



HOPEWIND

Stock Code: SSE-603063

# Energy Storage Product Brochure

# “ About Hopewind

Shenzhen Hopewind Electric Co., Ltd. (Stock Code: 603063) focuses on the R&D, manufacturing, sales and services of renewable energy & electric drive products, including products for wind power generation, photovoltaic generation, energy storage, hydrogen production power supply products, special power supply, power quality and electric drive. Furthermore, Hopewind owns integrated independent R&D and testing platforms of high-power power electrical equipment and monitoring systems. Through innovation in technology and service, Hopewind continuously creates value for customers, and has become one of China's most competitive enterprises in the renewable energy field.

In the field of power conversion system, Hopewind provides competitive AC/DC energy storage overall solutions, includes string/central power conversion system, string/central PCS turnkey station, energy management system (EMS), energy storage systems and other products.

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Headquarter · Shenzhen

6 R&D and manufacturing bases: Shenzhen, Suzhou, Xi'an, Heyuan, Wuhan, Hungary

30+ global service bases: Deployed worldwide to provide comprehensive services for global customers

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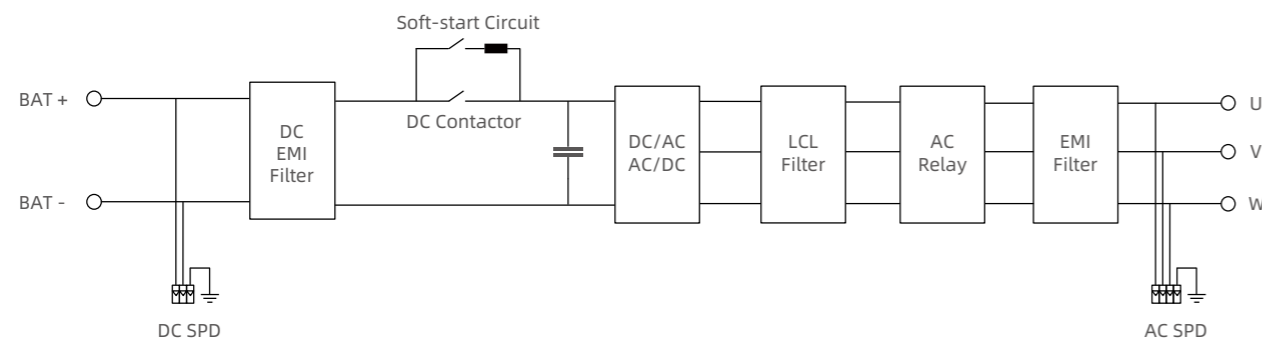
# ESHV Series 145~250kW String PCS

## Features

- Small size & high power density
- Modular design enables accurate management of battery
- IP66 & optional C4~C5 anti-corrosion degree for harsh environment
- Support up to 24 units in parallel connection
- Equipped with grid-forming function
- Variable-speed fans for quiet operation



## Product Principle



## Specifications

Model	ESHV145K-A-G01	ESHV186K-A-G01	ESHV200K-A-G01	ESHV215K-A-G01	ESHV250K-A-G01
<b>DC Input</b>					
DC Voltage Range	580~1500V	1000~1500V			
Max. DC Current	281A	209A	225A	242A	281A
<b>AC Output</b>					
Rated Power	145kW	186kW	200kW	215kW	250kW
Max. Output Power	160kW	205kW	220kW	237kW	275kW
AC Connection	3W+PE				
Isolation	Non-isolated				
Grid-forming Function	Support				
<b>On-grid</b>					
Rated Grid Voltage	400V	690V			
Voltage Range	340~440V	586.5~759V			
Rated Grid Frequency	50Hz / 60Hz				
Frequency Range	45~55Hz / 55~65Hz				
THDi	<3% (at rated power)				
Power Factor	-1~1				
Charge/Discharge Switchover Time	<20ms				
<b>Off-grid</b>					
Rated Output Voltage	400V	690V			
Voltage Imbalance	<2% (steady-state), ≤4% (transient)				
THDu	<3% (no load or rated resistive load)				
Overvoltage Protection	Settable				
Undervoltage Protection	Settable				
<b>General Data</b>					
Grounding System	IT				
Operating Ambient Temperature Range	-40~+60°C (derating above 45°C)				
Allowable Relative Humidity Range	0~95%				
Allowable Altitude Range	<4000m (derating above 3000m)				
DI Port	4				
DO Port	2				
Anti-corrosion Class	C4 (C5 optional)				
Surge Protection	DC Type II / AC Type II				
Wiring Method	Bottom in and bottom out (via quick plug terminals)				
Protection Degree	IP66				
Cooling Method	Smart Air-cooling				
Indicator	LED Indicator				
Communication Interface	Ethernet / RS485 / CAN / Local debugging WiFi (optional)				
Communication Protocol	Modbus TCP / Modbus RTU / CAN 2.0				
Dimensions (W*D*H)	795*294*915mm (excludes hanging board)				
Weight	≤100kg (net weight)				
Standard Compliance	IEC 62477-1	ESHV250K-A-G01: EN 50549-1/-2/-10, GB/T 34120-2023, IEC 62477-1, IEC 61000, IEC60068-2, G99, VDE 4110/4120, NTS V2.1, NTSV1.1 CEI 0-16, IEC TS 62910, etc. ESHV186K~215K-A-G01: IEC 62477-1, IEC 61000, IEC62920, NTS V2.1, NTS V1.1 (Please contact Hopewind team for latest certifications)			

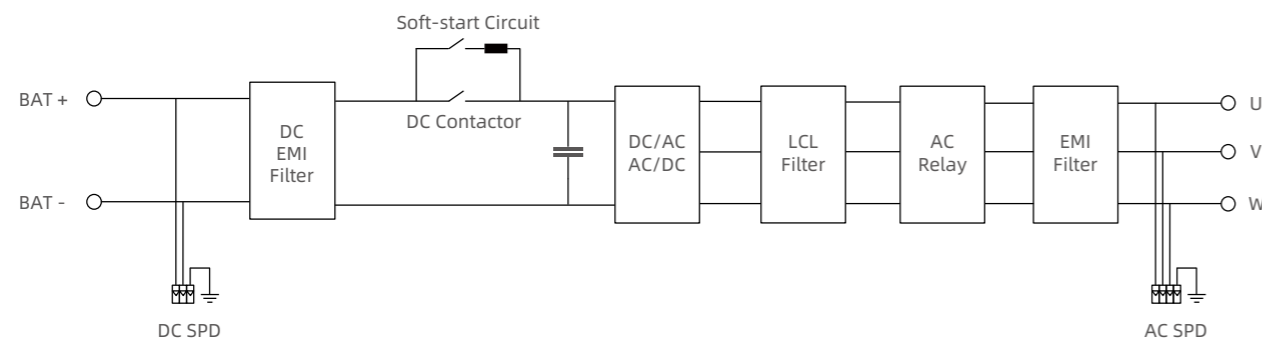
# ESHV Series 186~290kW 800Vac String PCS

## Features

- Small size & high power density
- Modular design enables accurate management of battery
- IP66 & optional C4~C5 anti-corrosion degree for harsh environment
- Support up to 24 units in parallel connection
- Equipped with grid-forming function
- Variable-speed fans for quiet operation



## Product Principle



## Specifications

Model	ESHV186K80-A-G01	ESHV200K80-A-G01	ESHV215K80-A-G01	ESHV250K80-A-G01	ESHV290K80-A-G01
<b>DC Input</b>					
DC Voltage Range	1160~1500V				
Max. DC Current	180A	194A	208A	242A	281A
<b>AC Output</b>					
Rated Power	186kW	200kW	215kW	250kW	290kW
Max. Output Power	205kW	220kW	237kW	275kW	319kW
AC Connection	3W+PE				
Isolation	Non-isolated				
Grid-forming Function	Support				
<b>On-grid</b>					
Rated Grid Voltage	800V				
Voltage Range	680~880V				
Rated Grid Frequency	50Hz / 60Hz				
Frequency Range	45~55Hz / 55~65Hz				
THDi	<3% (at rated power)				
Power Factor	-1~1				
Charge/Discharge Switchover Time	<20ms				
<b>Off-grid</b>					
Rated Output Voltage	800V				
Voltage Imbalance	<2% (steady-state), ≤4% (transient)				
THDu	<3% (no load or rated resistive load)				
Overvoltage Protection	Settable				
Undervoltage Protection	Settable				
<b>General Data</b>					
Grounding System	IT				
Operating Ambient Temperature Range	-40~+60°C (derating above 45°C)				
Allowable Relative Humidity Range	0~95%				
Allowable Altitude Range	<4000m (derating above 3000m)				
DI Port	4				
DO Port	2				
Anti-corrosion Class	C4 (C5 optional)				
Surge Protection	DC Type II / AC Type II				
Wiring Method	Bottom in and bottom out (via quick plug terminals)				
Protection Degree	IP66				
Cooling Method	Smart Air-cooling				
Indicator	LED Indicator				
Communication Interface	Ethernet / RS485 / CAN / Local debugging WiFi (optional)				
Communication Protocol	Modbus TCP / Modbus RTU / CAN 2.0				
Dimensions (W*D*H)	795*294*915mm (excludes hanging board)				
Weight	≤100kg (net weight)				
Standard Compliance	IEC 61000, IEC 62920. (Please contact Hopewind team for latest certifications)				

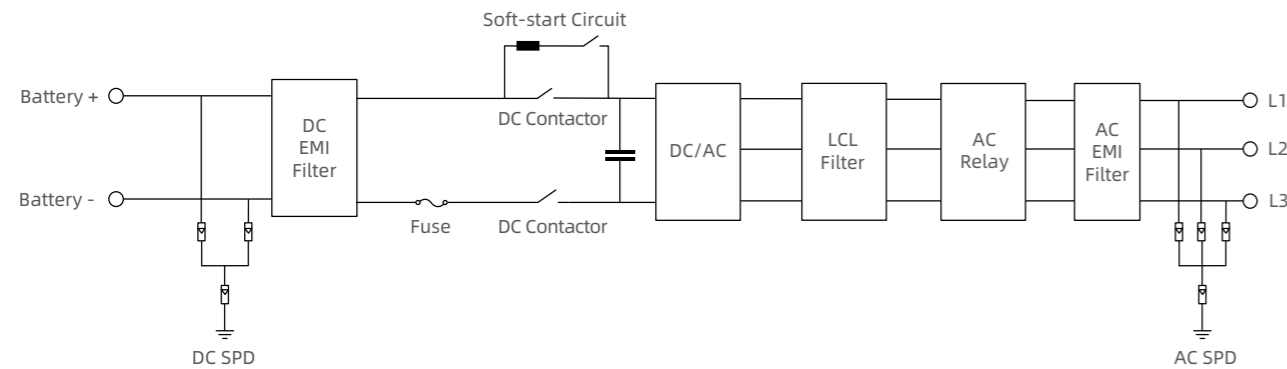
# ESHV Series 215kW Liquid-cooling HV-box Integrated String PCS

## Features

- Highly Integrated design with battery rack high voltage box and BCU
- Liquid-cooling, ultra-low noise level (<65dB)
- Small size & high power density
- IP66 protection degree for harsh environment
- Supports multi-module parallel connection
- PQ, VSG operating modes with grid-forming function



## Product Principle



## Specifications

Model	ESHV215K-LI-G01
<b>DC Input</b>	
DC Voltage Range	1000~1500V
Max. DC Current	209A
<b>AC Output</b>	
Rated Power	215kW
Max. Output Power	236.5kW (10min @ liquid temperature below 58°C)
Reactive Power Range	0~236.5kvar (10min @ liquid temperature below 58°C)
AC Connection	3W+PE
Isolation	Non-isolated
<b>On-grid</b>	
Rated Grid Voltage	690V
Voltage Range	586~759V
Rated Grid Frequency	50Hz / 60Hz
Frequency Range	45~55Hz / 55~65Hz
THDi	<3% (at rated power)
Power Factor	-1~1
Charge/Discharge Switchover Time	<20ms
<b>Off-grid</b>	
Rated Output Voltage	690V
Voltage Imbalance	<2% (steady-state), ≤4% (transient)
THDu	<3% (no load or rated resistive load)
Overvoltage Protection	Settable
Undervoltage Protection	Settable
<b>General Data</b>	
Grounding System	IT
Operating Ambient Temperature Range	-40~+60°C
Allowable Relative Humidity Range	0~95%
Allowable Altitude Range	<4000m (derating above 3000m)
Anti-corrosion Class	C4 (C5 optional)
Cooling Method	Liquid-cooling
Maximum Coolant Temperature	Max. Coolant Temperature: 58°C Recommended Coolant Temperature: <40°C
Wiring Method	Quick Plug Terminals
Protection Degree	IP66
Indicator	LED Indicator
Communication Interface	Ethernet / RS485 / CAN
Communication Protocol	Modbus TCP / Modbus RTU / CAN 2.0
Dimensions (W*D*H)	745*180*820mm (excludes hanging board) 785*180*820mm (includes hanging board)
Weight	≤80kg (net weight)
Standard Compliance	IEC 62477 and IEC 61000 (In progress) (Please contact Hopewind team for latest certifications)

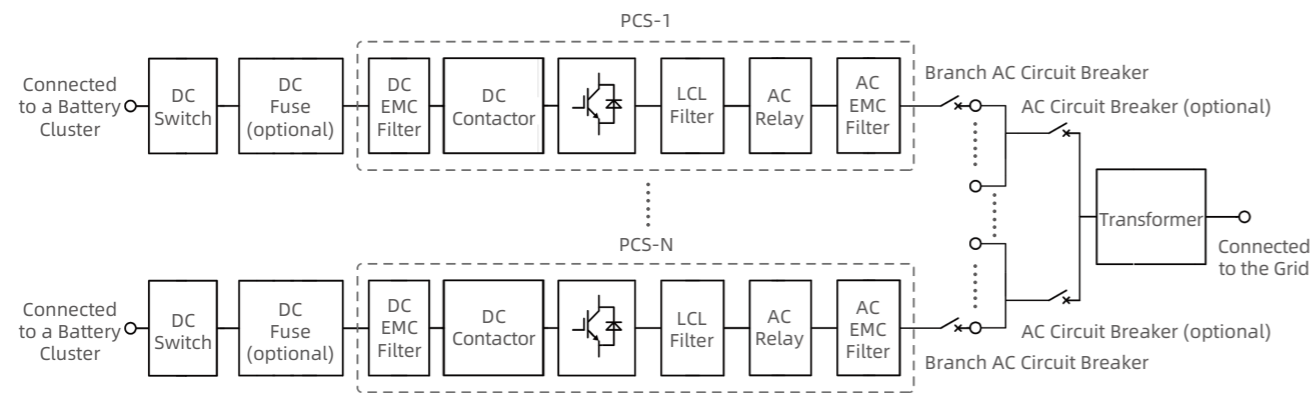
# HPPS Series 1.25~3MW String PCS Turnkey Station

## Features

- Rack-level management for batteries to address the issue of circulating current in parallel connections
- Modular design to prevent single point of failure
- Strong environmental adaptability with C4~C5 anti-corrosion degree available, and no derating at 45°C ambient temperature
- Flexible capacity configuration and customizable MV voltage level of 6~35kV
- PQ, VSG operating modes with grid-forming function



## Product Principle



## Specifications

Model	HPPS-1250B	HPPS-2500B	HPPS-3000B
<b>DC Parameters</b>			
Number of DC Input Channels	6	12	14
Max. DC Current	281A*6	281A*12	281A*14
DC Voltage Operating Range	1000~1500V		
<b>AC Parameters</b>			
Total Rated Power	1250kW	2500kW	3000kW
Max. Output Power	1375kW	2750kW	3300kW
Rated Voltage	690Vac		
Isolation Mode	Transformer Isolation		
Reactive Power Range	0~1312.5kvar	0~2625kvar	0~3150kvar
<b>On-grid</b>			
Rated Grid Voltage	6~35kV (customizable)		
Rated Grid Frequency	50Hz / 60Hz		
THDi	<3%		
Power Factor	-1~1		
<b>Transformer Parameters</b>			
Rated Capacity	1250kVA	2500kVA	3000kVA
Transformer Type	Oil-immersed Transformer		
LV/MV Voltage	0.69 / (6~35) kV		
<b>System Parameters</b>			
Dimensions (W*D*H)	6058*2438*2896mm		
Weight	≈12.5t	≈14t	≈18t
Operating Temperature	-40~+60°C (derating above 45°C)		
Operating Humidity	0~100%		
Operating Altitude	≤4000m (no derating within 3000m)		
Protection Degree	IP54 (PCS IP66)		
BMS Communication	RS485 / CAN		
EMS Communication	Ethernet		
Communication Protocol	Modbus TCP / IEC 61850 / IEC 104 / Modbus RTU / CAN 2.0		
Standard Compliance	PCS: EN 50549-1/-2/-10, GB/T 34120-2023, IEC 62477-1, IEC 61000-3/-6, IEC60068-2, G99, VDE 4110/4120, NTS V2.1, NTS V1.1, CEI 0-16, IEC TS 62910, etc. MV Transformer: IEC 60076 (Please contact Hopewind team for latest certifications)		
Grid Support	H/LVRT, frequency adjustment function, voltage adjustment function, inertia response, etc.		

\*The table only lists some models. Products can be customized for projects.

\*Please refer to the latest physical product for any changes in specifications.

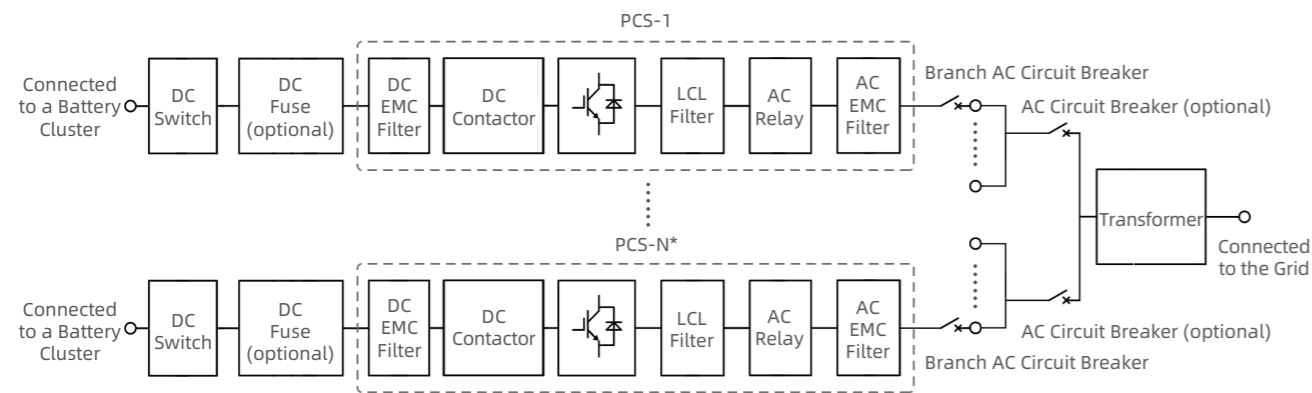
# HPPS Series 5MW String PCS Turnkey Station

## Features

- Rack-level management for batteries to address the issue of circulating current in parallel connections
- Modular design to prevent single point of failure, easy maintenance
- Use of the three-level technology
- Strong environmental adaptability with C4~C5 anti-corrosion degree available, and no derating at 45°C
- Flexible capacity configuration and customizable MV voltage level of 6~35kV
- PQ, VSG working modes with grid-forming function



## Product Principle



N\*≤24: Double-winding Transformer

## Specifications

Model	HPPS-5000B
<b>DC Parameters</b>	
Number of DC Input Channels	24
Max. DC Current	281A*24
DC Voltage Operating Range	1000~1500V
<b>AC Parameters</b>	
Total Rated Power	5000kW
Max. Output Power	5500kW
Rated Voltage	690Vac
Isolation Mode	Transformer Isolation
Reactive Power Range	0~5250kvar
<b>On-grid</b>	
Rated Grid Voltage	6~35kV (customizable)
Rated Grid Frequency	50Hz / 60Hz
THDi	<3%
Power Factor	-1~1
<b>Transformer Parameters</b>	
Rated Capacity	5000kVA
Transformer Type	Oil-immersed Transformer
LV/MV Voltage	0.69 / (6~35) kV
<b>System Parameters</b>	
Dimensions (W*D*H)	12192*2438*2896mm
Weight	≈24t
Operating Temperature	-40~+60°C (derating above 45°C)
Operating Humidity	0~100%
Operating Altitude	≤4000m (no derating within 3000m)
Protection Degree	IP54 (PCS IP66)
BMS Communication	RS485 / CAN
EMS Communication	Ethernet
Communication Protocol	Modbus TCP / IEC 61850 / IEC 104 / Modbus RTU / CAN 2.0
Standard Compliance	PCS: EN 50549-1/-2/-10, GB/T 34120-2023, IEC 62477-1, IEC 61000-3/-6, IEC60068-2, G99, VDE 4110/4120, NTS V2.1, NTS V1.1, CEI 0-16, IEC TS 62910, etc. MV Transformer: IEC 60076 (Please contact Hopewind team for latest certifications)
Grid Support	H/LVRT, frequency adjustment function, voltage adjustment function, inertia response, etc.

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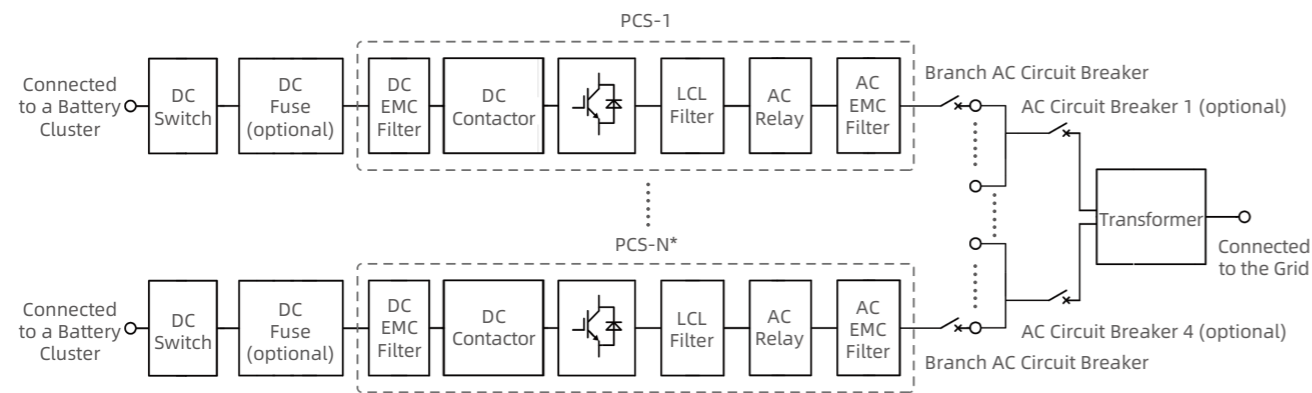
# HPPS Series 7.5MW String PCS Turnkey Station

## Features

- 7.5MW within HQ 40ft container to reduce floor space
- Rack-level management for batteries to address the issue of circulating current in parallel connections
- Modular design to prevent single point of failure, easy maintenance
- Strong environmental adaptability with C4~C5 anti-corrosion degree available, and no derating at 45°C
- Flexible capacity configuration and customizable MV voltage level of 6~35kV
- PQ, VSG operating modes with grid-forming function



## Product Principle



24≤N\*≤36: Double-split Transformer

## Specifications

Model	HPPS-7500B
<b>DC Parameters</b>	
Number of DC Input Channels	36
Max. DC Current	281A*36
DC Voltage Operating Range	1000~1500V
<b>AC Parameters</b>	
Total Rated Power	7500kW
Max. Output Power	8250kW
Rated Voltage	690Vac
Isolation Mode	Transformer Isolation
Reactive Power Range	0~7875kvar
<b>On-grid</b>	
Rated Grid Voltage	6~35kV (customizable)
Rated Grid Frequency	50Hz / 60Hz
THDi	<3%
Power Factor	-1~1
<b>Transformer Parameters</b>	
Rated Capacity	7700kVA
Transformer Type	Oil-immersed Transformer
LV/MV Voltage	0.69 / 0.69 / (6~35) kV
<b>System Parameters</b>	
Dimensions (W*D*H)	12192*2438*2896mm
Weight	≈34t
Operating Temperature	-40~+60°C (derating above 45°C)
Operating Humidity	0~100%
Operating Altitude	≤4000m (no derating within 3000m)
Protection Degree	IP54 (PCS IP66)
BMS Communication	RS485 / CAN
EMS Communication	Ethernet
Communication Protocol	Modbus TCP / IEC 61850 / IEC 104 / Modbus RTU / CAN 2.0
Standard Compliance	PCS: EN 50549-1/-2/-10, GB/T 34120-2023, IEC 62477-1, IEC 61000-3/-6, IEC60068-2, G99, VDE 4110/4120, NTS V2.1, NTS V1.1, CEI 0-16, IEC TS 62910, etc. MV Transformer: IEC 60076 (Please contact Hopewind team for latest certifications)
Grid Support	H/LVRT, frequency adjustment function, voltage adjustment function, inertia response, etc.

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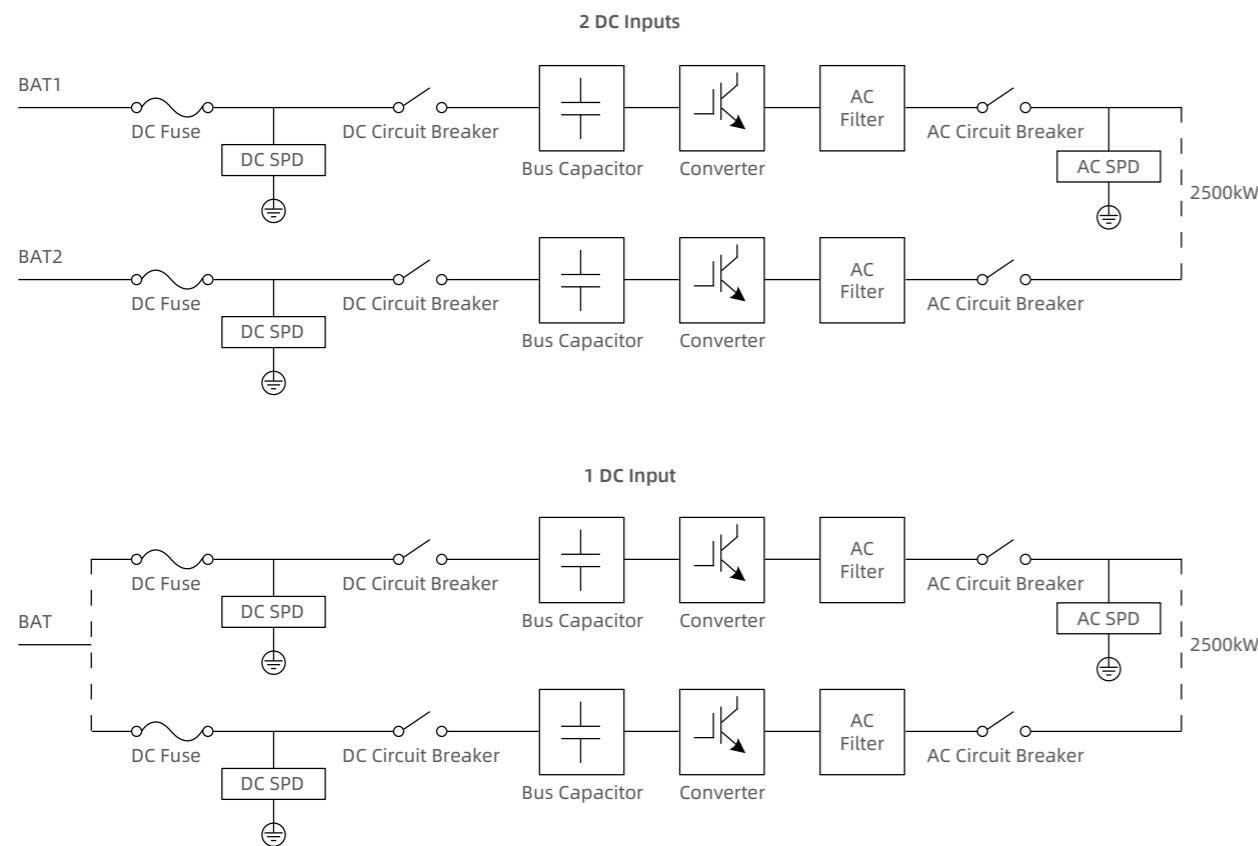
# hopePCSHV Series 1.25~2.75MW Liquid-cooling Central PCS

## Features

- Small footprint, only 1000\*1500mm
- Innovative liquid cooling heat dissipation method
- 51°C operation without derating
- Ingress protection IP66 and anti-corrosion C5, high environmental adaptability
- 1/2 DC inputs, compatible with single/dual-branch battery system
- PQ, VSG operating modes with grid-forming function



## Product Principle



## Specifications

Model	hopePCSHV 1250	hopePCSHV 1500	hopePCSHV 1750	hopePCSHV 2000	hopePCSHV 2250	hopePCSHV 2500	hopePCSHV 2750
<b>DC Input</b>							
DC Voltage Range	1000~1500V						
Max. DC Current	703A*2	844A*2	984A*2	1125A*2	1265A*2	1406A*2	
Number of DC Input Channels	1 / 2						
<b>AC Input</b>							
Rated Power	1250kW	1500kW	1750kW	2000kW	2250kW	2500kW	2750kW
Max. Output Power	1375kW	1650kW	1925kW	2200kW	2475kW	2750kW	2750kW
Reactive Power Range	0~1312.5kvar	0~1575kvar	0~1837.5kvar	0~2100kvar	0~2363kvar	0~2625kvar	0~2750kvar
Rated Current	1045A	1255A	1464A	1673A	1883A	2092A	2301A
AC Connection	3W+PE						
Isolation	Non-isolated						
<b>On-grid</b>							
Rated Grid Voltage	690V						
Voltage Range	586.5~759V						
Rated Grid Frequency	50Hz / 60Hz						
Frequency Range	47~53Hz / 57~63Hz						
Power Factor	-1~+1						
THDi	3% (at rated power)						
Charge/Discharge Switchover Time	70ms						
<b>Off-grid</b>							
Rated Output Voltage	690V						
Voltage Imbalance	<2% (steady-state), ≤4% (transient)						
THDu	<3% (no load or rated resistive load)						
Overvoltage Protection	Settable						
Undervoltage Protection	Settable						
<b>General Data</b>							
Grounding System	IT						
Operating Ambient Temperature Range	-40~+60°C (derating above 51°C)						
Allowable Relative Humidity Range	4~100% (non-condensing)						
Allowable Altitude Range	≤4000m (no derating within 3000m)						
Anti-corrosion Class	C4 (C5 optional)						
Protection Degree	IP66						
Cooling Method	Liquid-cooling						
Human-machine Interface (HMI)	Touch Screen						
Communication Protocol	Modbus TCP / IEC 61850 / IEC 104 / Modbus RTU / CAN 2.0						
Dimensions (W*D*H)	1000*1500*2428mm						
Weight	≈1800kg						
Standard Compliance	EN 50549-2/-10, NTS V2.1, IEC 62477-1, IEC 61000, IEC 61683, IEC 60068, IEC 62116, IEC TS 62910, CEA, etc. (Please contact Hopewind team for latest certifications)						

Note: The hopePCSHV2750 model has no overload capacity beyond its rated power.

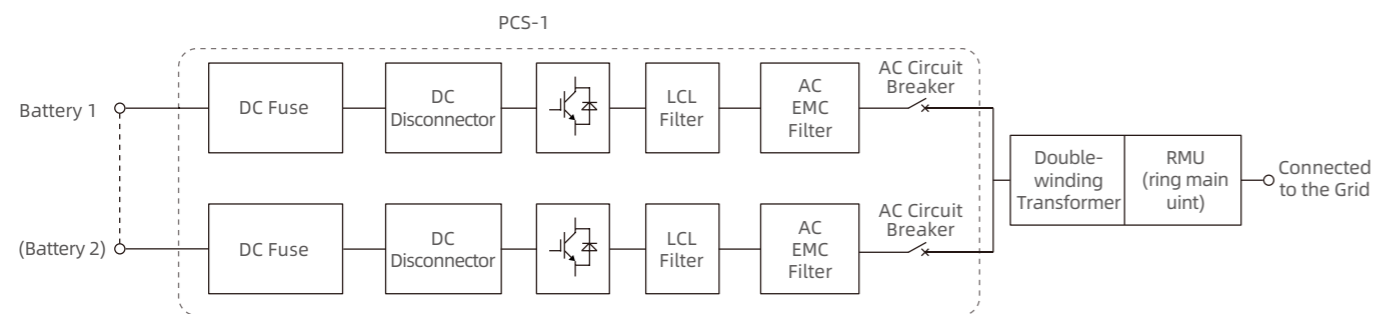
# HPPS Series 2.5MW Central PCS Turnkey Station

## Features

- 20 feet HQ container design, highly integrated, convenient and efficient transportation and installation
- Strong environmental adaptability with C4~C5 anti-corrosion degree available
- PCS liquid cooling, no derating up to 51°C
- Multiple operating modes supported such as PQ and VSG. Satisfy grid-forming functions
- Flexible capacity configuration and customizable MV voltage level of 6~35kV



## Product Principle



## Specifications

Model	HPPS-2500	HPPS-2500A
<b>DC Parameters</b>		
Number of DC Input Channels	2	1
Max. DC Current	1406A*2	2812A*1
DC Voltage Operating Range	1000~1500V	
<b>AC Parameters</b>		
Total Rated Power	2500kW	
Max. Output Power	2750kW	
Rated Voltage	690Vac	
Isolation Mode	Transformer Isolation	
Reactive Power Range	0~2625kvar	
<b>On-grid</b>		
Rated Grid Voltage	6~35kV (customizable)	
Rated Grid Frequency	50Hz / 60Hz	
THDi	<3%	
Power Factor	-1~1	
<b>Transformer Parameters</b>		
Rated Capacity	2625kVA	
Transformer Type	Oil-immersed Transformer	
LV/MV Voltage	0.69 / (6~35) kV	
<b>System Parameters</b>		
Dimensions (W*D*H)	6058*2438*2896mm	
Operating Temperature	-40~+60°C (PCS derating above 51°C, transformer derating is optional for 40°C to 51°C)	
Operating Humidity	4~100% (non-condensing)	
Operating Altitude	≤4000m (no derating within 3000m)	
Protection Degree	IP54 (PCS IP66)	
BMS Communication	RS485 / CAN	
EMS Communication	Ethernet	
Communication Protocol	Modbus TCP / IEC 61850 / IEC 104 / Modbus RTU / CAN 2.0	
Standard Compliance	PCS: EN 50549-2/-10, NTS V2.1, CEA, IEC 61683, IEC 60068, IEC 62116, IEC TS 62910, etc. MV Transformer: IEC 60076 (Please contact Hopewind team for latest certifications)	
Grid Support	H/LVRT, frequency adjustment function, voltage adjustment function, inertia response, etc.	

\*The table only lists some models. Products can be customized for projects.

\*Please refer to the latest physical product for any changes in specifications.

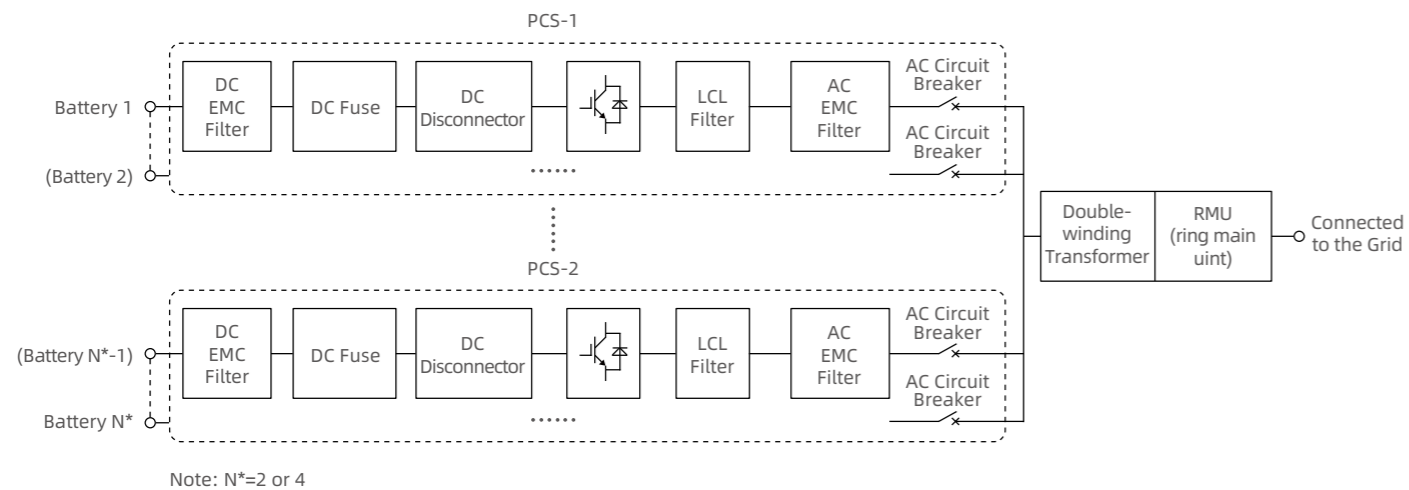
# HPPS Series 5MW Central PCS Turnkey Station

## Features

- 2 sets of 2.5MW central PCS integrated into a 20 feet container to reduce floor space
- Strong environmental adaptability with C4~C5 anti-corrosion degree available
- PCS liquid cooling, no derating up to 51°C
- Multiple operating modes supported such as PQ and VSG. Satisfy grid-forming functions
- Flexible capacity configuration and customizable MV voltage level of 6~35kV



## Product Principle



## Specifications

Model	HPPS-5000	HPPS-5000A
<b>DC Parameters</b>		
Number of DC Input Channels	4	2
Max. DC Current	1406A*4	2812A*2
DC Voltage Operating Range	1000~1500V	
<b>AC Parameters</b>		
Total Rated Power	5000kW	
Max. Output Power	5500kW	
Rated Voltage	690Vac	
Isolation Mode	Transformer Isolation	
Reactive Power Range	0~5250kvar	
<b>On-grid</b>		
Rated Grid Voltage	6~35kV (customizable)	
Rated Grid Frequency	50Hz / 60Hz	
THDi	<3%	
Power Factor	-1~1	
<b>Transformer Parameters</b>		
Rated Capacity	5250kVA	
Transformer Type	Oil-immersed Transformer	
LV/MV Voltage	0.69 / (6~35) kV	
<b>System Parameters</b>		
Dimensions (W*D*H)	6058*2438*2896mm	
Operating Temperature	-40~+60°C (PCS derating above 51°C, transformer derating is optional for 40°C to 51°C)	
Operating Humidity	4~100% (non-condensing)	
Operating Altitude	≤4000m (no derating within 3000m)	
Protection Degree	IP54 (PCS IP66)	
BMS Communication	RS485 / CAN	
EMS Communication	Ethernet	
Communication Protocol	Modbus TCP / IEC 61850 / IEC 104 / Modbus RTU / CAN 2.0	
Standard Compliance	PCS: EN 50549-2/-10, NTS V2.1, CEA, IEC 61683, IEC 60068, IEC 62116, IEC TS 62910, etc. MV Transformer: IEC 60076 (Please contact Hopewind team for latest certifications)	
Grid Support	H/LVRT, frequency adjustment function, voltage adjustment function, inertia response, etc.	

\*The table only lists some models. Products can be customized for projects.

\*Please refer to the latest physical product for any changes in specifications.

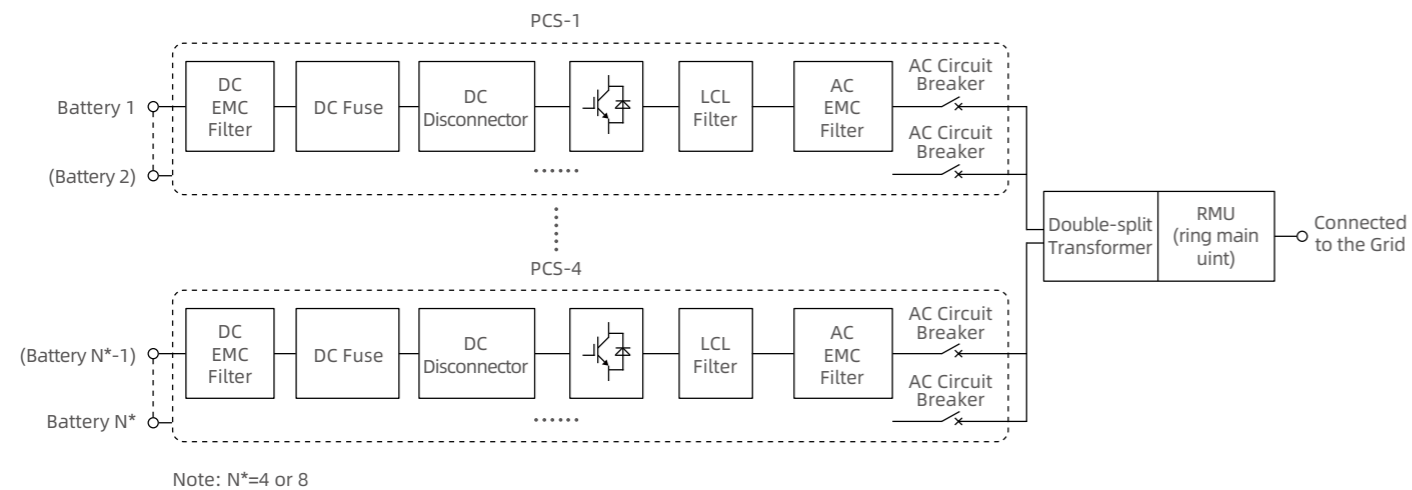
# HPPS Series 10MW Central PCS Turnkey Station

## Features

- 4 sets of 2.5MW central PCS integrated into a 40 feet container to reduce floor space
- Strong environmental adaptability with C4~C5 anti-corrosion degree available
- PCS liquid cooling, no derating up to 51°C
- Multiple operating modes supported such as PQ and VSG. Satisfy grid-forming functions
- High efficiency and low self-consumption



## Product Principle



## Specifications

Model	HPPS-10000	HPPS-10000A
<b>DC Parameters</b>		
Number of DC Input Channels	8	4
Max. DC Current	1406A*8	2812A*4
DC Voltage Operating Range	1000~1500V	
<b>AC Parameters</b>		
Total Rated Power	10000kW	
Max. Output Power	11000kW	
Rated Voltage	690Vac	
Isolation Mode	Transformer Isolation	
Reactive Power Range	0~10500kvar	
<b>On-grid</b>		
Rated Grid Voltage	33 / 35kV (customizable)	
Rated Grid Frequency	50Hz / 60Hz	
THDi	<3%	
Power Factor	-1~1	
<b>Transformer Parameters</b>		
Rated Capacity	10500kVA	
Transformer Type	Oil-immersed Transformer	
LV/MV Voltage	0.69 / 0.69 / (33 / 35) kV	
<b>System Parameters</b>		
Dimensions (W*D*H)	12192*2438*2896mm	
Operating Temperature	-40~+60°C (PCS derating above 51°C, transformer derating is optional for 40°C to 51°C)	
Operating Humidity	4%~100% (non-condensing)	
Operating Altitude	≤4000m (no derating within 3000m)	
Protection Degree	IP54 (PCS IP66)	
BMS Communication	RS485 / CAN	
EMS Communication	Ethernet	
Communication Protocol	Modbus TCP / IEC 61850 / IEC 104 / Modbus RTU / CAN 2.0	
Standard Compliance	PCS: EN 50549-2/-10, NTS V2.1, CEA, IEC 61683, IEC 60068, IEC 62116, IEC TS 62910, etc. MV Transformer: IEC 60076 (Please contact Hopewind team for latest certifications)	
Grid Support	H/LVRT, frequency adjustment function, voltage adjustment function, inertia response, etc.	

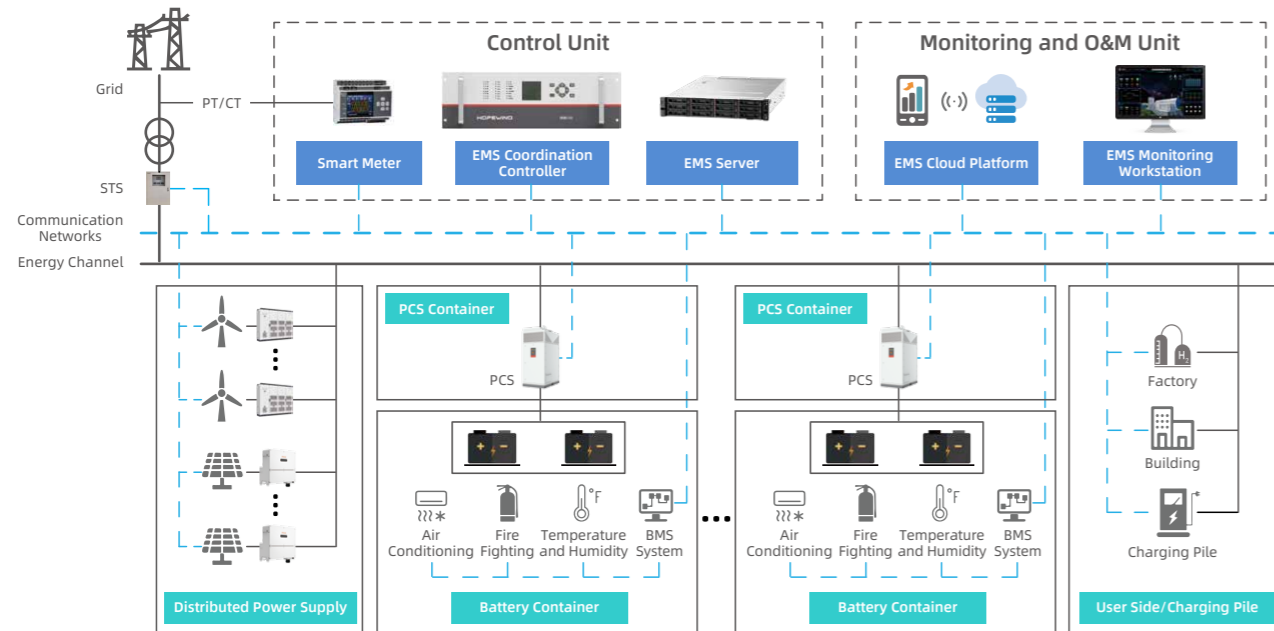
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# Overview of Storage EMS

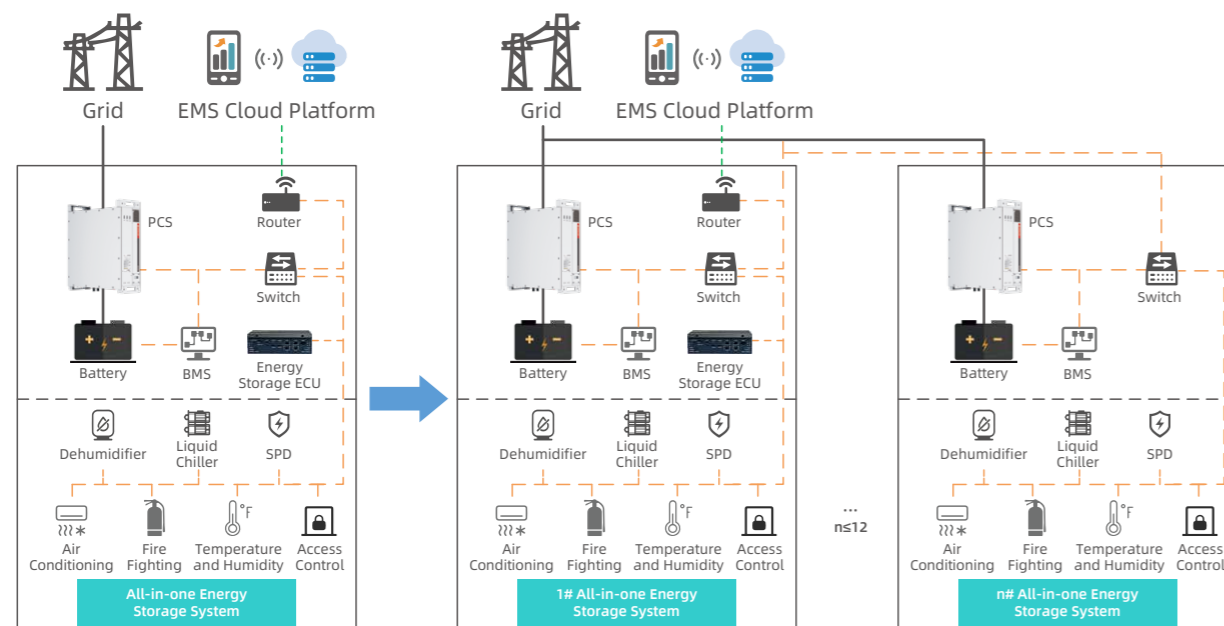
## Topology of the Energy Storage/Micro-grid EMS

Hopewind EMS works in various scenarios like energy storage, distribution, and micro-grid. It supports energy dispatching of multiple sources such as power supplies, grids, loads, and storage, and coordinated control of multiple equipment. In addition, the EMS provides comprehensive operation and maintenance solutions including local monitoring and cloud platform.



## Topology of the All-in-one Energy Storage EMS

The all-in-one solution integrates batteries, energy storage converters, auxiliary control devices, BMS, and EMS into a single cabinet. The energy of the energy storage unit can be controlled by configuring the ECU. The solution supports parallel connection and coordinated control of multiple units.



## Hopewind Cloud Platform

### Big Data Center

By establishing "analysis models" and "intelligent decision-making algorithms" for energy big data, the big data center deeply optimizes the accuracy and performance of algorithms through long-term mass data computation and training, providing precise decision-making support for energy operation enterprises.

### Energy IoT Platform

The energy IoT platform supports fast connection with self-developed and third-party devices, implementing status perception, remote control, and data collection of energy equipment in areas such as wind, solar, storage, hydrogen, and energy consumption.

### Energy PaaS Management Platform

Implementing functions such as platform application management, tenant management, system management, equipment management, and statistical analysis of data.



### Energy SaaS Application Platform

Building energy solutions in niche areas such as distributed energy management, household energy consumption, micro-grid, and zero-carbon parks to meet users' energy operation needs.

## Monitoring by Hopewind Energy Storage EMS Cloud Platform



# Project Cases



> 250MW/1000MWh (Aral, Xinjiang, China)



> 180MW/360MWh (Jiuquan, Gansu, China)



> 100MW/400MWh (Handan, Hebei, China)



> 100MW/200MWh (Shizuishan, Ningxia, China)



> 154MW/308MWh (Jiayuguan, Gansu, China)



> 150MW/300MWh (Yinchuan, Ningxia, China)



> 100MW/200MWh (Jining, Shandong, China)



> 100MW/200MWh (Dongming, Shandong, China)



> 120MW/240MWh (Alashan, Inner Mongolia, China)



> 100MW/400MWh (Burqin, Xinjiang, China)



> 100MW/200MWh (Zhucheng, Shandong, China)



> 100MW/200MWh (Qiannan, Guizhou, China)



> 100MW/200MWh (Turpan, Xinjiang, China)



> 100MW/200MWh (Anshun, Guizhou, China)



> 100MW/200MWh (Jiuquan, Gansu, China)



> 160MW/320MWh (Zhongwei, Ningxia, China)

# Project Cases



> 307MW/723MWh (Chengde, Hebei, China)



> 200MW/400MWh grid-forming (Xilingol, Inner Mongolia, China)



> 25MW/50MWh (Wanning, Hainan, China)



> 25MW/50MWh (Fuyang, Anhui, China)



> 50MW/100MWh grid-forming (Kashgar, Xinjiang, China)



> 52.5MW/105MWh (Yueqing, Zhejiang, China)



> 23MW/46MWh (Lianshui, Jiangsu, China)



> 20MW/40MWh grid-forming (Wenshan, Yunnan, China)



> 50MW/100MWh (Jiangyin, Jiangsu, China)



> 25MW/50MWh (Shaoguan, Guangdong, China)



> 15MW/7.5MWh thermal power plant ESS (Shanxi, China)



> Yunnan microgrid project



> 25MW/50MWh (Tangshan, Hebei, China)



> 5MW/10MWh (Jiaxing, Zhejiang, China)



> Supercapacitor energy storage



> 1MW flywheel system integration

# Project Cases



> 3MW/6MWh (Huizhou, Guangdong, China)



> 3MW/31MWh lead-carbon battery project (Changxing, Zhejiang, China)



> 12MW/36MWh ESS Project for PV Plant (South Korea)



> 45MW/180MWh ESS Project for PV Plant (Spain)



> Dagang oilfield 1MW/1MWh sodium-ion battery (Tianjin, China)



> 11.25MW/45MWh String ESS Project (Bulgaria)



> 360MW ESS Project for PV Plant (India)



> 2.5MW/5MWh Energy Storage Project (Italy)



> 4.8MW/9.6MWh ESS Project (Netherlands)



> 5.6MW/11.2MWh ESS Project (Spain)



> 1.25MW/2.5MWh C&I ESS Project for PV Plant (Egypt)



> 4.4MW/8.9MWh Mine On/Off-Grid ESS Project (Zimbabwe)



> All-in-one C&I ESS (Brazil)



> 2.5MW/5MWh PCS Turnkey Station (Latvia)



> 12.5MW ESS Project for PV Plant (Spain)



> 92.5MW String ESS Project (Philippines)

To promote technological progress in the industry  
and create a better life for mankind



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If the product size and parameters have changed, the latest actual product shall prevail