

FusionModule2000

Smart Modular Data Center Solution

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 system, cooling system, rack & structure system, cabling system, 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 system to comprehensively improve the reliability and efficiency of power supply and cooling systems. 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 or large branches, bank headquarters and secondary branches, governments, carriers, education, and healthcare.

FEATURES

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 1.245 @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*



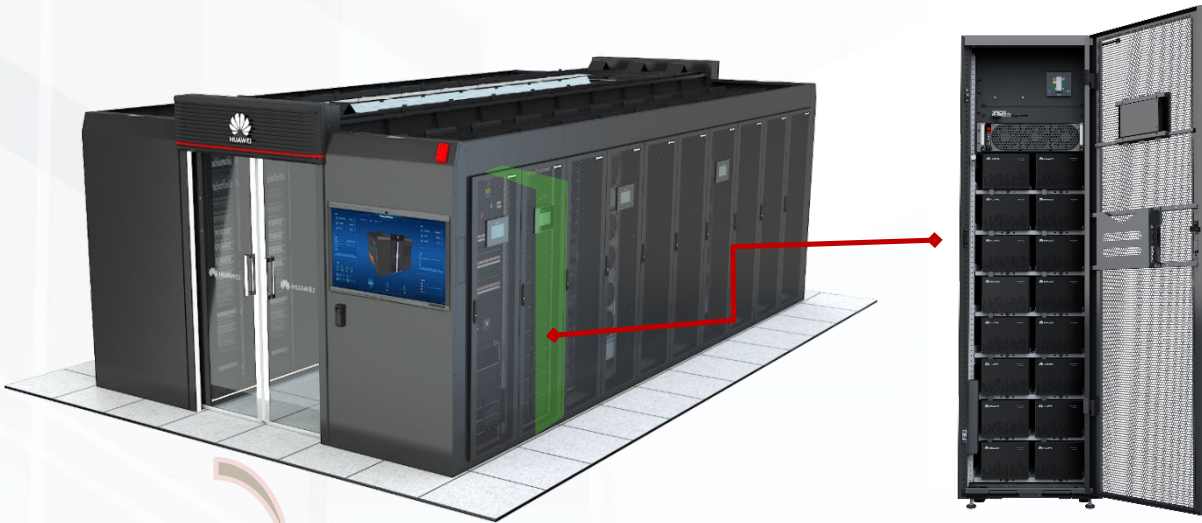
Simplified Single-row

*Optional Features

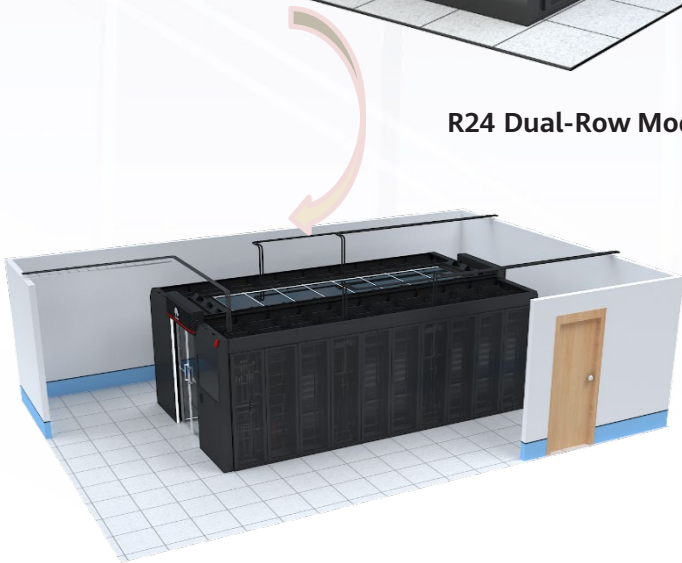
SPECIFICATIONS

Item	Specifications	
Micro Module	Dimensions	Single row (with aisle containment) (L × W × H): L × 2400 × 2410mm; L × 1350 × 2410mm; L × 1600 × 2300mm 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	125kW (with integrated UPS)/ 145kW (with integrated PDC)/ 310kW (with New main way)/ 235kW (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
	Installation	Installing on concrete floor or raised floor
	Cabinet	Dimensions (H × W × D)
Space available		42U/47U
Cabinet Porosity		Front and rear doors: hexagonal mesh door design, porosity rate ≥ 75%
Protection level		IP20
Air-cooled In-row air conditioner	Cooling capacity	25kW/35kW/46kW
	Dimensions (H × W × D)	25kW: 2000mm × 300mm × 1100mm; 35kW: 2000mm × 600mm × 1200mm; 46kW: 2000mm × 600mm × 1200mm; (Simplified Single-row can only support 46kW)
	Power supply	380V AC~415V AC 50/60Hz, 3Ph+N+PE
	Refrigerant	R410A
Integrated UPS (UPS inside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Input	250/400A 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
	Output	IT: 40A/1P × 24 × 2; A/C: 40A or 63A/3P × 8; lighting: 10A/1P × 3
	Efficiency	≥ 96% (Linear Load)
	AC SPD	5kA, 8/20μs
Integrated power distribution cabinet (UPS outside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Input	IT: 160/250A MCCB; A/C: 160/250A MCCB (single/dual input)
	Rated input current	IT: 160A/250A, Air conditioner: 160A/250A
	Output	IT: 40A/1P × 24 × 2; A/C: 63A/3P × 16; lighting: 10A/1P × 3
	AC SPD	20kA, 8/20μs
Precision power distribution cabinet (UPS outside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Input	160/250/400A MCCB (single/dual input)
	Output	40A/1P, max 144 routes
Smart busway (UPS outside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Input	250/400A MCCB (single input)
	Output	40/63A 1P (6 branches in one Power Distribution Unit, can be expanded with the length of cabinet)
SmartLi Inside	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.
	Number of Lithium battery cabinets	2N scenario: ≤ 4 battery cabinets; N+1 scenario: ≤ 2 battery cabinets
	Typical backup time	The backup time can be 15 minutes, 30 minutes, or 1 hour

Recommended Configurations—UPS Inside the Module



R24 Dual-Row Module with Lithium Batteries in Row



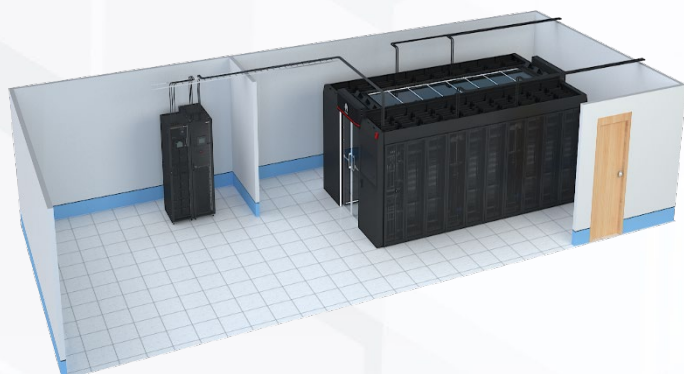
Dual-Row Cabinet Scenario

IT	IT	IT	IT	Smart Cooling	IT	IT	IT	Smart Cooling	IT	IT	IT	Smart Cooling	IT	IT	IT
Aisle Containment															
Integrated UPS	Battery cabinet	Battery cabinet	IT	Smart Cooling	IT	IT	IT	IT	IT	IT	IT	Smart Cooling	IT	IT	IT

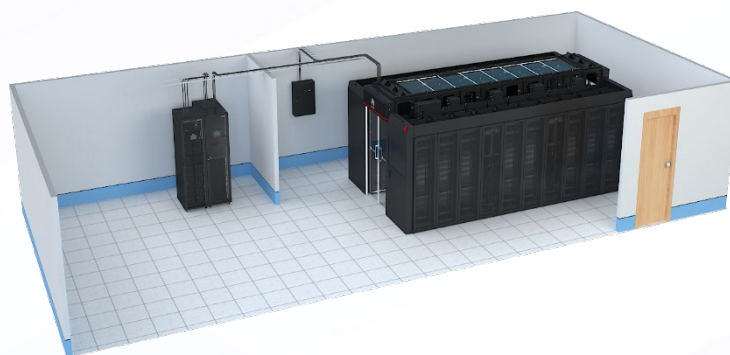
R24 Typical Layout of the UPS and Lithium Batteries in Row

IT Load (kW)	Power Supply	Redundancy	A/C Configuration	Battery
30	Integrated UPS	N+ 1/ 2N	25kW × 2	In-row (Battery cabinet)/Outside Installation
40			25kW × 3	
60			35kW × 3	
80			35kW × 4	
100			46kW × 4	
125			46kW × 5	

Recommended Configurations——UPS Outside the Module



UPS Outside the Module(Precision PDC)



UPS Inside the Module(Smart Busway)

IT	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT
R24-140kW (aisle)														
Precision PDC	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT

R24 Typical Layout of Dual-Row (Precision PDC)

IT	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT
R24-140kW (aisle)														
IT	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT	IT	IT	Smart Cooling	IT	IT

R24 Typical Layout of Dual-Row (Smart Busway)

IT Load (kW)	IT Power Supply	AC Power Supply	Redundancy	AC Configuration
20	Integrated PDC/ Precision PDC/Smart Busway	Integrated PDC/ Power Distribution Box	N+1/2N	25kW × 2
30				35kW × 2
40				25kW × 3
60				35kW × 3
90				35kW × 4
120	Smart Busway/Pre cision PDC	Power Distribution Box		46kW × 4
145				46kW × 5
160				46kW × 6
198				46kW × 6
235	Precision PDC			46kW × 7