MicroMate®

Uninterruptible Power Supply Systems

MPR Series

Modular Design and Redundant Power System

Data Center | Industry | Medical | Telecom | E-Business | Industrial Processes | Servers | Traffic

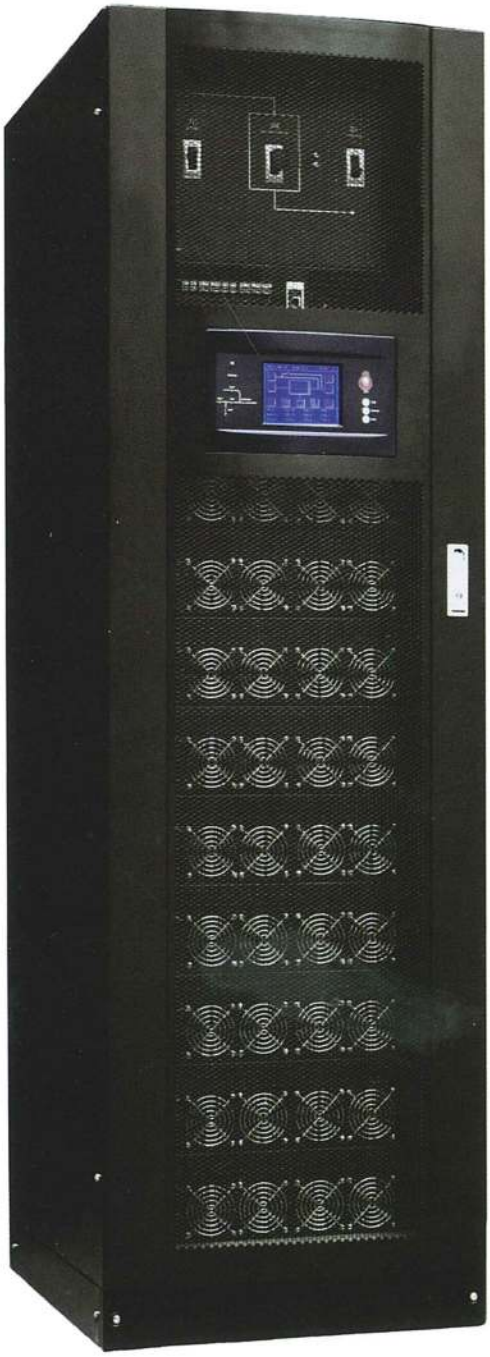
Finally the benefits of Modular UPS are for all

▶ Product snapshot:

Model: 10-200KVA
Nominal voltage: 380/400/415VAC
Nominal frequency: 50/60Hz
Output Power factor: 0.9 or 1.0

N+X Modular design, full upgraded protection

MPR Series modular UPS combines the latest IGBT three-level technology together with DSP control arithmetic. Along with high input power factor, low THDi and high system efficiency, this product achieves very high load adaptability for all kinds of load. The modular design ensures reliable and trouble free operation for the critical loads. Power expansion is very easy to achieve by adding power modules to the system and reach 300KVA power in single frame. It is possible to connect two frames in parallel in order to reach maximum 600KVA power.



Modular Construction Design

Each power module is designed to be hot swappable which makes the power expansion and system maintenance easily. Each module is controlled independently, thus avoiding single point failure risk. If any module fails or disconnects, the system keeps continuing to operate and supply the power without interruption. It ensures to provide a high level of reliability and protection.

Easy Operation and Installation

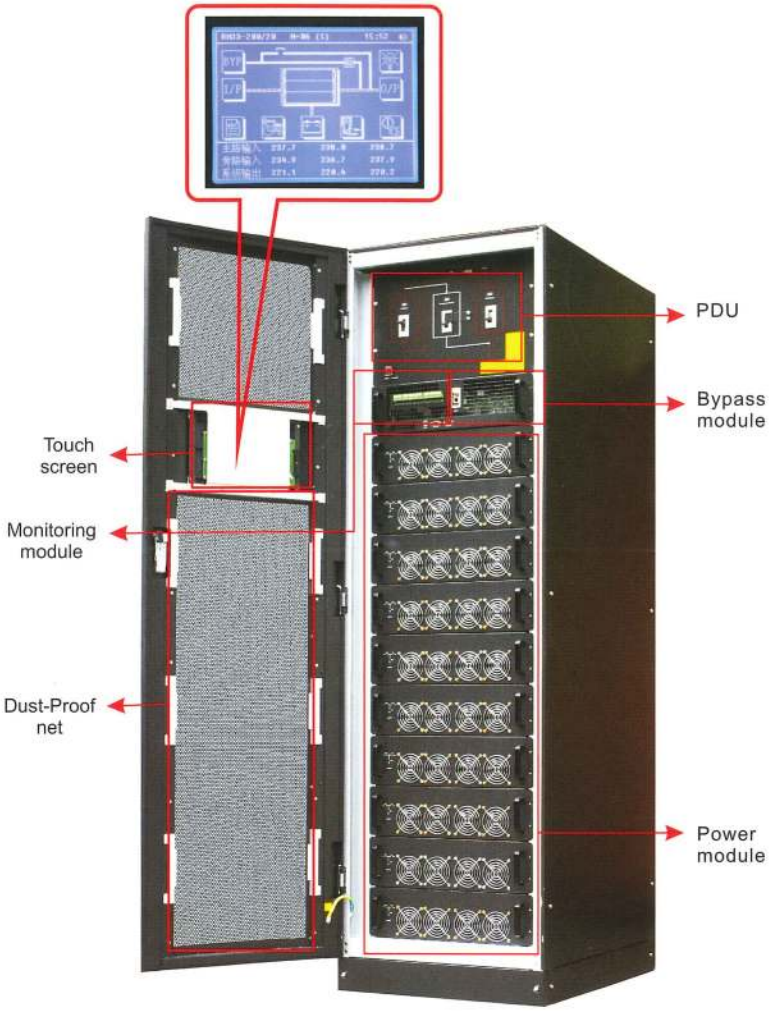
This product offers flexibility to install that reduces installation time. Consequently, it is very easy to maintain and control that provides the highest reliability and best protection for supplying power. With the large touch screen LCD panel, the user can easily access information of the power module and system.

Intelligent Battery Management

Each UPS module builds in with super charger and the power reaches 3200W. With 10 installed UPS modules, the total charging power rating is up to 32KW. The charger is controlled by DSP with intelligent digital arithmetic thus to prolong the life time of the battery.

Intelligent Protection System

All the power modules and the system are protected simultaneously by the hardware and the software. All kinds of protection functions are realized, including current and voltage abnormal, thermal abnormal, short circuit, etc. The reliability of the power module and the system reaches an incredible high level through all of these technologies.



Additional Outstanding Features

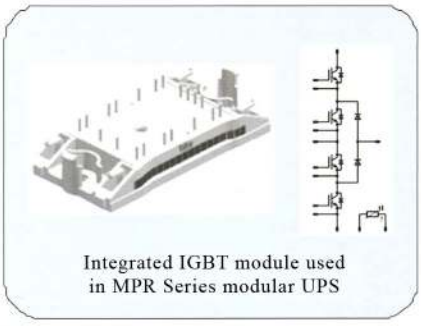
- High input power factor (>0.99), low input THDi (<3%).
- Strong load adaptability for linear and nonlinear load.
- Intelligent module and system protection design.
- Incredible low noise system design.
- Double DSP controller for individual power module.
- Digital control for the whole parts including rectifier, inverter, charger and discharger.
- IGBT modules rather than discrete components are applied in the power module.
- Battery cold start module
- All PCB with conformal coating
- Inbuilt switch for cabinet input, output and maintenance connection.
- Large touch screen LCD with plenty of information.
- Independent charger for batteries, intelligent battery management system.
- Digital paralleling technology, very low circle current between modules.
- Totally front access, top and bottom cable connection.
- Each individual module is configured with independent controller, avoid single point failure risk.
- Friendly generator interface.

Plenty of Options

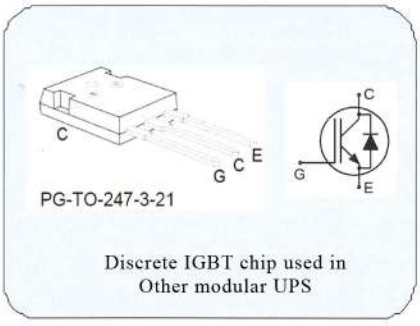
- SNMP communication card
- Battery temperature compensation module
- Dust-Proof net
- Parallel kit

High Reliability Design

Integrated IGBT modules are used in the power module. Comparing with discrete chips, system reliability and manufacturing consistency are much improved. Low-loss integrated three-level IGBT modules help to increase system efficiency. Meanwhile reliability is increased due to lower temperature rising on IGBTs and heatsink. More chips need to be paralleled to realize high current rating if using discrete IGBT chips. Clamped Diodes should be placed around IGBTs which brings risk for voltage/current stress issues and manufacturing process.



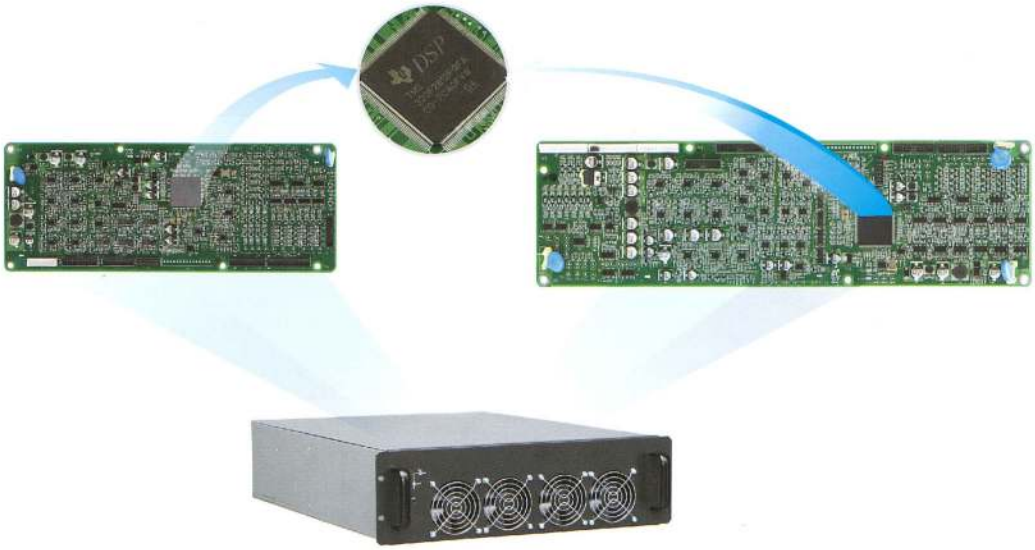
Integrated IGBT module used in MPR Series modular UPS



Discrete IGBT chip used in Other modular UPS

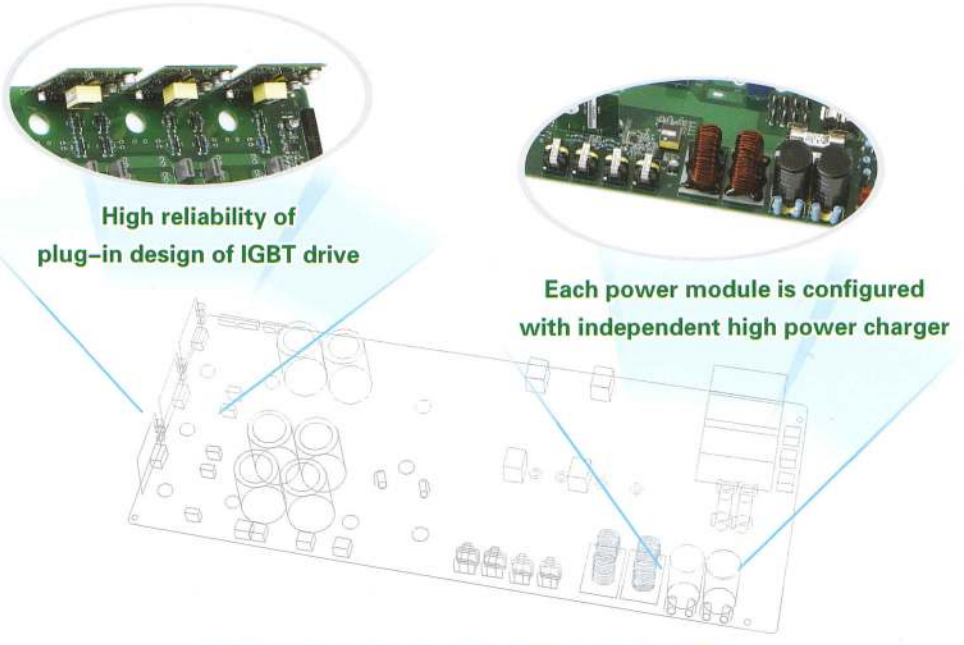
1. Totally digital control system

Each power module is configured with two DSP control boards. All the power conversions are controlled by digital signal. Excellent performance is realized together with all kinds of protection functions. The UPS system and the modules are not relied on any central controller thus there is no risk of single point failure.



2. High reliability IGBT drive design, high power charger

High reliability design of IGBT drive and protection increases the system reliability. All the PCBs are protected by conformal coating, increases the environment adaptability of different applications.



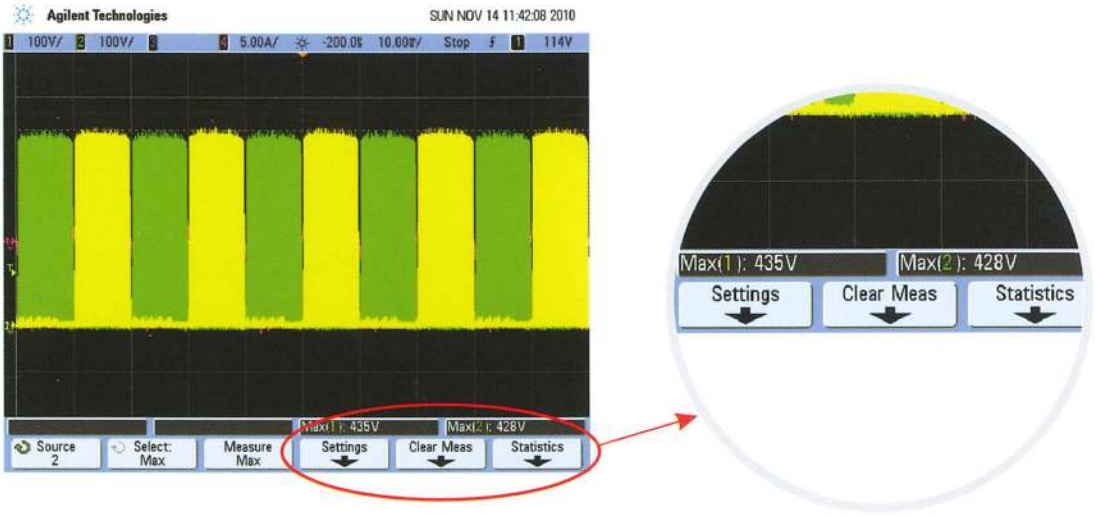
High reliability of plug-in design of IGBT drive

Each power module is configured with independent high power charger

Conformal coating for all the PCBs inside the UPS

3. High margin for IGBT stress

The IGBT voltage stress is much lower than the rating(600V) due to the excellent drive technology. The reliable design of the power circuits highly increases the system reliability.

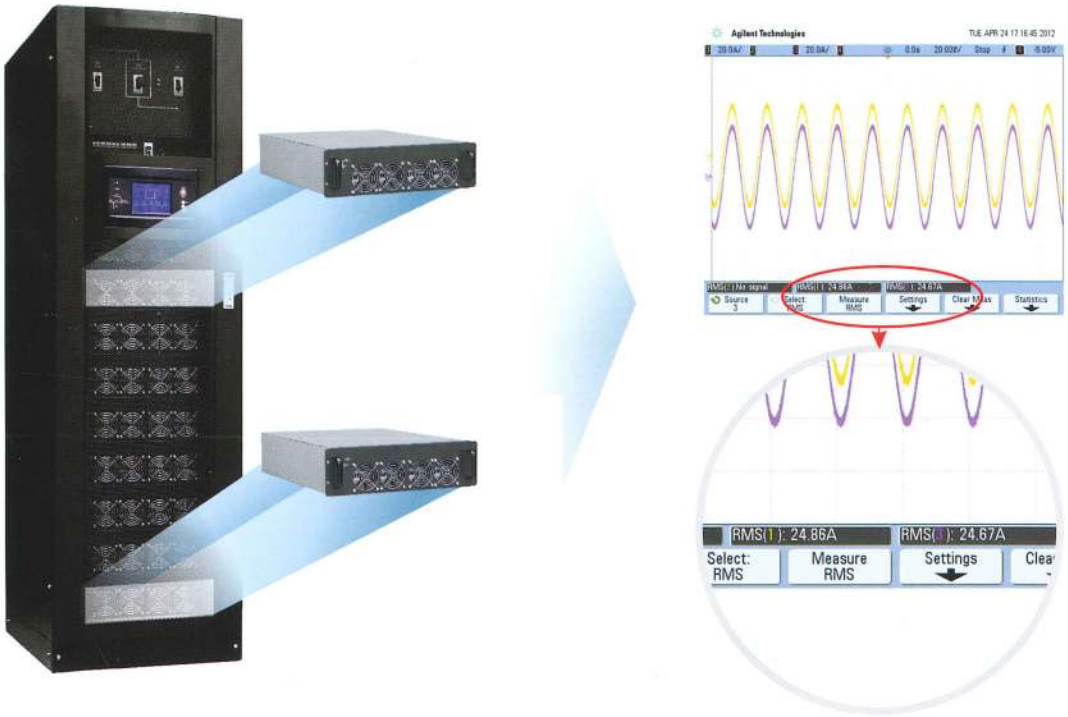


4. Intelligent control and monitoring system

DSP based control and monitoring system offers all kinds of control functions and information of the system. The parameters and status of the UPS system can be calibrated by the touch screen panel or the laptop based software.

5. Excellent current sharing performance between the modules

The current difference between two online modules is controlled below 2%, the system reliability is highly increased due to the precise current sharing technology.



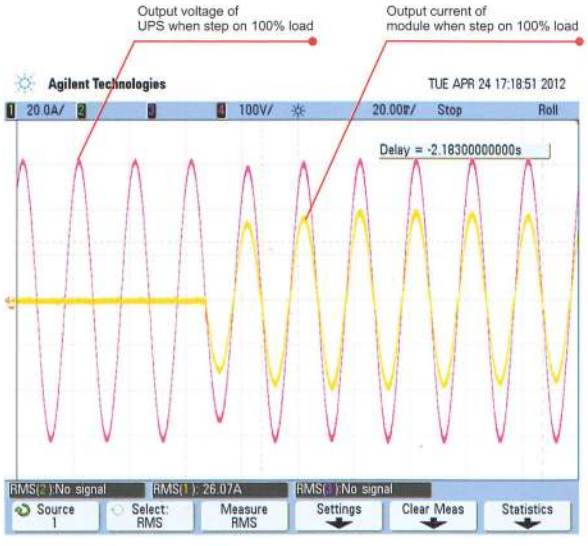
6. Inbuilt battery cold start unit

As a standard configuration, inbuilt battery cold start unit make it possible to start the UPS directly from the battery when the utility is not available.

The DC bus voltage waveform of UPS during the process of battery cold start.

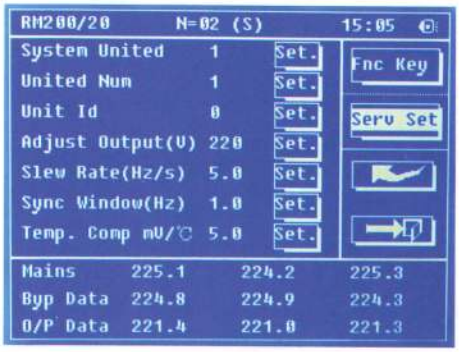
7. Incredible load capability

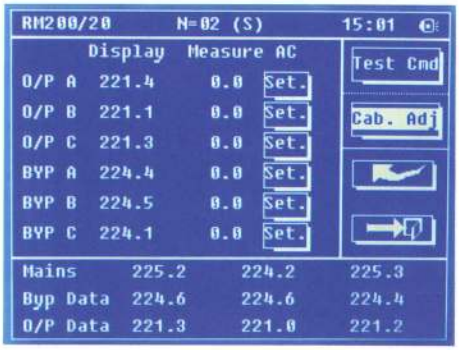
The instantaneous current sharing between the modules can be controlled within 2% even step on or step off 100% load.



8. Intelligent system parameter calibration function

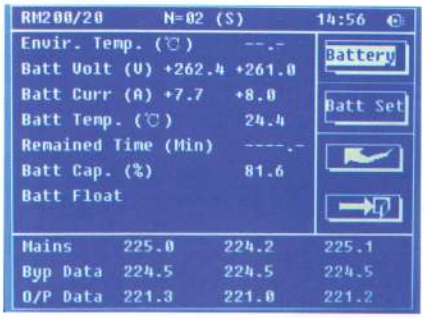
The parameter of UPS system can be calibrated through the touch screen panel.

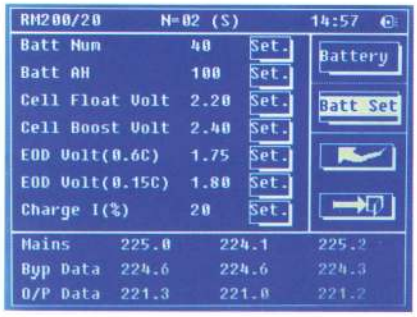


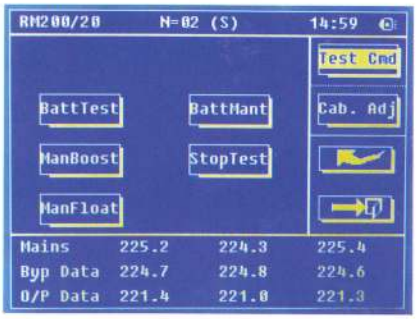


9. Intelligent battery management system

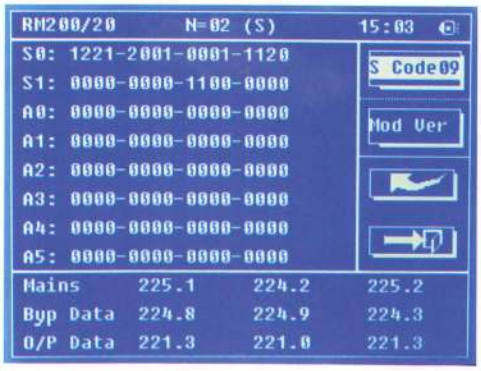
The touch screen panel offers the technical information of the battery, the charging and discharging parameters can be set from the panel. The battery test and maintenance can be realized by the panel of the UPS.







10. Intelligent component level diagnose system



The status of all the key components inside the UPS can be monitored and displayed on the UPS panel, this function makes the maintenance of the system as simple as possible. Each bit on the figure represents the status of one component, it's easy for the maintenance people to identify the faulty component when there is a module or system fault.

Technical Specifications

Capacity	10~300KVA		
INPUT			
Voltage	380V / 400V / 415V (line to line) 220V / 230V / 240V (line to neutral)		
Frequency	50 / 60Hz		
Power Factor	> 0.99		
Voltage Window	-40% ~ +25%		
Frequency Window	40 ~ 70Hz		
BATTERY			
Voltage	±240VDC		
Charger Power	20%*Power		
Charger Voltage Precision	1%		
BYPASS			
Voltage	380V / 400V / 415V (line to line) 220V / 230V / 240V (line to neutral)		
Voltage Window	-20% ~ +15%, full load		
Overload Capability	125% < load < 130%, last for more than 1 hour		
	130% < load < 150%, last for more than 6 minutes		
	> 1000%, last for more than 100ms		
OUTPUT			
Voltage	380V / 400V / 415V (line to line) 220V / 230V / 240V (line to neutral)		
Voltage Precision	1% (balanced load), 1.5% (unbalanced load)		
Voltage Distortion (THDu)	< 1.5% THD (linear load), < 5% THD (non-linear load)		
Power Factor	0.9 / 1.0		
Phase Tolerance	120° ±0.5° (balance and unbalance laod)		
Crest Factor	3:1		
Overload Capability	105%, long time operation		
	110%, transfer to bypass after 1 hour		
	125%, transfer to bypass after 10 minutes		
	150%, transfer to bypass after 1 minute		
	> 150%, transfer to bypass after 200 ms		
SYSTEM			
Efficiency	Normal mode: 95%		
	ECO mode: 98%		
Battery Mode Efficiency	95%		
Display	LCD+LED, Touch screen and keyboard		
EMI	IEC62040-2		
EMC	IEC61000-4-2 (ESD)		
	IEC61000-4-3 (RS)		
	IEC61000-4-4 (EFT)		
	IEC61000-4-5 (Surge)		
IP Class	IP20		
Interface (Communication Ports)	RS232, RS485, Dry contacts, SNMP card, EPO, Generator interface		
Installation / Connection	Top or bottom cable connection		
Operation Temperature	0 ~ 40°C		
Storage Temperature	-25°C ~ 70°C		
Relative Humidity	0 ~ 95% (non-comdensing)		
Noise (dB)	<55dB		
Weight (KG)	4-Module Cabinet	MPR40/10X	51KG
	3-Module Cabinet	MPR60/20	105KG
	6-Module Cabinet	MPR120/20, MPR180/30	187KG
	10-Module Cabinet	MPR200/20, MPR300/30	214KG
	PM10	10KVA : 15.3KG	
	PM20	20KVA : 22.5KG	
	PM30	30KVA : 23.0KG	
Dimensions (W x D x H) (mm)	4-Module Cabinet	485 x 697 x 575 (11U)	
	3-Module Cabinet	600 x 900 x 1100	
	6-Module Cabinet	600 x 900 x 1600	
	10-Module Cabinet	600 x 900 x 2000	
	Power Module (PM10X)	436 x 590 x 85 (2U)	
	Power Module (PM20/PM30)	440 x 590 x 134 (3U)	

NOTE: UPS specification and data may be subjected to change for improvement without prior notice