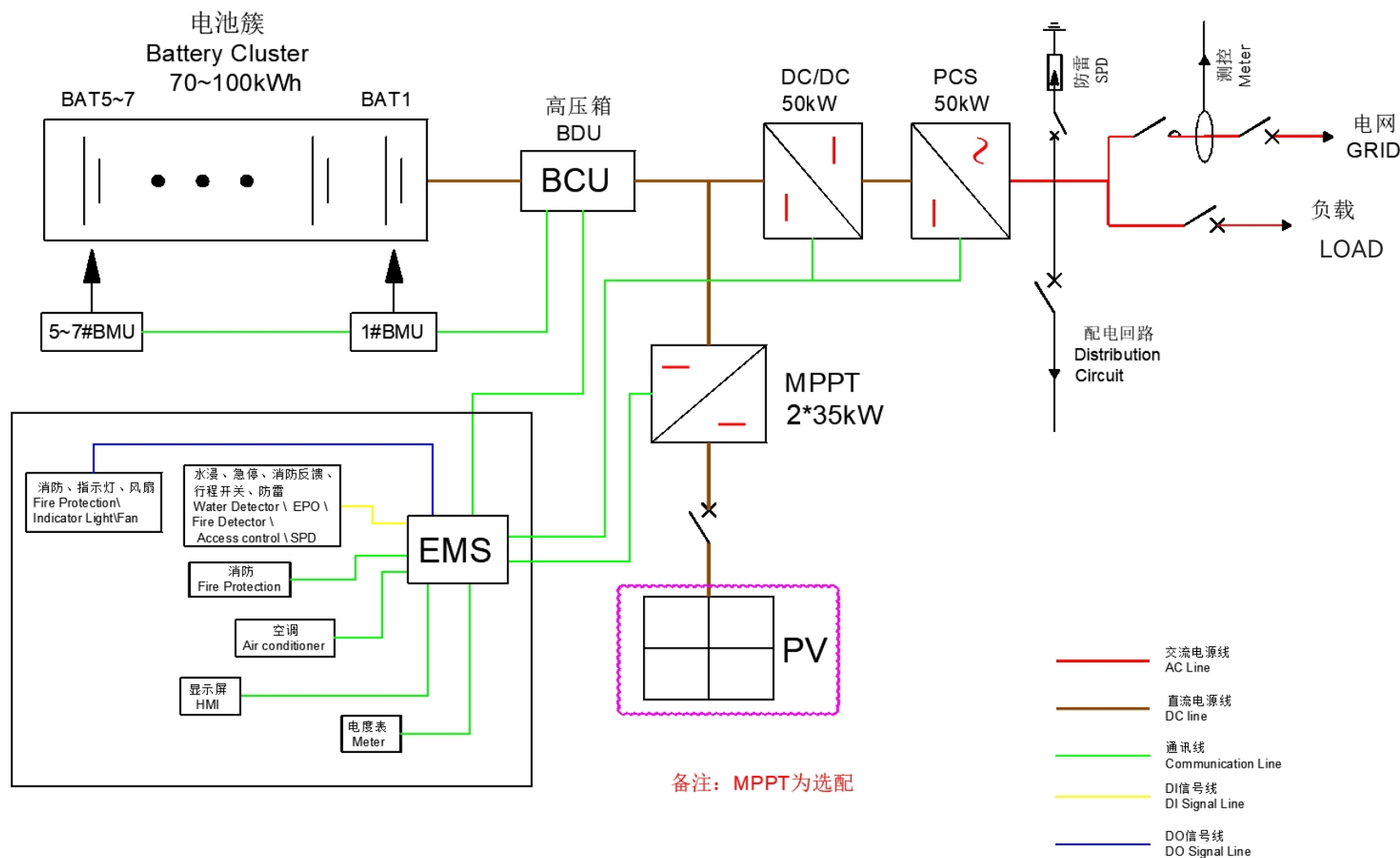


Product Module List of DH100F

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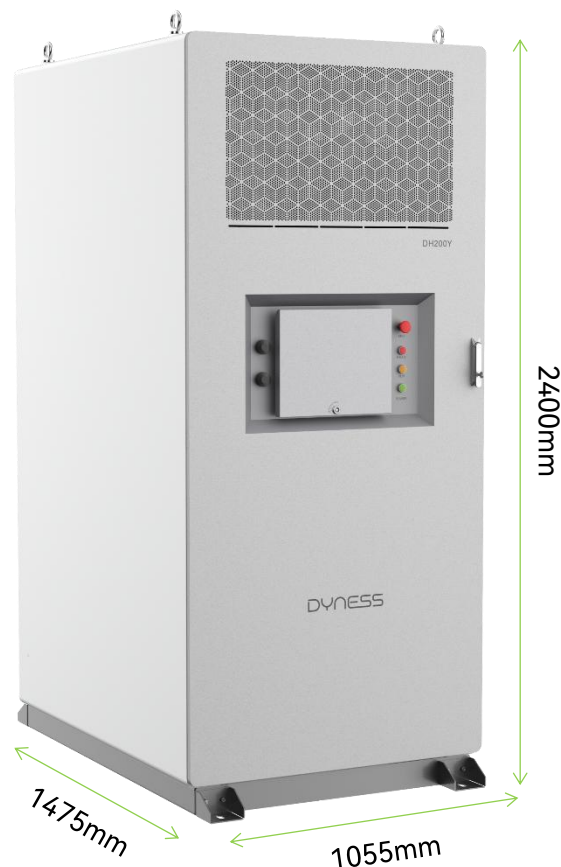
Module	Function	Qty.	Config.
PACK	Used for energy storage, providing stable and continuous power output to the system.	5~7	Standard
PCS	Enables bidirectional conversion between direct current and alternating current.	1	Standard
BDU	Battery control unit and high-voltage power supply.	1	Standard
DC/DC	Implement DC high/low voltage switching, connect to battery and PCS DC side.	1	Standard
MPPT	Support MPPT mode for PV access.	0/2	Optional
Distribution module	AC power distribution, protection, and system energy management control	1	Standard
Security & Fire protection system	Provides intrusion protection, fire prevention, and effective fire extinguishing for equipment.	1	Standard
Air conditioner system	Adjust battery working temperature to ensure it works under optimal temperature.	1	Standard

DH100F System Topology Diagram



DH200Y Liquid-cooling System

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Not applicable to DC PV scenarios

DH200Y is a high-safety and high-energy-density **Outdoor Liquid-cooling on-grid cabinet** with DC1000V. It is suitable for on-grid projects such as office parks, commercial buildings, and charging stations. Single-cabinet capacity 232 kWh, supports a maximum of 10 units in parallel, up to 2.3 MWh.

Flexible Expansion

Maximum support for 10 units in AC parallel, up to 2.3MWh; reserved DC expansion port

Economical

Occupies an area of 1.58m², energy density up to 147kWh/m², low installation costs

Ultra Safe

Three-level fire detection + active exhaust + passive explosion-proof ensure safe operation

Smart Temperature Control

PACK smart liquid-cooling + PCS smart air-cooling, cluster-level temperature difference $\leq 3^{\circ}\text{C}$

High Level Protection

PACK+PCS IP65, C3/C5 anti-corrosion grade optional

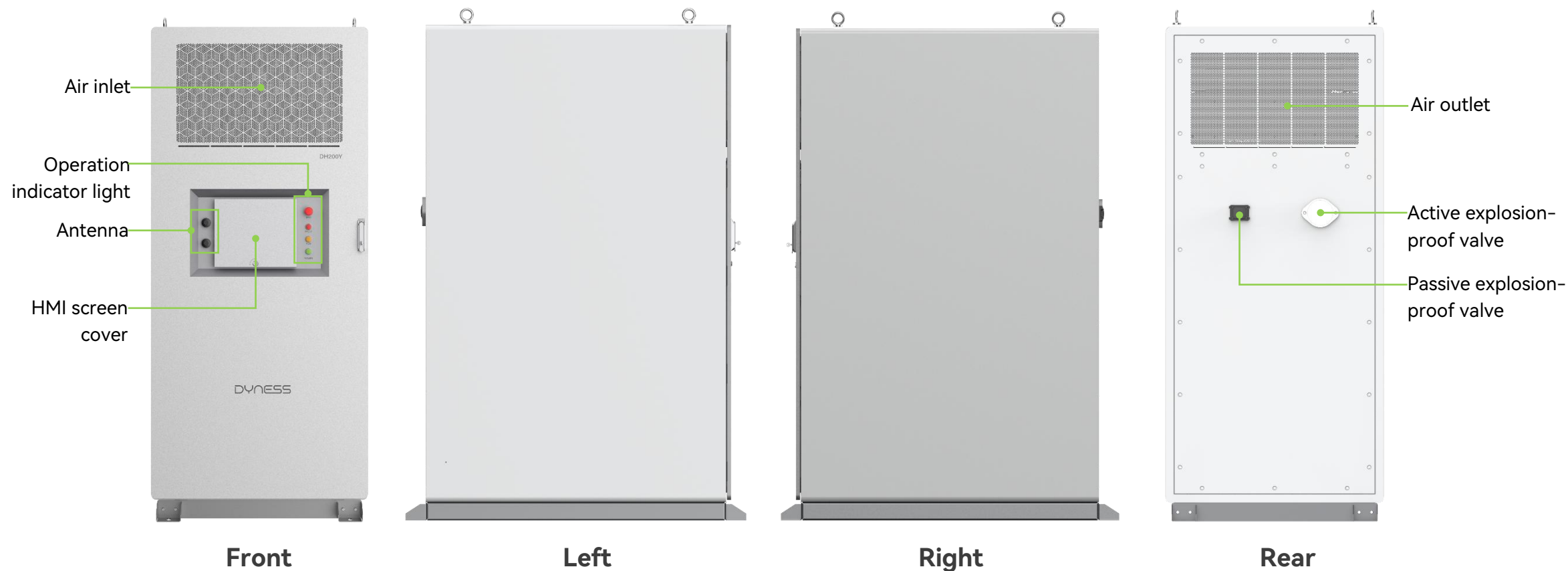
Simple O&M

Modular design, pre-maintenance solution, easy to install, easy to layout, easy to maintain

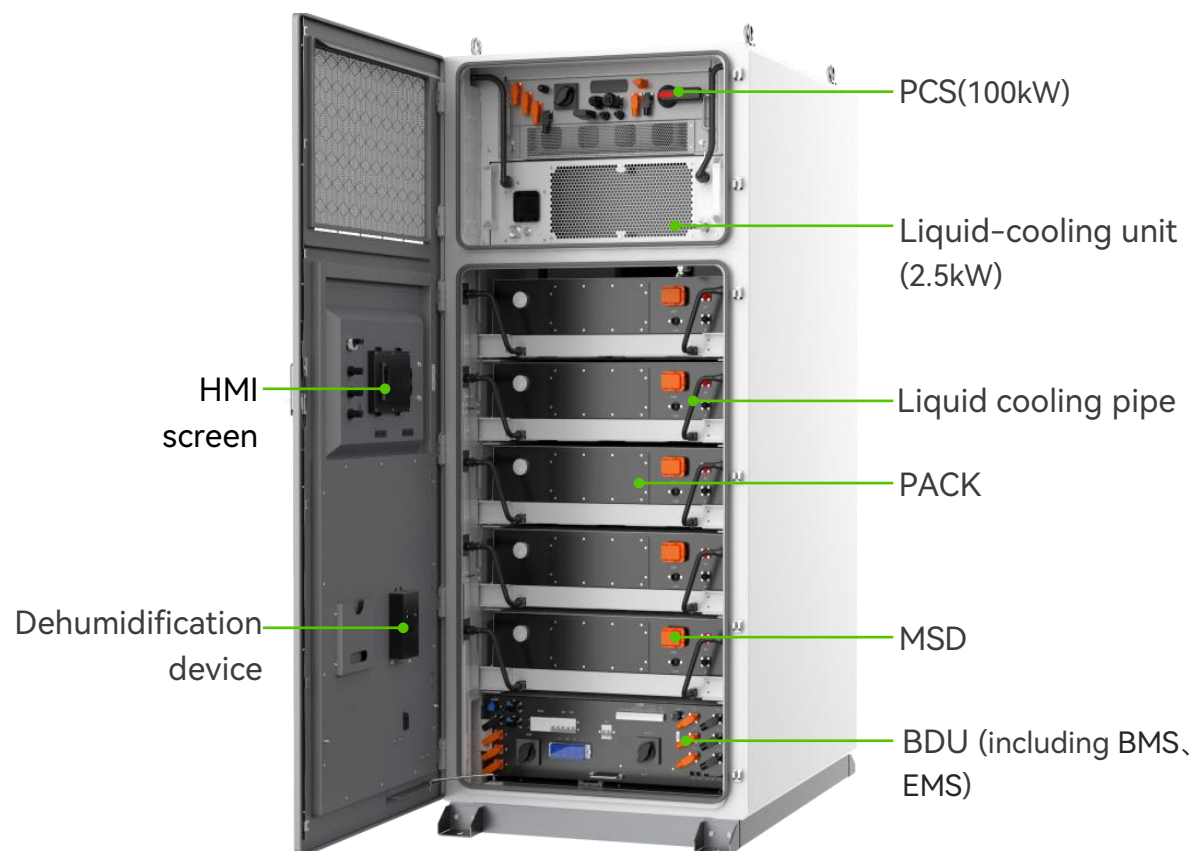
DYNES

DH200Y External Design

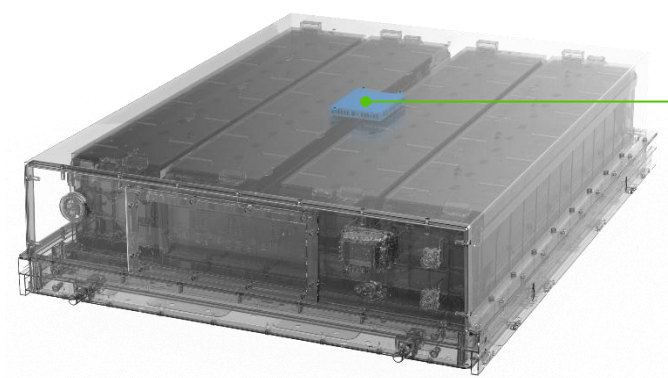
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DH200Y Internal Design

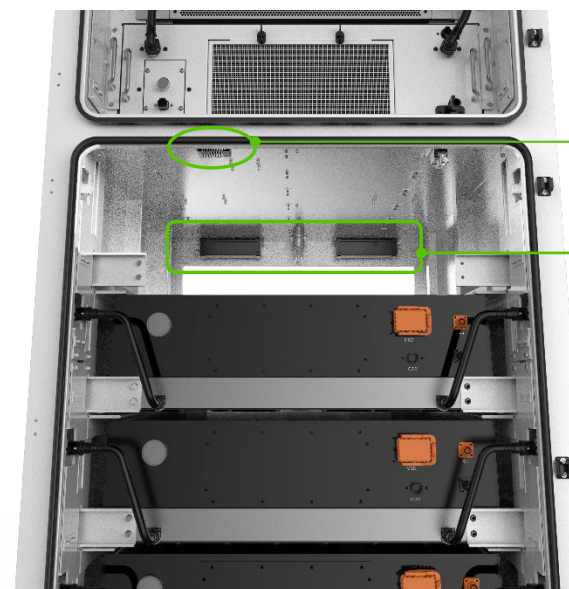


- Up / Down **separation design**, compact footprint
- The battery compartment adopts air cooling (front-in, rear-out), while the electrical compartment uses liquid cooling (left-in, right-out).



PACK
aerosol

Thermal triggered



Composite
detector

Aerosol*2

Thermal triggered/ Electric triggered

- **Thermal triggered:** When battery compartment temperature rises to above 185°C or flames.
- **Electric triggered:** When the composite detector detects a fire, EMS will immediately trigger the aerosol signal, 24V power supply.

DH200Y Model & Parameter

Product model:

No.	Model	Description
1	DH200Y-S000L00CN	On-gird cabinet, C3, China version
2	DH200Y Pro-S000L00CN	On-gird cabinet, C5, China version
3	DH200Y-S000L00EN	On-gird cabinet, C3, European version
4	DH200Y Pro-S000L00EN	On-gird cabinet, C5, European version

Model rules:

DH: Dyness high voltage series products

200: Battery capacity

Y: Liquid-cooling

Pro: C5 Anti-corrosion Grade (default level is C3)

S: Solar, the number after “S” is PV power, DH200Y **not support DC PV connection**

L: On&off grid, 00 is on-gird, 01 is on&off grid, DH200Y is on-gird product

CN: China version

EN: European version

Product parameter:

Model	DH200Y
Battery	
Battery Type	LFP (LiFePO ₄)
Battery Capacity	280Ah
PACK Configuration	1P52S*5
Rated Current	140A
Max. Current	160A
Voltage Range	754~936Vdc
Nominal Capacity	232kWh
On-grid AC Side	
Rated Power	100kW
AC Maximum Current	145A
AC Rated Voltage	400Vac
Wiring Method	3P4L+PE
Frequency	50Hz
Power Factor	1(Leading)~1(Lagging)
THDi	≤3% (Rated power)
Max. Number Of Parallel Expansions	10
System	
Weight	2600±100kg
Dimension (W*D*H)	1055*1475*2400mm
Max. Efficiency	90%
Liquid-cooling Power	2.5kW (Cooling), 2kW (Heating)
Operating Temperature	-20~50°C (Derating above 45°C)
Operating Humidity	0~95%RH (Non-condensing)
Ingress Protection	IP55
Anti-corrosion Grade	C3(Optional C5)
Cooling Method	PACK Liquid-cooling, PCS Air-cooling
Noise	≤75dB
Elevation	3000m (Derating above 2000m)
Display	Touch screen
Fire Protection	Aerosol, Multi-sensor/Water ingress, Explosion-proof ventilation
Communication	Ethernet/4G/RS485
Certification	CQC, CE, TUV, UN38.3

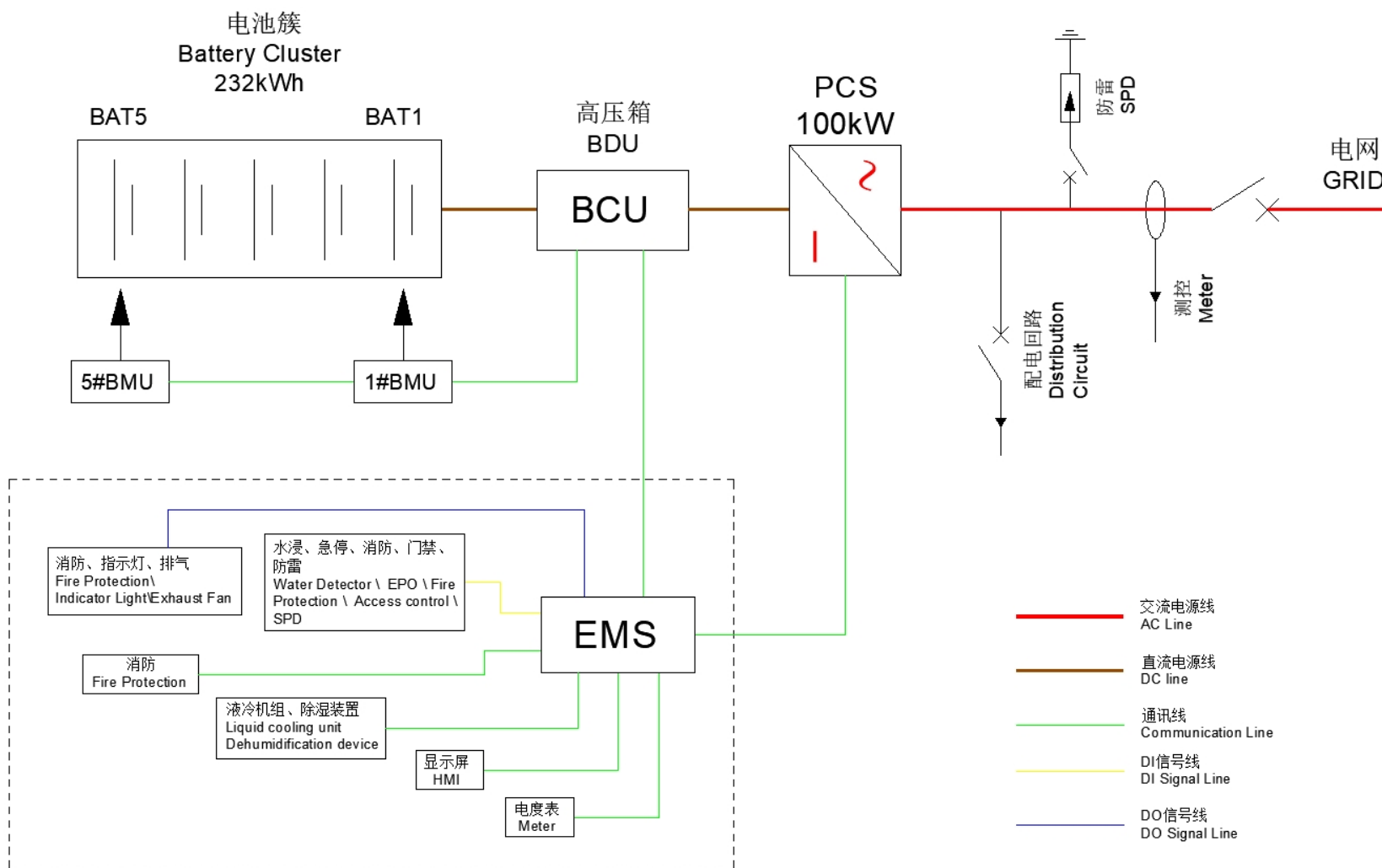


Product Module List of DH200Y

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Module	Function	Qty.	Config.
PACK	Used for energy storage, providing stable and continuous power output to the system.	5	Standard
PCS	Enables bidirectional conversion between direct current and alternating current.	1	Standard
BDU	Battery control unit and high-voltage power suppl, System Energy Management and Control	1	Standard
Security & Fire Fighting Systems	Provide access protection, fire prevention, effective fire fighting, etc.	1	Standard
Liquid-cooling system	Adjust the working temperature of the battery to ensure that the battery operates at the most suitable temperature	1	Standard

DH200Y System Topology Diagram



D BF100 Air-cooling System

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The BF100 is an outdoor air-cooling **battery cabinet**. It is air-cooling design and is equipped with a **3rd party inverter** to achieve AC output, and suitable for small-sized industrial and commercial scenarios.

Flexible Expansion

capacity options of 86/100kWh for one cabinet, supports two cabinets in parallel, with flexible capacity configuration

Easy O&M

Modular design, side outlet mode, easy to install, and easy to maintain

Safety and Reliability

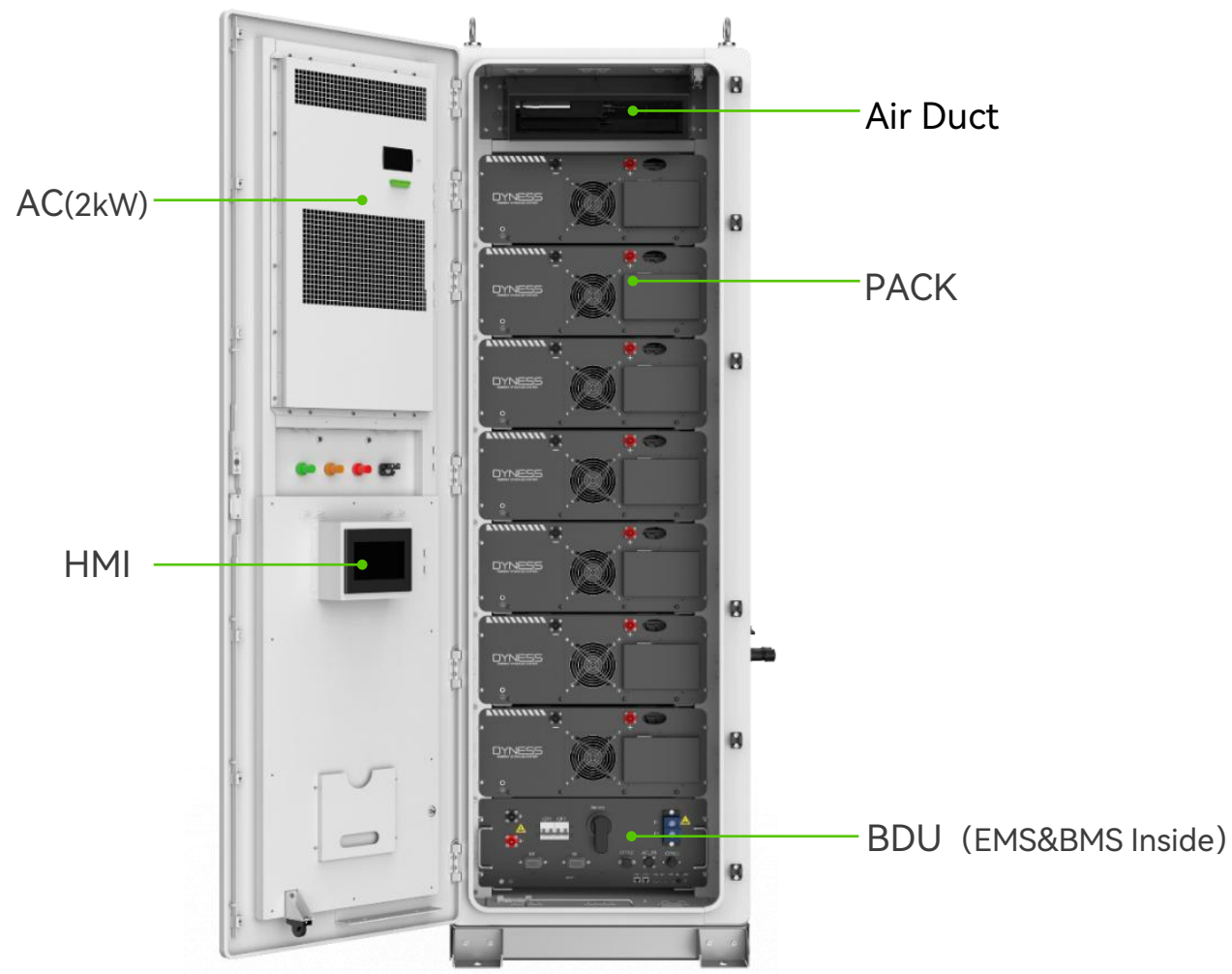
Three-level fire detection + active exhaust + passive explosion-proof design to eliminate hidden hazards and ensure safe operation

Ultra-long Lifespan

LFP battery, 8000+ cycles, supports up to 10 years of extended warranty for batteries.

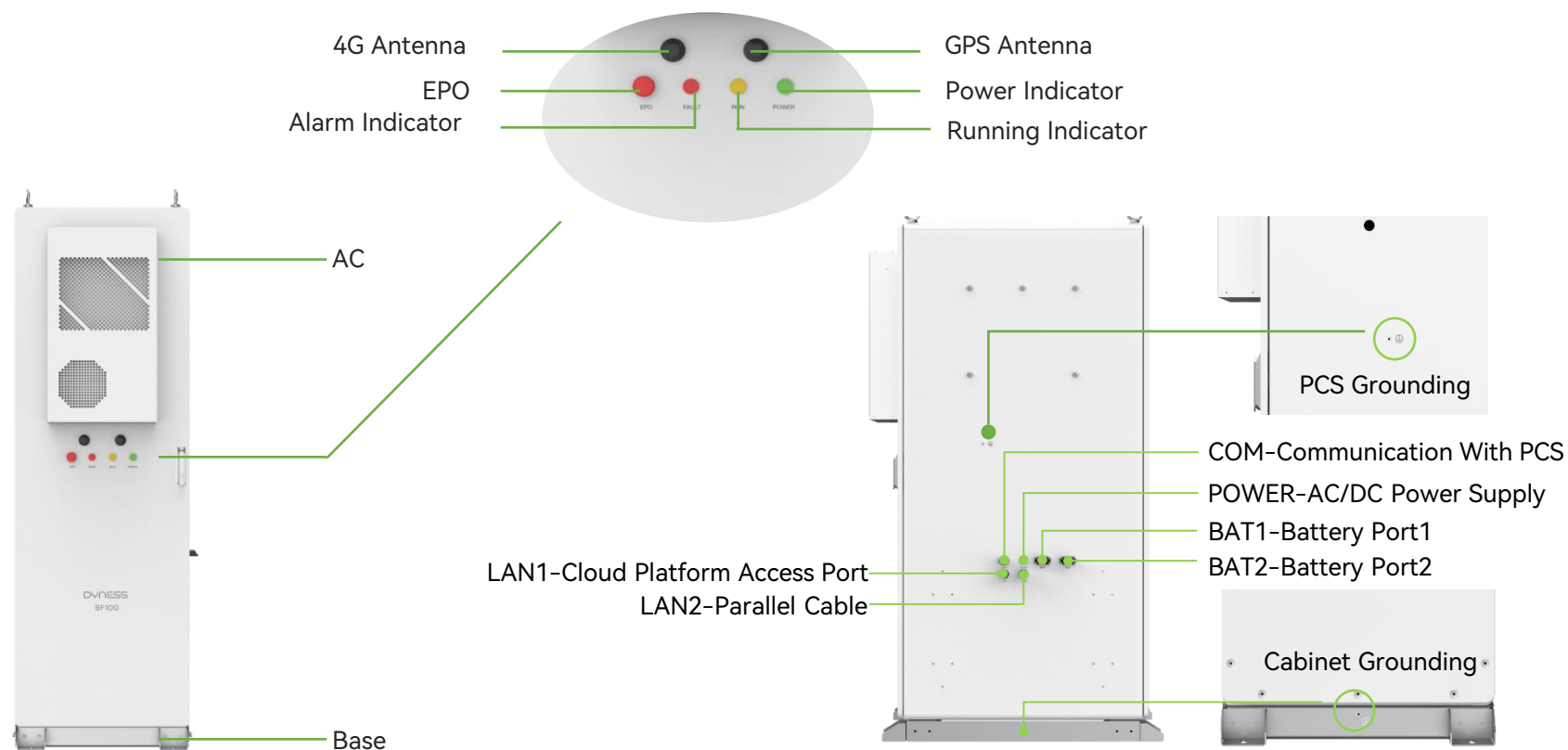
D BF100 Internal Design

- Flexible Capacity: 86/100kWh
- Side Cable Routing
- Integrated BMS and EMS Design
- IP55 Protection Grade
- C3 Anti-Corrosion (C4 Optional)





BF100 External Design



Work with solis inverter

D BF100 Model & Parameter

No.	Model	Description
1	BF100-C80	Battery cabinet, capacity of 86kWh
2	BF100-C100	Battery cabinet, capacity of 100kWh

Model rules:

B: Battery cabinet(without PCS or inverter)

F: Air cooling system

100: Standard product battery capacity

C: System Battery Capacity. The number following 'C' indicates the initial capacity of different models, measured in kWh.

Match 3rd party inverter

Solis, SOSEN, SOLINTEG

Testing: Deye, ATESS

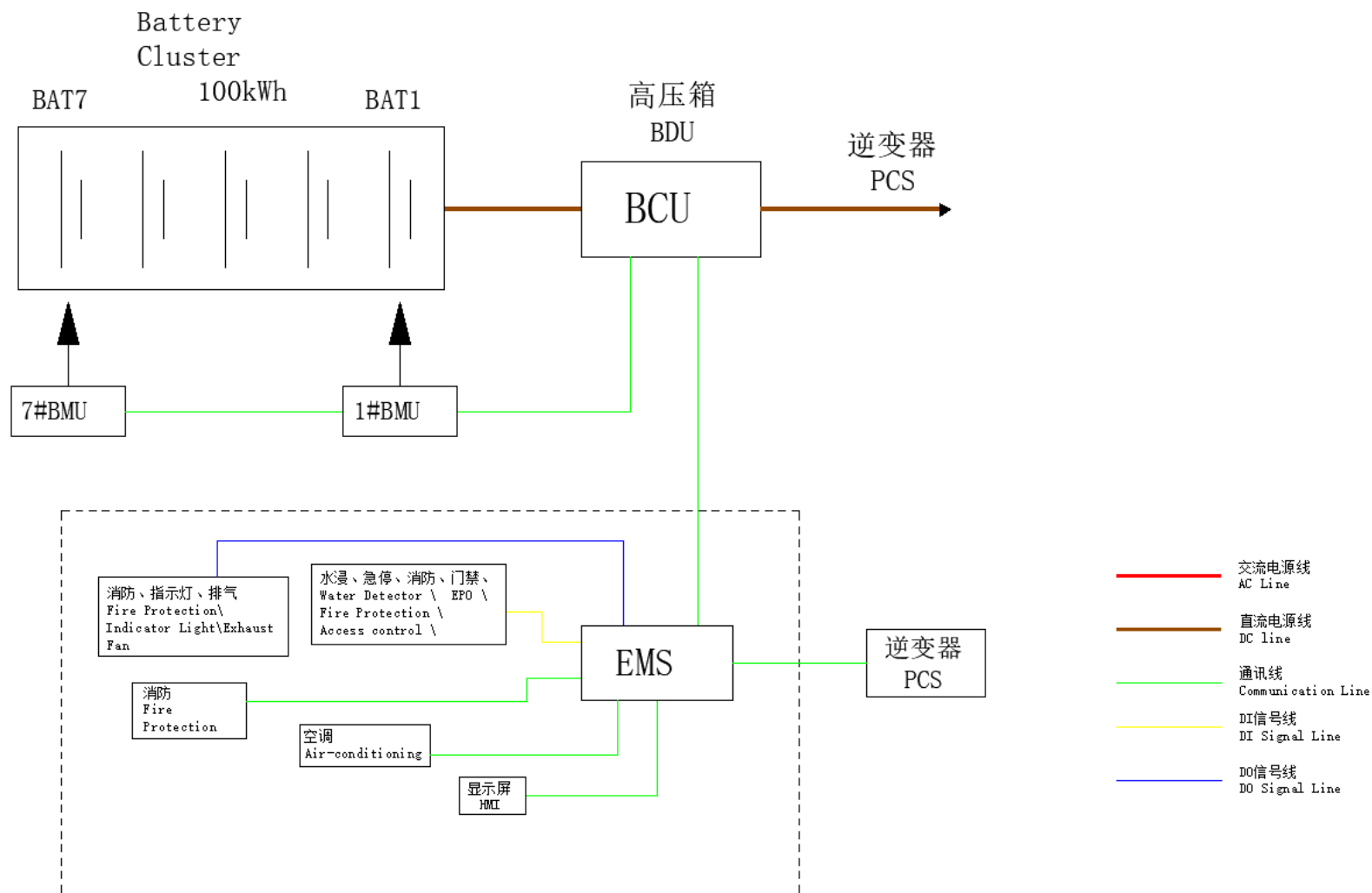
Model	BF100-C80	BF100-C100
Battery		
Battery Type	LFP (LiFePO4)	
Battery Capacity	280Ah	
Rated Current	140A	
Max. Current	160A	
PACK Configuration	1P16S*6	1P16S*7
Voltage Range	278.4~345.6Vdc	324.8~403.2Vdc
Nominal Capacity	86kWh	100kWh
System		
Weight	1100±100kg	1200±100kg
Dimension (W*D*H)	725*1200*2260mm	
Max. Efficiency	94%	
Air Conditioner Power	2kW (Cooling), 1kW (Heating)	
Operating Temperature	-20~50°C (Derating above 45°C)	
Operating Humidity	0~95%RH (Non-condensing)	
Ingress Protection	IP55	
Anti-corrosion Grade	C3 (Optional C4)	
Cooling Method	Air-cooling	
Noise	≤65dB	
Elevation	3000m (Derating above 2000m)	
Display	Touch screen	
Fire Protection	Aerosol, Multi-sensor/Water ingress, Explosion-proof ventilation	
Communication	Ethernet/4G/RS485	
Certification	CE, LVD, UN38.3	
Depth of Discharge	95%	
Cycle Life*	≥8000 cycles/10 years	
Compatible Inverters	Solis/SOSEN/SOLINTEG	



Product Module List of BF100

Module Name	Function	Qty.	Config.
PACK	Used for electric energy storage to provide stable and continuous power output for the system	6/7	standard
BDU	BMS: Collect battery data	1	standard
	EMS: System energy management and control		
Security & Fire Fighting Systems	Provide access protection, emergency response, fire prevention, effective fire fighting, etc.	1	standard
Air Conditioning system	Adjust the working temperature of the battery to ensure that the battery operates at the most suitable temperature	1	standard

BF100 System Topology Diagram



D BF200 Air-cooling System

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BF200 is a **DC battery cabinet** that can be installed outdoors. It is air-cooling design and is equipped with a **3rd party inverter** to achieve AC output. It is suitable for small-sized industrial and commercial scenarios.



Safe & Reliable

Three-level fire detection,
anti-explosion design,
combined aerosol and water
fire fighting

Easy O&M

Modular design, side outlet
mode, easy to install, and
easy to maintain

Flexible Expansion

Supports multiple DC
expansion units, with flexible
capacity configuration

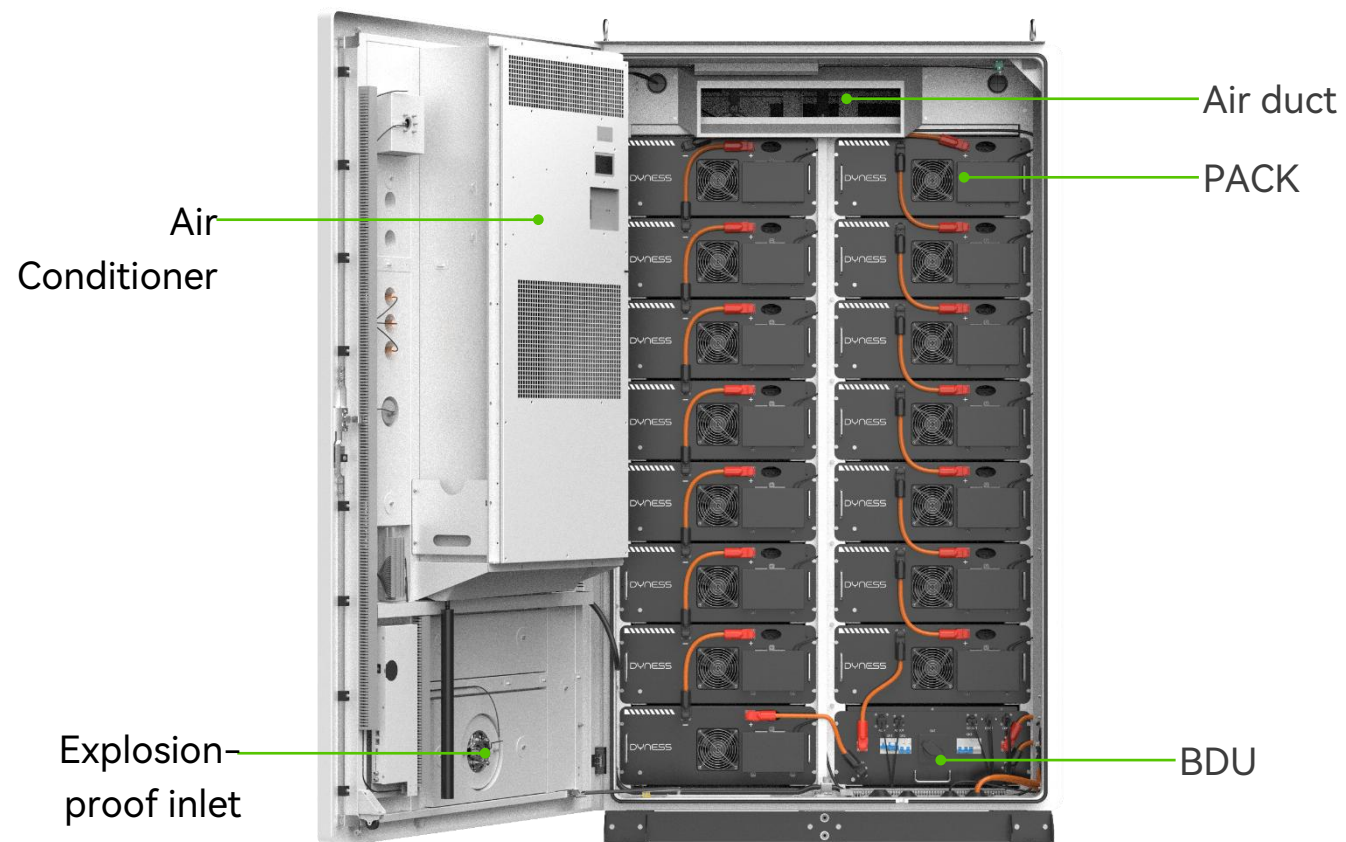
Ultra-long Lifespan

LFP battery, 8000+ cycles,
supports up to 10 years of
extended warranty for
batteries.

D BF200 Internal Design

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- Integrated BMS and EMS Design
- IP55 Protection Grade
- C4 Anti-corrosion
- High-Power Cooling



BF200 Model & Parameter

No.	Model	Ddescription
1	BF200	Battery cabinet, capacity of 215kWh

Model rules:

B: Battery cabinet (without inverter)

F: Air cooling system

200: Standard product battery capacity

Match 3rd party inverter

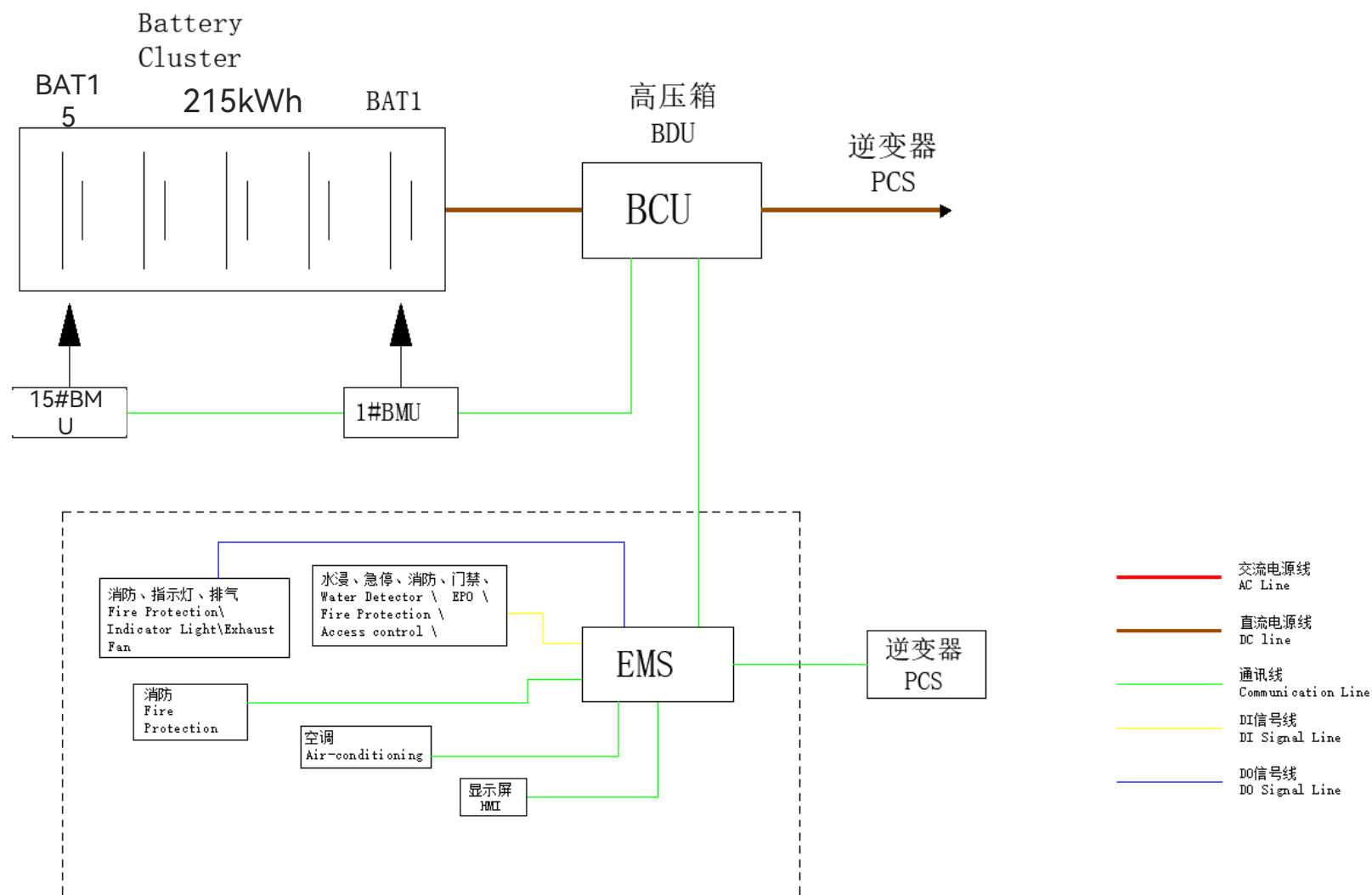
Megarevo

Testing: Deye

Model	BF200
Battery	
Battery Type	LFP (LiFePO ₄)
Battery Capacity	280Ah
PACK Configuration	1P16S*15
Rated Current	140A
Max. Current	160A
Voltage Range	696~864Vdc
Nominal Capacity	215kWh
System	
Weight	Approx. 2500kg (TBD)
Dimension (W*D*H)	1320*1190*2250mm
Max. Efficiency	94%
Air Conditioner Power	5kW (Cooling), 3kW (Heating)
Operating Temperature	-20~50°C (Derating above 45°C)
Operating Humidity	0~95%RH (Non-condensing)
Ingress Protection	IP55
Anti-corrosion Grade	C4
Cooling Method	Air-cooling
Noise	≤75dB
Elevation	3000m (Derating above 2000m)
Display	APP
Fire Protection	Aerosol, Water fire system, Multi-sensor/Water ingress, Audible&Visual alarm, Explosion-proof ventilation
Communication	Ethernet/4G/RS485
Certification	UN38.3
Depth of Discharge	95%
Cycle Life*	≥8000 Cycles /10 years
Compatible Inverters	Megarevo

*Operating conditions: 0.2C Charging & Discharging, @25°C, 95% DOD

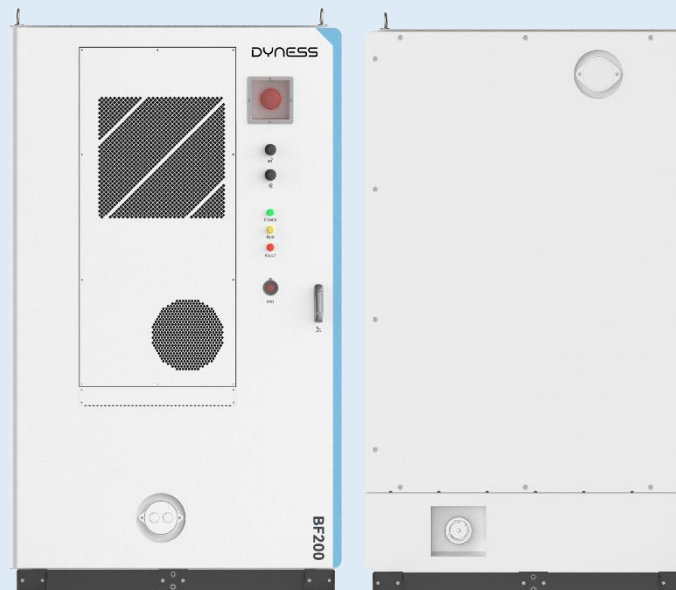
BF200 System Topology Diagram



D Different between BF100 & BF200



- C3/C4 Optional
- 86/100kWh Optional
- 2kW A/C
- Explosion-Proof air outlet
- Side outlet wiring
- Gas Fire Protection



- C4
- 215kWh
- 5kW A/C
- Explosion-Proof air inlet & outlet
- Bottom outlet wiring
- Gas & Water Fire Protection

02 Product Strategy



D Firefighting Strategy - Ultimate Security

» Fire Fighting System

Composite detector
Detect CO/temperature/smoke

Trigger conditions
Smoke + temperature anomalies or
CO + temperature anomalies

**Close the exhaust valve and
active the aerosol**
Extinguish the flame quickly

» Active venting for explosion

Composite detector
Detect combustible CO

**Trigger CO concentration alarm
(>600PPM)**
EMS control start/stop

**Start the explosion-proof valve and
exhaust fan**
Reduce combustible gas concentration

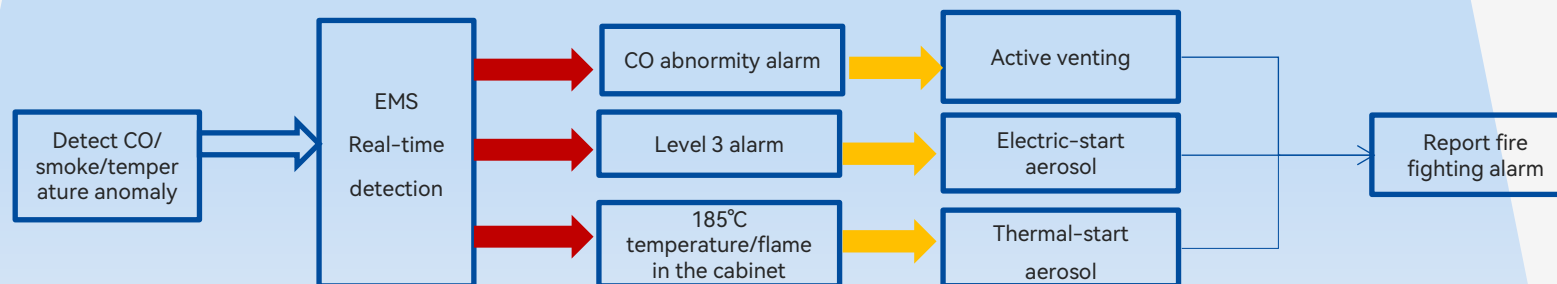
» Control method

Electric-start aerosol

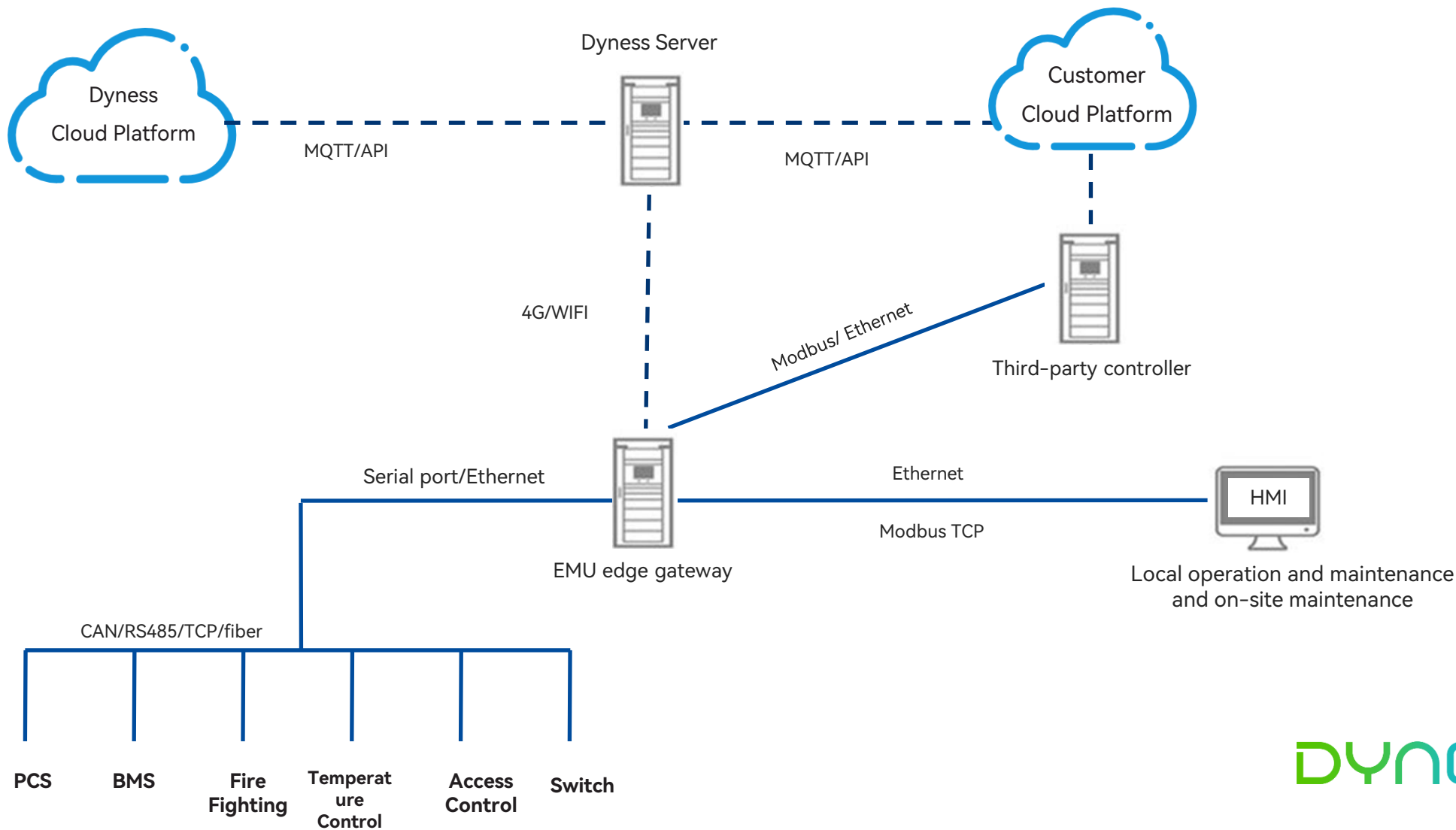
- Any anomaly of temperature, gas or smoke is detected, system was shut down.
- Smoke + temperature or CO+ temperature trigger at the same time, close the electric explosion-proof valve fan, active aerosol.

Thermal-start aerosol

- When the detectors are invalid, no alarm signal is returned
- When the pyroelectric line detects a temperature of 185°C or more, the aerosol agent is activated



Cloud-edge-device communication architecture, real-time monitoring of device status for greater security and reliability; remote OTA upgrade, remote monitoring, reducing operation and maintenance costs; support for third-party controller control and monitoring.



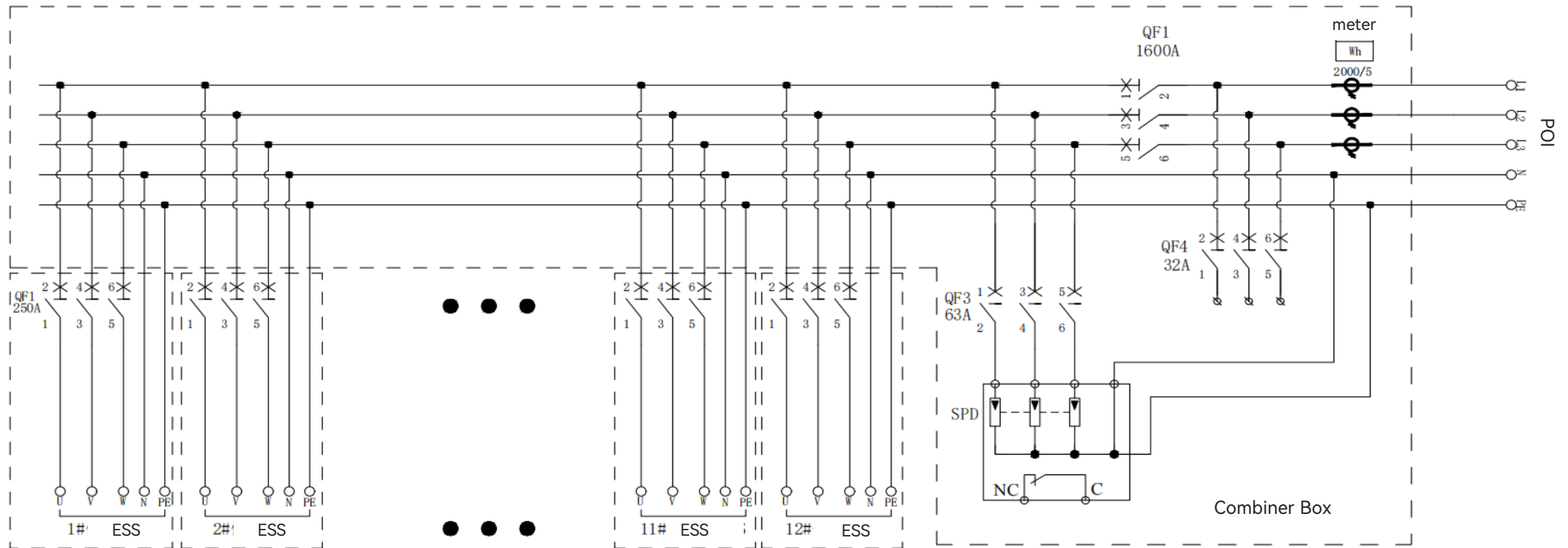
Collect and Monitor Data	Data Analysis and Reporting	Control Strategy
<ul style="list-style-type: none">• Large screen real-time display• Single-line diagram• Real-time/History data• Real-time curve	<ul style="list-style-type: none">• Electricity statistics analysis• Revenue data• Analysis of the summit valley• Power load analysis• Photovoltaic consumption analysis	<ul style="list-style-type: none">• Peak shaving• Off-grid backup power• Demand control• Anti-backflow, anti-overload
Alarm and Anomaly Detection	Energy Projections and Plans	Integration and Connectivity
<ul style="list-style-type: none">• Real-time fault• Timely warning and notification• Remote operation and maintenance	<ul style="list-style-type: none">• Big data statistics• Projecting future power use• Dynamic adjustment strategy• Improve benefits	<ul style="list-style-type: none">• High integration• Compatible with multiple devices• Compatible with customer platforms• Support custom development• Flexible configuration

03 Product Boundaries



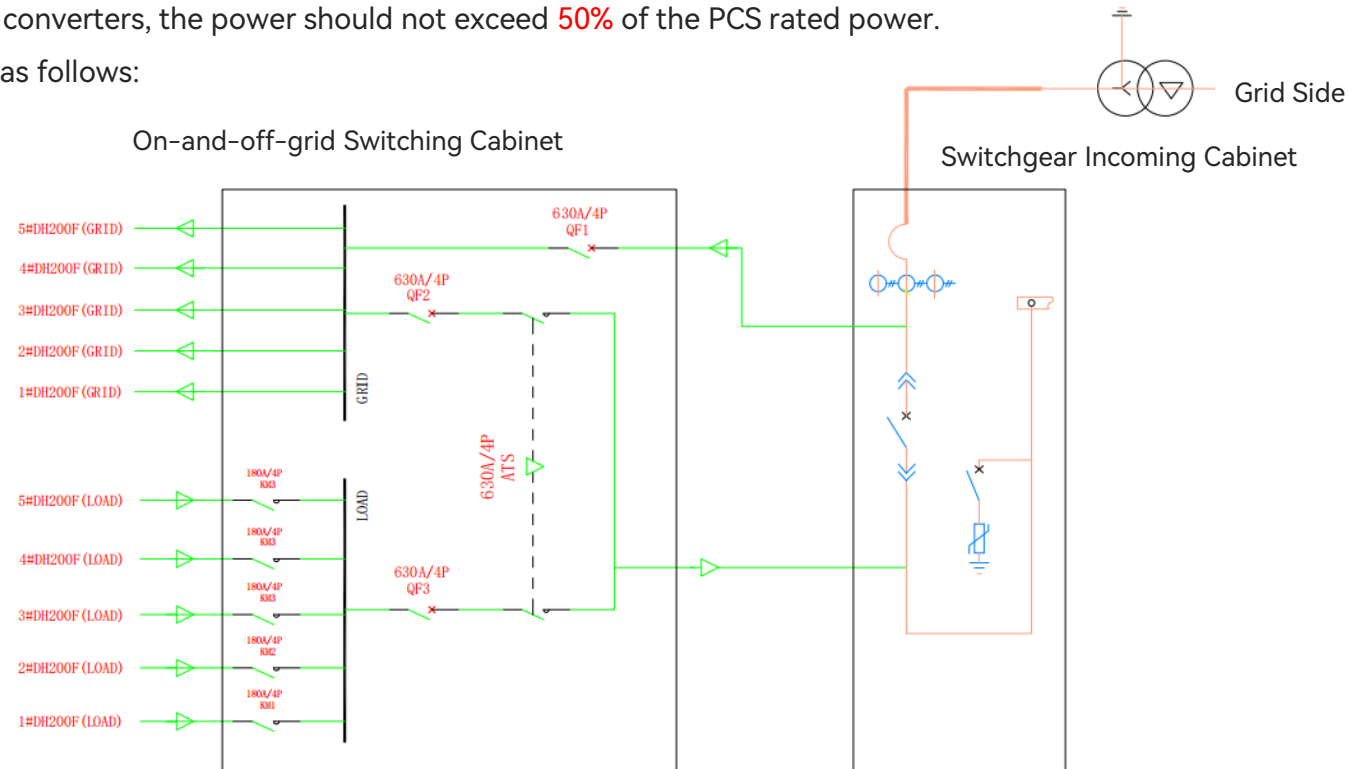
DH200F Only On-grid Use(MPPT is optional, no STS/load)

- The maximum number of Point of Interconnection is 1 or 2, and the maximum configuration of a single Point of Interconnection is 1.2MW/2.58 MWh
- The system does not have the capability of grid forming and belongs to the grid-slaveing type system
- The system electrical diagram is as slaves:



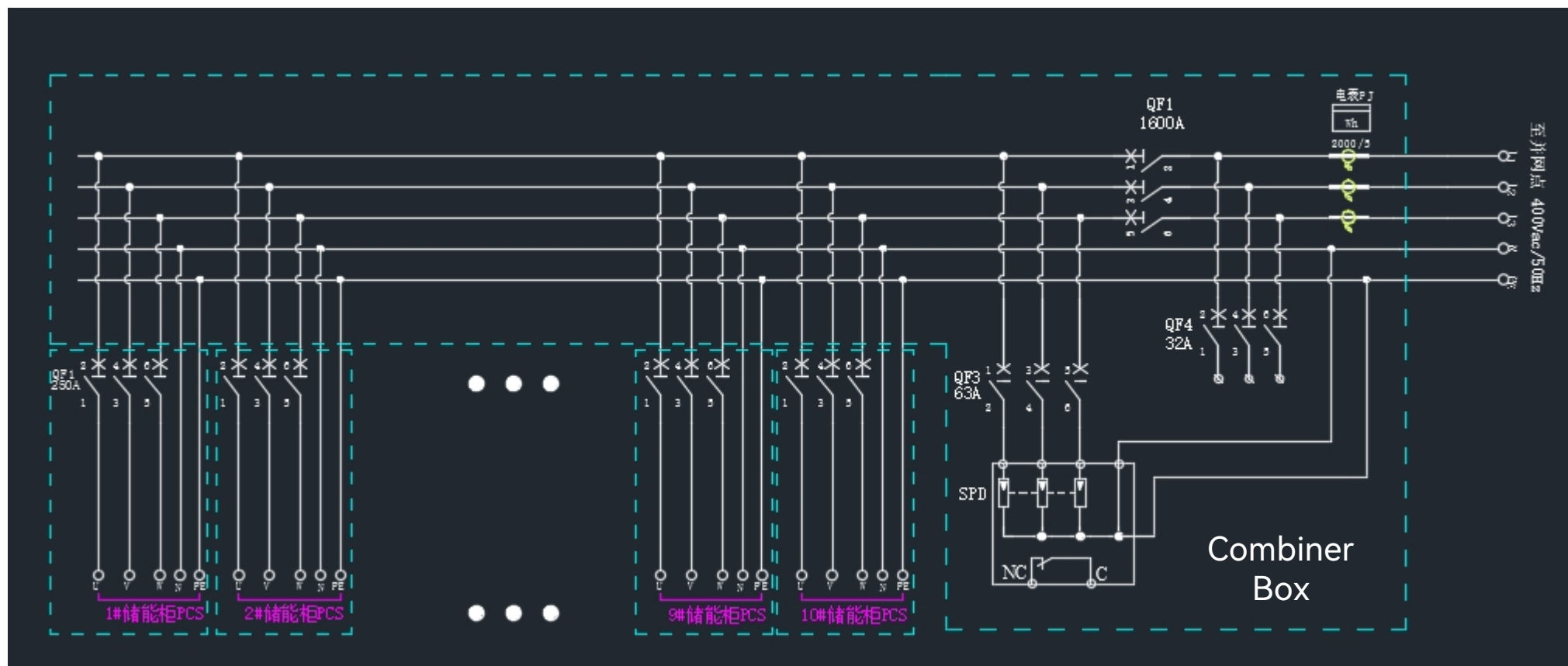
DH200F On-and-off-grid Switching / Off-grid Use

- **On-and-off-grid/off-grid:** maximum 5 units, 500kW/1075kWh
- When a single cabinet is switched on-and-off the grid, the built-in STS module does not need a grid switching cabinet. The **switching time of a single unit is 20ms**
- When more than two units are switched on and off the grid, the STS and the switching cabinet need to be configured at the same time. The **switching time is about 10s**
- For projects with off-grid requirements, the characteristics and load power need to be evaluated because the load capacity of the PCS is limited to avoid overloads that trigger the protection to trip;
 - Only resistance load: supports up to 100% load of PCS rated power, recommended to be about **80%** load capacity ratio;
 - Motor/transformer impact load: the load rated power should not exceed **40%** of the PCS rated power. The specific situation should be confirmed with our technicians to confirm the solution and load characteristics;
 - For loads with frequency converters, the power should not exceed **50%** of the PCS rated power.
- The system electrical diagram is as follows:



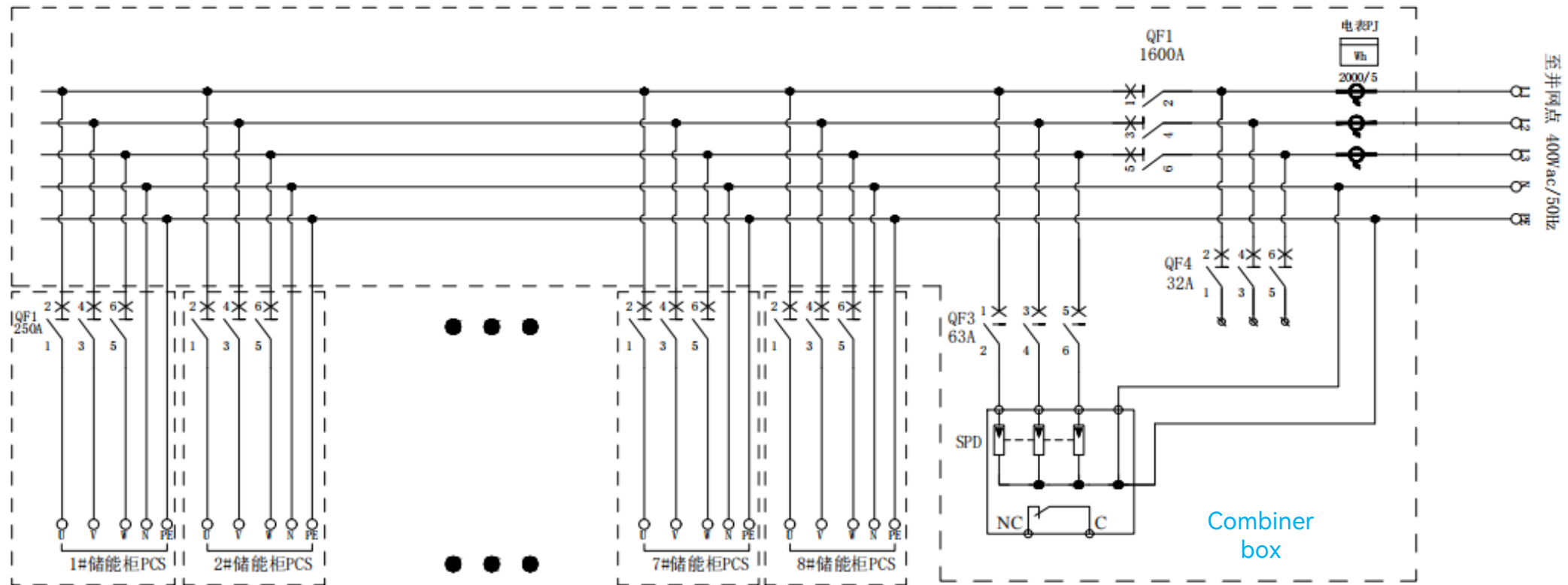
DH200Y On-grid Capability

- Maximum configuration of **10MW/2.32MWh** per connection point
- The system does not have the ability of grid-forming, only works in grid-following system
- The system electrical diagram is as follows:



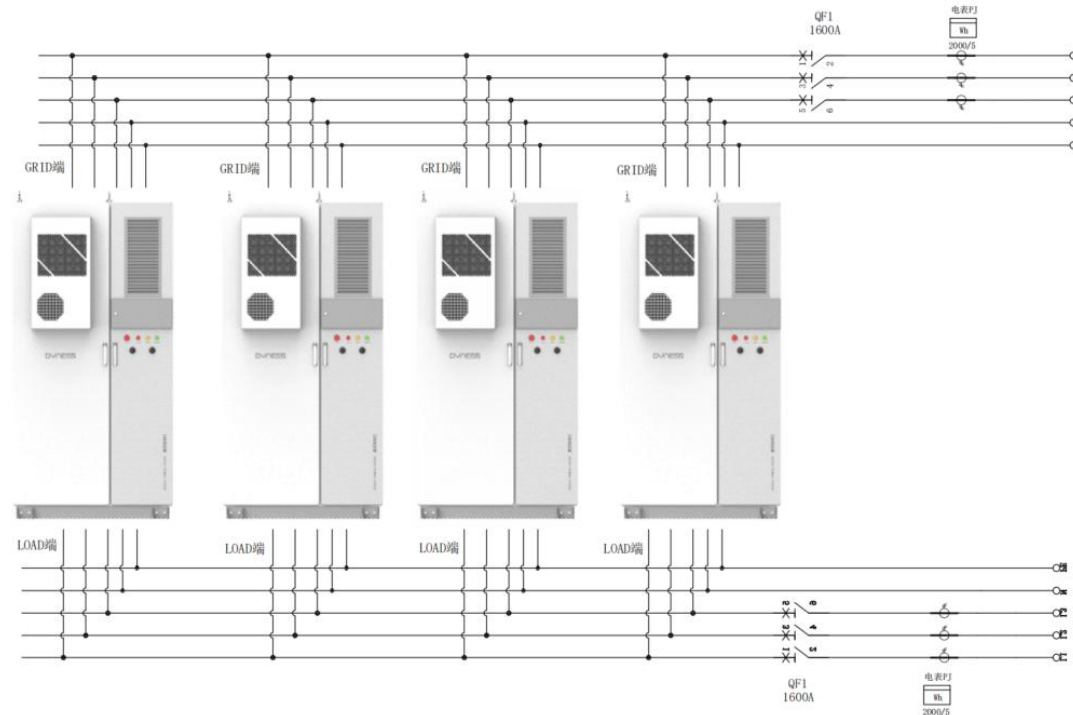
DH100F On-grid Capability

- Maximum configuration of 400kW/800kWh per connection point
- The system does not have the ability of grid-forming, only works in grid-following system
- The system electrical diagram is as follows:



DH100F On&off-grid Switching / Off-grid Use

- On&off-grid/off-grid: maximum 4 units, 200kW/400kWh
- Switching times about 10s (No STS, switching via switches and relays)
- For projects with off-grid requirements, the characteristics and load power need to be evaluated because the load capacity of the PCS is limited to avoid overloads that trigger the protection to trip
- Only resistance load: supports up to 100% load of PCS rated power
- **Motor/transformer impact load: the load rated power should not exceed 33% of the PCS rated power.**
- The system electrical diagram is as follows:

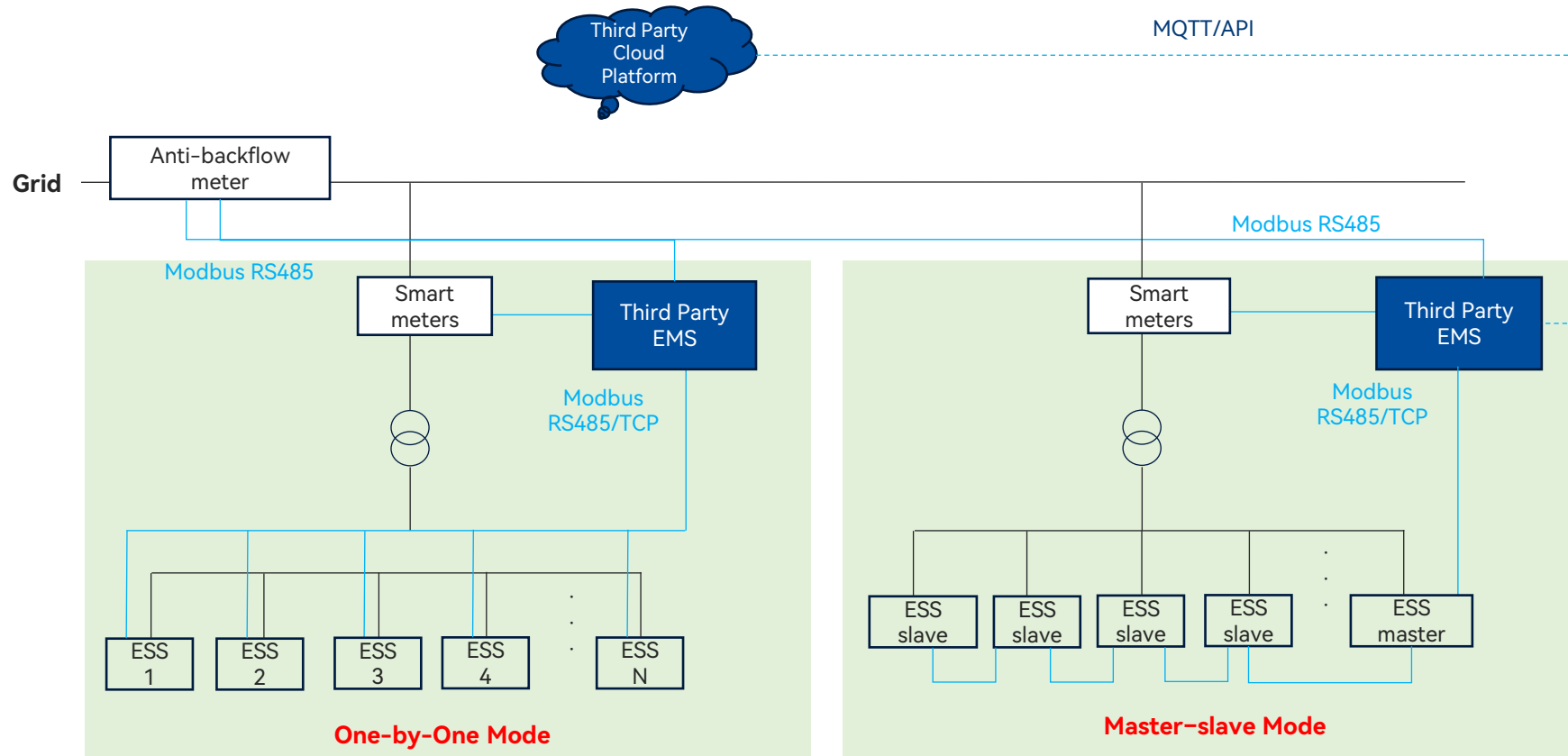


Combiner box
grid side

Combiner box
load side

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Third Party EMS Communication Requirements



Recommended Methods

All-in-one cabinet supports access to local controllers and EMS platform provided by the customer.

Two Access Modes:

- ✓ **One-by-One Mode:** A two-tier architecture where the third-party controller serves as the master and communicates individually with each unit.
- ✓ **Master-slave Mode:** A three-tier architecture where the units are configured in a master-slave arrangement. The master unit then opens data transmission/reception and control command permissions to a third-party controller, which ultimately acts as the top-level master.

Protocol Matching Requirements:

- ✓ Protocol Type: RS485
- ✓ Communication Line: RS485 shielded twisted pair
- ✓ Baud Rate: 115200bps
- ✓ Frame Interval: >300ms
- ✓ RS485 Address: Default 1 (1-99 can be set, 0xFE broadcast address, reply; 0xFF broadcast address, no reply)

Note: Cross-group reading is not allowed. Read up to 125 registers at a time for one group.

D Choosing Between Dyness EMS and 3-Party EMS

Dyness EMS

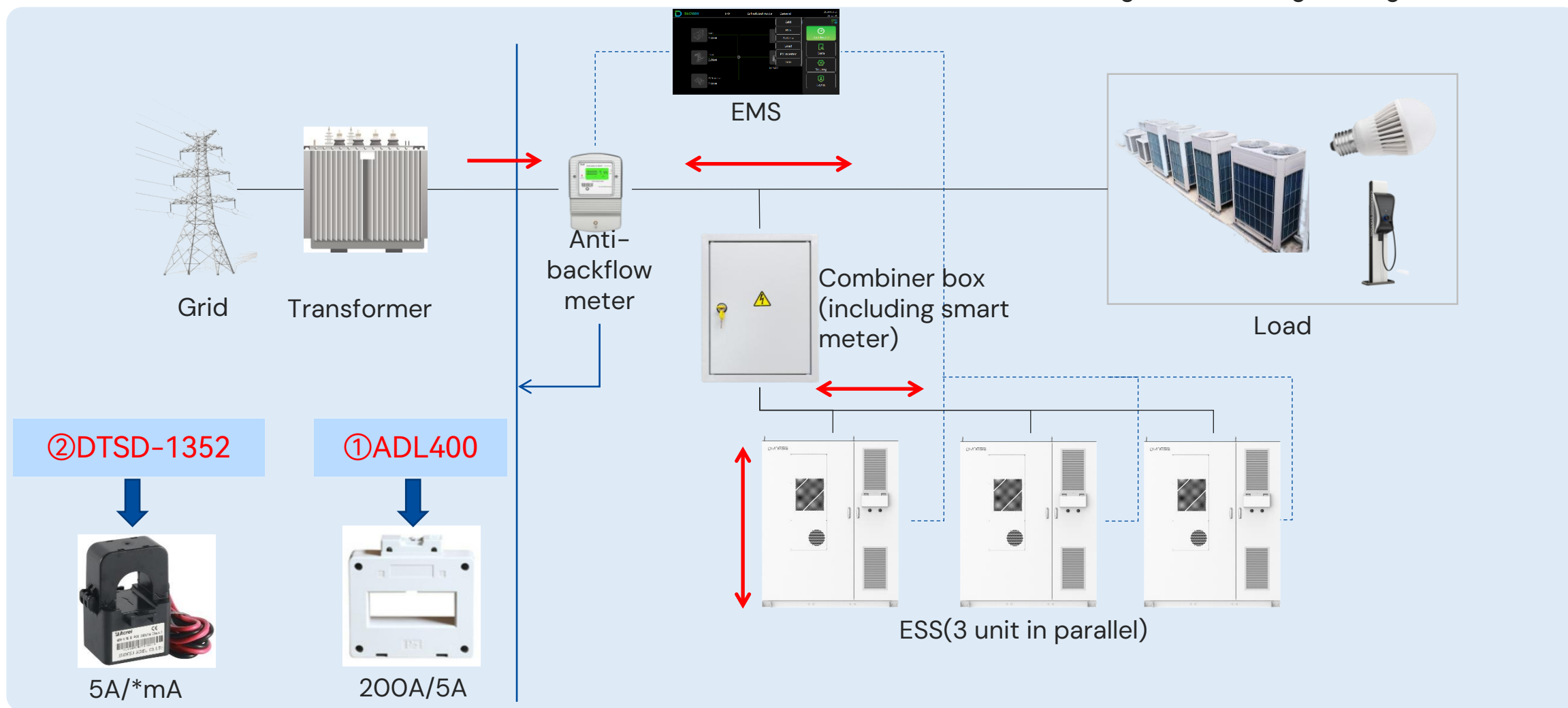
1. Suitable for applications such as **peak-valley arbitrage**, **peak shaving**, and **self-consumption**
2. The quantity is **below the product's parallel limit** (e.g., DH200Y, quantity 1~10 units).

3-Party EMS

1. Requires **cross-transformer** or **cross-grid point** dispatch
2. Number **exceeds product parallel limits**(e.g., DH200Y with more than 10 units in parallel)
3. Complex strategies: such as **dynamic pricing**, **demand response**, etc.
4. Other local policy requirements

D Anti-backflow function

Anti-backflow function: Avoid ESS power back to grid, usually located in the main incoming cable cabinet
——It can be low voltage(0.4kV) or high voltage(6/10kV).



CAUTION:

< 400V, if the project installation point already has a CT, can select ② DTSD-1352; If not, ①ADL400 must be selected and installed.
> 6kV, ②DTSD1352 must be selected.

Differences between the two meters: voltage range & CT

D System Derated Boundaries

Anti-corrosion grade

For **C3 grade** systems, product must be installed **at least 5 km** away from the seaside.
For **C4 grade** systems, product must be installed **at least 3 km** away from the seaside.
For **C5 grade** systems, product must be installed **at least 500m** away from the seaside.
Otherwise, the warranty will be invalid.

For projects that do not meet the anti-corrosion grade requirements, placing ESS cabinets into a container with AC is a suggested solution.

IP grade

IP55

Dust
Protection Rating

Water
Protection Rating

Usually IP54 cabinet can meet the basic protection requirements of outdoor use.

The protection level of Dyness outdoor cabinet series products is IP55, which fully meets the outdoor use requirements.

Altitude & Temperature

Operating temperature range: -
20°C to 50°C(derating above 45°C),
altitude **3000m** (derating above
2000m)

Note:

Not including **DH800Y**
(-30°C~50°C no derating)

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04 Installation Requirements



D Environmental Requirements

Above

High-voltage cables, hazardous liquid/gas pipelines, overhead falling objects, etc. are not permitted.
A **canopy** structure is suggested.

Surroundings

Firewalls, protective fencing, and aesthetic enhancements must be established for structures of different fire resistance classes, as well as for flammable, explosive materials, and pipelines.



Below

The base must have a **bearing capacity** $> 3 \text{ t/m}^2$ and be elevated **above the highest water level** measured.

Installation Environment:

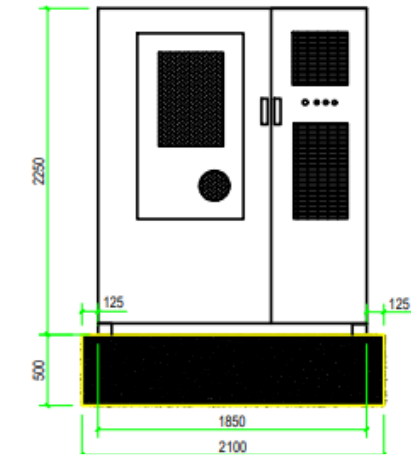
- Do not install and use this product in an **environment below -20°C or above 50°C** ;
- Do not install or use this product near any heat source or combustible material;
- Do not expose this product to corrosive gases or liquids;
- The highest **altitude** of the product installation position **shall not exceed 3000m**, and the power shall be derated when it is higher than 2000m;
- The installation base must be above the **highest recorded water level**;
- Adequate space should be reserved for the installation of the product to ensure sufficient **ventilation distance**;
- It is recommended to set up a barrier during installation to prevent any uninvolved personnel from entering the site.

D Requirements for Civil Engineering Design

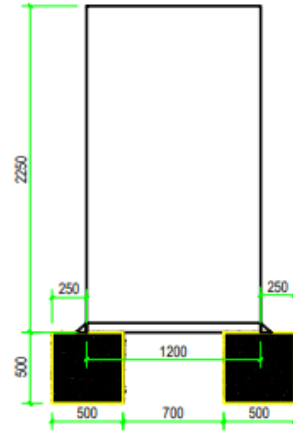
- ✓ The base should be built at the bottom of the equipment. The recommended height of the base should be **more than 300mm**, and ensure that the equipment is **higher than the recorded water level** (mainly for waterproof and avoid immersion of the equipment). The base should be built according to specified **strength, levelness and embedment depth** to ensure the safety of the equipment.
- ✓ It is recommended to use **M12*120mm expansion bolts** to fix the cabinet onto the base.
- ✓ Reserve **wiring trough** and **ground cable trench**. The specification and number of wiring trough should be determined according to the wire specifications and the number of incoming and outgoing wires.
- ✓ **Grounding flat steel** should be reserved. The recommended specification is **40*4mm**, and the grounding resistance should be $R \leq 4\Omega$. After the installation of the DH200F, flat steel should be connected with the grounding point of the cabinet.
- ✓ If the product needs to be installed shoulder to shoulder, leave a **distance > 1CM** between the cabinets for opening and closing the doors.
- ✓ The reference for civil engineering design is shown on the right side:

Note: The civil engineering requirements of different projects vary. The civil engineering design drawings are only for reference, and on-site construction is subject to the specific construction drawings.

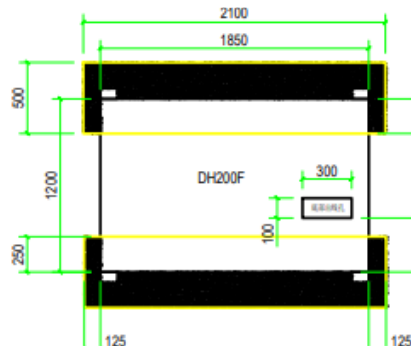
D Requirements for Civil Engineering Design



Front View

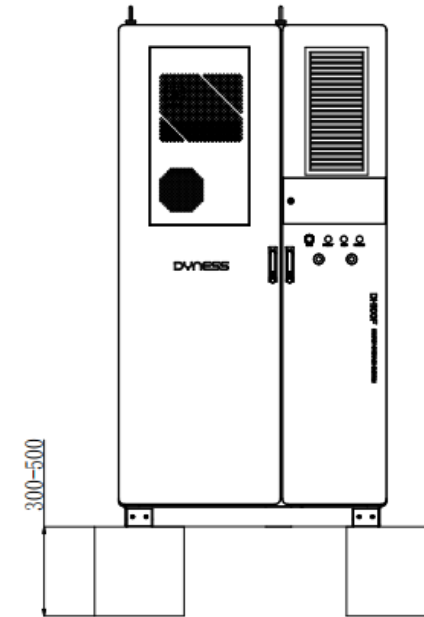
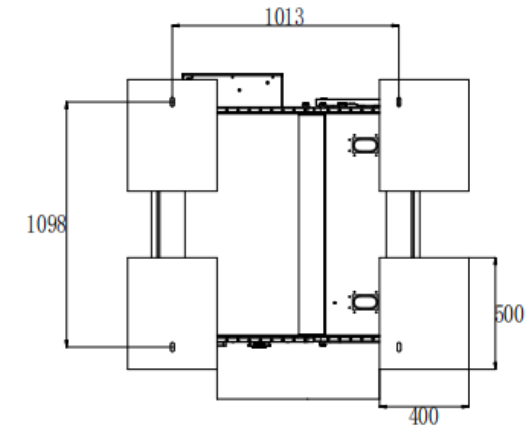


Side View



Top View

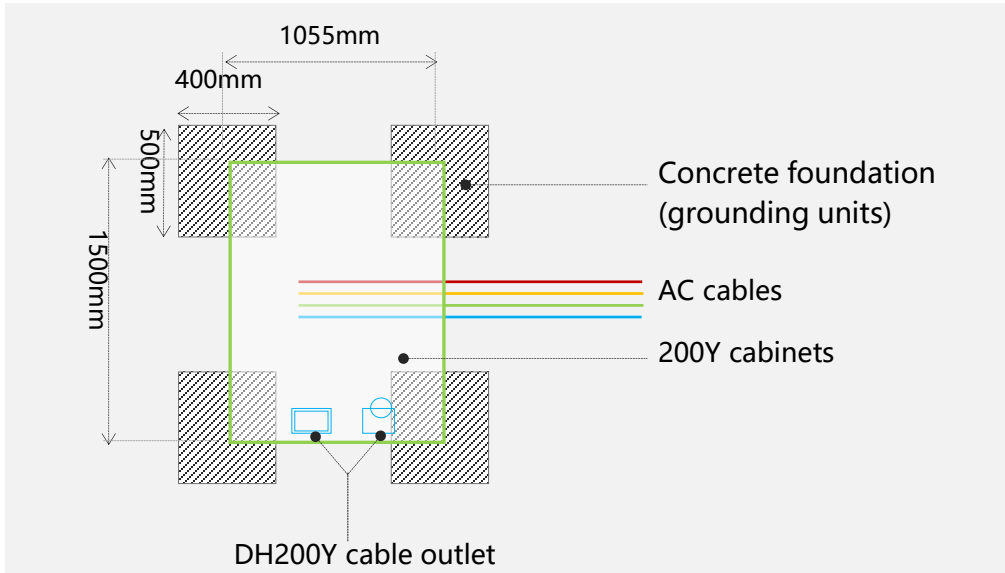
DH200F



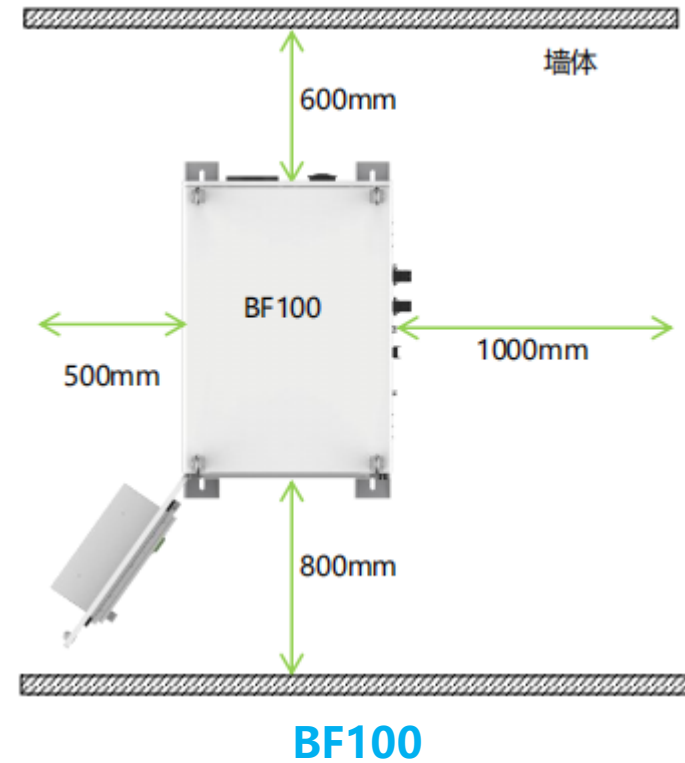
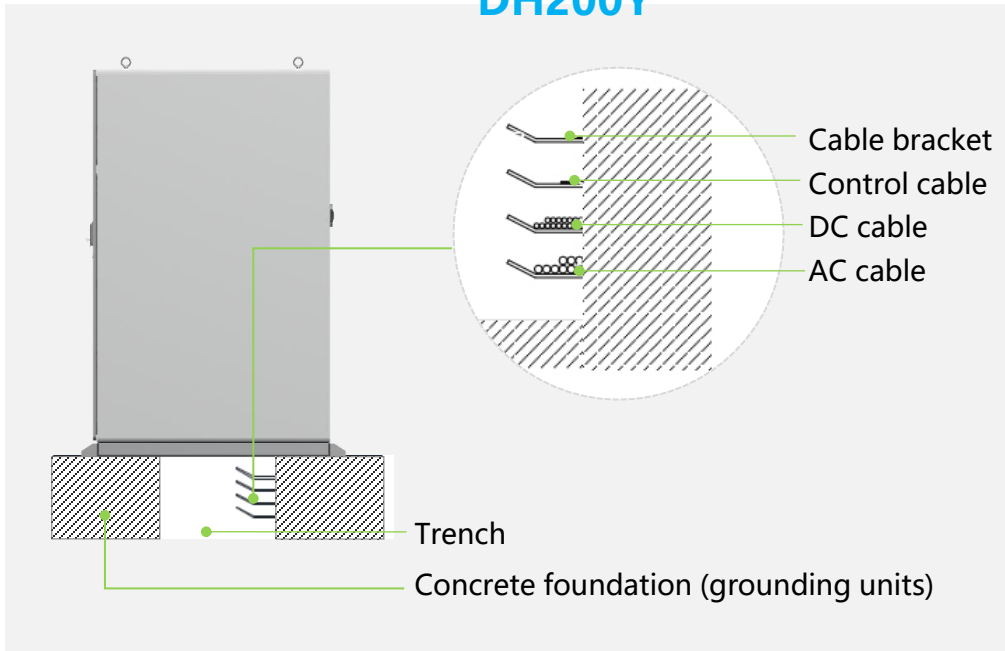
DH100F

DYNESS

D Requirements for Civil Engineering Design



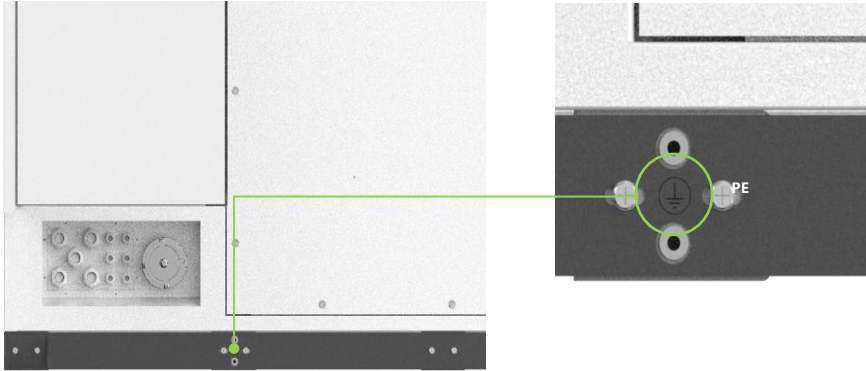
DH200Y



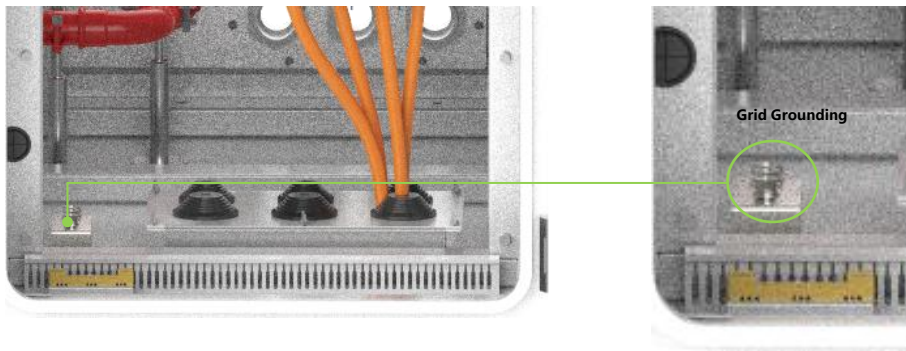
BF100

D Requirements for Civil Engineering Design-DH200F

✓ Grounding Position :



Grounding flat steel, recommended specification **40*4mm**



The grid grounding cable specification is **1AWG**

✓ Bolt Fixing Position:

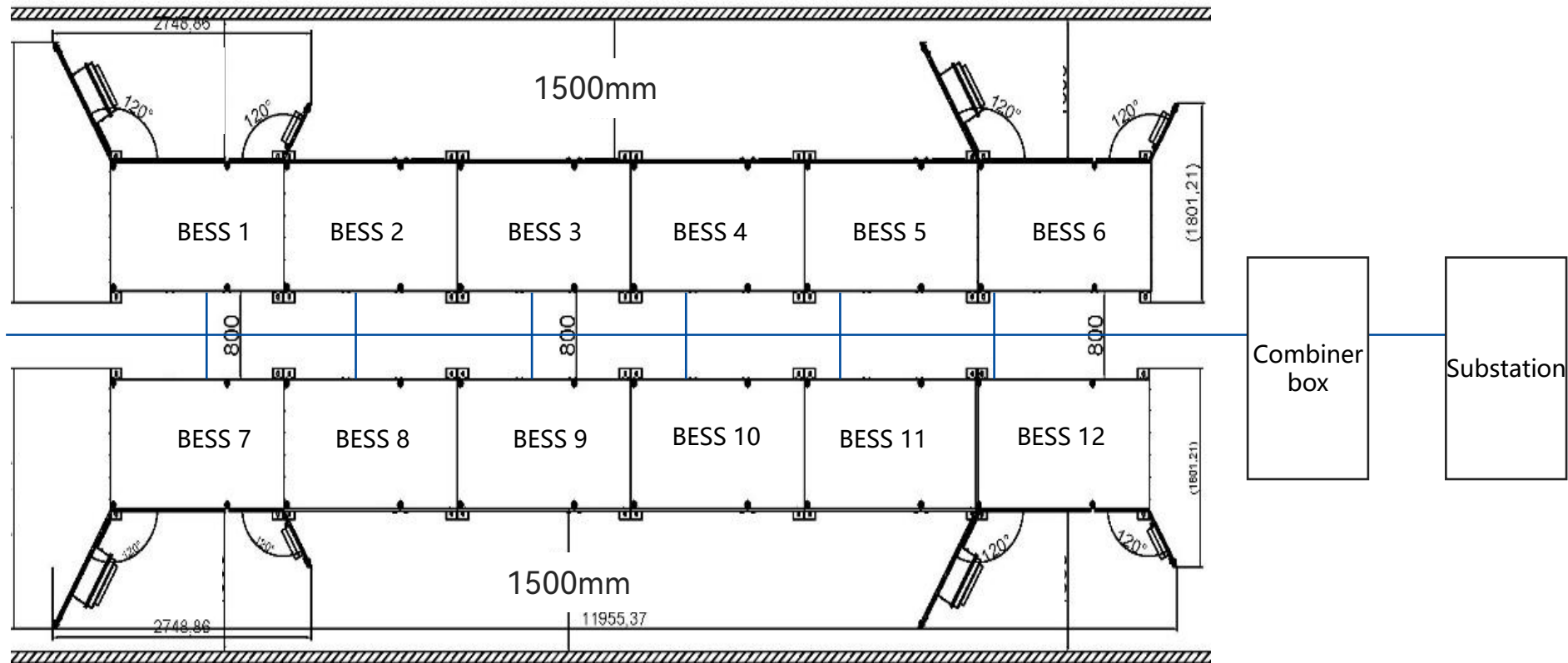


✓ Wiring Access Hole and Firewater Pipeline: (Bottom Cable Routing and Rear Cable Routing)



D Equipment Arrangement Drawing-DH200F

- The reserved distance in front of the product door should at least be **1500mm**.
- The reserved space behind the equipment should at least be **800mm**.



List of Accessories-DH200F

No.	Type	Specifications	Terminal Model	Torque
1	Power cable(On-grid)	Outdoor single-core copper cable 1/0AWG	DT/SC 50-8	12N.m
2	Power cable(On&Off-grid)Grid port	Outdoor single-core copper cable 3/0AWG	DT/SC 95-10	20N.m
3	Power cable(On&Off-grid)Load port	Outdoor single-core copper cable 1/0AWG	DT/SC 50-8	12N.m
4	PV cable	Outdoor single-core copper cable 2AWG(50kW)	DT/SC 35-8	12N.m
5	Grounding cable	Outdoor single-core copper cable/yellow-green dual color 1AWG	DT/SC 50-8	12N.m
6	Grounding bar	40*4mm	/	/
7	RS485/CAN communication line	Two-core twisted pair shielded cable 20AWG	/	/
8	Ethernet communication line	Category 6A network cable	/	/
9	Voltage sampling line	UL1015 cable 16AWG	/	/
10	Current sampling line	UL1015cable 14AWG	/	/
11	Parallel line	Shielded twisted pair cable 20AWG	/	/
12	Primary meter	ADL400-C	/	/
13	Secondary meter	DTSD1352	/	/
14	Primary transformer	0~5000A/5A(The current value depends on the project)	/	/
15	Secondary transformer	0~5A/0~20mA	/	/

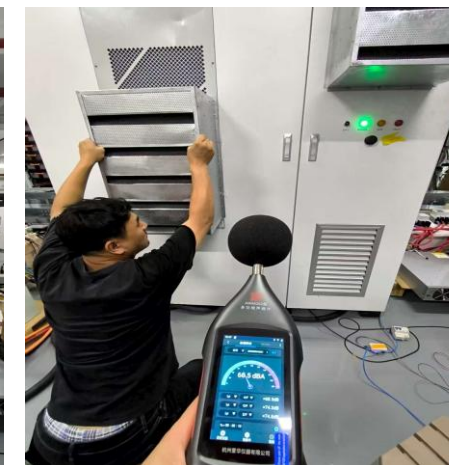
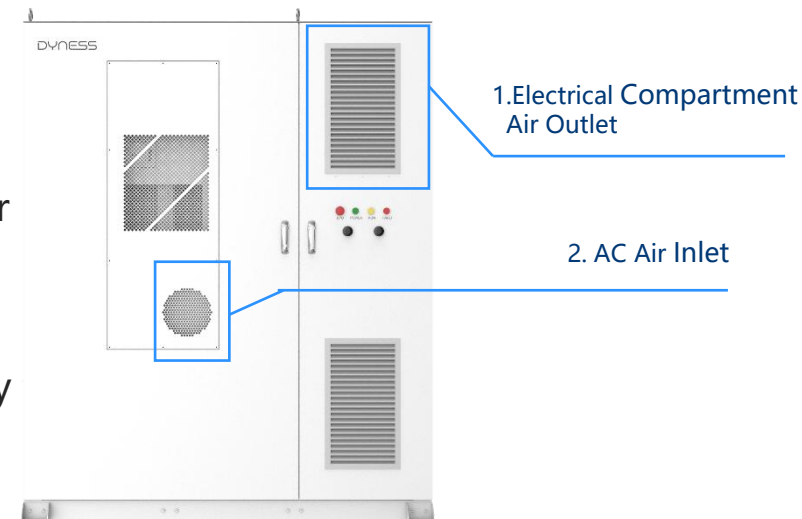
DH200F Muffler

Background :

- When the equipment is installed in residential areas, office buildings and other living spaces, it will bring noise to the surrounding residents. Under full load operation, DH200F generates noise, reaching up to 75 dB. The source is mainly cooling fan in the electrical compartment and the air inlet of the AC.
- Considering that some customers have requirements for installation location and noise, we now provide optional noise reduction device

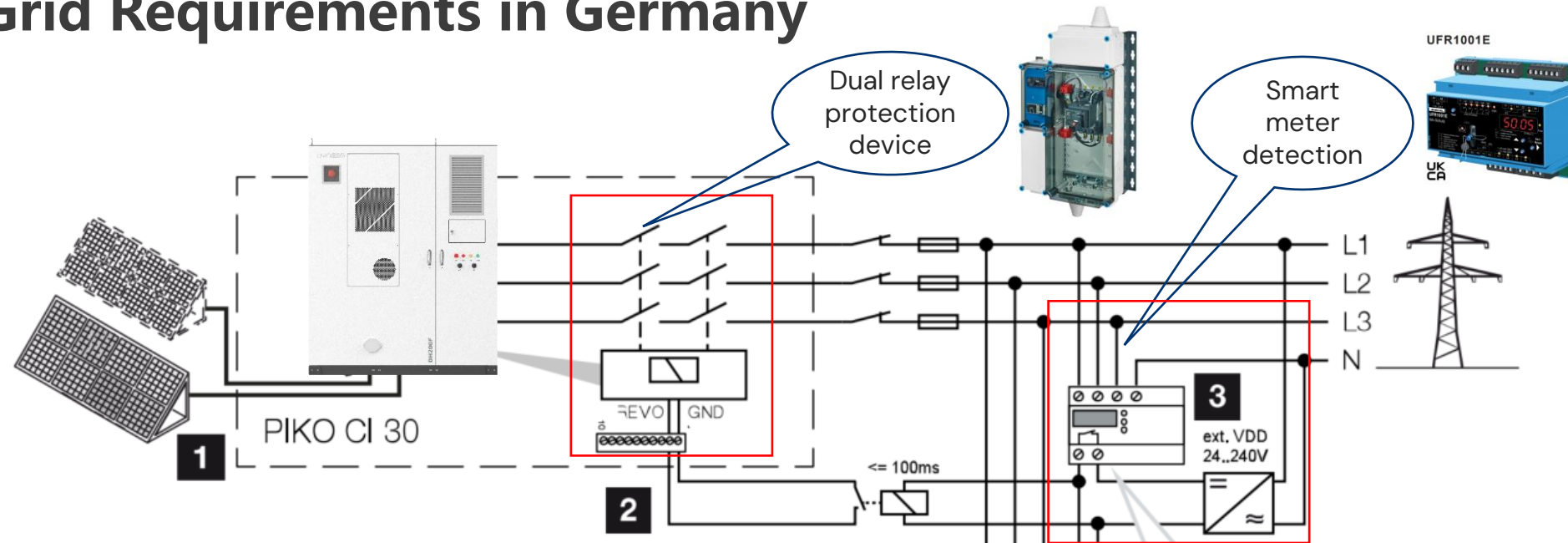
➤ Laboratory test results:

Project	Standard DH200F	Muffler Installed DH200F
Noise Level	76.4dB	68.5dB



Muffler Installed DH200F

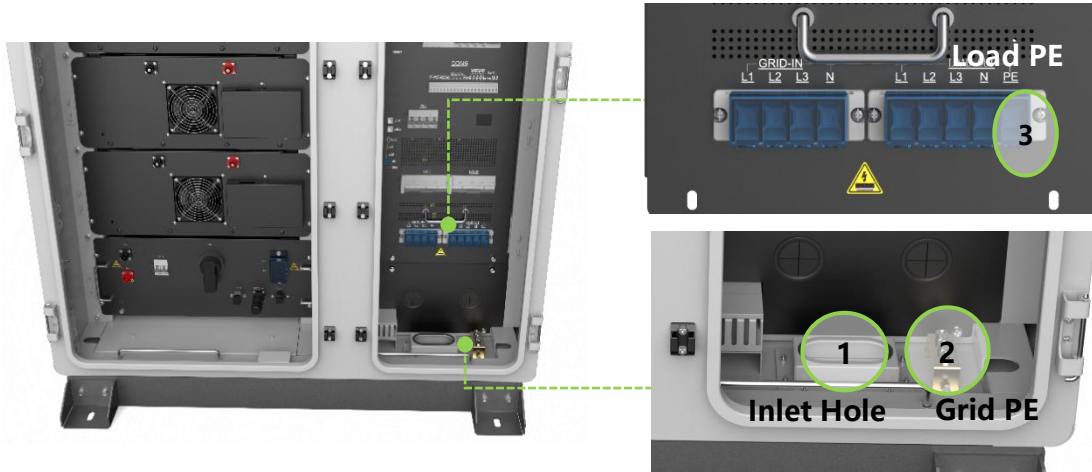
D On-Grid Requirements in Germany



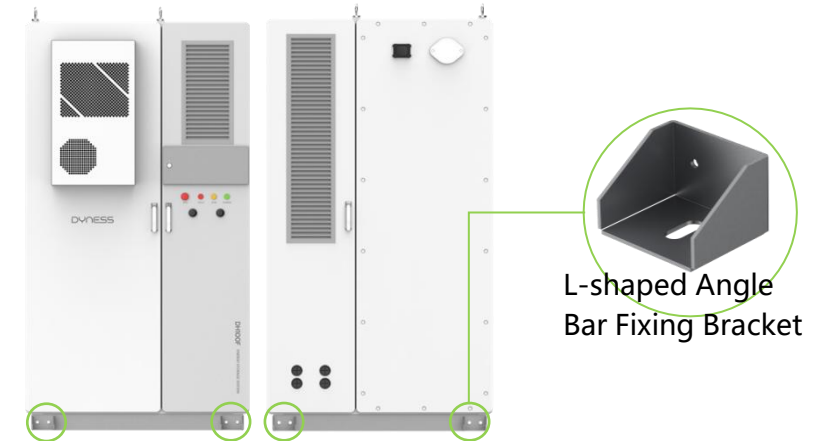
- ✓ According to the requirements of **VDE4105** and **VDE4110** for on-grid use in Germany, **grid and equipment protection should be carried out for photovoltaic/ESS devices of 30kW-135kW**. The protection device monitors the voltage and frequency of the grid to ensure compliance with the specified tolerance and avoid the formation of islanding.
- ✓ To meet this requirement, the DH200F requires an external dual relay protection device and a smart meter, which are provided by the installer. Recommended models are: Relay protection device model HENSEL-Mi AE 1243 and smart meter model ZIEHL-UFR1001E.
- ✓ The NA protection threshold (overvoltage/undervoltage/overfrequency/underfrequency) can be set on the device via EMS or local control interface.

D Requirements for Civil Engineering Design-DH100F

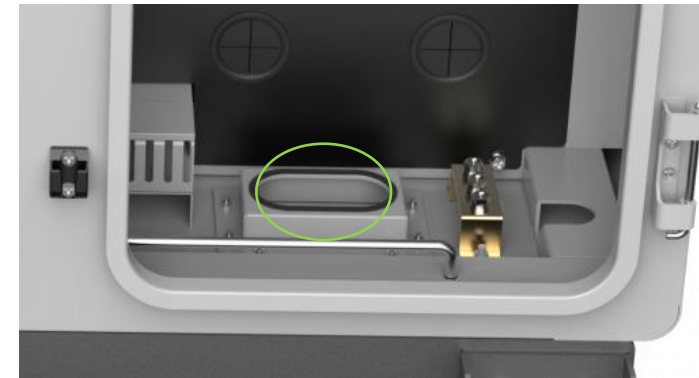
✓ Grounding Position



✓ Bolt Fixing Position:



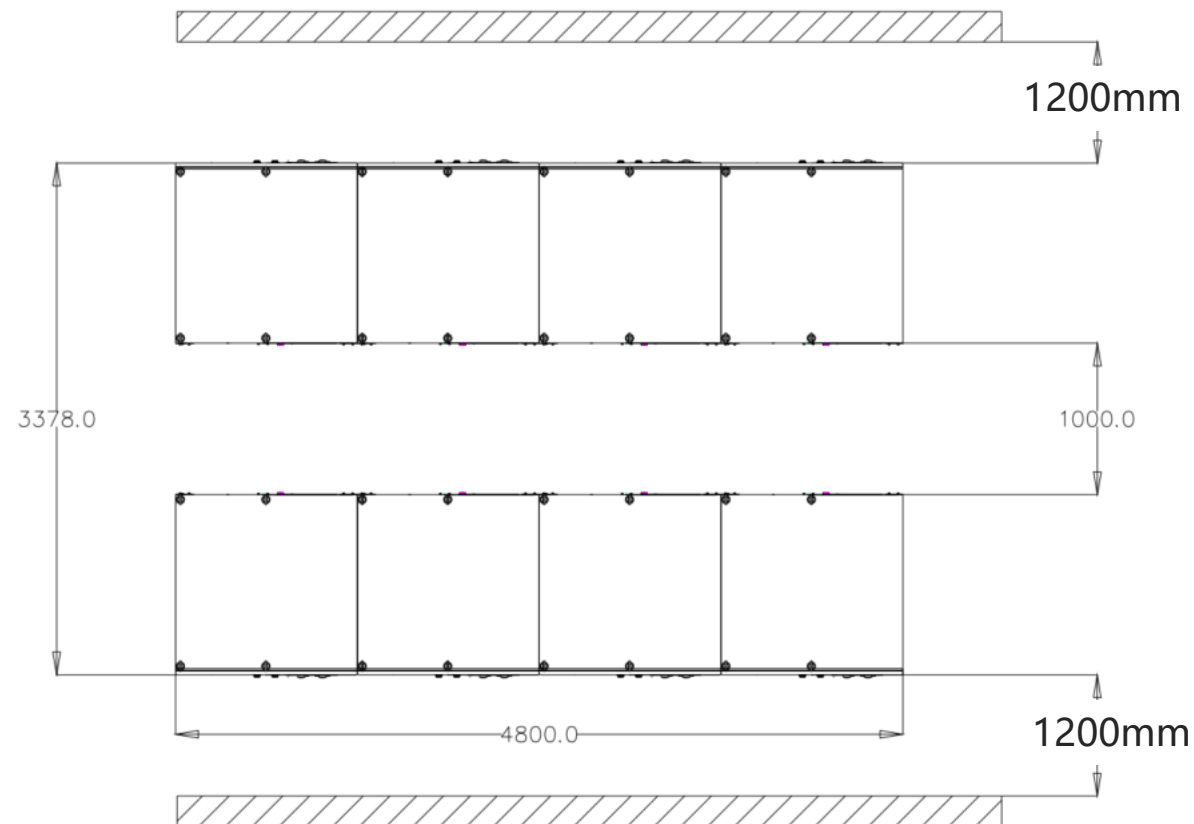
✓ Wiring Access Hole (bottom outlet)



Prepare **two PE cables(6AWG)**, label them as PE1 (Grid PE) and PE2 (Load PE);
The PE cables enter from the **inlet hole (as shown in position 1)** at the bottom of the electrical compartment ;
Connect PE1 cable to the **protective copper bar (as shown in position 2)**;
Connect PE2 cable to the **load PE port (as shown in position 2)**;

D Equipment Arrangement Drawing-DH100F

- The reserved distance in front of the product door should at least be **1200mm**.
- The reserved space behind the equipment should at least be **1000mm**.





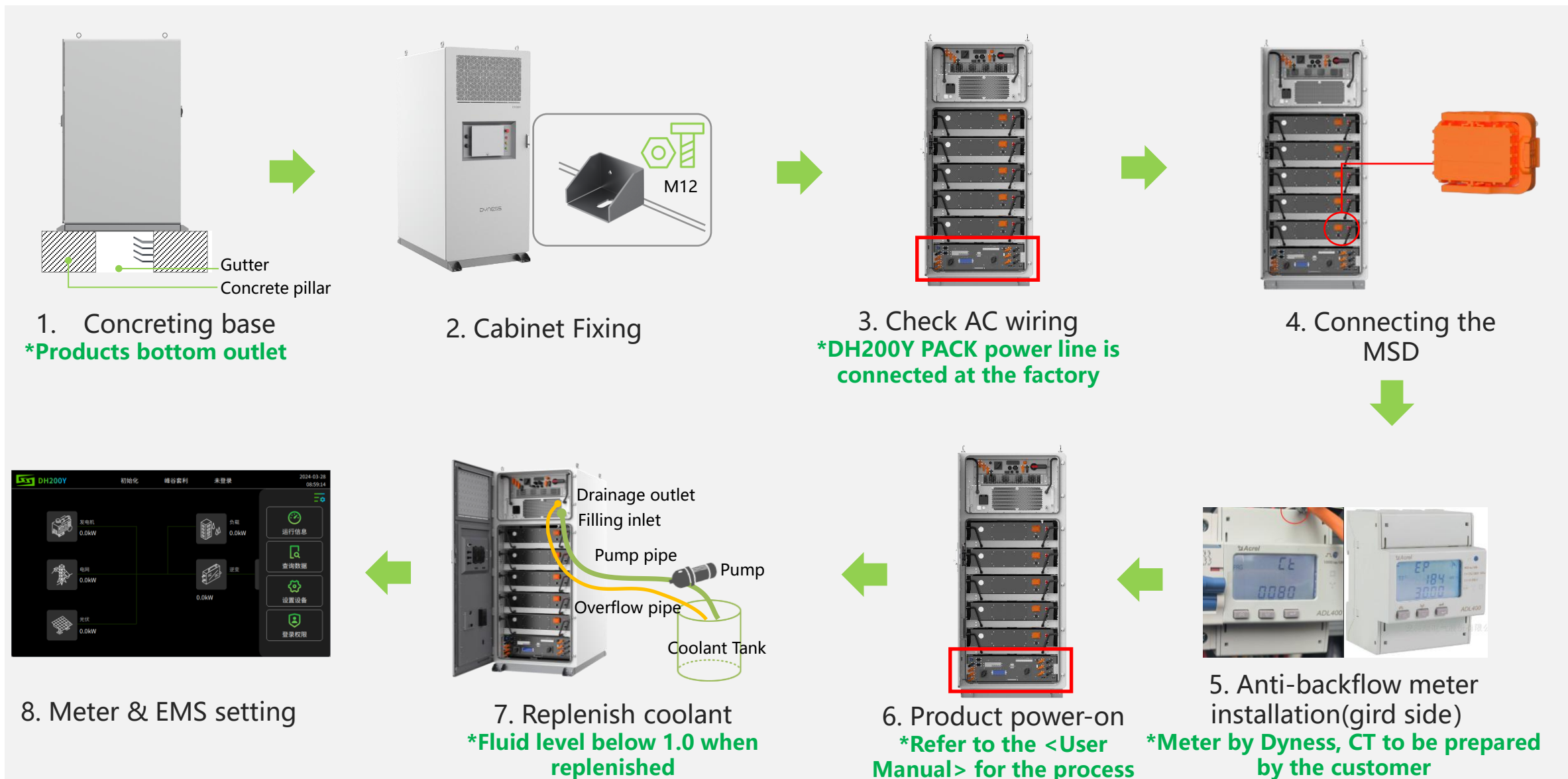
List of Accessories-DH100F

www.dyness.cn

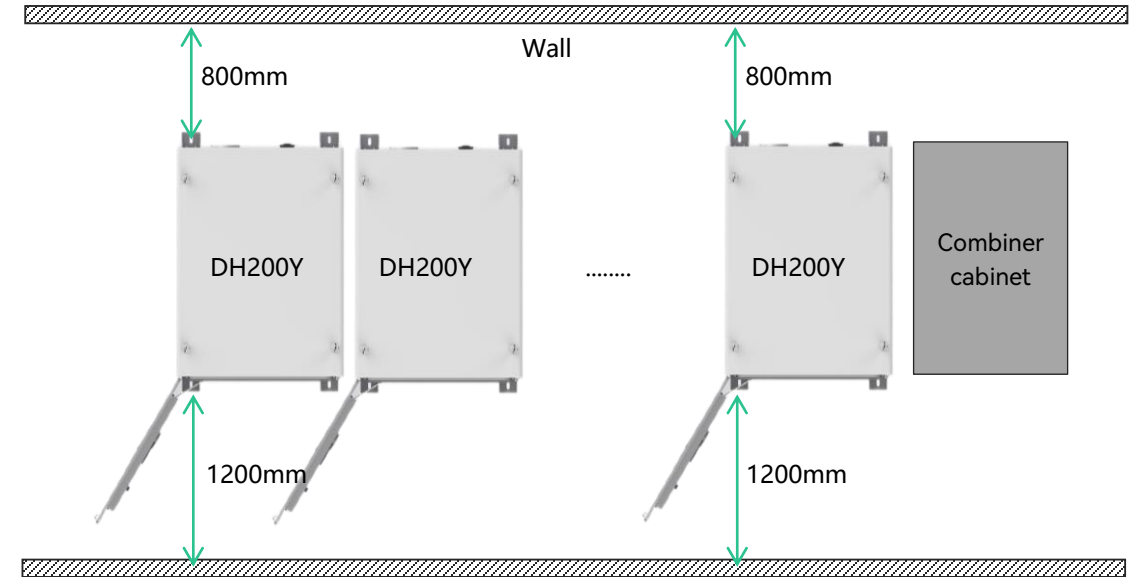
No.	Type	Specifications	Terminal Model	Torque
1	Power cable (Gird port	Outdoor single-core copper cable 4AWG	SC25-6	5.0Nm
2	Power cable (Load port	Outdoor single-core copper cable 6AWG	SC16-6	5.0Nm
3	PV cable	Outdoor single-core copper cable 6AWG	SC16-6	5.0Nm
4	Grounding cable	Outdoor single-core copper cable/yellow-green dual color 6AWG	SC16-6	5.0Nm
5	Grounding bar	40*4mm	/	/
6	RS485/CAN communication line	Two-core twisted pair shielded cable 20AWG	/	/
7	Ethernet communication line	Category 6A network cable	/	/
8	Voltage sampling line	UL1015 cable 16AWG	/	/
9	Current sampling line	UL1015cable 14AWG	/	/
10	Parallel line	Shielded twisted pair cable 20AWG	/	/
11	Primary meter	ADL400-C	/	/
12	Secondary meter	DTSD1352	/	/
13	Primary transformer	0~5000A/5A(The current value depends on the project)	/	/
14	Secondary transformer	0~5A/0~20mA	/	/

DH200Y Installation process-DH200Y

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D AC Expansion-DH200Y



- **The product supports side-by-side installation with a maximum of 10 units, gap > 1cm between cabinets, bottom outlet**



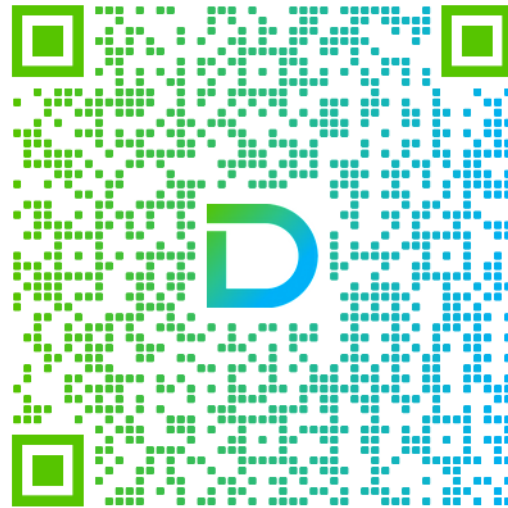
List of Accessories-DH200Y

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No.	Type	Specifications	Terminal Model	Torque
1	Power cable	Outdoor single-core copper cable 1/0AWG	DT/SC 50-8	12N.m
2	Grounding cable	Outdoor single-core copper cable/yellow-green dual color 2AWG	DT/SC 35-8	12N.m
3	Grounding bar	40*4mm	/	/
4	RS485/CAN communication line	Two-core twisted pair shielded cable 20AWG	/	/
5	Ethernet communication line	Category 6A network cable	/	/
6	Voltage sampling line	UL1015 cable 16AWG	/	/
7	Current sampling line	UL1015cable 14AWG	/	/
8	Parallel line	Shielded twisted pair cable 20AWG	/	/
9	Primary meter	ADL400-C	/	/
10	Secondary meter	DTSD1352	/	/
11	Primary transformer	0~5000A/5A (The current value depends on the project)	/	/
12	Secondary transformer	0~5A/0~20mA	/	/

Product Document QR Code

www.dyness.cn




Manual

**Scan the QR code
to get the latest document**

- Datasheet
- User manual
- ...

Thanks



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