

FusionModule2000

Smart modular DC

INTRODUCTION

Huawei FusionModule2000 is a new generation smart modular data center solution, which dedicated to providing customers with simple, efficient, and reliable data center solutions.

It's a modular-designed, highly integrated solution which comprises power supply, cooling, rack & structure, cabling and management system within a module, meeting the requirements for quick delivery and on-demand deployment.

Furthermore, the Huawei smart module uses the i3 intelligent management to comprehensively improve the reliability and efficiency of power supply and cooling system. This significantly improves data center availability and O&M efficiency.

APPLICATION SCENARIOS

- The FusionModule2000 uses an air-cooled cooling system and is mainly applicable to small- and medium-sized data centers. The solution features simple design and high building adaptability, lowering the requirements of room height and reconstruction. It meets the data center deployment requirements of various sectors such as enterprise headquarters and large branches, bank headquarters and secondary branches, governments, carriers, education, and healthcare.

FEATURES & VALUE

Simple

- Modular design, one module one DC, on-demand deployment and flexible expansion

Green

- iCooling intelligent optimization*, reducing the energy consumption of cooling system by 8% to 15%
- SmartLi Inside* supports Huawei smart lithium batteries deployed in the module. Compared with traditional lead-acid batteries, footprint is reduced by 70% under the same load and same backup time
- Wet film humidification*: Compared with traditional electrode humidifiers, wet film humidifiers reduce energy consumption by 95%
- Industry's first air-cooled smart modular DC PUE test and certification, the annual average PUE is as low as 1.111 @Beijing

Smart

- iManager: Space, Power, Cooling (SPC) visualization, automatic asset management simplified O&M
- 3D view* clear display of key information and alarms about power distribution and cooling system, automatic management of assets*, automatic asset tracking, and no manual counting
- Local 43-inch smart screen* intuitive display of intelligent features, simplifying O&M

Reliable

- iPower: Visualization of power supply chain, fault auto-locating and auto shutdown for proactive protection
- SmartLi Inside*: Three-layer BMS ensure the reliability of lithium batteries
- Innovative intelligent refrigerant leakage detection prevents cooling capacity decrease or air conditioner breakdown



Standard Dual-row



Standard Dual-row
Smart Screen Version*



Simplified Single-row

SPECIFICATIONS

Item	Specifications	
Micro Module	Dimensions	Single row (with aisle containment) (L×W×H): L×2400×2410mm; L×1350×2000mm; L×1600×2000mm Dual row (with aisle containment) (L×W×H): L×3600×2410mm; L×3400×2410mm; L×3600×2610mm
	Cabinets per module	Single row≤24 cabinets; dual row: ≤48 cabinets
	Power supply	380/400/415VAC, 50/60Hz, 3Ph+N+PE
	Max IT load per module	180kW (with integrated UPS)/ 145kW (with integrated PDC)/ 310kW (with New main way)/ 310kW (with precision PDC)
	Operation condition	Ultra low temperature condition: -40°C to 45°C(Need low-temp kit) T1 condition: -20°C to 45°C; T3 condition: -5°C to 55°C(Need T3 outdoor unit)
	Cable routing	Routed in/out through the top of cabinets
Cabinet	Installation	Installing on concrete floor or raised floor
	Dimensions (H×W×D)	2000mm×600/800mm×1200mm; 2000mm×600mm×1100mm; 2200mm×600/800mm×1200mm
	Space available	42U/47U
	Cabinet Porosity	Front and rear doors: hexagonal mesh door design, porosity rate ≥75%
Air-cooled In-row air conditioner	Protection level	IP20
	Cooling capacity	25kW/35kW/46kW、65kW
	Dimensions (H×W×D)	25kW:2000mm×300mm×1100mm; 35kW:2000mm×600mm×1200mm; 46kW/65kW:2000mm×600mm×1200mm; (Simplified Single-row can only support 46kW)
	Power supply	380/400/415VAC, 50/60Hz, 3Ph+N+PE
	Refrigerant	R410A
	Integrated UPS (UPS inside)	Input voltage
Input		250A/400A/630A MCCB (single input); 250A/400A ATS (dual input)
Input power factor		Full load > 0.99, Half load > 0.98
Output power factor		1.0
Rated capacity		30~125kVA: IT Load ≤ 120 kW, power modules ≤ 4, the capacity of a single power module is 30kVA IT Load > 120 kW, power modules ≥5, the capacity of a single power module is derated to 25kVA 180kVA:Supports a maximum of seven 30 kVA power modules in 6+1 redundancy mode
Output		IT: 40A/1P×24×2; A/C: 40A or 63A/3P×8; lighting: 10A/1P×3
Efficiency		≥ 96% (Linear Load)
Integrated power distribution cabinet (UPS outside)	AC SPD	20kA, 8/20μs
	Input voltage	380/400/415VAC, 50/60Hz, 3Ph+N+PE
	Input	IT: 160A/250A MCCB; A/C: 160A/250A MCCB (single/dual input)
	Rated input current	IT: 160A/250A, Air conditioner: 160A/250A
Precision power distribution cabinet (UPS outside)	Output	IT: 2×24×40A/1P; 2×24×63A/1P; 2×8×40A/3P; A/C: 40A/3P×8 or 63A/3P×8 ; lighting: 10A/1P×3
	AC SPD	20kA, 8/20μs
	Input voltage	380/400/415VAC, 50/60Hz, 3Ph+N+PE
Smart busway (UPS outside)	Input	160A/250A/400A/630A MCCB (single/dual input)
	Output	IT: 40A/1P, 63A/1P, 40A/3P, 63A/3P, max 144 routes
	Input voltage	380/400/415VAC, 50/60Hz, 3Ph+N+PE
SmartLi ST	Input	250A/400A/630A MCCB (single input)
	Output	IT: 40/1P, 63A/1P, 40A/3P, 63A/3P (6 branches in one Power Distribution Unit)
	Single Lithium battery cabinet	Contains 16 battery modules. Two battery strings are connected in parallel, and each battery string contains eight battery modules connected in series.
SmartLi LT	Number of Lithium battery cabinets	2N scenario: ≤ 6 battery cabinets; N+1 scenario: ≤ 3 battery cabinets
	Typical backup time	Recommended backup time: 10/15 minutes
	Single Lithium battery cabinet	Fully configured with eight battery modules. A single cabinet can be configured with 5-8 battery modules.
SmartLi LT	Number of Lithium battery cabinets	2N scenario: ≤ 6 battery cabinets; N+1 scenario: ≤ 3 battery cabinets
	Typical backup time	Recommended backup time: 30/60 minutes

Note: Intelligent mobility management is supported

FusionModule2000-S Single Row

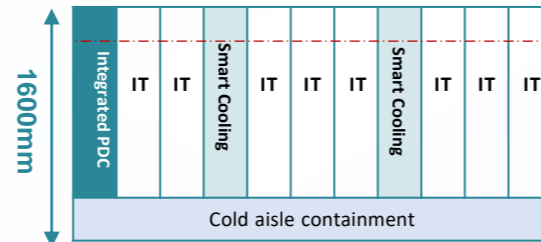
Smart modular DC

INTRODUCTION

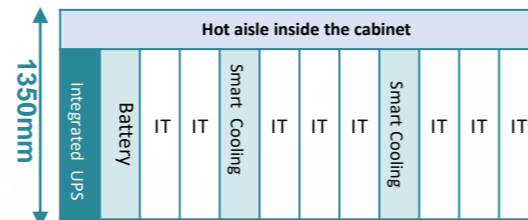
FusionModule2000-S is a new generation smart modular data center solution, which dedicated to providing customers with simple, efficient, and reliable data center solutions.

FusionModule2000-S adopts a modular design and integrates power supply, temperature control, cabinet, aisle, cabling, and monitoring system in a single row of aisles, meeting the requirements for quick delivery and on-demand deployment.

In addition, FusionModule2000-S uses i3 to build intelligent core subsystems and introduces AI technologies to implement intelligent linkage control of power supply and cooling, and automatically manages equipment room assets, significantly improving data center reliability, availability, and O&M efficiency.



Typical layout of the HPC scenario



Typical layout of the simplified MDC scenario

APPLICATION SCENARIOS

- High-density HPC supercomputing: 1600mm deep cold and hot aisle containment. Supports a maximum of 30 kW/R cabinet. A 900 mm deep server can be installed. It can be used in supercomputing applications in universities and research institutes.
- Simplified MDC: 1350 mm deep hot aisle containment, simplified design, aisle-free design, strong building adaptability, and applicable to most equipment rooms in harsh conditions such as small space and low floor height.

FEATURES & VALUE

Simple

- All-in-one design, one-stop fast deployment, flexible expansion
- The minimum deployment height is only 2.3 m.
- The 1350 mm deep aisle can be contained in the hot aisle, and the 1600 mm deep aisle can be contained in the cold and hot aisle.

Green

- Integrated cooling, power supply, and monitoring, SmartLi Inside* supports Huawei smart lithium batteries deployed in the module, saving 50%+ footprint compared with traditional solution.
- Cold and hot aisle containment, high environment adaptability.
- Low PUE: 30% lower PUE compared with the traditional DC.

Smart

- Vertical intelligent partitioning, precisely matching the heat dissipation of the IT equipment. Intelligent follow-up of air volume and cooling capacity, stable running without hot spots.

Reliable

- Support N+1 cooling system backup and 2N power backup, providing highly reliable power supply and cooling.
- Cold and hot aisle containment, automatic door opening in emergency, ensuring emergency heat dissipation.

SPECIFICATIONS

Item	Specifications	
Cabinet and Aisle	Dimensions (L×W×H)	L×1350mm×2000mm (with hot aisle containment) L×1600mm×2000mm (with hot and cold aisle containment)
	Power supply	380/400/415VAC, 50/60Hz, 3Ph+N+PE
	Cabinets per module	≤24 cabinets (Including power supply, cooling and battery cabinets)
	Operation condition	Ultra low temperature condition: -40°C to 45°C Need low-temp kit) T1 condition: -20°C to 45°C;
	Cable routing	Routed in/out through the top of cabinets
	Maintenance space	≥1350mm(front), ≥900mm(rear)
	Installation mode	Installing on concrete floor or raised floor
Air-cooled In-row air conditioner	Cooling capacity	46kW
	Dimensions(W×D×H)	600mm×1350mm×2000mm
	Power supply	380/400/415VAC, 50/60Hz, 3Ph+N+PE
	Recommended circuit breaker	63A/3P
	Power supply mode	Supports dual power supplies, Supports UPS power supply in HPC scenarios.
	AC configuration	N+1
	Air volume	9000m³/h@46kW
Air-cooled outdoor unit@T1 working condition	Length of water sensor	Standard 5 m (can be extended to 50 m)
	Refrigerant	R410A
	Power supply	380/400/415VAC, 50/60Hz, 3Ph+N+PE
	Dimension(W×D×H)	1356mm×1094mm×1107mm
	Net/gross weight (kg)	122/169
	Air volume	12000m³
	height deviation	-8~30m (If the outdoor unit is lower than the indoor unit, the value is negative.)
Monitoring/management system	Length of the pipe	0~100m (between indoor and outdoor unit)
	Management system	ECC800-Pro
	Power supply mode	Single/Dual
	Water leakage sensor	Standard configuration
	Smoke sensor	Standard configuration
	Access control	Intelligent electronic lock, fire extinguishing linkage, and automatic spring door
	Temperature sensor	Configure 1 PCS for each air conditioner, Cabinet-level temperature map is optional.
Mobile surveillance	Supports intelligent mobility management	
Integrated UPS	Rated capacity	60kW/125kW
	Input	250/400A MCCB (single input); 250A/400A ATS (dual input)
	Output	IT: 2×24×40A/1P, A/C: 8×40A/3P or 8×63A/3P, Lighting: 3×10A/1P
Integrated power distribution cabinet	Rated capacity	95kW/145kW
	Input	IT: 160/250A MCCB; A/C: 160/250A MCCB (single/dual input)
Precision power distribution cabinet	Output	IT: 40A/1P×24×2; 63A/1P×24×2; 40A/3P×8×2;A/C: 63A/3P×8 or 40A/3P×8 ; lighting: 10A/1P×3
	Rated capacity	95/148/235/310kW
New main way	Input	160/250/400A MCCB (single/dual input), 630A MCCB (single input)
	Output	40A/1P, 63A/1P, 40A/3P, 63A/3P, max 144 routes per rack
	Rated capacity	161kW@415VAC, 148kW@380VAC @ 250A MCCB 258kW@415VAC, 236kW@380VAC @ 400A MCCB 339kW@415VAC, 310kW@380VAC @ 630A MCCB
	Input	250A/400A/630A MCCB
	Output	40A,63A/1P x6 or 63A,40A/3P x 2