



ACT GREEN

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# MXL

1kVA~10kVA

Uninterruptible Power Supply

- True on-line double conversion design
- Fully digitized microprocessor control
- Digital Signal Processor Technology (DSP)
- Input power factor correction (PFC)
- N+1 Parallel redundancy configuration\*
- Up to 3 units connected in parallel\*
- Pure sinewave output with less than 3% 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)
- EPO Emergency Power Off
- Generator compatible
- Automatic By Pass
- Advanced Battery Management (ABM Technology)
- Automatic diagnostics & battery check
- Multi-function LCD display
- Smart RS-232
- AS-400 communication ports\*\*
- SNMP card slot for network management\*\*
- Software monitoring and control
- Scheduled shutdown & reboot
- Long autonomy UPS

\* For 6 and 10kVA only

\*\* Optional



**YOUR ULTIMATE  
POWER PROTECTION PARTNER**

**PCE**  
UPS SYSTEMS

## Product introduction

Today MXL 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 sine wave output free of any input voltage fluctuations and disturbances. Via this technology, the MXL 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 MXL series comes in a broad range of output power (1kVA, 2kVA, 3kVA, 6kVA, 10kVA) in single phase .

## Leading technology

PCE UPS SYSTEMS Inc. has designed the MXL 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 MXL 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 MXL 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:

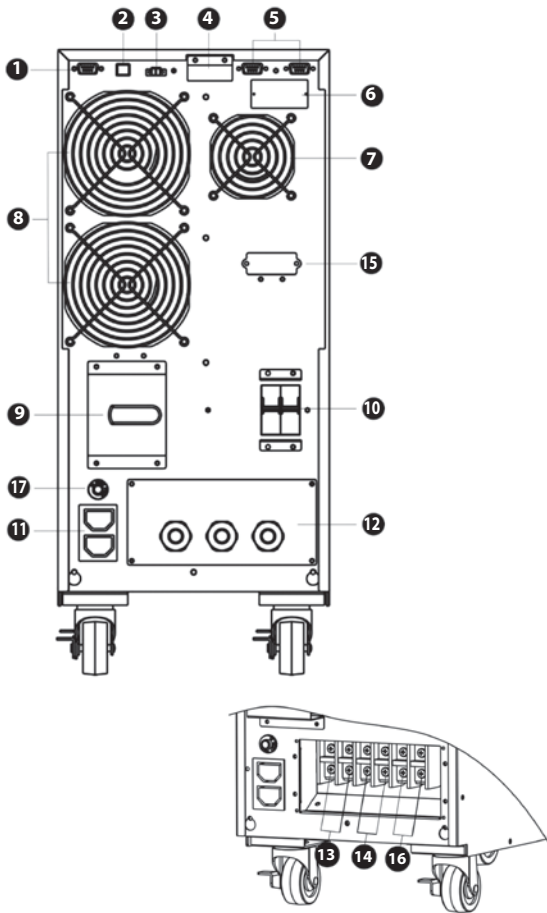
- Using an IGBT rectifier, the MXL can provide superior Power Factor Correction (PFC) reducing input harmonic distortion.
- The pure sine wave output that the MXL delivers makes it perfect for powering highly sensitive equipment operating in environments where power supply quality is not reliable.
- 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 MXL 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

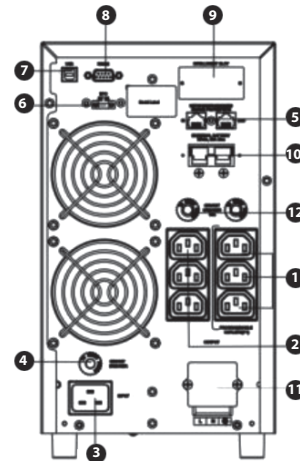
- On-line Double Conversion Technology This technology guarantees consistent high power quality. Whatever the disturbances on the distribution system are, a pure sine wave is regenerated via AC to DC to AC double conversion process. The battery supplies the load with power at all times so that no switching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



1. RS-232 communication port
2. USB communication port
3. Emergency power off function connector (EPO connector)
4. Share current port (only available for parallel model)
5. Parallel port (only available for parallel model)
6. Intelligent slot
7. Charger fan
8. Power stage fan
9. Maintenance bypass switch
10. Input circuit breaker
11. Output receptacles: connect to mission-critical loads
12. Input/Output terminal (Refer to Diagram 2 for the details)
13. Output terminal: connect to mission-critical loads
14. Programmable output terminal: connect to non-critical loads
15. External battery terminal (only available for Long-run model)
16. Utility input terminal
17. Output circuit breaker for receptacles

### - Parallel redundancy

The MXL 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. Up to three UPS can be connected in parallel. When connected together, the MXL units automatically detect the presence of their neighbors and coordinate load sharing and protection accordingly. This simple upgrade setup enables you to easily modify your existing solution whenever your load requirements change. Parallel redundancy feature increases power and redundancy of the supply system whilst controlling costs.



1. Programmable outlets: connect to non-critical loads.
- 2- Output receptacles: connect to mission- critical loads.
- 3- Ac input
- 4- Input circuit breaker
- 5- Network/Fax/Modem surge protection
- 6- Emergency power off function connector (EPO)
- 7- USB communication port
- 8- RS-232 communication port
- 9- SNMP intelligent slot
- 10- External battery connection (only available for L model)
- 11- Output terminal
- 12- Output circuit breaker
- 13- Input terminal

### 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 MXL 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 MXL 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 MXL 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 MXL 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 MXL 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
  - Powerqualitydatalog
  - Printing power events list
  - Graphic display by meter
- Support Windows Services and auto-start

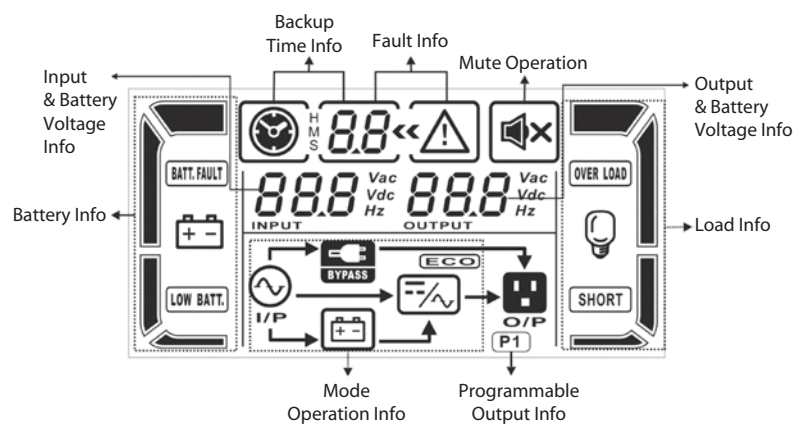
PowerTrack™ is compatible with several operating system: Windows 95/98/2000/NT/ME/XP/2003/ Vista, Linux, Sun Solaris, MAC/ME

## Applications

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

- DataCenters
- Network Infrastructures
- Production Servers
- Industrial Equipment

## LCD Display



# Technical Specifications

## MXL Series

Model		MXL 1kVA	MXL 2kVA	MXL 3kVA	MXL 6kVA	MXL 10kVA
<b>Output power with <math>\cos \phi = 0.8</math></b>		1kVA 800W	2kVA 1600W	3kVA 2400W	6kVA 4800W	10kVA 8000W
<b>Input</b>	Voltage	208V/220V/230V/240V, 1Ø 2Wires				
	Frequency	40/70 Hz +/-10%				
	Voltage range	110V~290V				
	Efficiency of rectifier	≥99%				
	Power factor	≥99%				
	THDi	<5%				
<b>Output</b>	Voltage (on battery)	208V, 220V, 230V, 240V, +/-1% (selectable output voltage), 1Ø 2Wires				
	Frequency (on battery)	50/60 Hz +/-0.1Hz				
	Transfer Time	0 ms				
	Overload Recovery	Auto transfer to UPS within 0ms				
	Efficiency	≥94% (line mode), ≥91% (battery mode)				
	UPS Design Technology	On-Line / Fully digitized microprocessor controlled				
	Output Wave Form	Pure Sinewave				
	Total Harmonic distortion (THD)	< 3% of T.H.D. at linear load , < 5% T.H.D. at non linear load				
	Crest Factor	3:1				
<b>Protection</b>	Overload Protection	100% to 120% for 10 minutes and 120% to 130% for 1 minute				
	Short Circuit Protection	UPS output cut off immediately using input fuse/circuit breaker/electronic protection				
<b>System display/warning</b>	LCD indicators	Input/output voltage, input/output frequency, on-line mode, back up mode, battery capacit level				
	Audible Alarm	Beep every 4 second (Battery back up)				
	Overload Alarm	Beep twice every second				
<b>Battery</b>	Battery Type	VRLA,WET, Ni-Cd, Gel				
	Typical Recharge Time	5 hours to 90% Full				
	DC Voltage	36VDC	72VDC		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				
	Back Up Time	Back up time depending on battery pack installed				
	<b>Communication</b>	AS-400*, RS-232 or USB	Interface with power management software			
SNMP*		Power Management from SNMP manager				
Compatibilitty		Windows 98/NT/2000/XP/2003, Linux, Sun Solaris, IBM Aix, True64, SGI IRIX, XP, Vista, Windows 8, Windows 7, FreeBSD, HP-U X and MAC/ME				
<b>Physical</b>	D x W x H	397 x 145 x 220 mm	421 x 190 x 318 mm		592 x 250 x 576 mm	
	Net Weight	8	13	15	39	55
<b>Environment</b>	Operating Temperature	0°C ~ 40°C				
	Storage Temperature	-20°C~ 50°C				
	Altitude	3,500 meters max				
	Audible noise	<42dBA at 1 Meter			<45dBA at 1 Meter	
	Relative Humidity	20 ~ 90% humidity, non-condensing				
<b>Standards &amp; Certifications</b>	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 EN 55022/B,FCC 47 part 15 - Subpart B - Class A				
	Design, production, and services	ISO 9001				
	Environment	ISO 14001 certified company				
	Marking & Certifications	CE, TUV/GS, UL, cUL, c-Tick				

Derate capacity to 60% of capacity in Frequency converter mode and to 80% when the output voltage is adjusted to 208VAC.

\* Optional

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