Modular Data Center

FusionModule5000 Smart Modular Data Center

Introduction

HUAWEI FusionModule5000 is a new generation smart modular data center solution with complete integration of cabinets, power supply and distribution systems, cooling systems, cabling systems, management software, and other subsystems. It supports flexible deployment with single or dual row, cold or hot aisle containment. The maximum IT power can be up to 21kW/rack.

FusionModule5000 (Dual-row)

Application Scenarios

- Maximum IT power per module can be up to 310kW, which meet the requirements of large-scale data center for industries like ISP, government, education, healthcare, finance, telecom, etc.
- Designed for chilled water cooling scenarios.

FusionModule5000 (Single-row)

Features & Value

Reliable

- Single/dual power supply, Tier IV supportive, Precise monitoring of power branch temperature prevents fire caused by loose contact and overheat
- Water leakage monitoring keeps room away from flooding
- Ring network of monitoring system
- Warning of component expired, aging, damaged
- Optional aisle/cabinet-level door access keeps the data center safe

Efficient

- Closely coupled cooling to efficiently avoid partial hot spot, high-density deployment supportive
- Hot/cold aisle containment for isolation of hot and cold air
- Local/remote monitoring, PAD or cell phone mobile O&M

Simple

- Standardized devices, modular architecture, on-demand deployment
- Busway for power distribution is optional , easy installation

Specifications

Item	Specifications	
System	Dimensions	Single-row with aisle containment (LxWxH (IT cabinets)): Lx2400x2000mm, L≤15 m Lx2300x2000mm, L≤15 m Lx2400x2200mm, L≤15 m
		Dual-row with aisle containment (LxWxH (IT cabinets)): Lx3600x2000mm, L≤15 m Lx3400x2000mm, L≤15 m Lx3600x2200mm, L≤15 m
	Cabinet number per module	Single row: 2-24; Dual row: 6-48
	Power supply	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	IT power consumption per module	UPS inside: 112kW UPS outside: 310kW
	Maximum power per rack	21kW/R
	Availability	Tier II or Tier III (up to Tier IV)
	Altitude	0-4000m (derating above 1000m)
	Installation	Installed on concrete or base support
Cabinet	Dimensions (HxWxD)	2000mmx600/800mmx1200mm 2000mmx600/800mmx1100mm 2200mmx600/800mmx1200mm
	Space available	42U/47U
	Protection level	IP20
Chilled water In-row air conditioner	Cooling capacity	30kW
	Dimensions (HxWxD)	2000mmx300mmx1200mm
	Power supply	200~240V (1Ph, 50/60Hz)
	Refrigerant	Water/Ethylene Glycol
Integrated UPS (UPS inside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Input power factor	Full load > 0.99, Half load > 0.98
	Rated capacity	40~160kVA
	Efficiency	≥ 96%
	AC SPD	20kA, 8/20μs
Precision power distribution cabinet (UPS outside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Rated capacity	400/250/160A
	AC SPD	20kA, 8/20μs
	Output	16A/20A/32A/40A optional, max branches up to 144 (single phase), or 48 (three phase)
Smart busway (UPS outside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Rated capacity	250/160A
	Output	40A/1P (6 branches in one Power Distribution Unit, can be expand with the length of cabinets)

Modular Data Center

FusionModule2000 Smart Modular Data Center

Introduction

FusionModule2000 is a new generation smart modular data center solution. 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. The structure of the module can be single-row or dual-row, and support both cold/hot aisle containment.

Huawei FusionModule2000 is awarded World's First "Uptime Tier IV Ready" Certification.

FusionModule2000 (Dual-row)

Application Scenarios

- Designed mostly for small-to-medium sized data centers
- Suitable for enterprise HQ or large regional branch, operator, bank secondary branch, government, education, healthcare, etc.

FusionModule2000 (Single-row)

Features & Value

Reliable

- Circuit breaker terminal temperature detection enhance the reliability of power supply system
- Battery temperature detection & BCB auto shutdown help to prevent the risk of fire disaster
- 10% low-load dehumidification technology, avoid the risk of condensation
- POE ring circuit power supply & signal transmission for sensors and actuators can enhance the reliability of monitoring system

Simple

- Modular design and standard architecture provide fast installation and on-demand deployment
- Local PAD/ mobile APP/ NetEco Management System can significantly improve the efficiency of O&M

Efficient

- Closely coupled cooling system, inverter PAC and contained aisle bring high-efficiency operating
- AC group control function let the air-conditioners working at high-efficiency status, reducing power consumption

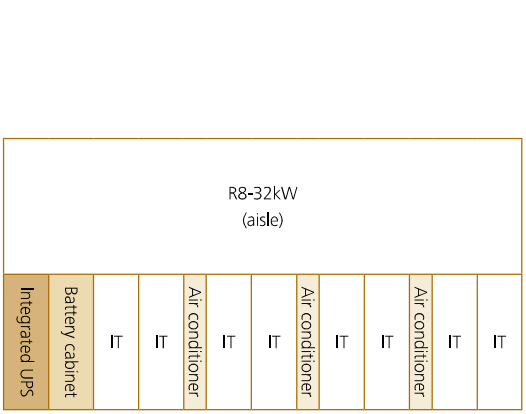
Specifications

Item	Specifications	
System	Dimension	Single-row with aisle containment (L×W×H): L×2400×2000mm, L≤15 m L×2300×2000mm, L≤15 m L×2400×2200mm, L≤15 m
		Dual-row with aisle containment (L×W×H): L×3600×2000mm, L≤15 m L×3400×2000mm, L≤15 m L×3600×2200mm, L≤15 m
	Cabinet number per module	Single row: 2-24; Dual row: 6-48
	Power supply	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	IT power consumption per module	125kW (with integrated UPS)/ 145kW (with integrated PDC)/ 235kW (with precision PDC)
	Operation condition	Ultralow temperature condition: -40°C to 45°C T1 condition: -20°C to 45°C T3 condition: -5°C to 55°C
	Availability	Tier II or Tier III (up to Tier IV)
	Altitude	0-1000m (derating above 1000m)
	Installation	Installing on concrete floor or raised floor
Cabinet	Dimensions (H×W×D)	2000mm×600/800mm×1200mm 2000mm×600/800mm×1100mm 2200mm×600/800mm×1200mm
	Space available	42U/47U
	Protection level	IP20
Air-cooled In-row air conditioner	Cooling capacity	25kW/42kW
	Dimensions (H×W×D)	2000mm×300mm×1100mm 2000mm×600mm×1100mm
	Power supply	380V AC~415V AC 50/60Hz, 3Ph+N+PE
	Refrigerant	R410A
Air-conditioner PDB	Rated voltage	380/400/415Vac
	Rated input current	160/250/400A
	Output	160A: 8×40A/3P+2×10A/1P+1×32A/1P 250/400A: 8×63A/3P+2×10A/1P+1×32A/1P
Integrated UPS (UPS inside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Input power factor	Full load > 0.99, Half load > 0.98
	Rated capacity	25~125kVA
	Output	IT: 160A/250A, 40A/1P×24×2, Air conditioner: 160A/250A, 40A/3P×8 or 63A/3P×8
	Efficiency	≥ 96%
	AC SPD	5kA, 8/20μ
Integrated power distribution cabinet (UPS outside)	Input voltage	380/400/415Vac, 50/60Hz, 3Ph+N+PE
	Rated input current	IT: 160A/250A, Air conditioner: 160A/250A
	Output	IT: 160A/250A, 40A/1P×24×2, Air conditioner: 160A/250A, 40A/3P×8 or 63A/3P×8
	AC SPD	20kA, 8/20μs
Precision power distribution cabinet (UPS outside)	Input voltage	380/400/415Vac,50/60Hz,3Ph+N+PE
	Rated input current	160/250/400A
	Output	40A/1P, maximum 144 routes
Smart busway (UPS outside)	Input voltage	380/400/415Vac,50/60Hz,3Ph+N+PE
	Rated capacity	250/160A
	Output	40A/1P (6 branches in one Power Distribution Unit, can be expanded with the length of cabinet)

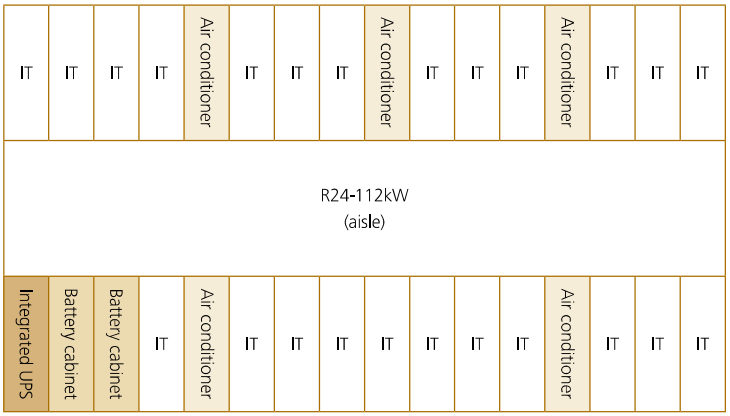
Recommended Configurations——UPS Inside

Single-row cabinet scenario

Dual-row cabinet scenario



R8 single row module typical layout



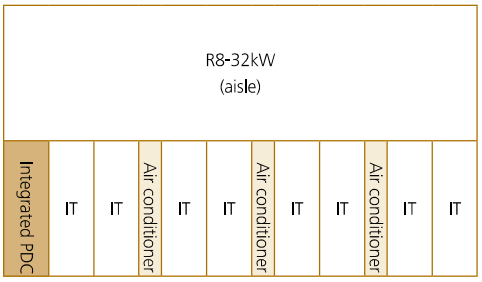
R24 dual row module typical layout

IT Load (kW)	Power Supply	Redundancy	AC Configuration	Battery
20	Integrated UPS	N+1/2N	25kW×2	In-row (Battery cabinet)/Outside Installation
40			25kW×3	
60			25kW×4	
80			42kW×3	
100			42kW×4	
125			42kW×5	

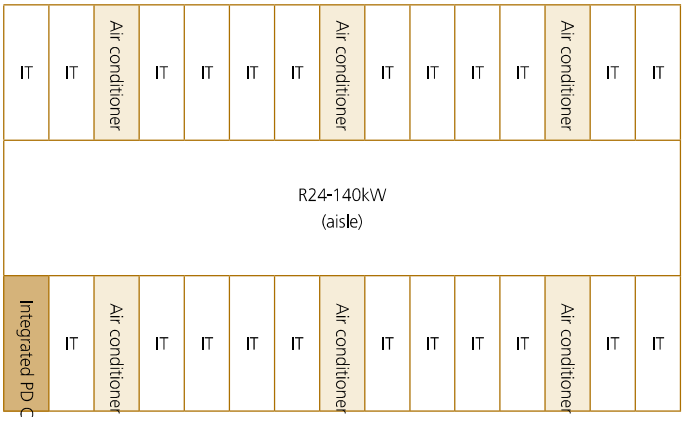
Recommended Configurations——UPS Outside

Single-row cabinet scenario

Dual-row cabinet scenario



R8 single row module typical layout



R24 dual row module Typical layout

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
40				25kW×3
60				25kW×4
80				42kW×3
120				42kW×4
145	Integrated PDC/Precision PDC			42kW×5
160	Precision PDC	Power Distribution Box		
200				42kW×6
235				42kW×7