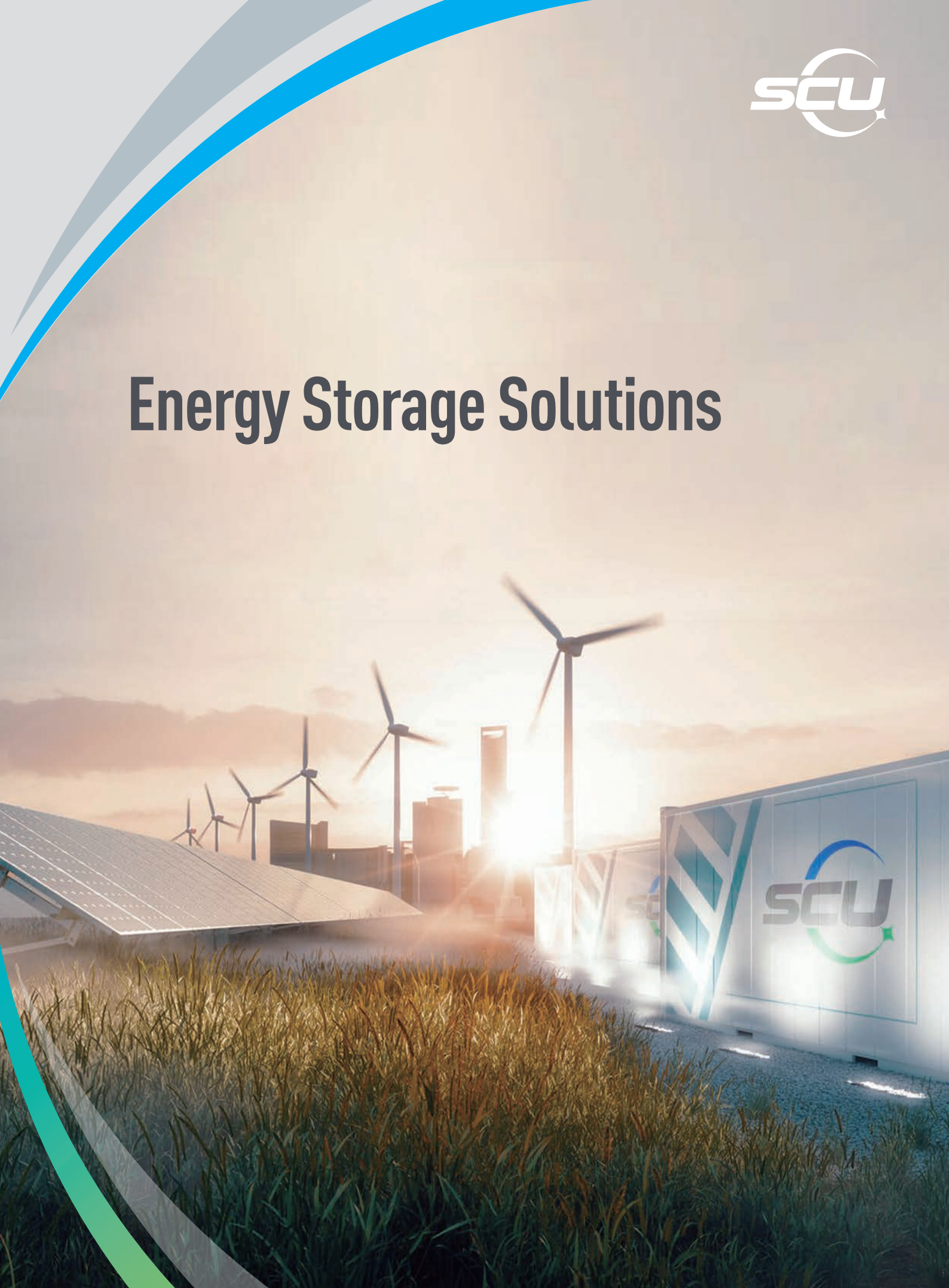
Energy Storage Solutions



Multifunctional Power Conversion System

The multi-functional bi-directional converter can realize the bi-directional conversion from DC to AC and from AC to DC. It can not only convert AC into DC to charge the battery, but also convert DC into AC to supply power to the load or feed back to the grid. The system adopts advanced digital control technology, which optimizes the control performance and improves the reliability of the system. It can realize seamless switching between grid-connected discharge, grid -connected charging and off grid operation modes.

Configuration

AC/DC Module

Bidirectional AC / DC converter can realize the bidirectional conversion from DC to AC and AC to DC. It can not only convert AC to DC to charge battery, but also convert DC to AC to supply power to load or feed back to power grid.

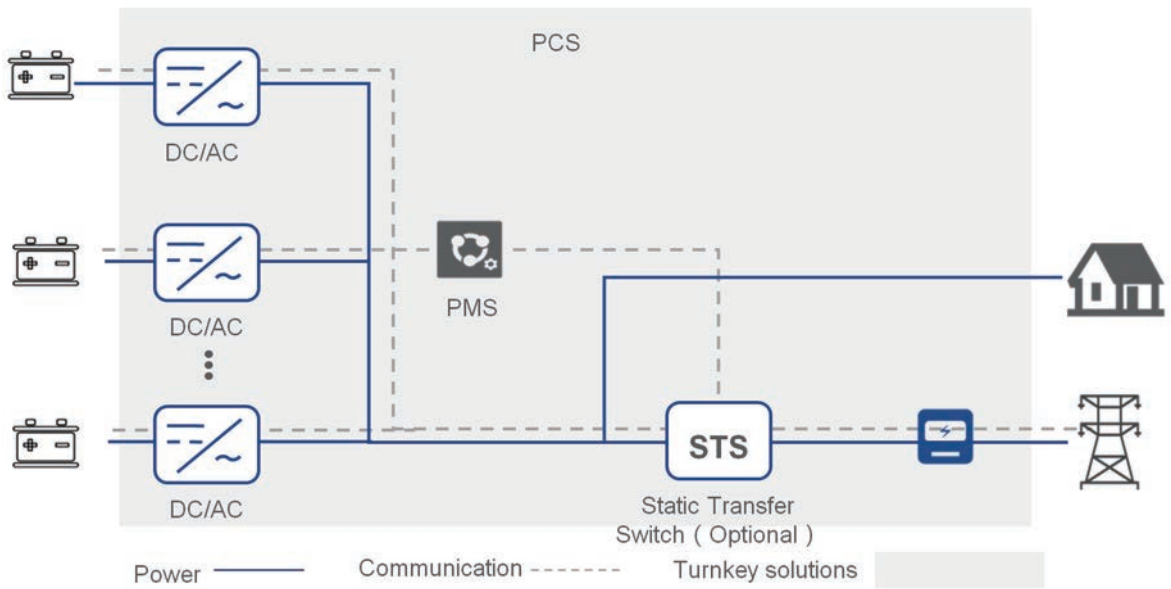
Static Transfer Switch (optional)

Under normal working condition, the static switch is closed. When the power supply is interrupted, the static switch is immediately disconnected. The system turns to off grid power supply, and the battery is discharged for the load.

Power Management System

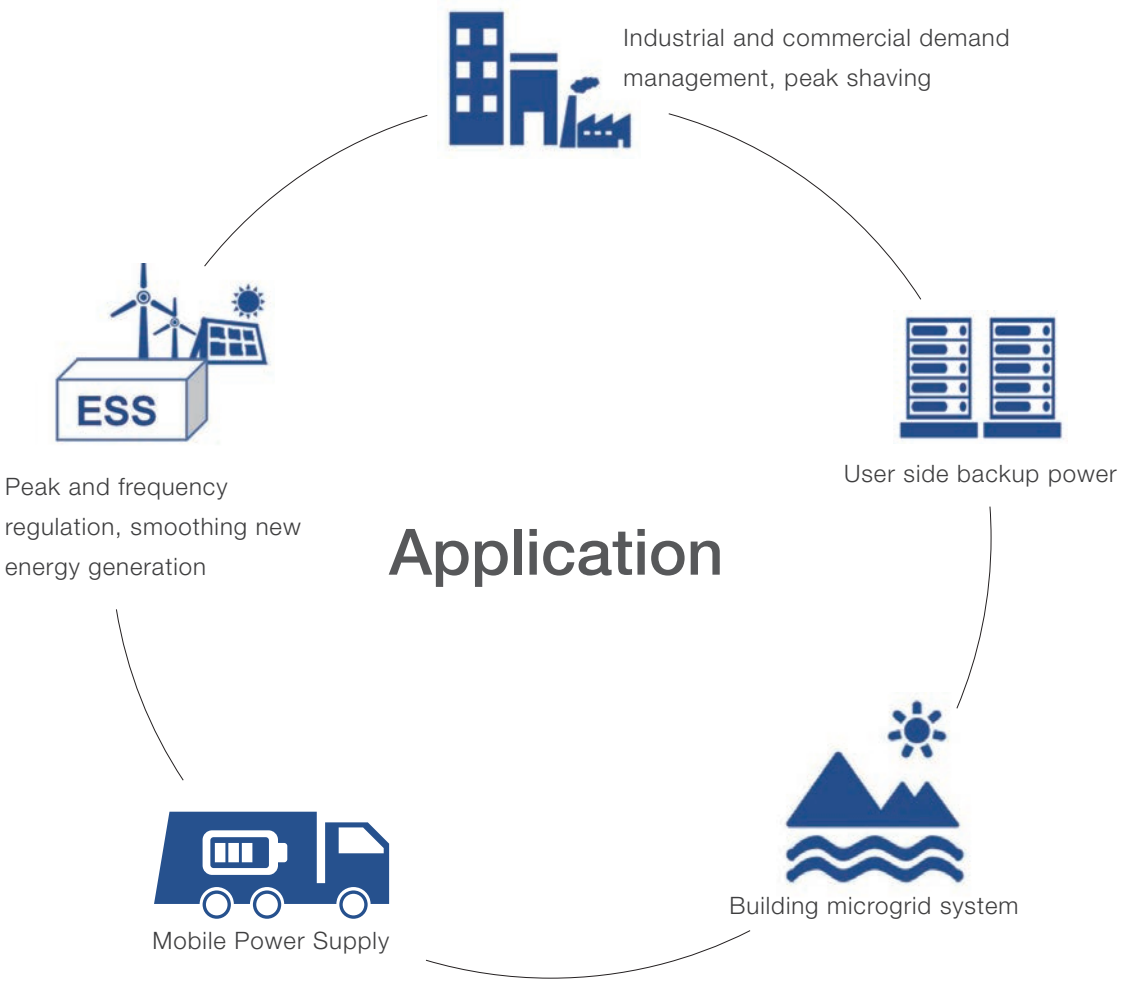
System operation data monitoring, operation strategy management, historical data record, system status record, etc.

System topology



Key product features and benefits

- Multiple working modes.
- Seamless switching between on-grid and off grid modes,<10ms.
- 3P3W and 3P4W optional.
- RS485, CAN, Ethernet communication modes.
- Functions of low voltage ride through and reactive power compensation.
- 100% unbalanced load capacity in off grid operation.
- Continuous 105% rated output power.
- AC and DC dual input redundant power supply.
- Modular design and flexible product.
- High efficiency， high reliability.
- Battery technology independence.
- PV direct access.



High efficiency integrated PCS systems based on 50kW module

Model:EPCS50,EPCS100
Max. Capacity of system:50kW,100kW
Power module model: PCM50
Power module capacity: 50kW
Dimension:600*1000*2000(W*D*H)mm

Model:EPCS150,EPCS200,EPCS250
Max. Capacity of system: 150kW,200kW, 250kW
Power module model: PCM50
Power module capacity: 50kW
Dimension:1200*1000*2000(W*D*H)mm

	Model	EPCS50	EPCS100	EPCS150	EPCS200	EPCS250
Battery interface parameters	Voltage range	580V-900V (with TX)				
	Max DC channel Qty	1	2	3	4	5
	Single channel maximum current	85A				
AC grid-connected parameters	Output	3W+N+PE/3W+PE		3W+N+PE/3W+PE		
	Rated power	50kW	100kW	150kW	200kW	250kW
	Rated voltage	AC 380V /400V				
	Rated Current	75A	151A	227A	303A	379A
	Voltage range	-15% ～ +10%				
	Rated frequency	50Hz/60Hz				
	Frequency range	±2Hz				
	Power factor	-0.9~+0.9				
	Output harmonics	⩽ 3%				
	Charge- discharge transition time	＜ 100ms				
AC off-grid parameters	Output	3W+N+PE/3W+PE				
	Rated power	50kW	100kW	150kW	200kW	250kW
	Rated voltage	AC 380V /400V				
	Rated frequency	50Hz/60Hz				
	Rated Current	75A	151A	227A	303A	379A
	Voltage accuracy	0.01				
	Frequency accuracy	±0.2Hz				
	Output voltage harmonics	3%@ linear full load				
	Unbalanced load capacity	100%				
	Overload capacity	105%]: continuous operation; (105% ~ 120%]: 10min; 120%): stop operation				
Environment	Working temperature	-20°C～ 55°C（>45°C derating）				
	Storage temperature	-40°C～ 70°C（No batteries）				
	Relative humidity	0% RH ～ 95% RH，No condensation				
	Working altitude	<45°C，2000m；2000m ～ 4000m Derating				
	Noise	＜ 75dB				
Others	Communication	CAN/RS485				
	Isolation	Isolation Tranformer				
	Protection	IP20				
	Cooling	Air cooling, intelligent fan regulation				
	Maximum efficiency	97.5%				
	Dimension W*D*H	600*1000*2000		1200*1000*2000		
	Weight	300kg	330kg	500kg	530kg	560kg
	Certification	EN50549/G99/IEC62477-1/EN61000/IEC61727/IEC62116				

High efficiency integrated PCS systems based on 100kW module

Model: EPCS300,EPCS400,EPCS500,EPCS600
Max. Capacity of system: 300kW,400kW,500kW,600kW
Power module model: PCM100
Power module capacity: 100kW
Dimension: 1400*1000*2000(W*D*H)mm

	Model	EPCS300	EPCS400	EPCS500	EPCS600
Battery interface parameters	Voltage range	DC 680V-900V (without TX)			
	Max DC channel Qty	3	4	5	6
	Single channel maximum current	170A			
AC grid-connected parameters	Output	3W+N+PE/3W+PE			
	Rated power	300kW	400kW	500kW	600kW
	Rated voltage	AC 380V /400V			
	Rated Current	454A	606A	758A	909A
	Voltage range	-15% ～ +10%			
	Rated frequency	50Hz/60Hz			
	Frequency range	±2Hz			
	Power factor	-0.9~+0.9			
	Output harmonics	⩽ 3%			
	Charge- discharge transition time	＜ 100ms			
AC off-grid parameters	Output	3W+N+PE/3W+PE			
	Rated power	300kW	400kW	500kW	600kW
	Rated voltage	AC 380V/400V			
	Rated frequency	50Hz/60Hz			
	Rated Current	454A	606A	758A	909A
	Voltage accuracy	1%			
	Frequency accuracy	±0.2Hz			
	Output voltage harmonics	3%@ linear full load			
	Unbalanced load capacity	100%			
	Overload capacity	105%]: continuous operation; (105% ~ 120%]: 10min; 120%): stop operation			
Environment	Working temperature	-20°C～ 55°C（>45°C derating）			
	Storage temperature	-40°C～ 70°C（No batteries）			
	Relative humidity	0% RH ～ 95% RH，No condensation			
	Working altitude	<45°C，2000m；2000m ～ 4000m Derating			
	Noise	＜ 75dB			
Others	Communication	CAN/RS485			
	Isolation	No Isolation Tranformer			
	Protection	IP20			
	Cooling	Air cooling, intelligent fan regulation			
	Maximum efficiency	98.5%（no transformer）			
	Dimension W*D*H	1400*1000*2000		1400*1000*2000	
	Weight	600kg	650kg	700kg	750kg
	Certification	EN50549/G99/IEC62477-1/EN61000/IEC61727/IEC62116			

Integrated PCS systems with wide voltage range

Model:EHPCS-50/50,EHPCS-100/50
Max. Capacity of system:50kW,100kW
Power module model: PCMZ50
Power module capacity: 50kW
Dimension:600*1000*2000(W*D*H)mm

Model:EHPCS-150/50,EHPCS-200/50,EHPCS-250/50
Max. Capacity of system: 150kW,200kW, 250kW
Power module model: PCMZ50
Power module capacity: 50kW
Dimension:1200*1000*2000(W*D*H)mm

	Model	EHPCS-50/50	EHPCS-100/50	EHPCS-150/50	EHPCS-200/50	EHPCS-250/50
Battery interface parameters	Voltage range	DC200V ～ DC800V				
	Full Load voltage range	DC370V ～ DC800V				
	Max DC channel Qty	1	2	3	4	5
	Single channel maximum current	135A				
AC grid-connected parameters	Output	3W+N+PE/3W+PE				
	Rated power	50kW	100kW	150kW	200kW	250kW
	Rated voltage	AC 380V /400V				
	Rated Current	75A	151A	227A	303A	379A
	Voltage range	-15% ～ +10%				
	Rated frequency	50Hz/60Hz				
	Frequency range	±2Hz				
	Power factor	-0.9~+0.9				
	Output harmonics	⩽ 3%				
	Charge- discharge transition time	＜ 100ms				
AC off-grid parameters	Output	3W+N+PE/3W+PE				
	Rated power	50kW	100kW	150kW	200kW	250kW
	Rated voltage	AC 380V /400V				
	Rated frequency	50Hz/60Hz				
	Rated Current	75A	151A	227A	303A	379A
	Voltage accuracy	0.01				
	Frequency accuracy	±0.2Hz				
	Output voltage harmonics	3%@ linear full load				
	Unbalanced load capacity	100%				
	Overload capacity	105%]: continuous operation; (105% ~ 110%]: 10min; 110%): stop operation				
Environment	Working temperature	-20°C～ 55°C（>45°C derating）				
	Storage temperature	-40°C～ 70°C（No battries）				
	Relative humidity	0% RH ～ 95% RH，No condensation				
	Working altitude	<45°C，2000m；2000m ～ 4000m Derating				
	Noise	＜ 75dB				
Others	Communication	CAN/RS485				
	Isolation	Isolation Tranformer				
	Protection	IP20				
	Cooling	Air cooling, intelligent fan regulation				
	Maximum efficiency	95.5%				
	Dimension W*D*H	600*1000*2000		1200*1000*2000		
	Weight	320kg	370kg	570kg	620kg	670kg
	Certification	EN50549/G99/IEC62477-1/EN61000/IEC61727/IEC62116				

Hybrid PCS system with solar access

Model:SPCS50
MPPT:50kW
PCS:50kW
Dimension:
600*1000*2000(W*D*H)mm

Model:SPCS100
MPPT:100kW
PCS:100kW
Dimension:
1200*1000*2000(W*D*H)mm

Model:SPCS150
MPPT:150kW
PCS:150kW
Dimension:
1200*1000*2000(W*D*H)mm

	Model	SPCS50	SPCS100	SPCS150
PV parameter	MPPT voltage range		DC200V ～ DC700V	
	MPPT full power Volt range		DC370V ～ DC700V	
	MPPT channel Qty	1	2	3
	Single channel maximum current		135A	
Battery parameter	Rated voltage		768V	
	Max charging/discharging current	85A	170A	255A
AC grid-connected parameters	Output		3W+N+PE /3W+PE	
	Rated power	50KW	100KW	150KW
	Rated voltage		AC 380V /400V	
	Rated current	75A	151A	227A
	Voltage range		-15% ～ +10%	
	Rated frequency		50Hz/60Hz	
	Frequency range		±2Hz	
	Power factor		-0.9 ～ +0.9	
	Output harmonics		⩽ 3% (Rated power)	
AC off-grid parameters	Output		3W+N+PE/3W+PE	
	Rated power	50KW	100KW	150KW
	Rated voltage		AC 380V /400V	
	Rated frequency		50Hz/60Hz	
	Rated Current	75A	151A	227A
	Voltage accuracy		1%	
	Frequency accuracy		±0.2Hz	
	Output voltage harmonics		3% (Linear load)	
	Unbalanced load capacity		100%	
	Overload capacity	105%]: continuous operation; (105% ~ 120%]: 10min; 120%): stop operation		
Environment	Working temperature		-20°C～ 55°C （>45°C derating）	
	Storage temperature		-40°C～ 70°C （No batteries）	
	Relative humidity		0% RH ～ 95% RH，No condensation	
	Working altitude		2000m；2000m ～ 4000m Derating	
	Noise		＜ 75dB	
Others	Communication		CAN/RS485	
	Isolation		No	
	On-off grid switching		Yes	
	Protection		IP20	
	Cooling		Air cooling, intelligent fan regulation	
	Maximum efficiency		96.50%	
	Dimension W*D*H	600*1000*2000mm	1200*1000*2000mm	1200*1000*2000mm
	Weight	300kg	330kg	500kg

Rack-mounted PCS module—easy for integration

Model:PCM50 II HC
Capacity:50kW
Dimension:
560*530*133(W*D*H)mm

Model:PCM100 II HC
Capacity:100kW
Dimension:
560*530*177(W*D*H)mm

Model		PCM50 II HC	PCM100 II HC
Battery interface parameters	Voltage range	DC580V ～ DC900V	
	Rated power	50KW	100KW
	Single channel maximum current	85A	170A
AC grid-connected parameters	Output	3W+N/3W	
	Rated power	50KW	100KW
	Rated voltage	AC 380V/400V	
	Rated Current	75A	151A
	Voltage range	-15% ～ +10%	
	Rated frequency	50Hz/60Hz	
	Frequency range	±2Hz	
	Power factor	-0.9~+0.9	
	Output harmonics	⩽ 3%	
	Charge- discharge transition time	<100ms	
AC off-grid parameters	Output	3W+N/3W	
	Rated power	50KW	100KW
	Rated voltage	AC 380V/400V	
	Rated frequency	50Hz/60Hz	
	Rated Current	75A	151A
	Voltage accuracy	1%	
	Frequency accuracy	±0.2Hz	
	Output voltage harmonics	3%@ linear full load	
	Dynamic response time	20ms	
	Unbalanced load capacity	100%	
	Overload capacity	105%]: continuous operation; (105% ~ 120%]: 10min; 120%): stop operation	
Environment	Working temperature	-20°C～ 55°C（>45°C derating）	
	Storage temperature	-40°C～ 70°C（No battries）	
	Relative humidity	0% RH ～ 95% RH，No condensation	
	Working altitude	45°C，2000m；2000m ～ 4000m Derating	
	Noise	＜ 75dB	
Others	Comminication	CAN/RS485	
	Isolation	no	
	Protection	IP20	
	Cooling	Air cooling, intelligent fan regulation	
	Maximum efficiency	98.50%	
	Dimension W*D*H	560mm*530mm*133mm	560mm*530mm*177mm
	Weight	30kg	50kg

Innovative Lithium Battery System

The lithium battery system consists of rack, battery modules, battery management system (BMS), display control system and protection system. 2 level BMS design, hierarchical linkage and multiple monitoring of system status. Relay, fuse, circuit breaker and BMS constitute a comprehensive protection system integrating electrical safety and functional safety.

Configuration

Battery System

The system mainly consists of safe, efficient and long-life lithium iron phosphate cells, which are connected in series to form battery modules, and multiple modules are connected in series to form battery clusters.

Battery management system

The core components of the system can effectively protect the battery from overcharge, overdischarge and over-current. At the same time, the balanced management of the cells can ensure the safe, reliable and efficient operation of the whole system.

Power Management System

System operation data monitoring, operation strategy management, historical data record, system status record, etc.

Key product features and benefits

Safe and reliable

- High quality iron phosphate lithium battery.
- Intelligent air cooling design, long service life life, stable operation.
- Three level BMS design of module, cabinet and system, multiple state monitoring, hierarchical linkage, comprehensive guarantee of battery system safety.
- Battery module is designed with PC bracket and reinforce steel structure to guarantee the the highest safety of the system, in transportation, installation and operation.

Efficient and Convenient

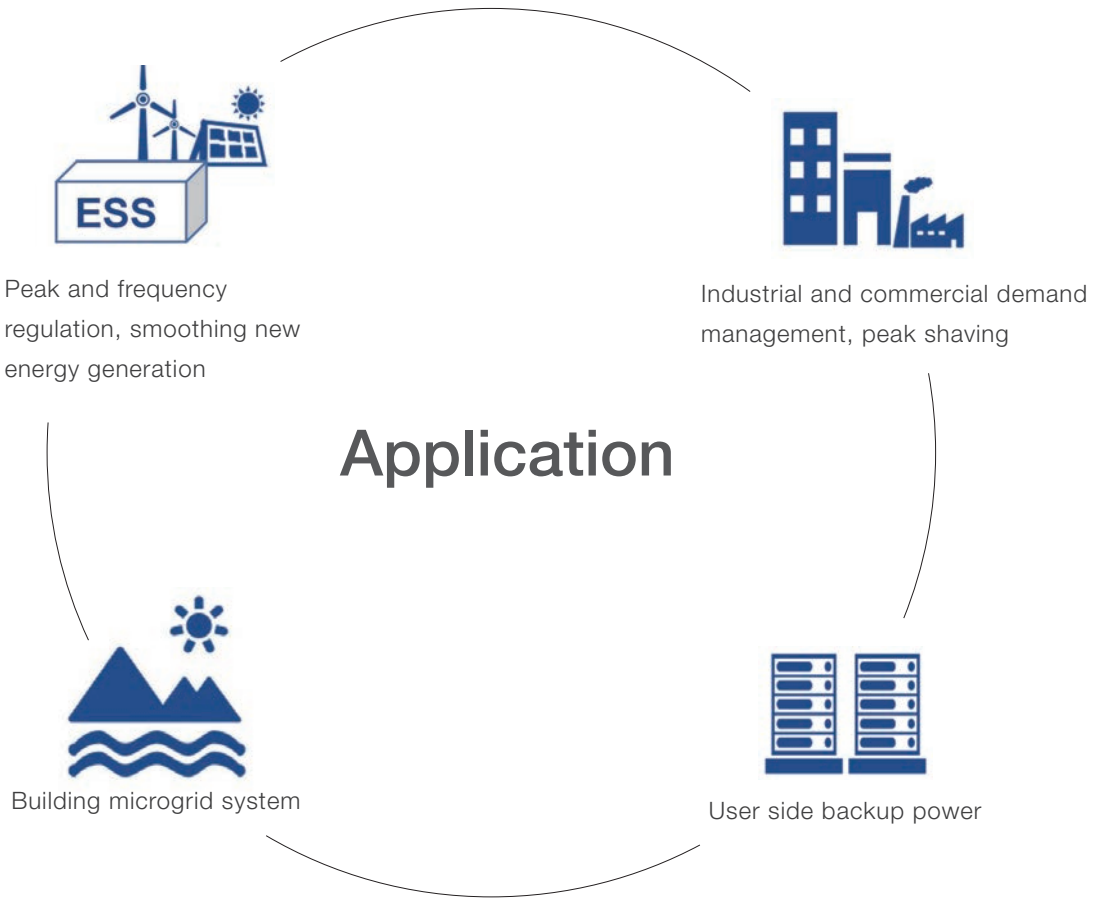
- Energy system, high energy density, high integration.
- Outstanding high rate performance, maximum 2C charging and 6C discharging.
- Modular design, convenient for maintenance, management and expansion.

Active equalization

- Three level BMS design, energy transferring active equalization, to overcome the impact of single cell capacity on system capacity.
- The equalization accuracy is less than 2%, and the equalization capacity can reaches 10% of the rated output.

Cost optimization

- Small size, light weight, less space and installation cost.
- Long cycle life, low failure rate, reduce operation and maintenance investment.



High C-rate system

EBC480/40

Battery capacity：40Ah
Rated voltage：480Vdc
Dimension：600*550*2000(W*D*H)mm

EBC480/80

Battery capacity：80Ah
Rated voltage：480Vdc
Dimension：600*800*2000(W*D*H)mm

EBC480/120

Battery capacity：120Ah
Rated voltage：480Vdc
Dimension：600*950*2000(W*D*H)mm

EBC480/160

Battery capacity：160Ah
Rated voltage：480Vdc
Dimension：600*1150*2000(W*D*H)mm

Model	EBC480/40	EBC480/80	EBC480/120	EBC480/160
Battery capacity	40Ah	80Ah	120 Ah	160 Ah
Rated voltage	480V	480V	480V	480V
Rated capacity	19.2kWh	38.4kWh	57.6kWh	76.8kWh
Battery voltage range(V)	420 ～ 547.5	420 ～ 547.5	420 ～ 547.5	420 ～ 547.5
Max. Continuous charging current	80A (2C)	160A (2C)	240A (2C)	320A (2C)
Max. Continuous discharging current	240A (6C)	400A (5 C)	480A (4C)	480A (3C)
Working Temperature	Charging：0°C～50°C ; Discharging：-20°C～55°C			
Best Working Temperature	15°C～35°C			
Storage temperature	-40°C～60°C ; (System SOC：Under 20%~40%; Within 1 month, -40°C～45°C ; Within 6 month, -20°C～35°C)			
Working environment	Altitude: ＜2500m; Relative humidity: ＜95% (no condensation)			
System cooling mode	Controlled air cooling			
Insulation resistance	＞500MΩ@1500VDC			
Isolation and withstand voltage	2500VDC/1min			
Internal power supply mode	24VDC(Built-in DC/DC)			
Static power consumption	35W(Typical value, module fan not included)			
Data display	7" TN true color LCD screen (Ratio：5:3，resolution ratio 800×480)			
IP rating	IP21			
Dimension				
W(mm)	600	600	600	600
D(mm)	550	800	950	1150
H(mm)	2000	2000	2000	2000
Weight(Kg)	400	600	800	1000
Life cycle	3000 times (1C@25°C charging&discharging @100%DOD，EOL80%)			
Battery Management System (BMS)				
Cell voltage acquisition range	1-5V			
Cell voltage acquisition accuracy	⩽10mV			
Total voltage acquisition accuracy	±1V or ±1%			
Current acquisition range	0~±250ADC	0~±500ADC	0~±625ADC	0~±750ADC
Current acquisition accuracy	⩽±1°C			
Temperature acquisition range	-20 ～125°C			
Temperature acquisition accuracy	⩽±1°C			
SOC estimation accuracy	⩽8%			
SOH estimation accuracy	⩽8%			
Charging over current protection	＞2C，10s；＞2.2C，5s；＞2.5C，1s			
Discharging over current protection	＞6.2C,10s; ＞6.5C,1s	＞5.2C,10s; ＞5.5C,1s	＞4.2C,10s; ＞4.5C,1s	＞3.2C,10s; ＞3.5C,1s
Over temperature protection	Discharging＞55°C (20s) ; Charging＞50°C (20s)			
Low temperature protection	Discharging＜-20°C (1s) ; Charging＜0°C (1s)			
Communication mode	CAN, RS485, dry contact			
Certification	IEC62619/IEC62620/EN61000/UN38.3			

High energy system

EBC512/100
Battery capacity：100Ah
Rated voltage：512 Vdc
Dimension：1360*650*1400 (W*D*H)mm

EBC480/150
Battery capacity：150Ah
Rated voltage：480 Vdc
Dimension：1360*650*1400(W*D*H)mm

EBC460/200
Battery capacity：200Ah
Rated voltage：460 Vdc
Dimension：1360*650*1400 (W*D*H)mm

EBC768/100
Battery capacity：100Ah
Rated voltage：768 Vdc
Dimension：1360*650*2000(W*D*H) mm

EBC768/150
Battery capacity：150Ah
Rated voltage：768 Vdc
Dimension：1360*650*2000(W*D*H)mm

EBC768/200
Battery capacity：200Ah
Rated voltage：768 Vdc
Dimension：1360*650*2000(W*D*H)mm

Model	EBC512/100	EBC480/150	EBC460/200	EBC768/100	EBC768/150	EBC768/200
Battery capacity	100Ah	150Ah	200Ah	100Ah	150Ah	200Ah
Rated voltage	512V	480V	460V	768V	768V	768V
Rated capacity	51.2kWh	72kWh	92kWh	76.8kWh	115.2kWh	153.6kWh
Battery voltage range	448V ～ 568V	420V ～ 532.5V	403.2V～511.2V	672V ～ 852V		
Max. Continuous charging current	100A （1C）	150A （1C）	200A （1C）	100A （1C）	150A （1C）	200A （1C）
Max. Continuous discharging current	100A （1C）	150A （1C）	200A （1C）	100A （1C）	150A （1C）	200A （1C）
Working Temperature	Charging：0°C～ 50°C ; Discharging：-20°C～ 55°C					
Best Working Temperature	15°C～ 35°C					
Storage temperature	-40°C～ 60°C					
	System SOC：Under 20%~40%					
	Within 1 month, -40°C～ 45°C					
	Within 6 month, -20°C～ 35°C					
Working environment	Altitude: ＜ 2500m ; Relative humidity: <95% (no condensation)					
System cooling	Controlled air cooling					
Insulation resistance	＞ 500MΩ@1500VDC					
Isolation and withstand voltage	2500VDC/1min					
Internal power supply mode	24VDC （Built-in DC/DC）					
Static power consumption	35W （Typical value, module fan not started）					
Data display	7" TN true color LCD screen （Ratio：5:3，resolution ratio 800×480）					
IP rating	IP21					
Dimension（W*D*H） mm	1360*650*1400	1360*650*1400	1360*650*1400	1360*650*2000	1360*650*2000	1360*650*2000
Weight	650Kg	850Kg	1050Kg	1000Kg	1350Kg	1650Kg
Life cycle	2500 times （1C@25°C charging&discharging @100%DOD，EOL80%）					
Battery Management System (BMS)						
Cell voltage acquisition range	1-5V					
Cell voltage acquisition accuracy	⩽ 10mV					
Total voltage acquisition accuracy	±1Vor±1%					
Current acquisition range	0~±250ADC (Rated ±200ADC)	0~±375ADC (Rated ±300ADC)	0~±500ADC (Rated ±400ADC)	0~±250ADC (Rated ±200ADC)	0~±375ADC (Rated ±300ADC)	0~±500ADC (Rated ±400ADC)
Current acquisition accuracy	⩽ ±1%					
Temperature acquisition range	-20 ～ 125°C					
Temperature acquisition accuracy	⩽ ±1°C					
Charging over current protection	＞ 1C，10s；＞ 1.2C，5s；＞ 1.5C，1s					
Discharging over current protection	＞ 1C，10s；＞ 1.2C，5s；＞ 1.5C，1s					
Over temperature protection	Discharging ＞ 55°C（20s）					
	Charging ＞ 50°C（20s）					
Low temperature protection	Discharging ＜ -20°C （1s）					
	Charging ＜ 0°C （1s）					
Communication mode	CAN, RS485, dry contact					
Certification	IEC62619/IEC62620/EN61000/UN38.3					

*2C system is available.

Rack-mounted Lithium battery system

EBC48/30

Battery capacity：30Ah
Rated voltage：48Vdc
Dimension：483*475*88(W*D*H) mm

EBC48/50 EBC240/10

Battery capacity：50Ah，10Ah
Rated voltage：48Vdc，240Vdc
Dimension：483*650*88(W*D*H) mm

EBC48/100

Battery capacity：100Ah
Rated voltage：51.2Vdc
Dimension：483*518*201(W*D*H) mm

Model	EBC48/30	EBC48/50	EBC48/100	EBC240/10
Battery capacity	30Ah	50Ah	100 Ah	10 Ah
Rated voltage	48V	48V	51.2V	240V
Rated capacity	1.44kWh	2.4kWh	5.12kWh	2.4kWh
Battery voltage range	42V ～ 54.75V	42V ～ 54.75V	44.8V ～ 58.4V	210V ～ 273.75V
Max. Continuous charging current	30A (C)	50A (1C)	100A (1C)	20A (2C)
Max. Continuous discharging current	60A (2C)	100A (2C)	200A (2C)	20A (2C)
Working Temperature	Charging：0°C～ 50°C ; Discharging：-20°C～ 55°C			
Best Working Temperature	15°C～ 35°C			
Storage temperature	-40°C～ 60°C (System SOC：Under 20%~40%Within 1 month, -40°C～ 45°C Within 6 month, -20°C～ 35°C)			
Working environment	Altitude: ＜ 2500m Relative humidity: <95% (no condensation)			
System cooling mode	Controlled air cooling			
IP rating	IP21			
Installation	Standard for 19 inch cabinet			
Dimension（W*D*H） mm	483*475*88	483*650*88	483*518*201	483*650*88
Weight	20 kg	31 kg	50 kg	31 kg
Life cycle	4000 times （1C@25°C charging&discharging @100%DOD，EOL80%）			
Communication mode	CAN, RS485, dry contact			
Certification	IEC62619/IEC62620/EN61000/UN38.3			

Grid Renewable Energy Storage Power Supply(GRES system)

GRES is an intelligent and modular power supply equipment integrating lithium battery and MPCS. According to different application scenarios, lithium battery, bidirectional DC / AC converter, bidirectional DC / DC converter, Static switch and Power management system can be flexibly combined to realize grid connected power supply, off grid power supply and off grid uninterrupted power supply, static reactive power compensation, harmonic suppression and other function etc..

It can access to new energy, power grid, diesel generator to realize multi-energy reasonable configuration, scientific utilization, to provide users with green, environmental protection, noise free, high reliability and high security power services.

With selected LFP batteries for mobile use, it is a robust energy storage solution which could realize ultra mobile, zero-emission, adaptable to different terrains.

Configuration

PCS

Bidirectional AC / DC converter can realize the bidirectional conversion from DC to AC and AC to DC. It can not only convert AC to DC to charge battery, but also convert DC to AC to supply power to load or feed back to power grid.

Battery System

The system mainly consists of safe, efficient and long-life lithium iron phosphate cells, which are connected in series to form battery modules, and multiple modules are connected in series to form battery clusters.

Battery management system

The core components of the system can effectively protect the battery from overcharge, overdischarge and over-current. At the same time, the balanced management of the cells can ensure the safe, reliable and efficient operation of the whole system.

Power Management System

System operation data monitoring, operation strategy management, historical data record, system status record, etc.

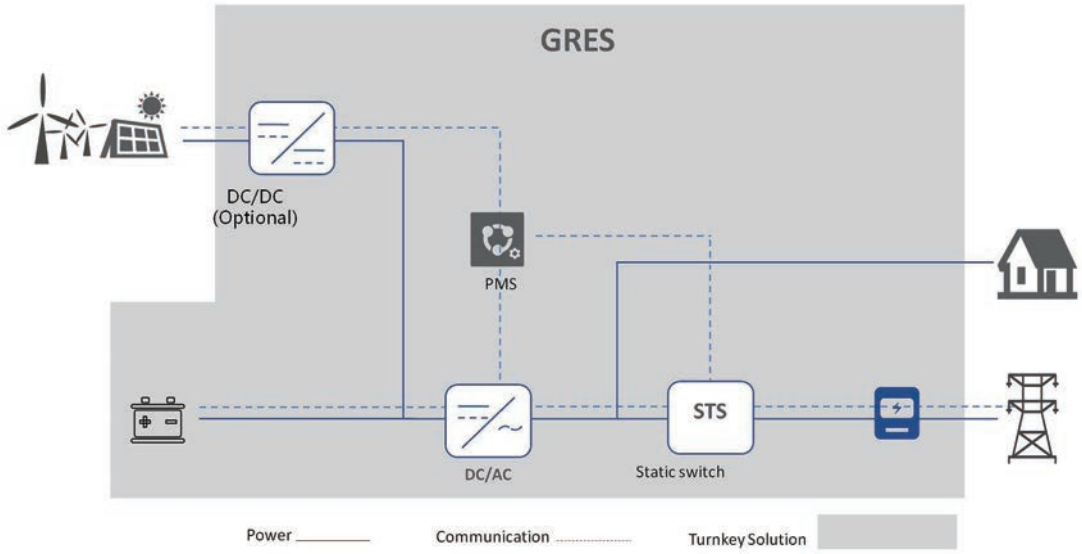
Enclosure

Protection degree IP54.

Air Conditioning

Air Conditioning (HVAC) system is configured to maintained an optimal temperature to maximize energy system operational life and efficiency.

System topology



Key product features and benefits

Safe and reliable

- High quality LFP batteries for mobile use.
- Laser welding is used to wiring electrode, which is of high strength and low impedance.
- Battery module is designed with PC bracket and Reinforce steel structure to guarantee the highest safety of the system, in transportation, installation and operation.
- Damping pad design for Battery installation to Improve the impact resistance of the system.
- IP54， safe and reliable operation in outdoor environment.
- Serially designed PCS and battery pack eliminates circulating current and improve system reliability.
- Integrated BMS,DC, AC multi-layer protection, maximum safety performance design.

Efficient and Convenient

- Integrated system, standard modular power module and battery module, easy for installation, maintenance and capacity expansion.
- Easy access to PV and diesel generator, intelligent multi-energy management.
- Fixed on the ground or mounted on vehicle, can be loaded and unloaded by forklift and hoisted by lifting ring.
- Multi systems could be connected in parallel.

Cost optimization

- One investment, multiple benefits:Peak shaving, backup power supply, microgrid building,power quality improving and energy storage,etc.
- Small size, light weight, less space and installation cost.
- Long cycle life, low failure rate, reduce operation and maintenance investment.
- Maximize green energy utilization.

Application

Industrial and commercial demand management, peak shaving

User side backup power

Building microgrid system

Mobile Power Supply

Peak and frequency regulation, smoothing new energy generation

GRES-75-50

Battery capacity：75kWh

PCS capacity：50kW

Dimension: 1680*1500*1700 (W*D*H)mm

GRES-150-100

Battery capacity：150kWh

PCS capacity：100kW

Dimension: 1680*2270*1700 (W*D*H)mm

GRES-225-150

Battery capacity：225kWh

PCS capacity：150kW

Dimension: 1680*3050*1700(W*D*H)mm

GRES-300-200

Battery capacity: 300kWh

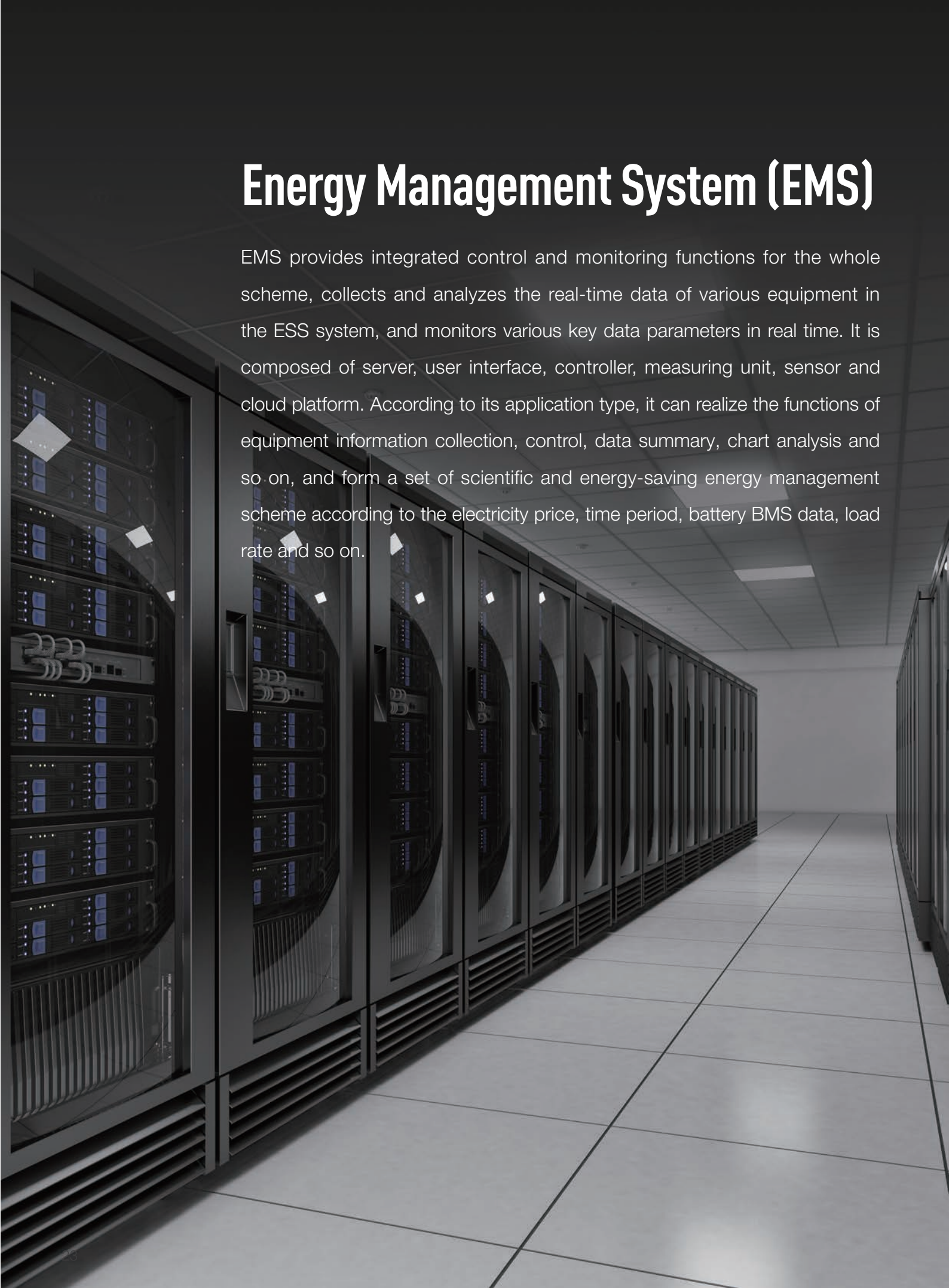
PCS capacity: 200kW

Diemnsion: 1680*3830*1700(W*D*H) mm

Model	GRES-75-50	GRES-150-100	GRES-225-150	GRES-300-200
PV Parameters				
MPPT voltage range	DC200V ~ DC700V			
MPPT full power Volt range	DC370V ~ DC700V			
MPPT channel Qty	1-3（Optional）			
Single channel maximum current	135A			
AC grid connected parameters				
Rated power (kW)	50	100	150	200
Maximum power (kW)	55	110	165	220
Rated voltage (V)	AC 380/400			
Output	3W+N+PE			
Voltage range	-15% ~ +10%			
Rated frequency (Hz)	50/60			
Frequency range (Hz)	±2			
Output harmonics	<3%(Rated power)			
Power factor	>0.99(Rated power)			
Power factor adjustable range	1(lead) ~ 1(lag)			
AC off-grid parameters				
Rated power (kW)	50	100	150	200
Maximum power (kW)	55	110	165	220
Rated voltage (V)	3W+N+PE, 380			
Output voltage harmonics	<3%(Linear Load)			
Rated frequency(Hz)	50/60			
Overload capacity	105%]: continuous operation; (105% ~ 120%]: 10min; 120%): stop operation			
Battery Parameter				
Cell type	LFP			
Module power (kWh)	5.12			
Module Qty	15	30	45	60
System rated power (kWh)	76.8	153.6	230.4	307.2
Running Time (h)	1.5 (Optional by Changing module qty)			
Life cycle	25℃ 0.5C/0.5C 100%DOD EOL80% ⩾ 4000 次			
System Efficiency				
Maximum efficiency	95%			
Protection				
DC switch	YES			
AC switch	YES			
Grid monitoring	YES			
Insulation monitoring	YES			
DCEN protection	YES			
Earth-fault protection	YES			
Surge protection	DC II/AC II			
Basic Parameters				
Dimension W*D*H (mm)	1680*1500*1700	1680*2270*1700	1680*3050*1700	1680*3830*1700
Weight (kg)	1395	2470	3545	4620
Isolation	No			
Protection	IP54			
Working temperature	-20 ~ 55℃ (>45℃ derating)			
Relative humidity（No condensation）	0 ~ 95%			
Cooling	Air cooling, intelligent fan regulation			
Working altitude (m)	4000(>2000 derating)			
Data display	Touch screen			
Communication Interface	RS485、CAN			
Protocol	Modbus-RTU、CAN2.0B			

Energy Management System (EMS)

EMS provides integrated control and monitoring functions for the whole scheme, collects and analyzes the real-time data of various equipment in the ESS system, and monitors various key data parameters in real time. It is composed of server, user interface, controller, measuring unit, sensor and cloud platform. According to its application type, it can realize the functions of equipment information collection, control, data summary, chart analysis and so on, and form a set of scientific and energy-saving energy management scheme according to the electricity price, time period, battery BMS data, load rate and so on.



Main Function

■ Power station monitoring:

7 * 24-hour second level real-time monitoring and equipment control; Intelligent alarm, multiple notification methods.

■ Energy storage management:

Demand management, power factor regulation, SOC display, charge discharge cycle display, load monitoring, electricity cost optimization.

■ Energy efficiency management:

Year on year and month on month analysis: Energy consumption tracking; Quickly identify major energy consumers and consumption increasing points.

■ Equipment management:

Equipment life cycle management; Electronic archives.

■ Efficient O&M

Unified online and offline operation and maintenance; Automatic tracking record of the whole process of operation and maintenance.

■ Power quality optimization:

Active power automatic control, reactive power control, three-phase imbalance regulation; Visual monitoring of harmonics; Intelligent alarm.

SCU-OVERSEAS BESS REFERENCES

Hybrid BESS

Country: Holland
Configuration:
GRES 75-50 75kWh/50kW BESS with MPPT
GRES 1 50-100150kWh/1 00kW BESS with MPPT
GRES 225-150 225kWh/150kW BESS with MPPT

Adding additional power

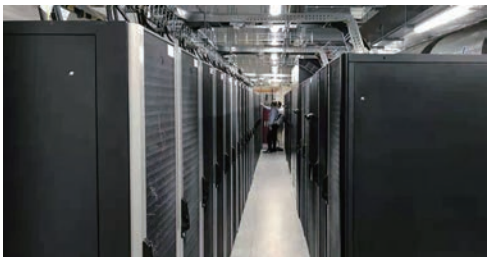
Country: Germany
Configuration:
GRES 225-150
GRES 150-100
GRES 75-50

Hybrid Storage EV Charging

Country: Ethiopia
Configuration:
GRES 1 50-1501 50kW1150kWh +100kW MPPT
module connected to solar energy

Solar Storage Project

Country: Bulgaria
Configuration:
Energy storage container
Lithium battery system: 1843kWh
Power Conversion: 600kW



Russian Government Oil Pipe Operator

Country: Russia
Configuration:
Totally 2.585MWh Battery system
Work with UPS 2C/3C discharge

Solar BESS Charging Station

Country : China
Configuration:
Parking roof solar capacity 26.68kWp
PCS energy storage bidirectional converter: 250KW
Battery storage system 550kWh
Flexible charging stack: 300kW

About US

Sicon Chat Union Electric Co., Ltd. (Stock code: 833426, referred to as: SCU Electric), is industry leading electrical and power electronic product designer and manufacturer since 2003.

SCU provides complete solutions for data center infrastructure, electric vehicle charging and green energy storage sectors.

The ESS products cover four main application: Industrial and commercial energy storage system, renewable integration, uninterrupted power lithium battery system and residential energy storage system. In recent years, the ESS projects have spread to key overseas markets such as South Korea, Russia, Netherlands, Germany, Middle East, etc.

SICON CHAT UNION ELECTRIC CO., LTD

Bldg.14&15 No. 319. Xiangjiang Street High-Tech Zone. Shijiazhuang 050035 China

Tel. +86 311 85903762

Email: enquiry@scupower.com

Visit us: www.scupower.com