



# Data Center Infrastructure Overall Solution

Professional Data Center Soution Provider



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# Data Centre Infrastructure Programme



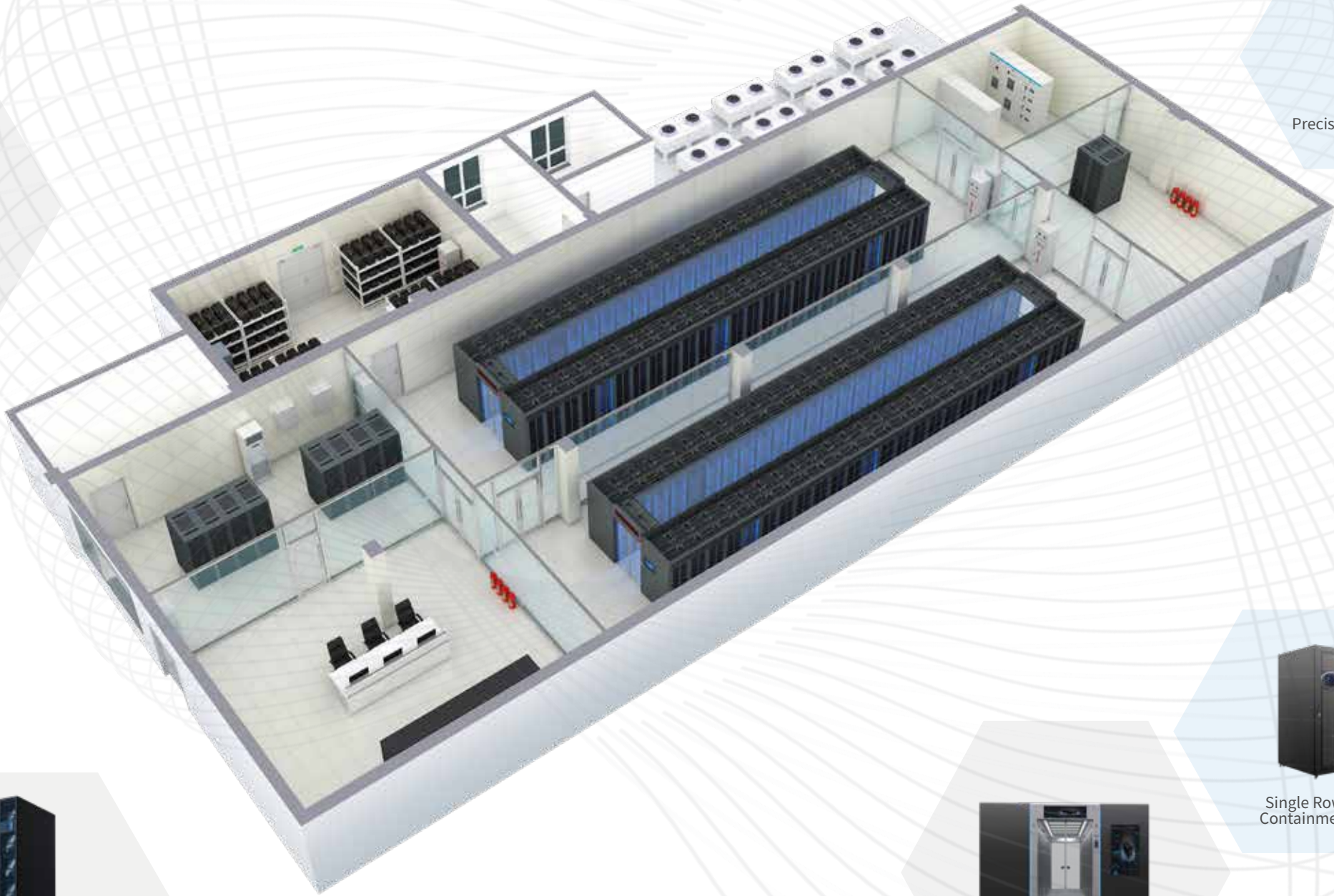
Infrastructure management systems



Room-level precision air conditioners



Row In-Row precision air conditioners



Precision Distribution Cabinet



Modular UPS



Power cabinet



Single Row Containment



Dual Row Containment



Micro Data Center (MDC)



# Micro Data Center Solution



## ● Product Description

Cabinet Data Center is an integrated cabinet which contains cooling system, power system, monitoring system and rack system, etc.. There are more and more micro data centers, and it has been facing the dilemma that it is difficult to unify the planning, construction and operation management. The integrated cabinet deeply integrates data center infrastructure products, including multiple subsystems such as UPS, power distribution, refrigeration, cabinets, and fire protection, and implements overall management of the entire system through the monitoring system.

## ● Product Features

### Safe and Reliable

- All components follow domestic and international standardized production standards to ensure product quality.
- Pre-installation, pre-commissioning and other process are controlled at various levels to ensure product installation and operation safe and reliable.
- A single cabinet is a complete system, suitable for various complex scenes (dust, narrow space, no insulation measures, etc.).
- Integrated design, overall delivery, avoid system design problems.
- The door pop-up system can delay the aisle overheating and reserve time for data backup.
- The cabinet integrates an intelligent monitoring system to ensure safe and reliable operation of the computer room.

### Easy Installation and Rapid Deployment

- Modular design of power distribution, easy installation and maintenance.
- Rack-mounted air conditioner indoor unit, pipe thread connection, easy maintenance.
- The computer room does not need special decoration treatment, and the equipment is ready to use. Installation and commissioning cycle only need 3 hours.
- A single cabinet is a complete system, plug and play.

### Efficiency and Energy Saving

- Proximal refrigeration, high-efficiency power supply, and the overall annual average PUE of single cabinet  $\approx 1.30$ .
- The power distribution, UPS, monitoring, and refrigeration cabinets are integrated to save space.
- Engineering free design, free decoration and wiring, remoteoperation and maintenance are not on duty, saving TCO.

### Intelligent Management

- The monitoring system is extensible and compatible with third-party monitoring systems; friendly HMI.
- Support local and remote WEB interface access, SMS alarm function.

## ● One-stop integration to simplify design and deployment



## ● Applicable Scene

- Computer rooms of medium and small enterprises, large enterprises, government branch offices.
- Financial business offices, communication business halls and base stations.
- Commercial retail institutions, tourist attractions.
- Gas stations, toll stations, smart buildings.
- Grassroots public security agency, government agency.

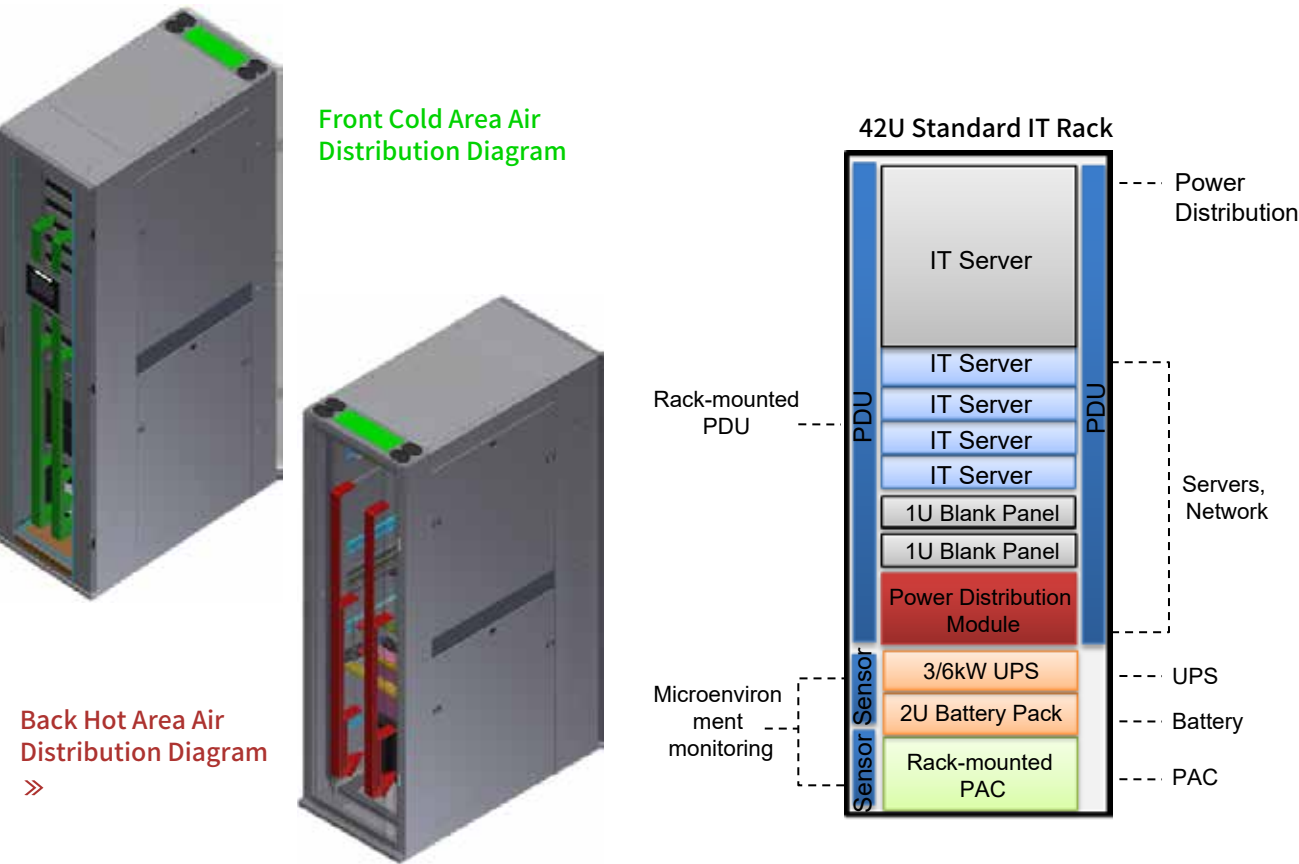
## ● Floor area

The overall area of a single cabinet is  $0.72\text{m}^2$ , which is suitable for computer rooms within  $10\text{-}20\text{m}^2$ , such as small archives.

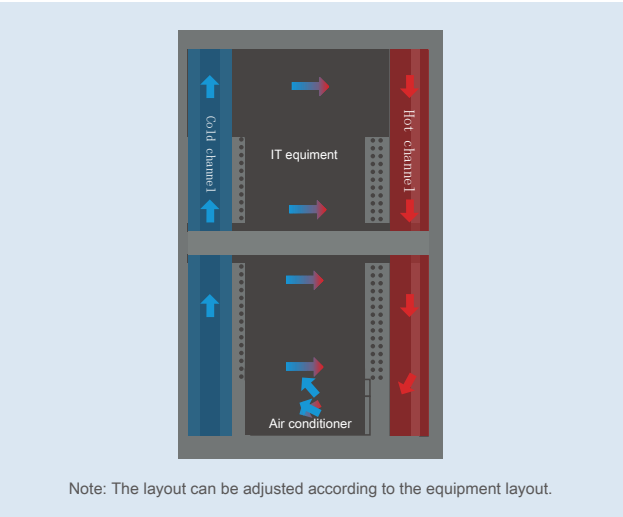
## ● System Capacity

Capacity of single cabinet  $\approx 3\text{-}5\text{kVA}$

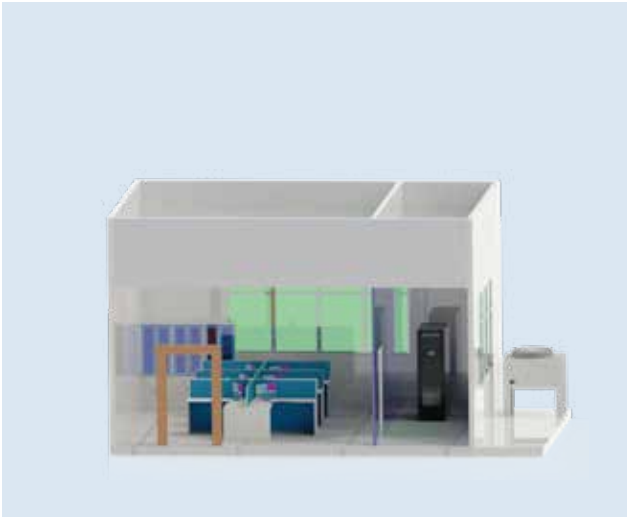
● Product Layout Diagram



● Airflow Reference Chart



● Application Scenario



● Product Parameters

Project		Description	42U
Overall Parameters		Power Supply System	220Vac, 50Hz, 1Ph+N+PE
		Operating Temperature	0~40℃
		Humidity Range	5~95%
		Altitude	0-4000m(derating required above 1000m)
Certifications		Certificates	3C、Taier
Cabinet System		Cabinet Dimensions:WxDxH(mm)	600×1200×2000
		Cabinet Composition	Single Control Cabinet
		Cold and Hot Aisles	Dual-closed Cold and Hot Aisles
Available Equipment Space		Available Space	30U(Single Battery Pack)
Power Distribution System	System Input	Input Main Switch	32A
	System Output	Output Circuits	AC Mains Output: 4×16A/1P, UPS Output: 3×16A/1P; 2×10A/1P; DC: 12V×2
	UPS	Capacity	3KVA
		Configuration	Single UPS
		Power Factor	0.8
		Efficiency	90%
	PDU	Installation Method	Vertical Installation
		Type	GB Standard
		Configuration	GB:12×10A
	Battery Pack	Capacity	9AH
		Quantity	0~4
	Standby Power	Standby Power Method	Battery Pack / Battery Rack / Battery Cabinet
	Battery Cabinet	Standby Power Time	15min ~4 hours
Monitoring System		Integrated Monitoring Unit	10-inch Touch Screen
		SMS Alarm	Optional
		Dazzling Lights	Standard
		Water Leak Sensor	Standard
		Temperature and Humidity Sensor	Standard
		Door Magnetic Sensor	Standard
		Smoke Sensor	Standard
Cooling System	Air Conditioner	Cooling Capacity	3.5KW
		Category	Rack-mounted Inverter
		Operating Voltage	220V
	Emergency Ventilation	Heat Dissipation Capacity	3KW
		Operating Voltage	220V
Dimensions / Weight		Packaging Dimensions:WXDXH(mm)	734×1360×2200
		Net Weight	142Kg (excluding battery pack)
		Battery Pack Weight	27Kg

# Row Modular Data Center



## ● Product Description

The single row cabinet data center integrates all needed equipment into cabinet with closed hot and cold aisle, kinds of sensors monitored and managed by power and environment system, which standardize the whole data center to smaller space, comes with remote intelligent controlling, provides safe and reliable operation environment. No need for professional engineer maintenance which simplify construction, operating and maintenance.

## ● Product Features

### Safe and Reliable

- All components follow domestic and international standardized production standard to ensure product quality.
- Pre-installation, pre-commissioning and other process are controlled at various levels to ensure product installation and operation safe and reliable.
- Integrated design, improving overall system reliability.
- Intelligent pop-up door system ensure the continuous operation of the system effectively.
- Redundant design, integrated intelligent monitoring system, ensure the safe and reliable operation of the computer room.

### Easy Installation

- Engineering free design, suitable for various scenes, install rapidly.
- Modular design of power distribution, hot-swappable, easy installation and maintenance.
- The system does not need special decoration treatment, the equipment is ready to use. Installation and commissioning cycle only need 4-6 hours.
- A single cabinet is a complete system, which can be easily and quickly expanded to 16 cabinets side by side.

### Efficiency and Energy Saving

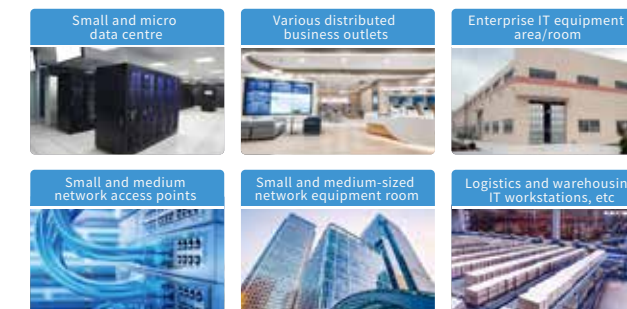
- Array/rack mount refrigeration, precise cooling, greatly improve cooling efficiency, compared with traditional energy saving 25%. computer room
- The system adapts N+X online high-efficiency modular UPS, equipped with intelligent sleep function making system save more energy.
- Remote operation and maintenance, human-free design, saving TCO.
- Closed hot and cold aisles, and effective cooling, realize air inner circulation to reduce operating costs.

### Intelligent Management

- Intelligently monitor power supply and environment status.
- Instant and real-time alarm through various ways (SMS, sound and light, e-mail, phone).
- The monitoring system is compatible with many parts (screen, remote APP, local LCD, remote WEB); Friendly HMI.
- Provide kinds of interface (ModbusTCP, MQTT, SNMP), easy to system integration.

## ● Applicable Scene

Computer rooms of medium and small enterprises, government branch offices, commercial, medical, education, power, communication and other scenes.



## ● Floor area

The overall area of a single cabinet is 0.9m<sup>2</sup>, which is suitable for computer rooms within 20-60m<sup>2</sup>

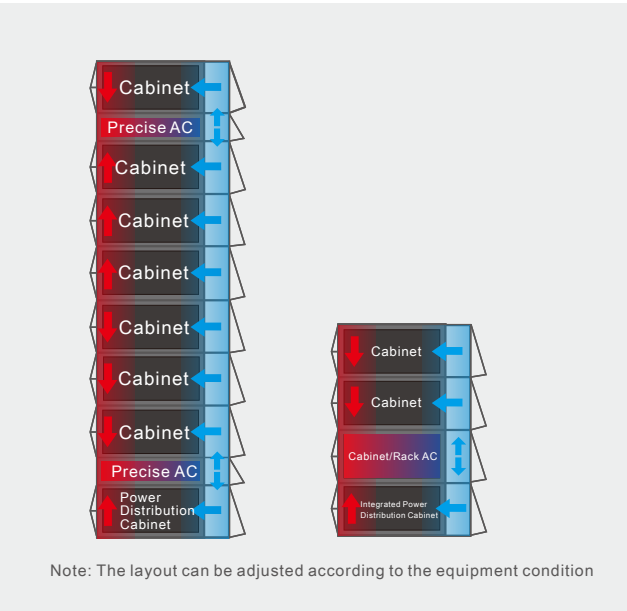
## ● System Capacity

Capacity of single cabinet ≈ 3~7kVA

## ● Structure and Composition



● Airflow Reference Chart



● Application Scenario



● Product Parameters

Project		Description	42U (N, N=3-9 cabinets)
Overall Parameters		Power Supply System	380Vac, 50Hz, 1Ph+N+PE
		Operating Temperature	0~40℃
		Humidity Range	5~95%
		Altitude	0-4000m(derating required above 1000m)
Certifications		Certificates	3C、Taier
Cabinet System		Cabinet Dimensions:WxDxH(mm)	600×1200×2000 (Single)
		Cabinet Composition	Control Cabinet + IT Cabinet + Battery Cabinet (Optional)
		Cold and Hot Aisles	Dual-closed Cold and Hot Aisles
Available Equipment Space		Available Space	42UX(N-1), specific available space depends on configuration
Power Distribution System	System Input	Input Main Switch	63~125A
	System Output	Output Circuits	Configured according to user requirements
	UPS	Capacity	6-30KVA
		Configuration	6-10KVA:single UPS;20-30KV:double UPS
		Power Factor	6-10KVA:0.8;20-30KVA:1
		Efficiency	92%-94.5%
	PDU	Installation Method	Vertical Installation
		Type	GB Standard
		Configuration	GB:16X10A+4X16A
	Battery Pack	Capacity	9AH
		Quantity	0~4
	Standby Power	Standby Power Method	Battery Pack / Battery Rack / Battery Cabinet
Battery Cabinet	Standby Power Time	15min ~4 hours	
Monitoring System		Integrated Monitoring Unit	10-inch Touch Screen
		SMS Alarm	Optional
		Dazzling Lights	Standard
		Water Leak Sensor	Standard
		Temperature and Humidity Sensor	Standard
		Door Magnetic Sensor	Standard
		Smoke Sensor	Standard
Cooling System	Air Conditioner	Cooling Capacity	12.5KW
		Category	Rack-mounted Inverte or in-row
		Operating Voltage	380V
	Emergency Ventilation	Heat Dissipation Capacity	3KW
		Operating Voltage	220V
Dimensions / Weight		Packaging Dimensions:WXDXH(mm)	734X1360×2200(Single)
		Net Weight	142Kg(control cabinet);100Kg(IT cabinet)
		Battery Pack Weight	48Kg

● The Difference With Traditional Solution

	Single Row Data Center	Traditional Data Center
Design	Pre-commissioning in dustry, put into use directly	Different supplier coordinate
Power Distribution	Rack mount, modular, including thunder protection	Isolated design, installation without thunder protection
Installation	Distributed wiring, integrated in dustry, modular	Long construction period, design on site, lack of reliability
Scalability	All components are modular, module number can be adjusted	Lack of expandability
Construction Time	4-6 hours	40 days(including decoration)
Appearance	Unified and harmonious appearance	Hard to unified size/color
Dustproof	Totally enclosed system, IP5X,targeted protection of core equipment	Not avaiable(high cost of dustproof)
Cooling Efficiency	Enclosed hot and cold air channel, cooling by the nearest AC, improve cooling efficiency	No isolation of hot and cold air channel, low utilization
Noise	<45dB(A)	>65dB, not suitable for human long-term work
Monitoring System	Local and remote monitoring, human-free	Isolated monitoring equipment, different interface,incompetible
Client Interface	Embeded Linux system, long-term operation safe and steady, graphical interface, easy management	Industrial PC, easy to crashing, monitor interface incompetible
Emergency solution	Emergency pop-up door, make good use of room to dissipate heat, maximize the time of emergency operation	Not avaiable
Service	Unified brand and service, full service during the life of product	Different guarantee period service interface and phone number



# Cold/Hot Aisle Modular Data Center



## ● Product Description

The single row cabinet data center integrates all needed equipment into cabinet with closed hot and cold aisle, kinds of sensors monitored and managed by power and environment system, which standardize the whole data center to smaller space, comes with remote intelligent controlling, provides safe and reliable operation environment. No need for professional engineer maintenance which simplify construction, operating and maintenance.

## ● Product Features

### Safe and Reliable

- All components are manufactured according to international and domestic standards to ensure product quality;
- Data center productization, productization reliability up to 99.999%. Adopt integrated design to enhance the overall reliability of the system;
- Redundant design of key components to improve system reliability;
- The data center power distribution and cooling system is designed according to the international class A server room (international standard Tier Iv level);
- Integrated intelligent monitoring system, early warning of key data to ensure the safety of server room operations reliable.

### Easy Installation

- Standardized components, modular architecture, and rapid on-demand deployment to match your business;
- No need for professional machine room, it can be installed directly on the concrete floor of the building, reducing the supporting engineering;
- The products are standardized, modular, plug-and-play, and easily installed, greatly reducing the installation cycle.

### Efficiency and Energy Saving

- The average annual PUE can be reduced to 1.30;
- The use of in-row air conditioner cooling, and closed cooling space to achieve precise cooling near the server side, greatly improves the efficiency of cooling, compared with the traditional server room can save energy by more than 35%;
- N+X high-efficiency online modular UPS with intelligent sleep function to save more energy;
- High density deployment, single cabinet up to 10kW;
- Integrated power supply and distribution, space saving, 1-2 more equipment cabinets can be deployed;
- Remote O&M is unattended, saving TCO.

### Intelligent Management

- Intelligent monitoring of the working status of power and environmental systems;
- Intelligent lintel, visual display of key information, easy operation and maintenance;
- Real-time alerts can be made in time by SMS, telephone, email, sound and light, etc;
- Provide a variety of human-machine interaction methods such as operation and maintenance of large screen, remote APP, local LCD, and remote WEB;
- Provide a variety of northbound interfaces such as ModbusTCP, MQTT, etc. for easy system integration.

## ● Applicable Scene

Large-scale data center, campus data center and other core business server room, suitable for Government, medical, education, finance, telecom and other leasing and self-use businesses.



Communication



Commercial



Medical



Education



Government



Power source

## ● Applicable Power

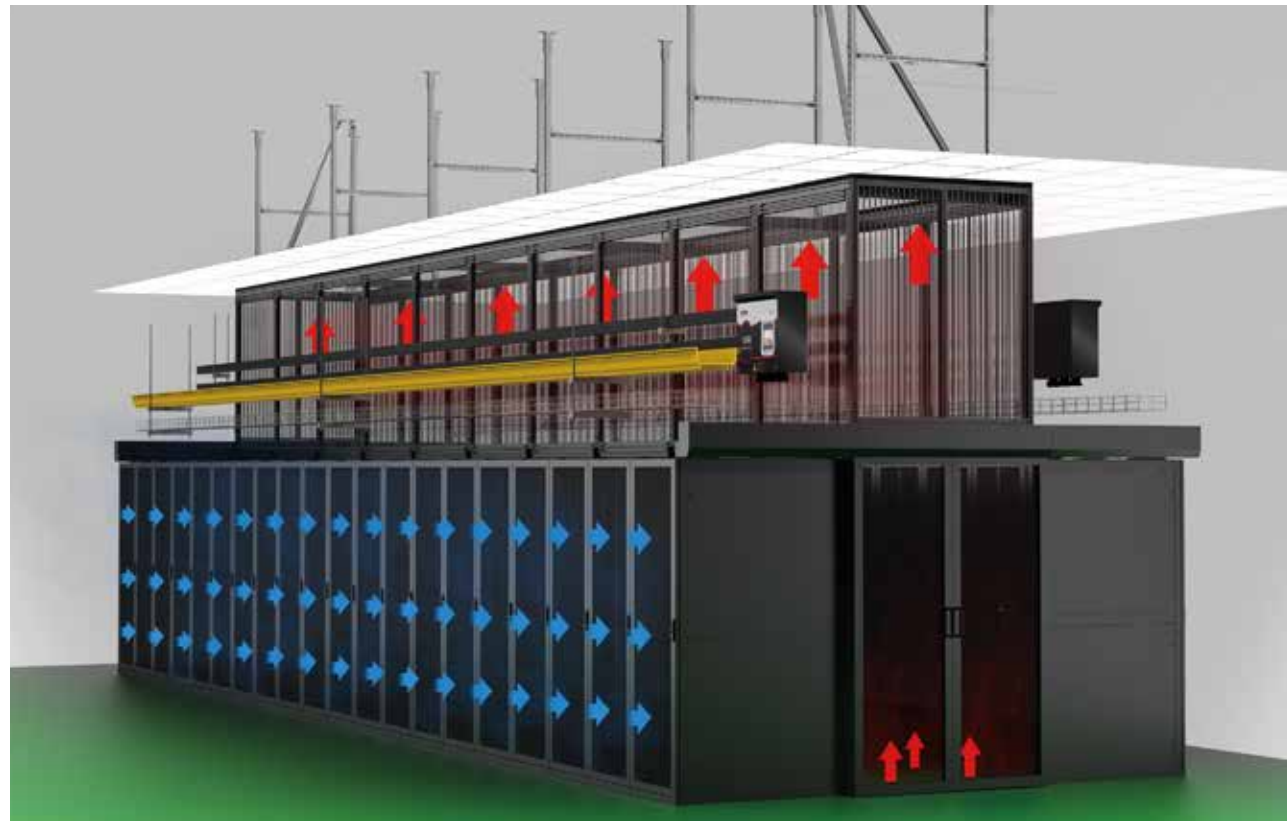
The maximum supported power of a single cabinet is 10kW per cabinet. And it supports up to 50 cabinet which includes air conditioner and power distribution cabinet.

## ● Structure and Composition

The modular data centre consists of five major systems, namely, the cabinet system, the power distribution system, the air-conditioning system, the monitoring system and the cabling system, as illustrated below:



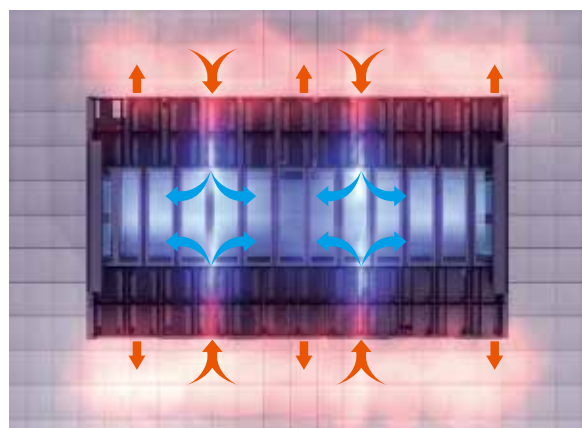
## ● Micro-module Enclosed Hot Aisle



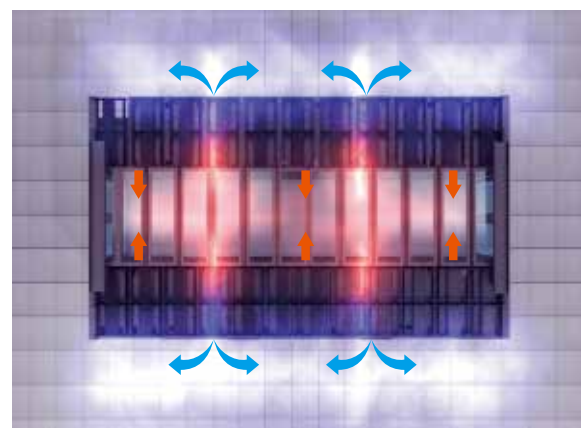
The micro-module data center consists of the cabinet system, lighting system, power supply and distribution system, monitoring system, and integrated wiring system. Each system operates independently yet is managed in a unified manner, featuring high efficiency and energy conservation, as well as being easy to expand and upgrade. The monitoring system can achieve remote management functions.

The enclosed aisle adopts a ceiling return air design, effectively separating the replacement of cold and hot airflows, which has a remarkable energy-saving effect. With an integrated product design and factory prefabricated installation, it greatly shortens the project duration. It is suitable for large-scale IDC data centers.

## ● Cold/hot Aisle Enclosed System

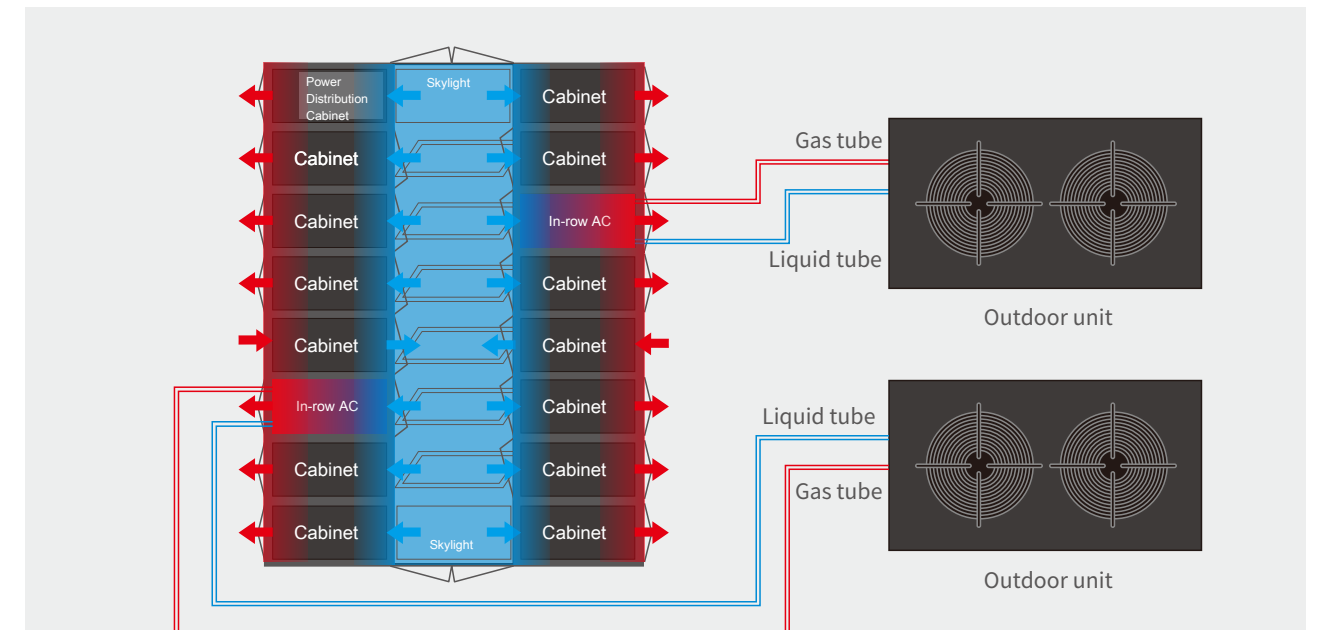


Cold aisle



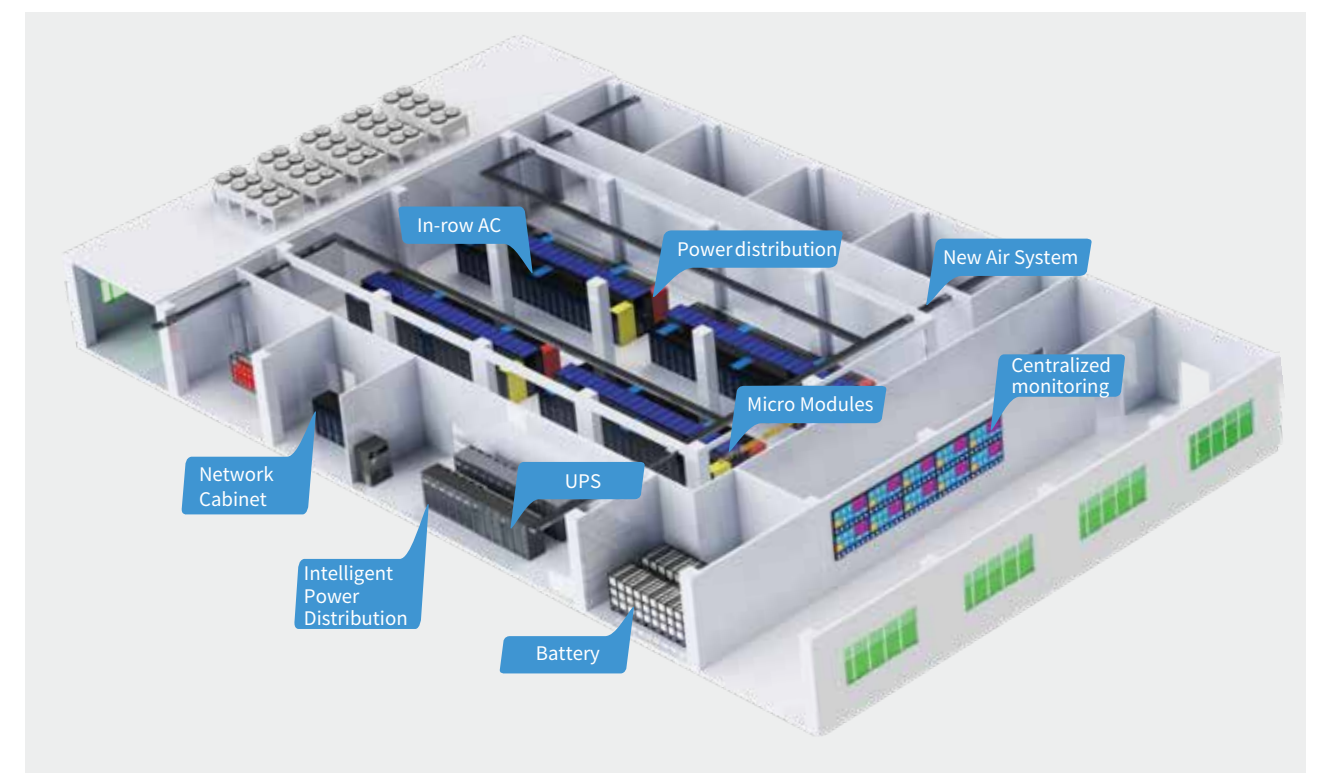
Hot aisle

## ● Air Flow Organization Reference Chart



When the outdoor unit is higher than the indoor unit: the vertical height difference between indoor and outdoor units should not exceed 20m; when the indoor unit is higher than the outdoor unit: the vertical height difference between indoor and outdoor units should not exceed 5m. The equivalent length of one way pipeline should not exceed 30m, please contact with professional engineers for more information!

## ● Integrated Data Center Application Scenario Diagram

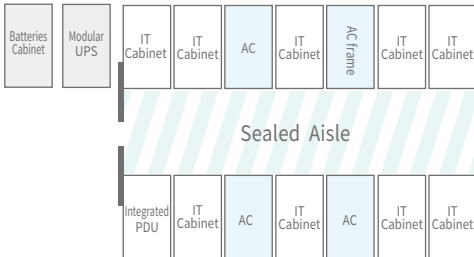
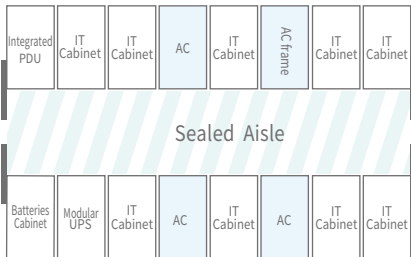
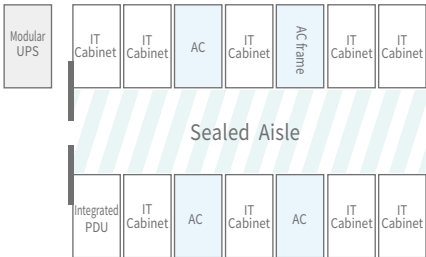
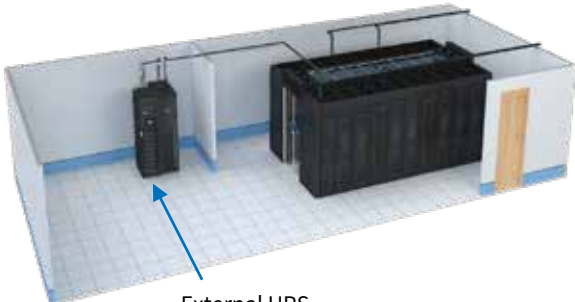
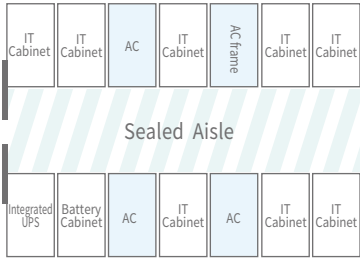
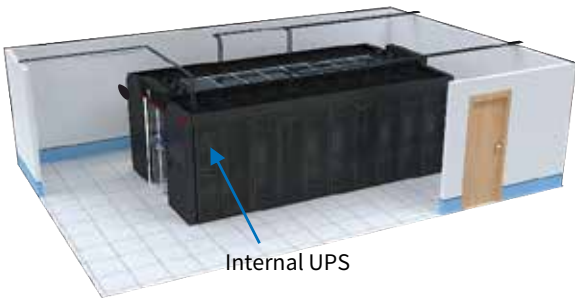




● Product Parameters

			Parameters
System	Dimensions(W*D*H)		3600*L*2600mm (L≤15000mm)
	IT rated power/cabinet		3~10 KW
	Door Specifications		Automatic sliding doors/manual sliding doors/pull-out doors
	Intelligent Lighting		LED white light, intelligent color ambient light, linkage with monitoring system.
	Access Control System		Support face/fingerprint/password/IC and other methods can be selected
	Ambient temperature		0-45℃
	Ambient Humidity		10-95%, Relative Humidity
	Protection class		IP20
	Altitude		1000 m, more than 1000 m need to be derated.
	Installation method		Direct concrete floor installation / Raised floor installation
Cabinet	Dimensions(W*D*H)		600/800*1200*2000mm
	Available Space		42U
	Inlet method		Support up/down wire feed
Power Distribution System	Power Distribution Cabinet	Input method	Single circuit MCCB/Dual circuit ATS
		Grid system	380/400/415Vac, 50/60Hz
		Specification	63~400A
		SPD	B/C class optional
		Type	Integrated UPS distribution cabinet/precision distribution cabinet/intelligent busbar
	UPS	Capacity	Built-in maximum 200kVA, external 200kVA or more
		Input Freq.	40-70Hz
		Output PF	1
		Battery	Built-in cabinet type battery cabinet or external battery cabinet
	PDU	Ordinary Type	[National standard 12-bit 10A + 3-bit 16A]*2
		Smart Type	24-port intelligent PDU (optional)
Cooling System	Air Conditioner Capacity		12.5~60 KW
	Cooling method		Air-cooled
	Refrigerant		R410A
Monitoring System	HMI		21.5 inch touch screen
	System Functions		RemeWEB/Centralized monitoringof power,environment, video, access control system/Northbound interfaceote
	Monitoring accessories		Smoke sensor/T&H sensor/water flood sensor/infrared sensor/webcam/access control/fire linkage
	Alarm method		E-mail / SMS, Audible and visual alarm, Telephone Voice, APP(optional)

● Typical Configuration



# Container Data Center Solution



## ● Product Description

The containerized outdoor prefabricated data center solution supports various ISO standard container specifications, meeting the land and maritime transportation needs worldwide. It has excellent protection capabilities and can adapt to a variety of outdoor application scenarios. The container integrates key IT infrastructure such as racks, UPS power supply and distribution systems, integrated precision air conditioners, monitoring systems, cabling systems, security systems, fire protection systems, and lighting systems. It can be plugged and used immediately on-site. It supports in-depth customization to meet the specific requirements of various application scenarios.

## ● Product Features

### Safe and Reliable

- All components follow domestic and international standardized production standard to ensure product quality.
- IP55 protection, with excellent waterproof performance, suitable for a variety of complex scenes.
- Redundant design of key components to improve system reliability.
- Integrated video, access control and intelligent monitoring management system to ensure safe and reliable equipment operation.

### Rapid Installation

- Power supply and distribution, air conditioner, cabinets system, closed access, monitoring system and fire protection system are factory prefabricated and pre installed, plug-and-play.
- Standard container, in line with domestic and international sea and land transportation conditions, worldwide reachable.
- No need for professional server room, can be installed directly on the concrete floor of the building or outdoor, simple and fast.

### Efficiency and Energy Saving

- All-in-one design, hot and cold aisle isolation, fully enclosed design, improve the efficiency of cooling capacity and save energy.
- Adopt full inverter precision air conditioner, output cooling capacity on demand, precise cooling and save more energy.
- Adopt energy-efficient modular UPS with intelligent sleeping function, more energy-saving.
- Integrated design of power distribution cabinet and UPS, saving space..

### Intelligent Management

- Intelligently monitor the working status of power and environmental system.
- Real-time alerts can be made in time via SMS, telephone voice, email, sound and light.
- Provide a variety of human-machine interaction methods such as O&M screen, remote APP, local LCD and Web.
- Provide ModbusTCP, MQTT and other northbound interfaces to facilitate system integration.

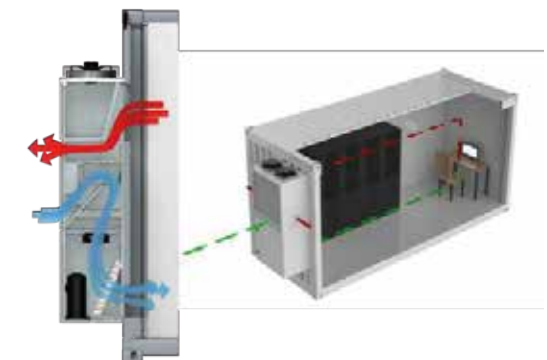
## ● Applicable Scene

Large-scale data center, campus data center and other core business server room, suitable for Government, medical, education, finance, telecom and other leasing and self-use businesses.

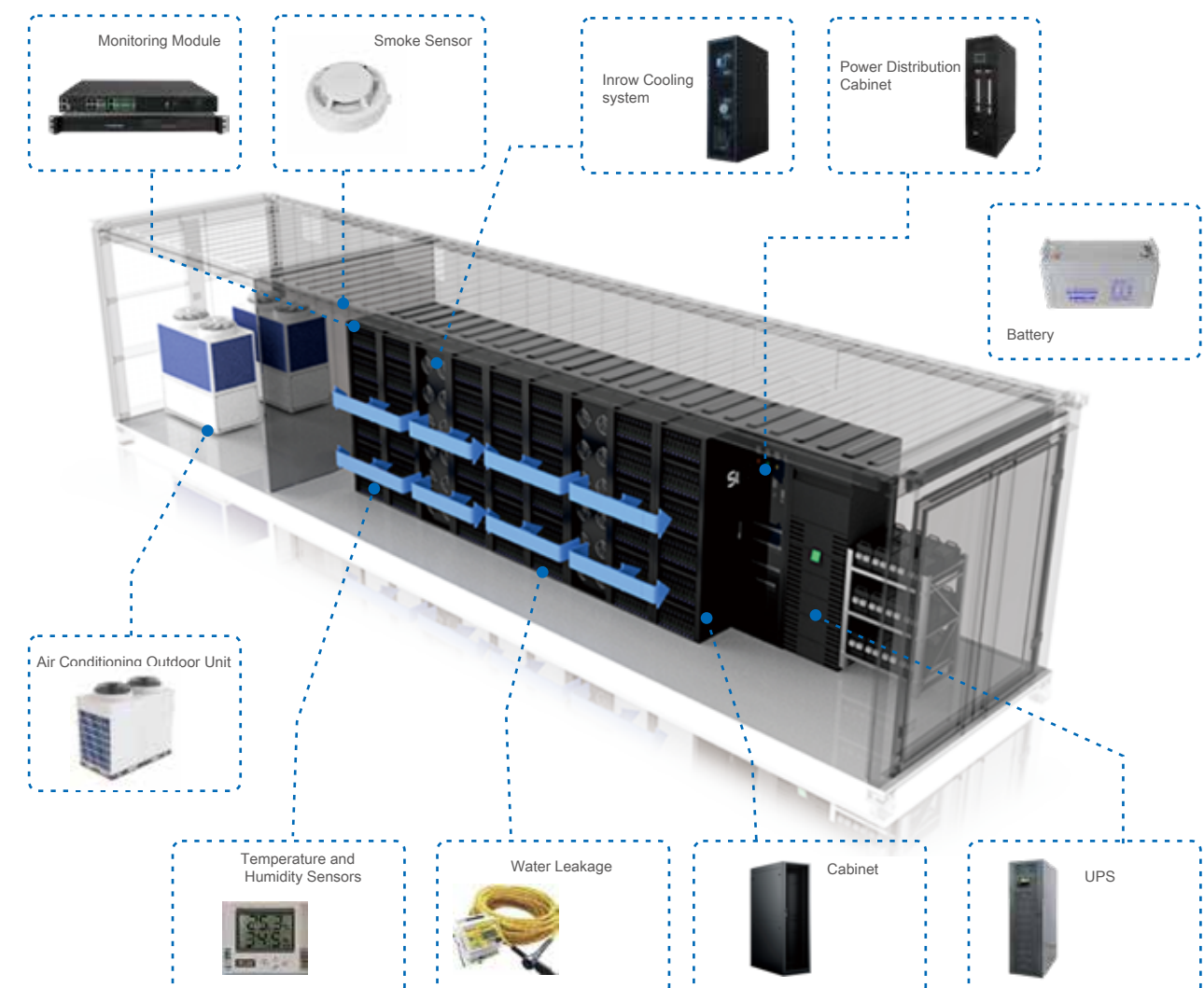
## ● Green Free Cooling Systems

Indirect Free Cooling with Refrigerant Pump Technology

- PUE low to 1.2
- Peak EER goes upto 28.9 in cooler seasons.
- Independent internal and external loops,no dust / moisture concern.



## ● Structure and Composition



● Flexible Expansion

With its highly professional R&D and manufacturing capabilities, We can customize container data center for customers. Including system availability, protection capabilities, cabinet size, power supply system, cooling type and other special requirements.



Product Parameters	ICDC20	ICDC40
Container Size	20'HQ	40'HQ
Rack Specification	600*1000*2000	600*1000*2000
Single Rack Capacity	42U	42U
Rack Quantity	4pcs	4pcs
Single Rack Max. Capacity	6KW	6KW
IT Equipment Total Capacity	24KW	48KW
UPS	25KVA*2 N+1 Modular UPS	25KVA*3 N+1 Modular UPS
Monitoring System	10 Minutes	10 Minutes
Cooling Pattern	Inrow Air Condition	Inrow Air Condition
Monitoring System	YES	YES
Door Security System	YES	YES
Fire alarm and gas fire extinguishing system	YES	YES
Video Monitoring System	YES	YES
EPO	YES	YES
Transportability	Support	Support
Stackable	Support	Support
Application	Outdoor Type	Outdoor Type
Diesel Generator Module	Extra Position	Extra Position

# DCIM Monitoring System

● Monitoring Interface

It has a good human-computer interaction interface and touch performance, supports multiple terminals, can be accessed through a WEB browser, and can access the system after security authentication. Intelligent linkage strategy, multi-channel control (local, Web page, mobile APP), diversified alarm options (sound and light, SMS, voice, email), supports multi-site centralized monitoring management, and real-time uninterrupted monitoring of equipment operation.



● Three Interactive Experiences

