Eaton 9390 UPS
20-160 kVA
Innovative design delivers industry-leading power performance

The Eaton® 9390 is a doubleconversion uninterruptible power system (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 data center, there’s a 9390 model that delivers just the right combination of performance and price for your needs.

Features and Benefits

- Transformer-less design
  - Increased efficiency over transformer-based UPSs
  - Smaller footprint and higher power density
  - Lower installation and shipping costs
- Flexible Installation
  - Mount directly next to a wall or even in a corner.
  - Completely accessible for service and maintenance from front panel
  - Top and bottom cable entry
- Voltage Options
  - Conventional 208V and 480V for standard US system designs
  - Available 400V for higher efficiency US system designs
- Powerware Hot Sync
  - Easily expand system capacity
  - Sync parallel configurations without fail-prone control wires
- Advanced Battery Management
  - Cyclical battery charging increases service life of batteries, reducing total cost of ownership
  - Sophisticated battery condition monitoring, testing, and alerts identify potential problems before they affect your load
- Low Total Harmonic Distortion
  - Low input THD ensures compatibility with extended backup power sources (generators).
  - Low output THD provides clean pure power to operate the load safely and efficiently
- Complete line of system accessories
  - Battery cabinets
  - Integrated distribution cabinets
  - Integrated accessory cabinets
High efficiency options reducing costs and wasted energy

Energy Saver System

The 9390 has delivered excellent energy efficiency since its introduction to the market, helping facilities save thousands in energy costs over traditional UPS designs. Now with the available Energy Saver System (ESS), the 9390 achieves over 99 percent efficiency no matter how large or small the load. This additional energy savings is achieved through advanced power core technology, and continues to provide the load with maximum protection. Unlike traditional “eco” modes, ESS is not just a utility bypass. The load is always protected. Learn more at Eaton.com/ESS and see how much money you can save with our UPS efficiency calculator.

ENERGY SAVER SYSTEM VS. LEGACY UPS

<table>
<thead>
<tr>
<th>CRITICAL LOAD</th>
<th>50 kW</th>
<th>125 kW</th>
<th>250 kW</th>
</tr>
</thead>
<tbody>
<tr>
<td>(energy + demand) per kW hr</td>
<td>ELECTRIC COSTS</td>
<td>$0.11</td>
<td>$0.11</td>
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<tr>
<td>LEGACY UPS EFFICIENCY</td>
<td>92.5%</td>
<td>92.5%</td>
<td>93%</td>
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<tr>
<td>EATON ESS UPS EFFICIENCY</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
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<tr>
<td>3-YEAR ANNUAL ENERGY SAVINGS</td>
<td>145 MW hr</td>
<td>363 MW hr</td>
<td>670 MW hr</td>
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<tr>
<td>3-YEAR ANNUAL CO₂ SAVINGS</td>
<td>104 METRIC TONS</td>
<td>261 METRIC TONS</td>
<td>481 METRIC TONS</td>
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<td>ANNUAL ELECTRICAL COST SAVINGS*</td>
<td>$15,972</td>
<td>$39,929</td>
<td>$73,715</td>
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* Includes savings realized through minimizing UPS energy losses and reduced cooling requirements.

400 volt

In addition to conventional (208V and 480V) voltage capabilities, the 9390 now has the ability to support direct-connect 400/230 Vac for powering directly to the IT rack. This capability allows for the deployment of a UL/CE rated UPS that can protect and distribute 400/230 Vac directly to IT racks without an additional step-down transformer. Some of the efficiencies and benefits of this alternative voltage powering are:

- Elimination of the step-down 480-208V transformer lowers heat losses, saves valuable floor space, and significantly reduces capital expenditure
- Higher voltage directly to IT equipment allows it to operate at higher efficiency (no changes required, as virtually all servers are rated to operate at up to 240 Vac)
- No changes to power distribution equipment since connectors and circuit breakers already exist with these ratings
- End-to-end efficiency of a 400V system design can be up 8% higher than that of a traditional 480V system.
- Learn more about 400V system design at Eaton.com/400volt
Scalable architecture meets your current and future load requirements

The 9390 supports up to 160 kVA to deliver power protection for small branch offices to large corporate data centers and communication networks. Up to four equivalent 9390 modules can be paralleled for additional capacity or redundancy, without having to utilize a central bypass 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.

Powerware Hot Sync technology: The culmination of power reliability

Eaton’s patented Powerware Hot Sync technology enables multiple UPSs to share the load equally, eliminating the transfer time when shifting the load from one module to the other. The load share control algorithms maintain adjustments to variations in the output power requirements.

When two or more UPSs operate in parallel for capacity and redundancy, Hot Sync addresses the two primary concerns of load sharing and selective tripping. To address these concerns for reliability – the degree of autonomy and the complexity of implementation – Hot Sync combines digital signal processing and an advanced control algorithm to provide automatic load sharing and selective tripping in a parallel system, as well as complete autonomy of the modules and a skilfully simple implementation.

Powerware Hot Sync wireless paralleling technology for capacity or redundancy

This two-module system shown below can be configured as 160 kVA N+1 redundant (320 kVA capacity with 36-inch tie cabinet). The width of this configuration is a compact 164.6 inches.

The 9390 achieves optimum reliability and flexibility with the following design features:

- Unlike other paralleling techniques, there is no system-level single point of failure
- Hot Sync systems are capable of paralleling for both redundancy and capacity
- By using a peer configuration as opposed to a master-slave configuration, Hot Sync ensures that each module is operating independently
- No added circuitry or components are required to be switched in to operate in parallel
- With thousands of successful systems installed globally, Hot Sync is a proven technology
- The output of multiple UPSs remains in phase so that static transfer switches connected between the separate distribution paths may change state seamlessly when necessary

Each parallel unit operates with its own battery string – if any unit goes offline or is taken down for maintenance, the remaining units support the load fully with their battery capabilities. If any battery string fails, the remaining strings continue to support the load – thus eliminating a key potential single point of system failure.

Typical Powerware Hot Sync configuration:

“The units’ efficiency definitely played a role in our selecting the 9390 … ESS will pay for itself within the year.”

- Tim Cooper, data center facilities manager, Travelport
Flexible installation options expedite deployment and save valuable space

The 9390 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. And since the compact 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.

Serviceability and accessibility

Being a pre-wired, integrated module, the 9390 saves time and cost of installation and cabling expenses because of standard top or bottom entry design. And with front access, the 9390 can be placed in a corner or against a wall—easily available for service and saving valuable space.

Weight

At $.30 per pound, the 9390 averages a cross-country freight savings of over $630. With a transformerless design, Eaton UPS solutions meet or exceed virtually all floor loading standards. And with this lower weight, units can be moved without heavy capital equipment and can fit in all standard freight elevators.

Retrofit applications

The 9390 is perfect for retrofit operations. When an existing UPS is exceeding capacity but has no room to expand, or when the service contract is expiring, the existing UPS can be removed and replaced with a 9390 that offers more power in less space.

Big power, small footprint

EATON 9390
Weight = 580 pounds
18.9 x 31.6 in.

Competition’s
Weight = 2700 pounds
32.5 in. x 34.9 in.

Service Plans

<table>
<thead>
<tr>
<th>Eaton 9390 UPS Service Plans</th>
<th>PowerTrust™ Value</th>
<th>ProActive</th>
<th>PowerTrust</th>
<th>PowerTrust Preferred</th>
<th>Flex Contracts</th>
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<tr>
<td>Parts and Labor for Electronics</td>
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<td>●</td>
<td>●</td>
<td>●</td>
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<tr>
<td>Parts and Labor for Batteries</td>
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<td>5x8 Onsite Corrective Maintenance</td>
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<tr>
<td>24x7 Onsite Corrective Maintenance</td>
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<tr>
<td>Next Business Day Response</td>
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<td>Eight-Hour Response</td>
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<tr>
<td>Four-Hour Response</td>
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<td></td>
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<tr>
<td>Two-Hour Response</td>
<td>○</td>
<td>○</td>
<td>○</td>
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<tr>
<td>5x8 UPS Preventive Maintenance Visit</td>
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<td>One per year</td>
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<tr>
<td>24x7 UPS Preventive Maintenance Visit</td>
<td>One per year</td>
<td>○</td>
<td>Two per year</td>
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<td>Battery Preventive Maintenance Visit</td>
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<tr>
<td>eNotify Remote Monitoring Service</td>
<td>●</td>
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<td>●</td>
<td>●</td>
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<tr>
<td>Discounted Spare Parts Kit, T&amp;M, and Upgrades</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td>30%</td>
<td></td>
</tr>
</tbody>
</table>

● Included feature
○ Optional

Proven warranty and support services

Customers consistently rank Eaton services number one in quality. Eaton’s comprehensive, world-class service solutions are designed to improve costs, uptime, reliability, power quality and safety. And with 240 field technicians in North America and 1,200 international authorized service providers, Eaton has more service personnel than any other UPS manufacturer.

The standard factory warranty covers:

• System warranty: One year parts / 90 days labor
• Battery warranty: Two years parts / 90 days labor

Extensive service options for enhanced reliability

For support beyond the warranty period, Eaton offers enhanced service options including onsite startup, corrective and preventive maintenance, battery solutions, training, remote monitoring and factory spare parts and upgrades. Customizable three-phase UPS services packages allow customers to select the plan that provides the right combination of system uptime, convenience and value.
Performance features to maximize compatibility

Low input current THD enhances generator compatibility

Electronic devices and UPSs are built with some components that are non-linear. When voltage is applied to a circuit constructed of non-linear components, the circuit may not respond linearly (current may not follow the voltage in a linear manner). These components may even create frequencies other than the fundamental applied frequency (60 Hz).

These frequencies (harmonics) occur in odd multiples of 60 Hz. The degree of occurrence is called total harmonic distortion (THD). If the power source can’t respond to all frequencies demanded by the circuit, then further distortion of the applied voltage may occur—creating more complication. Every UPS produces a level of harmonics. Unchecked, harmonics can reduce overall power factor, cause sensitive devices to malfunction, prematurely age equipment, and cause screens and displays to flicker.

To avoid these negative effects, the 9390 uses a special input circuit that keeps current THD at less than 4.5% at full load—without compromising efficiency. As a result, the 9390 transfers maximum power between the source and protected load and is exceptionally compatible with multiple power sources, especially auxiliary generators.

Power factor performance maximizes compatibility and meets high power factor load requirements

Power factor (PF) describes the slight phase shift between voltage applied to a circuit and current that the circuit draws in response to the applied voltage. The maximum power factor possible is unity (1.0), or no phase shift between the voltage applied and the circuit current response—maximum transfer of power between source and load. However, in the real world, the UPS must be able to accept power from and deliver power to circuits that have a wide range of power factors.

Older or worn equipment often results in lower power factor readings. Some new servers operate at unity power factor. Lightly loaded facilities such as brand new data centers, can often show leading power factor readings.

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

Double-conversion design offers highest available protection

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

Due to the 9390’s built in high-efficiency capability, it operates in a consistent, efficient status without compromising power protection. Even when presented with the most severe power problems, power output remains stable with the 9390. Output voltage THD is held within two percent of nominal specification for linear loads, within five percent for non-linear loads—making the 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.

Advanced battery management optimizes battery performance and service life

The 9390 UPS offers innovative technologies to maximize the health and service life of its internal and external batteries:

- ABM technology uses a unique three-stage charging technique that significantly extends battery service life and optimizes recharge time when compared to traditional trickle charging
- Temperature-compensated charging monitors battery temperature and adjusts the charge rate accordingly, which properly charges the battery and greatly extends battery life
- An integrated battery management system tests and monitors battery health and remaining lifetime, providing user notification to guide preventive maintenance

Load power factor range chart

![Chart showing load power factor range for leading and lagging power factors with kW and kVAR.](chart.png)
Connectivity options for up-to-date system status and integration

Enhanced communication capabilities
The 9390 UPS is equipped with a variety of standard communications features for network connectivity and remote management applications, including:
• RS-232 serial port
• Four X-Slot® communication bays
• Relay output contacts
• Two programmable signal inputs
• Remote emergency power-off (REPO)

Easy network connectivity and monitoring

Modbus® card
The Modbus card is an X-Slot device that allows continuous, real-time monitoring of the 9390 through a Building Management System (BMS) or industrial automation system.

Relay interface cards
The relay interface card for the X-Slot enables remote UPS shutdown and provides isolated dry contact Form-C relay outputs for utility failure, low battery, UPS alarm/OK, and on bypass.

Environmental Monitoring Probe
The environmental monitoring probe (EMP) works with the 9390 and Power Xpert Gateway UPS card to remotely monitor ambient temperature and relative humidity of the remote environment. The EMP can also be configured to provide status of two additional contact devices such as smoke detectors or open-door sensors.

Power Xpert® Gateway Series cards
Power Xpert Gateway Series X-Slot cards provide Web-enabled, real-time monitoring of UPSs, PDUs and RPPs through standard onboard Web pages, Power Xpert software or third-party software.

Power Xpert meters
Power Xpert meters combine state-of-the-art technology with next-generation power diagnostics, data trending and performance benchmarking with a twist-and-click LCD display.

Centralized control and visibility
The 9390 UPS is shipped with the Eaton Software Suite CD. The software suite includes the following applications, as well as a user-friendly wizard to guide users through software selection and installation:
• Intelligent Power Manager and LanSafe® power management software
• PowerVision® UPS performance analysis and monitoring software (30-day trial version)
• NetWatch network monitoring software

Connectivity options

Modbus card
Relay Interface cards
Environmental Monitoring Probe
Power Xpert Gateway Card
Intelligent Power Manager
Foreseer
PowerVision
eNotify

eNotify Remote Monitoring
Eaton’s eNotify Remote Monitoring Service provides 24x7 real-time monitoring of the 9390 and battery systems and alerts both service technicians and the customer when a problem is detected. Proactive monitoring enables technical experts to respond immediately to more than 40 alarm conditions and, in many cases, resolve issues remotely with minimal or no downtime.

Additional eNotify benefits include:
• One-way outbound status and event e-mails for security and reliability
• Fast diagnosis and notification of critical alarms
• Monthly customer reports including power event logs and overall UPS and battery health summaries
Available Integrated Cabinets

A full line of unified power distribution accessories

Integrated Battery Cabinet (IBC)

Eaton offers two versions of battery cabinets which line-up and match the 9390; the IBC-S and the IBC-L, each offering a wide array of runtimes. See Eaton.com/9390 for options and runtime calculations.

Flexibility

• A variable battery bus accommodates 384 to 480V configurations, so the battery capacity can be matched to your exact runtime requirements – either a specific runtime, an extended runtime, an extension to an existing battery, or legacy battery installations
• Daisy chain up to four cabinets together for extended runtimes
• Remote configurations are available
• Front access only design and top/bottom cable entry provides installation flexibility and enhances servicing

Integrated Distribution Cabinet (IDC)

The Eaton IDC is specifically designed to compliment the 9390. With this optional cabinet, Eaton offers a complete, one-stop shop for power protection and distribution solutions that is easy to design, install, customize and manage – while delivering pay-as-you-grow scalability for future expansion.

Features

• Two, three or four-breaker maintenance bypass
• Transformer options up to K20
• (2) 42-pole panelboards
Or
• (1) 42-pole panelboard and up to (3) 250A distribution breakers
Or
• Up to (6) 250A distribution breakers
• Line and match or remote
• Casters and leveling feet
• Panelboards come with individual 225A main breaker
• Neutral rated for harmonic loads (200%)
• Distribution breakers are Eaton JG electronic trip
  - Two electronic sensors available 100A and 250A
  - 100A settings 40-100A trip (eight settings)
  - 250A setting 100-250A trip (eight settings)
Integrated Accessory Cabinets (IAC) for customizable configurations

Eaton offers several configurations of Integrated Accessory Cabinets (IAC) for use with the 9390 UPS.

The IAC is primarily available in two forms – either a 200 mm (8”) sidecar bolted to the UPS (maintenance bypass or tie) or a 570 mm (22.5”) free-standing cabinet (maintenance bypass, tie or distribution). The size of the IAC is primarily dependant on function and rating.

IAC-SB and IAC-B Maintenance bypass

Maintenance bypass configuration (MBP) and maintenance isolation (MIS) breakers enable power to completely bypass the UPS power module. The module can then be serviced safely or replaced without interrupting power to critical systems. An optional bypass breaker (BIB) and rectifier input breaker (RIB) provide a single wiring point input to the UPS as well as a convenient method for removing power from the UPS when using maintenance bypass to supply the load.

Features
- Two, three or four-breaker maintenance bypass
- No internal transformers
- Smallest cabinet ships bolted to UPS (IAC-SB)
- Large cabinet can be remotely located (IAC-B)

IAC-ST and IAC-T Tie Cabinet

- Parallel UPS tie cabinet (redundant). See one-line diagram on next page.
- Two-breaker tie with maintenance bypass (IAC-T only)
- Two-breaker tie-with main output
- Two-breaker tie
- Wall-mounted maintenance bypass, tie and distribution panels are also available

IAC-D Distribution Cabinet

- Used to add (2) additional 42-pole panelboards
  Or
  + (1) 42-pole panelboards and up to (3) 250A distribution breakers
  Or
  + Up to (6) 250A distribution breakers
- Line and match or remote
- Casters and leveling feet
- Panelboards come with individual 225A main breaker
- Neutral rated for harmonic loads (200%)
- Distribution breakers are Eaton JG electronic trip
  - Two electronic sensors available 100A and 250A
  - 100A settings 40-100A trip (eight settings)
  - 250A setting 100-250A trip (eight settings)
ACCESSORY CABINET DIMENSIONS AND WEIGHT

<table>
<thead>
<tr>
<th>Accessory cabinet</th>
<th>IBC-S</th>
<th>IBC-L</th>
<th>IAC-B</th>
<th>IAC-T</th>
</tr>
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<tbody>
<tr>
<td>20-80 kVA (H x W x D, in)</td>
<td>73.7 x 22.5 x 31.6</td>
<td>73.7 x 42.7 x 31.6</td>
<td>73.7 x 22.5 x 31.6</td>
<td>73.7 x 22.5 x 31.6</td>
</tr>
<tr>
<td>20-80 kVA (weight)</td>
<td>Up to 2445 lb</td>
<td>Up to 4835 lb</td>
<td>Up to 540 lb</td>
<td>Up to 540 lb</td>
</tr>
<tr>
<td>100-160 kVA (H x W x D, in)</td>
<td>73.7 x 22.5 x 31.6</td>
<td>73.7 x 42.7 x 31.6</td>
<td>73.7 x 22.5 x 31.6</td>
<td>73.7 x 22.5 x 31.6</td>
</tr>
<tr>
<td>100-160 kVA (weight)</td>
<td>Up to 2445 lb</td>
<td>Up to 4835 lb</td>
<td>Up to 700 lb</td>
<td>Up to 700 lb</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accessory cabinet</th>
<th>IAC-D</th>
<th>M90 MBS</th>
<th>MTC</th>
<th>IDC</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-80 kVA (H x W x D, in)</td>
<td>73.7 x 22.5 x 31.6</td>
<td>Up to 73 x 24 x 11.5</td>
<td>Up to 90 x 36 x 11.5</td>
<td>73.7 x 35.6 x 31.6</td>
</tr>
<tr>
<td>20-80 kVA (weight)</td>
<td>Up to 420 lb</td>
<td>Up to 500 lb</td>
<td>Up to 500 lb</td>
<td>1200 lb (maximum)</td>
</tr>
<tr>
<td>100-160 kVA (H x W x D, in)</td>
<td>73.7 x 22.5 x 31.6</td>
<td>Up to 90 x 36 x 11.5</td>
<td>Up to 90 x 36 x 11.5</td>
<td>73.7 x 42.7 x 31.6</td>
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<tr>
<td>100-160 kVA (weight)</td>
<td>Up to 420 lb</td>
<td>Up to 775 lb</td>
<td>Up to 775 lb</td>
<td>2185 lb (maximum)</td>
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IDC TECHNICAL SPECIFICATIONS

9390 INTEGRATED DISTRIBUTION CABINET

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<tr>
<th>General characteristics</th>
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<tr>
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<tr>
<td>Construction</td>
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<tr>
<td>Input voltage</td>
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<tr>
<td>Output voltage</td>
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<tr>
<td>Isolation</td>
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<tr>
<td>Distribution</td>
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<table>
<thead>
<tr>
<th>Certification</th>
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<tbody>
<tr>
<td>Safety</td>
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<td>Markings</td>
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<table>
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<tr>
<th>User interface</th>
</tr>
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<tbody>
<tr>
<td>Cable entry</td>
</tr>
<tr>
<td>Remote monitoring</td>
</tr>
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<table>
<thead>
<tr>
<th>Transformer option</th>
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<tr>
<td>Electrostatic shield</td>
</tr>
<tr>
<td>Insulation</td>
</tr>
<tr>
<td>Impedance</td>
</tr>
<tr>
<td>K-factor</td>
</tr>
<tr>
<td>Compensation taps</td>
</tr>
<tr>
<td>Overload protection</td>
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POWER DISTRIBUTION OPTION - PANELBOARD DISTRIBUTION

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<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
</tr>
<tr>
<td>Voltage</td>
</tr>
<tr>
<td>Main breaker</td>
</tr>
<tr>
<td>Circuits</td>
</tr>
<tr>
<td>Distribution breakers</td>
</tr>
<tr>
<td>Quantity</td>
</tr>
<tr>
<td>Voltage</td>
</tr>
<tr>
<td>Size</td>
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MAINTENANCE BYPASS OPTION

<table>
<thead>
<tr>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maintenance bypass</td>
</tr>
</tbody>
</table>

1. Due to continuing product improvements, specifications are subject to change without notice.
A closer look inside the 9390

- X-Slot communication bays
- Top cable entry area
- System control and interface boards
- Replaceable converter/inverter modules
- Redundant power supplies
- Input/output connections
- Modular static switch assembly
- DC connections
- Bottom cable entry area
- Slide out fan trays
- 20-80 kVA

- X-Slot communication bays
- Top cable entry area
- Replaceable converter/inverter modules
- Redundant power supplies
- Slide out fan trays
- Input/output connections
- Modular static switch assembly
- DC connections
- Bottom cable entry area
- 100-160 kVA
## TECHNICAL SPECIFICATIONS

### EATON 9390 UPS

#### UPS Rating (0.9 power factor)

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<th>kVA</th>
<th>20</th>
<th>30</th>
<th>40</th>
<th>50</th>
<th>60</th>
<th>80</th>
<th>100</th>
<th>120</th>
<th>160</th>
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<tbody>
<tr>
<td>kW</td>
<td>18</td>
<td>27</td>
<td>36</td>
<td>45</td>
<td>54</td>
<td>72</td>
<td>90</td>
<td>108</td>
<td>144</td>
</tr>
</tbody>
</table>

#### General characteristics

- **Efficiency**: Up to 94% >99% with Energy Saver System
- **Parallel capability**: Four modules with tie cabinet
- **Audible noise**: <65 dBA @ 1 meter
- **Altitude (max)**: 2000m at 40ºC , 104ºF

#### Input characteristics

- **Voltage**: 208, 380, 400, 415, 480, 600V
- **Voltage range**: +10% / -15%
- **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 protection**: Yes
- **Broadcast global support**: Yes

#### Output characteristics

- **Voltage**: 208V, 380V, 400V, 415V, 480V, 600V
- **Regulation**: ±1%
- **Inverter**: PWM with IGBT switching
- **Voltage THD**: <2% (100% linear load); <5% (non-linear load)
- **Load power factor range**: Down to 0.9pf leading without de-rating
- **Heat dissipation (BTU/Hr x 1000/Hr)**
  - 80 kVA, 208V: 23.6
  - 160 kVA, 208V: 47.3
  - 80 kVA, 380-480V: 21.9
  - 160 kVA, 380-480V: 43.8

#### Battery

- **Battery types**: VRLA, AGM, Gel, Wet, Eaton batteries also available
- **Battery voltage**: 384-480V
- **Temperature compensation**: Optional
- **Charging method**: ABM Technology

### Dimensions and weights

<table>
<thead>
<tr>
<th>UPS Capacity</th>
<th>Height x Width x Depth</th>
<th>Weight (208V)</th>
<th>Weight (480V)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20-80 kVA</td>
<td>HxWxD: 73.7 x 31.6 in./1872 x 803 mm</td>
<td>208 lb./290 kg</td>
<td>568 lb./258 kg</td>
</tr>
<tr>
<td>100-160 kVA</td>
<td>HxWxD: 73.7 x 31.6 in./1872 x 904 mm</td>
<td>640 lb./290 kg</td>
<td>568 lb./258 kg</td>
</tr>
</tbody>
</table>

### Serviceability

- **Back/side against wall installation**: Standard

### Certification

- **Safety**: UL1778, cUL
- **EMC**: IEC62040-2  EN50091 Class A (restricted access)
- **Surge**: ANSI C62, 41 Cat, A&B

### Optional accessories

- Module tie cabinet
- External maintenance bypass
- Integrated distribution cabinet
- Isolation transformer

### eNotify Remote Monitoring service option

- 24x7 remote monitoring of UPS and battery alarms, daily heartbeat check and monthly report required.

### Communication options

- **Software compatibility**: Intelligent Power Manager, FORESEER, Power Xpert
- **Communications cards**: Two communications bays standard. Four communication bays included.

The following connectivity options can be installed at any time:

- 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)
- Power Xpert cards

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

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1. Due to continuing improvements, specifications are subject to change without notice.
2. 600V applications 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.

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