

PM

SERIES

10-1560 kVA

3:3
PHASE

MODULAR ONLINE UPS



DATA CENTER



MEDICAL



TRANSPORT



INDUSTRY



EMERGENCY



UPS ONLINE



MODULAR SYSTEM



POWER FACTOR



SERVICE



HIGHLIGHTS

- High Performance, Modular 3-Phase Power Protection
- Scalable up to 1560kVA, with 96% High Efficiency

Modular UPS Design for High Density Data Centers

- PM Series is a scalable, redundant Modular UPS system designed to cost effectively provide high level availability for high density data centers and critical applications.
- True Online Double Conversion and advanced DSP control technology.
- Modular Architecture can scale power and runtime as demand grows or as higher levels of availability required.
- Combines the modular design with the N+X parallel redundancy technology.
- The maximum capacity of a single cabinet is 520kVA. Cabinets can operate in parallel configuration to build a system of up to 1560kVA.

CERTIFICATES



enjoy our power
get more energy

MAKELSAN®
Uninterruptible Power Supplies

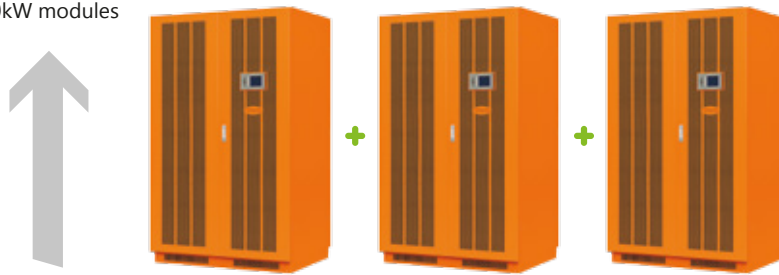
Scalable Modular Architecture

Scalable up to the highest active power rating available through two dimensional modularity: Vertical and Horizontal.

- Capacity of single power module is 10-15-20-25-30-40kVA
- The height of single hot swappable power module is 3U
- Standard 1.4m cabinet can hold up to 5 of power modules
- Standard 2m cabinet can hold up to 13 of power modules
- The single UPS cabinet capacity can reach 520KVA and Ups cabinets can operate in parallel configuration to build a system of up to 2080kVA

Modules	Output Power	Dimensions (WxHxD)	Weight
PM 3310-RM	10kVA 3/3 Module	443x131x580mm 3U	26kg
PM 3315-RM	15kVA 3/3 Module	443x131x580mm 3U	30kg
PM 3320-RM	20kVA 3/3 Module	443x131x580mm 3U	31kg
PM 3325-RM	25kVA 3/3 Module	443x131x580mm 3U	31kg
PM 3330-RM	30kVA 3/3 Module	443x131x580mm 3U	32kg
PM 3340-RM	40kVA 3/3 Module	443x131x580mm 3U	33kg

Up to 520kW
with additional
40kW modules



Up to 1560kW
with additional
520kW cabinets

"Size What You Need Now and Pay as You Grow"

Standart Electrical Features

- Output Power Factor: 0.9 (Optional 1.0)
- Hot Swappable Maintenance (UPS & Battery)
- Separated Bypass
- Maintenance Bypass
- Parallelable up to 4 Cabinets
- Remote EPO/EPO Function
- Common Battery
- Control of On/Off State of each Module
- Freely Set the Charge Current
- Intelligent Charging
- Mid or Small Power Distributing System
- Selectable Battery Voltage 3 Input 3 Output $\pm 216\text{VDC}/\pm 228\text{VDC}/\pm 240\text{VDC}$ (32/34/36/38/40pcs)

Advanced Communication Features

- RS232 (USB)
- RS485 Communication Interface
- SNMP Card (Optional)
- Relay Card (Optional)
- Centralized Monitor Module that is Hot Swappable
- Single Module LCD Display
- Control Monitoring with 5" Color Touch-Screen LCD Graphic Display



UPS Cabinet Control Panel



Module Control Panel

Hot Swappable Battery Modules

Plug and play battery modules ensures uninterrupted power to protected equipment while batteries are being replaced.

Allows quick and easy battery replacement.

- Each Battery Module Consists of 18 pcs 7Ah/9Ah
- Only 3U Height
- Simply Plug into UPS System



3 U Battery Box Optional



19" Matching Battery Cabinets (Optional)

N+X parallel redundancy

PM series UPS adopts N+X parallel redundancy design, users can set different redundancy according to the importance of the load. While the number of redundancy modules are more than two, the availability of UPS system will achieve 99.999% and the MTBF will be more than 15,000,000 hours which can satisfying the reliability requirement of critical load. The UPS redundancy degree can be set through the LCD, when the load exceeds the set value, the UPS will alarm in time.

Independent control system

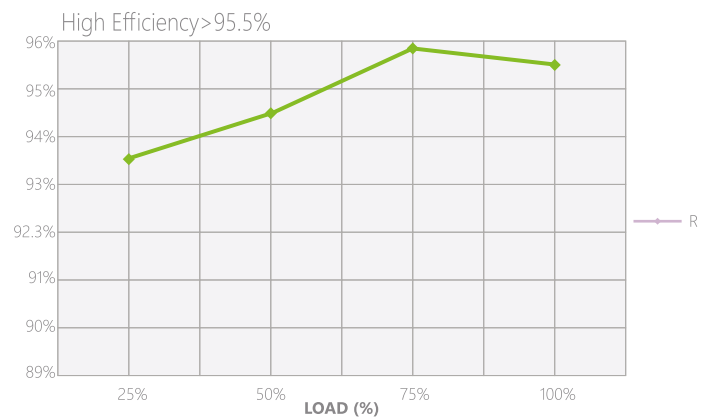
Every power module is equipped independent control system, and control itself independently according to the sharing message, and the fault module separates from the system automatically.



High Efficiency and Low Total Cost of Ownership

PM Designed for highly economical energy consumption and is a perfect fit in your data center and server room. Offering efficiency of up to 96%, THDi of 2% and unity Input Power Factor without harmonic filters PM delivers:

- Significant energy savings
- Lower cooling costs
- Smaller generator sizing



- High input power factor (>0.99) and low input Total Harmonic Distortion (THDi<2%) minimizes installation costs by enabling the use of smaller generators and cabling.
- Fully-rated power kVA equals kW feature option reduces cost by eliminating the need for an oversized UPS for Power Factor Corrected (PFC) loads.



10kVA/15kVA/20kVA/25kVA/
30kVA 3:3 phase



40kVA 3:3 phase

MODEL	PM3310-100kVA	PM3320-200kVA	PM3325-250kVA	PM3330-150kVA	PM3330-300kVA	PM3340-520kVA	PM3340-800kVA	PM3340-1040kVA	PM3340-1560kVA	
CAPACITY										
UPS Cabinet	10~100 kVA	20~200 kVA	25~250 kVA	30~150 kVA	30~300 kVA	40~520 kVA	800 kVA	1040 kVA	1560 kVA	
Paralleling	Up to 6 Frame	Up to 6 Frame	Up to 6 Frame	Up to 6 Frame	Up to 6 Frame	Up to 4 Frame	Up to 2 Frame	Up to 2 Frame	Up to 1 Frame	
Max. Power	600 kW	1200 kW	1500 kW	810 kW	1800 kW	2080 kW	1440 kW	2080 kW	1440 kW	
PM Module	10kVA/10kW, 15kVA/15kW, 20kVA/20kW, 25kVA/25kW, 30kVA/30kW, 40kVA/40kW									
INPUT										
Phase	3 Phase 4 Wires and Ground									
Rated Voltage	380/400/415 VAC									
Voltage Range	208~478 VAC or 120 VAC~276 VAC									
Frequency Range (Hz)	40~70 Hz									
Power Factor	>0.99									
Bypass Voltage Range	Max. Voltage: +15% (Optional +5%, +10%, +25%) Min. Voltage: -45% (Optional -20%, -30%)									
Current Harmonic	<2% (100% Non-Linear Load)									
Generator Input	Support									
OUTPUT										
Phase	3 Phase 4 Wires and Ground									
Rated Voltage	220/240 VAC 380/400/415 VAC									
Power Factor	1									
Voltage Precision	±1%									
Output Frequency	±1%, ±2%, ±4%, ±5%, ±10% of the Rated Frequency (Optional) (50/60±0.2) Hz									
Crest Factor	3:1									
THD	≤1% With Linear Load ≤4% With Non-Linear Load									
Efficiency	95.5%									
COMMUNICATION										
UPS Cabinet	RS232, RS485, Intelligent Slot x 2 (SNMP Card, Relay Card, Dry Contact Optional)									
INTERFACE										
PM Series UPS Module	RS232									
BATTERY										
Voltage	±192V / ±204V / 216V / ±228V / ±240V DC; Battery Quantity (Optional)									
Charge Current (A)	UPS Cabinet	18A Max	30A Max	60A Max	50A Max	100A Max	130A Max	200A Max	260A Max	390A Max
	Module	6A/10A/(20A Optional) Max (Charge Current can be set according to Battery Capacity Installed)								
Crest Factor	Backup Time	Depends on the Capacity of External Batteries								
THD	Transfer Time	Utility to Battery : 0ms; Utility to Bypass: 0ms								
PROTECTION										
Overload	Normal Mode	Load ≤110%: Last 60min, ≤125%: Last 10min, ≤150%: Last 1min, ≥150% Shut Down UPS Immediately								
	Battery Mode	Load ≤110%: Last 10min, ≤125%: Last 1min, ≤150%: Last 1s ≥150% Shut Down UPS Immediately								
OPERATING										
Temperature	0°C ~ 40°C									
ENVIRONMENT										
Humidity	0 ~ 95% Non-Condensing									
Storage Temperature	-25°C ~ 55°C									
Noise	Number of Modules ≤5	<55 dBA (1m)								
	Number of Modules >5	<65 dBA (1m)								
Altitude	<1500m									
DIMENSIONS & WEIGHT										
Unit Dimensions (WxDxH) (mm)	UPS Cabinet	600x840x1400	600x1100x2000	600x840x1400	600x1100x2000	1200x860x2000	860x3000x2000	1100x4800x2000		
	Module	443 x 580 x 131 (3U)								
Weight (kg)	UPS Cabinet	170	270	275	152	280	514	1600	1810	2800
	Module	10kVA: 26kg; 15kVA: 30kg; 20kVA: 31kg; 25kVA: 31kg; 30kVA: 32kg; 40kVA: 33kg								
INDUSTRY STANDARD										
CE, IEC 62040-2, IEC 62040-1, IEC 62040-3, IEC61000-4, IEC60950-1										

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