



## EMERGENCY LIGHTING INVERTER

# Power Wave 4

60 to 500 kVA, Three Phase

### True Galvanic isolation design

The ultimate UPS solution – providing uninterrupted power and protection against noise, lightning, and leakage current.

### Designed to protect against a floating neutral

Ensures the safety of personnel and UPS.

### Advanced digital signal processing

Increased reliability and efficiency through the use of DSP, IGBT and advanced switching components.



### Green Mode Operation

Hybrid design, customer selectable for green mode (fast transfer less than 2ms.).

### Modular design for ease of troubleshooting and maintenance

Quick change components speed repairs and cut down time.

### Redundant Multi-CPU design allows the software and hardware to work together as a team

This results in the highest reliability possible.

### The most intelligent and safe battery test circuitry available today

- No risk of AC output failure during test of failed batteries
- Maximizes battery bank protection when leakage or a ground fault is present

### Battery Exerciser

User selectable

### Hi-Tech fan speed control

Increases fan life expectancy while reducing audible noise

### Individualized inverter support on each phase

Maintains specified characteristics, even with 100% unbalanced load.

### Intelligent, fully temperature compensated battery charger

- Prolongs battery life
- Selectable high charging capacity for large capacity extended backup time battery banks

### Optimum design for heat dissipation

The control and power circuits are separated to reduce operating temperature for high reliability under adverse operating conditions.

### Battery Power start feature

The unit can be started with or without the AC mains using battery power alone eliminating large surge currents.

### A selection of optional accessories to meet your particular needs are available

- Remote control panel
- 3-Phase PC monitoring software
- Battery monitoring module
- 3-Phase SNMP card
- Emergency Power Off Switch
- Input harmonic filter – reduces T.H.D. (Total Harmonic Distortion) of the input current



Listed to  
UL1778 and UL924

## Applications

Production Facility  
Testing Lab  
Telecommunications  
Industrial  
Government  
Public Building  
Schools  
Healthcare  
Cruise & Cargo Ship  
Banking  
Printing Facility



# Power Wave 4 Specifications

**Power Rating:** 60, 80, 100, 120, 160 kVA

(also available upon request 200, 240, 300, 400, 500 kVA)

**Input Voltage:** 208Y/120V or 480Y/277VAC (-15% to +15%)

**Output Voltages:** 208Y/120V or 480Y/277VAC

**Output Frequency (Inverter Operation):** 60 Hz  $\pm$  1 Hz

**Voltage Regulation:**  $\pm$ 1% at 100% unbalanced load

**Output Voltage Wave Form:** Sine-Wave <2% THD.

**Crest Factor:** 3:1 Typical

**Surge Protection:** The UPS will protect itself and the load against surges as defined in ANSI/IEEE C62.41 Categories A and B.

**Isolation:** True galvanic isolated

**Battery:** Sealed maintenance-free VRLA or Long Life Battery (available upon request)

**Recharge Time:** Varies per KVA and conforms to UL924.

**Environmental:**

**Humidity:** 0 - 90% (non-condensing)

**Operating Temperature:** UPS: 0° to 40°C. (32° - 104°F)

Battery: 20° to 30°C. (68° - 86°F) higher temperature batteries are available for special order

**Storage Temperature:** -20° to 60°C. (-4° - 140°F) electronics only.

**Altitude:** Up to 5,000 ft

**Cabinet Size (UPS only):**

**60kVA:** 34"W x 63"H x 31.5"D

**80-160kVA:** 55.5"W x 63"H x 31.5"D

**200-300kVA:** 86.5"W x 63"H x 31.5"D

**400kVA:** 133"W x 71"H x 39.5"D

**500kVA:** 178"W x 71"H x 39.5"D

Battery	Sealed Lead Acid VRLA	NICAD
No. of batteries	29	271 Cells
Voltage Range	295 - 410V	285 - 415V
Low Batt Volt (warning)	320VDC	305VDC
Low Batt Shut Down	295VDC	285VDC
Boost Charge	402VDC	415VDC
Float Charge	390VDC	410VDC

KVA/KW	Input - Output Voltages	MODEL NUMBERS	DC Voltage	BTU/ Hr	**Weights (lbs)	
					UPS	Each Battery Cab (#) of cab
60 / 48	208/120 - 208/120 480/277 - 480/277	PW060B05ATT3 PW060H09ATT3	348	11942 11942	1724 1724	4822 (2)
80 / 64	208/120 - 208/120 480/277 - 480/277	PW080B05ATT3 PW080H09ATT3	348	15695 15695	2276 2276	4040 (3)
100 / 80	208/120 - 208/120 480/277 - 480/277	PW100B05ATT3 PW100H09ATT3	348	18425 18425	2984 2984	3345 (4)
120 / 96	208/120 - 208/120 480/277 - 480/277	PW120B05ATT3 PW120H09ATT3	348	22178 22178	3138 3138	4929 (3)
160 / 128	208/120 - 208/120 480/277 - 480/277	PW160B05ATT3 PW160H09ATT3	348	29684 29684	3868 3868	4874 (4)
* 200 / 160	208/120 - 208/120 480/277 - 480/277	PW200B05ATT3 PW200H09ATT3	348	39238 39238	5746 5746	*
* 240 / 192	208/120 - 208/120 480/277 - 480/277	PW240B05ATT3 PW240H09ATT3	348	44356 44356	6229 6229	*
* 300 / 240	208/120 - 208/120 480/277 - 480/277	PW300B05ATT3 PW300H09ATT3	348	55616 55616	7293 7293	*
* 400 / 320	208/120 - 208/120 480/277 - 480/277	PW400B05ATT3 PW400H09ATT3	348	78476 78476	9061 9061	*
* 500 / 400	208/120 - 208/120 480/277 - 480/277	PW500B05ATT3 PW500H09ATT3	348	98948 98948	10166 10166	*

\* Units are available only upon request.

## STANDARD FEATURES

- 6 pulse or 12 pulse controlled rectifier (12 pulse for 80 kVA & up)
- Input main circuit breakers
- Data and events LCD display
- Built-in Transient Voltage Surge Suppressor
- EMI suppression
- PWM methodology (DSP)
- Isolation transformer at output for True galvanic isolation
- Modular design to facilitate ease and speed of service
- Cold start function: UPS can be started with battery power only without an AC source
- Green Mode Operation
- Multi-CPU design: Several CPUs are employed in control circuit and critical functions are designed with parallel redundancy for added reliability
- Protection against misuse: circuit breaker on/off sensor, and power supply sensor, the user cannot cause UPS damage by operator error.
- Intelligent charger: UPS will automatically recharge with temperature compensation.
- Intelligent battery test
- Redundant power supply
- RS-232 / RS-485 for various accessory options
- 8 Dry contacts: INVON,OVL,FAULT, SS, BYPASS, BACK-UP, BATL, COM.
- External Shutdown- two pairs of terminals for UPS shut down
- DB9 Connection-4 of RS-485 & 1 of RS-232:

The following are some connection examples of optional modules

- CNR21 (RS-232): UPSCOM- Software for PC Monitoring, SNMP card
- CNR9 (RS-485): DCMAN- Battery Monitoring Module
- CNR10 (RS-485): UPSCAN- Remote Control Panel
- CNR12,13,14,15,17,18,19 (RS-485): UPSCALL- Auto Dialing Module
- CNR11: for transferring RS-485 into RS-232

## OPTIONS

- Remote control panel UPSCAN™
- Software for PC monitoring UPSCAN™
- Auto dialing module UPSCAN™
- Battery Monitoring module DCMAN™
- Output Circuit Breaker
- Battery Exerciser

Specifications are subject to change without prior notification.

