

# VPMC UPS

12kVA~60kVA

Double conversion on-line parallel system

- True on-line double conversion design
- Fully digitized microprocessor control
- Digital Signal Processor Technology (DSP)
- N+1 parallel redundancy configuration
- Expandable output power capacity\*
- Input power factor correction (PFC)
- Pure sinewave output with less than 2% THD
- Wide input voltage range
- On-line output voltage selection
- Auto self-testing system while turning on the UPS
- Cold start function (DC Power On)
- Generator compatible
- Maintenance bypass setting
- Advanced Battery Management (ABM Technology)
- Automatic diagnostics & battery check
- Two step battery charging mode
- External battery banks for extended back up time
- Multi-function LCD display
- Smart RS-232,AS-400 communication ports
- SNMP card slot for network management
- Software monitoring and control
- Scheduled shutdown & reboot

\*Select models only



**PCE**<sup>®</sup>  
UPS SYSTEMS

**YOUR ULTIMATE  
POWER PROTECTION PARTNER**

## Product Introduction

Today VPMC is designed to provide continuous utility AC power protection for critical system installation and to facilitate flexibility in expanding power distribution requirements via parallel redundancy.

It can be configured to parallel redundancy which increases flexibility and reliability to maximum power, and it is very cost effective to upgrade the system without a large investment.

With its double conversion on-line technology, it delivers the optimum level of reliability and scalability. This ensures a pure sinewave output free of any input voltage fluctuations and disturbances. Via this technology, the VPMC is particularly suitable for use in areas where power supply is consistently in shortage.

It absolutely prevents power failures, power surges, brownouts, line noise, high voltage spikes, frequency variations, harmonic distortion and switching transients ensuring no transfer time in the event of a power failure.

## Outstanding power range

The VPMC series comes in a broad range of output power (12kVA/18kVA/20kVA/30kVA/40kVA/45kVA/60kVA) in both single phase input (up to 30kVA) and three phase input (20kVA-60kVA) that accommodate any requirement an enterprise may need.

Furthermore, the VPMC series is compatible with a wide range of battery autonomies enabling it to provide long back up times whenever necessary for long back up models. Long backup models are allowed to connect external batteries to get prolonged back up time.

## Leading technology

PCE UPS SYSTEMS Inc. has designed the VPMC UPS so that it would be equipped with the latest innovations in Uninterruptible Power Supply technology.

Several features have gone into the design to ensure that the VPMC UPS is capable of being a central cornerstone in any high quality power protection solution.

Because the control of the inverter is of utmost importance for the quality of the output voltage, especially in critical operating situations, PCE UPS SYSTEMS Inc. employs a Space Vector Modulation Digital Control Technology to increase the performance of power components and enable active conditioning of the load in a straightforward way.

With the use of digital signal processors (DSP), the realization of very complex control structures with flexible adapting mechanisms is possible.

DSP implementation gives redundant operation and the highest possible operating reliability for the most mission critical applications.

The VPMC UPS not only utilizes DSP technology but also digital power quality management system PWM (Pulse Width Modulation) controlled IGBT (Isolation Gate Bipolar Transistor) to improve the performance of the power components.

Many benefits are realized using the Vector Control Technology:

- Using an IGBT rectifier, the VPMC can provide superior Power Factor Correction (PFC) reducing input harmonic distortion.
- The pure sinewave output that the VPMC delivers makes it perfect for powering highly sensitive equipment operating in environments where power supply quality is not reliable.
- Improved performance for specific unbalanced load conditions.
- Improved fault clearing capacity for downstream short circuits.
- Improved efficiency through easy installation times and reduced servicing.
- Customization easily achieved via simple software modifications.
- Perfect load distribution among different VPMC units connected in parallel and synchronization of the inverters.
- Phase-synchronous operation of the UPS output with the feeding mains to be able to switch to it anytime without any switching gap.



## Features

### High Performance and Reliability

- On-line Double Conversion Technology

This technology guarantees consistent high power quality. Whatever the disturbances on the distribution system are, a pure sinewave is regenerated via AC to DC to AC double conversion process. The battery supplies the load with power at all times so that no switching time is noticed at the output when the input power goes off.

- Parallel redundancy

The VPMC UPS is capable of acting in a parallel configuration which is ideal for redundancy and load-sharing, while maintaining high utilization efficiency at the same time. When connected together in parallel, the VPMC units automatically detect the presence of their neighbors and coordinate load sharing and protection accordingly.

Parallel redundancy feature increases power and redundancy of the supply system whilst controlling costs.



User Friendly - Only a 25 pin one to one shield cable required for parallel redundant

### High Availability

- Cold Start on battery power

This function elaborates the emergency standby capability of UPS to a sufficient extent.

- Automatic Bypass

In the event of an overload or a UPS fault, the VPMC UPS automatically transfers the load to utility AC power.

## Ease of Use

Easy installation and integration

- Complete installation kit
- Easy connection to AC power

## Advanced Battery Management

The VPMC UPS employs unique technologies to increase the life of the batteries. It uses two step charging technique that optimizes the charging time.

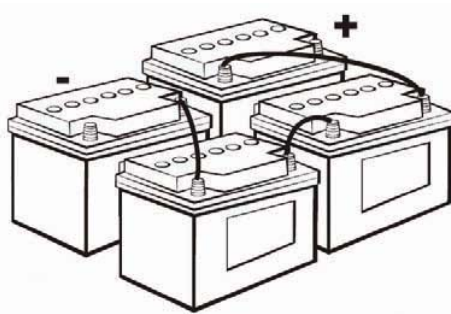
The battery is one of the most important components that make up an Uninterruptible Power Supply system, and the degree of power protection that such system provides is closely tied to the quality of the batteries installed. This is a fact that PCE never tires of stressing, and, for this reason, you will only find Sealed Lead Acid batteries of the most superior quality as a back up power source in our UPS solutions.

In addition, we have equipped the VPMC Series with the capability to continuously monitor your power input and output status and operate with extreme efficiency accordingly. Such mechanisms increase the system's battery life by up to 60%.

Some of the advanced battery care features that the VPMC UPS employs are listed below:

- A wide input voltage acceptance range
- Temperature-compensated battery charger
- Intelligent battery charger
- Charge and discharge cycle control
- End of discharge voltage compensated with time
- Minimum ripple current values
- Algorithm to calculate battery life expectancy
- Periodic battery testing
- Different options for battery placement

All these features put together sum up to considerable savings in your running costs.



## PCE Power Track Suite™

The industry's most comprehensive software bundle, the PCE PowerTrack™ Software Suite comes included with every PCE VPMC UPS.

- PowerTrack™ wizard guides you through software selection and installation

- PowerTrack™ performs critical power management functions

- Automatic shutdown/ reboot
- User notification of power events
- Broadcast power abnormal status
- Smart save file
- Scheduled system shutdown/reboot
- UPS Battery low warning
- Real-time graphical display
- Power quality data log
- Printing power events list
- Graphic display by meter
- Support Windows Services and auto-start

PowerTrack™ is compatible with several operating system: Windows 95/98/2000/NT/ME/XP/2003/Vista, Linux and others.

## Back Panel for all models

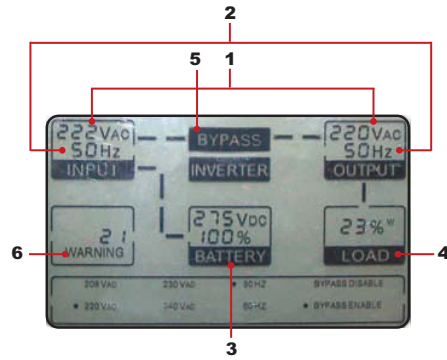
1. Communication Port
2. Intelligent Slot
3. External Battery Socket (For VPMC + model only)
4. Parallel Port
5. Input Breaker
6. Maintenance Switch
7. Terminal

## Applications

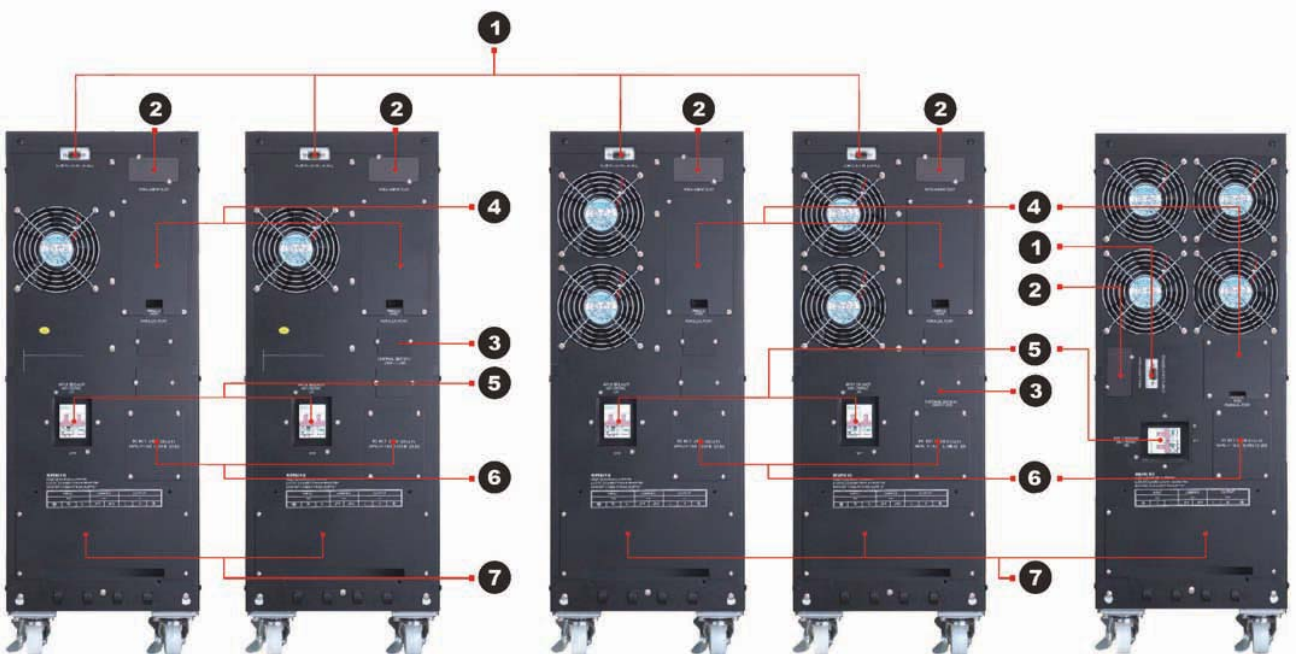
The VPMC series provides a secure power infrastructure for a wide range of applications including:

- Data Centers
- Network Infrastructures
- Production Servers
- Industrial Equipment

## LCD Display



1. Input/Output voltage
2. Input/Output frequency
3. Battery level
4. Load level
5. Mode status (Back up mode, On-line mode, Bypass mode)
6. Fault codes/Warning



Model	VPMC 12k	VPMC 18k	VPMC 20k	VPMC 30k	
Output power with $\cos\phi = 0.7$	12kVA/8400W	18kVA/12600W	20kVA/14000W	30kVA/21000W	
Input	Voltage	208V/220V/230V/240V, 1Ø 2Wires			
	Frequency	50/60 Hz +/-10%			
	Voltage range	154V-286V			
	Efficiency of rectifier	≥99%			
	THDi	<5%			
Output	Voltage (on battery)	208V,220V, 230V, 240V, +/-1% (selectable output voltage), 1Ø 2Wires			
	Frequency (on battery)	50/60 Hz +/-0.1%			
	Transfer Time	0 ms			
	Overload Recovery	Auto transfer to UPS within 0ms			
	Efficiency	>94%			
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled			
	Output Wave Form	Pure Sinewave			
	Total Harmonic distortion (THD)	< 2% of T.H.D. at linear load , < 5% T.H.D. at non linear load			
Protection	Overload Protection	125% for 10 minutes and 150% for 1 minute			
	Short Circuit Protection	UPS output cut off immediately using input fuse/circuit breaker/electronic protection			
System Display/Warning	LCD indicators	Input/output voltage, input/output frequency, on-line mode, back up mode, battery capacity, load level			
	Audible Alarm	Beep every 4 second			
	Overload Alarm	Beep twice every second			
Battery	Battery Type	Sealed, maintenance-free lead acid batteries, 3-5 years typical life time			
	Typical Recharge Time	4 hours to 90% Full			
	- Long back up model	Depending on external batteries			
	DC Voltage	240VDC			
	Management	Self-test, adjustable battery transfer points and alarm settings			
	Cold Start	YES			
	Battery Protection	Cuts off without draining any current when battery is low			
Extended back up time	Longer back up time depending on extra battery pack				
Communication	AS-400*, RS-232	Interface with power management software			
	SNMP*	Power Management from SNMP manager and web browser			
	Compatibility	Windows 98/NT/2000/XP/2003/Vista, Linux, Sun Solaris, IBM Aix Compaq True64, SGI IRIX, FreeBSD, HP-U X and MAC/ME			
Physical	W x D x H	520 x 570 x 717 mm	780 x 570 x 717 mm	520 x 570 x 717 mm	780 x 570 x 717 mm
	Net Weight	180Kg(396lb)	270Kg(594lb)	186Kg(409.2lb)	279Kg(613.8lb)
	- Long back up model	70Kg(154lb)	105Kg(231lb)	76Kg(167.2lb)	114Kg(250.8lb)
	Operating Temperature	0°C -40°C			
Environment	Storage Temperature	-20°C ~ 50°C			
	Altitude	3,500 meters max			
	Audible noise	<52dBA at 1 Meter			
	Relative Humidity	20 ~ 90% humidity, non-condensing			
	Performance	EN50091-3/IEC 62040-3			
Standards & Certifications	Safety	UL 1778, CE, EN 50091-1,EN 60950 (RD/), IEC 60950			
	EMC (EMS / EMI)	IEC 61000-4-2/-3/-4/-5/-6/-8/-11, IEC 61000-3-2/-3,FCC Part 15, CISPR 22, EN 50091-2/IEC62040-2 EN 55022/B,FCC 47 part 15 - Subpart B - Class A			
	Design, production & services	ISO 9001			
	Environment	ISO 14001 certified company			
	Marking & Certifications	CE, TUV/GS, UL, cJUL, c-Tick			

\* For optional features

Model		VPMC 20k31	VPMC 30k31	VPMC 40k31	VPM-PC 45k31	VPM-PC 60k31
Output power with cosφ = 0.7		20kVA/14000W	30kVA/21000W	40kVA/28000W	45kVA/31500W	60kVA/42000W
Input	Voltage	360V/380V/400V/415V, 3Ø4 Wires				
	Frequency	50/60 Hz +/-10%				
	Voltage range	267V-495V				
	Efficiency of	≥98%				
	THDi	<5%				
Output	Voltage (on battery)	208V,220V, 230V, 240V, +/-1% (selectable output voltage), 1Ø 2Wires				
	Frequency (on battery)	50/60 Hz +/-0.1%				
	Transfer Time	0 ms				
	Overload Recovery	Auto transfer to UPS within 0ms				
	Efficiency	>94%				
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled				
	Output Wave Form	Pure Sinewave				
	Total Harmonic distortion (THD)	< 2% of T.H.D. at linear load , < 5% T.H.D. at non linear load				
	Crest Factor	3:1				
Protection	Overload Protection	125% for 10 minutes and 150% for 1 minute				
	Short Circuit Protection	UPS output cut off immediately using input fuse/circuit breaker/electronic protection				
System Display/Warning	LCD indicators	Input/output voltage, input/output frequency, on-line mode, back up mode, battery capacity, load level				
	Audible Alarm	Beep every 4 second				
	Overload Alarm	Beep twice every second				
Battery	Battery Type	Valve regulated sealed lead acid batteries				
	Typical Recharge Time	Depending on external batteries				
	DC Voltage	240VDC				
	Management	Self-test, adjustable battery transfer points and alarm settings				
	Cold Start	YES				
	Battery Protection	Cuts off without draining any current when battery is low				
Communication	AS-400*, RS-232	Interface with power management software				
	SNMP*	Power Management from SNMP manager and web browser				
	Compatibility	Windows 98/NT/2000/XP/2003/Vista, Linux, Sun Solaris, IBM Aix Compaq True64, SGI IRIX, FreeBSD, HP-U X and MAC/ME				
Physical	W x D x H	520 x 570x 717 mm			780 x 570x 717 mm	
	Net Weight	78Kg(171.6lb)	110Kg(242lb)	165Kg(363lb)		
Environment	Operating Temperature	0°C ~40°C				
	Storage Temperature	-20°C ~ 50°C				
	Altitude	3,500 meters max				
	Audible noise	<52dBA at 1 Meter	<55dBA at 1 Meter			
	Relative Humidity	20 ~ 90% humidity, non-condensing				
Standards & Certifications	Performance	EN50091-3/IEC 62040-3				
	Safety	UL 1778, CE, EN 50091-1,EN 60950 (RD/), IEC 60950				
	EMC (EMS / EMI)	IEC 61000-4-2/-3/-4/-5/-6/-8/-11, IEC 61000-3-2/-3,FCC Part 15, CISPR 22, EN 50091-2/IEC62040-2				
	Design, production & services	EN 55022/B,FCC 47 part 15 - Subpart B - Class A				
	Environment	ISO 9001				
	Marking & Certifications	ISO 14001 certified company				
	Marking & Certifications	CE, TUV/GS, UL, cUL, c-Tick				

\* For optional features

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