



*Data center product solutions*

- Micro module data center



## Company Introduction



Shangyu (Shenzhen) Technology Co., Ltd. was established in 2011 and is headquartered in Baoan District, Shenzhen, China. Shangyu is the world's leading power supply equipment manufacturer, with independent R&D, design and manufacturing capabilities. Data center dynamic environment equipment, refrigeration equipment and related technologies including UPS, precision air conditioners, and precision power distribution, and provide corresponding after-sales services. Customers provide services.

Shangyu Company is a national high-tech enterprise and one of the incubators of the Shenzhen Science and Technology Innovation Commission. At the beginning of its establishment, the company has passed ISO9001 quality management system ISO14001 environmental management system certification, and OHSAS18001 occupational health and safety certification.

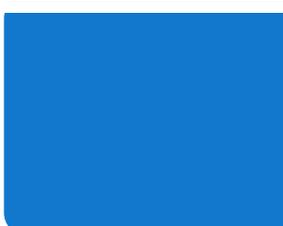


Shangyu Company has won the honorary title of "China Quality, Service and Reputation AAA Enterprise", which is the market's reaffirmation of Shangyu Company. In addition, relying on its outstanding performance in product quality and after-sales service, Shangyu Company has also successively won the "National Product and Service Quality Integrity Demonstration Enterprise" and "National Quality Leading Product in the Electrical Equipment Industry" issued by China Quality Inspection Association. Brand", "National Quality Inspection and Stable Qualified Products" and other three honorary certificates.

As a governing unit of China Power Supply Association, Shangyu products have successively passed multiple industry certifications such as Thiel certification, energy saving certification, CCC certification, CE certification, and radio and television network access license.



SERVICE EXPERTS, TRUSTWORTHY



Single row cabinet



Single cabinet

Double cabinet

Multi-cabinet

01

Micro Module



Micro module data center

12

# Single Row Cabinet Data Center



## Integration

The data center infrastructure products are deeply integrated, including UPS, power distribution, refrigeration, cabinet, monitoring, fire protection and other subsystems. Through the monitoring system, all subsystems are uniformly managed and built into an integrated product, simplifying the design, procurement and construction process.

## High availability

The reliable UPS power supply and distribution system continuously protects IT equipment, and can customize a highly reliable system architecture that meets the national standard A and B standards to meet the usability requirements of different users.

Equipped with a rack-mounted precision cooling system to ensure that IT equipment operates in a stable and reasonable temperature and humidity environment.

Fully sealed design, low dependence on the environment, can be applied in a variety of harsh indoor environments, no need set up a separate computer room.

Equipped with an emergency ventilation device, when the air conditioner fails, natural ventilation and heat dissipation can be turned on to provide time for users to back up; it can also be linked with the fire protection system to allow fire extinguishing gas to enter the cabinet smoothly.

The dynamic environment monitoring system monitors the working status of the equipment in real time, does not miss any abnormal conditions, quickly locates faults, and eliminates hidden dangers.

## Economize TCO

Area saving: integrated design, the land area is saved by more than 40% compared with the traditional construction mode.

Save supporting investment: fully sealed design, can be installed in a variety of environments (machine room, utility room, integrated products, on-site installation time for one day, large-scale deployment, the construction cycle is greatly shortened.

office, etc.), do not need to special investment in the construction of machine room and supporting facilities. Save construction time:

High efficiency and energy saving: high frequency UPS, efficiency of 92%; cabinet refrigeration + fully closed cooling and heat channel refrigeration, saving more than 30% than traditional refrigeration mode, the PUE can be below 1.45.

## Easy operation and maintenance

The dynamic environment monitoring system monitors comprehensive product operation data, provides alarms and various reports, realizes unattended, remote operation and maintenance; it can also be connected to a third-party monitoring system to achieve unified and centralized monitoring.

The cabinet-type structure with transport casters makes the data center movable and relocated, which is extremely convenient.

One-stop after-sales service, one phone call to deal with all problems.

Series		Standard configuration							
Series	No.	R1C104RU031	R2C108RU061	R3C112RU101	R4C112RU101	R5C112RU201	R6C212RU202	R7C212RU202	R8C212RU402
Power distribution	UPS	3kVA	6kVA	10kVA	10kVA	20kVA	20kVA*2	20kVA*2	40kVA*2
	PF	0.8	0.9	0.9	0.9	0.9	0.9	0.9	0.9
	Input	220VAC	220VAC	220VAC	220VAC	380/220VAC	380/220VAC	380/220VAC	380VAC
	Altitude	2U	3U	3U	3U	3U	6U	6U	4U
	Lightning protection	Class C lightning protection							
Cabinet	Quantity	1	2-3	3-5	3-5	3-6	4-8	4-8	4-8
	Available space	42U*cabinet quantity							
	PDU	with 1 pcs for each cabinet							
	PDU form	Input: 32A industrial connector; output: 12 bit 10A GB jack, 4 bit 16A GB jack; including lightning protection module							
	Closed channel	Cold, hot channel is fully enclosed							
	Emergency fan	Fan-type emergency ventilation system, linkage with the moving ring control, automatic start and stop							
	IT cabinet capacity	providing 42U of available space							
	Dimension	600 * 1200 * 2000mm							
Cooling	Air conditioning type	Rack							
	Refrigerating output	4kW	8kW	12kW	12kW	12kW	12kW*2	12kW*2	12kW*2
	Sensible heat ratio	1							
	system	DC frequency conversion + infinite speed regulation centrifugal EC fan							
Monitor	Monitoring quantity	Power distribution, UPS, air conditioning, temperature and humidity, smoke sensation, water leakage, door magnetic							
	function	Data collection and storage, alarm management, energy consumption analysis, remote access, acoustic and optical alarm (optional), SMS alarm (optional), gating lighting (optional), atmosphere light (optional)							
	Display	A 10-inch touch screen							
Battery	Type	VRLA battery							
	Quantity	8pcs	16pcs	16pcs	16pcs	Standard 384VDC (384V/408/432/456/480VDC adjustable)			
	Backup time	Can be replaced with high-capacity batteries or increase the number of batteries							

## Cooling System

Shang Yu has experience more than 10 years in the field of data center cooling system. shangyu has developed SP serie rack air conditioners for the application characteristics of smart cabinets. Users can choose different specifications of rack air conditioners according to needs and can directly refrigerate the server.

## Energy efficient

The air conditioner and server cabinet form an enclosed space, and the air supply distance is short, directly delivered to the server air inlet, reduce the loss of air flow and cold volume, high efficiency and energy saving, and reduce the PUE.

Using EC fan, suitable for independent local high-density heat dissipation, timely adjustment of air volume output, keep the temperature and humidity in the confined space constant.

## Product picture



air-conditioning indoor unit



air-conditioning outdoor unit

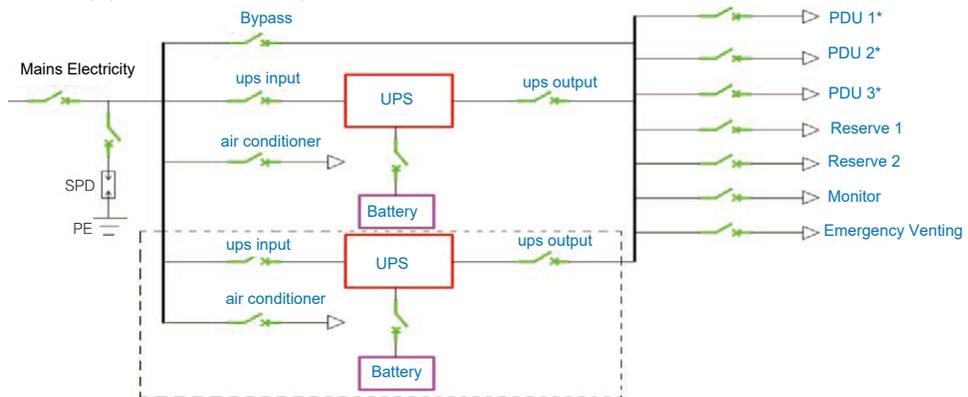
## Technical Data

Air conditioning type		Single-cooled air conditioning		
Indoor model		SP04R1	SP08R1	SP12R1(B)
Outdoor model		SP04W1	SP08W1	SP12W1
Power Specifications		220VAC/50HZ		
maximum current		7A	14.3A	25A
Input breaker		16A/2P (1P)	16A/2P (1P)	32A/2P (1P)
Outdoor unit cable		3*2.5mm <sup>2</sup>	3*4mm <sup>2</sup>	3*6mm <sup>2</sup>
Indoor/outdoor unit signal wire		Shielded wire: 2*0.75mm <sup>2</sup>		
Refrigerating capacity(KW)		3.5	7.5	12.5
Sensible cooling capacity(KW)		3.5	7.5	12.5
Air volume (m2/h)		800	1650	2200
Refrigerant (copper tube <5m)	Type	R410A		
	Indoor unit refrigerant (kg)	0.1	0.2	0.2
	Outdoor unit refrigerant (kg)	1.2	2.0	3.6
Dimension(mm)	Indoor unit(W*D*H)	442*799*218 (5U)	440*950*352 (8U)	440*970*440 (10U)
	Outdoor unit(W*D*H)	794*310*537	1045*431*760	1043*431*1375
Weight (Kg)	Indoor unit	25	41	48
	Outdoor unit	30	60	85

The power supply and distribution system of the smart cabinet is mainly composed of the power distribution unit, UPS, battery and PDU, etc. All the products are integrated and installed in the cabinet, and the overall style is consistent, neat and beautiful.

## System Topology

Standard topology of smart cabinet power supply and distribution system, and the system architecture meets the C / B class equipment room standard specified in GB50174-2017.



## Power Distribution Unit

1. Detect the input power of the main road, including important parameters such as voltage, current, and active power, and provide Modbus communication protocol to connect to the upper monitoring system to realize energy consumption statistics.
2. Adopt rack design, including mains power distribution, UPS, air conditioner air conditioner and load power distribution, manual maintenance bypass, convenient for convenient for on-site maintenance.
3. The main switching devices are all selected from Schneider brand, with reliable quality.
4. Contains a C-level lightning protection module to improve safety.



## Technical Data

Model	IDMPG10R-S	IDMPG20R-TS2-7	IDMPG40R-T1	IDMPG40R-T2
Rated input voltage	220V	380V		
Rated input current	125A/1P	32A/4P		
Frequency	50Hz			
Load output branch	5*16A/1P (IT) 2*10A/1P (monitoring and fan)	7*32A/1P (UPS) 7*32A/1P (mains) 1*10A/1P (monitoring and fan)	20*32A/1P (IT) 1*10A/1P (monitoring and fan)	20*32A/1P (IT) 2*10A/1P (monitoring and fan)
Monitoring function	Main circuit power detection (voltage, current, frequency, power, etc.)			
Protection	Class C	Class C lightning protection module (32A/4P)		
Wiring method	Rear terminal block			
Installation method	Rack mount			
Installation height	4U	8U		12U
Display	No	No	No	Electricity meter display
Communication	with RJ45 monitoring port			

## UPS

1. The UPS products with rack installation design can be directly installed on a 19-inch standard rack, and the appearance style is consistent with the cabinet.
2. Double conversion on-line design, high efficiency of the whole machine, effectively reducing the energy consumption of the system.
3. The horizontal wide range of input voltage and frequency can adapt to various complex power usage environments.
4. Compatible with generator access.



HPR series



CPY series

## Technical Data

Model	HPR1103H	HPR1106H	HPR1110H	HPR3320H	HPR3330H	HPR3340H	CPY1020	CPY1040
Capacity	3KVA	6KVA	10KVA	20KVA	30KVA	40KVA	20KVA	40KVA
	1/1 phase			3/3phase			3/3 phase,3/1 phase,1/1 phase (adjustable on site)	
<b>Input</b>								
Voltage	220VAC			380VAC			380V/400V/415VAC	
Voltage rang	115~300VAC	176~272VAC		190~520 VAC			304~478VAC	
Frequency	50/60Hz ±10%			50/60Hz ±8%			50/60Hz ±10%	
PF	≥0.992			≥0.99			≥0.995	
<b>Output</b>								
voltage	220/230/240V			360/380/400/415VAC			380V/400V/415VAC	
Frequency	50/60Hz: ≤±0.5%			50/60Hz: ≤±0.5%			50Hz: ≤±0.5%	
PF	0.8	0.9		0.99			1	
Transfer Time	0ms			0ms			0ms	
Admissible Overload	105%-125%:1min; 126%-150%:30s >150%:500ms	105%-125% : 10min; 126%-150% : 30s; >150% : 500ms		100%~110%: 60min; 111%~125%: 10min; 126%~150% :1min; >150% : Protect immediately			102%: long run ; 110%: 1h; 125%: 10min; 150%: 1min; > 150%: 200ms	
<b>Battery</b>								
Voltage	96V (8pcs)	192V (16pcs)		384VDC(384V/408/432/456/480VDC )			480VDC(384V/432V/480V/528VDC )	
Charging Current	6A	4.5A		1~12A		1~16A	1%~20% adjustable	
<b>System</b>								
Overall Efficiency	≥88%	≥90.5%		≥96%		≥95.5%	≥94.7%	
IP Class	IP20			IP20			IP20	
<b>Function</b>								
EPO	No Supported	Support		Support			Support	
ECO	No Supported	Support		Support			Support	
in parallel	No Supported	3pcs		3pcs		4pcs	No Supported	
<b>Physical</b>								
W*D *H(mm)	420*438*86	438*610*133		438*600*133mm		797*438*176	485*697*398	485*697*575
Weight(kg)	10.5	18	19.5	35	35	40	42.4	51.8

## VRLA Battery

Shangyu company has launched GW/BT series valve-regulated lead-acid batteries for the application requirements of small and medium-sized data centers and large IDC computer rooms. Similar but different design technology concepts, combined with advanced automated production technology, are closer to the actual application of customers in terms of product design, performance requirements, reliability and process control, and realize system integration from the perspectives of comprehensive technical indicators, cost performance, and compatibility. optimal configuration. Shangyu GW/BT series valve-regulated lead-acid batteries have better rate characteristics and better quality assurance than the same type of batteries in the industry, providing the best matching solutions for different backup application requirements of data centers and UPS systems.



## Features

1. Shangyu GW/BT series sealed valve-regulated lead-acid batteries are maintenance-free and acid-free batteries, safe and reliable.
2. The battery is designed with an optimized ratio of Pb-Ca-Sn alloy grid, which can adapt to floating charging applications under various working conditions.
3. Long design life, optimized oxygen circulation channel design and electrolyte ratio, while ensuring battery life, effectively reduce the risk of thermal runaway during long-term use of the battery.
4. The specific active material formula takes into account the specific energy and specific power requirements of the battery.
5. Comply with UL94-V0 flame retardant requirements, effectively guarantee the safety of customer systems, and use more securely.

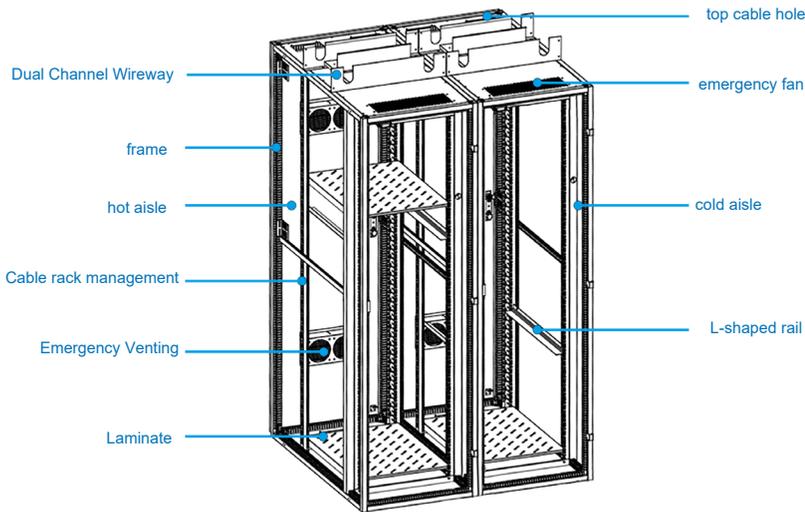
## Technical Data

Model	Voltage	Capacity	Dimensions (W*H*D)	Weight (Kg)
GW1224	12V	24AH	165*175*125mm	6.8
GW1238	12V	38AH	181*165*76mm	11.3
GW1265	12V	65AH	350*180*169mm	19.5
GW12100	12V	100AH	407*236*173mm	28.8
GW12120	12V	120AH	407*236*173mm	33.5
GW12150	12V	150AH	483*240*170mm	42.3
GW12200	12V	200AH	522*219*240mm	54.5
GW12250	12V	250AH	522*219*269mm	67.5

Model	Battery quantity	Capacity	Battery voltage	Dimensions (D*W*H)	Weight (Kg)
BT7032	6pcs	12V7AH	36VDC	420*438*86mm	20
BT9032	6pcs	12V9AH	36VDC	420*438*86mm	23
BT7061	6pcs	12V7AH	72VDC	420*438*86mm	20
BT9061	6pcs	12V9AH	72VDC	420*438*86mm	23
BT7081	8pcs	12V7AH	96VDC	420*438*86mm	24.6
BT9081	8pcs	12V9AH	96VDC	420*438*86mm	28.6
BT7161	16pcs	12V7AH	192VDC	610*438*130mm	56.2
BT9161	16pcs	12V9AH	192VDC	610*438*130mm	58.2

## Cabinet system

1. The ID1000 series cabinets are manufactured by welding the standard nine-fold profile frame as a whole, with high strength, stability and reliability, and a static load of 1800kg.
2. The cold and hot aisles are fully enclosed, dust-proof and noise-reducing, high-efficiency and energy-saving.
3. The front door of the cabinet adopts double-layer vacuum heat insulation glass door to prevent condensation, which is beautiful and practical.
4. Simultaneously support the upper and lower incoming lines and pipes to meet the needs of different installation scenarios.
5. Comply with ANSI/AIARS-310-D, DIN41491, PARTE, IEC60297-2, GB/T3047.2-92S and other standards.



## Emergency Ventilation

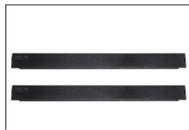
1. The emergency fan system is equipped as standard, and the fan is automatically controlled to start and stop through the monitoring system, which is safe and intelligent.
2. In the case of air conditioner failure, it can ensure emergency heat dissipation and prolong the operation of air conditioner failure time.
3. Linkage with the fire protection system, keep the air flow inside and outside the cabinet in case of fire, so that the fire extinguishing gas can enter the cabinet smoothly.



## Abundant cabinet accessories



Cable rack management



Blind plate



Laminate



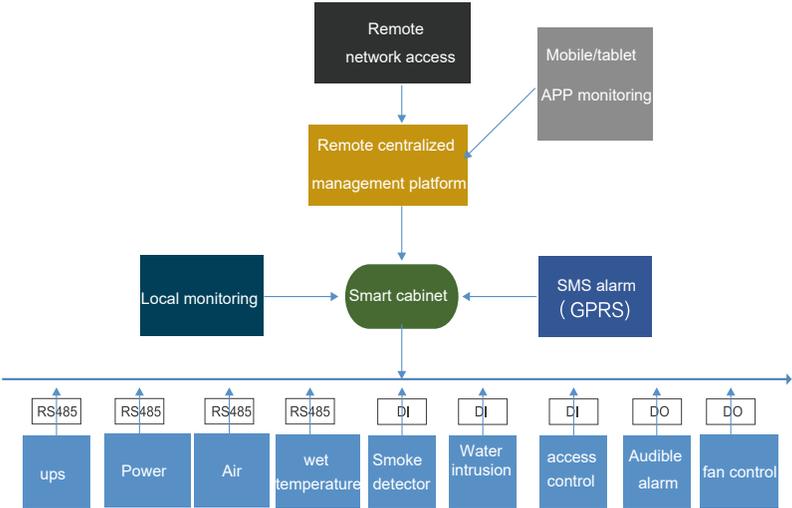
Dual Channel Wireway



L-shaped rail

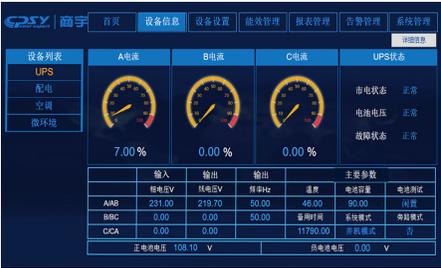
The power ring filling monitoring system specially developed for smart machines can comprehensively monitor the power, refrigeration equipment and environmental parameters in the cabinet. It has local display and remote monitoring capabilities, and provides safe, reliable and intelligent monitoring and management functions.

### System topology



### Features

1. Using a highly integrated monitoring system, the monitoring collector, processor and display terminal are highly integrated, and the 10-inch touch screen is installed on the front of the cabinet.
2. Control the start-up of the emergency ventilation system, set the operating parameters of the air-conditioning system and switch on and off.
3. Provide comprehensive alarm data, operating parameters, energy consumption analysis and linkage functions to meet the needs of daily unattended and remote operation and maintenance.
4. Support centralized management of multiple outlets, customized operation and maintenance management platform, what you get is what you need.
5. Provide the android version of the APP software to know the status of the computer room anytime, anywhere, which is convenient, fast, and safe.
6. Provide standard SNMP interface and protocol, which can be seamlessly connected to the third-party operation and maintenance management platform.



### System Features

# Recommended Solution

## Solution I

R3C108RU101

Number of cabinets	3
Available space	108U
Power specifications	220VAC/50HZ
UPS capacity	10KVA
UPS quantity	1
Single cabinet power	8KW
Battery type	Battery pack
Backup time	15min
Air Conditioning Cooling Capacity	7.5KW
Air conditioning quantity	1
Air-conditioning installation mode	Rack type
Air supply mode	Front air supply and rear air return
Dimensions (W*D*H)	1800*1200*2000mm

42	42	42	42	42
41	41	41	41	41
40	40	40	40	40
39	39	39	39	39
38	38	38	38	38
37	37	37	37	37
36	36	36	36	36
35	35	35	35	35
34	34	34	34	34
33	33	33	33	33
32	32	32	32	32
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8	8	8	8	8
7	7	7	7	7
6	6	6	6	6
5	5	5	5	5
4	4	4	4	4
3	3	3	3	3
2	2	2	2	2
1	1	1	1	1

## Solution II

R5C216RU202

Number of cabinets	5
Available space	180U
Power specifications	220VAC/50HZ
UPS capacity	10KVA
UPS quantity	2
Single cabinet power	8KW
Battery type	VRLA battery
Backup time	Determined by the number of batteries configured
Air Conditioning Cooling Capacity	15KW
Air conditioning quantity	2
Air-conditioning installation mode	Rack type
Air supply mode	Front air supply and rear air return
Dimensions (W*D*H)	3000*1200*2000mm

42	42	42	42	42	42
41	41	41	41	41	41
40	40	40	40	40	40
39	39	39	39	39	39
38	38	38	38	38	38
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## Solution III

R7C216RU401

42	42	42	42	42	42	42	42	42	42	42	42
41	41	41	41	41	41	41	41	41	41	41	41
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2	2	2	2	2	2	2	2	2	2	2	2
1	1	1	1	1	1	1	1	1	1	1	1

Number of cabinets	7
Available space	2620U
Power specifications	380VAC/50HZ
UPS capacity	40KVA
UPS quantity	1
Single cabinet power	8KW
Battery type	VRLA battery
Backup time	Determined by the number of batteries configured
Air Conditioning Cooling Capacity	15KW
Air conditioning quantity	2
Air-conditioning installation mode	Rack type
Air supply mode	Front air supply and rear air return
Dimensions (W*D*H)	4200*1200*2000mm





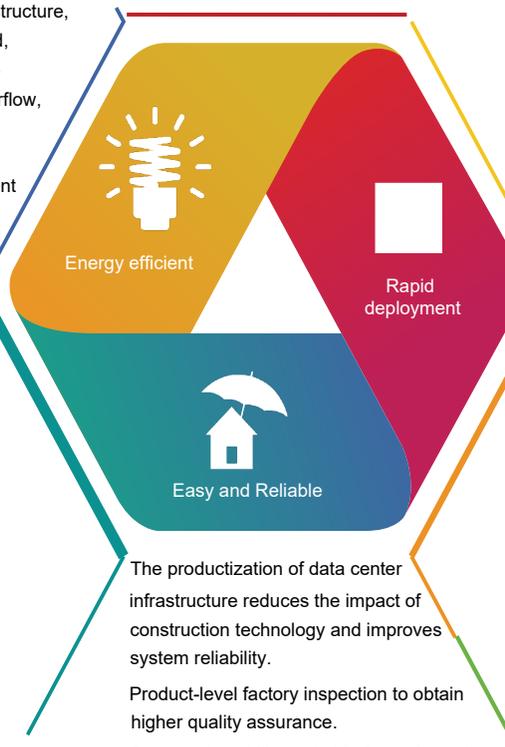
## Shangyu Micro-Module Data Center

## Product introduction

Shangyu micro-module data center can adopt a flexible double-row cabinet + cold/hot aisle layout according to the user's site conditions. Under this layout, all subsystems such as cabinets, channels, power supply and distribution, cooling, security, environmental monitoring management, and wiring can be integrated according to user needs, providing customers with a new type of data center with rapid deployment, high efficiency and energy saving, compact space, and flexible expansion. solution.

## Core values

Efficient power supply and distribution structure, close to the heat source cooling method, effectively reduce the module PUE value.  
Closed channel isolates hot and cold airflow, eliminating ineffective airflow loop and eliminate localized hot spots.  
Through module integration management and coordinated operation, there are effectively improve the performance of functional module components.



Standardized components, de-engineering, and overall delivery.  
Factory prefabricated and pre-commissioned, on-site plug and play.  
On-demand matching according to business development, rapid expansion.

The productization of data center infrastructure reduces the impact of construction technology and improves system reliability.  
Product-level factory inspection to obtain higher quality assurance.  
Strong adaptability, suitable for various site conditions of users.

## Application scenarios

### Single-module solution:

It is suitable for small and medium-sized data centers with a power consumption of less than 180KW and an area of less than 100 square meters. Data center requirements for small and medium-sized enterprises and large enterprise branches.

### Multi-module solution:

Through the flexible arrangement of multiple modules, a large data center can be constructed. Facing the needs of IDC, large enterprises, financial centers, governments, military, supercomputing centers, education, medical and other industries for large data centers.

## Technical data

Equipment system	Item	Parameter
System	Dimensions	1200mm wide closed cold/hot aisle double-row cabinet recommended maximum size: 1400(L)*3600(W)*2300(H)mm, height of 2600mm after the skylight is turned over.
	NO.single-module cabinets.	¥48
	Cabinet power consumption	Design power consumption 5~8 KW, maximum support 14KW
	Module power consumption	
	Working environment	
	Altitude	0~1000m (more than 1000m need derating)
	Installation method	Floor installation, can be installed with or without anti-static floor
Cabinet	Dimensions	600(W)*1200(D)*2000(H)mm, please contact Shangyu factory for other dimensions
	Available space	42U
	Vapor rate	80%
	Static load	1800KG
	Seismic rating	Magnitude 9 earthquake
	Environmental certification	RoHS
	IP class	IP20
Closed Passage	Skylight	tilting skylight, flat roof skylight, fixed skylight, width: 300(600)mm, please contact Shangyu factory for other dimensions
	End door	Manual reversing door, automatic translation door
	Wireway	Mountain type sheet metal wiring trough
	Base	Cabinet base,Channel base (installation of anti-static floor)
	Floor	Calcium sulfate anti-static floor
Power distribution	Dimensions	600(W)*1200(D)*2000(H)mm, please contact Shangyu factory for other dimensions
	UPS rated input	380VAC/400VAC/415VAC (3-phase 5-wire), 50/60Hz, PF=0.99
	UPS rated power	80~300kVA
	UPS power module	20kVA/30kVA
	Battery	38AH~250AH (12V) valve-regulated lead-acid battery, please contact Shangyu factory for other specifications
	Distribution Cabinet	Input: 100A~630A; 380VAC/400VAC/415VAC (3-phase 5-wire); 50/60Hz
		Output: Multi-channel 10~63A/3P (1P) optional, please contact Shangyu factory for specific configuration
	PDU	32A input, 8~24 bit C13 (C19) national standard socket optional, optional lightning protection components and intelligent intelligent communication components, etc.
	Detection function	Main and shunt switch status, voltage, current, power factor, harmonics, power consumption, etc.
IP class	IP20	
Cooling system	Air Conditioner Dimensions	300(W)*1200(D)*2000(H)mm
		600(W)*1200(D)*2000(H)mm
	Cooling capacity	Inter-row cooling: 13~40KW
		Room-level cooling: 8~102KW
	Input	3-phase 380VAC, 50Hz
	Air supply mode	Horizontal air supply, upward air supply, and downward air supply
	Isolation method	Closed cold/hot aisle
IP class	IP20	
surveillance system	Environmental monitoring	Temperature and humidity, smoke detection, smart access control, high-definition camera, water leakage, four-color ambient light
	Monitoring	Power supply, battery, power distribution, air conditioner

## Closed channel system

### Modular design

The modular unit design concept is adopted, and the corresponding two cabinets occupy one unit, each unit can be installed and disassembled independently, and can be closely connected with adjacent units, which is convenient disassembly and management of other equipment on the channel.



### Good sealing

All unit modules in the cold/hot aisle system are tightly connected, and sealing is adopted between components good sealing wool strips or sponge strips are sealed, which not only maintains the aesthetics, but also can prevent cold air leakage in the cold aisle.

### Strong light transmission

The system is composed of toughened glass with strong light transmission.

### Passage skylight

1. Skylights are divided into flip skylights and row-to-column skylights.
2. The skylight is equipped with 5mm thick tempered glass for lighting, and the lighting rate reaches 91%. The opening or closing signal is controlled and managed by electromagnetic means, and it supports the linkage of the fire protection system (with a control box).
3. The skylight adopts a modular design, and the supporting cabinets are modularly installed. After the skylights are connected in parallel, ensure that there are no gaps to ensure the effect of cold and heat isolation.
4. The opening angle of the movable sunroof reaches 90°, and there is a buffer limiter, which can be used for noise reduction and positioning.



### Channel base

The bottom of the base is equipped with adjustable casters.

The base can be connected to the ground with fixtures.

The base and the cabinet can be fixed at 4 points to increase the overall stability.

Modular structure, modular assembly according to the width of the cabinet, interchangeable installation.

The base of the cabinet is made of 2.0mm thick cold-rolled steel plate bent and welded, and the load-bearing capacity reaches more than 1500KG.



## Modular UPS



According to the power supply needs of large and medium-sized data centers, Shangyu has launched the CPY series modular UPS solution, which can flexibly configure 80~300kVA modular UPS according to the customer's system power supply requirements. The module adopts advanced high-frequency switching technology and fully digital DSP control Technology and the world's leading active PFC, LLC topology, to achieve high input power factor, accurate output current sharing performance, reliable monitoring and management system, to provide safe, reliable and pure AC power for the main equipment.

### Power Module



Module	Parameter	Dimensions (W*D*H)	weight(kg)
PM20	3P/3P 20KVA/20KVA	650*440*132(3U)	34
PM30	3P/3P 30KVA/30KVA	650*440*132(3U)	34.5

## Technical data

Model	CPY30120-42U	CPY30210-42U	CPY30300-42U
Cabinet capacity	120KW	210KW	300KW
Battery type	External Battery	External Battery	External Battery
Single Power model capacity	PM30	PM30	PM30
Max.power model NO	4	7+1	10
<b>Input</b>			
Nominal Voltage	3 x 380VAC/400VAC/415VAC (3Ph+N)		
Voltage Range	305 ~ 478 VAC at 100% load; 208 ~ 304VAC at <70% load		
Nominal Frequency	50/60Hz (Auto Sensing)		
Frequency Range	40Hz~70Hz		
Power Factor	> 0.99 @ 100% Load , >0.98 @ 50% Load		
Harmonic Distortion (THDi)	< 3% @ 100% load		
<b>Output</b>			
Nominal Voltage	3 x 380VAC/400VAC/415VAC (3Ph+N)		
Voltage Regulation (Steady state)	±1%Typical(balancedload);±2%Typical(unbalancedload)		
Voltage Regulation (Transient)	ÿ±5% standard value		
Nominal Frequency	50/60Hz		
Frequency Range (Synchronized)	46Hz ~ 54Hz or 56Hz ~ 64Hz		
Overload Capability	1 hour for 110%, 10 mins for 125%,; 1 min for 150%, 200ms for >150%		
Harmonic Distortion	ÿ2%THD(LinearLoad);ÿ4%THD(Non-linearLoad)		
Efficiency	Up to 94.5%		
<b>Battery</b>			
Maximum Voltage	+/- 216V (12V x 36 pcs)		
Minimum Voltage	±240V(12V40pcs)		
Nominal Voltage	±192V (12V32 pcs)		
Float Charging Voltage	2.25V/Cell		
Boost Charging Voltage	2.35V/Cell		
Temperature Compensation	yes		
Maximum Charging Current	8A		
<b>PHYSICAL</b>			
Dimension (D x W xH)	600*1200*2000mm	600*1200*2000mm	600*1200*2000mm
Net Weight (Kg)	4	8	10
<b>ENVIRONMENT</b>			
Operating Temperature	0~40°C		
Relative Humidity	0 ~ 95% non-condensing		
Altitude	<1000m for Nominal power		
IP Class	IP20		
<b>MANAGEMENT</b>			
Smart RS-232/USB	Supports Windows 2000/2003/XP/Vista/2008, Windows 7/8, Linux, and MAC		
Optional SNMP	Power management from SNMP manager and web browser		
<b>STANDARDS</b>			
Safety	IEC/EN60950-1; IEC/EN62040-1		
EMC	IEC/EN62040-2 Category C3		

## VRLA battery

Shangyu Company has launched the GW series valve-regulated lead-acid batteries for the application requirements of small and medium-sized data centers and large IDC computer rooms. The design technology concept, combined with the advanced automatic production process, is closer to the actual application of customers in terms of product design, performance requirements, reliability and process control, and realizes the optimal configuration of the system from the perspectives of comprehensive technical indicators, cost performance, and compatibility. Compared with the same type of batteries in the industry, Shangyu GW series VRLA batteries have better rate characteristics and better quality assurance, and provide the best configuration solutions for different backup application requirements of data centers and UPS systems.

## Features

- 1.The specific active material formula takes into account the specific energy and specific power requirements of the battery.
- 2.Comply with UL94-VO flame retardant requirements, effectively guarantee the safety of customer systems, and use more securely.
- 3.Shangyu GW series sealed valve-regulated lead-acid batteries are maintenance-free and non-acid overflow batteries, which are safe and reliable.
- 4.The battery is designed with an optimized ratio of Pb-Ca-Sn alloy grid, which can adapt to floating charging applications under various working conditions.
- 5.The design life is as high as 12 years. The optimized oxygen circulation channel design and electrolyte ratio ensure the battery life while effectively reducing the risk of thermal runaway when the battery is used for a long time.



## Technical data

Temperature Range	Working: -20°C~55°C; Charging: 0°C~35°C; Discharging: -20°C~55°C; Static Storage: -15°C~50°C
Float voltage	13.6V~13.8V (recommended 13.7V)
Equalizing charging voltage	14.1V~14.4V (recommended 14.1)
Float charge temperature compensation coefficient	-2mV/
Cycle temperature compensation coefficient	-30mV/
Recommended maximum charging current	0.25CA(SBA series)/0.3CA(SBH series)
Self-discharge	<3%(20°C)

## Technical data

Model	Rated voltage	Rated Capacity	Dimensions (D*W*H)	weight(kg)
GW1224	12V	24AH	125*166*175mm	6.8
GW1238	12V	38AH	170*197*165mm	11.3
GW1265	12V	65AH	178*348*167mm	19.5
GW12100	12V	100AH	208*407*175mm	28.8
GW12120	12V	120AH	208*407*175mm	33.5
GW12150	12V	150AH	240*483*170mm	42.3
GW12200	12V	200AH	218*522*240mm	54.5
GW12250	12V	250AH	220*520*269mm	67.5

## Distribution System

### Centralized

For small data centers, the precision power distribution cabinet can be integrated into a cabinet with the power distribution cabinet to supply power to each cabinet in all modules.

For large data centers, the power supply and power distribution cabinets are configured in a centralized manner, and each micro-module is individually equipped with a precision power distribution cabinet for power supply.

### Distributed: UPS + power distribution integration solution

The UPS+ power distribution integrated solution is mainly used in modular centers, where power supply and power distribution are deployed inside each micro-module data center, and a single cabinet integrates power supply, battery and corresponding power distribution. For long-term backup power requirements, the battery can be assembled into a cabinet independently.

### Distributed: UPS, power distribution independent solution

The independent solution of UPS and power distribution is mainly used in modular data centers, and the power supply and power distribution are separately deployed inside each data center micro-module. The power supply and power distribution are independently configured in different cabinets, which can support micro-modules that require high power and high density in the cabinet.

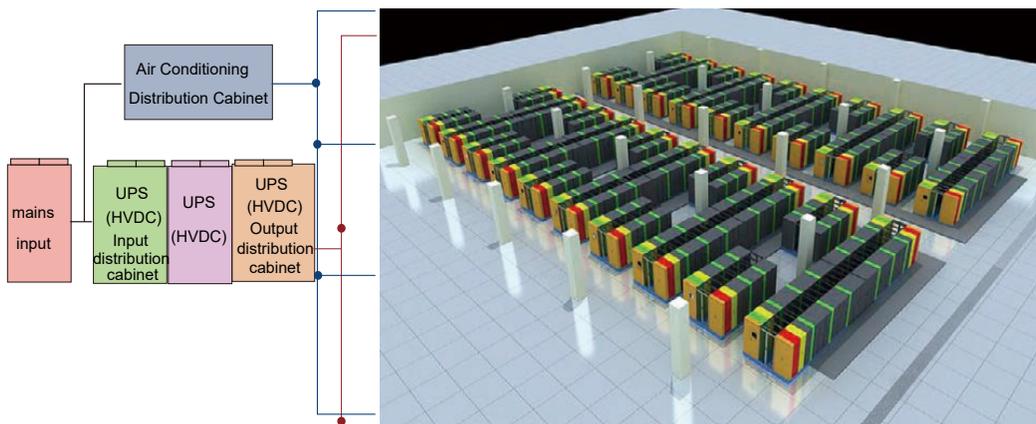
## Product photo



Precision distribution cabinet



PDU



SP series inter-row precision air conditioners provide precise temperature and humidity control for large and medium-sized computer rooms and micro-module data centers. Ideal for electronic equipment rooms.

The SP series inter-row precision air conditioner is designed to be close to the heat source, directly processes the hot air discharged from the server, shortens the airflow path to prevent the reverse intersection of cold and heat, minimizes airflow loss and eliminates the uncertainty of airflow and cooling. Through real-time monitoring of heat source load changes and precise adjustment of cooling capacity output, the cooling capacity and air supply volume are accurate and predictable, achieving more targeted and precise cooling, and perfectly solving the problem of high-density heat dissipation in data centers.

## Working range and precision

### The scope of work

Outdoor ambient temperature: -15 to 45°C, when configuring options or solutions for low-temperature operation, it can reach -35°C.

### Take over height

The outdoor unit is higher than the indoor unit: the maximum allowable drop is 20 meters.

The outdoor unit is lower than the indoor unit: the maximum allowable drop is 5 meters.

(Beyond the above range, please consult the manufacturer or dealer to confirm the relevant installation solution)

### Nozzle length

One-way installation pipe length  $\leq$  30 meters.

(Beyond the above range, please consult the manufacturer or dealer to determine the relevant installation plan).

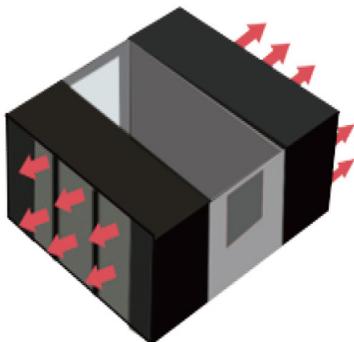
### Control precision

Temperature control range: 18~27°C, control accuracy:  $\pm 1^\circ\text{C}$ .

Humidity control range: 30~80%, control accuracy:  $\pm 5\%$ .

(Unit default: supply air temperature control, applied to cold aisle or hot aisle closure).

## Application method

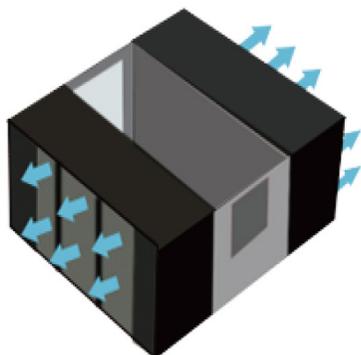


**Cold aisle closure:** The cold aisle is closed, and the inter-row precision air conditioners are arranged in the staggered positions of double-row micro modules or cabinets.

control the temperature of the cold air flow in the sealed aisle (that is, control the temperature of the air supply), and the cold air flow passes through the server in the cabinet to cool the server and is discharged to the outside.

**Advantages:** Enclosing the cold aisle can increase the air supply temperature or return air temperature of the air conditioner, and more effectively reduce the energy consumption of the inter-row air conditioner.

**Disadvantages:** The ambient temperature in the computer room is high, which is not conducive to maintenance personnel to perform maintenance work for a long time.



**Hot aisle sealing:** The hot aisle is sealed, and the precision air conditioners between columns are arranged in the staggered positions of double-row micro modules or cabinets.

The temperature of the hot air flow in the sealed aisle is controlled (that is, the return air temperature control), and the cold air flow in the computer room is discharged into the closed aisle after passing through the server in the cabinet to cool the server.

**Advantages:** Enclosing the hot aisle can increase the air supply temperature or return air temperature of the air conditioner, and reduce the energy consumption of the inter-row air conditioner. The ambient temperature in the room is moderate, and maintenance personnel can carry out maintenance work for a long time.

**Disadvantages:** The computer room has a large space, and it is necessary to maintain the set temperature value of the computer room, such as 24°C. Compared with closed cold aisles, inter-row air conditioners consume more energy.

## Technical data

Indoor unit model	SP13A1C	SP25A1C	SP25A1	SP40B1	
Outdoor unit model	AMD19	AME35	AME35	AME58	
Power supply specification (V-PH-Hz)	380V/3PH/50Hz				
Cooling Characteristics					
Total cooling capacity (kw)	12.5	25.0	25.0	40.0	
Sensible cooling capacity (kw)	12.5	25.0	25.0	40.0	
Compressor Characteristics					
Form	DC-inverter Compressor Driver				
Refrigerant	R410A				
Quantity (EA)	1				
Input power (kw)	3.25	6.36	6.36	10.34	
Output current (A)	5.5	10.7	10.7	17.5	
Fan Characteristics					
Form	EC fan				
Quantity (EA)	4	6	6	2	
Air volume (m3/h)	3000	5000	5000	8000	
Input power (kw)	0.91	1.45	1.45	1.56	
Output current (A)	4.03	6.72	6.72	3.00	
Electric heating (optional)					
Form	-	-	PTC electric heater		
Heating capacity (KW)	-	-	3	6	
Working class (n.)	1				
Electrode humidification (optional)					
Form	-	-	Electrode humidifier		
Maximum humidification capacity (kg/h)	-	-	2	3	
Throttling mode	Electronic expansion valve				
Air filter	G4 filter				
Unit connecting pipe					
Humidifier inlet pipe (mm)	-	-	IDΦ19.05		
Condensate drain pipe (mm)	ID16*OD24				
Refrigerant gas pipe (mm)	16	22			
Refrigerant liquid pipe (mm)	9.5	16			
Electrical parameters					
Maximum power	Cooling only (kW)	5.5	10.0	10.0	17.0
	Constant temperature and humidity (kW)	-	-	15.5	26.0
Maximum current	Cold only (A)	12.3	18.8	23.4	41.6
	Constant temperature and humidity (A)-	-	-	37.0	43.0
Indoor unit size (weight)					
W*D*H(mm)	300*1200*2000	300*1200*2000	300*1200*2000	600*1200*2000	
weight(kg)	210	210	210	250	
Outdoor unit size (weight)					
W*D*H(mm)	728*405*1370	1146*817*1048	1146*817*1048	1346*817*1216	
weight(kg)	69.5	124	124	152	

Product introduction

Shangyu IDM monitoring system has the characteristics of stability, reliability, safety, etc. It can centrally manage all power, environment, refrigeration and other equipment in the data center, and integrate mainstream brand access control, video and other security systems. Through distributed collection, it has high processing capacity and meets Multi-computer room network monitoring and management requirements allow data center operation and maintenance personnel to control the operation safety of the computer room in real time.

Features



Centralized monitoring

Multi-computer room networking, centralized access to power, environment, refrigeration, security and other equipment, unified real-time monitoring.



Remote access

The client, browser, and APP are convenient for users to access the system at any time from any location and learn about the monitoring status of the computer room.



Fault warning

Multi-level flexible threshold strategy, timely reminders before equipment failures, suppressing failures to the greatest extent, warning storm.



Alarm notification

Multi-channel alarm notification, flexible combination of sound and light, SMS, telephone, and email notifications, and hierarchical push notification strategy, let relevant personnel know the fault in time.



Energy Efficiency Statistics

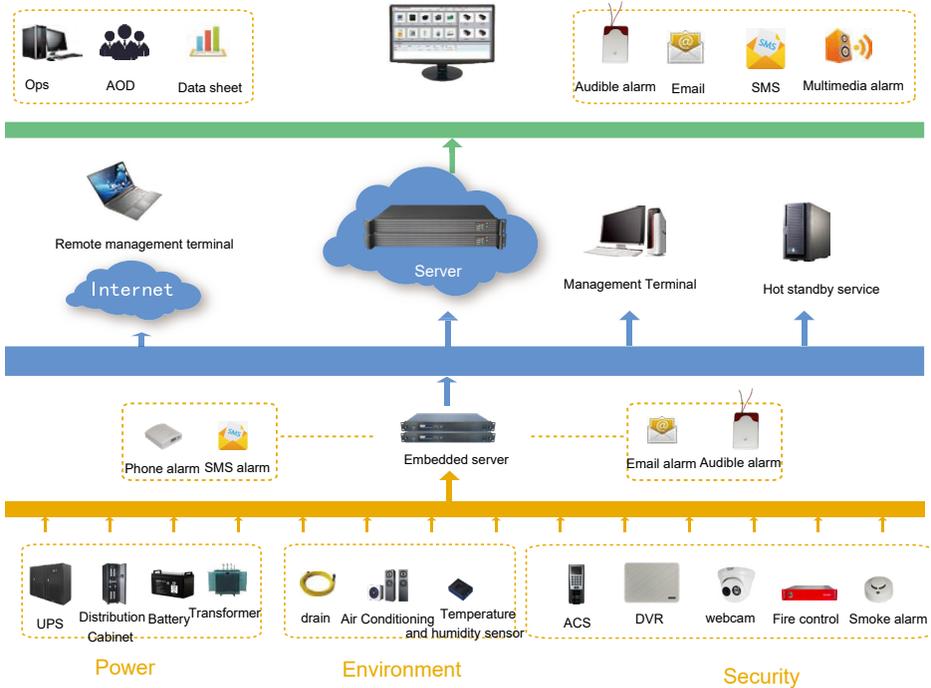
The real-time statistics of energy consumption in the computer room are converted into intuitive KPI indicators, allowing operation administrators to grasp the heart energy status.



Report analysis

Powerful report visualization allows operation and maintenance personnel to directly operate Office tools to make personalized, analyze reports.

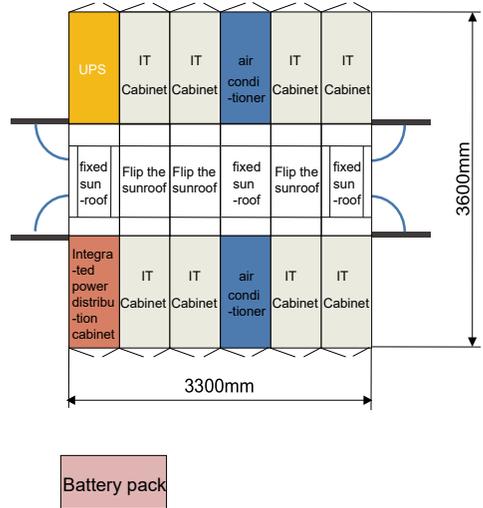
System framework



# Recommended Solution

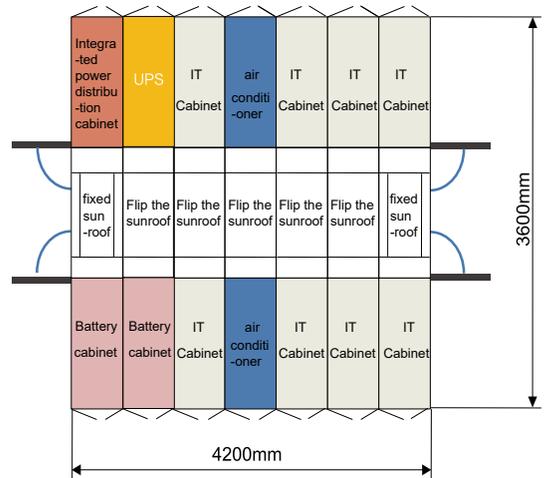
## Solution I

Number of IT cabinets	8
Single cabinet power	8KVA
UPS	60KVA
UPS module	30KVA*2
Power distribution	Integrated power distribution cabinet
Air conditioner	2*25KW
Monitor	1 set
Battery	External 1 set battery cabinet, with 40pcs*100AH batteries (backup 1h)
Micro module size	3300*3600mm
Total cabinets	12



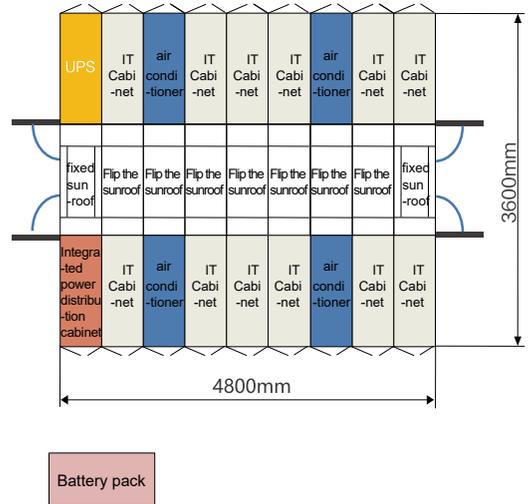
## Solution II

Number of IT cabinets	8
Single cabinet power	8KVA
UPS	60KVA
UPS module	30KVA*2
Power distribution	Integrated power distribution cabinet
Air conditioner	2*40KW
Monitor	1 set
Battery	Internal 2pcs battery cabinets, with 40pcs*100AH batteries(backup 1h)
Micro module size	4200*3600mm
Total cabinets	12



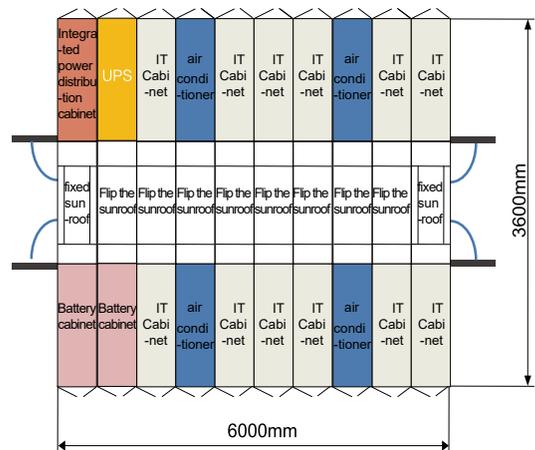
### Solution III

Number of IT cabinets	12
Single cabinet power	8KVA
UPS	90KVA
UPS module	30KVA*3
Power distribution	Integrated power distribution cabinet
Air conditioner	4*25KW
Monitor	1 set
Battery	External 1 set battery cabinet, with 32pcs*200AH batteries(backup 0.5h )
Micro module size	4800*3600mm
Total cabinets	18



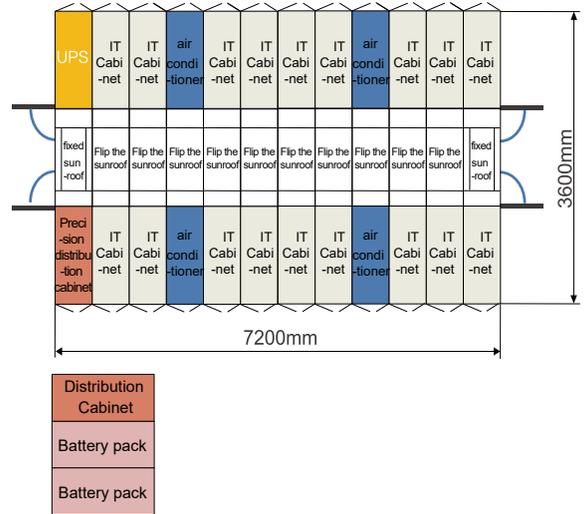
### Solution IV

Number of IT cabinets	12
Single cabinet power	8KVA
UPS	90KVA
UPS module	30KVA*3
Power distribution	Integrated power distribution cabinet
Air conditioner	4*40KW
Monitor	1 set
Battery	Internal 2 sets battery cabinet, with 32pcs*200AH batteries(backup 0.5h )
Micro module size	6000*3600mm
Total cabinets	20



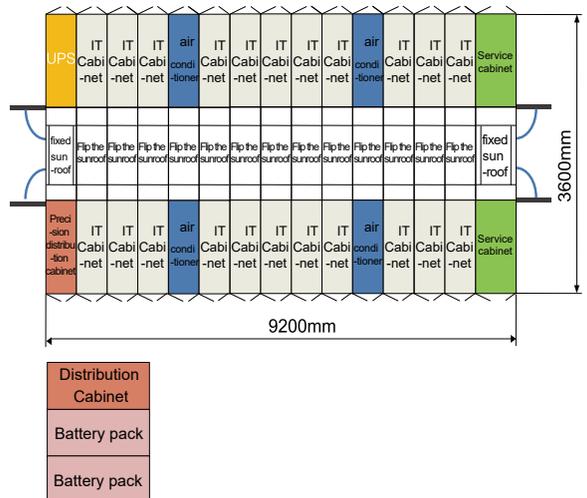
## Solution V

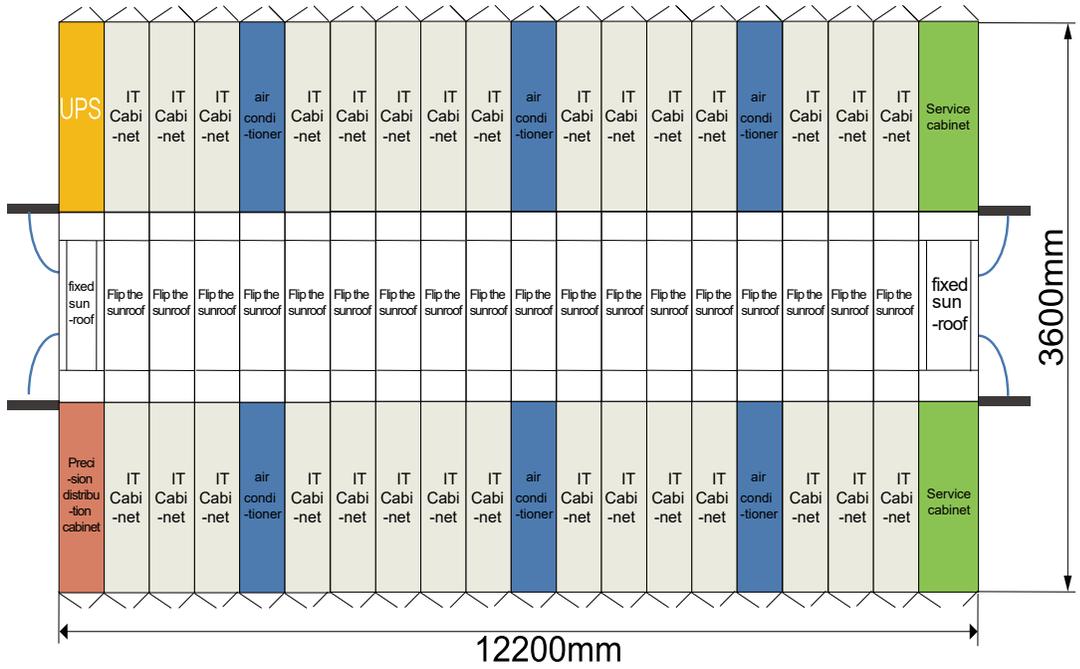
Number of IT cabinets	18
Single cabinet power	8KVA
UPS	120KVA
UPS module	30KVA*4
Power distribution	Input 200A/3P/2PCS;Output 32A/1P/42PCS
Air conditioner	4*40KW
Monitor	1 set
Mains power distribution cabinet	External power distribution cabinet
Battery	External 2sets battery cabinet, with 64pcs*150AH batteries (backup 0.5h)
Micro module size	7200*3600
Total cabinets	24



## Solution VI

Number of IT cabinets	22
Single cabinet power	8KVA
UPS	150KVA
UPS module	30KVA*5
Power distribution	Input 250A/3P/2PCS;Output 32A/1P/48PCS
Air conditioner	4*40KW
Monitor	1 set
Mains power distribution cabinet	External power distribution cabinet
Battery	External 2 sets battery cabinet, with 64pcs*150AH batteries(backup 0.5h)
Wiring cabinet	2 sets (width 800mm)
Micro module size	9200*3600
Total cabinets	30





12200mm

3600mm

**Solution VII**

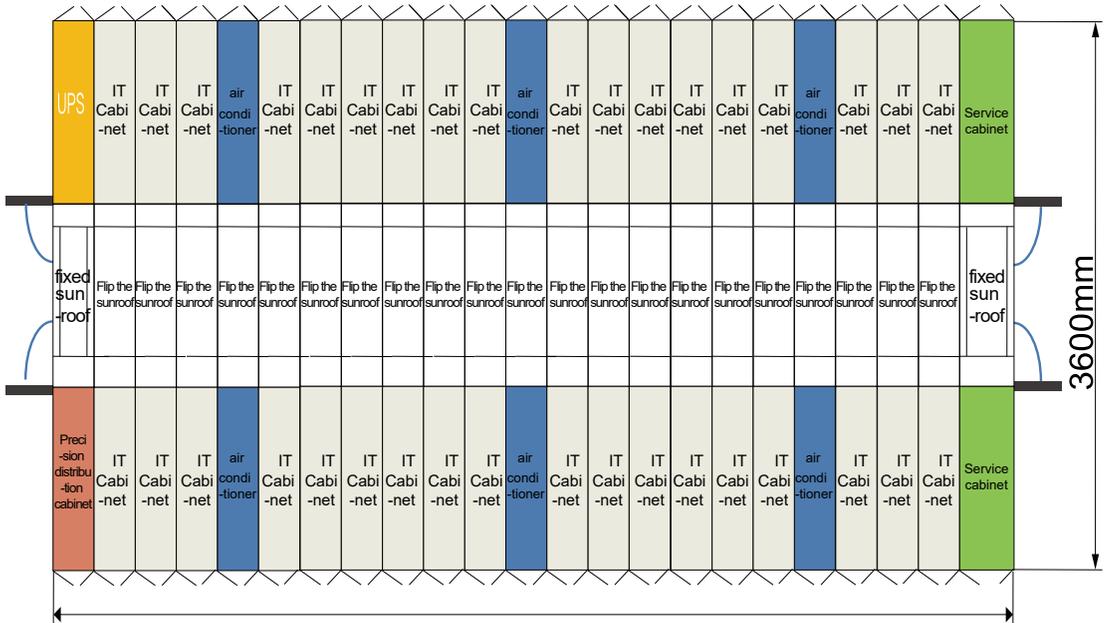
- Distribution Cabinet
- Battery pack
- Battery pack

Number of IT cabinets	30
Single cabinet power	8KVA
UPS	180KVA
UPS module	30KVA*6
Power distribution	Input 320A/3P/2PCS; Output 32A/1P/72PCS
Air conditioner	6*40KW
Monitor	1 set
Mains power distribution cabinet	External power distribution cabinet
Battery	External 2 sets battery cabinet, 80pcs*200AH battery (backup 0.5h)
Wiring cabinet	2 sets (width 800mm)
Micro module size	12200*3600
Total cabinets	40

**Solution VIII**

Number of IT cabinets	36
Single cabinet power	8KVA
ups	210KVA
UPS module	30KVA*7
Power distribution	Input 400A/3P/2PCS; Output 32A/1P/84PCS
Air conditioner	6*40KW
Monitor	1 set
Mains power distribution cabinet	External power distribution cabinet
Battery	External 2 sets battery cabinet, 80pcs*250AH battery (backup 0.5h)
Wiring cabinet	2 sets (width 800mm)
Micro module size	14000*3600
Total cabinets	46

- Distribution Cabinet
- Battery pack
- Battery pack



14000mm

3600mm



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