Product brochure

The Power Xpert 9395P High Performance UPS

200–1200 kW/kVA

Industry-leading efficiency, more power, lower total cost of ownership

EATON
Powering Business Worldwide

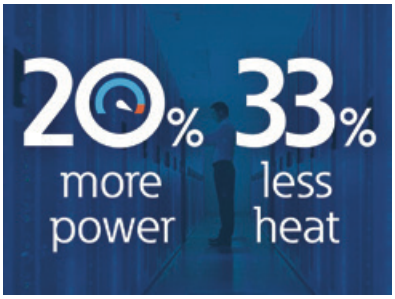
GOLD THE GOLDEN BRIDGE AWARDS BEST 2016 BUSINESS WORLD

An Eaton Green Solution

Building on excellence

Power Xpert 9395P High Performance UPS

In 2007, Eaton launched the Power Xpert™ 9395 UPS, setting the standard in transformer-free power protection technology. The new Power Xpert 9395P High Performance model offers enhanced benefits through proven technologies and advanced features. You can expect even better performance with a lower overall cost and proven high reliability.



9395P High Performance model

Key features

- Low total-cost-of-ownership (TCO) through industry-leading efficiency: 99 percent in Energy Saver System (ESS) and up to 97 percent in double- conversion
- Less stress on key components, greatly extending their life through the implementation of a three-level converter design
- Capacity can flex to meet data center growth by adding an additional UPM in the field
- Significantly reduces HVAC and operating costs by producing 33 percent less heat
- Up to 20 percent more power in the same footprint as the flagship 9395 UPS (250 kW to 300 kW power module) that powers up to 20 percent more IT racks
- Modular design allows for inherent redundancy, a critical feature that prevents dropped loads

Key applications

- Enterprise data centers
- Colocation facilities
- Server farms
- Telecommunication installations
- Internet service providers
- Transportation systems
- Security operations
- Broadcasting and entertainment
- Process control equipment
- Financial systems
- Healthcare
- Industrial systems
- Multiple medical imaging units

How is higher efficiency achieved?

The new 9395P High Performance UPS uses a three-level converter topology, which reduces energy losses and allows higher power efficiency. This design operates components at less than half the stress of a conventional converter. Additionally, other components are smaller and more efficient than conventional technology.

As a result, you can receive:

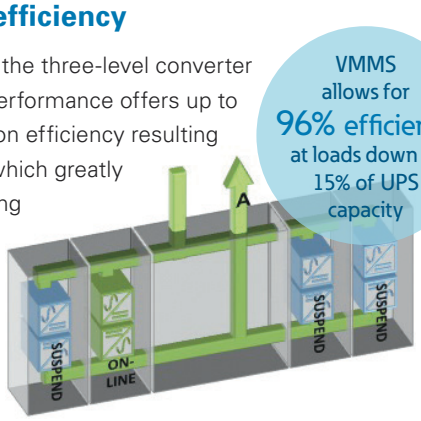
- Greater light-load efficiency
- Smaller, lighter and quieter circuitry
- Lower heat levels
- Quieter fans
- Less stress on each component
- Additional control of the output waveform that is sent to the critical loads

Lower TCO

Industry-leading efficiency significantly reduces operational costs

Double-conversion efficiency

With the implementation of the three-level converter topology, the 9395P High Performance offers up to 97 percent double-conversion efficiency resulting in >33 percent less heat—which greatly reduces operating and cooling costs. Replacing an older generation UPS with a 9395P High Performance UPS allows you to pay back the price of the UPS in 2–3 years.



Variable Module Management System (VMMS)

VMMS operating mode allows you to load fewer UPS modules more heavily than several ones lightly for optimum energy-efficiency. The unneeded modules are suspended but not idle. If an issue causes load requirements to change suddenly, the UPS automatically and immediately activates the suspended modules. The end results are 2–3 percent greater efficiency and lower mechanical stress, while retaining double-conversion operation.

ESS:

Eaton's ESS mode of operation allows the 9395P High Performance to provide 99 percent efficiency across the entire operating range, typically down to 20 percent. For UPSs that are often under-loaded because of redundancy requirements or oversizing, TCO is reduced no matter how much of the data center is being used.

ESS: how is it different than eco modes?

Fastest transfer times:

- ESS offers < 2ms transition times during an outage condition vs. up to 12ms in eco modes

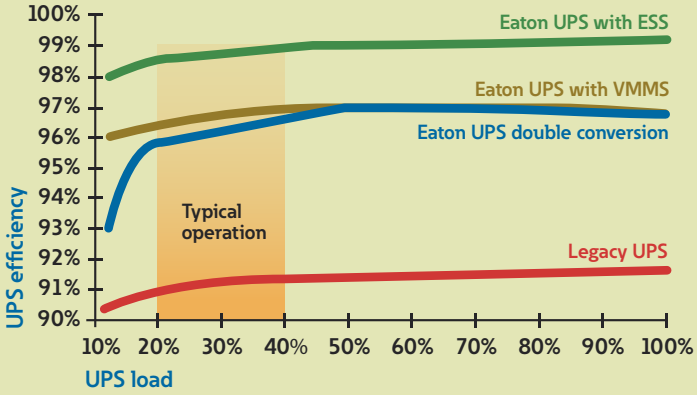
Inherent surge protection:

- Transformer-free ESS topology offers non-degenerative filtering for lightning strikes

Load fault detection and clearing:

- ESS determines if the fault is at the source or load. For load faults, the UPS maximizes its fault-clearing current by turning on the inverter and leaving the source engaged with the critical load, providing the maximum fault-clearing current

UPS efficiencies



Efficiency generally dips as load levels decrease. However, ESS technology operates at 99 percent efficiency even at low-load levels, providing you with real energy savings.

"ESS is a great system, and it's one of the main reasons we decided to go with this solution. If we are going to keep these units for 10-plus years, a few percentage points in efficiency really add up . . . [They] allow me to be more competitive in terms of being able to sell colocation."

— Benny Ng, director of infrastructure, Hurricane Electric

How often is ESS used?

The year ESS became available **2009**

Amount of UPS capacity in kVA using ESS mode **688,000 kVA**

Energy saved every day **>312,000 kWh**

Number of UPS units operating in ESS mode **>1,200**

Resulting overall availability of UPS units in ESS mode **>99.999%**

Overall reduced CO_2 emissions **121,903,819 kg**

Number of sites using ESS **>233**

Total time of ESS operation **>31 million hours**

Overall energy saved by units **274 GWh**

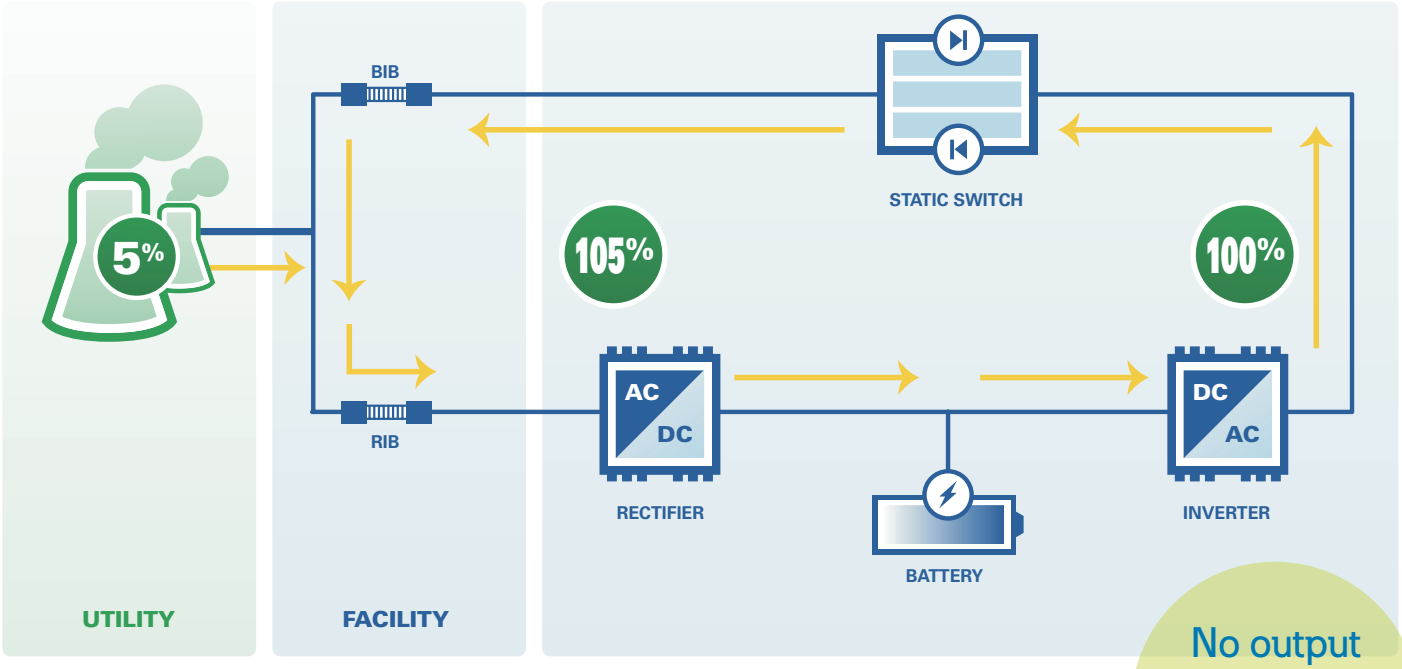
Eaton.com/ESS

Easy Capacity Test (ECT)

Eaton's ECT allows you to perform a full-load test and full-battery discharge test without the connection of a load bank. The 9395P High Performance is programmed to process power in a recirculating pattern, using its own rectifiers and inverters as an internal load bank. This unique method of load testing when commissioning or servicing a UPS generates significant cost, time, coordination and power savings.

ECT TESTING OF

= SAVINGS OF 1 UPS PURCHASE PRICE



Eaton's ECT feature recirculates energy from the UPS for testing, so there's no need to spend money renting load banks, or time and energy wasted on temporary load connections.

No output connection or load bank needed

Minimized installation expense and cabling requirements

In an integrated system like the 9395P High Performance, multi-module systems arrive pre-wired without the need to perform costly and time-consuming inter-unit cabling for power and communications between modules and the system bypass unit. In addition, its three-wire design reduces installation costs.

More power in the same footprint

The 9395P High Performance model provides greater power density with a 300 kW power modules. With 20 percent more power in the same footprint as the flagship 9395, the resulting 50 kW power benefit allows you to power an additional 100 servers, resulting in upwards of $120,000 additional revenue per month*.

*Quantified by estimating monthly revenue of $1200 per server.

Reliability

Inherent redundancy

UPSs are often underloaded—frequently at less than 50 percent. To create even greater reliability, the 9395P High Performance model allows for an inherent, or built-in redundancy that's automatically redundant when the load is below 50–75 percent capacity.

Inherent redundancy allows you to add redundancy without adding costly equipment like a second UPS, battery cabinets, a tie cabinet and maintenance contract.

Scalability: pay as you grow

The modular design of the 9395P High Performance allows UPS capacity to increase any time, simply by adding an additional power module to the existing UPS. The number of modules can be specified, so capacity matches the data center's growth. N+1 redundancy is then maintained as growth occurs, or capacity is added in 300 kW if needed.

UPM for redundancy or capacity

Inherent redundancy: When at or below 50 percent capacity, the 9395P High Performance's uninterruptible power modules (UPMs) automatically act as N+1 redundant systems

Scalable: Add another 300 kW UPM in the field for redundancy or capacity

900 kVA/kW N+1 or 1200 kVA/kW capacity

Hot Sync technology

Hot Sync is a patented algorithm for parallel operation of static converters without communication or load-share signals. This technology has been field-tested and installed in thousands of installations worldwide.

Hot Sync also enables multi-module configurations to operate in parallel without the need for inter-module communications, eliminating the system-level single point of failure inherent in traditional parallel configurations to maximize availability.

ABM technology

Batteries are the most critical component for UPS reliability. ABM® provides early detection of problem batteries, protecting them from unnecessary failures, while extending the useful life of this key component.

ABM technology allows you to:

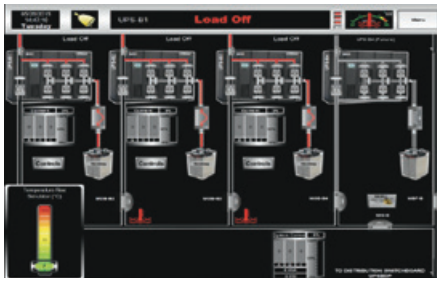
- Extend battery service life
- Monitor battery health and remaining lifetime
- Receive advance notification for preventive maintenance

Added value through flexibility and customization

Human Machine Interface (HMI) designs

HMI designs allow you to customize displays unique to your site layout, includes remote controls, color-coded status of the power system's critical components, and real-time metering displays.

The touch-sensitive SBM display shows a graphical view of a large parallel system with intuitive controls and quick access to key information like battery time remaining and event/alarm history.



Eaton provides a fully automated SCADA solution that monitors equipment for failures of switchgear bus, cable terminations/joints, bus duct and transformers. This specific system uses IR SCADA monitoring to provide 7x24 continuous monitoring of equipment health as well as predictive failures of buss connections.

Eaton also offers a flexible system interface configuration (10 inches to more than 40 inches). This LCD monitor is a full representation of the one-line with metering, status, upstream and downstream distribution, and even weather reporting which can control the UPS.

Prefabricated solutions

Eaton's prefabricated solutions are fully designed and integrated systems that arrive system-tested and require minimal assembly. Each configuration provides low TCO, are customizable to meet most technical requirements and deploy quickly so units can be added to support growth.

Prefabricated configurations

1 Connected

- UPS and switchgear with up to four connected UPS modules per system
- Up to 5000 amps
- Fully customizable
- Used in gray space of traditionally constructed buildings and in custom containers

2 Centralized

- UPS, batteries and switchboard on a skid
- Up to 600 kVA
- Used in gray space of traditionally constructed buildings and warehouse environments

3 Contained

- UPS, batteries, switchgear, HVAC units, fire and safety equipment and a container for it all
- 900 and 1200 kVA
- Used in warehouse environments, disaster situations, outdoors and more—a data center critical power system in a box

Unparalleled flexibility for parallel UPSs

The 9395P High Performance preferred bypass topology is specified as centralized or distributed bypass. Eaton's System Bypass Module (SBM) supports centralized multi-module paralleled systems. The switchgear enclosure encompasses a centralized static switch, either momentary or continuous-duty rating, along with system-level circuit breakers for bypass, UPS system output, feedback protection and maintenance, or wraparound bypass functions.

Sync control technology ensures the output of two or more separate UPSs, single modules or parallel systems, remain in phase with one another so static transfer switches connected between the separate distribution parts may change state seamlessly when necessary.

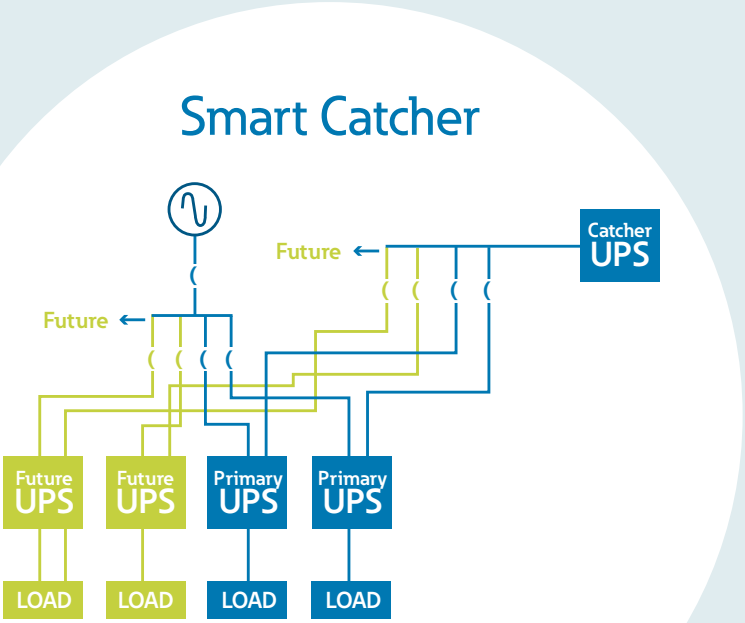
Eaton's Static Auto Tie (SAT) system enhances reliability even further so full-load transfers can be made autonomously. The SAT system adds a single wraparound static switch to the tie breaker in the hot-tie system, then adds intelligent controls so a power protection system made up of two or more separate UPS systems can automatically transfer entire loads in the event of failure. This eliminates the need for numerous downstream static switches and costly wiring.

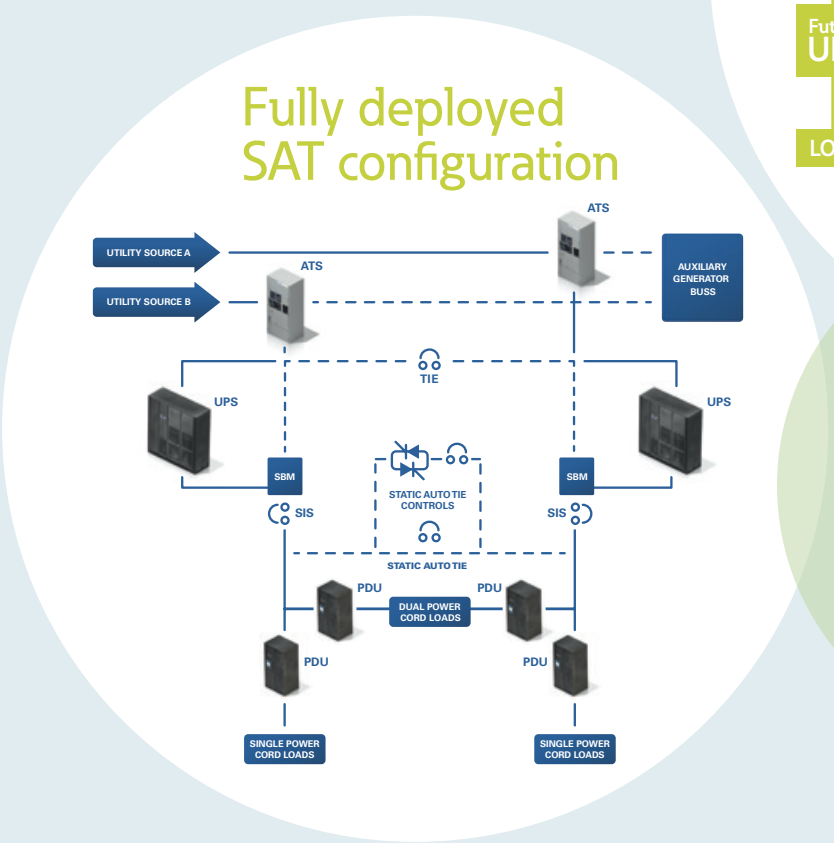
Smart Catcher design

Eaton's Smart Catcher system offers redundancy without the costs of a 2N system. The design includes an unloaded UPS in reserve that feeds the bypass of a primary UPS or series of UPSs. The system determines if there are multiple faults on the UPS and detects and reacts to ensure the catcher system does not overload.

Benefits of Smart Catcher:

- Provides the cost benefit of a traditional catcher system but with better intelligence and automation, thus improving reliability
- While a traditional catcher has a fixed ratio of primary UPS to support UPS (catcher) not exceeding 3:1, Eaton's control system allows catchers to achieve ratios in excess of 10:1 and work with an unlike sized primary UPS





What is the benefit of eliminating downstream static swtiches:

- Higher reliability because the system is easier to maintain and operate
- Lower cost of building data center by removing unneeded equipment

Ease of management

The color touchscreen allows you to capture real-time data on efficiency, consumption and load changes.

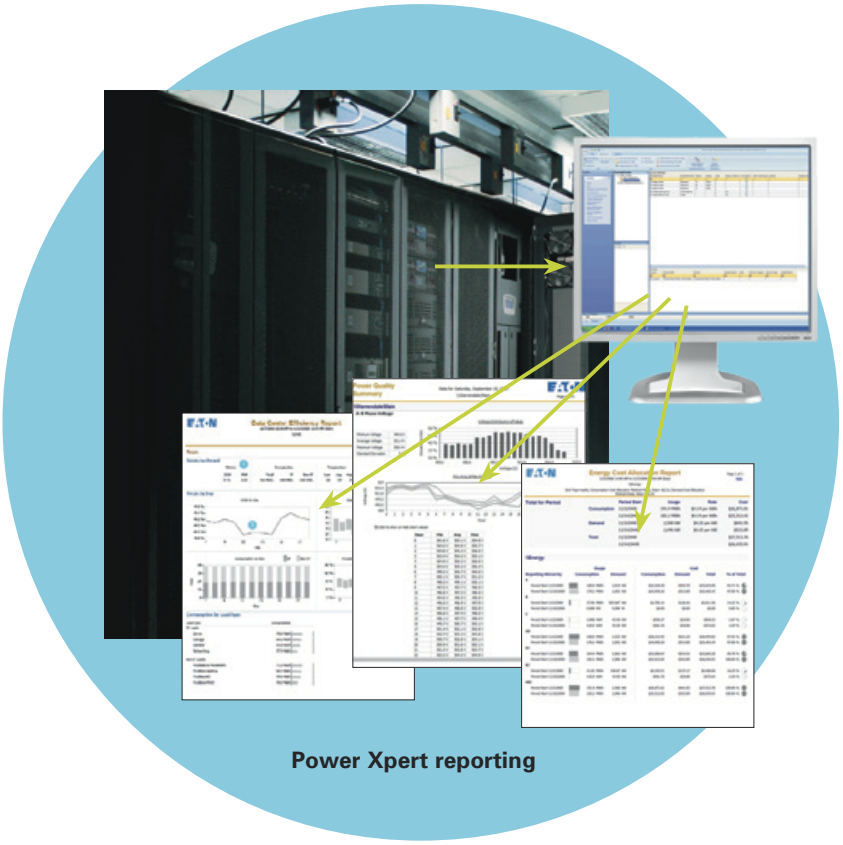
Touchscreen features and benefits:

- View efficiency, load level, and daily energy use at-a-glance
- Spot trends using the daily, monthly and yearly load-profiling screens
- Monitor battery usage in the battery log
- Track time in ESS and VMMS high-efficiency modes using the statistics screen

The Power Xpert® Gateway UPS card allows you to connect your 9395P High Performance directly to your Ethernet network and the Internet. With its built-in Web server, it provides information on one or more UPS modules remotely, without additional software.

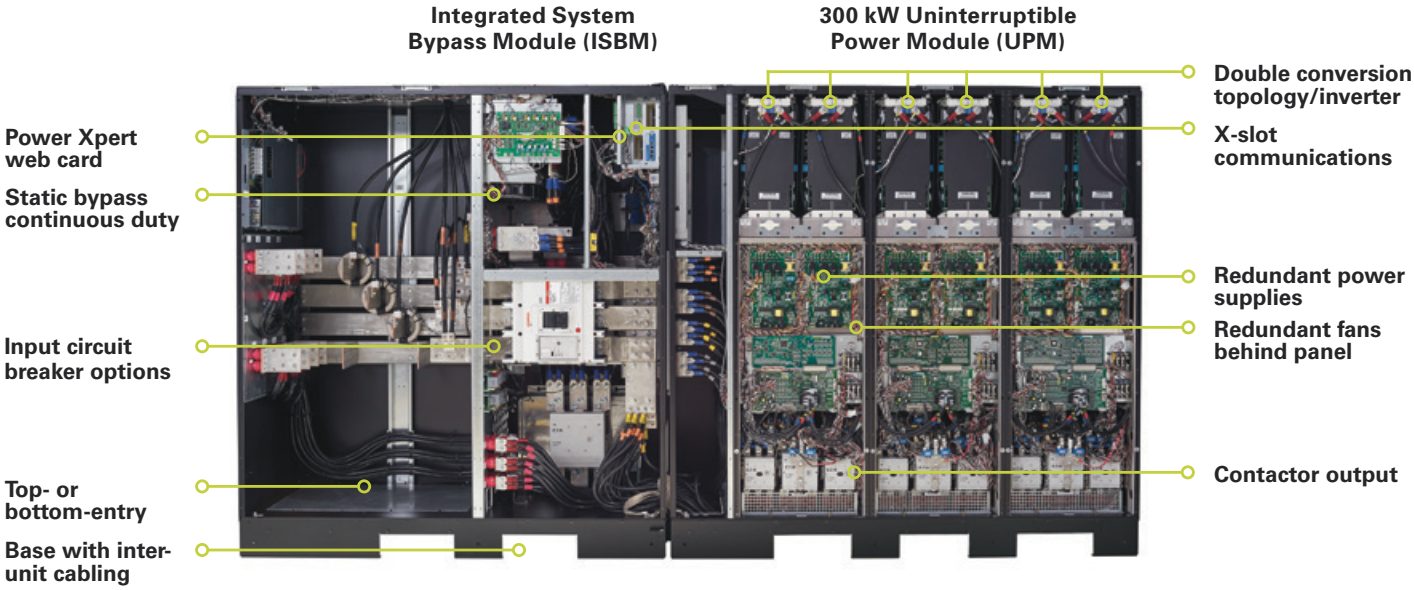
Power Xpert reporting takes your UPS, data center and site monitoring to the next level and allows you to see past individual measurements, trend graphs and events. It also analyzes the complex data from multiple sites and boils it down into easy-to-understand graphical reports.

PXGX card



Power Xpert reporting

Inside the Power Xpert 9395P High Performance UPS



Service and support

Eaton recognizes that superior power reliability requires flawless execution from our service team.

Included at no extra charge with every 9395P High Performance model is:

- 24x7x365 startup service and customer training
- One-year limited factory warranty
- Service protection plan 24x7 coverage, eight-hour response (upgrade to four- or two-hour where available), parts and labor, unlimited onsite emergency response support
- **PredictPulse™ remote monitoring and management service:** collects and analyzes data from connected power infrastructure devices, providing Eaton with the insight needed to make recommendations and take action on your behalf
- 24x7 technical support access

Why choose Eaton?

- Our technicians are factory-trained on advanced troubleshooting, calibration and configuration technologies
- We're committed to safety and follow all OSHA and NFPA guidelines
- We have detailed procedures and protocols using up-to-date documentation
- You always get a comprehensive report detailing test results and recommended corrective actions

The Power Xpert 9395P High Performance is easy to service with 100 percent of the components accessible from the front and an inverter section that only requires releasing two cables and twisting the lever to release.

When you're on-the-go, the PredictPulse mobile app keeps you connected to your devices by providing an overview of open alarms.

"We've been very pleased with the support we receive whenever we call. Because we rely heavily on the unit, and since we don't have the onsite expertise or staff to maintain it, having a service plan gives us additional peace of mind to know that it is being well maintained."

— Dean Kokko,
Wager operations manager, TVG

"With [remote monitoring], any alert immediately goes to our Network Operations Center, as well as to the people that we would turn around and call anyway. With Eaton, the technician is in the truck and on the road before they even hear from us—and that's a big deal."

— Kevin Dohrmann,
Chief technology officer, CoSentry

Technical specifications[2]

UPS rating (unity power factor 1.0)

kVA	200	250	275	300	400	500	550	600	675	750	825	900	1000	1100	1200
kW	200	250	275	300	400	500	550	600	675	750	825	900	1000	1100	1200

General characteristics

Efficiency	99% with Energy Saver System (Up to 97% (480V) and 96% (600V and 400V) in double-conversion)
Parallel capability	4 UPS units maximum for distributed bypass and 8 UPS units maximum with SBM
Max modules per size	Up to 2 modules 300 kW Up to 3 modules 600 kW Up to 4 modules 900/1200 kW
Audible noise	As low as 75dBA @ 1 meter*
Altitude (max)	1000m at 40 degree C (104 degree F) 1000m at 35 degree C (95 degree F) when UPM capacity is above 275 kW
N+1 redundancy capable	Yes
Field upgradeable	Yes
System bypass module	Included

Input characteristics

Voltage	480V standard; 600/575V and 400/415V optional
Voltage range	+10% / -15%
Frequency range	45–65 Hz
Power factor	0.99 (minimum)
Input current distortion	<3% (no input filter required)
Soft start capability	Yes
Internal backfeed protection	Yes

Output characteristics

Voltage	480V standard; 600/575V and 400/415V optional
Regulation	±1%
Inverter	PWM with IGBT switching
Voltage THD	<2% (100% linear load); <5% (non-linear load)
Load power factor range	Up to a .9 power factor leading without derating
Overload	110% for 10 minutes, 125% for 2 minutes, 150% for 15 seconds

Battery

Battery types	VRLA, AGM, wet cell, lithium-ion
Battery voltage	480V
Temperature compensation	Optional
Charging method	ABM technology or float, selectable

Dimensions and weights (480V and 400V** system)		480V	400V
200, 250, 275, 300 kW	52.5"w x 34.4"d x 74"h	2,150 lb (975 kg)	1,886 lb (857 kg)
200-300 kW +1 redundant	73.8"w x 34.4"d x 74"h	3,184 lb (1,447 kg)	N/A
Field upgrade module, 300 kW	29"w x 34.4"d x 74"h	1,037 lb (470 kg)	1,047 lb (475 kg)
400, 500, 550, 600 kW	73.8"w x 34.4"d x 74"h	3,184 lb (1,447 kg)	N/A
400-600 kW +1 redundant	103"w x 34.4"d x 74"h	4,221 lb (1,918 kg)	N/A
675, 750, 825, 900 kW	141"w x 34.4"d x 74"h	5,236 lb (2,375 kg)	5,236 lb (2,375 kg)
675, 750, 825, 900 kW +1 redundant	170.1"w x 34.4"d x 74"h	6,523 lb (2,959 kg)	N/A
1000, 1100, 1200 kW	170.1"w x 34.4"d x 74"h	6,523 lb (2,959 kg)	6,620 lb (3,003 kg)

Dimensions and weights (575/600V system)**

200, 225, 250, 275 kW/kVA	102.9"w x 34.4" d x 74"h	4,354 lb (1975 kg)
200–275 kW/kVA +1 redundant	126.2"w x 34.4" d x 74"h	5,683 lb (2578 kg)
300 kW/kVA	126.2"w x 34.4" d x 74"h	5,683 lb (2578 kg)
400, 450, 500, 550 kW/kVA	126.2"w x 34.4" d x 74"h	5,683 lb (2578 kg)
400–550 kW/kVA +1 redundant	155.2"w x 34.4" d x 74"h	6,722 lb (3049 kg)
675, 750, 825 kW/kVA	155.2"w x 34.4" d x 74"h	6,722 lb (3049 kg)
675, 750, 825 kW/kVA +1 redundent	195"w x 34.4" d x 74"h	10,050 lb (4559 kg)
1000, 1100 kW/kVA	224"w x 34.4" d x 74"h	11,550 lb (5239 kg)
Field upgrade module, 275 kW	29"w x 34.4"d x 74"h	1,037 lb (470 kg)

**Assumes operation in nominal voltage, no battery charging on <60% load*

General characteristics

Control panel (LCD)	Color touchscreen
Battery startup	Standard
Frequency conversion	Standard
Multi-language	Standard
Building alarm inputs	5 (galvanic isolated)

Options

External maintenance bypass
PDU, RPP and STS
Maintenance bypass module, matching cabinet, 2/3/4 breaker
Human Machine Interface (HMI) designs for monitoring of connected equipment
DC disconnects
100 kAIC input breakers

Certifications

Safety	UL1778, cUL
EMC	IEC 62040-2,C3 limits

PredictPulse remote monitoring and management service

PredictPulse is the industry's first cloud-based 24x7 remote monitoring and predictive analytics subscription service to forecast data center power component failure and proactively replace components before failure. PredictPulse is included with the 9395P High Performance UPS for the first year at no-charge along with a PXGX-UPS card and Environmental Monitoring Probe (customer self-installs via outbound email server or optional 4G/LTE wireless modem).

Communications

Software compatibility: Power Xpert

Communications cards: Four communication bays standard. The following connectivity options can be installed at any time:
– PXGX-UPS card (included with PredictPulse activation)
– ModBus RTU card
– AS/400 Relay card
– Industrial Relay card
– HotSync CAN Bridge card
– Environmental Monitoring Probe (included)
– BACnet IP communication protocol supported

Remote inputs/outputs: Five building alarm inputs and one summary alarm contact (5A @ 120V) standard

Remote monitor panel: Eight backlit status indicator lamps plus an audible horn

1. Due to continuing improvements, specifications are subject to change without notice.
2. Please refer to 9395 technical documents for specific configuration guidelines and features.

***600V and 400V are 275 kW UPM max capacity*

Pulse Supply
909 Ridgebrook Road.,Sparks,Maryland 21152,USA
TEL : +1-410-583-1701 FAX : +1-410-583-1704
E-mail: sales@pulsesupply.com
https://www.pulsesupply.com/eaton

Powering Business Worldwide

Printed in USA
BR153058EN / GG
June 2019

Follow us on social media to get the latest product and support information.