

# RM 10 kVA - 600 kVA

## 3 : 3 PHASE

### MODULAR UPS SYSTEM

RM Series, 3/3 phase modular and online UPS (10kVA-400kVA) delivers the best combination of reliability, functionality and flexibility at affordable prices. It is specifically designed for data centres, mission critical equipment and control rooms where the connected load will be increasing with time. Its hot swappable redundant design makes it truly reliable, maintainable and upgradable without any down time of the connected load.

#### Constructional Features

- Modular design with N+X redundancy
- Full front access servicing
- Online hot swappable modules
- Large touch screen LCD
- Isolated air flow for critical components & control boards
- EPO function
- Screen display of IGBT temperature & air flow
- Display of run time of critical components & service period setting
- Dual back door chassis design for ease of maintenance.
- LCD display in individual power module
- Redundant fans
- RS232 and RS485 communication ports
- Programmable dry contacts
- Backfeed protection

#### Technical Features

- Pure sine wave output
- High input power factor (0.99)
- Dual AC input (Mains & Bypass)
- Compatible with 100% unbalanced load
- ECO function for high efficiency operation ( $\eta = 98\%$ )
- System self test (simulating full load)
- Supports generator input
- Event log & storage of waveform during fault

#### Standards

- IEC EN 62040, EN60950
- EMC (2004/108/EC)
- ISO 9001
- CE conformity
- GOST conformity



<b>Power (kVA)</b>	<b>10 kVA - 600 kVA (in Single Modular Cabinet)</b>	
<b>INPUT &amp; BYPASS</b>		
Wiring	3 Ph + N + PE	
Nominal Voltage (V)	380 / 400 / 415 VAC (- 40% to + 25% tolerance)	
Frequency Range (Hz)	50 Hz / 60 Hz $\pm$ 15% (Auto detect 50Hz and 60 Hz)	
Power factor	> 0.99	
Input soft start	0 - 100% in 10 - 300 Sec (Adjustable)	
Harmonic distortion (Thdi)	< 3%	
<b>BATTERY</b>		
DC Nominal Voltage (V)	480V DC	
Battery Number & Type	40 x 12V, VRLA-SMF, Nickel Cadmium, Lithium Ion	
Recharge time to 90% (Hours)	< 8 Hours	
Battery charge power	20% of each Power Module	
Protections	Over voltage, overcurrent, deep discharge	
<b>OUTPUT</b>		
Wiring	3 Ph + N + PE	
Nominal Voltage (V)	380 / 400 / 415 VAC ( $\pm$ 0.5% tolerance)	
Frequency Range (Hz)	50 Hz / 60 Hz $\pm$ 5% (Auto detect 50Hz and 60 Hz from bypass)	
Output wave form	Pure sine wave	
Power factor	0.9	
Voltage regulation	$\pm$ 1% (100% balanced load) / $\pm$ 1.5% (100% unbalanced load)	
Frequency regulation	$\pm$ 2% (Line synchronised) / $\pm$ 0.05% (Free running, adjustable)	
THDv	< 1.5% (100% Linear load) / < 5% (100% Non-linear load)	
Crest Factor	3 : 1	
Transfer time	0 msec (Mains to Inverter) / 0 msec (Inverter to synchronised mains)	
Overload tolerance	60 Min 110% / 10 Min 125% / 1 Min 150% / 200 mSec >150%	
<b>GENERAL</b>		
HMI	7 inch LCD + LED	
Communication interface	Smart RS232 port, EPO, generator interface	
Efficiency	> 95% (Line Mode, 100% load) / > 99% (ECO Mode)	
MTBF	> 200,000 hrs	
Operating Ambient	0 deg C to +40 deg C, < 95% R.H (non-condensing), < 1000 m altitude	
Storage Ambient	- 20 deg C to + 65 deg C, < 95% R.H (non-condensing), < 2000 m altitude	
Cooling	Forced Air, Smart Fan System	
Ingress Protection	IP20 Standard	
International Standards	IEC-EN 60950-1 (Safety) IEC-EN 62040-1, IEC-EN-62040-2, EMC(2004/108/EC)	
Colour	RAL 7016 Black	
Dimension WxDxH (mm)	600 x 900 x 1600 (6 Module Cabinet)	600 x 900 x 2000 (10 Module Cabinet)
Weight without battery (kg)	151 kg (Without Power Module)	182 kg (Without Power Modules)
Power Module Options	PM10 (10 kVA), PM15 (15 kVA), PM20 (20 kVA), PM20 (25 kVA)	
Power Module Dimension	440 x 590 x 134 mm (3U) / 20 - 22 kg	
Noise (dBA)	$\leq$ 55 dBA	
<b>OPTIONS</b>		
Longer backup time	Customised battery banks for extended backup time	
American Version	Input / output voltage of 208 / 220 / 230 VAC (Upto 80 kVA)	
Frequency Converter	Frequency Converter mode 50Hz to 60 Hz or Vice Versa	
Communication interface	RS485 / SNMP / Dry Contacts	
Extended Warranty	1 Year Additional Product Warranty	
Customised System	Customised system in accordance with client specifications	

\*\* Specifications are subject to change without notification

# RM SERIES

## Modular Construction

Each power module is designed to be hot swappable which makes power expansion and system maintenance an easy job without system shut down. Each module is controlled independently, thus avoiding single point failure risk. Even when any module disconnects or fails, the system continues to operate and deliver power without any interruption. It ensures a high level of reliability and protection of mission critical equipment.

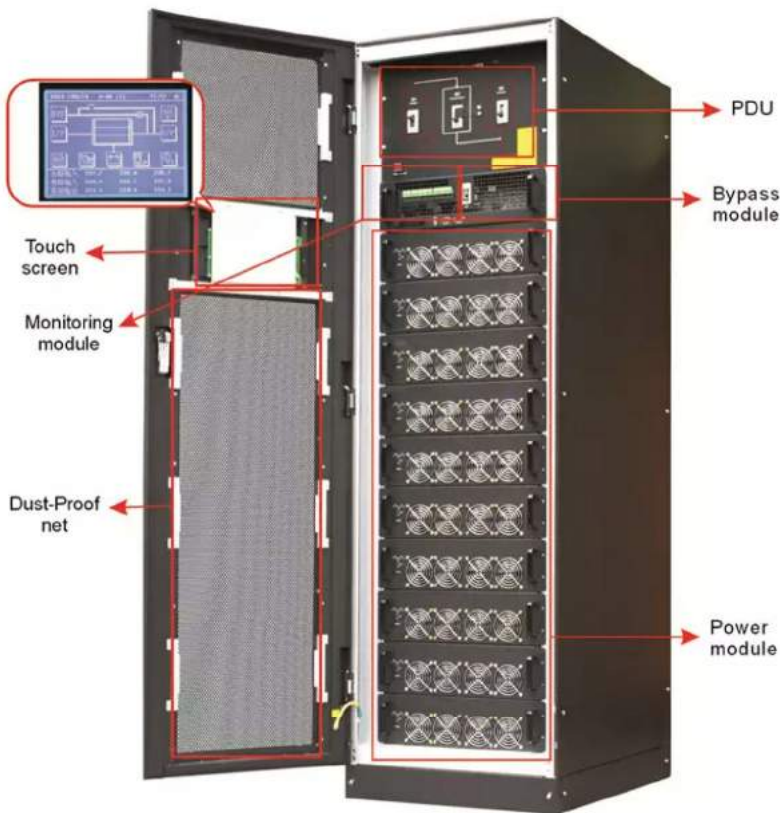
Power expansion is very easy to achieve by adding power modules to the system and reach upto 200 kVA in a single frame. Two frames can be paralleled to achieve 400 kVA in a single system.

## Easy Operation & Installation

RM series offers flexibility to install, that reduces installation time. Consequently it is very easy to maintain and control modular power modules without disturbing the complete UPS unit and hence the system provides highest reliability and best protection for supplying power. With the large touch screen LCD panel, the user can easily access information of the power module and system.

## Intelligent Battery Management

Each UPS module build in with super charger and power reaches 3200 Watts. With 10 installed UPS power modules, the total charging power will be equivalent to 32 kW. The charger is controlled by DSP with intelligent digital arithmetic thus to prolong the life time of battery.



## High Reliability Design

Integrated IGBT modules are used in the power module. Comparing with discrete chips, system reliability and manufacturing consistency are much higher with integrated modules. Low loss integrated three level IGBT modules help to increase the system efficiency. Moreover, reliability is increased due to lower temperature rise on IGBT's and heatsink.



## Intelligent Protection System

All power modules and the system are protected simultaneously by the hardware and software. All kinds of protection functions are realized including abnormality in current, voltage, temperature, short circuit etc.

