

Power Solution and UPS Product Manual

MODULAR UPS

INDUSTRIAL UPS

RACKMOUNT UPS

Lithium-ion Battery System



Company

Sicon Chat Union Electric Co., Ltd. (referred to as: Sicon Electric), is an industry leading electrical and power electronic product designer and manufacturer. Sicon Electric take the lead in promoting and encouraging environment protection products, provide complete solutions for UPS & Data Center, Electric Vehicle Charging Infrastructure, Energy Storage.

Sicon: Leader of Modular UPS Industry

ISO9001, ISO14001 certified Sicon plant, CE approved Sicon UPS, Own proprietary intellectual property right of Sicon Modular UPS and power products.

Advanced solutions: Modular UPS + Li-ion Battery Backup

- 6kVA~900kW Modular UPS
- flexible, customized Li-ion Battery System

Professional modular UPS supplier

We have been developing modular UPS since 2002. Resulting in a full range modular UPS from 6kVA to 900KW. Various types of UPS module: 6kVA, 10kVA, 25kVA, 30kW, 50kW, 75kW.

Powerful marketing & service network

Company service center, throughout the world, provide a powerful marketing and service network.

Sicon has established a powerful marketing and service network. With the HQ in China and a subsidiary in Europe we support customers and partners in more than 50 countries worldwide.

Time to Join Sicon

We welcome worldwide distributors and partners to join us and write the future together.

Upholding the customer-oriented principle, we provide customers with cost-efficient, green-quality, and high-reliability power distribution solutions through continuous technological innovation, and become the leader in power distribution and supply area.

1980-1989

Sicon started developing and producing UPS, SMPS, and electronic reactor;

1990

Sicon became the first to apply IGBT replacing transistor in UPS devices, and thus substantially improved the operating frequency, increased the UPS efficiency, reduced the size and weight, enabled parallel operation of multiple UPS devices, and significantly enhanced system reliability.

2003

UPS (30KVA-600KVA) adopting the fifth generation smart 12-pulse rectification technology was developed. SPMW inverter technology and efficient digital power device PIGBT were combined, together with DSP technology and advanced SMD design, to endow UPS with better technical performance and higher reliability.

2004

Firstly launched communications-dedicated modular UPS with conforming to communications industry standards. Evolving from the fifth generation smart 12-pulse rectification technology into IGBT rectification technology, UPS input index completely complied with green power supply standards.

2005

Launched the latest generation IGBT+SPWM high frequency UPS products, unit capacity ranging from 20 KVA to 200 KVA. Aiming at electric power industry application characters, SICON first launched electric-power-dedicated modular UPS products, and provided the electric power industry with a new power supply solution with high reliability.

2006

Multi-standard modular UPS was released in the market, with excellent technical index ($PF0.99$, $THD\leq 3\%$), leading-edge circuit engineering (ACMC rectification technology, sequence master-slave synchronization control technology, multi-level distributed control technology, and three-order sinusoidal wave inverting), and advanced design concept. A wave of developing modular and integrated power products was raised in the industry.

2008

Smart, small-size, environment-friendly embedded modular UPS products, applying with DSP control technology, were released, and filled the blank in medium and low power modular UPS.

2011

Single 40 KVA module with maximum power density and minimum size was launched. It possessed outstanding performance index, adopted new parallel technology, and enabled parallel operation of four systems with 2560 KVA utmost.

2012

Integrated HVDC UPS especially for data center was launched. It adopted three-phase active power factor correction, three-level cascade resonance soft switching, full-digital DSP control, and many other advanced technologies, and was regarded as the UPS with maximum power density and minimum size in the industry.

2015

Developed First power regulation mode UPS in China, it's technology foundation for Energy Storage Solution.

2016

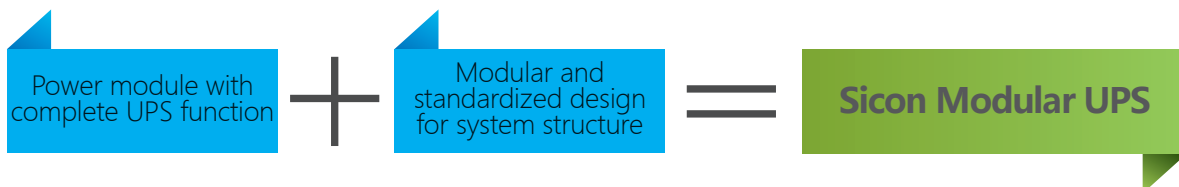
Launched New-Generation High-Efficiency, Energy-saving Modular Data Center Construction Mode: high integrated All-in-room design low operating cost, save construction time.
R&D ship to shore power supply solution, offering high reliability, clean, efficiency power convert.

2018

Launched New-Generation CMS Modular UPS(Support lithium battery), cost-effective, leading features.

Why Sicon UPS

What is modular?



High Efficiency, Energy Saving

- UPS output PF=1
 - Extremely high energy density;
 - Efficiency more than 96.5% (double conversation efficiency)
- Low load rate, high efficiency. e.g. 40% load, 96.3%; if ECO, 99%.
- THDI<3%, input PF>0.99;
 - AC Input CCM operating, less RFI/EMI to grid;
 - Power Module Sleep Module Settable, Automatic adjust working power modules up to load rate.

Excellent Reliability and Availability

- Advanced DSP digital control technology;
- Adopt master-slave parallel, multilevel distributed control technology, no running bottleneck and reliable performance
- Equipped with multiple redundant measures such as dual bypass control and dual-loop system parallel control to minimize system bottlenecks;
- Any power module has a balanced distribution function of input, output and charging power;
- Perfect fault isolation measures;
- All power modules share the battery pack;
- Perfect battery management functions: battery self-discharge function, automatic equalizing floating charge conversion function, temperature compensation function, automatic current sharing function;
- The hot and cold air duct isolation method is adopted to effectively improve heat dissipation efficiency.

Extremely Maintainable

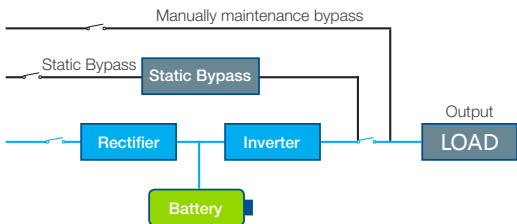
- The system adopts a modular structure. It consists of a monitoring module, a bypass module, a system control module, and N power modules connected in parallel. The power modules are N + X redundant, online hot-swap available;
- Configurable manual maintenance switch, main input switch, bypass input switch, output switch, lightning protection module, RS232, RS485 / RS422, SNMP card, remote monitoring software;
- Zero risk, fast online repair, capacity expansion, and upgrade.

Great Flexibility

- The system can be set to 1/1, 1/3, 3/1, or 3/3 in / out line mode as required;
- Better parallel characteristics, circulating current suppression, current sharing accuracy and number of parallels; 4max systems in parallel, the maximum capacity can be up to 3600KVA, meet the requirements of N + 1, 2N, $\Delta 2N$ multiple power supply solutions;
- Wind in front, out from rear or top. Thus, it can be installed next to the wall to save space;
- Standardized structure design, small size and light weight, meet the load-bearing requirements of ordinary buildings, easy to install and place;
- Meet the requirements of different application environments: Industrial level and data center level.

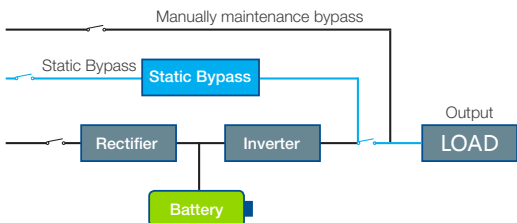
Sicon UPS Work Mode

Online double conversion, ECO, and iECO mode to achieve the perfect combination of usability and efficiency to meet the unique operational goals of the user. Innovative and efficient power regulation mode brings extraordinary value to customers.



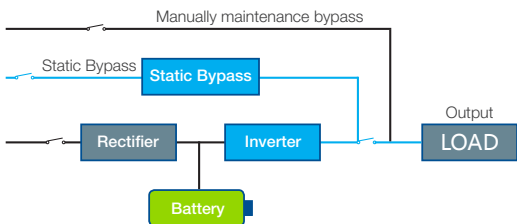
Online double conversion mode

- UPS output PF=1, THDI<3%,
- Efficiency more than 96.5%
- Mains battery seamless switching
- Meet the uninterrupted power supply and power quality of the load



ECO mode

- UPS is running in static bypass state
- Efficiency up to 99%
- Mains battery switching time is less than 4ms



iECO mode

- Ultra high efficiency up to 98.8%
- Output meets IEC62040 and meet the power supply quality to load
- Mains power supply and battery power supply seamless switching
- Provide reactive power compensation and harmonic suppression to eliminate load interference to the power grid
- Battery and mains can be powered at the same time, support the slow start of the oil machine
- In addition to the backup function, the lithium battery can also use the electricity price difference between mains peak and valley to save operating costs.

Modular UPS

Application: IDC data center, Government, army, Communication, Transportation, Broadcast&TV network, Finance, HealthCare, Education & Research, Enterprise, etc.

50KVA-900KVA



CMS series modular UPS, special used to IDC data center, is a high-end product launched to market by sicon adopting “Energy saving, green, environmental protection” concept. It delivers the best combination of rectifier, filter, charger, inverter and intelligent power protection. Applying innovative current sharing rectifier control, master-slave synchronization in sequence control, multi-level decentralized control and 3-level sine wave modulation technology, it features great efficiency, flexibility and reliability, reduces the investment, operation, maintenance cost.

CMS series modular UPS is a new type modular UPS, which integrated digital technology and new semiconductor technology, can completely eliminate the impact of various grid problems on key loads. Adopting 10KVA,20KVA,30KVA, 50KVA, 75KVA power modules, it features high power density, reliable, high efficiency and intelligence, provides ideal power supply protection for customers’ large and medium places.

Wire in/out:
3/3, 3/1, 1/1, 1/3



Features:

- UPS system capacity range 50-900KVA, UPS module: 10KVA, 20KVA, 30KVA, 50KVA, 75KVA. Customer could choose UPS capacity according to the load;
- Adopting modular structure, composed of monitor module, bypass module, control module and power module in parallel, power module N+X redundancy, hot swappable and scalable online.
- Parallel-capable up to 4sets UPS, meet N+1, 2N, Δ 2N requirements;
- Monitor module, bypass module and power module all are hot swappable online;
- Wire in/out mode: 1/1, 1/3, 3/1, 3/3;
- Adopting non master-slave control, multi-level decentralized control eliminating the system failure bottleneck;
- All power modules share the batteries;
- Perfect battery management function: Battery self-discharge function, auto-transfer between floating and equal charging, temperature compensation and automatic share current;
- Any module has balanced distribution function for input, output and charging power;
- Overall efficiency >96% (AC-AC), inverter efficiency >98% (DC-AC), input THDI<3%, input PF>0.99;
- Continuous current mode (CCM) is adopted for AC input to reduce interference to power grid (RFI/EMI);
- Appearance in accordance with industry specifications. Can meet the load-bearing requirements of ordinary buildings with small size and weight;
- Option input and output K value isolation transformer;
- Standard configuration with manual maintenance breaker, RS232, RS484/RS422 communication ports and remote monitor software. Option SNMP, SPD and input&output breaker;
- Multiple work mode: online, ECO, iECO mode;
- System has energy storage function.

Systems based on CM10 module



CMS-50KVA

- Max. Capacity of system: 50KVA;
- Power module model: CM10;
- Power module capacity: 10KVA;
- Dimension: 600*800*1200(W*D*H)mm, standard 19" cabinet

Systems based on CM20 module



CMS-120KVA

- Max. Capacity of system: 120KVA;
- Power module model: CM20;
- Power module capacity : 20KVA;
- Dimension: 600*800*1600(W*D*H)mm, standard 19" cabinet

UPS SYSTEM TECHNICAL SPECIFICATION

Specification		CMS-50	CMS-120
Maximum capacity		50KVA	120KVA
Power module	Model	CM10	CM20
Mains Input	Input mode	3-phase+N+E	
	Input voltage	132V~276V	
	Input frequency	50Hz±10%、60Hz±10%	
	Power woke-in(Sec.)	60secs	
	THDI(%)	< 3%	
	Input PF	≥ 0.99	
Bypass Input	Input voltage	380V/220V±20%、400V/230V±20%、415V/240V±20%	
	Input frequency	50Hz±4%、60Hz±4%	
	Range of frequency synchro	50Hz±4%、60Hz±4%	
DC Input	Rated input voltage	±240VDC	
	Input voltage range	±192VDC~±264VDC	
	Access to Lithum battery	Standard	
AC Output	Output PF	1	
	Output voltage	380V/220V AC、400V/230V AC、415V/240V AC	
	Output frequency	50Hz±4%;When mains exceeds rated value or power supplying by battery: 50Hz±0.2% 60Hz±4%;When mains exceeds rated value or power supplying by battery: 60Hz±0.2%	
	Output voltage stability	±1%(static); ±2%(Load variety 0 ~ 100%)	
	Output voltage restore time	< 20ms(Load variety 0 ~ 100%)	
	Overload ability	Operate 10 mins with 125% load	
	Transfer from mains to battery supply	0ms	
	Transfer from bypass to inverter supply	<1ms	
	Peak factor	3:1	
	THDV(%)	≤ 1%(linear load)≤ 3%(non-linear load)	
	Overall efficiency	≥ 96%	
	Current sharing accuracy	≤ 5%	
Operation environment	Ambient temperature for storage	-25℃ ~ 60℃	
	Operation temperature	-5℃ ~ 40℃	
	Maximum operation altitude	≤ 5000m, derating if above 1000 m	
	Relative humidity	≤ 95% non-condensation	
	Protection degree	IP30	
	Cooling	Speed-controlled air cooling, isolated duct for hot and cold air	
	Compliance	EN62040-1-1:2003 IEC60950-1:2001	
	Electromagnetic compatibility	EN62040-2:2006	
	Acoustic noise	≤ 55dB	
Others	Cabinet	Standard 19 inch cabinet	
	Monitor management system	UPSupervisor	
	Interface	RS232、RS485/422 and 8 dry contact, SNMP card is optional	
	Display	LCD/LED	

Systems based on CM30 module



CMS-60KVA/90KVA

- Max. Capacity of system: 60KVA/90KVA;
- Power module model: CM30;
- Power module capacity: 30KVA;
- Dimension: 600*800*1400(W*D*H)mm, standard 19" cabinet



CMS-120KVA/150KVA

- Max. Capacity of system : 120KVA/150KVA;
- Power module model: CM30;
- Power module capacity: 30KVA;
- Dimension: 600*800*1600(W*D*H)mm, standard 19" cabinet



CMS-180KVA/210KVA/240KVA

- Max. Capacity of system: 180KVA/210KVA/240KVA;
- Power module model: CM30;
- Power module capacity : 30KVA;
- Dimension: 600*800*2000(W*D*H)mm, standard 19" cabinet

UPS SYSTEM TECHNICAL SPECIFICATION

Specification		CMS-60	CMS-90	CMS-120	CMS-150	CMS-180	CMS-210	CMS-240
Maximum capacity		60KVA	90KVA	120KVA	150KVA	180KVA	210KVA	240KVA
Power module	Model	CM30						
Mains Input	Input mode	3-phase+N+E / 1-phase+N+E						
	Input voltage	132V~276V						
	Input frequency	50Hz±10%、60Hz±10%						
	Power woke-in(Sec.)	60secs						
	THDI(%)	< 3%						
	Input PF	≥ 0.99						
Bypass Input	Input voltage	380V/220V±20%、400V/230V±20%、415V/240V±20%						
	Input frequency	50Hz±4%、60Hz±4%						
	Range of frequency synchro	50Hz±4%、60Hz±4%						
DC Input	Rated input voltage	±240VDC						
	Input voltage range	±192VDC~±264VDC						
	Access to Lithum battery	Standard						
AC Output	Output PF	1						
	Output voltage	380V/220V AC、400V/230V AC、415V/240V AC						
	Output frequency	50Hz±4%;When mains exceeds rated value or power supplying by battery: 50Hz±0.2% 60Hz±4%;When mains exceeds rated value or power supplying by battery: 60Hz±0.2%						
	Output voltage stability	±1%(static); ±2%(Load variety 0 ~ 100%)						
	Output voltage restore time	< 20ms(Load variety 0 ~ 100%)						
	Overload ability	Operate 10 mins with 125% load						
	Transfer from mains to battery supply	0ms						
	Transfer from bypass to inverter supply	<1ms						
	Peak factor	3:1						
	THDV(%)	≤ 1%(linear load)≤ 3%(non-linear load)						
	Overall efficiency	≥ 96%						
	Current sharing accuracy	≤ 5%						
Operation environment	Ambient temperature for storage	-25 C ~ 60 C						
	Operation temperature	-5 C ~ 40 C						
	Maximum operation altitude	≤ 5000m, derating if above 1000 m						
	Relative humidity	≤ 95% non-condensation						
	Protection degree	IP30						
	Cooling	Speed-controlled air cooling, isolated duct for hot and cold air						
	Compliance	EN62040-1-1:2003 IEC60950-1:2001						
	Electromagnetic compatibility	EN62040-2:2006						
	Acoustic noise	≤ 55dB						
Others	Cabinet	Standard 19 inch cabinet						
	Monitor management system	UPSupervisor						
	Interface	RS232、RS485/422 and 8 dry contact, SNMP card is optional						
	Display	LCD/LED						

Systems based on CM50 module



CMS-200KVA/300KVA

- Max. Capacity of system: 200KVA/300KVA;
- Power module model: CM50;
- Power module capacity: 50KVA;
- Dimension: 800*800*2000(W*D*H)mm, standard cabinet



CMS-400KVA

- Max. Capacity of system: 400KVA;
- Power module model: CM50;
- Power module capacity: 50KVA;
- Dimension: 1400*800*2000(W*D*H)mm, standard cabinet



CMS-500KVA

- Max. Capacity of system: 500KVA;
- Power module model: CM50;
- Power module capacity: 50KVA;
- Dimension: 1400*800*2000(W*D*H)mm, standard cabinet

UPS SYSTEM TECHNICAL SPECIFICATION

Specification		CMS-200	CMS-300	CMS-400	CMS-500
Maximum capacity		200KVA	300KVA	400KVA	500KVA
Power module	Model	CM50			
Mains Input	Input mode	3-phase+N+E / 1-phase+N+E			
	Input voltage	132V~276V			
	Input frequency	50Hz±10%、60Hz±10%			
	Power woke-in(Sec.)	60secs			
	THDI(%)	< 3%			
	Input PF	≥ 0.99			
Bypass Input	Input voltage	380V/220V±20%、400V/230V±20%、415V/240V±20%			
	Input frequency	50Hz±4%、60Hz±4%			
	Range of frequency synchro	50Hz±4%、60Hz±4%			
DC Input	Rated input voltage	±240VDC			
	Input voltage range	±192VDC~±264VDC			
	Access to Lithum battery	Standard			
AC Output	Output PF	1			
	Output voltage	380V/220V AC、400V/230V AC、415V/240V AC			
	Output frequency	50Hz±4% ; When mains exceeds rated value or battery supply: 50Hz±0.2% 60Hz±4% ; When mains exceeds rated value or battery supply: 60Hz±0.2%			
	Output voltage stability	±1% (static) ; ±2% (Load variety 0 ~ 100%)			
	Output voltage restore time	< 20ms (Load variety 0 ~ 100%)			
	Overload ability	Operate 10 mins with 125% load			
	Transfer from mains to battery supply	0ms			
	Transfer from bypass to inverter supply	<1ms			
	Peak factor	3:1			
	THDV(%)	≤ 1% (Linear load) ≤ 3% (non-linear load)			
	Overall efficiency	≥ 96%			
	Current sharing accuracy	≤ 5%			
Operation environment	Ambient temperature for storage	-25°C ~ 60°C			
	Operation temperature	-5°C ~ 40°C			
	Maximum operation altitude	≤ 5000 m, derating if 1000 above			
	Relative humidity	≤ 95% non-condensation			
	Protection degree	IP30			
	Cooling	Speed-controlled air cooling, isolated duct for hot and cold air			
	Compliance	EN62040-1-1:2003 IEC60950-1:2001			
	Electromagnetic compatibility	EN62040-2:2006			
	Acoustic noise	≤ 55dB			
Others	Cabinet	Standard 19 inch cabinet			
	Monitor management system	UPSSupervisor			
	Interface	RS232、RS485/422 and 8 dry contact, SNMP is optional			
	Display	LCD/LED			

Systems based on CM75 module



CMS-300KVA/450KVA

- Max. Capacity of system: 300KVA/450KVA;
- Power module model: CM75;
- Power module capacity: 75KVA;
- Dimension: 800*1000*2000 (W*D*H)mm, standard 19 inch cabinet



CMS-600KVA

- Max. Capacity of system: 600KVA;
- Power module model: CM75;
- Power module capacity: 75KVA;
- Dimension: 1200*1000*2000 (W*D*H)mm, standard 19 inch cabinet



CMS-900KVA

- Max. Capacity of system: 900KVA;
- Power module model: CM75;
- Power module capacity: 75KVA;
- Dimension: 1800*1000*2000 (W*D*H)mm, standard 19 inch cabinet

UPS SYSTEM TECHNICAL SPECIFICATION

Specification		CMS-300	CMS-450	CMS-600	CMS-900
Maximum capacity		300KVA	450KVA	600KVA	900KVA
Power module	Model	CM75			
Mains Input	Input mode	3-phase+N+E / 1-phase+N+E			
	Input voltage	132V~276V			
	Input frequency	50Hz±10%、60Hz±10%			
	Power woke-in(Sec.)	60secs			
	THDI(%)	< 3%			
	Input PF	≥ 0.99			
Bypass Input	Input voltage	380V/220V±20%、400V/230V±20%、415V/240V±20%			
	Input frequency	50Hz±4%、60Hz±4%			
	Range of frequency synchro	50Hz±4%、60Hz±4%			
DC Input	Rated input voltage	±240VDC			
	Input voltage range	±192VDC~±264VDC			
	Access to Lithum battery	Standard			
AC Output	Output PF	1			
	Output voltage	380V/220V AC、400V/230V AC、415V/240V AC			
	Output frequency	50Hz±4% ; When mains exceeds rated value or battery supply: 50Hz±0.2% 60Hz±4% ; When mains exceeds rated value or battery supply: 60Hz±0.2%			
	Output voltage stability	380V/220V±1% (static) ; 380V/220V±2% (load variety 0 ~ 100%) 400V/230V±1% (static) ; 400V/230V±2% (load variety 0 ~ 100%) 415V/240V±1% (static) ; 415V/240V±2% (load variety 0 ~ 100%)			
	Output voltage restore time	< 20ms (Load variety 0 ~ 100%)			
	Transfer from mains to battery supply	0ms			
	Transfer from bypass to inverter supply	<1ms			
	Peak factor	3:1			
	THDV(%)	≤ 1% (Linear load) ≤ 3% (non-linear load)			
	Overall efficiency	≥ 96.5%			
	Current sharing accuracy	≤ 5%			
Operation environment	Ambient temperature for storage	-25°C ~ 60°C			
	Operation temperature	-5°C ~ 40°C			
	Maximum operation altitude	≤ 5000 m, derating if 1000 above			
	Relative humidity	≤ 95% non-condensation			
	Protection degree	IP30			
	Cooling	Speed-controlled air cooling, isolated duct for hot and cold air			
	Compliance	EN62040-1-1:2003 IEC60950-1:2001			
	Electromagnetic compatibility	EN62040-2:2006			
	Acoustic noise	≤ 68dB			
Others	Cabinet	Standard 19 inch cabinet			
	Monitor management system	UPSupervisor			

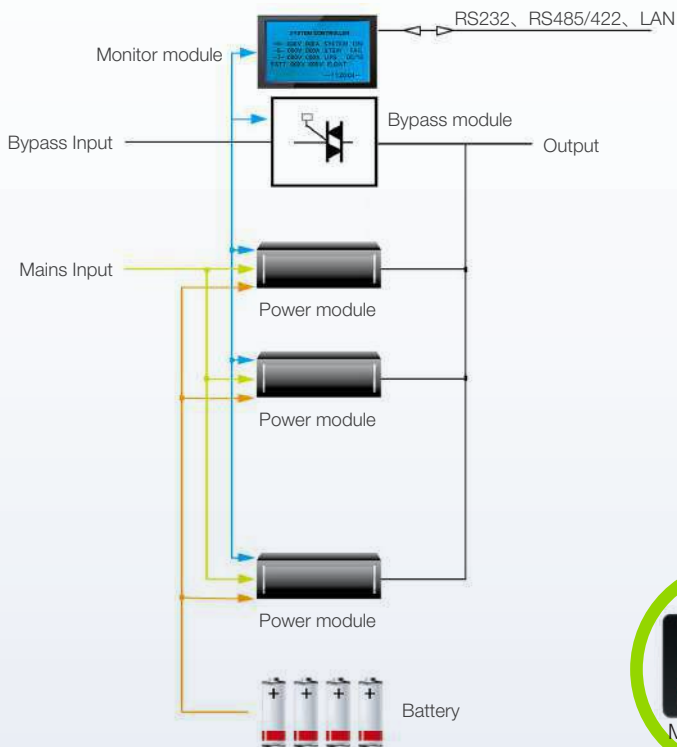
UPS MODULE TECHNICAL SPECIFICATION

CMS-10 ,CMS-20,CMS-30,CMS-50,CMS-75均去掉S

Module Model	CMS-10	CMS-20	CMS-30	CMS-50	CMS-75
Module capacity	10KVA	20KVA	30KVA	50KVA	75KVA
Input / Output	3/3				
Dimension (W*D*H)mm	482*465*89	482*465*89	482*465*133	682*700*176	482×628×172
Weight (kg)	16kg around	20kg around	20kg around	40kg around	45 kg around
Charging power	1.2KW	2.4KW	3.6KW	6KW	9KW
Input PF	≥ 0.99				
Inuput THDI (%)	≤ 3%				



Modular system structure:



Industrial UPS

Application: Automated production lines, petroleum, pipelines, semiconductors, power plants and other places with high fire rating requirements and harsh environments.

80KVA-400KVA

DSM series industrial UPS is a new type online double conversion high frequency UPS, which integrated digital technology and new semiconductor technology, can completely eliminate the impact of various grid problems on key loads. It features high power density, reliable, high efficiency and intelligence, provides ideal power supply protection for customers' large and medium place, can be widely used in communication, electric power, government, army, finance, datacenter etc.

DSM series double conversion on-line high frequency UPS system is a "green power supply" solution, which has the advantages of high input power factor, low harmonic distortion, high efficiency, stability and reliability, powerful monitoring software and comprehensive communication interface, it is suitable for the precision equipment, and to guarantee the key load.

Wire in/out:
3/3,3/1, 1/1, 1/3



Feature:

- High power density, single system max power 80-400KVA;
- High efficiency operation under low load: in online mode, efficiency can reach 96.3% at 40% load rate, about 5% higher than the off-grid UPS; 95.1% efficiency at 20% load rate, about 10% higher than the off-grid UPS;
- Continuous current mode (CCM) is adopted for AC input to reduce interference to power grid (RFI/EMI);
- Output PF 0.9. No derating for capacitive and inductive loads with input PF > 0.5. Good load ability;
- Wide input voltage range;
- Advanced DSP digital control technology;
- Adopting non master-slave control, multi-level decentralized control eliminating the system failure bottleneck;
- Multiple redundant measures such as double bypass control and double loop system in parallel. Minimize system bottleneck;
- Perfect fault isolation measures;
- Could be set as 1 / 1, 1 / 3, 3 / 1 or 3 / 3 mode as required;
- Better parallel features, circulation suppression, current sharing accuracy and parallel number. Support 4sets UPS in parallel, meet N+1, 2N, Δ 2N requirements;
- The system control module, fan, and key signals are all redundant, which improves system reliability
- Perfect battery management function: Battery self-discharge function, auto-transfer between floating and equal charging, temperature compensation and automatic share current;
- Could configuration with manual maintenance breaker, mains input breaker, bypass input breaker, output breaker, SPD, RS232, RS485/RS422, SNMP and remote monitor software;
- Zero risk. Quick repair, capacity expansion, update;
- Balanced distribution function of input, output and charging power;
- Input THDI<3%, input PF>0.99. Continuous current mode (CCM) is adopted for AC input to reduce interference to power grid (RFI/EMI);
- 10.5 - inch 65535 color touch screen display, bright screen color, convenient operation, friendly interface. Graphic display style, real-time voltage waveform and historical power change trend can be viewed;
- Airflow front in, back or up out. Can be installed against the wall, saving space;
- Standardized structure design, small equipment volume, light weight, can meet the load-bearing requirements of ordinary buildings, easy to install and array;
- Multiple work mode: online, ECO, iECO mode;
- Can be applied to harsh environment and directly to energy storage system.



DSM-80

- Capacity of system: 80KVA;
- Dimension: 400*750*1000 (W*D*H) mm;
- Install type: floor stand



DSM-160

- Capacity of system: 160KVA;
- Dimension: 600*600*1600 (W*D*H) mm;
- Install type: floor stand



DSM-240

- Capacity of system: 240KVA;
- Dimension: 1000*600*2000 (W*D*H) mm;
- Install type: floor stand



DSM-320

- Capacity of system: 320KVA;
- Dimension: 1000*600*2000 (W*D*H) mm;
- Install type: floor stand



DSM-400

- Capacity of system: 400KVA;
- Dimension: 1200*600*2000 (W*D*H) mm;
- Install type: floor stand

UPS SYSTEM TECHNICAL SPECIFICATION

第一行DMS均改为DSM

Specification		DMS-80	DMS-160	DMS-240	DMS-320	DMS-400
Maximum capacity		80KVA	160KVA	240KVA	320KVA	400KVA
Mains Input	Input mode	3-phase+N+E / 1-phase+N+E				
	Input voltage	132V~276V				
	Input frequency	50Hz±10%、60Hz±10%				
	Power woke-in(Sec.)	60secs				
	THDI(%)	< 3%				
	Input PF	≥ 0.99				
Bypass Input	Input voltage	380V/220V±20%、400V/230V±20%、415V/240V±20%				
	Input frequency	50Hz±4%、60Hz±4%				
	Range of frequency synchro	50Hz±4%、60Hz±4%				
DC Input	Rated input voltage	±240VDC				
	Input voltage tolerance	±192VDC~±264VDC				
	Access to Lithum battery	Standard				
AC Output	Output PF	0.9				
	Output voltage	380V/220V AC、400V/230V AC、415V/240V AC				
	Output frequency	50Hz±4% ; When mains exceeds rated value or battery supply: 50Hz±0.2% 60Hz±4% ; When mains exceeds rated value or battery supply: 60Hz±0.2%				
	Output voltage stability	380V/220V±1% (static) ; 380V/220V±2% (load variety 0 ~ 100%) 400V/230V±1% (static) ; 400V/230V±2% (load variety 0 ~ 100%) 415V/240V±1% (static) ; 415V/240V±2% (load variety 0 ~ 100%)				
	Output voltage restore time	< 20ms (Load variety 0 ~ 100%)				
	Transfer from mains to battery supply	0ms				
	Transfer from bypass to inverter supply	<1ms				
	Current peak factor	3:1				
	THDV(%)	≤ 1% (Linear load) ≤ 3% (non-linear load)				
	Overall efficiency	≥ 96%				
	Current sharing accuracy	≤ 5%				
Operation environment	Ambient temperature	-25°C~ 60°C				
	Operation temperature	-5°C~ 40°C				
	Operation altitude	≤ 5000 m, derating if 1000 above				
	Relative humidity	≤ 95% non-condensation				
	Protection degree	IP30				
	Cooling	Speed-controlled air cooling, isolated duct for hot and cold air				
	Compliance	EN62040-1-1:2003 IEC60950-1:2001				
	Electromagnetic compatibility	EN62040-2:2006				
	Acoustic Noise	≤ 68dB				
Others	Cabinet	Standard 19 inch cabinet				
	Monitor management system	UPSupervisor				

Rackmount UPS

Application: MDC, inside sever cabinet, Transportation, Bank, small data center, Communication, Broadcast&TV, Mining, Petrochemical, Finance, Government, Education, HealthCare, etc..

12KVA-36KVA

ERMS series UPS is an rackmount modular UPS of low and medium power developed by Sicon. With flexible structure, it could be embedded in standard 19 inch cabinet or work independently for de-centralized power supply. ERMS is a high-density, low-cost, small power modular ups. Its outstanding advantages are not only the intelligent power protection system, but also the average current control rectifier technology, sequence master-slave synchronous control technology, multi-level decentralized control technology and three-stage sine wave inverter technology, in addition to the traditional UPS rectifier, filter, charging and inverter devices, which can reduce the cost of operation and maintenance while providing higher efficiency, flexibility and reliability. It features superb input and output performance indexes. As a product with the smallest size, the highest efficiency and the greatest power density in the industry, it boasts an extremely high cost-efficiency.

Features:

- Rational redundant structure
UPS module: 6KVA; System: 12 KVA, 24 KVA, 36 KVA
- The system consists of monitoring module and 1-6pcs UPS power modules;
- Complete modular structure, each power module has complete UPS function;
- Flexible power distribution mode: wire in/out mode can be set as 3 / 3, 3 / 1, 1 / 1, 1 / 3 as required on site; And the input and output voltage can be set as 380V / 220V, 400V / 230V as required on site; the frequency can be set as 50Hz, 60Hz;
- N+X module-level redundancy UPS system, could add power and maintenance online;
- Multi-level decentralized control technology and Master-slave synchronization in sequency control eliminating system failure bottleneck;
- All UPS modules share the batteries;
- Perfect battery management: Battery self-discharge management, auto-transfer between floating and equal charging, temperature compensation, automatic current sharing of parallel charger;
- overall efficiency >94%, THDI <3%, input PF>0.99;
- Continuous current mode (CCM) is adopted for AC input to reduce interference to power grid (RFI/EMI);
- Module current sharing adopts full digital control, with fast dynamic response speed and current sharing accuracy $\leq 5\%$;
- Any power module has the balance distribution function of input, output and charging power;
- Multiple communication mode: RS232, RS485/422 and dry contact. Optional SNMP;
- Optional display screen, input and output K value transformer.

wire in/out mode:
3 / 3, 3 / 1, 1 / 1, 1 / 3



ERMS Cabinet

- Standard 19 inch cabinet;
- Embed main frame, PDU, battery module at same time;
- More options for choose;
- Weight: 100KG or so;
- Dimension: 600*1000*1450 (W*D*H) mm

ERMS Lead acid battery

- Could embed into standard 19 inch cabinet;
- Hot swap design and discharge protection function ;
- Weight: 15Kg or so;
- Dimension: 482*700*220 (W*D*H) mm
- Capacity: 5 mins



ERMS Lithium battery module

- High Power density, can support 3C charging/discharging rate;
- Embedded type standard 19 inch cabinet, modular design, easy for capacity expansion ;
- 20mins back up time for 6k UPS;
- Visual Human-Computer Interface,easy to operate;
- Support multiple UPSs parallel
- Verified high safety



ERMS Series

- Max. Capacity of system: 36KVA;
- Could be embedded into 19" cabinet;
- Module model: ERM06;
- Module capacity: 6KVA;
- Weight : around 20kg +7*6kg;
- Dimension: 480*600*310 (W*D*H) mm



- Max. Capacity of System: 24KVA;
- Could embedded into 19" cabinet;
- Module model: ERM06;
- Module Capacity: 6KVA;
- Weight : around 16kg +7*4 kg;
- Dimension: 480*600*220 (W*D*H) mm



- Max. Capacity of system: 12KVA;
- Could be embedded into 19" cabinet;
- Module model: ERM06;
- Module capacity: 6KVA;
- Weight: around 12kg +7*2kg;
- Dimension: 480*600*132 (W*D*H) mm

ERM-06

- Module Capacity: 6KVA;
- Module weight: 7kg ;
- Dimension: 200*500*85 (W*D*H) mm



ERMS-CSU

- Functions include communication, alarming, and management.

Isolation Transformer (optional)

It can effectively isolate the power supply from the load and suppress harmonics to ensure that the voltages of Null line and PE line at the load end meets safety regulation.



UPS SYSTEM TECHNICAL SPECIFICATION

Specification		ERMS-12/6	ERMS-24/6	ERMS-36/6
Maximum capacity		12KVA	24KVA	36KVA
Module capacity		6kVA		
Mains Input	Input mode	3-phase+N+E / 1-phase+N+E		
	Input voltage	380V/220V±25%, 400V/230±25%		
	Input frequency	50Hz±10%、60Hz±10%		
	Power woke-in(Sec.)	60secs		
	THDI(%)	< 3%		
	Input PF	≥ 0.99		
Bypass Input	Input voltage	380V/220V、400V/230V		
	Input Voltage tolerance	380V/220V±25%		
	Input frequency	50Hz±4%、60Hz±4%		
	Range of frequency synchro	50Hz±4%、60Hz±4%		
DC Input	Input Voltage	±192VDC、±216VDC、±240VDC		
	Input voltage tolerance	±168V~±227VDC、±189V~±256VDC、±210V~±284VDC		
Charging characteristic	Charging current limit	Yes		
	Charging time	10 hours (2 hours battery capacity for back up)		
	Charging voltage stability	±1%		
AC Output	UPS PF	0.9		
	Output voltage	220V/230V		
	Output frequency	4% ; When mains exceeds rated value or battery supply: ±0.2%		
	Output voltage stability	220V/230V±1% (static) ; 220V/230V±2% (load variety 0 ~ 100%)		
	Output voltage restore time	20ms (load variety 0 ~ 100%)		
	Overload ability	10 mins for 125% load		
	Transfer from mains to battery supply	0ms		
	Transfer from bypass to inverter supply	<10ms		
	Current peak factor	3:1		
	THD (%)	≤ 1% (linear load) ≤ 3% (non-linear load)		
	Overall efficiency	≥ 94%		
	Current share accuracy	≤ 5%		
Operation environment	Ambient temperature	-25°C ~ 60°C		
	Operation temperature	-5°C ~ 40°C		
	Operation altitude	≤ 1500 m		
	Relative humidity	≤ 95% non-condensation		
	Protection degree	IP30		
	Cooling	Speed-controlled air cooling		
	Compliance	EN62040-1-1:2003 IEC60950-1:2001		
	Electromagnetic compatibility	EN62040-2:2006		
Others	Acoustic Noise	≤ 55dB		
	Cabinet	Embed into Standard 19" cabinet / stand-alone		
	Monitor management system	UPSSupervisor		
	Interface	RS232, RS485, 2 dry contacts, SNMP is optional		

UPS MODULE TECHNICAL SPECIFICATION

Module model	ERM-06
Module capacity	6kVA
Input/Output mode	3/1,1/1
Dimension (WxDxH) mm	220x500x85
Weight	7kg around
Charging module	Charging current 1A for each module
Input PF	≥ 0.99
Overload ability	Comply to system overload requirement
Max heat dissipation	340W
THDI (%)	≤ 3%

Lithium-ion Battery System

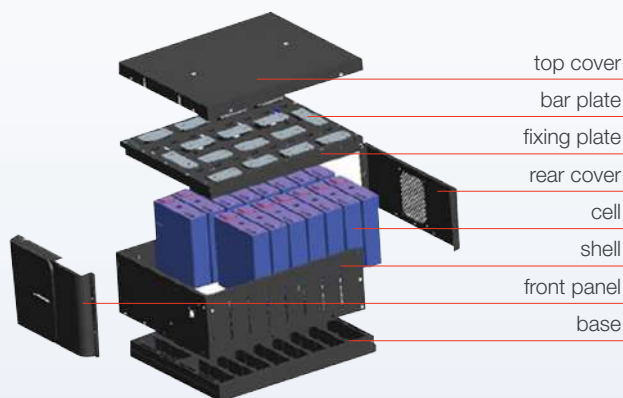
Safety always comes first from initial modeling, design, to production, testing, and application.

Fully automated workshop, advanced management, quality product delivery experience.

Product test and quality control at each level to ensure higher reliability of the system.

Air supply duct is designed inside the module to ensure the uniformity of cells temperature to maintain good consistency.

Three-level architecture BMS design, adaptive equalization, equalization accuracy less than 2%, equalization capacity reaches 10% of rated output, and it always protects the safety of the battery system all the time.

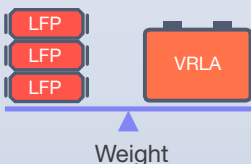


- Laser welded busbar is featured with low impedance and high strength;
- Fully enclosing engineering plastics, preventing access and short circuit;
- Materials satisfy V0 -fire retardant rating;
- Space is reserved above the cell pressure relief valve to prevent explosion due to excessively high pressure in the case of anomaly;
- Each cell is covered with PE insulating film and there is insulation gap between the cells;
- Insulating bracket with high melting point, high voltage resistant are used for insulation between cells;
- The electrodes and bus bar are designed with plastic slots to prevent electric leakage;
- A layer of thermal insulation pad is added under the top cover of the module, with a temperature resistance of 1350 degrees, to guarantee effective thermal isolation.

LFP VS VRLA Battery

Capacity density (Wh/kg)

LFP battery: 100-150
VRLA battery: 30-50

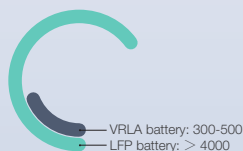


Capacity density (Wh/kg)

LFP battery: 200-250
VRLA battery: 60-90



Cycle life (times)



High Discharge(C-rating) Battery System

Product Overview:

- System rated voltage is $\pm 240V$, optional rated capacity 40, 80, 120Ah;
- The battery system consists of 10 battery modules and 1 control module, with 48V standard module and 40Ah lithium-ion cells;
- Visual human-machine interface monitors the running status of battery system in real time.

Application:

It is widely used in occasions where require system to respond quickly, such as UPS for data center and other fields, auxiliary frequency regulation on power generation side, and peak regulation on utility grid etc..

Feature:

- Customized, it can be combined into different voltage levels in the range of 24V ~ 1000V according to the actual needs of users;
- High power density, support up to 5C discharge;
- Modular design, convenient for later expansion and maintenance;
- Support multiple parallel work mode, 12 sets of battery systems can be used in parallel;
- Charge and discharge times> 3000 times, system life >10 years.



Specification

Item	Specification		
Battery Module			
Model	ECM-1P15S40-LFP	ECM-2P15S40-LFP	ECM-3P15S40-LFP
Cell	3.2V 40Ah		
Combination	15S1P	15S2P	15S3P
Configuration	15Cells, BMS	30Cells, BMS	45Cells, BMS
Dimension(W*D*H),mm	424*445*177	424*610*177	424*850*177
Weight, kg	≤ 25	≤ 45	≤ 60
Rated energy @ 25°C , kWh	1.92 kWh	3.84 kWh	5.76kWh
Maximum discharging power, kW	9.5(5C)	15.36(4C)	17.28(3C)
Terminal output	connectors		
Cabinet System			
Configuration	10 battery modules+1 control module		
Rated charge rate@ 25°C	2C	2C	2C
Max. discharge rate@ 25°C ,	5C	4C	3C
Max. capacity	40Ah	80Ah	120Ah
Rated energy	19.2 kWh	38.4 kWh	57.6kWh
Maximum continuous discharge, kW	97.5(5C)	153.6(4C)	172.8(3C)
Rated voltage	±240VDC		
Working voltage	±188~±274VDC		
Communication	CAN		
BMS	Adaptive BMS		
Dimension(W*D*H)mm	1000×550×1200	1000×760×1200	1000×1000×1200
Weight, kg	335	555	725

Energy Type Battery System

Product Overview:

- System rated voltage is $\pm 240V$, optional rated capacity 100, 152, 271Ah;
- The battery system consists of 10/12 battery modules and 1 control module, with 48V/38.4V standard module and 100Ah/152Ah/271Ah lithium-ion cells;
- Visual human-machine interface monitors the running status of battery system in real time.

Application:

It is widely used in large-scale UPS, industrial and commercial energy storage, peak cutting and valley filling, new energy power stations etc.

Feature

- World top battery cell manufacturers;
- Multiple capacities are available to meet the backup power requirements in different scenarios;
- High capacity density, same volume with higher power;
- Charge and discharge rate up to 2C;
- With a cycle life of up to 4,000 cycles, less power cost per kWh.



Item	Specification		
Battery Module			
Model	ECM-1P15S100-LFE	ECM-1P15S152-LFE	ECM-1P12S271-LFE
Cell	3.2V 100Ah	3.2V 152Ah	3.2V 271Ah
Combination	15S1P		12S1P
Configuration	15Cells, BMS		12Cells, BMS
Dimension(W*D*H),mm	404*570*200	404*530*200	404*630*235
Weight, kg	≤ 60	≤ 60	≤ 85
Rated energy @ 25°C , kWh	4.8 kWh	7.3 kWh	13 kWh
Maximum continuous discharge, kW	9.6(2C)	7.3 (1C)	6.5 (0.5C)
Terminal output	connectors		
Cabinet System			
Configuration	10 battery modules+1 control module		
Rated charge rate@ 25°C	1C	0.5C	0.5C
Max. discharge rate@ 25°C ,	2C	1C	0.5C
Max. capacity	100Ah	152Ah	271Ah
Rated energy	48kWh	73 kWh	125kWh
Maximum discharging power, kW	96 (2C)	73 (1C)	62.5 (0.5C)
Rated voltage	±240VDC		
Working voltage	±188~±274VDC		
Communication	CAN		
BMS	Adaptive BMS		
Dimension(W*D*H)mm	1000×700×1400	1000×650×1400	1000×750×1850
Weight, kg	705	695	1200

Rackmount Lithium-ion Battery System

Product Overview:

- Independent standard battery system, standard voltage level 48V, 240V;
- Single pack 1-6kWh, up to 10C discharge rate as option;
- Visual human-machine interface monitors the running status of battery system in real time.

Application

It is widely used in UPS for data center and other fields, home energy storage system, base station power supply module etc.

Feature

- Integrated BMS in single pack; it can work independently as battery system;
- Flexible configuration, modular design, the first choice for medium and small power systems;
- Easy installation, directly embedded into standard 19-inch cabinet;
- Visual human-machine interface monitors the running status of battery system in real time.
- Charge and discharge times> 3000 times, system life > 10 years.



Item	Specification							
Battery Module								
Model	EBC48-40-LFP	EBC48-80-LFP	EBC48-120-LFP	EBC240D-10-LFP	EBC240-5-LFP	EBC240-10-LFP	EBC240-15-LFP	EBC240-20-LFP
Cell	3.2V 40Ah			3.2V 3.4Ah	3.2V 2.5Ah			
Combination	15S1P	15S2P	15S3P	70S3P	75S2P	75S4P	75S6P	75S8P
Configuration	15Cells, BMS	30Cells, BMS	45Cells, BMS	210Cells, BMS	150Cells, BMS	300Cells, BMS	450Cells, BMS	600Cells, BMS
Rated energy	1.92kWh	3.84kWh	5.76kWh	2.24kWh	1.2kWh	2.4kWh	3.6kWh	4.8kWh
Rated voltage	48V			224V	240V			
Working voltage	37.5-54.75VDC			175-255VDC	187.5-273.75VDC			
Maximum charge rate@25°C	2C			1C	2C			
Maximum discharging rate@25°C	5C	4C	3C	3C	10C			
Maximum continuous discharge, kW	9.6(5C)	15.36 (4C)	17.28 (3C)	6.72(3C)	12(10C)	24(10C)	36(10C)	48(10C)
BMS	Adaptive BMS							
Dimension(W*D*H)mm	424*550*177	424*710*177	424*950*177	483*680*88	483*600*88	483*650*132	483*750*177	483*800*221
Weight, kg	28	46	61	45	28	45	58	70
Terminal output	Connectors							
Communication	CAN							
User interface	LCD(optional)							



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