

# Powerware® 9150 UPS

## Features

- ▶ Double-conversion online technology provides reliable operation
- ▶ Advanced Battery Management (ABM®) technology doubles battery service life
- ▶ Matching battery cabinets extend backup times
- ▶ Automatic voltage and frequency selection eases startup
- ▶ Standard static bypass and manual bypass switches mean zero transfer time
- ▶ Complete offering of power management software included to ensure data integrity
- ▶ Efficiency Optimizer minimizes power loss, reduces power consumption, and cuts your power bill
- ▶ Compatible for engine generator applications



Designed with enhanced flexibility and efficiency, the Powerware 9150 uninterruptible power system (UPS) offers premium, online power protection for LANs, measurement instruments, industrial automation machines, server farms, and other sensitive electronic equipment.

Available in power ratings from 8.0 to 12.5 kVA, the Powerware 9150 utilizes double-conversion online technology to deliver exceptional voltage regulation, bi-directional filtering (to eliminate power line noise), and low input current distortion.





## Product Snapshot

Rating: 8.0-12.5 kVA  
Input Voltage: 200/100, 208/120, 220/110, 220/127, 240/120 Vac  
Output Voltage: 200/100, 208/120, 220/110, 220/127, 240/120 Vac  
Frequency: 50 and 60 Hz  
Configuration: Cabinet with internal batteries; multiple battery cabinets available

This feature-rich UPS also comes standard with Powerware's exclusive Advanced Battery Management (ABM®) technology, which doubles battery service life, optimizes recharge time, and provides advanced warning when batteries are reaching the end of their useful life. Matching battery cabinets are additionally available to extend runtime to the UPS.

Offering the most compact, cost-effective, and comprehensive solution to power protection, the Powerware 9150 is backed by Powerware's 40-year reputation as a world leader in the manufacturing of power protection products.

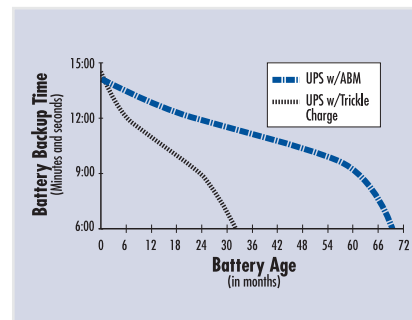
## Powerware Recommends

Software	Connectivity	System Solutions	Service
<ul style="list-style-type: none"><li>&gt; Powerware Software Suite ensures integrity; free updates on <a href="http://powerware.com">powerware.com</a></li></ul> 	<ul style="list-style-type: none"><li>&gt; Expansion chassis</li><li>&gt; ConnectUPS-X Web/SNMP Card</li><li>&gt; USB</li><li>&gt; Multi-Server Card</li><li>&gt; Modbus</li></ul> 	<ul style="list-style-type: none"><li>&gt; ViewUPS Panel</li><li>&gt; Extended Battery Cabinets</li><li>&gt; Power Distribution Modules</li><li>&gt; Seismic Mounting</li></ul> 	<ul style="list-style-type: none"><li>&gt; On-site Gold Plans</li></ul> 

# Patented Advanced Battery Management (ABM) Technology Doubles Battery Service Life

The lead-acid batteries typically used in a UPS are considered viable as long as they can maintain backup times of at least half that of new batteries. The illustration to the right shows how batteries that are constantly trickle charged (as are virtually all batteries of other UPSs on the market today) reach the end of their useful life in less than half the time of batteries

charged using Advanced Battery Management (ABM). ABM uses a patented three-stage charging technique that not only doubles battery service life, but also optimizes recharge time and provides up to a 60-day advanced notification of the end of useful battery life.



Data based upon tests performed by an independent battery manufacturer.

## Technical Specifications<sup>1</sup>

Power	
Ratings	8, 10, & 12.5 kVA
Technology	Online, double-conversion technology with static bypass switch and maintenance bypass switch; frequency independent operation

Electrical Input	
Rated Voltage	See Model Selection Guide
Voltage Range	Two phase; 85–146 V per phase (170–292 Line to Line)
Frequency Range	45–65 Hz
Rated Frequency	50/60 Hz selectable, or auto-configuring
Power Factor	.95 typical
Efficiency	89% online; 98% with Efficiency Optimizer (optional setting)

Electrical Output	
Voltage	200/100, 208/120, 220/110, 220/127, 240/120 (Selectable through front panel)
Frequency	50/60 Hz; $\pm 0.5$ , $\pm 2.0$ , or $\pm 3.0$ Hz selectable synchronization to utility; $\pm 0.005$ Hz free running, slew rate 2.5 Hz/sec (programmable)
Voltage Regulation	$\pm 2\%$ static
Dynamic Response	$\pm 5\%$ at 100% load change response time 1 ms
Voltage Distortion	$< 2\%$ THD on linear load $< 5\%$ THD on nonlinear load
Overload Capacity	150% 30 seconds on inverter 1000% 20 ms on bypass

Battery	
Type	Sealed lead-acid batteries 12 V 7 Ah
Backup Time	See Estimated Backup Times
Recharge Time	$< 3$ hrs. to 90% capacity
Battery Test	Innovative monitoring with Advanced Battery Management (ABM)
Start-On-Battery	After initial startup, UPS can be turned on using internal batteries

Battery (Continued)	
Optional External Battery Ratings	EBC-48: 48 x 12 V 7Ah (DC voltage: 288 V) EBC-96: 96 x 12 V 7Ah (DC voltage: 288 V)

Control Features	
User Interface	Monitoring panel LEDs: UPS on, Line on, Battery operation, Bypass, Overload, Overtemperature, Service required, Load bar graph, and Audible alarm
Serial Communications Port	Two RS-232 serial communications ports, one with full modem compatible interface and one computer interface port. The computer port provides 24 VDC power, 5 watts maximum, to power the ConnectUPS SNMP Adapter. Both ports are UPSCode-II and BCM compatible.
Voltage Free Relays	Line failure, low battery, bypass, and alarm. Emergency power off (input)

Environmental	
Operating Temperature	15–25°C (recommended), 0–40°C
Ventilation	Fan cooling, temperature $\mu$ P monitored; vent holes on both sides of UPS
Humidity	5–95% RH non-condensing
Audible Noise	$< 50$ dBA at 3 feet
RFI Suppression	FCC Class A
Safety	UL 1778, cUL per CSA C22.2 No. 107.1
Input Surge Immunity	ANSI C62.41 Cat B (formerly IEEE587 Class B)
Options	External battery cabinets Remote status panel Power distribution module 2" x 16" Alphanumeric Display (ViewUPS)
Dimensions & Weight	See Model Selection Guide

<sup>1</sup> Due to continuing product improvement programs, specifications are subject to change without notice.

## Options and Software

### Standard Front Panel Interface

To control and monitor the performance of the UPS, the front panel features the on/off switch, reset button, battery start pushbutton, and a set of LEDs which display the following:

- ▶ UPS power on and utility voltage on
- ▶ UPS on battery
- ▶ Bypass mode
- ▶ Overload, overtemperature, alarm, and service conditions



### Optional ViewUPS Monitoring Panel

The ViewUPS is an enhanced user interface designed for industrial and process control applications in which the use of power management software is not an option.

The ViewUPS is equipped with the following:

- ▶ LCD screen
- ▶ LED display
- ▶ Function pushbuttons
- ▶ Audible alarms
- ▶ Wall-mounting plate (ViewUPS can be installed in a suitable place within 50 meters of the UPS)



### Power Distribution Module

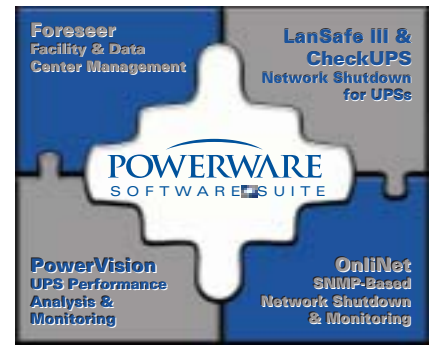
Standard models utilize hardwired input and output connections. An optional power distribution module comes with user-selectable receptacles and attaches easily to the rear panel of the UPS as shown below.

(See back page for receptacle options.)



Wheels provide for easy movement and installation while adjustable feet stabilize the UPS.

The power distribution module has 10 receptacle panel slots, of which six can accommodate two-phase panels.



Powerware Software Suite

### Powerware Software Suite

The industry's most comprehensive software bundle, the Powerware Software Suite, is free and included with every Powerware UPS.

- ▶ Software Wizard guides you through software selection and installation
- ▶ In addition to multimedia demonstrations, product data sheets, and video clips, the Software Suite contains the following power management software:
  - LanSafe III and CheckUPS network shutdown for UPSs
  - OnliNet (Lite / Vista / Centro): SNMP-based network shutdown and monitoring for UPSs
  - PowerVision (30-day trial version): UPS performance analysis and monitoring
  - Foreseer (demonstration): Facility and data center management



## Powerware 9150 Model Selection Guide

Rating (kVA)	Frequency (Hz) <sup>1</sup>	Input Voltage Range (Vac) <sup>2</sup>	Output Voltage (Vac)	Dimensions H x W x D (inches) <sup>3</sup>	Weight (lb/kg)
8.0 <sup>4</sup>	50/60	85–146 (per phase) 170–292 (Line to Line)	(200/100, 220/110, 120/240) <sup>5</sup> (208/120, 220/127) <sup>6</sup>	28 x 16 x 29.5	510/231
10.0 <sup>4</sup>	50/60	85–146 (per phase) 170–292 (Line to Line)	(200/100, 220/110, 120/240) <sup>5</sup> (208/120, 220/127) <sup>6</sup>	28 x 16 x 29.5	510/231
12.5	50/60	85–146 (per phase) 170–292 (Line to Line)	(200/100, 220/110, 120/240) <sup>5</sup> (208/120, 220/127) <sup>6</sup>	28 x 16 x 29.5	510/231

### External Battery Cabinets

EBC-48	–	–	–	28 x 16 x 29.5	422/191
EBC-96	–	–	–	28 x 16 x 29.5	719/326

1. Selectable, auto-configuring. Output voltage is auto-configured to match input. 2. Two phases required. 3. Power distribution module adds 5" of depth.

4. Available in 32 and 48 battery models. See below for backup times. 5. 180° phase displacement. 6. 120° phase displacement.

## Backup Times (in minutes)

Load (VA/Watts)	32 Battery Model (Internal Batteries)	48 Battery Model (Internal Batteries)	EBC-48	EBC-96	EBC-48 & EBC-96	Two EBC-96	Three EBC-96
2000/1400	47	80	195	329	477	636	–
3000/2100	31	52	127	215	311	415	–
4000/2800	22	37	92	156	226	301	464
5000/3500	17	29	71	120	176	233	359
6000/4200	14	23	58	97	141	188	290
7000/4900	11	19	48	81	117	156	241
8000/5600	10	17	41	69	100	133	206
9000/6300	8	14	35	60	86	115	178
10000/7000	7	13	31	52	76	101	157
11000/7700	–	12	28	47	66	90	139
12000/8400	–	11	25	42	61	81	125
12500/8750	–	9	23	40	58	77	119

Additional battery cabinets are sold separately. This guide provides typical application information. Battery times are approximate and may vary with equipment, configuration, disk access, battery age, temperature, etc.

## Power Distribution Module: Output Panels

Option	Receptacle(s)	Breaker (Amps)	Voltage	Phase
A	(2) 5-15R	15A	120 V	Single
B	(2) 5-20R (UL)	20A	120 V	Single
C	(2) 5-20R (CSA)	20A	120 V	Single
D	(2) 6-15R	15A	208 V	Dual
E	(2) 6-20R	20A	208 V	Dual
F	(2) L5-15R	15A	120 V	Single
G	L5-20R	20A	120 V	Single
H	L5-30R	30A	120 V	Single
I	(2) L6-15R	15A	208 V	Dual
J	L6-20R	20A	208 V	Dual
K	L6-30R	30A	208 V	Dual
L	L14-20R	20A	120/208 V	Dual
M	L14-30R	30A	120/208 V	Dual

A maximum of 10 output panels can be selected and are mounted on a Power Distribution Module.

A maximum of 6 dual phase panels can be installed. PDM ships in separate box.

**Invensys Powerware**  
8609 Six Forks Road  
Raleigh, NC 27615 U.S.A.  
Toll Free: 1.800.356.5794  
or 919.872.3020  
Fax: 1.800.753.9433  
www.powerware.com

PP501FXA  
Revision 05/03  
Reprint 05/03

Europe  
Finland: 358 94 52 661  
France: 33 1 6012 7400  
Germany: 49 7841 666 0  
Italy: 39 02 6600661 2  
UK: 44 (0) 1753 608700

Southeast Asia  
Singapore: 65 6861 0377

China and North Asia  
Hong Kong: 852 2745 6682

Japan  
Shinagawa, Tokyo: 81 3 3447 4441

Australia and South Pacific  
Sydney, Australia: 61 29878 5000

Canada  
Toronto, Ontario: 416.798.0112

Brazil  
Sorocoba, Brazil: 55 15 235-8000

Mexico  
C.P. 11410 Mexico D.F.:  
52 55 9171 7777

invensys™  
**POWERWARE**