



# Powerware

## Powerware® 9390 Uninterruptible Power System

Product Focus

40-160 kVA



### Features

- Delivers unmatched power performance for efficiency, input current harmonic distortion (THD), and power factor
- Meets present and future power needs with scalable architecture for capacity and redundancy
- Ensures reliable battery performance with innovative three-stage charging system, battery health-checks, remote monitoring, and optional temperature-compensated charging
- Reduces installation time and costs with small footprint and the flexibility to install against walls, using top- or bottom-entry cabling
- Provides a one-year, limited factory warranty\* on parts and labor, startup service, one year of remote monitoring, on-site preventive maintenance, and optional service plans

The Powerware® 9390 uninterruptible power system (UPS) is a double-conversion UPS that resolves all utility power problems and supplies clean, continuous, uninterruptible power to connected equipment. Whether you're selecting a UPS for a branch office, manufacturing floor, medical facility, or a large data center, there's a Powerware 9390 model that delivers just the right combination of performance and price for your needs.

#### **Advanced design delivers unequaled power performance**

The innovative design of the Powerware 9390 delivers the industry's best performance combination of efficiency, input current distortion and power factor.

The Powerware 9390 operates at a high efficiency of up to 94 percent, reducing utility costs and extending battery runtimes. Higher system efficiency produces cooler operating conditions, which reduces facility air conditioning cost, extends the life of UPS components, and increases overall reliability, availability, and performance.

A new input circuit design keeps input current THD low and input power factor near unity without compromising overall efficiency. As a result, the Powerware 9390 allows maximum transfer of power between power source and protected load and is exceptionally compatible with multiple power sources, especially auxiliary generators.

On the output side, the ultra high speed switching pulse width modulation (PWM) inverter enables the Powerware 9390 to provide its full rated power capability to the load, up to 0.9 leading power factor without de-rating.

#### **Double-conversion design offers the highest protection possible**

Unlike some other commercially available UPS technologies, the double-conversion design completely isolates output power from all input power anomalies and delivers 100-percent conditioned, perfect sine wave output—regulating both voltage and frequency.

Even when presented with the most severe power problems, power output remains stable. Output voltage THD is held within two percent of nominal specification for linear loads, within five percent for non-linear loads—making the Powerware

A variable battery bus accommodates 384V to 480V configurations, so the battery capacity can be matched to your exact runtime requirements—either a specific runtime, an extension to existing battery runtime, or legacy battery installations.

Beyond the warranty period, service plans are available to match any need—from basic UPS and/or battery support to all-inclusive packages with unique features, such as advanced remote monitoring with trending, customized UPS and battery capacity planning reports, and comprehensive power protection audits.



9390 ideal for supporting equipment that is sensitive to a distorted voltage input as a result of harmonic loads. In the event of a utility power failure, there is no delay transferring to backup power.

With remote monitoring of the UPS and battery system, Eaton is there with you—able to respond to alarms and real-time battery data to avert potential battery problems.

And of course, the Powerware 9390 UPS comes complete with the Powerware Software Suite of products, which provides monitoring, management, and optional shutdown capabilities over your network. Connectivity options are available to suit nearly any communication requirement, from standard serial communications to secure remote monitoring over the Web.

#### **Advanced battery management optimizes battery performance and service life**

Eaton's ABM® technology uses a unique three-stage charging technique that significantly extends battery service life and optimizes recharge time, compared to traditional trickle charging. An integrated battery management system tests and monitors battery health and remaining lifetime, and provides advance notification to guide preventive maintenance. Optional temperature-compensated charging monitors temperature changes and adjusts the charge rate accordingly to properly charge the battery and greatly extend battery life.

#### **Industry-leading warranty and service plans deliver peace of mind**

We are so confident about the performance and reliability of the Powerware 9390 UPS and battery system that we back it up with the industry's most extensive warranty and service plans. The Powerware 9390 UPS features a one-year limited factory warranty (parts and labor)\*. The Powerware 9390 also comes with a service protection package, which includes startup service, one year of battery replacement labor coverage, and one year of Web remote monitoring of both the UPS and batteries.



**Scalable architecture meets your current and future load requirements**

The Powerware 9390 UPS supports loads from 40 kVA to 160 kVA to deliver power protection for small branch offices to large corporate data centers and communication networks.

Up to four equivalent UPS modules can be paralleled for additional capacity or redundancy, without having to utilize a central paralleling cabinet. Up to eight UPS modules can be paralleled by utilizing a module tie cabinet. In all paralleling configurations, each UPS module operates independently yet is completely synchronized with the others. Parallel UPS modules can provide N+1, N+2, or greater redundancy.

**Flexible installation options expedite deployment and save valuable space**

The Powerware 9390 UPS offers the smallest footprint of any UPS in its class—35 to 50 percent smaller than competitive units. Cabling can enter the UPS from either the top or bottom of the cabinet to provide easier and flexible installation. The Powerware 9390 provides front panel access for all services and operation, increasing serviceability and reducing Mean Time to Repair (mtrr). And since the compact Powerware 9390 cabinet can be installed against back and side walls, you have more location options, installation is fast and easy, deployment cost is lower, and you save valuable data center space.

**Eaton delivers a new level of confidence**

The culmination of 40 years of R&D excellence, the new Powerware 9390 UPS means confidence—confidence that your organization’s critical systems are protected by the most reliable, efficient, and full-featured protection available, and confidence that Eaton will be there with you for the long term with premium warranty coverage and expert technical support.

To find out more about the new Powerware 9390 UPS, visit our Web site at [www.powerware.com/9390](http://www.powerware.com/9390), or contact us at 1.800.356.5794.



Modbus Card      ConnectUPS-X Web/SNMP-X Card



Two standard, embedded communication bays provide “plug-and-play” support for multiple communication cards. A total of four communication bays are available with the communication expansion option.

# Technical Specifications<sup>1</sup>

## UPS Rating (0.9 power factor)

kVA	40	50	60	80	100	120	160
kW	36	45	54	72	90	108	144

## General Characteristics

Efficiency	Up to 94%
Parallel Capability	4x modules w/o tie cabinet; 8x with tie cabinet
Audible Noise	< @ 1 meter
Altitude (max)	2000m at 40°C

## Input Characteristics

Voltage	208, 480, 600 <sup>2</sup>
Voltage Range	+10% / -15% <sup>3</sup>
Frequency Range	55-65 Hz
Power Factor	0.99 (min)
Input Current Distortion	<4.5% (no input filter required)
Soft Start Capability	Yes
Internal Backfeed	Yes
Protection	

## Output Characteristics

Voltage	208 <sup>4</sup> , 480 <sup>4</sup> , 600 <sup>5</sup>
Regulation	± 1%
Inverter	PWM with IGBT switching
Voltage THD	<2% (100% linear load); <5% (non-linear load)
Load Power Factor Range	Up to 0.9pf leading without de-rating

## Battery

Battery Types	VRLA, AGM, Gel, Wet
Battery Voltage	384-480V
Temperature Compensation	Optional
Charging Method	Advanced battery management

## Dimensions & Weights

40-80 kVA Modules	18.9"w x 31.6"d x 73.7"h
120-160 kVA Modules	35.6"w x 31.6"d x 73.7"h
40-80 kVA Modules	640 lb (208V); 568 lb (480V)
100-160 kVA Modules	1,060 lb (208V, 480V)

## Serviceability

Back/Side Against Wall Installation	Standard
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## Optional Accessories

Module Tie Cabinet
External Maintenance Bypass
Integrated Distribution Cabinet
Isolation Transformer

## Certification

Safety	UL1778, cUL
EMC	FCC Class, A
Surge	ANSI C62, 41 Cat, A&B

## eNotify Remote Monitoring Service

24 x 7 remote monitoring of UPS and battery alarms, daily heartbeat check and monthly report required. ConnectUPS-X Web/SNMP Card and Environmental Monitoring Probe are included.

## Communications

Software Compatibility - PowerVision®, LanSafe®, FORESEER®  
Communications Cards - Standard system includes one ConnectUPS Web/SNMP/-X Card with an Environment Monitoring Probe. Two communications bays standard. Maximum of four communication bays with the communication expansion option. The following connectivity options can be installed at any time:  
- ConnectUPS Web/SNMP/-X Card  
- Modus Card  
- Relay Interface Card (Use for AS400s)  
- Industrial Relay Card (5A@120V)  
- Hot Sync CAN Bridge Card provides CAN communications, isolated RS-485 port  
- Environmental Monitoring Probe (EMP)\*\*

Remote Inputs/Outputs - Two building alarms inputs and on summary alarm contact (5A@120V) standard  
Four more building alarm inputs available with the Communications Expansion Option  
Remote Panel - Eight backlit status indicator lamps plus an audible horn\*\*

\*See the Limited Factory Warranty for Powerware 9390 products for details. Batteries are warranted by the battery manufacturer and not by Eaton.

\*\*Requires the ConnectUPS Web/SNMP/-X Card.

\*\*\*Requires the Parallel Card option (RS-485 port) and requires an external 120V power supply to drive the remote monitor panel.

1. Due to continuing improvements, specifications are subject to change without notice.
2. 600V application require an input transformer.
3. At full load without battery discharge.
4. Output transformers are required if the desired output voltage is not the same as the input voltage.
5. 600V applications require an output transformer. 2-4. Please refer to Integrated Distribution Cabinet brochure 9390IDC for more information.



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