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Version: February 28, 2025, Commercial & Industrial Energy Storage Systems



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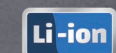
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One-Stop C&I ESS Solution Provider

Euro-Standard Commercial & Industrial Energy Storage Systems

Energy-Efficient, Safe,
Cost-Effective, Sustainable



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*ROYPOW,
Your Trusted Partner*

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ROYPOW

For One-stop New Energy Solutions

- R&D, manufacturing and sales of motive power systems and energy storage systems as one-stop solutions
- Fully automatic production lines, a full range of test equipment and an advanced MES
- Covering Low-Speed Vehicles' Batteries, Industrial Batteries, as well as Residential ESS, Commercial & Industrial ESS, and Mobile ESS
- Self-development of power electronics technologies, including PCS, BMS, and EMS



750+ Employees
190+ R&D People
105,000 m² Headquarters Floor Area
2,500 m² Testing Center
231 Patents

Quality Control Certificates:

- ✓ Environmental Management System: ISO 14001:2015
- ✓ Occupational Health and Safety Management System: ISO 45001:2018
- ✓ Quality Management System: ISO 9001:2015, IATF16949:2016
- ✓ Information Security Management System: ISO/IEC 27001:2022
- ✓ Social Accountability Management System: SA8000:2014
- ✓ Hazardous Substance Process Management: IECQ QC 080000



Product Certifications:

UL 1973, UL 9540A, UL 9540, UL 2580, UL 2271, UL 1741
 IEC 62619
 EN 62477, EN 62040, (EU) 2023/1542, EN 62109-1, EN 62109-2

UL **EMC** FCC, IEC/EN 61000-6, BS EN IEC 61000-6
GRID **Function Safety** IEC 60730, ISO 13849-1
CB **Transport** UN 38.3
CE **RoHS** RoHS Directive 2011/65/EU & (EU) 2015/863

R&D and Manufacturing Highlights

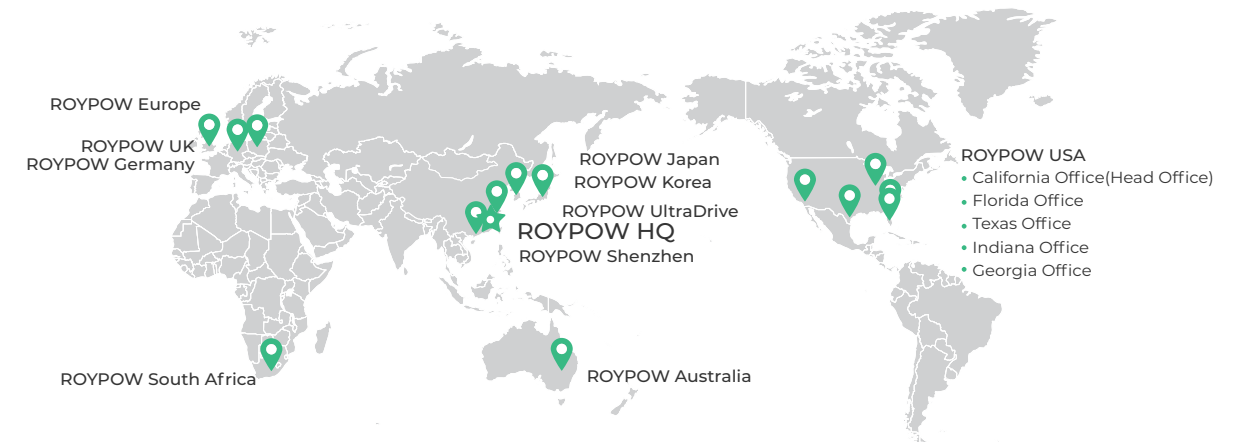
As a result of these investments, ROYPOW is capable of "end-to-end" integrated delivery, making our products out-perform the industry norms.

- Fully Automatic Production Lines
- BMS, PCS, EMS All Designed in House
- All-round Testing
- Advanced MES System

Global Sales and Service Network

- Timely Delivery
- Hassle-free After-sales Service
- Fast Response Technical Support

ROYPOW has comprehensively unfolded its overseas market layout to ensure the localization of R&D, manufacturing, marketing and service, becoming one of your most reliable and valuable partners.



Upgrading to New Technology, with Our Turnkey Solutions.

With years of dedication to new energy solutions, we are proud to offer customers professional solutions for:

- Low-speed Vehicle Batteries
- Battery Systems for Off-highway Applications
- Residential Energy Storage Systems
- Mobile Energy Storage Systems
- Industrial Batteries
- Battery Systems for Emerging Applications
- Commercial & Industrial Energy Storage Systems
- Motors, Controllers and Chargers



ROYPOW C&I ESS Solutions

Committed to providing cutting-edge energy storage solutions to the world, ROYPOW has developed safe, efficient, and economical commercial and industrial energy storage systems for both on-grid and off-grid scenarios, helping to optimize the energy structure, enhance the reliability of the power system, reduce the cost of energy use, etc.



Comprehensive Solutions

ROYPOW provides comprehensive energy storage solutions, which allows businesses to choose the right combination of products tailored to their specific power and cost needs, whether for energy efficiency, peak shaving, or backup power.



High Quality for Lower TCO

ROYPOW solutions, backed by strong R&D, manufacturing, testing, and quality control strengths, ensure safety, reliability, and energy efficiency in demanding conditions, extending service life and reducing total cost of ownership (TCO).



Go for a Sustainable Future

With a focus on clean, renewable energy integration, ROYPOW empowers industries to achieve their sustainability goals and lower carbon footprints while benefiting from reliable, cost-effective energy storage solutions.

The solutions include:



Air-Cooled Energy
Storage System

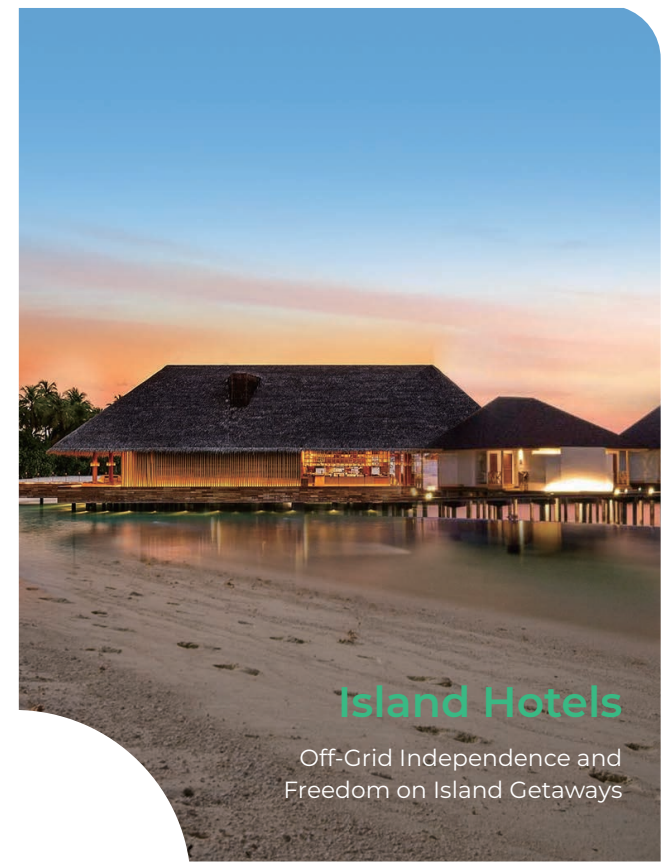
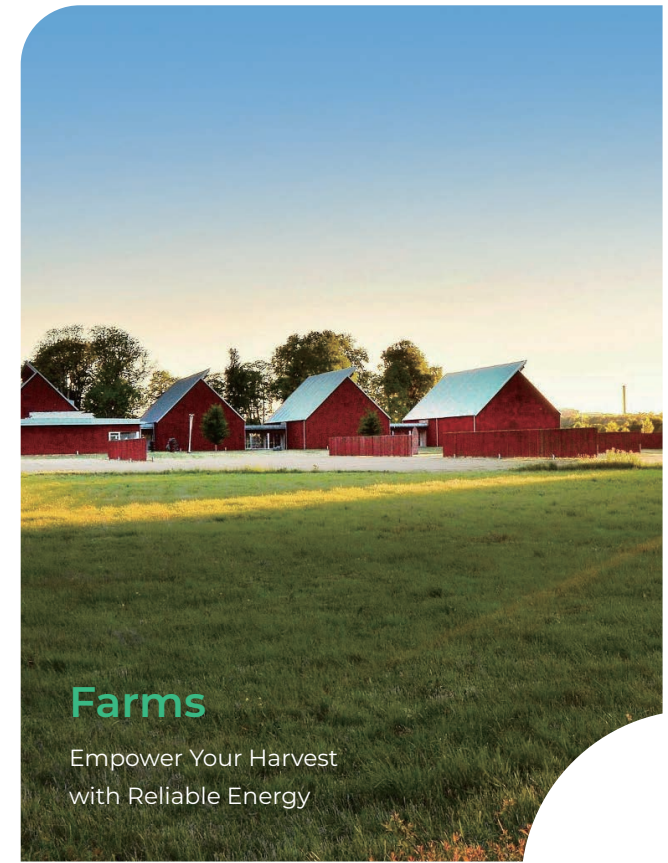
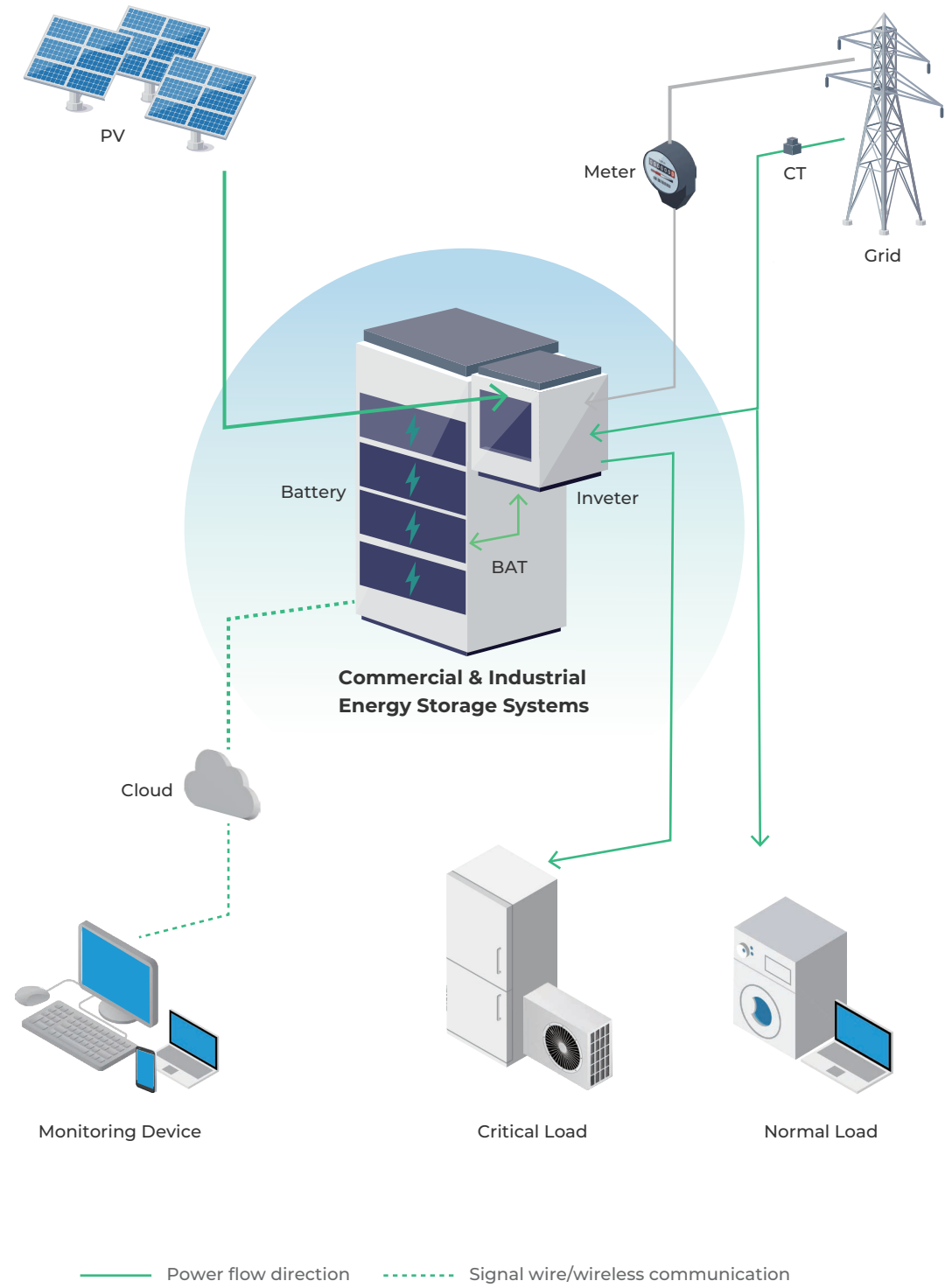


Liquid-Cooled Energy
Storage System

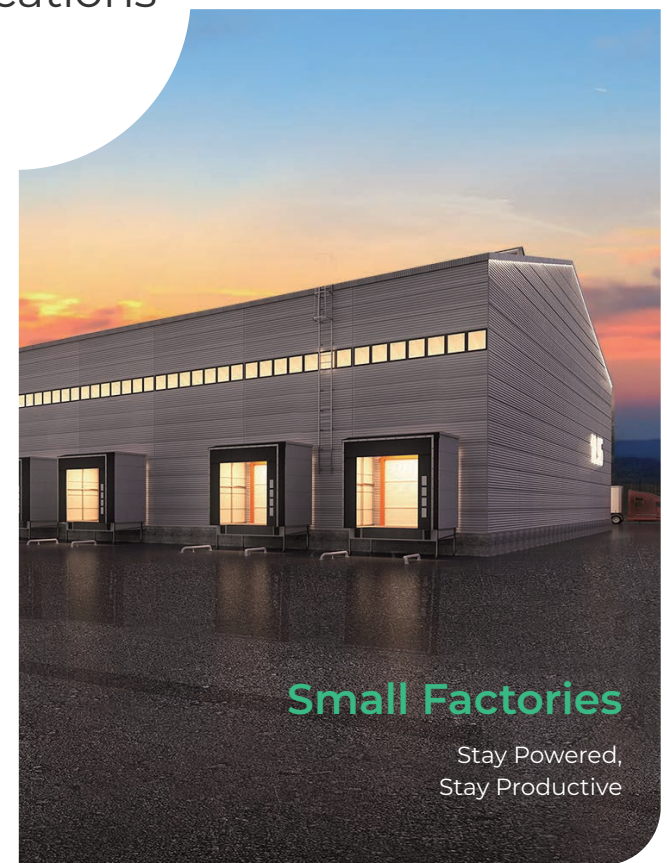
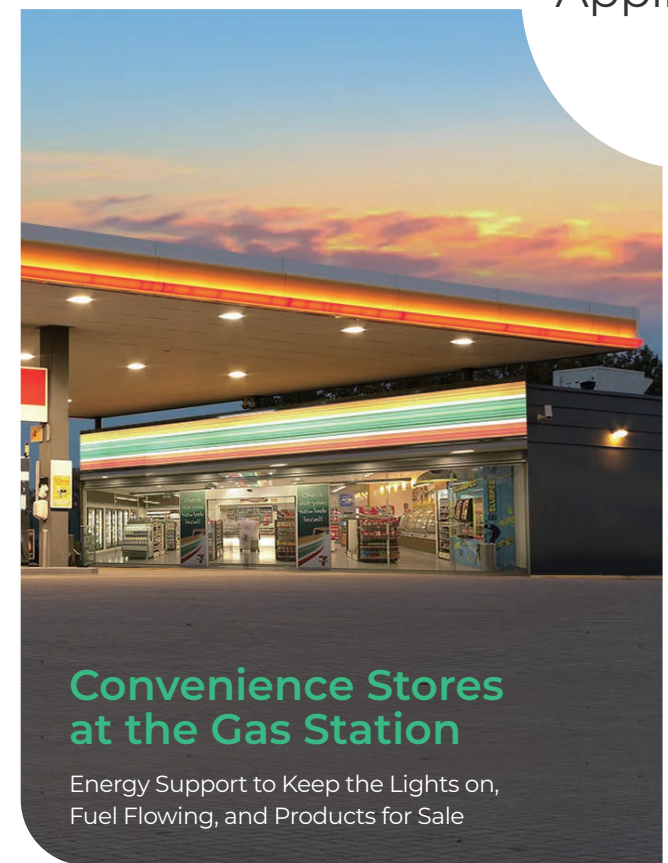


Battery Energy
Storage System

Topology



Applications



Air-Cooled Energy Storage System

20kW / 45.6kWh | 25kW / 60.8kWh | 30kW / 60.8kWh

The all-in-one air-cooled ESS cabinet integrates long-life battery modules, a high-performance inverter, fire protection, air conditioning, and more into a single unit, enabling long-term operation with safety, stability, and reliability for various scenarios, including commercial buildings, industrial facilities, and emergency backup systems.



System

- Prestalled all-in-one design for the ease of installation and deployment
- Parallel connection of up to 6 cabinets, reaching 180kW / 360kWh
- 20ms off-grid switching time for seamless power support
- IP54 ingress rating for indoor and outdoor installation
- Cell-level and cabinet-level hot aerosol fire extinguishing system for fire safety



Inverter Module

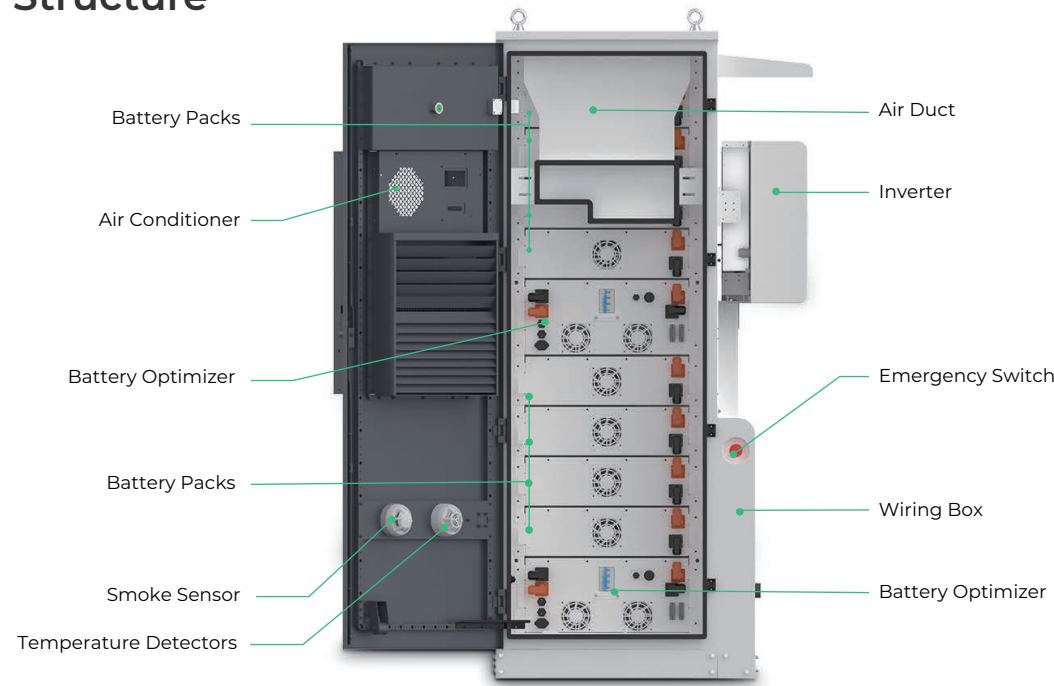
- Three-phase output
- Max. 99% PV-to-grid efficiency
- Intelligent management via Bluetooth on the App
- IP65 Ingress rating
- Multiple safety protections, including anti-islanding, over-current, short-circuit, and over-voltage protection



Battery Module

- 10 years of warranty
- Advanced LFP cells with high safety, long life, stable and reliable characteristics
- Long lifespan with over 6,000 times of cycle life
- Multiple safety protections, including over-current, short-circuit, over-voltage, and output short-circuit protection

System Structure



Technical Specifications

Model	CS2045-E/H	CS2560-E/H	CS3060-E/H
Battery Parameters			
Nominal Energy	45.6 kWh	60.8 kWh	60.8 kWh
Nominal Voltage/Voltage Range	316.8 V / 277.2 - 361.35 V	422.4 V / 369.6 - 481.8 V	422.4 V / 369.6 - 481.8 V
Charge Discharge Rate	0.5P / 0.5P		
Number of Battery Optimizer	2	2	2
Number of Battery Pack	6	8	8
Battery Pack Model		RBmax7.6MH	
Nominal Energy	7.6 kWh (3351P, 3.2 V 72 Ah)		
Nominal Voltage/Voltage Range	105.6 V / 92.4 - 120.45 V		
Max. Continuous Working Current	50 A		
Cycle Life	6000 @ 25°C, 90% DOD, 0.5P / 0.5P, 70% EOL		
Dimension (W×D×H)	500 x 760 x 148.3 mm		
Net Weight	65 kg		
Battery Optimizer Model		RMH95050	
DC Working Voltage	550 - 950 V		
Nominal Power	15 kW		
Dimension (W×D×H)	650 x 250 x 250 mm		
Net Weight	15 kg		
Inverter Model		SUN20000T-EI	SUN25000T-EI SUN30000T-EI
Input (PV)			
Max. Power (W)	45000		
MPPT Range (Full Load) (V)	340 ~ 800	270 ~ 800	340 ~ 800
MPPT Range (V)	160 ~ 950		
Max. DC Voltage (V)	1000		
Start Voltage (V)	180		
Max. DC Current (A)	30 / 30	30 / 30 / 30	30 / 30 / 30
MPP Tracker No.	2	3	3
String No.	2+2	2+2+2	2+2+2

Input (DC BUS)

Compatible Battery Type	Lithium-ion		
Bus Voltage Range (V)	550-950		
Max. Charge / Discharge Current (A)	50		
Lithium Battery Charge Curve	Self-adaption to BMS		

Output (On Grid)

Nom. Power (Output) (W)	20000	25000	30000
Maximum Apparent Power (Output) (VA)	22000	27500	33000
Nominal Voltage (V)	380 / 400 V (Three Phase)		
Nominal AC Frequency (Hz)	50 / 60 Hz		
Nominal Current (Output) (A)	3 * 33.33 / 3 * 28.9	3 * 41.67 / 3 * 36.3	3 * 43.5 / 3 * 43.5
Maximum Current (Input) (A)	3 * 63		

Output (BackUp)

Nom. Power (VA)	20000	25000	30000
Maximum Power (5min) (VA)	24000	30000	36000
Apparent Power (10s) (VA)	30000	37500	45000
Nom. Bypass Power (VA)	45000		
Nominal Back-up Voltage (V)	380 / 400 V (Three phase)		
Nominal Back-up Frequency (Hz)	50 / 60 Hz		
Nominal Back-up Current (A)	3 * 33.33 / 3 * 28.9	3 * 41.67 / 3 * 36.3	3 * 43.5 / 3 * 43.5
THDV	<3% (R Load), 5% (RCD Load)		

Efficiency

Max. Efficiency (PV to Grid)	98.8%	98.8%	98.8%
Eur. Efficiency (PV to Grid)	97.2%	97.9%	97.9%
Max. Charge Efficiency (PV to Battery)	98%	98%	98%
Max. Charge/Discharge Efficiency (Grid to Battery)	98%	98%	98%

General

Temp. Range	-25~60°C	Noise Emission	45 dB
Max. Operation Altitude	4000 m	Humidity	0-100%
Topology	Transformerless	Cooling	Smart Fan
Protection	IP65		

HMI & COM

Display	LED+APP (Bluetooth)		
Communication Interface	LED + APP (Bluetooth), BMS (CAN / RS485), Wi-Fi / GPRS / 4G / Ethernet (optional), DI (DRM / RCR), Meter (RS485), 1 * DO, USB (Firmware Upgrade)		

Protection

Protection	Anti-islanding Protection, AC Over-current Protection, AC Short-circuit Protection, AC Over-voltage Protection, Insulation Detection, GFCI				
SPD	DC Type 2, AC Type 2	AFCI	Optional	RSD	Optional

Mechanical

W x H x D	650 x 500 x 265 mm	Weight	40 kg	DC Switch	Internal
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System Parameters

Ambient Temperature	-20°C~50°C (>45°C Derating)				
Parallel	6				
Storage Environment Temperature	0°C~40°C				
Relative Humidity of Working Environment	5~95%, Non-condensing				
Cooling Method	Intelligent Air-cooled Air conditioner				
Noise Level	60dB				
Firefighting Methods	Cell-level + Cabinet-level Gas Fire Protection (Aerosol)				
Off-Grid Switching Time	20 ms				
Working Altitude	4000m (>2000m Derating)				
Installation Method	Floor-to-ceiling Installation				
Communication Model	RS485, CAN, Dry, WI-FI				
Enclosure Rating	IP54				
Weight	<1000kg				
Size (L x W x H)	1050 x 685 x 2000 mm				

Note: All data are based on ROYPOW standard test procedures. Actual performance may vary according to local conditions

Liquid-Cooled Energy Storage System

100kW/232kWh 100kW/261kWh

The all-in-one liquid-cooled ESS cabinet features advanced cabinet-level liquid cooling and temperature balancing strategies, which enhance temperature consistency and extend battery life. The modular design offers greater flexibility in parallel solutions, significantly improving cost-effectiveness, safety, and ease of construction for C&I ESS projects.



All-In-One

Highly integrated and pre-installed with battery packs, a high-voltage battery box, a liquid cooling unit, and more in a single cabinet, saving both space and installation time for faster deployment.



Efficient Cooling

Advanced variable frequency liquid cooling technology keeps the cabinet's temperature difference within 3°C, extending cell life by up to 30%.



Ultimate Safety

Built-in pack-level and cabinet-level fire extinguishing systems and environmental control units mitigate potential risks, ensuring safety for both facility and personnel during operation.



Flexible Configuration

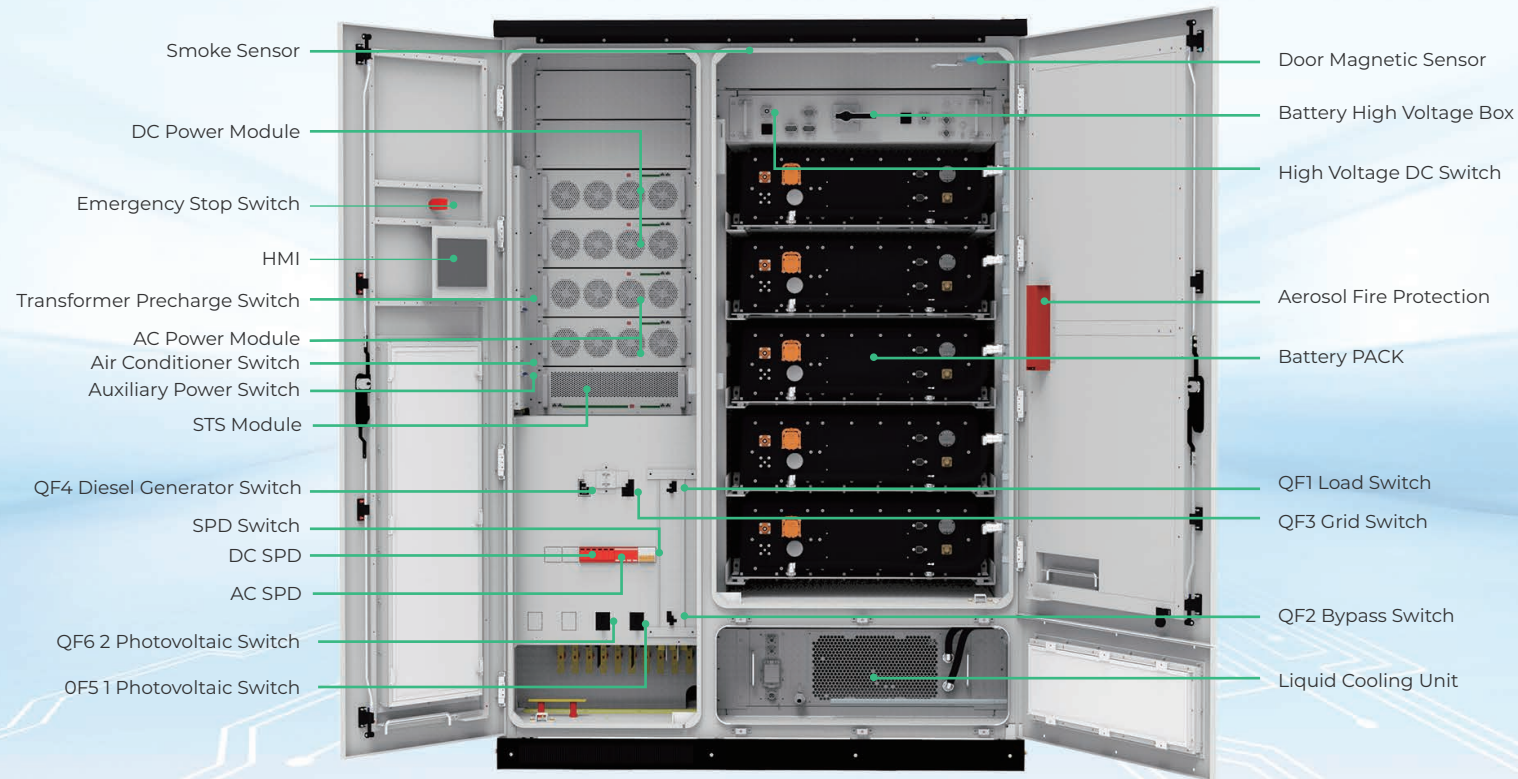
For on-grid ESS projects, the system supports up to 12 cabinets in parallel, reaching 1,200kW/2,784kWh. For off-grid applications, it supports up to 4 cabinets in parallel, providing 400kW/928kWh.



IP54 Rated Protection

Designed with an IP54 rating, providing robust protection against dust and water ingress. This ensures reliable performance in tough environmental conditions, making it ideal for both indoor and outdoor installations.

Liquid-Cooled Energy Storage System Structure



Technical Specifications

Model	CS100KT232-E/H	CS100KT 261-E/H
Battery Parameters		
Battery Rated Energy Storage Capacity	232 kWh	261kWh
System Rated Voltage	832 V	
System Voltage Range	728 - 936 V	
Battery Type	Lithium iron phosphate battery (LFP-280 Ah)	Lithium iron phosphate battery (LFP-314Ah)
Battery Pack Series and Parallel Connection	1P52S/5S	
Battery Pack Capacity	46.592 kWh	52.249kWh
Maximum Charge and Discharge Current	140 A	157A
PV Specifications		
Maximum DC Power	55 kW * 2	
DC Working Voltage Range	200 V ~ 1000 V	
Low Voltage Side Full Load Voltage Range	312 V ~ 850 V	
Maximum Current at Low Voltage Side	80 A * 2 / 2	
Low Voltage Side Input Channels	2 (2 channels can be independent, can be paralleled as 1 channel)	
AC Output		
Rated AC Power	100kW, 50kW per module	
Rated AC Current	144A	
Rated AC Voltage	400V, 3W+N+PE	
Rated AC Frequency	50 / 60Hz	
Overload Capacity	110%, normal operation; 120%, 1 minute	
Maximum Efficiency	98.80%	
Current Total Harmonic Distortion Rate THDI	<5% (Rated power)	
Power Factor	-1 leading ~ +1 lagging	
Voltage Total Harmonic Distortion THDU	<3% (linear load)	
General Specifications		
Enclosure Rating	IP54	
Protection Class	Class 1	
Isolation Method	Transformer isolation	
Power Consumption during Shutdown	<100W (without transformer)	
HMI	Touch screen	
Relative Humidity	0 ~ 95% (no condensation)	
Noise	<70 dB	
Operating Temperature	-20°C~55°C (Derating above 50°C)	
Cooling Method	Intelligent air cooling	
Altitude	2000m (over 2000m derating)	
BMS Communication	CAN	
EMS Communication	Ethernet / 485	
Cloud Platform	Optional	
Dimensions (W x D x H)	1612 x 1350 x 2300 mm	1650*1350*2300 mm
Weight	Approx. 3000 kg	Approx. 3300kg

Note: All data are based on ROYPOW standard test procedures. Actual performance may vary according to local conditions

High-Voltage Energy Storage System

61.44kWh / 215kWh

Designed to deliver more reliable, longer-lasting power to industrial and commercial operations



Features



Advanced LFP cells for high efficiency and safety and zero maintenance.



Up to 8 racks working in parallel to reach 491.52kWh for larger capacity.



Up to 15 years of design life with over 6,000 cycles for a longer lifespan.



Compatible with leading inverter brands such as Deye, Solis, and Solinteg.



Supports 1C continuous discharge rate for enhanced power output during high-demand periods



Integrated air duct to dissipate the heat for stable performance



Modular design for easier expansion and installation and supports plug and play

Technical Specifications

Model	CBmax60H-BR	CBmax215H-BR
Battery Parameters		
Cell Type	LiFePO ₄	
Nominal Energy	61.44 kWh (192s1p)	215kWh(240s1p)
Nominal Capacity	104 Ah	280Ah
Nominal Voltage	614.4 Vdc	768V
Voltage Range	547.2 Vdc ~ 691.2 Vdc	672-876V
Max. Charging/Discharge Current	50 A / 100 A	140A/140A
DOD	95%	
Communication	CAN,RS485	
Parallel Capacity Expansion	8 in Parallel	
Size (L x W x H)	580 x 650 x 2200 mm	1100 x 1000 x 2200 mm
Weight	≈685 kg	2100 kg
Operating Temperature	Charge: 0~50 °C; Discharge: -20~50 °C	
Humidity	5~95% RH, No Condensation	
Altitude	<2000 m	
Enclosure Rating	IP20	
Installation Type	Indoors, Rack Installation	
Cycle	>6000 @25 °C @0.5 C	

Note: All data are based on ROYPOW standard test procedures. Actual performance may vary according to local conditions