ESS Products & Solutions





ABOUT US

The company focuses on energy storage product types such as source-grid side large storage, high-rate frequency modulation, and industrial and commercial energy storage, and provides customers with standardized products and complete solutions. At present, the company already has two series of products, containerized and distributed, and has completed relevant authoritative certifications of GB and UN. We insist on being customer-centric and continue to innovate around needs to provide trustworthy products and services.

■ Factory

Our factory is located at Dongguan, Guangdong, with an annual production capacity of 5GWh.

■ Automated Packing Line

It adopts domestic advanced automated welding equipment and is equipped with LBW, OCV, ACR and other key indicator tests.

■ Digital Production

Combined with MES and ERP systems, key information reports such as product testing data, production plan progress and quality indicators can be collected in real time, and real-time warnings can be provided.



Automated Production Line



High Voltage Box Assembly



Parts Processing Line



Mechanical Lab



Security Lab



Environmental Lab



Charge & Discharge Lab



Metallographic Analyzer



High & Low Temperature Experimental Box


中泰认证
职业健康安全管理体系认证证书
深圳莱顿能源科技有限公司
中泰认证
OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM CERTIFICATION
中泰认证
环境管理体系认证证书
深圳莱顿能源科技有限公司
中泰认证
质量管理体系认证证书
深圳莱顿能源科技有限公司
中泰认证
QUALITY MANAGEMENT SYSTEM CERTIFICATION
中泰认证
ENVIRONMENT MANAGEMENT SYSTEM CERTIFICATION

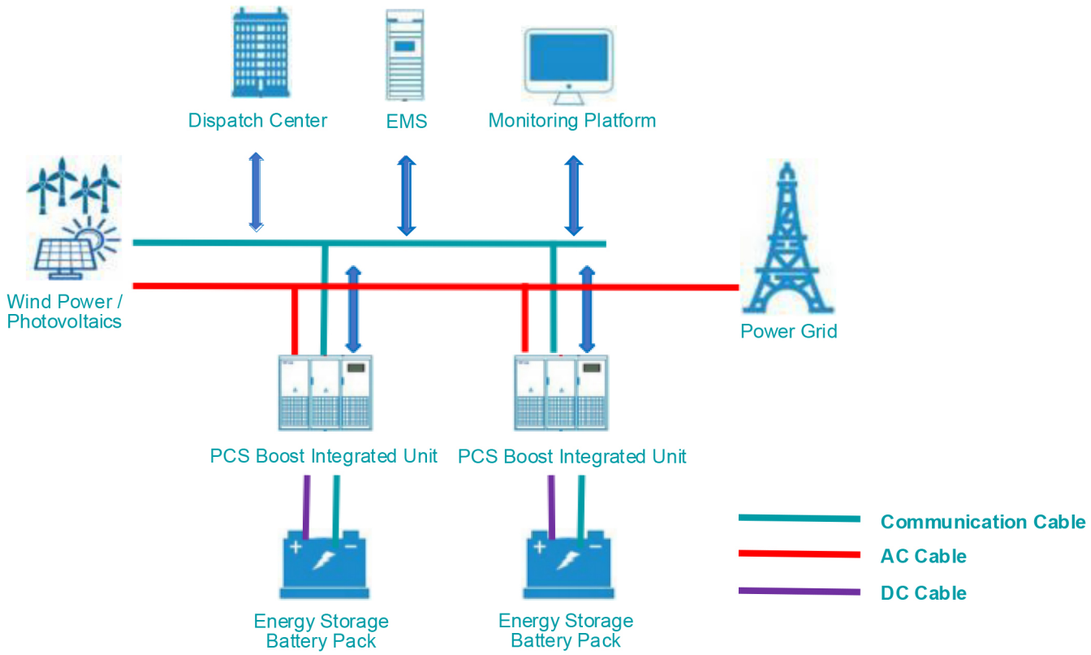

质量、服务诚信单位证书
行业诚信单位等级证书
诚信供应商等级证书
诚信经营示范单位证书
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检测报告

Grid-Side Large-Scale ESS

Typical ESS for Wind and Solar Power



Solution Features

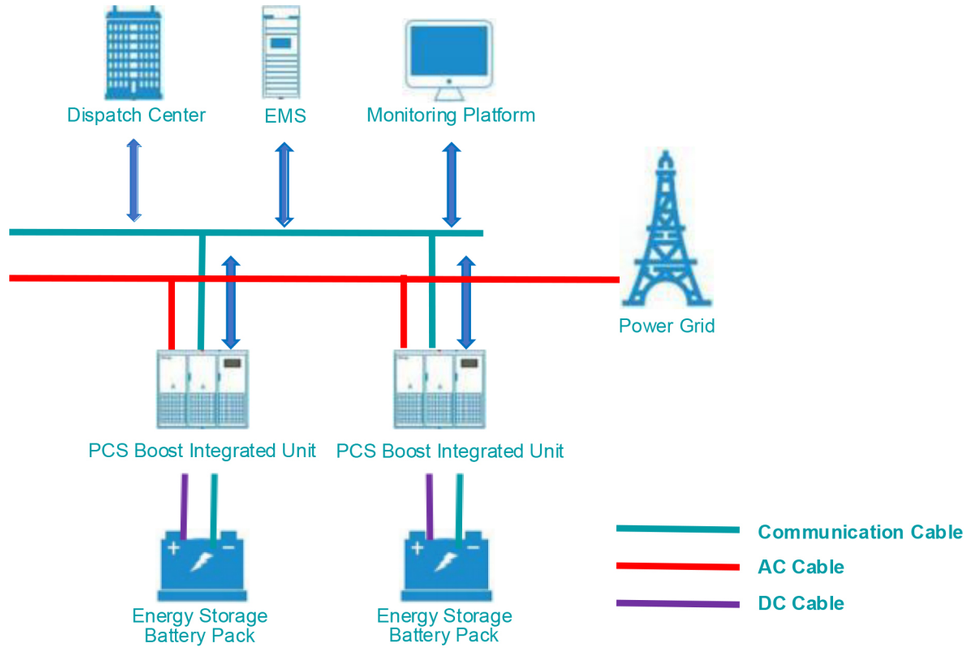
- AC-side networking for easy system integration
- Modular integration for convenient maintenance and reliable stability
- Multi-level hierarchical configuration for high safety

Application Value

- Addressing wind and solar curtailment issues, increasing grid-connected electricity and generation revenue
- Reducing assessment costs
- Enhancing the regulation capabilities of wind and solar power generation, obtaining ancillary service revenue

Grid-Side Large-Scale ESS

Shared Energy Storage Solutions



Solution Features

- Modular Integration, Flexible Configuration
- Fast Response Time, Suitable for High-Power Scenarios
- Tracking Planned Scheduling, Autonomous Operation

Application Value

- Alleviate the significant peak-to-valley differences in regional power grids, and mitigate the pressure of meeting peak demand in summer and winter
- Enhance the reliability of power supply and equipment utilization in the power grid.
- Address the insufficient reactive power support capability during the construction of ultra-high-voltage power grids

Containerized ESS – Air Cooling



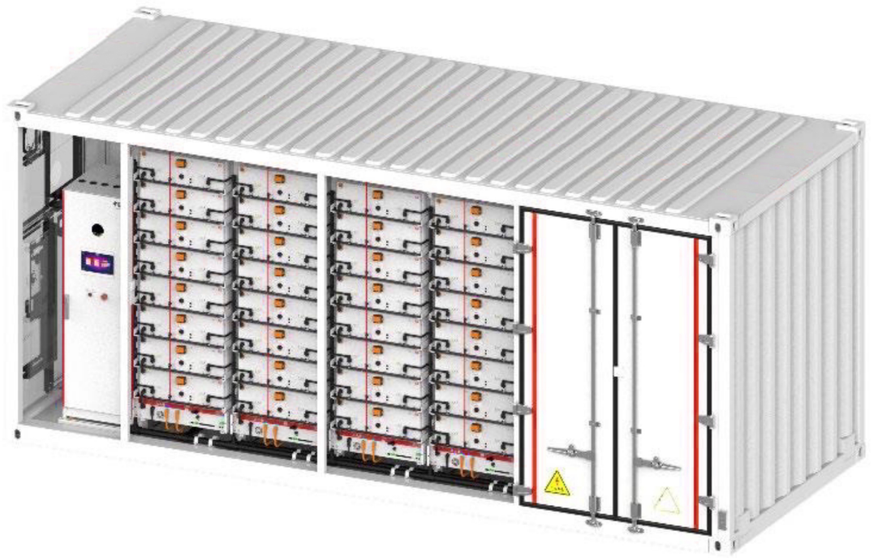
Performance Characteristics

- Intelligent U-POWER Power Control System
- High-Precision Battery State of Charge (SOX) Estimation
- Intelligent Dynamic Constant Temperature Design with Cold and Hot Air Isolation
- Quality Tracking and Analysis Throughout the Entire Lifecycle
- Bidirectional Active Balancing
- Modular Design for Flexible Capacity Configuration
- Pack-Level Detection Protection, Multi-Stage Gas + Water Fire Suppression Automatic Fire Extinguishing System

Technical Specifications

Model	ESS06DIY2F3650	ESS10DIY2F6020	ESS12DIY2F7530
Container Size	20HC	33HC	40HC
Full Capacity Energy	3.74MWh	6.02MWh	7.53MWh
Configurable Energy	2.67~3.74MWh	4.52~6.02MWh	6.67~7.53MWh
Adaptable Voltage Range	1000-1500V		
Charge/Discharge Rate	0.5CP		
Cell	LFP-3.2V-280Ah-896Wh		
Module	LFP-38.4V-560Ah-21.504kWh / LFP-76.8V-280Ah-21.504kWh		
Cycle Life	8000次（90%DOD，≥70%EOL)		
Cycle Efficiency	≥94% (DC Side)		
BMS Solution	Active Balancing + Three-Level Architecture		
Communication Interface	Ethernet/RS-485/CAN		
Communication Protocol	Modbus-TCP/IEC61850/104		
Temperature Control	Intelligent Variable Frequency Air Cooling		
Fire Protection	Gas/Smoke/Temperature Detection + Heptafluoropropane/Perfluorohexane (Optional) + Water Fire Suppression + Active Ventilation		
Auxiliary Power Supply	AC380V-50/60Hz		
Altitude	≤5000m (Derating above 3000m)		
Temperature Range	-40~+55℃		
Relative Humidity Range	0~95%Rh (No Condensation)		
Protection Level	IP55		
Corrosion Resistance Level	C4 （C5 Optional ）		
Dimensions L*W*H	6058*2438*2896mm	10000*2438*2896mm	12192*2438*2896mm
Full Weight	28T	54T	67T
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3		

Containerized ESS – Liquid Cooling



Performance Characteristics

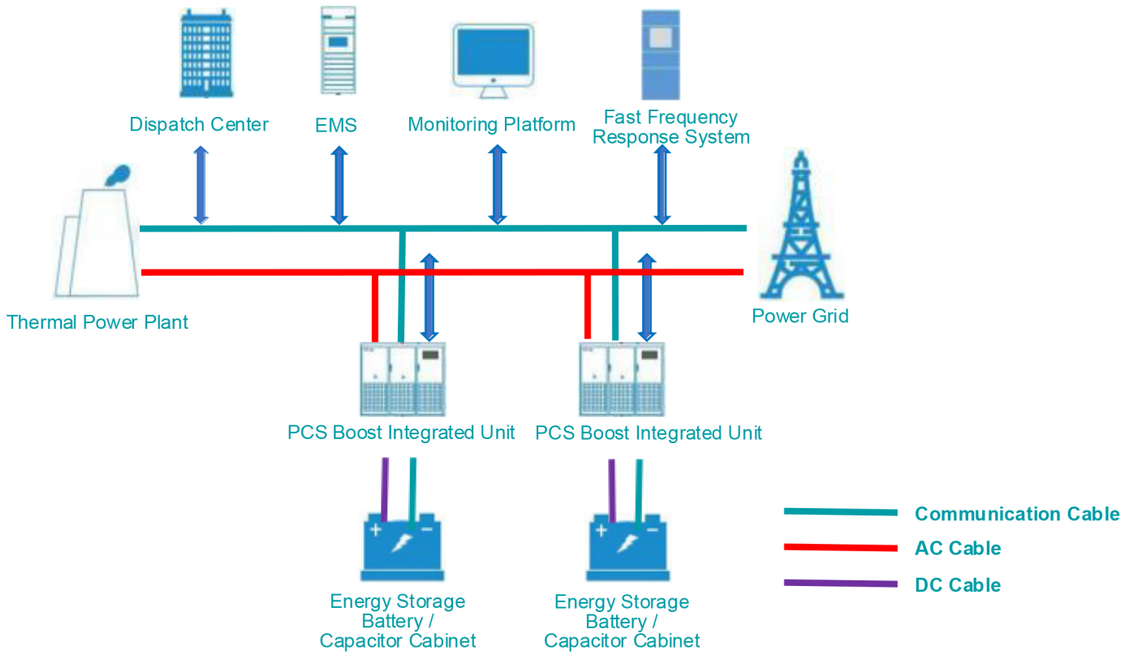
- Integrated AC/DC Dual Power Supply System
- High-Precision Battery State of Charge (SOX) Estimation
- Intelligent Dynamic Constant Temperature Design
- Quality Tracking and Analysis Throughout the Entire Lifecycle
- Bidirectional Active Balancing
- Modular Design for Flexible Capacity Configuration
- Pack-Level Detection Protection, Multi-Stage Gas + Water Fire Suppression Automatic Fire Extinguishing System

Technical Specifications

Model	ESS06DIY2L5000	ESS09DIY2L6709	ESS12DIY2L10000
Container Size	20HC	30HC	40HC
Full Capacity Energy	5MWh	6.709MWh	10MWh
Adaptable Voltage Range	1000-1500V		
Charge/Discharge Rate	0.5CP		
Cell	LFP-3.2V-314Ah-1004.8Wh	LFP-3.2V-280Ah-896Wh	LFP-3.2V-314Ah-1004.8Wh
Module	LFP-166.4V-314Ah-52.25kWh	LFP-166.4V-280Ah-46.592kWh	LFP-166.4V-314Ah-52.25kWh
Cycle Life	8000次（90%DOD，≥70%EOL）		
Cycle Efficiency	≥94% (DC Side)		
BMS	Active Balancing + Three-Level Architecture		
Communication Interface	Ethernet/RS-485/CAN		
Communication Protocol	Modbus-TCP/IEC61850/104		
Temperature Control	Smart Liquid Cooling		
Fire Protection	Gas/Smoke/Temperature Detection + Heptafluoropropane/Perfluorohexane (Optional) + Water Fire Suppression + Active Ventilation		
Auxiliary Power Supply	AC380V-50/60Hz		
Altitude	≤5000m (Derating above 3000m)		
Temperature Range	-40~+55℃		
Relative Humidity Range	0~95%Rh (No Condensation)		
Protection Level	IP55		
Corrosion Resistance Level	C4 （C5 Optional）		
Dimensions L*W*H	6058*2438*2700mm	9125*2438*2896mm	12196*2438*2896mm
Full Weight	35T	55T	71T
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3		

High-Rate Frequency Regulation

Primary Frequency Regulation Scheme



Solution Features

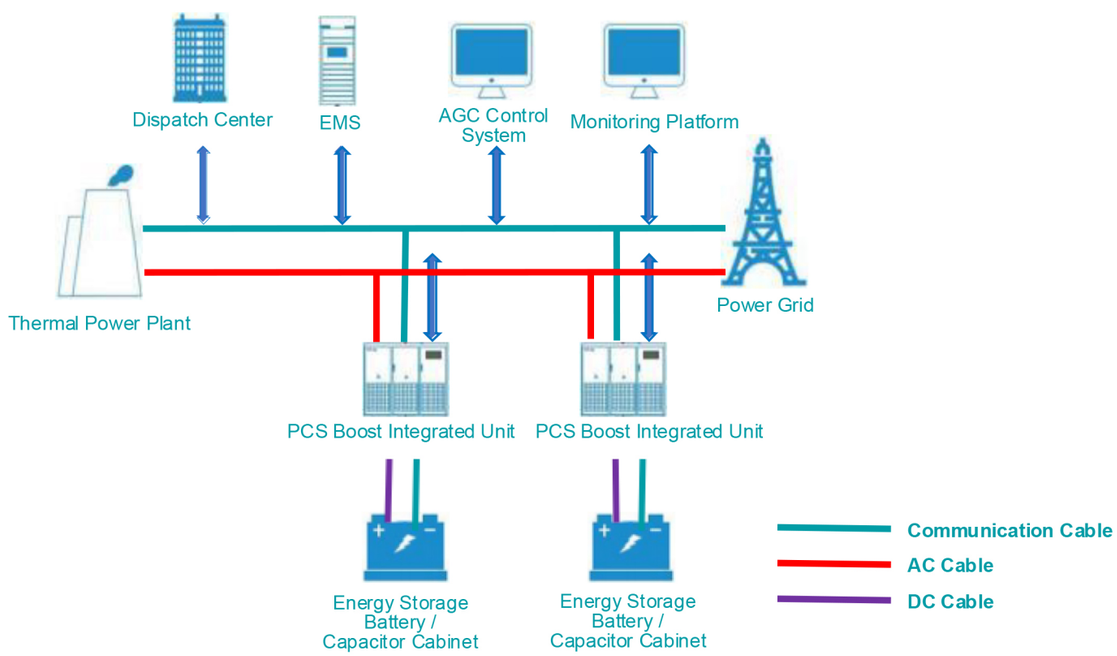
- Safe and Reliable Design
- Small Retrofit Engineering Quantity
- High-Speed Adaptive Regulation

Application Value

- Thermal-Energy Storage Combined Frequency Regulation
- Independent Frequency Regulation
- Increase Primary Frequency Regulation Revenue, Reduce Assessment Costs
- Enhance Grid and Unit Operation Reliability and Safety

High-Rate Frequency Regulation

Secondary Frequency Regulation Scheme



Solution Features

- Safe and Reliable Design
- Optimized Control Algorithm
- Minimal Retrofit Engineering Quantity

Application Value

- Thermal-Energy Storage Combined Frequency Regulation
- Independent Frequency Regulation
- Increase Secondary Frequency Regulation Revenue, Reduce Assessment Costs
- Enhance Grid and Unit Operation Reliability and Safety

High-Rate Frequency Regulation - 1C ESS



Performance Characteristics

- Intelligent U-POWER Power Control System
- High-Precision Battery State of Charge (SOX) Estimation
- Intelligent Dynamic Constant Temperature Design with Cold and Hot Air Isolation
- Quality Tracking and Analysis Throughout the Entire Lifecycle
- Bidirectional Active Balancing
- Modular Design for Flexible Capacity Configuration
- Pack-Level Detection Protection, Multi-Stage Gas + Water Fire Suppression Automatic Fire Extinguishing System

Technical Specifications

Model	ESS06DIY1F2750	ESS09DIY1F5120
Container Size	20HC	30HC
Configurable Energy	2.75MWh	5.12MWh
Adaptable Voltage Range	1000-1500V	
Charge/Discharge Rate	1CP	
Cell	LFP-3.2V-280Ah-896Wh	
Module	LFP-76.8V-280Ah-21.504kWh	
Cycle Life	6000次（95%DOD，≥70%EOL）	
Cycle Efficiency	≥92% (DC Side)	
BMS	Active Balancing + Three-Level Architecture	
Communication Interface	Ethernet/RS-485/CAN	
Communication Protocol	Modbus-TCP/IEC61850/104	
Temperature Control	Intelligent Variable Frequency Air Cooling	
Fire Protection	Gas/Smoke/Temperature Detection + Heptafluoropropane/Perfluorohexane (Optional) + Water Fire Suppression + Active Exhaust	
Auxiliary Power Supply	AC380V-50/60Hz	
Altitude	≤5000m (Derating above 3000m)	
Temperature Range	-40~+55℃	
Relative Humidity Range	0~95%Rh (No Condensation)	
Protection Level	IP55	
Corrosion Resistance Level	C4 （C5 Optional）	
Dimensions L*W*H	6058*2700*2896mm	9125*2700*2896mm
Full Weight	29T	48T
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3	

High-Rate Frequency Regulation - 4C Lithium-Ion Hybrid Capacitor System



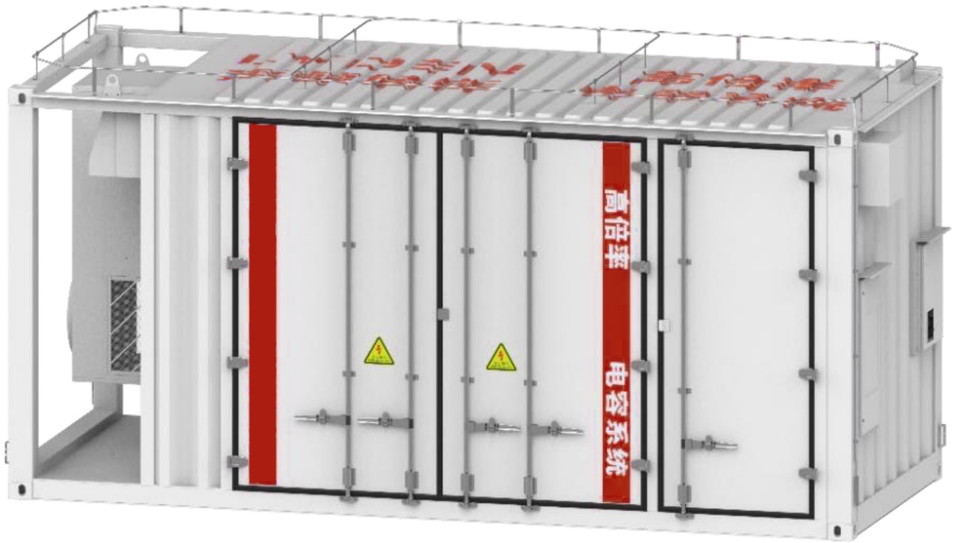
Performance Characteristics

- Intelligent U-POWER Power Control System
- High-Precision Battery State of Charge (SOX) Estimation
- Intelligent Dynamic Constant Temperature Design with Cold and Hot Air Isolation
- Quality Tracking and Analysis Throughout the Entire Lifecycle
- Bidirectional Active Balancing
- Modular Design for Flexible Capacity Configuration
- Pack-Level Detection Protection, Multi-Stage Gas + Water Fire Suppression Automatic Fire Extinguishing System

Technical Specifications

Model	ESS06DIYCF627	ESS08DIYCF1253
Container Size	15HC	26HC
Power Rating	2.5MW	5MW
System Capacity	626.7kWh	1253.4kWh
Adaptable Voltage Range	1000-1500V	
Charge/Discharge Rate	4CP	
Cell	HISC-3.2V-20Ah-64Wh	
Module	HISC-38.4V-80Ah-3.072kWh	
Cycle Life	20000次(95%DOD， ≥70%EOL)	
Cycle Efficiency	≥93% (DC Side)	
BMS	Active Balancing + Three-Level Architecture	
Communication Interface	Ethernet/RS-485/CAN	
Communication Protocol	Modbus-TCP/IEC61850/104	
Temperature Control	Intelligent Variable Frequency Air Cooling	
Fire Protection	Gas/Smoke/Temperature Detection + Heptafluoropropane/Perfluorohexane (Optional) + Water Fire Suppression + Active Ventilation	
Auxiliary Power Supply	AC380V-50/60Hz	
Altitude	≤5000m (Derating above 3000m)	
Temperature Range	-40~+55℃	
Relative Humidity Range	0~95%Rh (No Condensation)	
Protection Level	IP55	
Corrosion Resistance Level	C4 （C5 Optional)	
Dimensions L*W*H	4300*2438*2896mm	7800*2438*2896mm
Full Weight	15T	28T
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3	

High-Rate Frequency Regulation - 8C Lithium-Ion Hybrid Capacitor System



Performance Characteristics

- Intelligent U-POWER Power Control System
- High-Precision Battery State of Charge (SOX) Estimation
- Intelligent Dynamic Constant Temperature Design with Cold and Hot Air Isolation
- Quality Tracking and Analysis Throughout the Entire Lifecycle
- Bidirectional Active Balancing
- Modular Design for Flexible Capacity Configuration
- Pack-Level Detection Protection, Multi-Stage Gas + Water Fire Suppression Automatic Fire Extinguishing System

Technical Specifications

Model	ESS05DIYDF0330	ESS07DIYDF0639
Container Size	20HC	25HC
Power Rating	2.5MW	5MW
System Capacity	329.7kWh	639.0kWh
Adaptable Voltage Range	1000-1500V	
Charge/Discharge Rate	8CP	
Cell	HISC-3.2V-20Ah-64Wh	
Module	HISC-51.2V-40Ah-2.048kWh	
Cycle Life	15000次(95%DOD，≥70%EOL)	
Cycle Efficiency	≥91% (DC Side)	
BMS	Active Balancing + Three-Level Architecture	
Communication Interface	Ethernet/RS-485/CAN	
Communication Protocol	Modbus-TCP/IEC61850/104	
Temperature Control	Intelligent Variable Frequency Air Cooling	
Fire Protection	Gas/Smoke/Temperature Detection + Heptafluoropropane/Perfluorohexane (Optional) + Water Fire Suppression + Active Exhaust	
Auxiliary Power Supply	AC380V-50/60Hz	
Altitude	≤5000m (Derating above 3000m)	
Temperature Range	-40~+55℃	
Relative Humidity Range	0~95%Rh (No Condensation)	
Protection Level	IP55	
Corrosion Resistance Level	C4 （C5 Optional）	
Dimensions L*W*H	6058*2438*2896	7600*2438*3100
Full Weight	8T	18T
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3	

Ultra-High-Rate Frequency Regulation - 120C 30S Super Capacitor System



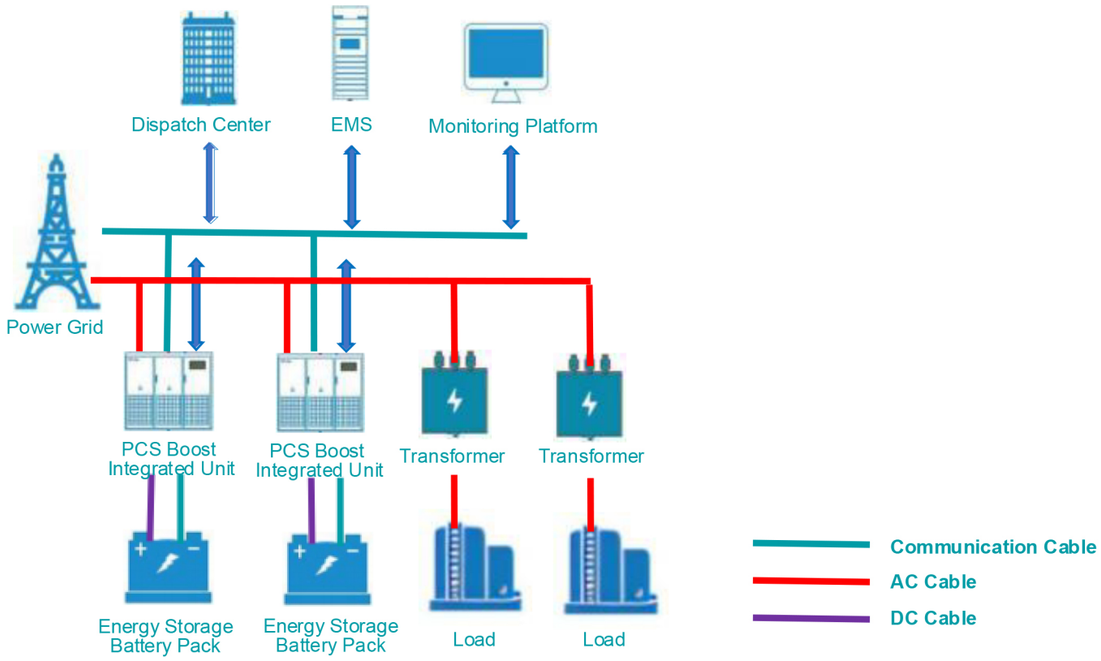
Performance Characteristics

- Maximum charge/discharge rate of up to 120C
- Intelligent U-POWER power control system
- Intelligent dynamic constant temperature design, with cold and hot air isolation
- Quality tracking and quality analysis throughout the entire lifecycle
- Automatic under-voltage pre-charging function
- Modular design for flexible capacity configuration
- Pack-level detection protection, multi-stage gas + water fire automatic extinguishing system

Technical Specifications

Model	ESS06DIY0020CR	ESS07DIY0048CR	ESS09DIY0048CR
Container Size	20HC	24HC	28HC
Power Rating	2MW	4MW	5MW
System Capacity	2MW*30S	4MW*30S	5MW*30S
Adaptable Voltage Range	800-1500V		
Charge/Discharge Rate	120CP		
Cell	EDLC-2.7V-3000F-3Wh		
Module	EDLC-64.8V-345F-218Wh		
Cycle Life	≥1 million cycles (25°C, rated voltage)		
Cycle Efficiency	≥98% (DC side)		
BMS	Active Balancing + Three-Level Architecture		
Communication Interface	Ethernet/RS-485/CAN		
Communication Protocol	Modbus-TCP/IEC61850/104		
Temperature Control	Intelligent Variable Frequency Air Cooling		
Fire Protection	Gas/Smoke/Temperature Detection + Heptafluoropropane/Perfluorohexane (Optional) + Water Fire Suppression + Active Exhaust		
Auxiliary Power Supply	AC380V-50/60Hz		
Altitude	≤5000m (Derating above 3000m)		
Temperature Range	-40~+55℃		
Relative Humidity Range	0~95%Rh (No Condensation)		
Protection Level	IP55		
Corrosion Resistance Level	C4 （C5 Optional)		
Dimensions L*W*H	6058*2438*2896mm	7300*2438*2896mm	8500*2438*2896mm
Full Weight	12.5T	23T	25T
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3		

Commercial & Industrial ESS
High Voltage Access Scheme



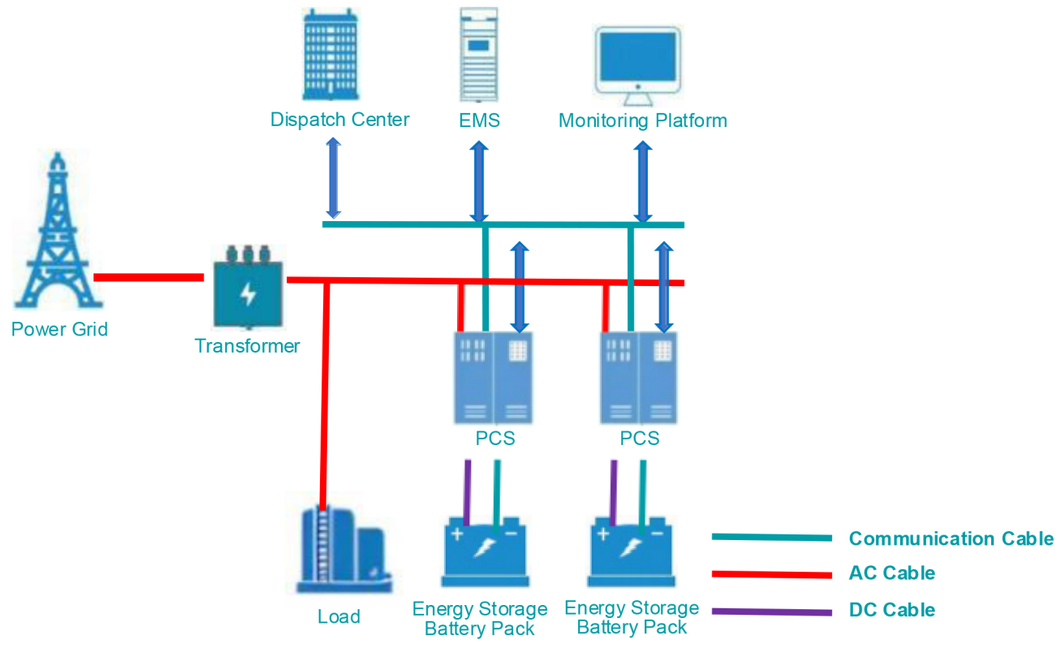
Solution Features

- High Voltage Access
- Flexible Layout with Centralized or Distributed Arrangement
- Unmanned, Automated Control

Application Value

- Peak shaving to reduce user electricity costs
- Capacity and demand management to lower transmission and distribution expenses
- Improving power quality and enhancing electrical safety
- Serving as a backup power source to enhance emergency capabilities
- Addressing user-side capacity expansion and scalability issues

Commercial & Industrial ESS
Low Voltage Access Scheme



Solution Features

- Low Voltage Access
- Flexible Layout with Centralized or Distributed Arrangement
- Unmanned, Automated Control

Application Value

- Peak shaving to reduce user electricity costs
- Capacity and demand management to lower transmission and distribution expenses
- Improving power quality and enhancing electrical safety
- Serving as a backup power source to enhance emergency capabilities
- Addressing user-side capacity expansion and scalability issues

Commercial & Industrial ESS
All-in-One Unit / 215 kWh



Performance Characteristics

- High integration, modular design for easy maintenance
- Deployable according to demand, supports parallel connection of multiple cabinets
- Supports off-grid operation, seamless switching between VF/PQ modes
- Multiple electrical protections, proactive warnings, proactive protection
- Supports IoT, cloud platform
- Top wiring design

Technical Specifications

Model	F215
AC-Side Parameters	
Grid Voltage	400Vac (Three-phase Four-wire)
Rated AC Power	100kW
Rated AC Current	145A
Rated Grid Frequency	50/60Hz
Adjustable Power Factor Range	-1 (Leading) to +1 (Lagging)
THDi (Rated Power)	< 3%
Output Method	Top wiring design
DC-Side Parameters	
Module	LFP-51.2V-280Ah-14.336kWh
Capacity	215.04kWh
Rated Voltage	768Vdc
Operating Voltage Range	660~852Vdc
Maximum Current	160A
System Parameters	
Isolation Method	Non-isolated
Charge/Discharge Rate	0.5CP
System Life	8000 cycles @25°C, 0.5CP, 95% DOD, ≥70% EOL
Communication Interface	RS485、CAN、LAN
Altitude	≤3500m (Derating above 2000m)
Operating Temperature	-20℃ ~ 50℃
Protection Level	IP55
Weight	1.9T
Dimensions (W*D*H)	1060*962*2500mm
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3

Commercial & Industrial ESS
All-in-One Unit
Liquid-Cooling / 261kWh



Performance Characteristics

- High integration, modular design for easy maintenance
- Deployable according to demand, supports parallel connection of multiple cabinets
- Supports off-grid operation, seamless switching between VF/PQ modes
- Multiple electrical protections, proactive warnings, proactive protection
- Supports IoT, cloud platform
- Bottom wiring design

Technical Specifications

Model	L261
AC-Side Parameters	
Grid Voltage	400Vac (Three-phase Four-wire)
Rated AC Power	125kW
Rated AC Current	180A
Rated Grid Frequency	50/60Hz
Adjustable Power Factor Range	-1 (Leading) to +1 (Lagging)
THDi (Rated Power)	< 3%
Output Method	Bottom wiring design
DC-Side Parameters	
Module	LFP-166.4V-314Ah-52.2496kWh
Capacity	261.25kWh
Rated Voltage	832Vdc
Operating Voltage Range	715~923Vdc
Maximum Current	200A
System Parameters	
Isolation Method	Non-isolated
Charge/Discharge Rate	0.5CP
System Life	8000 cycles @25°C, 0.5CP, 95% DOD, ≥70% EOL
Communication Interface	RS485、CAN、LAN
Altitude	≤3500m (Derating above 2000m)
Operating Temperature	-20℃ ~ 50℃
Protection Level	IP55
Weight	2.2T
Dimensions (W*D*H)	880*1250*2200mm
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3

Commercial & Industrial ESS
All-in-One Unit / 265 kWh



Performance Characteristics

- High integration, modular design for easy maintenance
- Deployable according to demand, supports parallel connection of multiple cabinets
- Supports off-grid operation, seamless switching between VF/PQ modes
- Multiple electrical protections, proactive warnings, proactive protection
- Supports IoT, cloud platform
- Bottom wiring design

Technical Specifications

Model	F265
AC-Side Parameters	
Grid Voltage	400Vac (Three-phase Four-wire)
Rated AC Power	125kW
Rated AC Current	180A
Rated Grid Frequency	50/60Hz
Adjustable Power Factor Range	-1 (Leading) to +1 (Lagging)
THDi (Rated Power)	< 3%
Output Method	Bottom wiring design
DC-Side Parameters	
Module	LFP-76.8V-314Ah-24.1152kWh
Capacity	265.27kWh
Rated Voltage	845Vdc
Operating Voltage Range	726~937.2Vdc
Maximum Current	200A
System Parameters	
Isolation Method	Non-isolated
Charge/Discharge Rate	0.5CP
System Life	8000 cycles @25°C, 0.5CP, 95% DOD, ≥70% EOL
Communication Interface	RS485、CAN、LAN
Altitude	≤3500m (Derating above 2000m)
Operating Temperature	-20℃ ~ 50℃
Protection Level	IP55
Weight	2.2T
Dimensions (W*D*H)	1060*1360*2300mm
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3

Commercial & Industrial ESS All-in-One Unit / 506kWh



Performance Characteristics

- High integration, modular design for easy maintenance
- Deployable according to demand, supports parallel connection of multiple cabinets
- Supports off-grid operation, seamless switching between VF/PQ modes
- Multiple electrical protections, proactive warnings, proactive protection
- Supports IoT, cloud platform
- Bottom wiring design

Technical Specifications

Model	F506
AC-Side Parameters	
Grid Voltage	400Vac (Three-phase Four-wire)
Rated AC Power	125kW
Rated AC Current	180A
Rated Grid Frequency	50/60Hz
Adjustable Power Factor Range	-1 (Leading) to +1 (Lagging)
THDi (Rated Power)	< 3%
Output Method	Bottom wiring design
DC-Side Parameters	
Module	LFP-38.4V-628Ah-24.1152kWh
Capacity	506kWh
Rated Voltage	806.4Vdc
Operating Voltage Range	693~894.6Vdc
Maximum Current	200A
System Parameters	
Isolation Method	Non-isolated
Charge/Discharge Rate	0.25CP
System Life	8000 cycles @25°C, 0.25CP, 95% DOD, ≥70% EOL
Communication Interface	RS485、CAN、LAN
Altitude	≤3500m (Derating above 2000m)
Operating Temperature	-20℃ ~ 50℃
Protection Level	IP55
Weight	3.8T
Dimensions (W*D*H)	1500*1360*2400mm
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3

Commercial & Industrial Containerized ESS



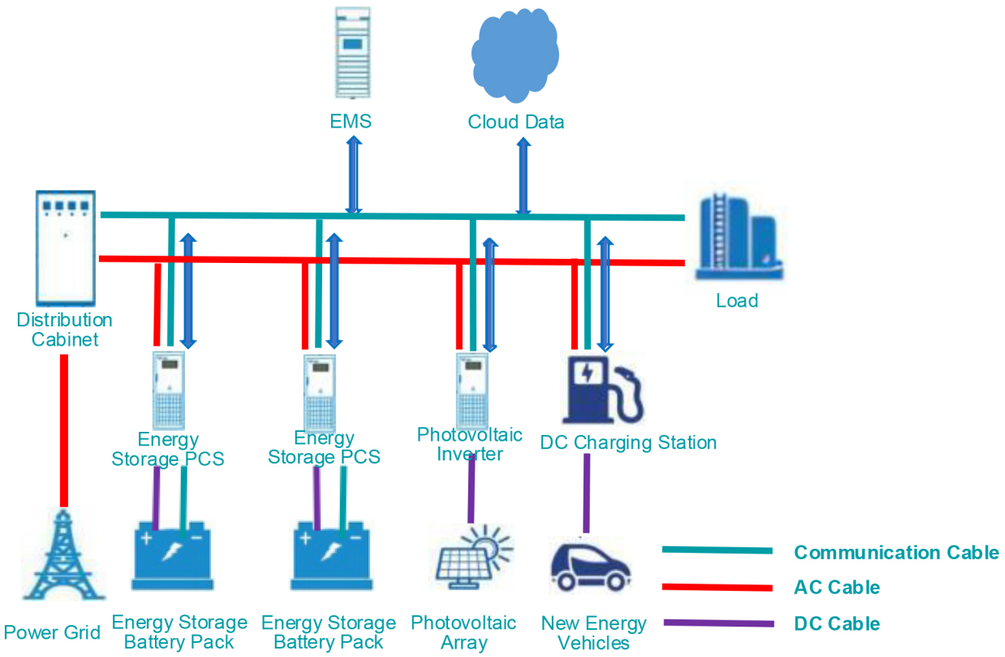
Performance Characteristics

- Intelligent dynamic constant temperature design with cold and hot air isolation
- Quality tracking and analysis throughout the entire lifecycle, establishing product lifespan warning capabilities
- Integrated design for flexible on-site deployment
- Active balancing to enhance product available capacity
- Pack-level fire protection with proactive detection and protection

Technical Specifications

Model	ESS04DIY2F2042	ESS04DIY2F2150
AC-Side Parameters		
Grid Voltage	400V AC	
Rated AC Power	1000kW	
Rated AC Current	1443A	
Rated Grid Frequency	50/60Hz	
Adjustable Power Factor Range	-1 (Leading) to +1 (Lagging)	
THDi (Rated Power)	< 3%	
Output Method	Bottom wiring design	
DC-Side Parameters		
Module	LFP-38.4V-280Ah-21.504kWh	LFP-76.8V-280Ah-21.504kWh
Capacity	2043kWh	2150kWh
Rated Voltage	729.6Vdc	768Vdc
Operating Voltage Range	627~809.4Vdc	660~852Vdc
Maximum Current	1500A	1500A
System Parameters		
Isolation Method	Non-isolated	
Charge/Discharge Rate	0.5CP	
System Life	8000 cycles @25°C, 0.5CP, 95% DOD, ≥70% EOL	
Communication Interface	RS485、CAN、LAN	
Altitude	≤5000m (Derating above 3000m)	
Operating Temperature	-20℃ ~ 50℃	
Protection Level	IP55	
Weight	≈12T	
Dimensions (W*D*H)	3500*2438*3100mm	
Certification	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3	

Small-Scale Microgrid ESS



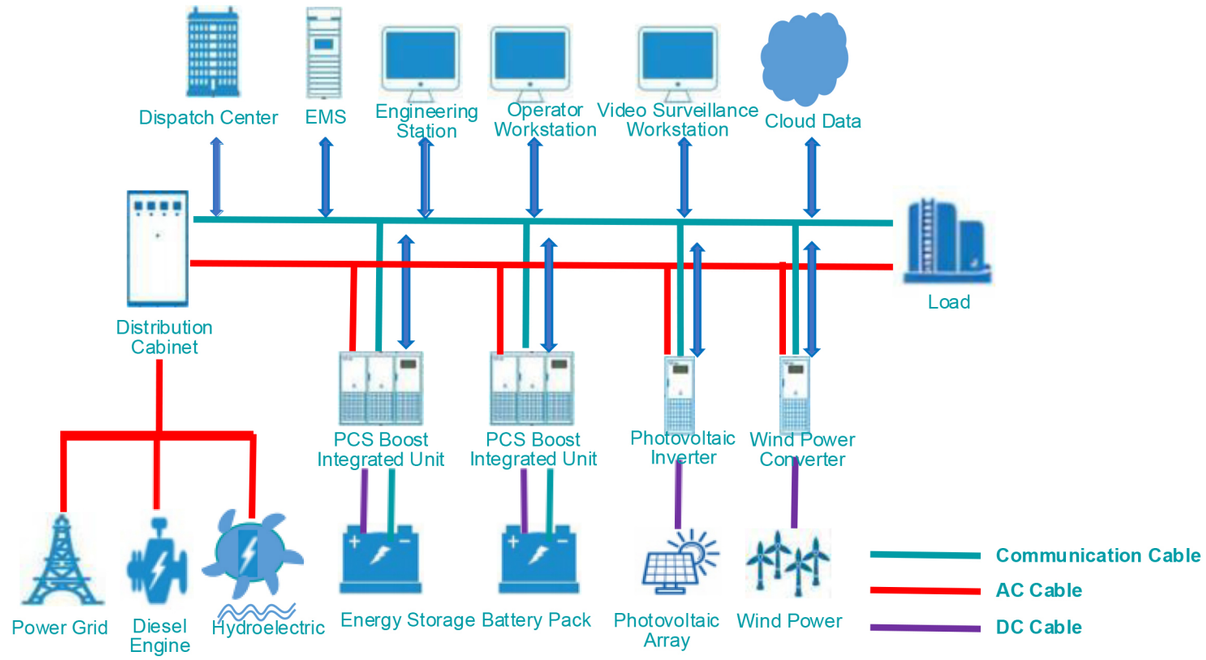
Solution Features

- Modular Integration, Flexible Configuration
- One-Stop EMS Management and Control
- Autonomous Operation, Real-Time Monitoring Data

Application Value

- Ensure Power Supply Stability, Enhance Emergency Capability
- Improve Grid Power Supply Reliability and Equipment Utilization
- Increase Grid Flexibility and Energy Security

Large-Scale Microgrid ESS



Solution Features

- Multiple Operating Modes for Free Switching, Quick and Simple Off-grid Switching
- Comprehensive Cloud Monitoring, Rapid Fault Alarms
- Good Real-time Communication, High System Dynamic Reliability

Application Value

- Improve Power Quality, Ensure Supply Stability
- Increase Renewable Energy Utilization Rate, High System Efficiency
- Enhance Grid Flexibility and Energy Security

Solar PV-Battery-Diesel Microgrid All-in-One System



Performance Characteristics

- Integrated Solar-Storage-Diesel application scenario, supporting the collective access of diesel generators, solar PV, energy storage, loads, and the power grid.
- Multiple MPTT interfaces, providing versatile solar PV connections, with up to 100kW PV input supported.
- Up to 50kW AC output power on the load side.
- Flexible grid/off-grid support, seamless VF/PQ switching.
- Multiple electrical protections with active warnings and active protection.
- Comprehensive protection features, supporting islanding protection, overcurrent protection, reverse polarity protection, surge protection, and more.
- Bidirectional active balancing solution, effectively resolving cell consistency issues.

Technical Specifications

Model	F100-M	F200-M
Max Battery Capacity	100.3kWh	200.7kWh
Max PV Power	60kW	100kW
Max Battery Power	33kW	55kW
Max Generator Power	30kW	50kW
Max Output Power	30kW	50kW
Rated Voltage	3/N/PE, 220V/380V, 3/N/PE, 230V/400V	
Rated Output Current	45.6A/43.3A	76A/72.2A
Max Bypass Current	91.2A/86.6A	152A/144.4A
Rated Frequency	50/60Hz	
Grid/Off-grid Switching Time	<10ms	
MPPT Voltage	150~850V	
Number of MPPTs	3*6	4*8
Max PV Current	3*40A	4*40A
Max Charging Efficiency	98.50%	
Cell Parameters	LFP-3.2V-280Ah-896Wh	
Battery Voltage Range	440V~568V	660~795Vdc
Max Battery Current	83.3A	
Cell System Lifetime	8000 cycles @25℃, 0.5CP, 95%DOD, ≥70%EOL	
Battery Cycle Efficiency	91%	
Generator Current	45.6A/43.3A	76A/72.2A
Generator Voltage	3/N/PE, 220V/380V, 3/N/PE, 230V/400V	
Protection Features	Islanding Protection, Overcurrent Protection, Short Circuit Protection, Reverse Polarity Protection, Surge Protection, etc.	
BMS Solution	Bidirectional Active Balancing	
Communication Interface	RS485/CAN/Ethernet/MQTT	
Temperature Control Solution	Intelligent Variable Frequency Air Cooling	
Fire Protection Solution	Fire Detection Tube + Gas/Smoke/Temperature Detection + Perfluorohexanone (FK-5112)	
Isolation Method	Non-isolated	
Wiring Method	Bottom Outlet	
Altitude	≤4000m (derating above 3000m)	
Operating Temperature	-20~55℃	
Protection Rating	IP55	
Weight	1T	1.9T
Dimensions W*D*H	1060*962*1500mm	1060*962*2500mm
Certifications	GB/T36276、GB/T34131、UL1973、UL9540A、IEC62619、UN38.3	
Grid Standard	GB/T 29319, G98 or G99, VDE-AR-N 4105/VDE V 0124, EN 50549-1,VDE 0126 / UTE C 15 / VFR:2019, RD 1699 / RD 244 / UNE 206006 / UNE 206007-1, CEI 0-21, C10/11, NRS 097-2-1, TOR,EIFS 2018.2, IEC 62116, IEC 61727, IEC 60068, IEC 61683, EN 50530, MEA, PEA	

Medium Voltage Energy Storage Inverter Integrated Unit



Performance Characteristics

- Three-level topology, up to 99% conversion efficiency, superior power quality
- Supports two battery banks with independent charge and discharge management for better battery health
- Intelligent multi-level fan speed control, wide temperature operation capability, no derating at 50°C
- Highly integrated, small footprint, convenient and efficient transportation, hoisting, installation, and maintenance
- Equipped with functions such as PQ, VF, SVG, VSG, supports high/low voltage pass-through
- Fast power dispatch, off-grid operation, and "black start", strong grid adaptation capabilities

Technical Specifications

Model	2000	2500	3450	4000	5000
AC-Side Parameters					
Rated AC Power	2000kW	2500kW	3450kW	4000kW	5000kW
Rated Grid Voltage	6kV / 10kV / 35kV				
Rated Grid Frequency	50/60Hz				
THD (Rated Power)	< 1.5%				
Power Factor	>0.99 (at >20% load)				
Adjustable Power Factor Range	-1 (Leading) to +1 (Lagging)				
DC-Side Parameters					
Maximum Input Voltage	1500V				
Maximum DC Current	2245A	2750A	1897A*2	2245A*2	2750A*2
Battery Pack Voltage Range	1000~1500V				
Number of Battery Packs Supported	1		1/2		
System Parameters					
Isolation Method	Dry/Oil-immersed Transformer				
Maximum System Efficiency	98%				
Protection Level	IP55				
Operating Temperature Range	-30~+60℃				
Operating Humidity Range	0~100% (Non-condensing)				
Altitude	≤5000m (Derating above 3000m)				
Cooling Method	Smart Heat Exchange				
Communication Interface	RS485、CAN、LAN				
Dimensions (mm)	6058*2896*2438 (Reference Dimensions)				7500*3345*3000

Core Components

Air-cooling Pack



Performance Characteristics

- Intelligent Fan with Variable Frequency Speed Control
- Multi-channel Temperature Monitoring
- All-Plastic Shell with Excellent Insulation Performance
- Modular Design for Flexible Configuration
- Independent Air Duct Design
- Cell-Level Active Balancing
- 5VA Fireproof Shell
- CTP Cell Grouping Technology

Technical Specifications

Model	DIY280P2F1P16A	DIY280P2F1P24A	DIY280P2F2P12A
Rated Voltage	51.2V	38.4V	76.8V
Voltage Range	44~56.8V	66~85.2V	33~42.6V
Rated Capacity	280Ah	280Ah	280Ah
Rated Energy	14.336kWh	21.504kWh	21.504kWh
Maximum Continuous Charge/Discharge Current	163A	163A	326A
Charging Temperature Range	0~55℃		
Discharging Temperature Range	-20~55℃		
Weight	100±3kg	150±5kg	150±5kg
Dimensions (W*D*H)	450*680*238	450*982*238	450*982*238
Charge/Discharge Rate	≤1.0 CP	≤1.0 CP	≤0.5 CP

Core Components

Liquid-cooling Pack



Performance Characteristics

- Compact design, module width only 750mm
- Multi-channel temperature monitoring
- Self-sealing water connector, safe and reliable
- Removable BMS design
- Pack-level fuse protection
- Cell-level active balancing
- Pack-level fire protection design

Technical Specifications

Model	DIY280P2L1P52A	DIY314P2L1P52A
Rated Voltage	166.4V	
Voltage Range	145.6~187.2V	
Rated Capacity	280Ah	314Ah
Rated Energy	46.592kWh	52.25kWh
Maximum Continuous Charge/Discharge Current	163A	326A
Charging Temperature Range	0~55℃	
Discharging Temperature Range	-20~55℃	
Weight	310kg	
Dimensions (W*D*H)	750*1105*234	
Charge/Discharge Rate	≤1.0CP	≤0.5CP

Core Components

8C High-rate Pack



Performance Characteristics

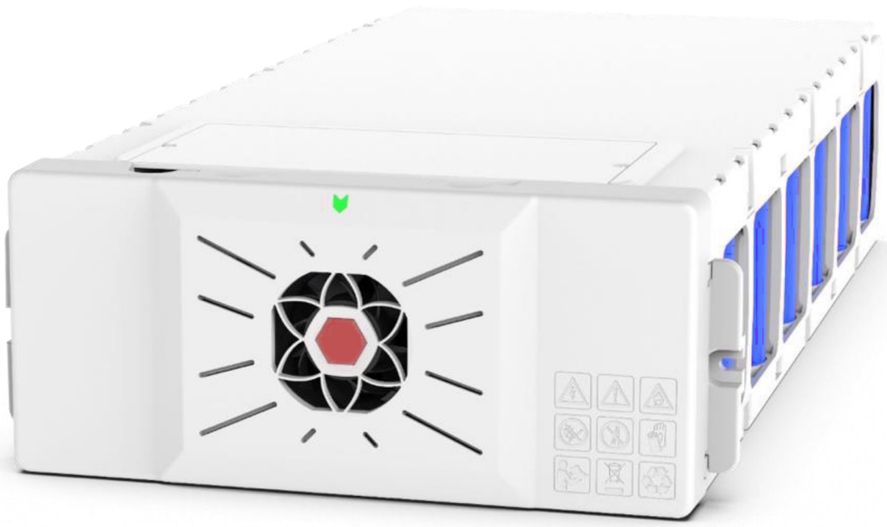
- 20Ah Aluminum Shell Supercapacitor
- Intelligent Fan with Variable Frequency Speed Control
- Multi-channel Temperature Monitoring
- All-Plastic Shell with Excellent Insulation Performance
- Modular Design for Flexible Configuration
- 8C Charge/Discharge Rate
- Independent Air Duct Design
- Cell-Level Active Balancing
- 5VA Fireproof Shell
- CTP Cell Grouping Technology

Technical Specifications

Model	DIY20PCF4P12A	DIY20PDF2P16A
Rated Voltage	38.4V	51.2V
Voltage Range	33~42.6V	44.8~57.6V
Rated Capacity	80Ah	40Ah
Rated Energy	3.072 kWh	2.048 kWh
Maximum Continuous Charge/Discharge Current	400A	400A
Charging Temperature Range	-10~60℃	
Discharging Temperature Range	-30~60℃	
Weight	46±2kg	31±2kg
Dimensions (W*D*H)	430*801.5*124 mm	430*561.5*124 mm
Rate	4CP	8CP

Core Components

120C 30S Super Capacitor Pack



Performance Characteristics

- Utilizing 3000F cylindrical EDLC supercapacitor cells
- Intelligent fan with variable frequency speed control
- Multi-channel temperature monitoring
- All-plastic shell with excellent insulation performance
- CTP cell grouping technology
- Million-cycle lifespan
- Independent air duct design
- Cell-level active balancing
- 5VA fireproof shell

Technical Specifications

Model	DIY3000F3P24A
Rated Voltage	64.8V
Voltage Range	0~74.4V
Rated Capacity	375F
Rated Energy	218 Wh
Maximum Continuous Charge/Discharge Current	450A
Charging Temperature Range	-40~60℃
Discharging Temperature Range	-40~60℃
Weight	46±2kg
Dimensions (W*D*H)	430*840*177 mm
Rate	120C High-rate Frequency Regulation

Core Components

High Voltage Box



Performance Characteristics

- High-precision acquisition sensors
- Foolproof connector selection
- Built-in cooling fan
- Battery pack pre-charge function
- Independent auxiliary power switch
- Plug-and-play BMS design
- User-friendly handle design
- Fuse short-circuit protection

Technical Specifications

Model	DIY15PDU20	DIY15PDU2035S	DIY15PDU45
Maximum Voltage	1500Vdc		
Maximum Continuous Current	200A	350A	450A
Breaking Capacity	120kA		
Communication Interface	Ethernet/CAN/RS485		
Communication Protocol	CAN2.0B/Modbus-TCP		
Dimensions (W×D×H)	488×667×185mm		
Weight	30kg		

Core Components

Battery Cluster

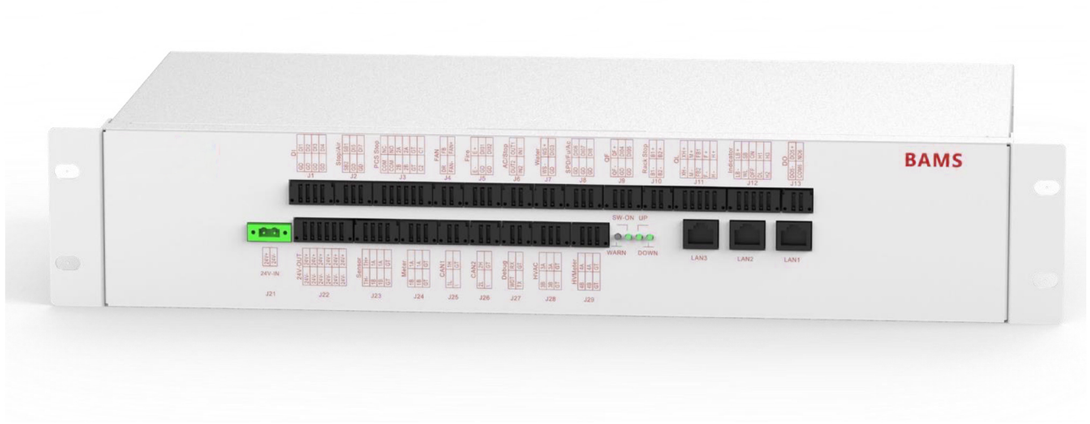




Performance Characteristics

- Dynamic Intra-cluster Bi-directional Active Balancing
- Multi-dimensional indication of operating status
- Cell-level dynamic temperature control
- Independent auxiliary power distribution switch
- Automatic allocation of communication addresses
- Integrated AC/DC dual-power system
- Autonomous management of battery clusters
- Intra-cluster independent fuse protection

BMS



Our BMS adopts a three-tier management architecture, enabling hierarchical data management and security protection functions for modules, clusters, and battery packs.

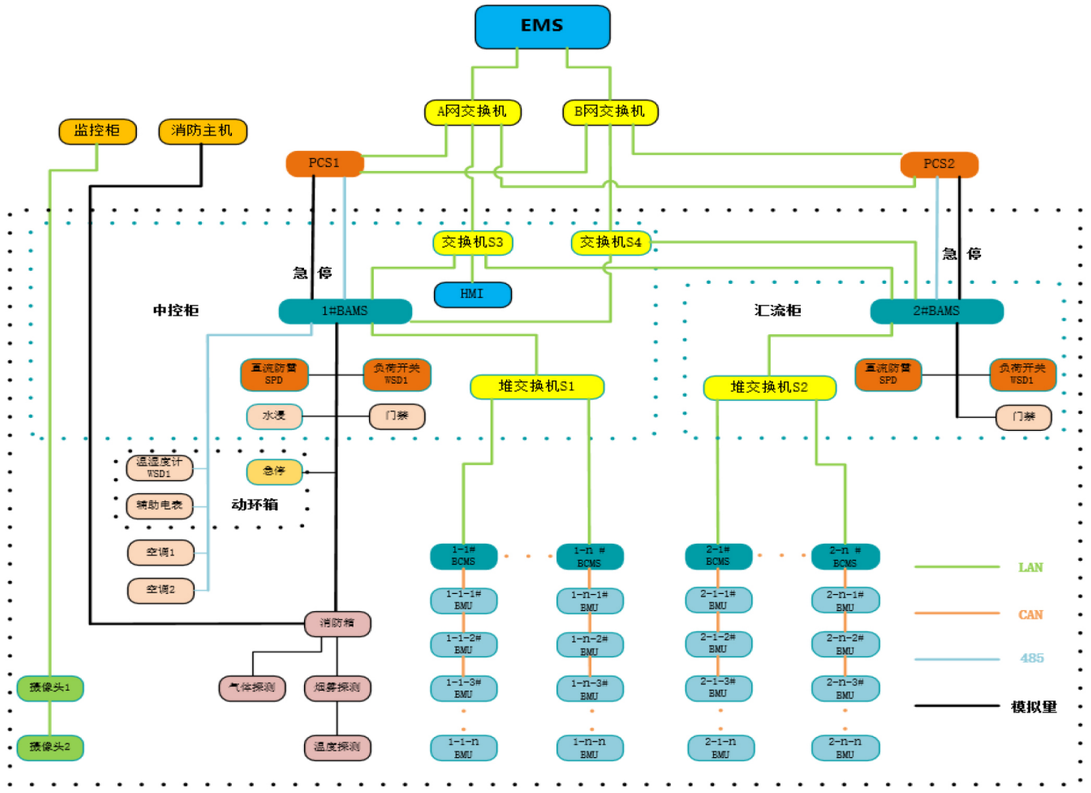
It features three-tier independent hardware protection functions, allowing independent system protection actions in case of single-layer failure. Combined with the Karman filtering algorithm and Leyden's self-developed SOC algorithm, it achieves SOC accuracy within 5%.

We have pioneered leakage and internal resistance detection functions, enabling cell-level internal resistance assessment, with a high conformity rate of 95% compared to professional equipment.

Performance Features

- Three-tier BMS management architecture
- 7-layer software active protection
- Multi-level hard contact independent protection
- EMC protection 4-level protection
- SOC adaptive correction algorithm
- Compliant with IEC 61508 functional safety standard
- 0.1-level cell voltage acquisition accuracy
- Innovative leakage and internal resistance detection function

Communication Topology



BMS Technical Parameters

Model	DIYBMS1000PSA
Collection Parameters	
Battery-side voltage acquisition	0~1500V（±0.2%FS）
Ground insulation resistance	0~65535kΩ（±5%RD±10kΩ）
SOC/SOE	≤8%
Cumulative energy	≤3%
Number of channels for single-cell voltage acquisition	18MAX (default 12)
Range of single-cell voltage acquisition	0~5V
Accuracy of single-cell voltage acquisition	1‰FS
Range of total voltage acquisition	16~90V/1‰FS
Number of channels for module temperature acquisition	8max
Range of temperature acquisition	-40~125℃
Accuracy of temperature acquisition	±1℃FS
Contact Parameters	
Dry contact input	14 channels, 0~12V
Dry contact output	30V/2A， 1 channels
Wet contact output	24V/2A， 5 channels
PCS hard contact	Maximum supported: 30VDC, 5kHz
Communication Parameters	
对外通讯接口	CAN*2/ETH*2/RS485*3/ RS232*1
通讯波特率	250kbps/100Mbps/9600bps/19200 bps
通讯协议	Default Modbus-TCP/IEC61850 (MMS)
Other Parameters	
工作温度	-20~65℃
工作湿度	0~95%RH (no condensation)
海拔	70kPa~106kPa
工作电压范围	18~30V/25W
均衡功能	Bi-directional active balancing / 5A max
认证标准	GB/T 34131

Comprehensive Safety Design

Proactive Safety

3-level BMS hardware protection, 4-level electrical protection, 7-level software protection with early warning for potential safety risks.

Battery Cells

Top-tier domestic and international battery brands, collaborating with manufacturers to research battery characteristics and apply them to system design.

Safety

Triple-layer protection: PACK-level firefighting, container-level firefighting, and station-level firefighting. Combines gas and water-based firefighting systems.



Thermal Management

Pack-level stepless temperature regulation, zoned temperature control, layered management, hot and cold air separation design. Uses heat insulation and fireproof materials, along with both container-level and Pack-level thermal management.

Electrical Design

Multiple layers of electrical protection, structural design, and foolproof design.

BMS

Bi-directional active balancing technology, preset with multiple independent hard contact protections, equipped with cell-level internal resistance and pressure monitoring functions. Real-time fault diagnosis for the battery system.

EMS



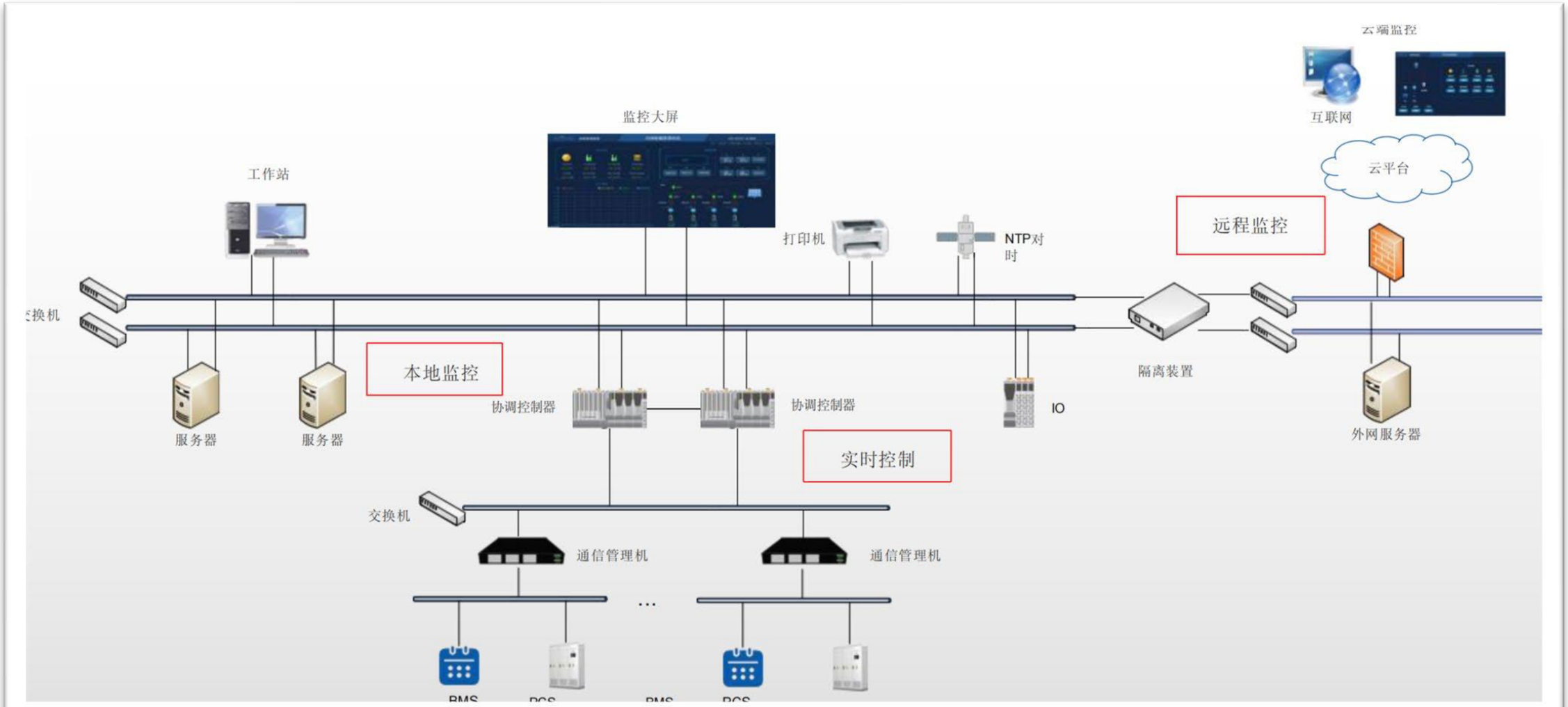
Our EMS utilizes industrial-grade server hardware platform, catering to both cloud-based energy management and localized energy management services. It provides functions such as primary frequency regulation, AGC control, and peak-valley control for upper-level management, and SOC maintenance, PCS power allocation, and other functions for lower-level management. It can display the current operating status of the system in real-time, and comes with multi-level access control, supporting system information encryption to meet network security requirements.

Performance Features

- Integrated multiple communication protocols
- System-level information encryption and permission management
- Support for various operating modes such as local scheduling and optimal control
- Multiple security constraint strategies
- Real-time status display

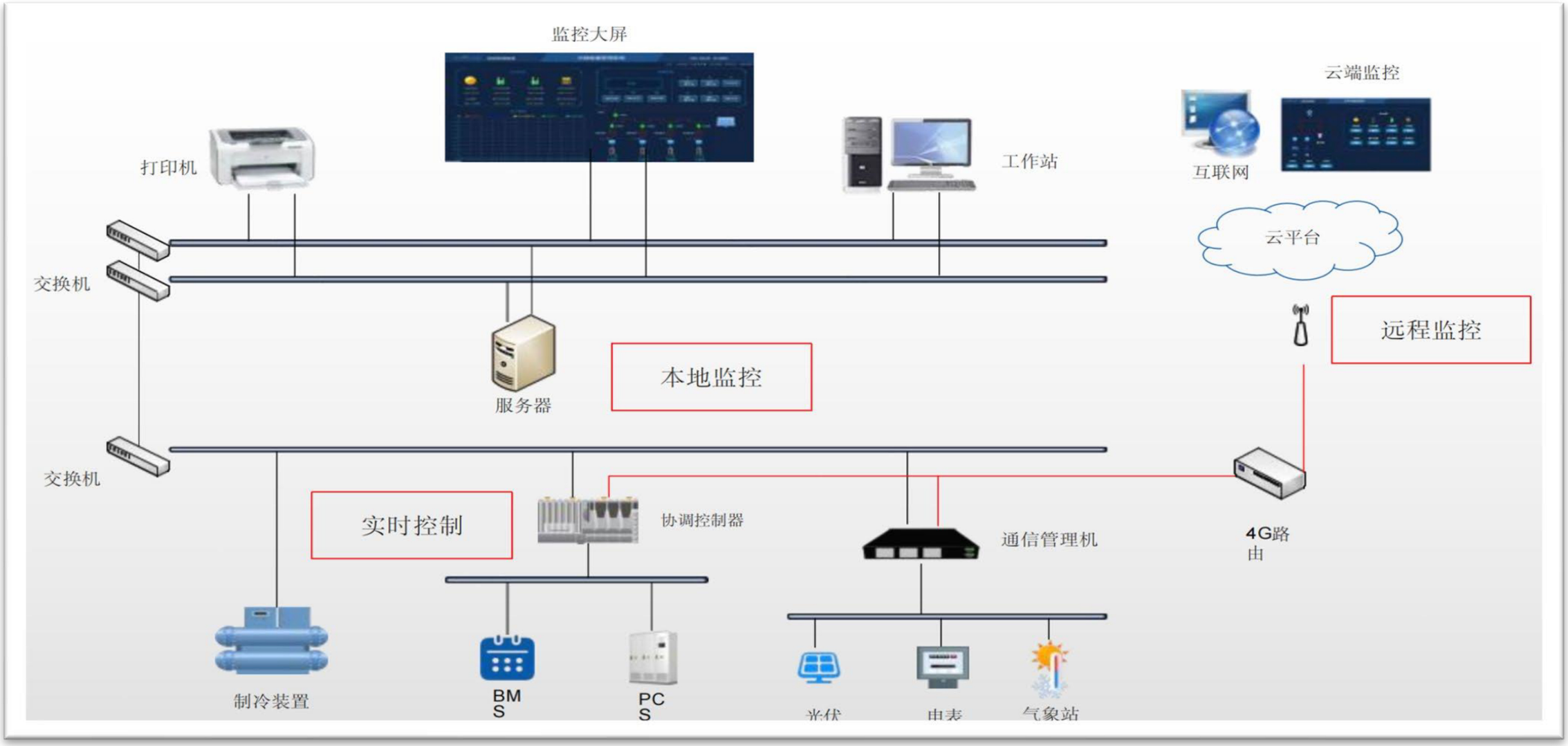
EMS

Grid-side Large-Scale Energy Storage Topology



EMS

Commercial & Industrial-Side Energy Storage Topology



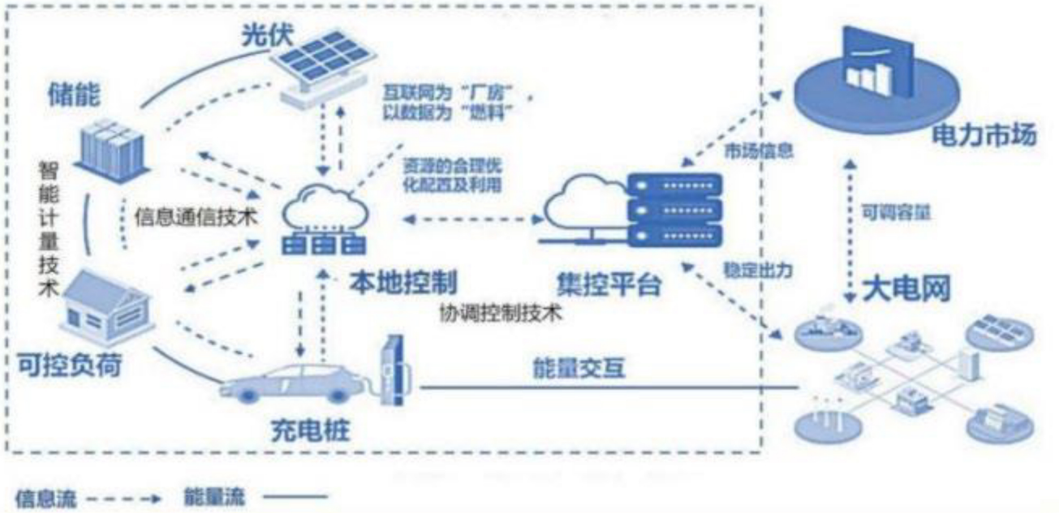
Cloud-based Energy Platform (Virtual Power Plant)



Product introduction

Our cloud power platform is a comprehensive energy service platform that aggregates distributed generation, energy storage, and controllable load resources through software systems and communication technologies. It coordinates and optimizes power dispatch to achieve supply-demand balance in the power system, addressing issues of intermittency and supply-demand imbalance. As a virtual power plant, the cloud power platform facilitates power trading in the industrial and commercial energy storage electricity spot market, generating revenue through adjustments in generation-side energy, grid-side regulation trading, and demand-side response.

Platform topology



Cloud Diagnostic Platform (Lifecycle Management)



Product introduction

Our Cloud Diagnostic Monitoring Platform, centered around the concept of the entire lifecycle, can real-time obtain battery internal voltage / temperature / current / warning and internal resistance data from the BMS end. Combined with unique cell degradation models and system status assessment methods, it can accurately estimate the SOH and system safety status of the battery system. When evaluating maintenance needs and alarm information, it can push notifications to operation and maintenance personnel through the network and SMS for verification.

The operation management system is integrated with the MES system, which can track each cell of the system from procurement to retirement throughout its lifecycle, providing point-to-point positioning.

Performance Features

- AI Security Algorithms
- Early Warning to Timely Prevent Risks
- Full Lifecycle Management
- Deep Integration with MES and ERP
- Precise Monitoring at Cell Level
- Multiple Protection Mechanisms
- Real-time Monitoring of All Data
- Configurable Information Push
- Massive Data Models

Commercial & Industrial ESS Shipments







4MWh Solar PV-Diesel BESS Hybrid Systems in Malaysia

The system is equipped with eight 506kWh battery cabinets and a 1000kW photovoltaic system. The project covers an area of over 1,000 square meters, with a maximum daily power generation capacity of 6,448kWh, meeting 24/7 energy needs. Additionally, the project is equipped with a 280kW diesel generator as a backup power source to ensure electricity supply in emergency situations.





